

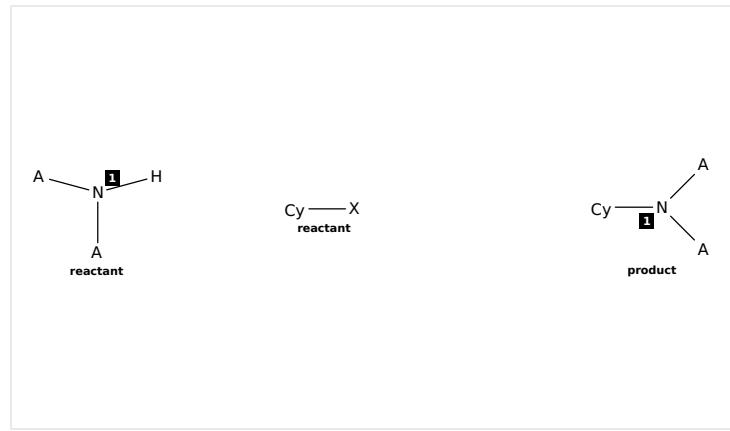
## Initiating Search

August 14, 2025, 11:17 AM

## • Search:

Filtered By:

Yield:	90-100%, 80-89%, 70-79%
Reaction	Mapping Data Available
Mapping:	Palladium diacetate,
Catalyst:	Tris(dibenzylideneacetone)dipalladium, Palladium, tris[ $\mu$ -[(1,2- $\eta$ :4,5- $\eta$ )-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8H-acenaphth[1,2-d]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa N^{\beta}$ )-1-naphthalenyl- $\kappa C$ ]-, (SP-4-4)-, Bis(tri-tert-butylphosphine)palladium, Palladium, Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (SP-4-2)-, Stereoisomer of [(4 S,5 S)-1,3-bis[2,6-bis(1-methylethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3- $\eta$ )-1-phenyl-2-propen-1-yl]palladium
Document Type:	Journal
Publication Year:	2023 to 2024



Structure Match: Substructure

## Search Tasks

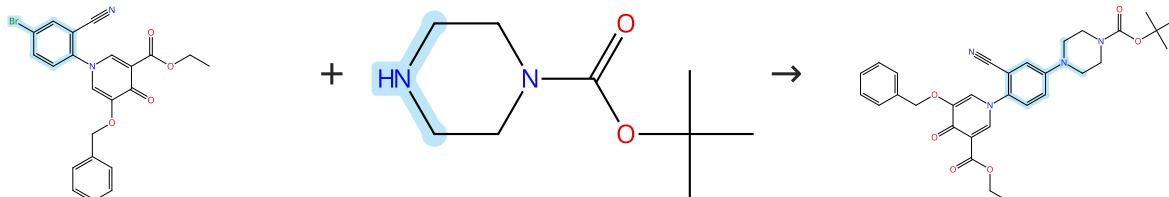
Task	Result Type	View
Exported: Returned Reaction Results + Filters (1,278)	Reactions	<a href="#">View Results</a>



## Reactions (500)

[View in CAS SciFinder](#)

Scheme 1 (1 Reaction)


[Suppliers \(112\)](#)

31-614-CAS-41060573

Steps: 1 Yield: 100%

Fragment-Based Discovery of Novel MUS81 Inhibitors

1.1 Reagents: Cesium carbonate, BINAP

Catalysts: Palladium, tris[ $\mu$ -[(1,2- $\eta$ ;4,5- $\eta$ )-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1)

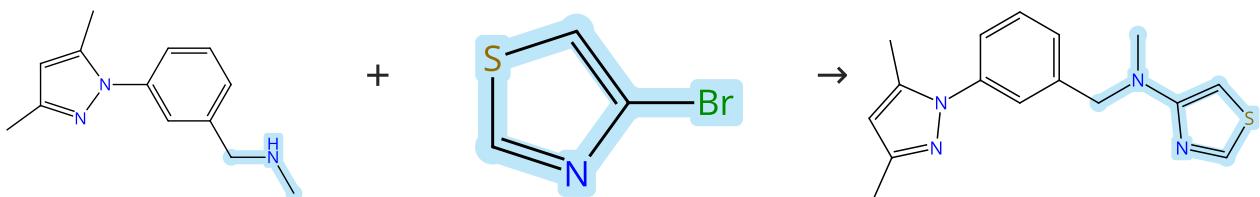
Solvents: 1,4-Dioxane; 10 h, 100 °C

By: Collie, Gavin W.; et al

ACS Medicinal Chemistry Letters (2024), 15(7), 1151-1158.

Experimental Protocols

Scheme 2 (1 Reaction)


[Suppliers \(35\)](#)
[Suppliers \(98\)](#)

31-614-CAS-35422570

Steps: 1 Yield: 100%

Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

1.1 Reagents: Sodium trimethylsilanolate

Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonylphenyl]-, (*SP*-4-2)-

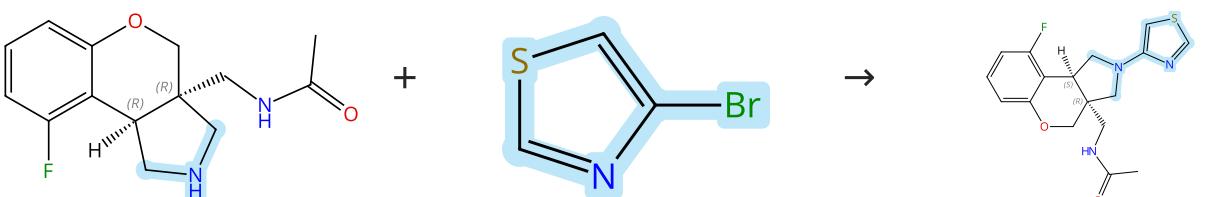
Solvents: Tetrahydrofuran; rt → 50 °C; 3 h, 50 °C

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Experimental Protocols

Scheme 3 (1 Reaction)



Relative stereochemistry shown

[Suppliers \(98\)](#)

Relative stereochemistry shown

31-614-CAS-35422568

Steps: 1 Yield: 100%

## 1.1 Reagents: Sodium trimethylsilanolate

**Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl], (*SP*-4-2)

**Solvents:** Tetrahydrofuran; rt  $\rightarrow$  50 °C; 3 h, 50 °C

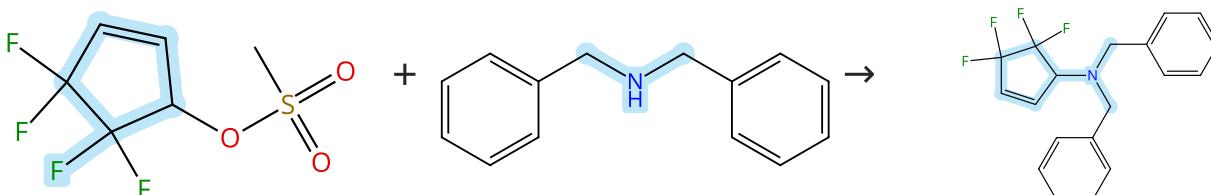
## Experimental Protocols

## Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteraryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

## Scheme 4 (1 Reaction)



Suppliers (89)

31-614-CAS-38853527

Steps: 1 Yield: 100%

1.1 Catalysts: Tri-*o*-tolylphosphine, Palladium, tris[ $\mu$ -[(1,2- $\eta$ :4,5- $\eta$ )-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1)

**Solvents:** Tetrahydrofuran; overnight, rt

## 1.2 Reagents: Ammonium chloride

**Solvents:** Water

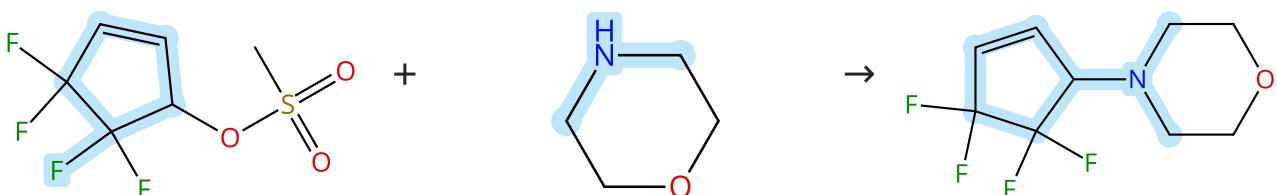
## Experimental Protocols

A first example of a palladium-catalyzed allylic substitution reaction at a perfluoroalkylene-attached asymmetric carbon center with carbon, nitrogen, and oxygen nucleophiles

By: Kawazoe, Machiko; et al

Journal of Fluorine Chemistry (2024), 273, 110234.

## Scheme 5 (1 Reaction)



Suppliers (83)

31-614-CAS-38853526

Steps: 1 Yield: 100%

1.1 Catalysts: Tri-*o*-tolylphosphine, Palladium, tris[ $\mu$ -[(1,2- $\eta$ :4,5- $\eta$ )-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1)

**Solvents:** Tetrahydrofuran; overnight, rt

## 1.2 Reagents: Ammonium chloride

**Solvents:** Water

## Experimental Protocols

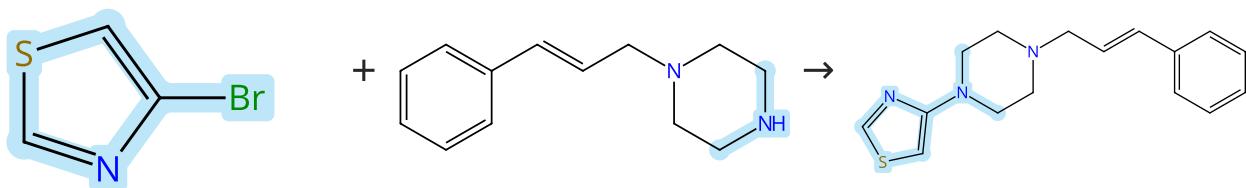
A first example of a palladium-catalyzed allylic substitution reaction at a perfluoroalkylene-attached asymmetric carbon center with carbon, nitrogen, and oxygen nucleophiles

By: Kawazoe, Machiko; et al

Journal of Fluorine Chemistry (2024), 273, 110234.

**Scheme 6 (1 Reaction)**

Steps: 1 Yield: 100%



Suppliers (98)

Suppliers (43)

31-614-CAS-35422551

Steps: 1 Yield: 100%

## 1.1 Reagents:

**Catalysts:** Sodium trimethylsilanolate  
**Reagents:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ [4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-

**Solvents:** Tetrahydrofuran; 3 h, 50 °C

## Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

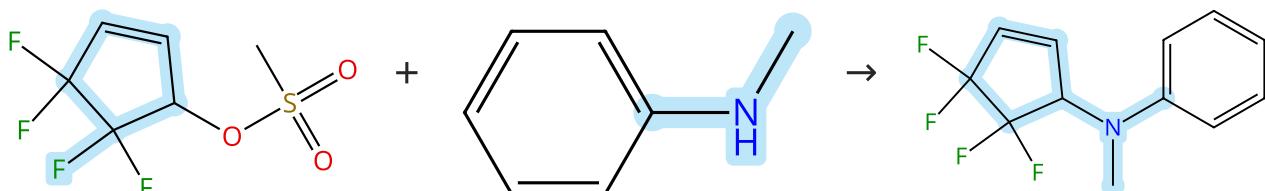
By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

## Experimental Protocols

**Scheme 7 (1 Reaction)**

Steps: 1 Yield: 100%



Suppliers (69)

31-614-CAS-38853529

Steps: 1 Yield: 100%

## 1.1 Catalysts:

Tri-*o*-tolylphosphine, Palladium, tris[ $\mu$ -[(1,2- $\eta$ :4,5- $\eta$ )-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1)

**Solvents:** Tetrahydrofuran; overnight, rt

## 1.2 Reagents:

Ammonium chloride

**Solvents:** Water

## A first example of a palladium-catalyzed allylic substitution reaction at a perfluoroalkylene-attached asymmetric carbon center with carbon, nitrogen, and oxygen nucleophiles

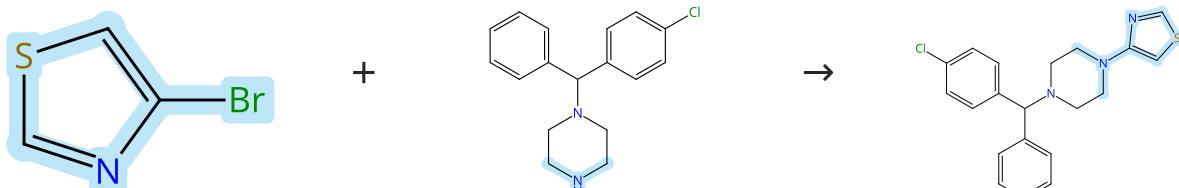
By: Kawazoe, Machiko; et al

Journal of Fluorine Chemistry (2024), 273, 110234.

## Experimental Protocols

**Scheme 8 (1 Reaction)**

Steps: 1 Yield: 100%



Suppliers (98)

Suppliers (102)

31-614-CAS-35422554

Steps: 1 Yield: 100%

## 1.1 Reagents: Sodium trimethylsilanolate

**Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)

**Solvents:** Tetrahydrofuran; 3 h, 50 °C

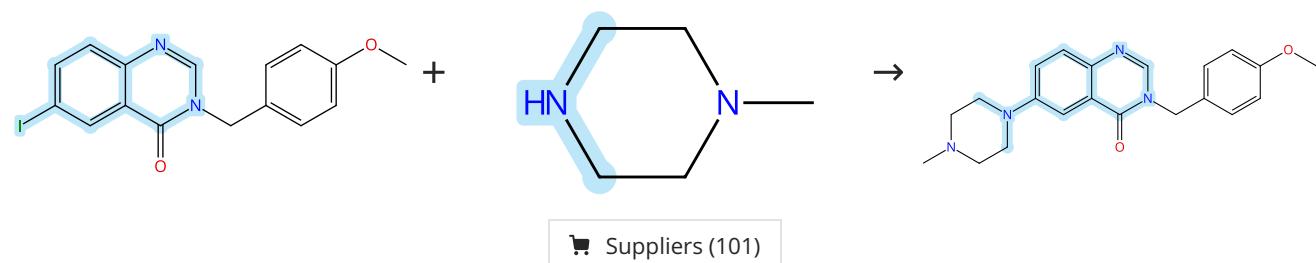
## Experimental Protocols

## Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Scheme 9 (1 Reaction)



31-614-CAS-38625320

Steps: 1 Yield: 100%

## 1.1 Reagents: Cesium carbonate

**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 1,1'-(9,9-Dimethyl-9H-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]

**Solvents:** 1,4-Dioxane; 24 h, rt → 90 °C

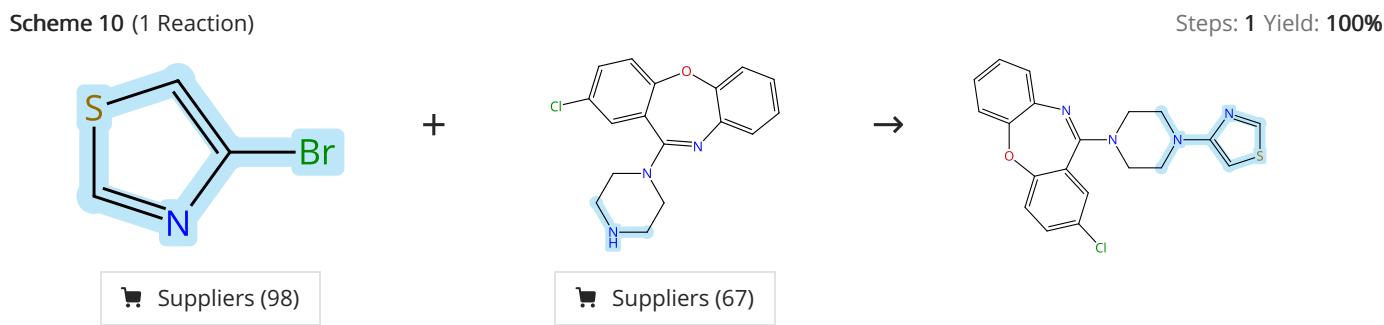
## Experimental Protocols

## Fragment-Based Screening Identifies New Quinazolinone-Based Inositol Hexakisphosphate Kinase (IP6K) Inhibitors

By: Heitmann, Tyler; et al

ACS Medicinal Chemistry Letters (2023), 14(12), 1760-1766.

Scheme 10 (1 Reaction)



31-614-CAS-35422543

Steps: 1 Yield: 100%

## 1.1 Reagents: Sodium trimethylsilanolate

**Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)

**Solvents:** Tetrahydrofuran; 3 h, 50 °C

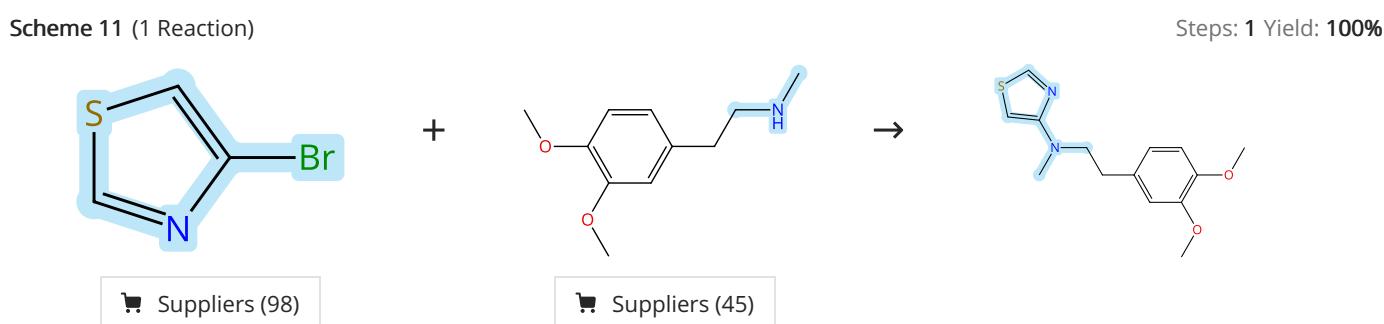
## Experimental Protocols

## Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Scheme 11 (1 Reaction)



31-614-CAS-35422541

Steps: 1 Yield: 100%

## 1.1 Reagents: Sodium trimethylsilanolate

**Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl], (*SP*-4-2)

**Solvents:** Tetrahydrofuran; 3 h, 50 °C

## Experimental Protocols

## Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteraryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Scheme 12 (1 Reaction)



31-614-CAS-35422566

Steps: 1 Yield: 100%

## 1.1 Reagents: Sodium trimethylsilanolate

**Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl], (*SP*-4-2)

**Solvents:** Tetrahydrofuran; rt → 90 °C; 3 h, 90 °C

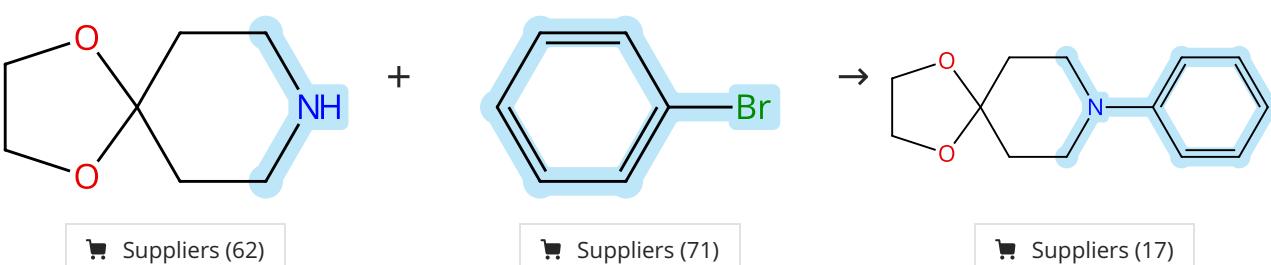
## Experimental Protocols

## Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteraryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Scheme 13 (1 Reaction)



31-614-CAS-41624313

Steps: 1 Yield: 100%

1.1 Reagents: Sodium *tert*-butoxide

**Catalysts:** Palladium, tris[ $\mu$ -[(1,2- $\eta$ :4,5- $\eta$ )-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl

**Solvents:** Toluene; 3 h, rt → reflux

## Experimental Protocols

## Discovery of DS-1093a: An oral hypoxia-inducible factor prolyl hydroxylase inhibitor for the treatment of renal anemia

By: Tanaka, Naoki; et al

Bioorganic &amp; Medicinal Chemistry Letters (2024), 111, 129891.

Scheme 14 (1 Reaction)



31-614-CAS-43750827

Steps: 1 Yield: 100%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: Toluene; 4 h, 105 °C

Experimental Protocols

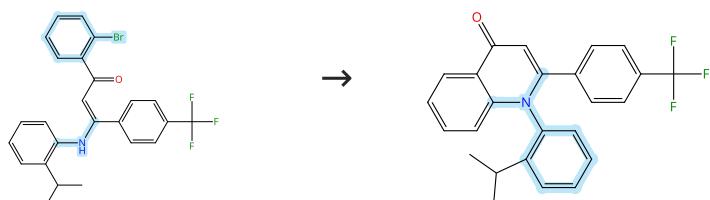
DDQ-catalyzed oxidative  $\alpha$ -allylation of isochromans under aerobic conditions

By: Lee, Sujin; et al

RSC Advances (2024), 14(53), 39645-39652.

## Scheme 15 (1 Reaction)

Steps: 1 Yield: 99%



31-614-CAS-36215347

Steps: 1 Yield: 99%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

Experimental Protocols

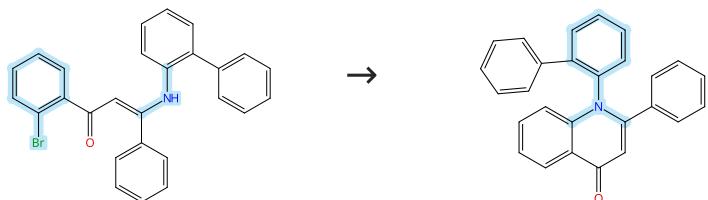
Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

## Scheme 16 (1 Reaction)

Steps: 1 Yield: 99%



31-614-CAS-36215350

Steps: 1 Yield: 99%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

Experimental Protocols

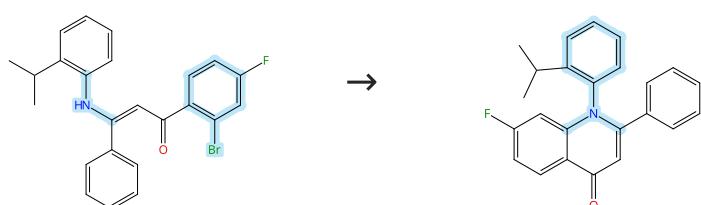
Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

## Scheme 17 (1 Reaction)

Steps: 1 Yield: 99%



31-614-CAS-36215340

Steps: 1 Yield: 99%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

Experimental Protocols

Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

**Scheme 18 (1 Reaction)**

Suppliers (50)

Double bond geometry shown

31-614-CAS-41194334

Steps: 1 Yield: 99%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium diacetate, X-Phos  
**Solvents:** Toluene; 24 h, 100 °C; 100 °C → rt
- 1.2 **Reagents:** Ammonium chloride  
**Solvents:** Water; rt

Experimental Protocols

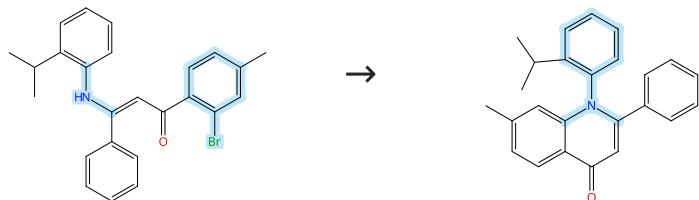
Chemo-, regio-, and stereoselective tetrafunctionalization of fluoroalkynes enables divergent synthesis of 5- 7-membered azacycles

By: Chen, Jia-Wei; et al

Chemical Science (2024), 15(30), 12026-12035.

**Scheme 19 (1 Reaction)**

Steps: 1 Yield: 99%



31-614-CAS-36215348

Steps: 1 Yield: 99%

- 1.1 **Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-  
**Solvents:** Toluene; 20 h, 80 °C

Experimental Protocols

Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions

By: Pu, Xiaoyun; et al

Advanced Synthesis & Catalysis (2023), 365(8), 1152-1157.

**Scheme 20 (1 Reaction)**

Steps: 1 Yield: 99%



31-614-CAS-36215343

Steps: 1 Yield: 99%

- 1.1 **Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-  
**Solvents:** Toluene; 20 h, 80 °C

Experimental Protocols

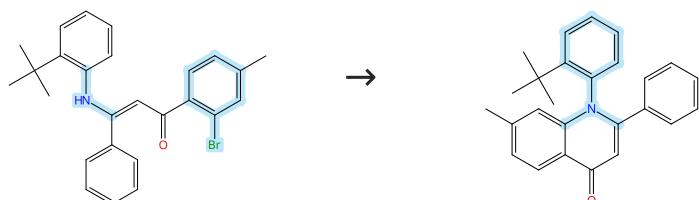
Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions

By: Pu, Xiaoyun; et al

Advanced Synthesis & Catalysis (2023), 365(8), 1152-1157.

**Scheme 21 (1 Reaction)**

Steps: 1 Yield: 99%



31-614-CAS-36215334

Steps: 1 Yield: 99%

## 1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

## Experimental Protocols

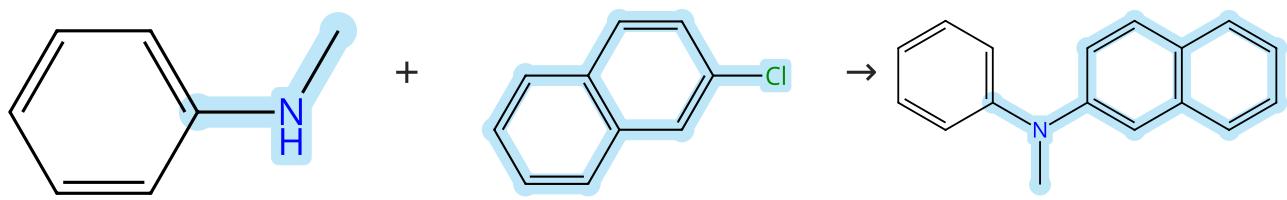
**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

**Scheme 22 (1 Reaction)**

Steps: 1 Yield: 99%



Suppliers (69)

Suppliers (72)

Suppliers (4)

31-614-CAS-42014408

Steps: 1 Yield: 99%

1.1 Catalysts: Palladium diacetate, 1*H*-Indole, 3-(dicyclohexylphosphino)-1-methyl-2-(2,3,4-trimethoxyphenyl)-

Solvents: Dichloromethane; rt

1.2 Reagents: Sodium *tert*-butoxide

Solvents: Toluene, Hexane; rt; 24 h, 110 °C; 110 °C → rt

## 1.3 Solvents: Water; rt

## Experimental Protocols

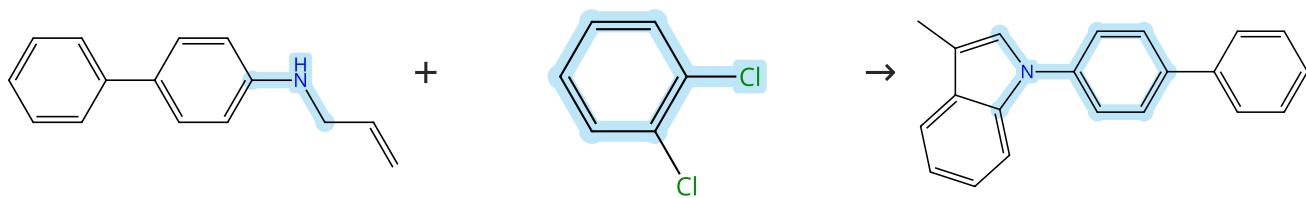
**Application of indole-based monophosphine in ppm level Pd-catalyzed C-N bond formation**

By: Li, Cheuk Long; et al

Journal of Organometallic Chemistry (2024), 1011, 123124.

**Scheme 23 (1 Reaction)**

Steps: 1 Yield: 99%



Suppliers (5)

Suppliers (123)

31-614-CAS-38969974

Steps: 1 Yield: 99%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl-*kN*<sup>3</sup>)-1-naphthalenyl-*kC*]-, (*SP*-4-4)-

Solvents: 1,4-Dioxane; 24 h, 100 °C

## Experimental Protocols

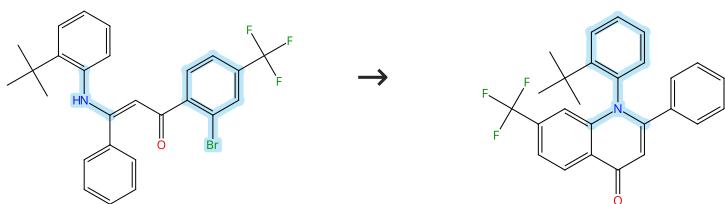
**A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle**

By: Fan, Ruojian; et al

Organic Letters (2024), 26(1), 22-28.

**Scheme 24 (1 Reaction)**

Steps: 1 Yield: 99%



31-614-CAS-36215335

Steps: 1 Yield: 99%

## 1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

## Experimental Protocols

**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

**Scheme 25 (1 Reaction)**

Steps: 1 Yield: 99%



31-614-CAS-36215357

Steps: 1 Yield: 99%

## 1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

## Experimental Protocols

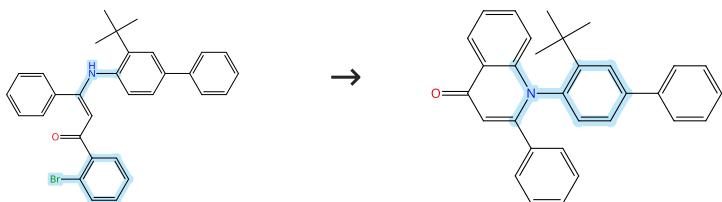
**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

**Scheme 26 (1 Reaction)**

Steps: 1 Yield: 99%



31-614-CAS-36215333

Steps: 1 Yield: 99%

## 1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

## Experimental Protocols

**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

**Scheme 27 (1 Reaction)**

Steps: 1 Yield: 99%



31-614-CAS-36215355

Steps: 1 Yield: 99%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

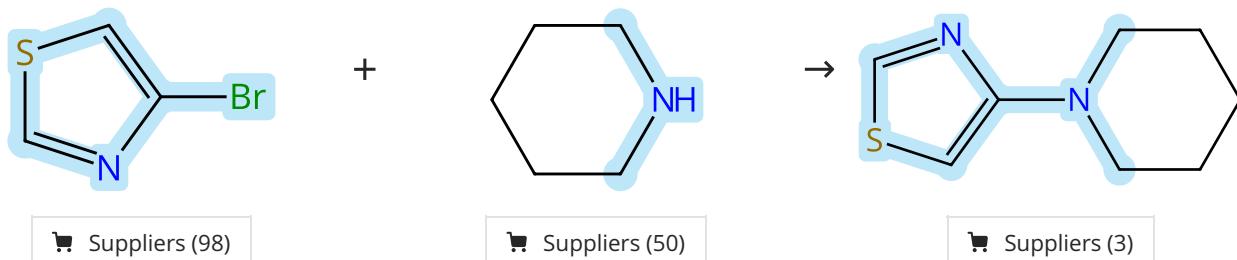
Experimental Protocols

Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

Scheme 28 (1 Reaction)



31-614-CAS-35422494

Steps: 1 Yield: 99%

1.1 Reagents: Sodium trimethylsilanolate

Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-

Solvents: Tetrahydrofuran; 3 h, 50 °C

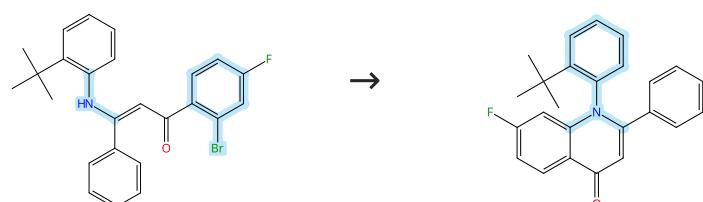
Experimental Protocols

Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Scheme 29 (1 Reaction)



31-614-CAS-36215341

Steps: 1 Yield: 99%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

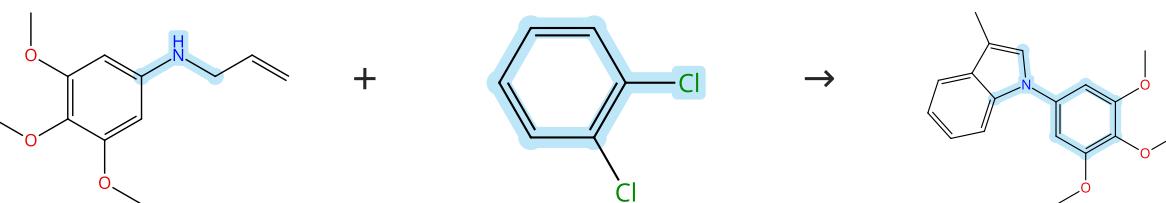
Experimental Protocols

Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

Scheme 30 (1 Reaction)



31-614-CAS-38969959

Steps: 1 Yield: 99%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa N^{\beta}$ )-1-naphthalenyl- $\kappa C$ ]-, (*SP*-4-4)-

Solvents: 1,4-Dioxane; 24 h, 100 °C

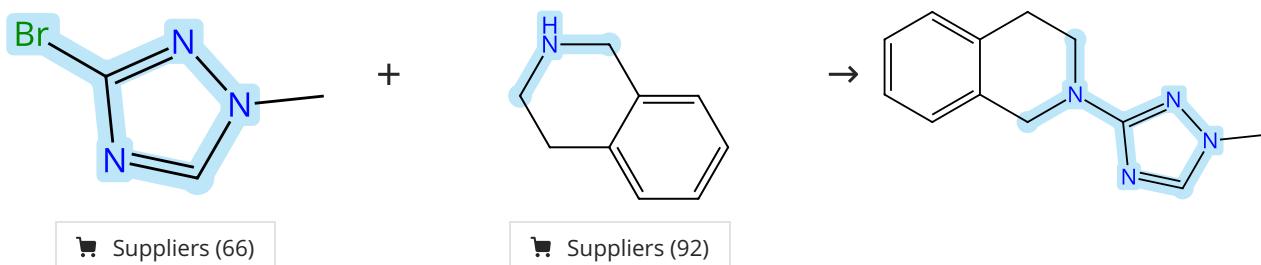
Experimental Protocols

A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

Scheme 31 (1 Reaction)



31-614-CAS-35422516

Steps: 1 Yield: 99%

1.1 Reagents: Sodium trimethylsilanolate

Solvents: Tetrahydrofuran; 5 min, rt

1.2 Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-

Solvents: Tetrahydrofuran; 3 h, 50 °C

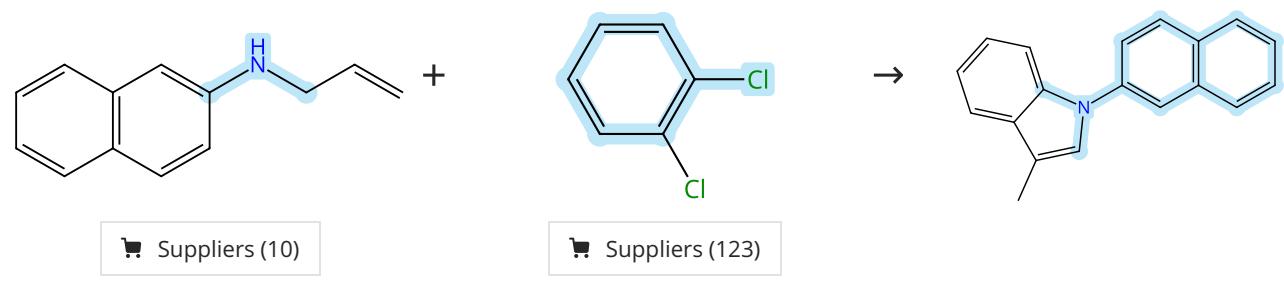
Experimental Protocols

Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Scheme 32 (1 Reaction)



31-614-CAS-38969973

Steps: 1 Yield: 99%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa N^{\beta}$ )-1-naphthalenyl- $\kappa C$ ]-, (*SP*-4-4)-

Solvents: 1,4-Dioxane; 24 h, 100 °C

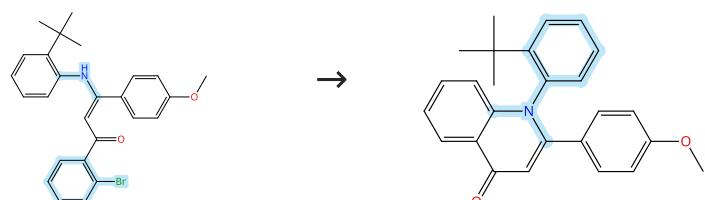
Experimental Protocols

A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

Scheme 33 (1 Reaction)



31-614-CAS-36215328

Steps: 1 Yield: 99%

**1.1 Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-  
**Solvents:** Toluene; 20 h, 80 °C

Experimental Protocols

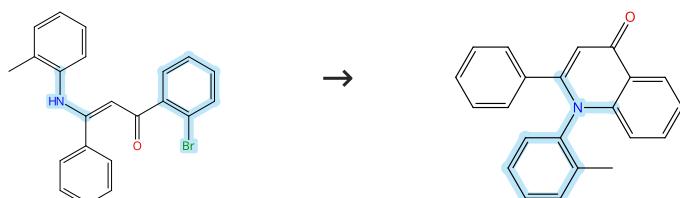
**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

**Scheme 34 (1 Reaction)**

Steps: 1 Yield: 99%



31-614-CAS-36215356

Steps: 1 Yield: 99%

**1.1 Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-  
**Solvents:** Toluene; 20 h, 80 °C

Experimental Protocols

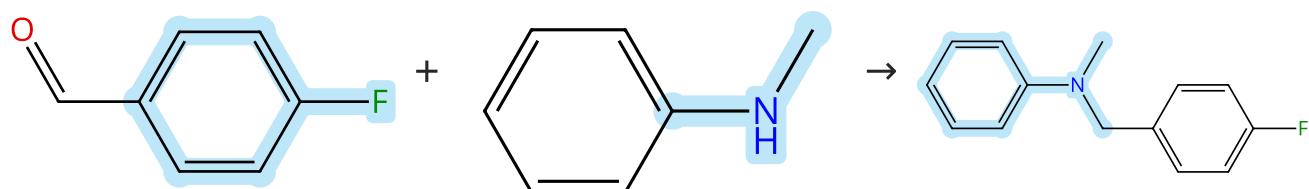
**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

**Scheme 35 (1 Reaction)**

Steps: 1 Yield: 99%



Suppliers (91)

Suppliers (69)

Suppliers (7)

31-614-CAS-38715686

Steps: 1 Yield: 99%

**1.1 Reagents:** Hydrogen  
**Catalysts:** Palladium, Chitosan  
**Solvents:** Toluene; 8 h, 3 MPa, rt → 120 °C

Experimental Protocols

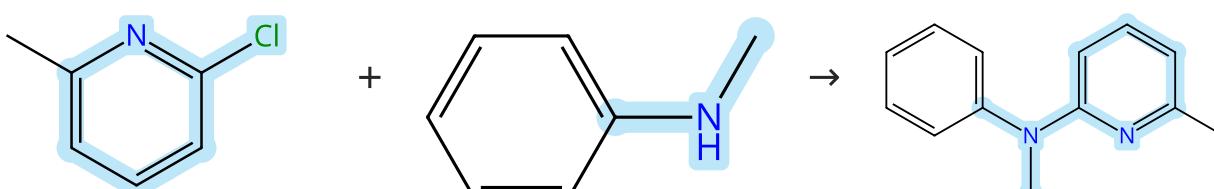
**Highly dispersed and stable Pd nano-catalyst loaded on chitosan nanoporous carbon microspheres for one-pot reductive amination of amines with aldehydes**

By: Yin, Xiaogang; et al

Applied Surface Science (2024), 648, 159047.

**Scheme 36 (1 Reaction)**

Steps: 1 Yield: 99%



Suppliers (99)

Suppliers (69)

Suppliers (3)

31-614-CAS-42014401

Steps: 1 Yield: 99%

**1.1 Catalysts:** Phenylboronic acid, Palladium diacetate, 1*H*-Indole, 3-(dicyclohexylphosphino)-1-methyl-2-(2,3,4-trimethoxyphenyl)-

**Solvents:** Dichloromethane; rt

**1.2 Reagents:** Sodium *tert*-butoxide  
**Solvents:** Toluene; rt; 24 h, 135 °C; 135 °C → rt

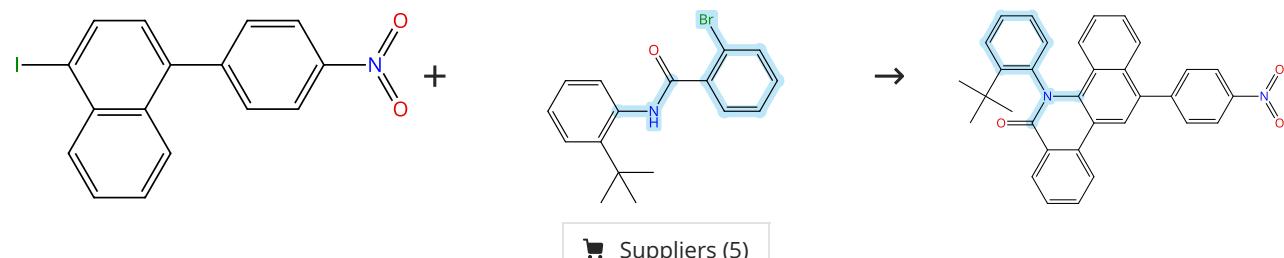
**1.3 Solvents:** Water; rt

Experimental Protocols

**Application of indole-based monophosphine in ppm level Pd-catalyzed C-N bond formation**

By: Li, Cheuk Long; et al

Journal of Organometallic Chemistry (2024), 1011, 123124.

**Scheme 37 (1 Reaction)**

31-614-CAS-41071018

Steps: 1 Yield: 99%

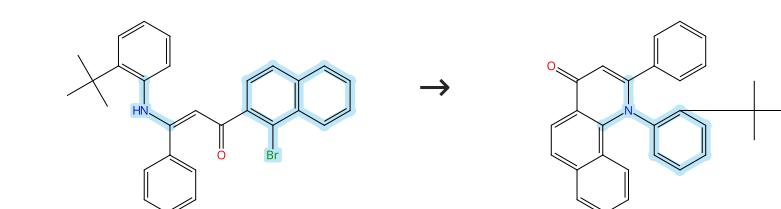
**1.1 Reagents:** Norbornene, Silver sulfate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, (4*S*,4'-*S*)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole  
**Solvents:** Toluene, Water; 36 h, 80 °C

Experimental Protocols

**Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C-N axially chiral scaffolds**

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

**Scheme 38 (1 Reaction)**

31-614-CAS-36215346

Steps: 1 Yield: 99%

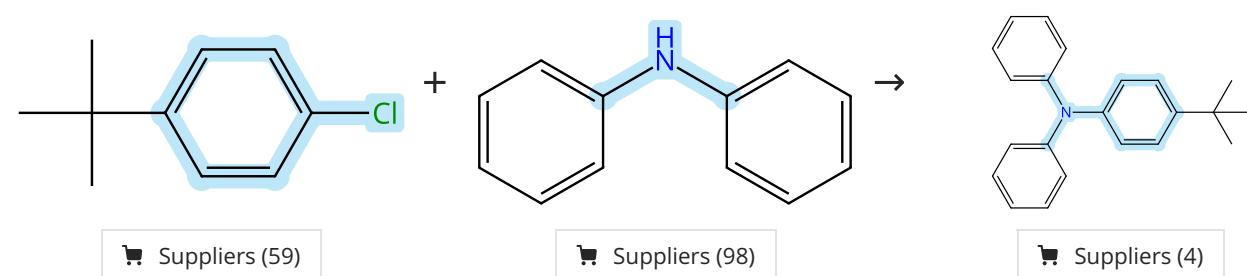
**1.1 Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-  
**Solvents:** Toluene; 20 h, 80 °C

Experimental Protocols

**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

**Scheme 39 (1 Reaction)**

31-614-CAS-42014414

Steps: 1 Yield: 99%

**1.1 Catalysts:** Phenylboronic acid, Palladium diacetate, 1*H*-Indole, 3-(dicyclohexylphosphino)-1-methyl-2-(2,3,4-trimethoxyphenyl)-

**Solvents:** Dichloromethane; rt

**1.2 Reagents:** Sodium *tert*-butoxide  
**Solvents:** Toluene; rt; 24 h, 135 °C; 135 °C → rt

**1.3 Solvents:** Water; rt

Experimental Protocols

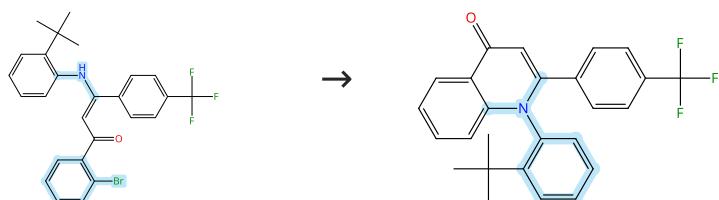
**Application of indole-based monophosphine in ppm level Pd-catalyzed C-N bond formation**

By: Li, Cheuk Long; et al

Journal of Organometallic Chemistry (2024), 1011, 123124.

**Scheme 40 (1 Reaction)**

Steps: 1 Yield: 99%



31-614-CAS-36215326

Steps: 1 Yield: 99%

**1.1 Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-  
**Solvents:** Toluene; 20 h, 80 °C

**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

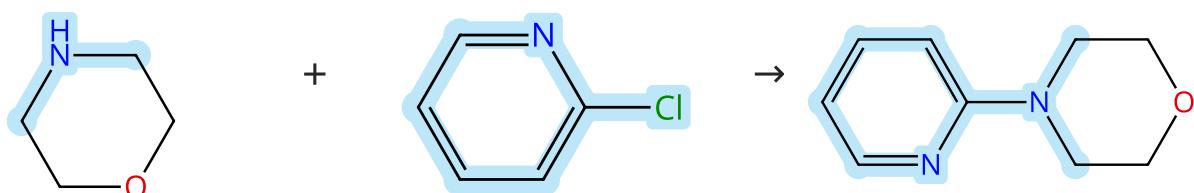
By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

Experimental Protocols

**Scheme 41 (1 Reaction)**

Steps: 1 Yield: 99%



Suppliers (83)

Suppliers (60)

Suppliers (57)

31-614-CAS-38030208

Steps: 1 Yield: 99%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Stereoisomer of [(4*S,5S*)-1,3-bis[2,6-bis(1-methylethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3-η)-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

**Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature**

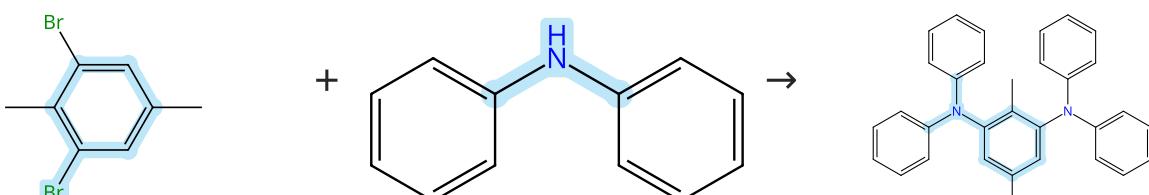
By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

Experimental Protocols

**Scheme 42 (1 Reaction)**

Steps: 1 Yield: 98%



Suppliers (46)

Suppliers (98)

31-614-CAS-41860667

Steps: 1 Yield: 98%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; overnight, 110 °C

Experimental Protocols

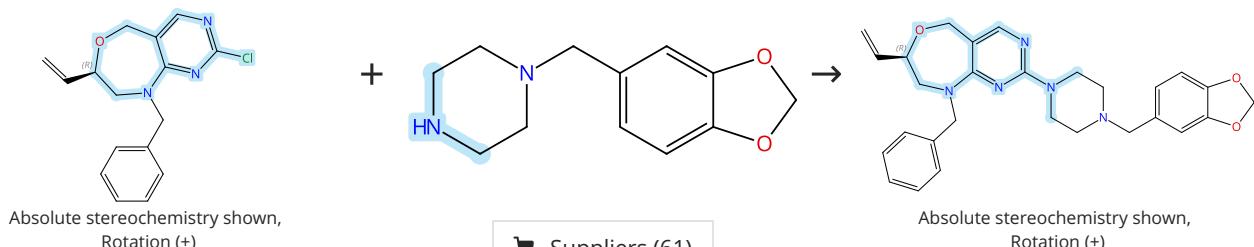
Orienting Group Directed Cascade Borylation for Efficient One-Shot Synthesis of 1,4-BN-Doped Polycyclic Aromatic Hydrocarbons as Narrowband Organic Emitters

By: Wu, Lin; et al

Angewandte Chemie, International Edition (2024), 63(18), e202402020.

## Scheme 43 (1 Reaction)

Steps: 1 Yield: 98%

[Suppliers \(61\)](#)

31-614-CAS-37167472

Steps: 1 Yield: 98%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Stereoisomer of [(4S,5S)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3-η)-1-phenyl-2-propen-1-yl]palladium

Solvents: 1,2-Dimethoxyethane; 16 h, rt

Experimental Protocols

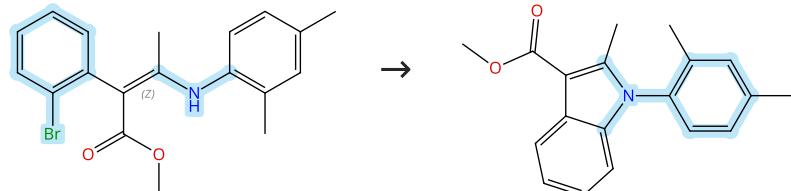
Iridium-Catalyzed Intramolecular Asymmetric Allylic Etherification of Pyrimidinemethanols: Enantioselective Construction of Multifunctionalized Pyrimidine-Fused Oxazepines

By: Pan, Bendu; et al

Organic Letters (2023), 25(29), 5498-5503.

## Scheme 44 (1 Reaction)

Steps: 1 Yield: 98%



Double bond geometry shown

31-614-CAS-40129197

Steps: 1 Yield: 98%

1.1 Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

Solvents: Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

## Scheme 45 (1 Reaction)

Steps: 1 Yield: 98%



31-614-CAS-36215321

Steps: 1 Yield: 98%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-,(1*S*)-

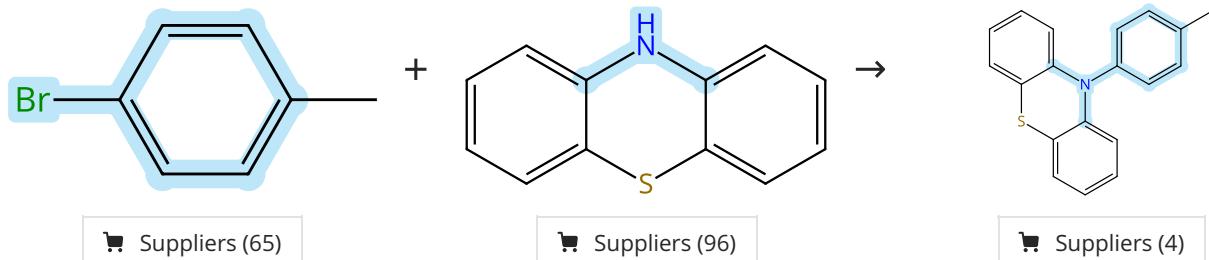
Solvents: Toluene; 20 h, 80 °C

Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

Experimental Protocols

**Scheme 46 (1 Reaction)**

31-614-CAS-35203615

Steps: 1 Yield: 98%

1.1 Reagents: Potassium *tert*-butoxide, Tri-*tert*-butylphosphine

Catalysts: Palladium diacetate

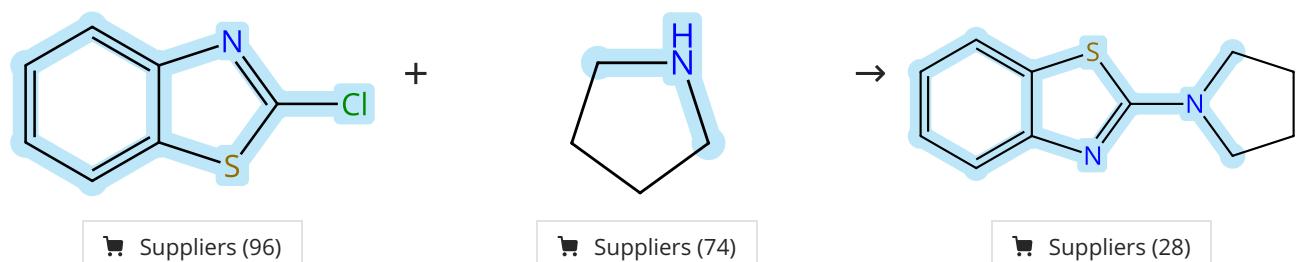
Solvents: Toluene; 24 h, 110 °C

The Effect of Molecular Conformations and Simulated "Self-Doping" in Phenothiazine Derivatives on Room-Temperature Phosphorescence

By: Gao, Mingxue; et al

Angewandte Chemie, International Edition (2023), 62(5), e202214908.

Experimental Protocols

**Scheme 47 (1 Reaction)**

31-614-CAS-38030244

Steps: 1 Yield: 98%

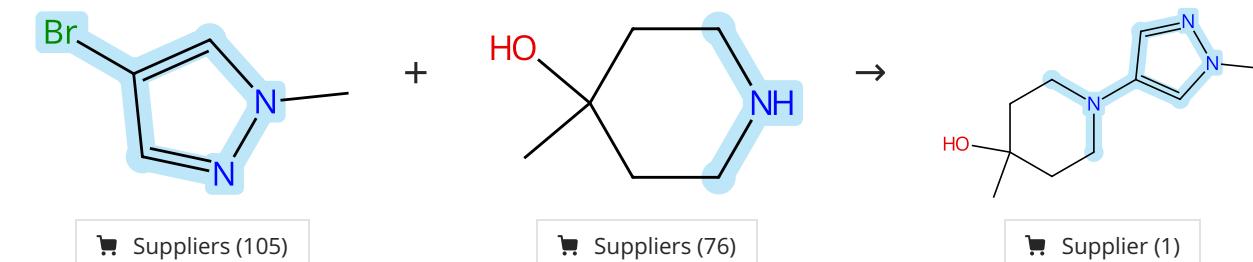
1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3-η)-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI-Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

Experimental Protocols

**Scheme 48 (1 Reaction)**

31-614-CAS-35422520

Steps: 1 Yield: 98%

**1.1 Reagents:** Sodium trimethylsilanolate  
**Solvents:** Tetrahydrofuran; 5 min, rt

**1.2 Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-  
**Solvents:** Tetrahydrofuran; 3 h, 90 °C

Experimental Protocols

**Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines**

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

**Scheme 49 (1 Reaction)**

Steps: 1 Yield: 98%



Suppliers (96)

Suppliers (50)

Suppliers (20)

31-614-CAS-38030246

Steps: 1 Yield: 98%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

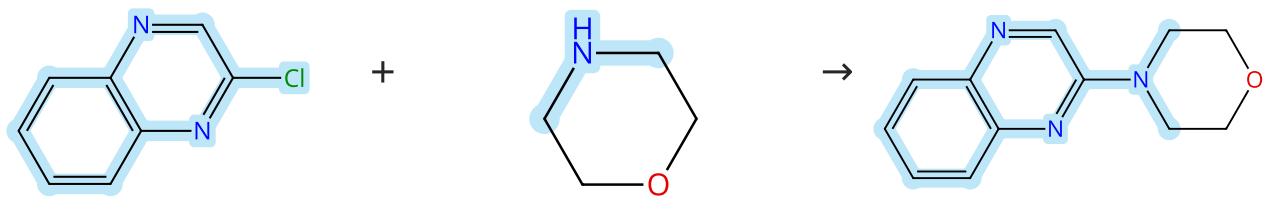
**Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr) $^{Ph_2}Pd(cin)Cl$  at Room Temperature**

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

**Scheme 50 (1 Reaction)**

Steps: 1 Yield: 98%



Suppliers (78)

Suppliers (83)

Suppliers (15)

31-614-CAS-38030209

Steps: 1 Yield: 98%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

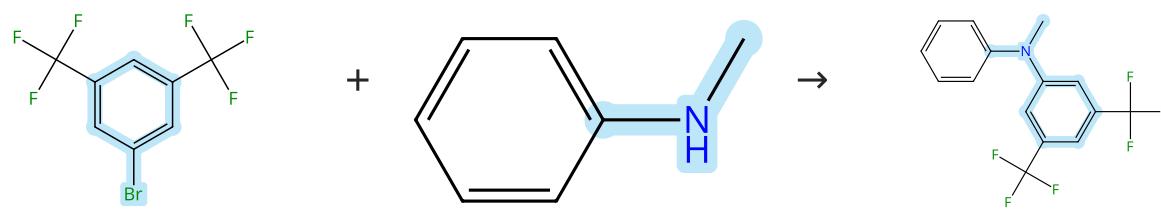
**Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr) $^{Ph_2}Pd(cin)Cl$  at Room Temperature**

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

**Scheme 51 (1 Reaction)**

Steps: 1 Yield: 98%



Suppliers (79)

Suppliers (69)

31-614-CAS-41472203

Steps: 1 Yield: 98%

**General Defluoroalkylation of Trifluoromethylarenes with Both Electron-Donating and -Withdrawing Alkenes**

By: Zhu, Mengqi; et al

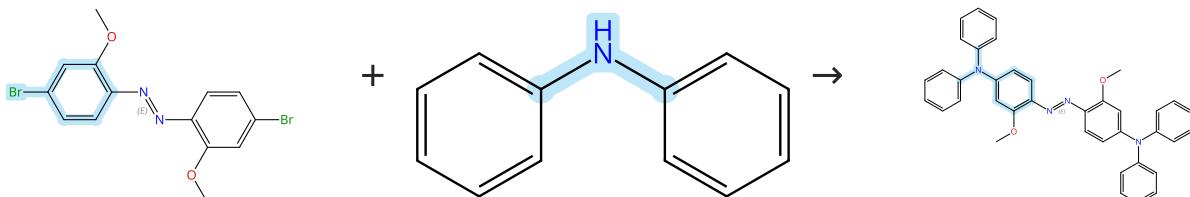
Journal of Organic Chemistry (2024), 89(17), 12591-12609.

**1.1 Reagents:** Cesium carbonate  
**Catalysts:** Palladium diacetate, (+)-BINAP  
**Solvents:** Toluene; 8 h, 90 °C

Experimental Protocols

**Scheme 52 (1 Reaction)**

Steps: 1 Yield: 98%



Double bond geometry shown

Suppliers (98)

Double bond geometry shown

Suppliers (17)

31-614-CAS-37628851

Steps: 1 Yield: 98%

**Enhancement of Near-Infrared Emission Based on Hypervalent Germanium(IV)-Fused Azobenzene Compounds with Electron-Donating Groups**

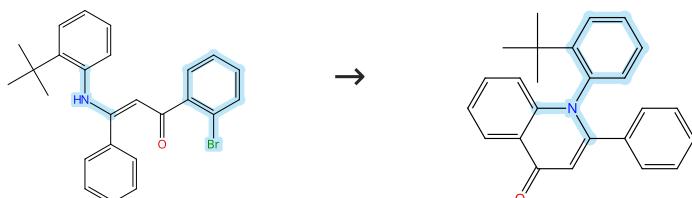
By: Gon, Masayuki; et al

Bulletin of the Chemical Society of Japan (2023), 96(8), 778-784.

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate  
**Solvents:** Toluene; 6.5 h, 100 °C

**Scheme 53 (1 Reaction)**

Steps: 1 Yield: 98%



31-614-CAS-36215315

Steps: 1 Yield: 98%

**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

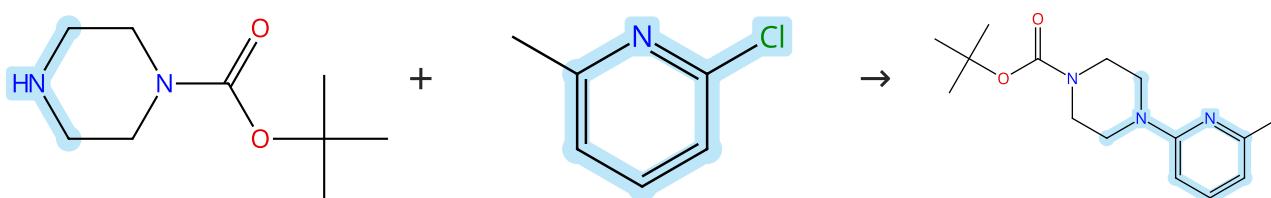
By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

Experimental Protocols

**Scheme 54 (1 Reaction)**

Steps: 1 Yield: 98%



Suppliers (112)

Suppliers (99)

Suppliers (44)

31-614-CAS-36748986

Steps: 1 Yield: 98%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: 1,4-Dioxane; overnight, heated

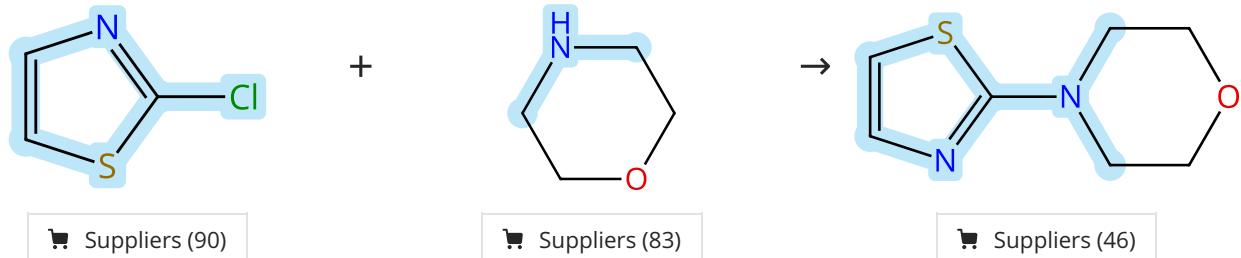
Experimental Protocols

Structure-Activity relationships of replacements for the triazolopyridazine of Anti-Cryptosporidium lead SLU-2633

By: Oboh, Edmund; et al

Bioorganic &amp; Medicinal Chemistry (2023), 86, 117295.

## Scheme 55 (1 Reaction)



31-614-CAS-38030206

Steps: 1 Yield: 98%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4S,5S)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr<sup>Ph2</sup>Pd(cin)Cl at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Scheme 56 (1 Reaction)



31-614-CAS-35114293

Steps: 1 Yield: 98%

1.1 Reagents: Potassium *tert*-butoxide, Tri-*tert*-butylphosphine

Catalysts: Tris(dibenzylideneacetone)dipalladium

Solvents: Toluene; 15 min, rt

1.2 Reagents: Tri-*tert*-butylphosphine

Solvents: Toluene; 18 h, 110 °C

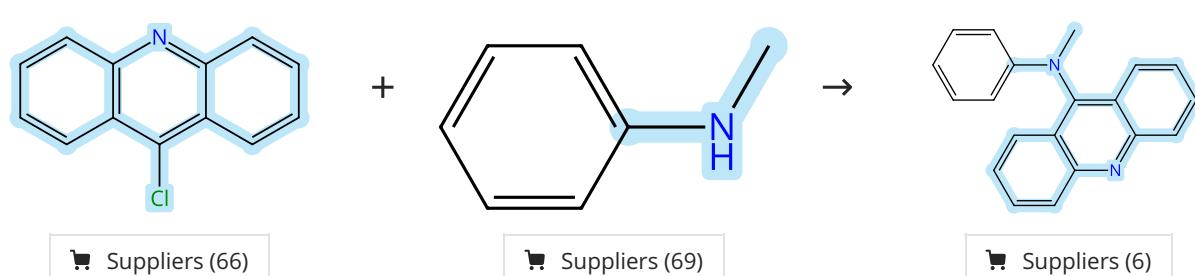
Experimental Protocols

A general arene C-H functionalization strategy via electron donor-acceptor complex photoactivation

By: Dewanji, Abhishek; et al

Nature Chemistry (2023), 15(1), 43-52.

## Scheme 57 (1 Reaction)



31-614-CAS-42014430

Steps: 1 Yield: 98%

**1.1 Catalysts:** Phenylboronic acid, Palladium diacetate, 1*H*-Indole, 3-(dicyclohexylphosphino)-1-methyl-2-(2,3,4-trimethoxyphenyl)-

**Solvents:** Dichloromethane; rt

**1.2 Reagents:** Sodium *tert*-butoxide  
**Solvents:** Toluene, Hexane; rt; 24 h, 110 °C; 110 °C → rt

**1.3 Solvents:** Water; rt

Experimental Protocols

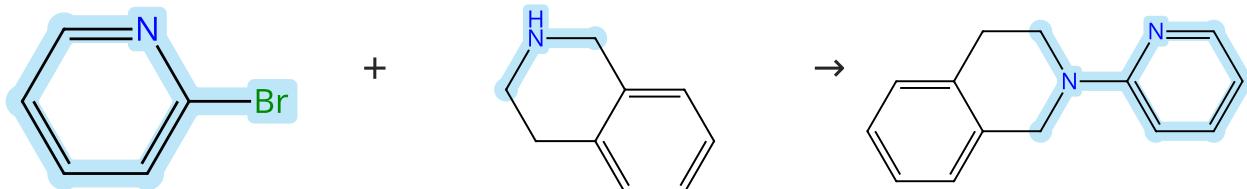
**Application of indole-based monophosphine in ppm level Pd-catalyzed C-N bond formation**

By: Li, Cheuk Long; et al

Journal of Organometallic Chemistry (2024), 1011, 123124.

**Scheme 58 (1 Reaction)**

Steps: 1 Yield: 98%



Suppliers (86)

Suppliers (92)

Suppliers (7)

31-614-CAS-39567741

Steps: 1 Yield: 98%

**1.1 Reagents:** Sodium *tert*-butoxide

**Catalysts:** Diphenylphosphoryl azide, Tris(dibenzylideneacetone)dipalladium

**Solvents:** Toluene; overnight, 80 °C

Experimental Protocols

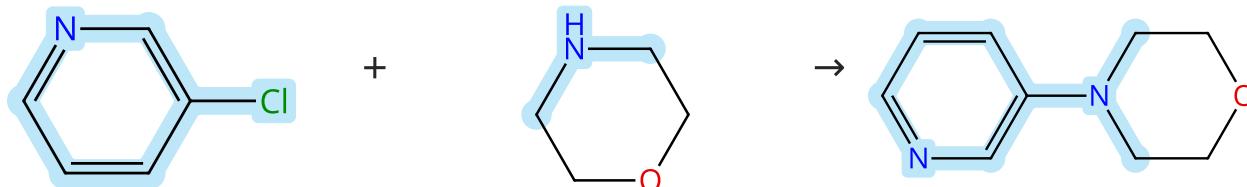
**Copper-catalyzed direct  $\alpha$ -peroxidation of nitrogen heterocycles**

By: Gerard, Phideline; et al

ARKIVOC (Gainesville, FL, United States) (2024), (5), 202312154.

**Scheme 59 (1 Reaction)**

Steps: 1 Yield: 98%



Suppliers (79)

Suppliers (83)

Suppliers (32)

31-614-CAS-38030214

Steps: 1 Yield: 98%

**1.1 Reagents:** Sodium *tert*-butoxide

**Catalysts:** Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methylethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2-*n*)-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

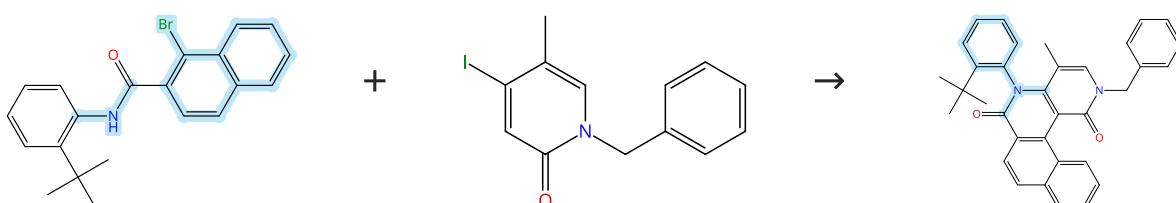
**Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (*S*iPr)<sup>Ph2</sup>Pd(cin)Cl at Room Temperature**

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

**Scheme 60 (1 Reaction)**

Steps: 1 Yield: 98%



31-614-CAS-39194511

Steps: 1 Yield: 98%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Tris(2-furyl)phosphine, Ethyl (1*S*,4*R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate

Solvents: Tetrahydrofuran; 5 min, rt; 48 h, 90 °C

Experimental Protocols

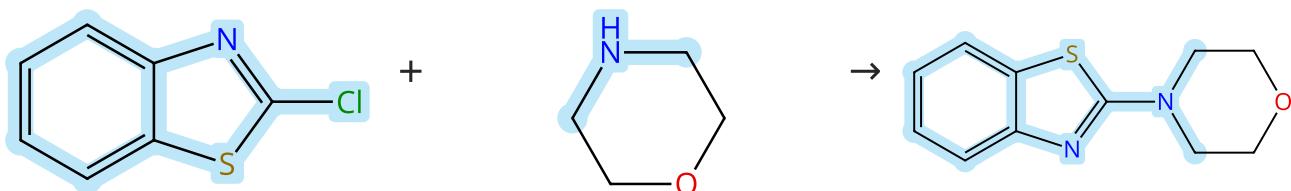
Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

## Scheme 61 (1 Reaction)

Steps: 1 Yield: 98%



Suppliers (96)

Suppliers (83)

Suppliers (32)

31-614-CAS-38030210

Steps: 1 Yield: 98%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3-*n*)-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

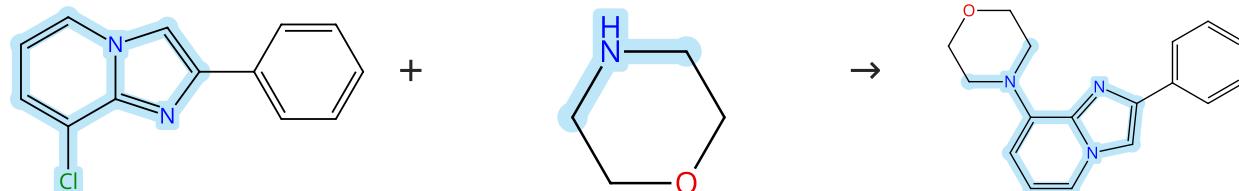
Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Scheme 62 (1 Reaction)

Steps: 1 Yield: 97%



Suppliers (10)

Suppliers (83)

31-614-CAS-38030234

Steps: 1 Yield: 97%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3-*n*)-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

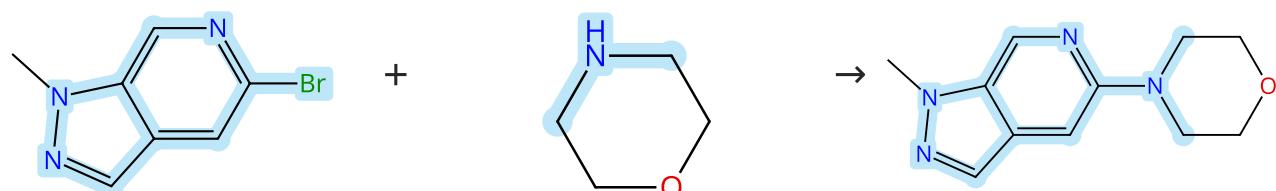
Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Scheme 63 (1 Reaction)

Steps: 1 Yield: 97%



Suppliers (56)

Suppliers (83)

31-614-CAS-38711486

Steps: 1 Yield: 97%

**Synthesis and vectorial functionalization of pyrazolo[3,4-c]pyridines**

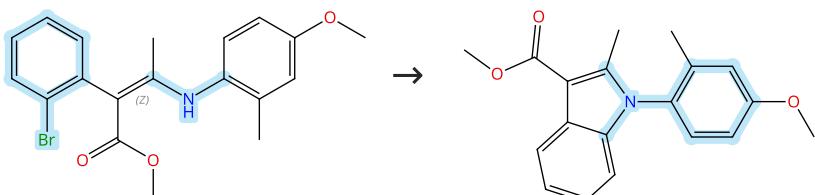
By: Bedwell, Elizabeth V.; et al

RSC Advances (2023), 13(49), 34391-34399.

Experimental Protocols

**Scheme 64 (1 Reaction)**

Steps: 1 Yield: 97%



Double bond geometry shown

31-614-CAS-40129183

Steps: 1 Yield: 97%

**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

1.1 Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

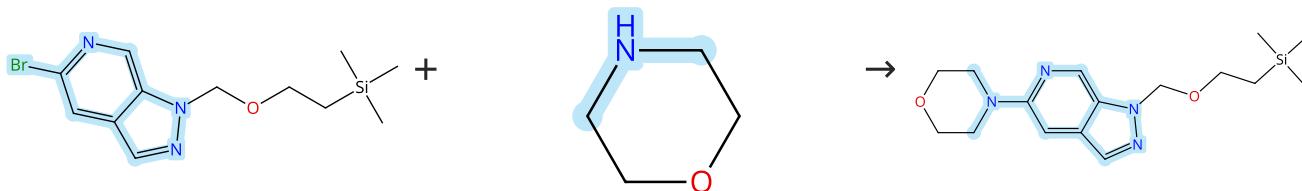
Solvents: Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

**Scheme 65 (1 Reaction)**

Steps: 1 Yield: 97%



Suppliers (5)

Suppliers (83)

31-614-CAS-38711462

Steps: 1 Yield: 97%

**Synthesis and vectorial functionalization of pyrazolo[3,4-c]pyridines**

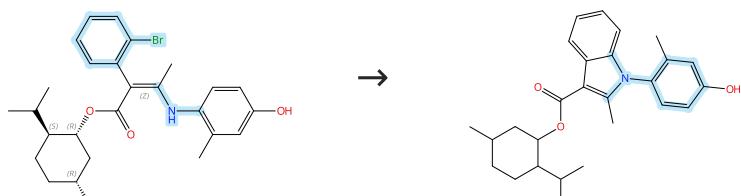
By: Bedwell, Elizabeth V.; et al

RSC Advances (2023), 13(49), 34391-34399.

Experimental Protocols

**Scheme 66 (1 Reaction)**

Steps: 1 Yield: 97%

Absolute stereochemistry shown  
Double bond geometry shown

31-614-CAS-40129229

Steps: 1 Yield: 97%

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt
- 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt
- 1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

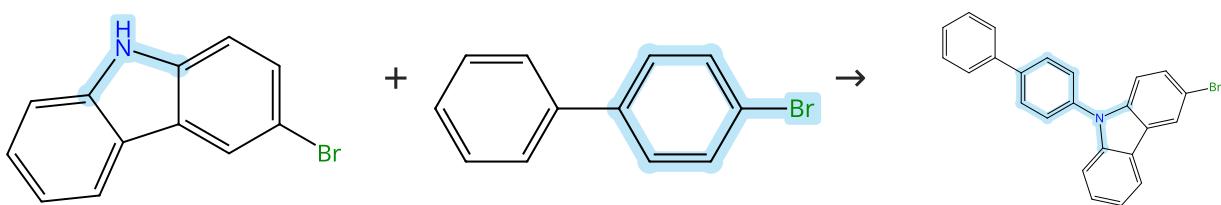
**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

Scheme 67 (1 Reaction)

Steps: 1 Yield: 97%



Suppliers (90)

Suppliers (83)

Suppliers (66)

31-614-CAS-39340652

Steps: 1 Yield: 97%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium diacetate, Tri-*tert*-butylphosphonium tetrafluoroborate  
**Solvents:** Toluene; 48 h, reflux; reflux → rt
- 1.2 **Reagents:** Copper  
**Solvents:** Water; rt

Experimental Protocols

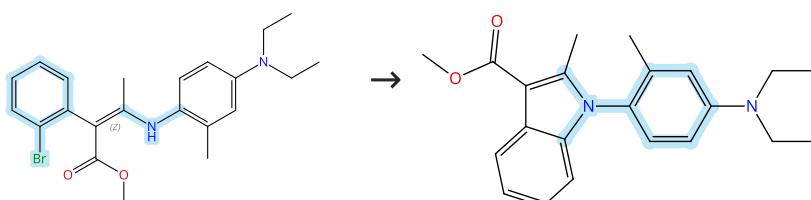
**New conjugated carbazole derivatives: Synthesis and photophysical properties catalysed by Pd-Cu@rGO**

By: Bhagyalakshmi, Vadla; et al

New Journal of Chemistry (2024), 48(9), 3849-3861.

Scheme 68 (1 Reaction)

Steps: 1 Yield: 97%



Double bond geometry shown

31-614-CAS-40129202

Steps: 1 Yield: 97%

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt
- 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt
- 1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

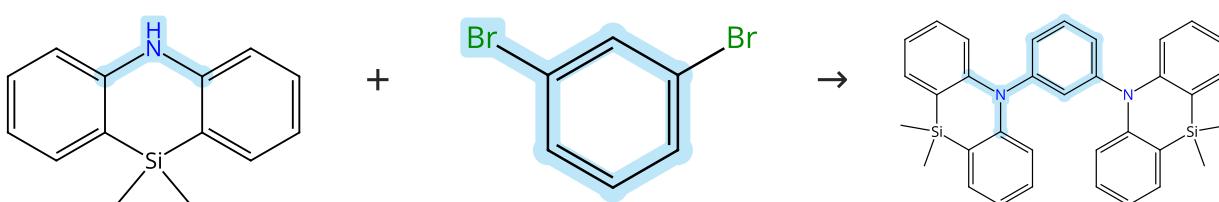
**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

Scheme 69 (1 Reaction)

Steps: 1 Yield: 97%



Suppliers (6)

Suppliers (79)

31-614-CAS-42476490

Steps: 1 Yield: 97%

**Borylation and rearrangement reactions of azasilaan**  
**thracenes to afford B,N-doped nanographenes**

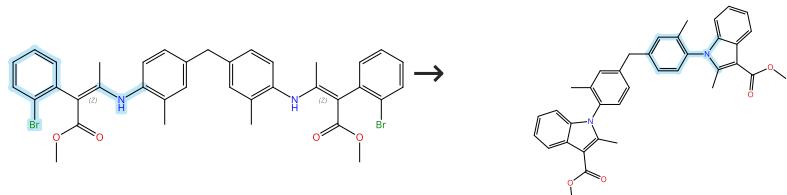
By: Zender, Elena; et al

Dalton Transactions (2024), 53(22), 9294-9300.

Experimental Protocols

**Scheme 70 (1 Reaction)**

Steps: 1 Yield: 97%



Double bond geometry shown

31-614-CAS-40129228

Steps: 1 Yield: 97%

**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

1.1 Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

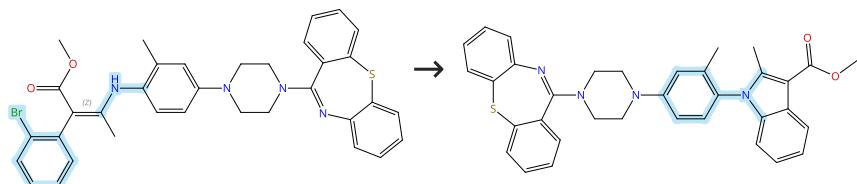
Solvents: Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

**Scheme 71 (1 Reaction)**

Steps: 1 Yield: 97%



Double bond geometry shown

31-614-CAS-40129220

Steps: 1 Yield: 97%

**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

1.1 Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

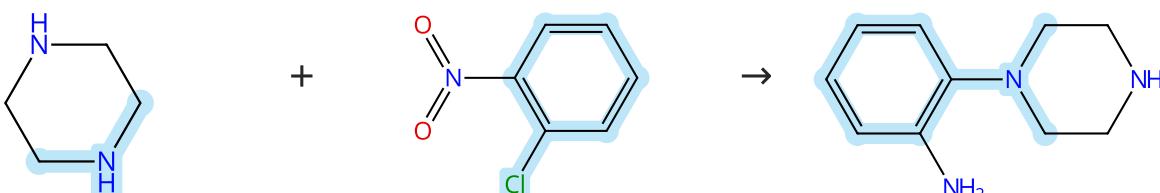
Solvents: Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

**Scheme 72 (1 Reaction)**

Steps: 1 Yield: 97%



Suppliers (86)

Suppliers (66)

Suppliers (50)

31-614-CAS-38400102

Steps: 1 Yield: 97%

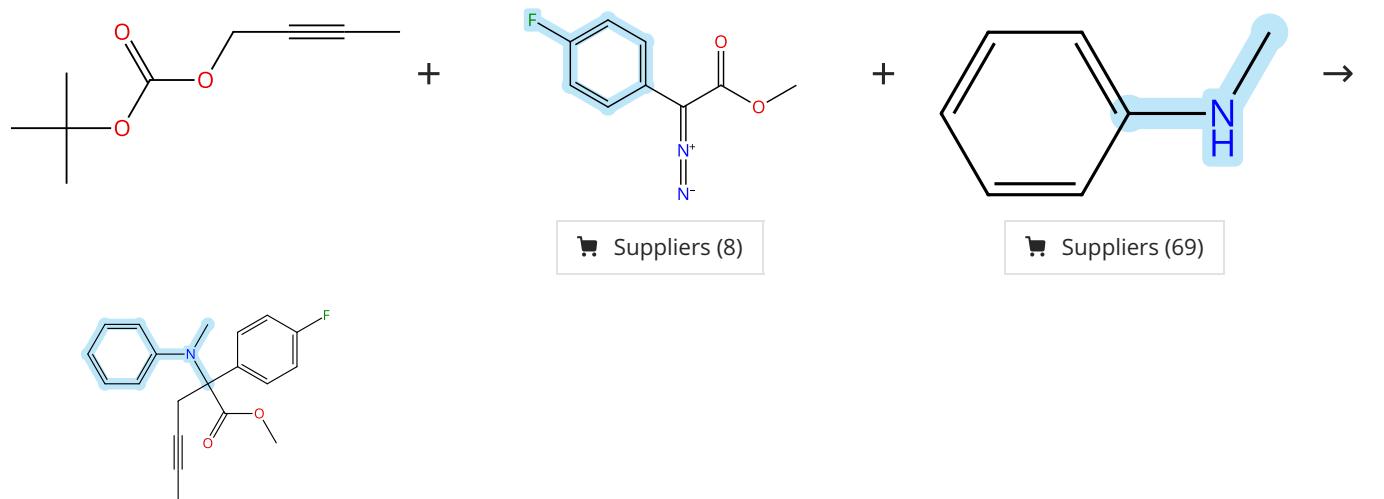
- 1.1 **Reagents:** Sodium hydroxide  
**Solvents:** Methanol, Water; 3.5 h, 80 °C
- 1.2 **Reagents:** Sodium hydroxide, Aluminum  
**Catalysts:** Palladium  
**Solvents:** Methanol, Water; 15 min, rt

Experimental Protocols

**Two-Chamber-Enabled Hydrogenation Reactions Using Al-H<sub>2</sub>O/NaOH: Access to Pharmaceuticals**

By: Iqubal, Ashif; et al

Journal of Organic Chemistry (2023), 88(24), 17047-17061.

**Scheme 73 (1 Reaction)**

31-614-CAS-37847497

Steps: 1 Yield: 97%

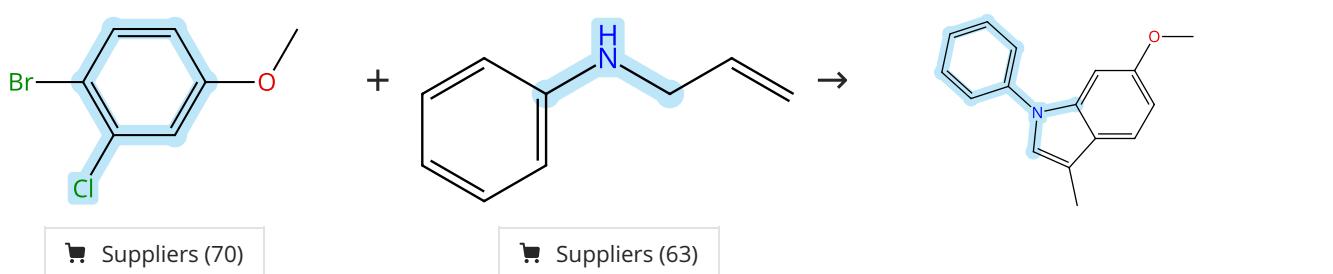
- 1.1 **Reagents:** Cesium carbonate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, Rhodium, tetrakis[μ-(octanoato-κO:κO')]di-, (*Rh-Rh*), [3,6-Dimethoxy-2',4',6'-tris(1-methylethyl)[1,1'-biphenyl]-2-yl]bis(1,1-dimethylphosphine)  
**Solvents:** Acetonitrile; 12 h, 80 °C

Experimental Protocols

**Rh(II)/Pd(0) Dual-Catalyzed Regio-Divergent Three-Component Propargylic Substitution**

By: Xu, Jie; et al

JACS Au (2023), 3(10), 2862-2872.

**Scheme 74 (1 Reaction)**

31-614-CAS-38969995

Steps: 1 Yield: 97%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl-κ*N*<sup>3</sup>)-1-naphthalenyl-κ*C*]-, (*SP-4-4*)  
**Solvents:** 1,4-Dioxane; 24 h, 100 °C

Experimental Protocols

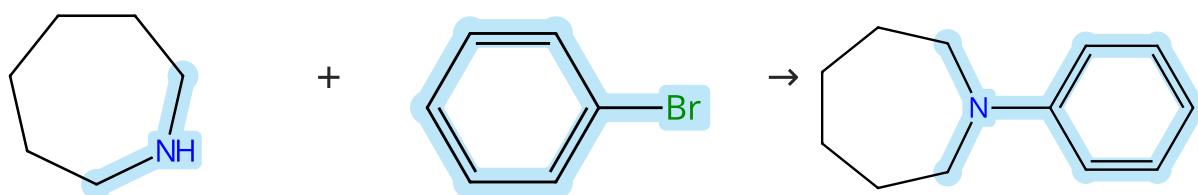
**A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolylidene-Ligated Oxazoline Palladacycle**

By: Fan, Ruojian; et al

Organic Letters (2024), 26(1), 22-28.

Scheme 75 (1 Reaction)

Steps: 1 Yield: 97%



Suppliers (49)

Suppliers (71)

Suppliers (8)

31-614-CAS-40985572

Steps: 1 Yield: 97%

1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine; 12 h, 115 °C

Experimental Protocols

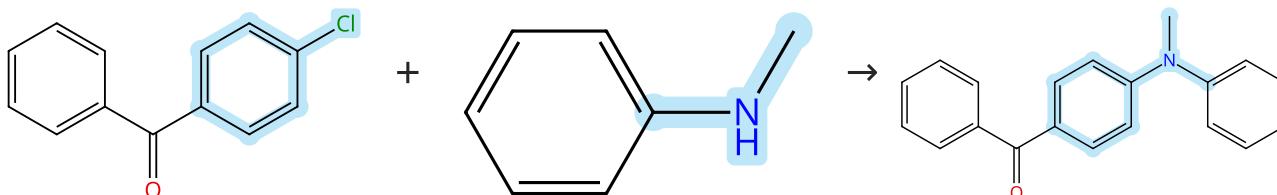
**Mechanistic Investigation, Wavelength-Dependent Reactivity, and Expanded Reactivity of N-Aryl Azacycle Photomediated Ring Contractions**

By: Kim, Sojung F.; et al

Journal of the American Chemical Society (2024), 146(8), 5580-5596.

Scheme 76 (1 Reaction)

Steps: 1 Yield: 97%



Suppliers (86)

Suppliers (69)

Suppliers (3)

31-614-CAS-42014400

Steps: 1 Yield: 97%

1.1 **Catalysts:** Palladium diacetate, 1*H*-Indole, 3-(dicyclohexylphosphino)-1-methyl-2-(2,3,4-trimethoxyphenyl)-

**Solvents:** Dichloromethane; rt1.2 **Reagents:** Sodium *tert*-butoxide**Solvents:** Toluene, Hexane; rt; 24 h, 110 °C; 110 °C → rt1.3 **Solvents:** Water; rt

Experimental Protocols

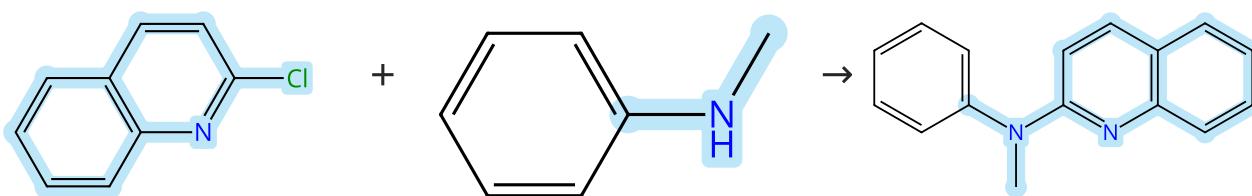
**Application of indole-based monophosphine in ppm level Pd-catalyzed C–N bond formation**

By: Li, Cheuk Long; et al

Journal of Organometallic Chemistry (2024), 1011, 123124.

Scheme 77 (1 Reaction)

Steps: 1 Yield: 97%



Suppliers (88)

Suppliers (69)

Suppliers (4)

31-614-CAS-42014405

Steps: 1 Yield: 97%

**1.1 Catalysts:** Palladium diacetate, 1*H*-Indole, 3-(dicyclohexylphosphino)-1-methyl-2-(2,3,4-trimethoxyphenyl)-

**Solvents:** Dichloromethane; rt

**1.2 Reagents:** Sodium *tert*-butoxide  
**Solvents:** Toluene, Hexane; rt; 24 h, 110 °C; 110 °C → rt

**1.3 Solvents:** Water; rt

Experimental Protocols

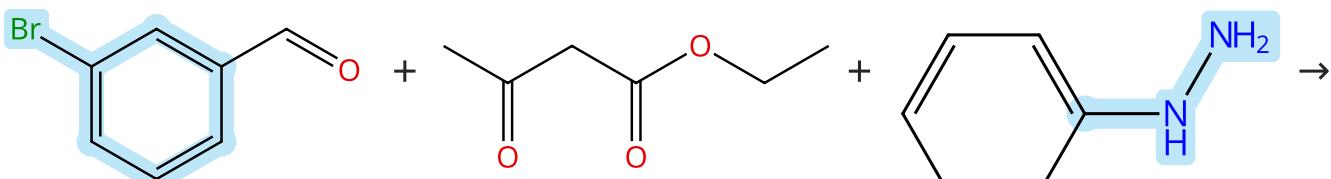
Application of indole-based monophosphine in ppm level Pd-catalyzed C-N bond formation

By: Li, Cheuk Long; et al

Journal of Organometallic Chemistry (2024), 1011, 123124.

Scheme 78 (1 Reaction)

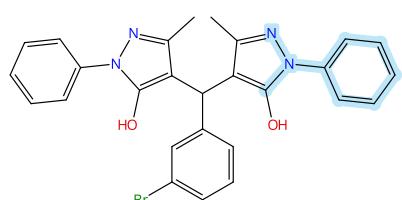
Steps: 1 Yield: 97%



Suppliers (92)

Suppliers (93)

Suppliers (63)



Suppliers (4)

31-614-CAS-41650759

Steps: 1 Yield: 97%

**1.1 Catalysts:** Iron oxide ( $\text{Fe}_3\text{O}_4$ ), Palladium, 1,4-Bis(4-pyridyl)benzene; 15 min, 60 °C

Experimental Protocols

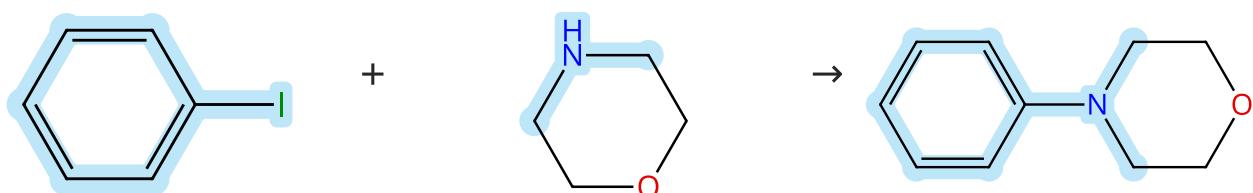
Palladium immobilized onto 1,4-bis(pyrid-4-yl)benzene grafted to n-propyl-functionalized  $\text{Fe}_3\text{O}_4@\text{MCM}-41$  nanoparticles (PBPBPMF) as a novel, green, reusable, and versatile catalyst for preparing bis(pyrazolyl)methane and biphenyl derivatives

By: AlMohamadi, Hamad; et al

Research on Chemical Intermediates (2024), 50(8), 3619-3644.

Scheme 79 (1 Reaction)

Steps: 1 Yield: 97%



Suppliers (93)

Suppliers (83)

Suppliers (74)

31-614-CAS-41243630

Steps: 1 Yield: 97%

**1.1 Reagents:** Potassium carbonate  
**Catalysts:** Ceria, Palladium, Gold

**Solvents:** Dimethylformamide; 8 h, rt → 110 °C

Experimental Protocols

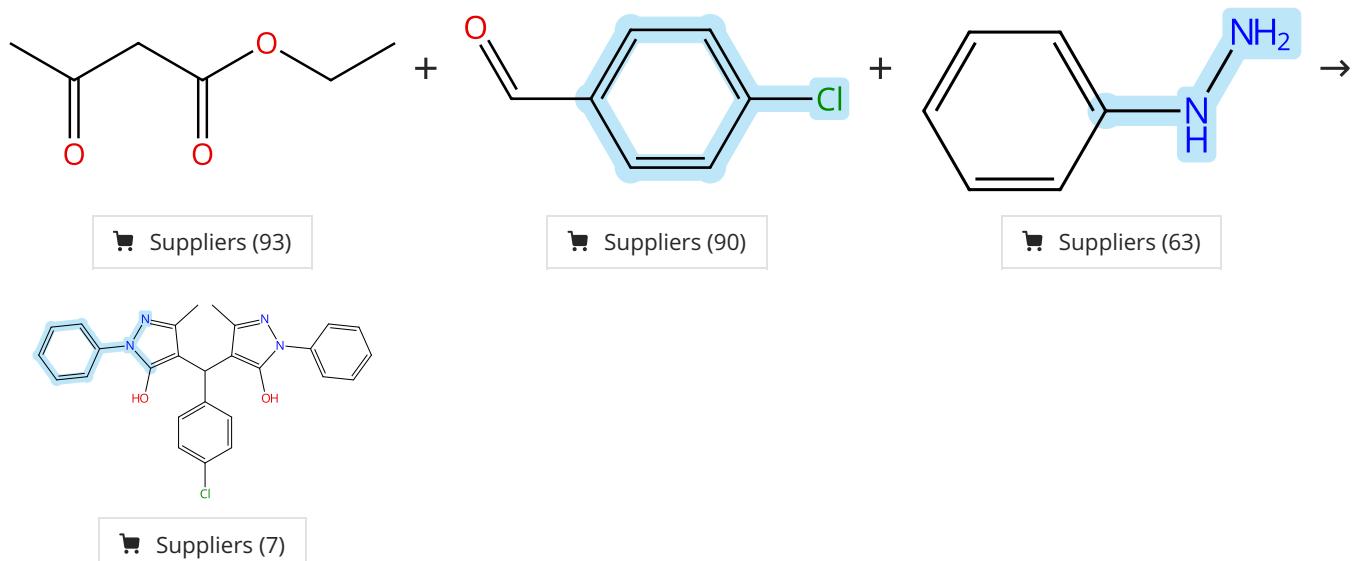
Synthesis of Au-Pd@ $\text{CeO}_2$  nanocomposite as a potential catalyst for the Buchwald-Hartwig cross-coupling and amination of benzyl alcohol reactions

By: Kulkarni, Padmakar A.; et al

Journal of Chemical Sciences (Berlin, Germany) (2024), 136(2), 40.

Scheme 80 (1 Reaction)

Steps: 1 Yield: 97%



31-614-CAS-41650748

Steps: 1 Yield: 97%

**1.1 Catalysts:** Iron oxide ( $\text{Fe}_3\text{O}_4$ ), Palladium, 1,4-Bis(4-pyridyl) benzene; 9 min, 60 °C

Experimental Protocols

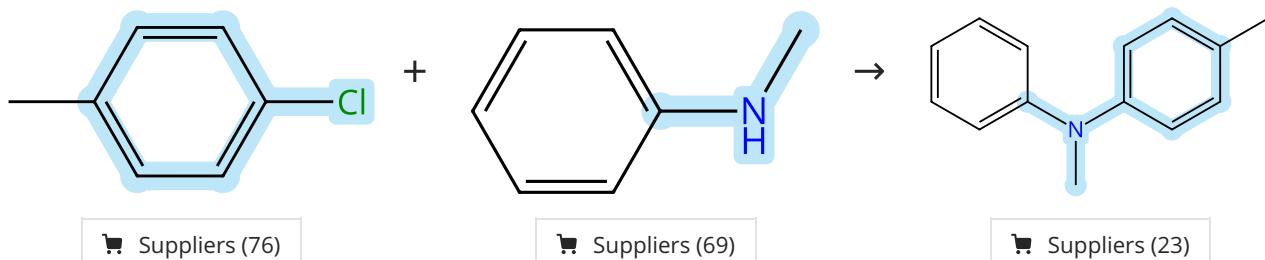
Palladium immobilized onto 1,4-bis(pyrid-4-yl)benzene grafted to n-propyl-functionalized  $\text{Fe}_3\text{O}_4@\text{MCM}-41$  nanoparticles (PBPBPMF) as a novel, green, reusable, and versatile catalyst for preparing bis(pyrazolyl)methane and biphenyl derivatives

By: AlMohamadi, Hamad; et al

Research on Chemical Intermediates (2024), 50(8), 3619-3644.

Scheme 81 (1 Reaction)

Steps: 1 Yield: 97%



31-614-CAS-42014413

Steps: 1 Yield: 97%

**1.1 Catalysts:** Palladium diacetate, 1*H*-Indole, 3-(dicyclohexylphosphino)-1-methyl-2-(2,3,4-trimethoxyphenyl)-

**Solvents:** Dichloromethane; rt

**1.2 Reagents:** Sodium *tert*-butoxide  
**Solvents:** Toluene, Hexane; rt; 24 h, 110 °C; 110 °C → rt

**1.3 Solvents:** Water; rt

Application of indole-based monophosphine in ppm level Pd-catalyzed C-N bond formation

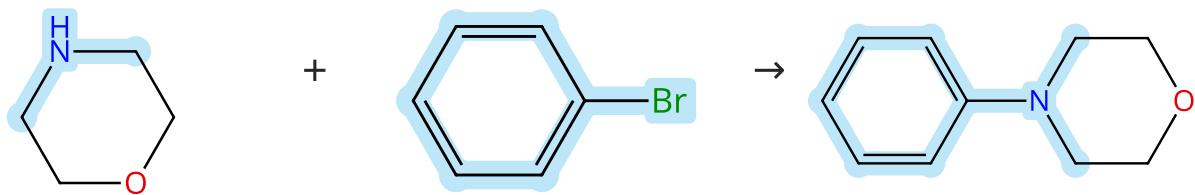
By: Li, Cheuk Long; et al

Journal of Organometallic Chemistry (2024), 1011, 123124.

Experimental Protocols

Scheme 82 (1 Reaction)

Steps: 1 Yield: 97%



Suppliers (83)

Suppliers (71)

Suppliers (74)

31-614-CAS-41243627

Steps: 1 Yield: 97%

1.1 Reagents: Potassium carbonate

Catalysts: Ceria, Palladium, Gold

Solvents: Dimethylformamide; 8 h, rt → 110 °C

Experimental Protocols

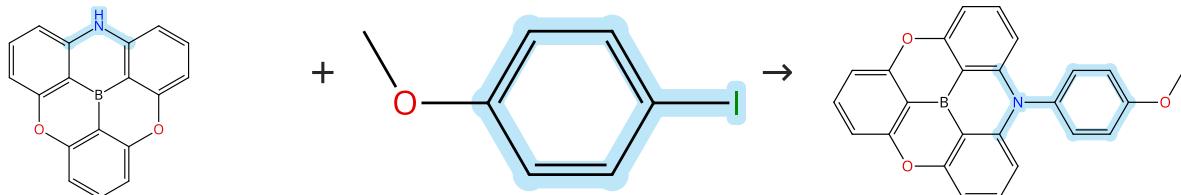
Synthesis of Au-Pd@CeO<sub>2</sub> nanocomposite as a potential catalyst for the Buchwald-Hartwig cross-coupling and amination of benzyl alcohol reactions

By: Kulkarni, Padmakar A.; et al

Journal of Chemical Sciences (Berlin, Germany) (2024), 136(2), 40.

Scheme 83 (1 Reaction)

Steps: 1 Yield: 96%



Suppliers (89)

31-614-CAS-40641317

Steps: 1 Yield: 96%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, tris[μ-[(1,2-η;4,5-η)-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 24 h, 105 °C

Experimental Protocols

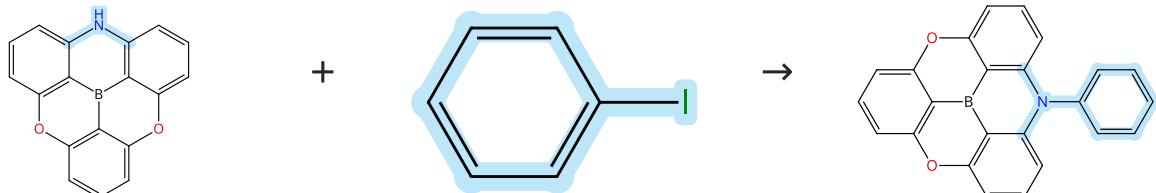
Synthesis of Azadioxa-Planar Triphenylboranes Bridged by Aryl- and Alkylimino Groups and Their Photophysical Properties

By: Kitamoto, Yuichi; et al

Journal of Organic Chemistry (2023), 88(9), 5852-5860.

Scheme 84 (1 Reaction)

Steps: 1 Yield: 96%



Suppliers (93)

31-614-CAS-40641316

Steps: 1 Yield: 96%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, tris[μ-[(1,2-η;4,5-η)-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 24 h, 105 °C

Experimental Protocols

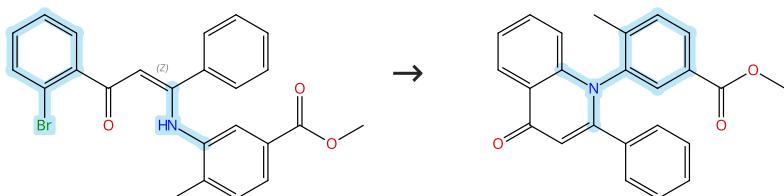
Synthesis of Azadioxa-Planar Triphenylboranes Bridged by Aryl- and Alkylimino Groups and Their Photophysical Properties

By: Kitamoto, Yuichi; et al

Journal of Organic Chemistry (2023), 88(9), 5852-5860.

**Scheme 85 (1 Reaction)**

Steps: 1 Yield: 96%



Double bond geometry shown

31-614-CAS-40129304

Steps: 1 Yield: 96%

- 1.1 **Reagents:** Potassium carbonate, Sodium hydroxide  
**Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene, 1,4-Dioxane; 18 h, 40 °C

Experimental Protocols

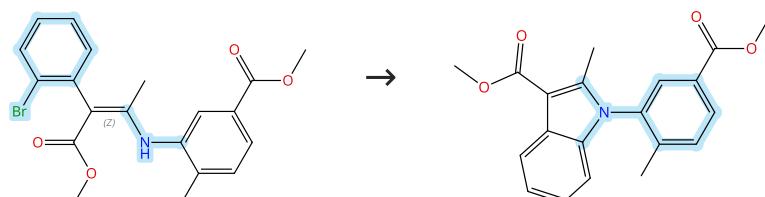
Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

**Scheme 86 (1 Reaction)**

Steps: 1 Yield: 96%



Double bond geometry shown

31-614-CAS-40129204

Steps: 1 Yield: 96%

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt  
  
 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt  
  
 1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

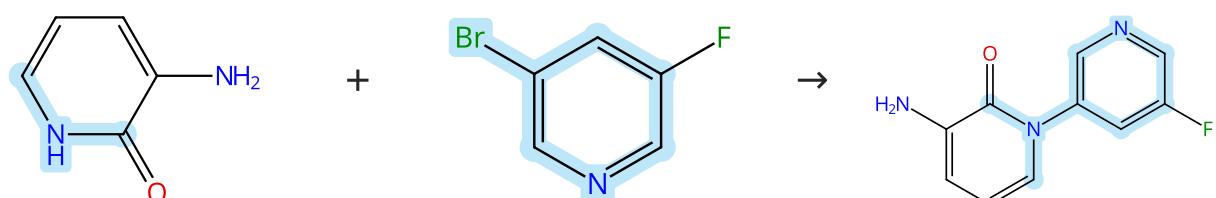
Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

**Scheme 87 (1 Reaction)**

Steps: 1 Yield: 96%



Suppliers (96)

Suppliers (87)

31-614-CAS-37016339

Steps: 1 Yield: 96%

- 1.1 **Reagents:** Sodium carbonate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 1,1'-(9,9-Dimethyl-9H-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]  
**Solvents:** 1,4-Dioxane; 4 h, 100 °C

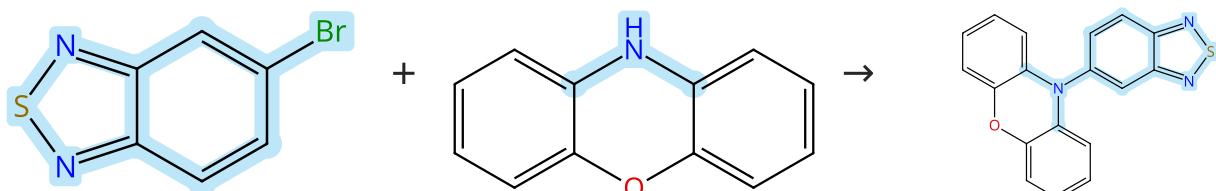
Experimental Protocols

Discovery of a Potent and Selective Tyrosine Kinase 2 Inhibitor: TAK-279

By: Leit, Silvana; et al

Journal of Medicinal Chemistry (2023), 66(15), 10495-10518.

Scheme 88 (1 Reaction)



Suppliers (67)

Suppliers (96)

31-614-CAS-35475435

Steps: 1 Yield: 96%

**1.1 Reagents:** Sodium *tert*-butoxide, Tri-*tert*-butylphosphonium tetrafluoroborate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium  
**Solvents:** Toluene; 2 h, 50 °C

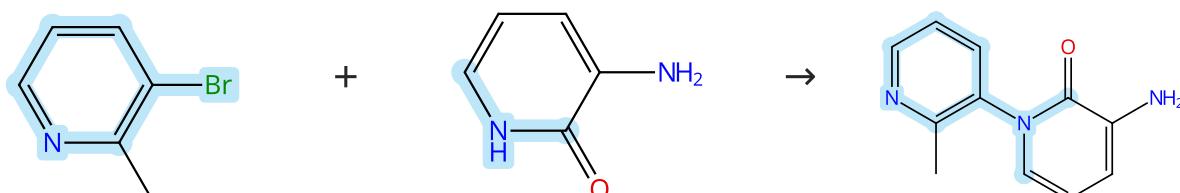
A red thermally activated delayed fluorescence emitter based on benzo[c][1,2,5]thiadiazole

By: Ma, You-Ping; et al

Dyes and Pigments (2023), 212, 111084.

Experimental Protocols

Scheme 89 (1 Reaction)



Suppliers (104)

Suppliers (96)

31-614-CAS-37016331

Steps: 1 Yield: 96%

**1.1 Reagents:** Sodium carbonate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 1,1'-(9,9-Dimethyl-9H-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]  
**Solvents:** 1,4-Dioxane; 4 h, 100 °C

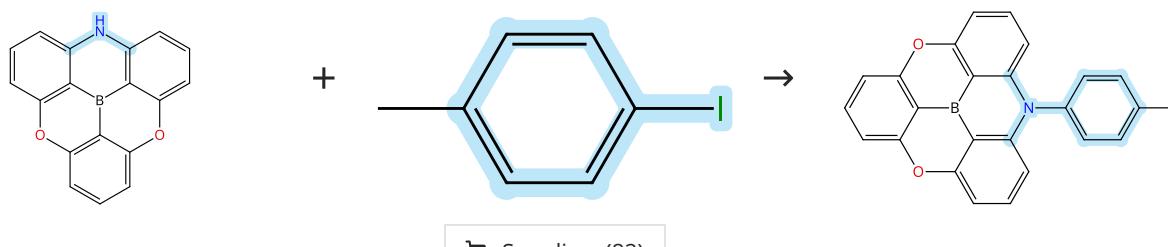
Discovery of a Potent and Selective Tyrosine Kinase 2 Inhibitor: TAK-279

By: Leit, Silvana; et al

Journal of Medicinal Chemistry (2023), 66(15), 10495-10518.

Experimental Protocols

Scheme 90 (1 Reaction)



Suppliers (82)

31-614-CAS-40641319

Steps: 1 Yield: 96%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium, tris[μ-[(1,2-η;4,5-η)-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), Tri-*tert*-butylphosphonium tetrafluoroborate  
**Solvents:** Toluene; 24 h, 105 °C

Synthesis of Azadioxa-Planar Triphenylboranes Bridged by Aryl- and Alkylimino Groups and Their Photophysical Properties

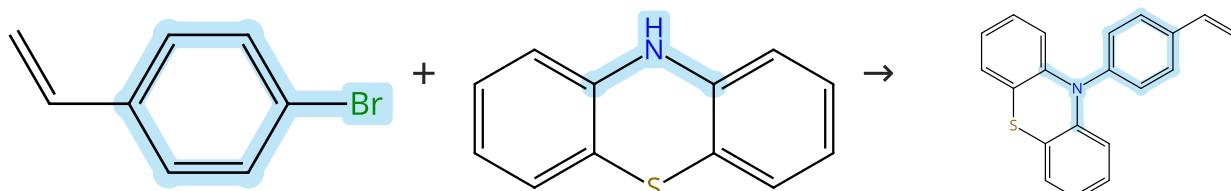
By: Kitamoto, Yuichi; et al

Journal of Organic Chemistry (2023), 88(9), 5852-5860.

Experimental Protocols

**Scheme 91 (1 Reaction)**

Steps: 1 Yield: 96%



🛒 Suppliers (87)

🛒 Suppliers (96)

🛒 Supplier (1)

31-614-CAS-42063359

Steps: 1 Yield: 96%

1.1 Reagents: Potassium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl

Solvents: 1,4-Dioxane; 23 h, 100 °C

**Unlocking Twofold Oxidation in Phenothiazine Polymers for Application in Symmetric All-Organic Anionic Batteries**

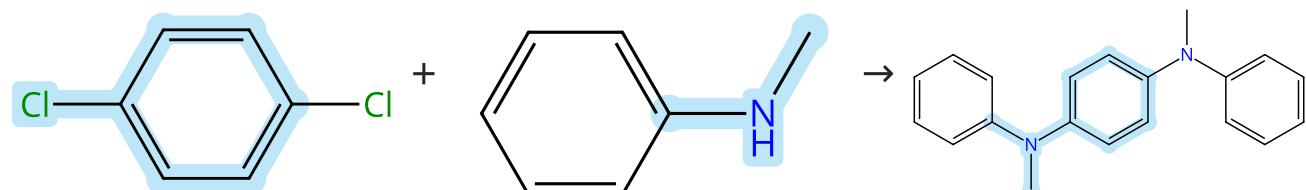
By: Wessling, Robin; et al

ACS Applied Polymer Materials (2024), 6(14), 7956-7968.

Experimental Protocols

**Scheme 92 (1 Reaction)**

Steps: 1 Yield: 96%



🛒 Suppliers (96)

🛒 Suppliers (69)

🛒 Suppliers (4)

31-614-CAS-42014419

Steps: 1 Yield: 96%

1.1 Catalysts: Phenylboronic acid, Palladium diacetate, 1*H*-Indole, 3-(dicyclohexylphosphino)-1-methyl-2-(2,3,4-trimethoxyxyphenyl)-

Solvents: Dichloromethane; rt

1.2 Reagents: Sodium *tert*-butoxide

Solvents: Toluene, Hexane; rt; 24 h, 110 °C; 110 °C → rt

1.3 Solvents: Water; rt

**Application of indole-based monophosphine in ppm level Pd-catalyzed C-N bond formation**

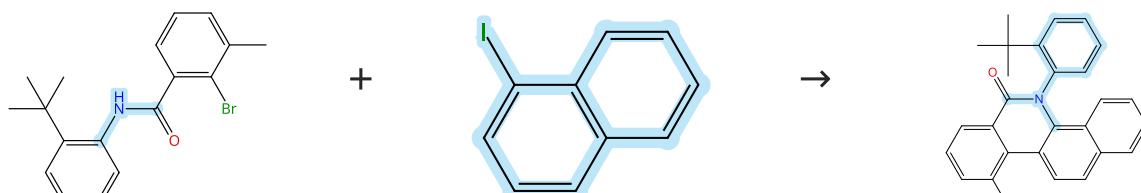
By: Li, Cheuk Long; et al

Journal of Organometallic Chemistry (2024), 1011, 123124.

Experimental Protocols

**Scheme 93 (1 Reaction)**

Steps: 1 Yield: 96%



🛒 Supplier (1)

🛒 Suppliers (87)

31-614-CAS-35530760

Steps: 1 Yield: 96%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Tris(2-furyl)phosphine, Ethyl (1*S*,4*R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate

Solvents: Acetonitrile; 24 h, 70 °C

**Construction of Axially Chiral Biaryls via Atroposelective ortho-C-H Arylation of Aryl Iodides**

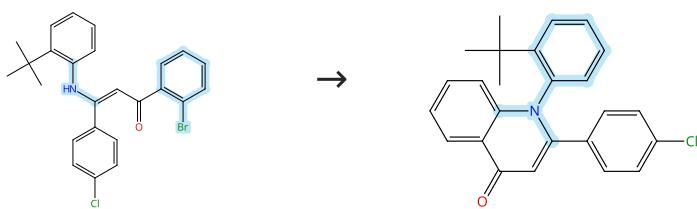
By: Liu, Ze-Shui; et al

ACS Catalysis (2023), 13(5), 2968-2980.

Experimental Protocols

**Scheme 94 (1 Reaction)**

Steps: 1 Yield: 96%



31-614-CAS-36215338

Steps: 1 Yield: 96%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

Experimental Protocols

**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

**Scheme 95 (1 Reaction)**

Steps: 1 Yield: 96%



Suppliers (27)

Suppliers (123)

31-614-CAS-38969968

Steps: 1 Yield: 96%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl-*κ*<sup>3</sup>)-1-naphthalenyl-*κ*<sup>2</sup>]-, (*SP*-4-4)-

Solvents: 1,4-Dioxane; 24 h, 100 °C

Experimental Protocols

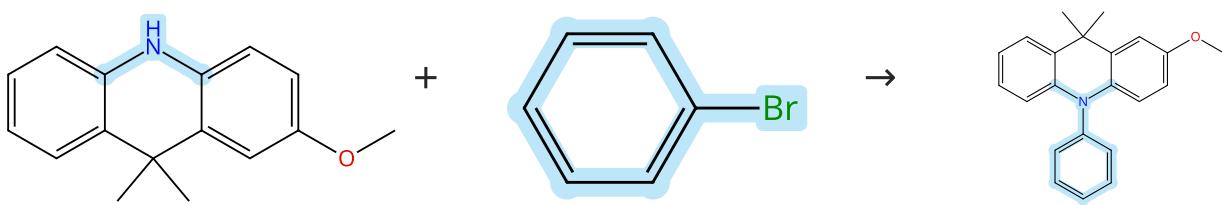
**A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolide-Ligated Oxazoline Palladacycle**

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

**Scheme 96 (1 Reaction)**

Steps: 1 Yield: 96%



Supplier (1)

Suppliers (71)

31-614-CAS-36129822

Steps: 1 Yield: 96%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 10 h, 115 °C

Experimental Protocols

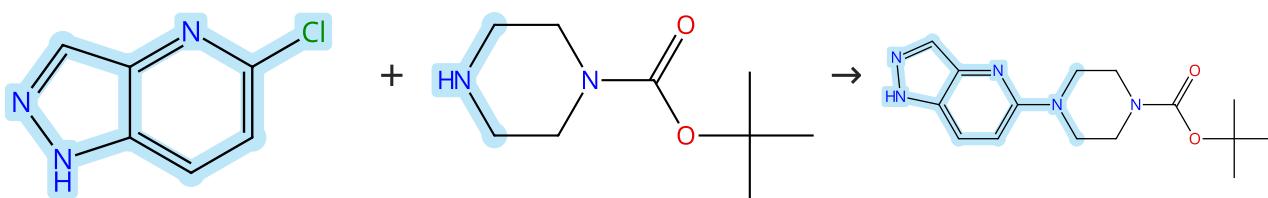
**D-O-A based organic phosphors for both aggregation-induced electrophosphorescence and host-free sensitization**

By: Xu, Lulin; et al

Nature Communications (2023), 14(1), 1678.

Scheme 97 (1 Reaction)

Steps: 1 Yield: 96%



Suppliers (80)

Suppliers (112)

31-614-CAS-36749011

Steps: 1 Yield: 96%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: 1,4-Dioxane; overnight, heated

Structure-Activity relationships of replacements for the triazolopyridazine of Anti-Cryptosporidium lead SLU-2633

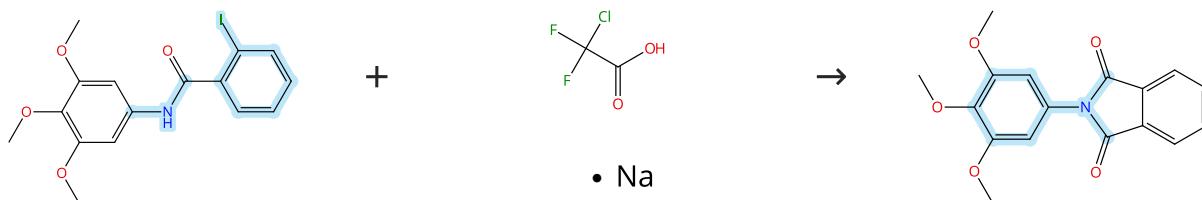
By: Oboh, Edmund; et al

Bioorganic &amp; Medicinal Chemistry (2023), 86, 117295.

Experimental Protocols

Scheme 98 (1 Reaction)

Steps: 1 Yield: 96%



Suppliers (3)

Suppliers (88)

Suppliers (3)

31-614-CAS-38558283

Steps: 1 Yield: 96%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Bis[2-(diphenylphosphino)phenyl] ether

Solvents: Dimethylformamide; 5 h, 95 °C

Synthesis of N-substituted phthalimides via Pd-catalyzed [4+1] cycloaddition reaction

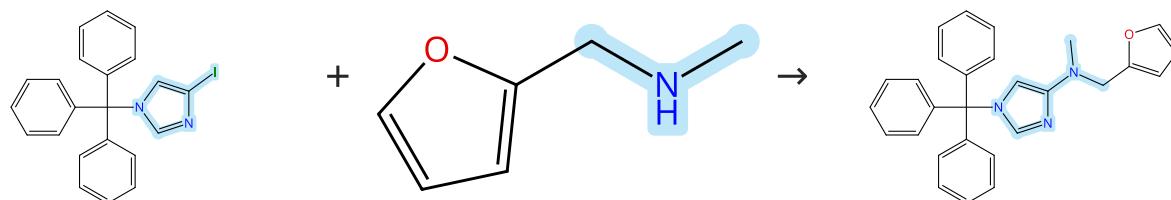
By: Hu, Chengxian; et al

Chemical Communications (Cambridge, United Kingdom) (2023), 59(100), 14839-14842.

Experimental Protocols

Scheme 99 (1 Reaction)

Steps: 1 Yield: 96%



Suppliers (91)

Suppliers (64)

31-614-CAS-35422535

Steps: 1 Yield: 96%

1.1 Reagents: Sodium trimethylsilanolate

Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2,6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-

Solvents: 1,4-Dioxane; 3 h, 50 °C

Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

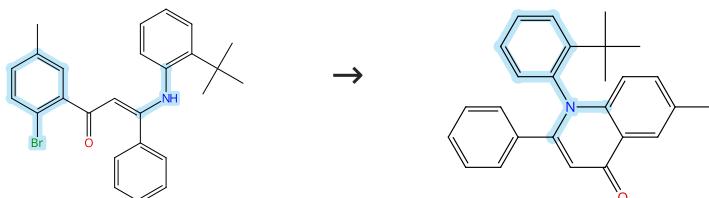
By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Experimental Protocols

**Scheme 100 (1 Reaction)**

Steps: 1 Yield: 96%



31-614-CAS-36215344

Steps: 1 Yield: 96%

## 1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

## Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions

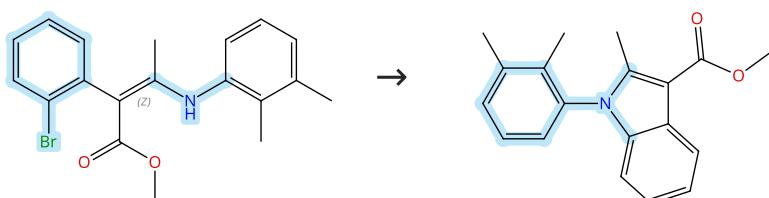
By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

## Experimental Protocols

**Scheme 101 (1 Reaction)**

Steps: 1 Yield: 96%



Double bond geometry shown

31-614-CAS-40129188

Steps: 1 Yield: 96%

## Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

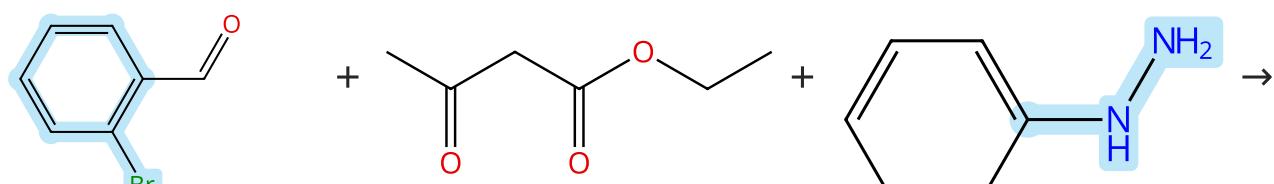
By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

## Experimental Protocols

**Scheme 102 (1 Reaction)**

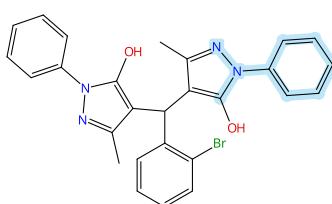
Steps: 1 Yield: 96%



Suppliers (88)

Suppliers (93)

Suppliers (63)



31-614-CAS-41650752	Steps: 1 Yield: 96%	Palladium immobilized onto 1,4-bis(pyrid-4-yl)benzene grafted to n-propyl-functionalized Fe <sub>3</sub> O <sub>4</sub> @MCM-41 nanoparticles (PBPBPMF) as a novel, green, reusable, and versatile catalyst for preparing bis(pyrazolyl)methane and biphenyl derivatives By: AlMohamadi, Hamad; et al Research on Chemical Intermediates (2024), 50(8), 3619-3644.
1.1 <b>Catalysts:</b> Iron oxide (Fe <sub>3</sub> O <sub>4</sub> ), Palladium, 1,4-Bis(4-pyridyl) benzene; 22 min, 60 °C Experimental Protocols		

Scheme 103 (2 Reactions)	Steps: 1 Yield: 88-96%

31-614-CAS-35436064	Steps: 1 Yield: 96%	Aggregation Effect on Multiperformance Improvement in Aryl-Armed Phenazine-Based Emitters By: Wan, Qing; et al Journal of the American Chemical Society (2023), 145(3), 1607-1616.
1.1 <b>Reagents:</b> Sodium <i>tert</i> -butoxide <b>Catalysts:</b> Tris(dibenzylideneacetone)dipalladium, Tri- <i>tert</i> -butylphosphonium tetrafluoroborate <b>Solvents:</b> Toluene; 24 h, rt → 115 °C Experimental Protocols		

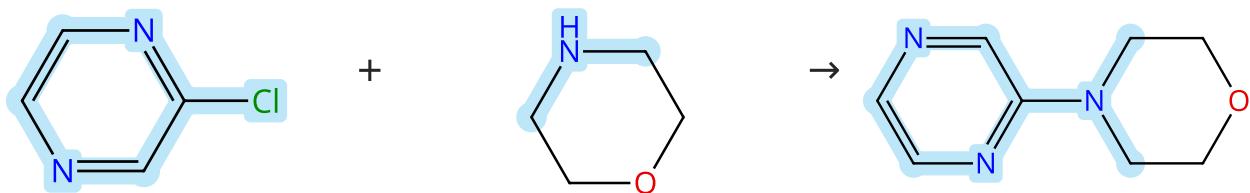
31-614-CAS-41192578	Steps: 1 Yield: 88%	Stable aryl-armed dihydrophenazines-based radicals By: Liu, Lu; et al Chemical Engineering Journal (Amsterdam, Netherlands) (2024), 496, 154156.
1.1 <b>Reagents:</b> Sodium <i>tert</i> -butoxide <b>Catalysts:</b> Palladium, tris[μ-[(1,2-η;4,5-η)-(1 <i>E</i> ,4 <i>E</i> )-1,5-diphenyl-1,4-pentadien-3-one]di-, compd. with trichloromethane (1:1), Tri- <i>tert</i> -butylphosphonium tetrafluoroborate <b>Solvents:</b> Toluene; rt → 120 °C; 8 h, 120 °C Experimental Protocols		

Scheme 104 (1 Reaction)	Steps: 1 Yield: 96%

31-614-CAS-38969972	Steps: 1 Yield: 96%	A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle By: Fan, Ruqian; et al Organic Letters (2024), 26(1), 22-28.
1.1 <b>Reagents:</b> Sodium <i>tert</i> -butoxide <b>Catalysts:</b> Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8 <i>H</i> -acenaphth[1,2- <i>d</i> ]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl-κ <i>N</i> <sup>3</sup> )-1-naphthalenyl-κ <i>C</i> ]-, ( <i>SP</i> -4-4) <b>Solvents:</b> 1,4-Dioxane; 24 h, 100 °C Experimental Protocols		

Scheme 105 (1 Reaction)

Steps: 1 Yield: 96%



Suppliers (92)

Suppliers (83)

Suppliers (35)

31-614-CAS-38030205

Steps: 1 Yield: 96%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3-*n*)-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °CSolvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr<sup>Ph2</sup>Pd(cin)Cl at Room Temperature

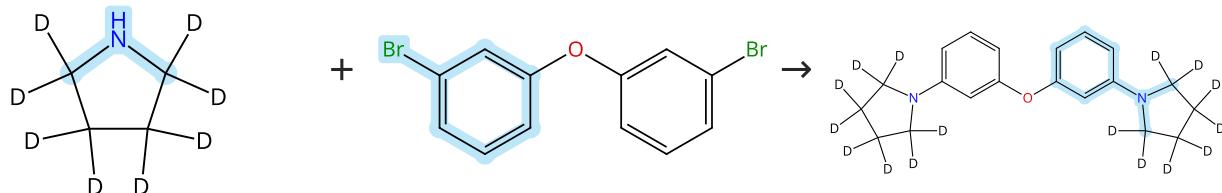
By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

Experimental Protocols

Scheme 106 (1 Reaction)

Steps: 1 Yield: 95%



Suppliers (22)

Suppliers (14)

31-614-CAS-39091044

Steps: 1 Yield: 95%

1.1 Reagents: Cesium carbonate

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos  
Solvents: 1,4-Dioxane; 18 h, 100 °C

Optimized Red-Absorbing Dyes for Imaging and Sensing

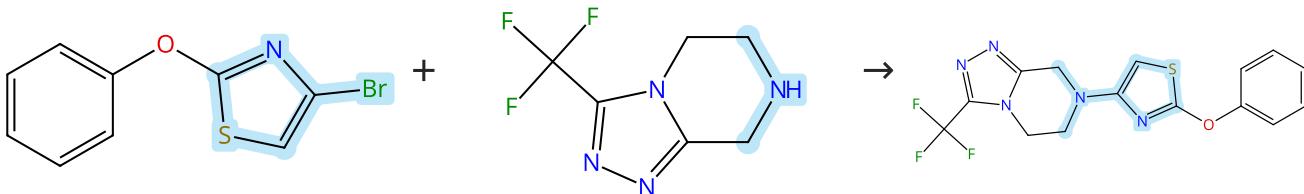
By: Grimm, Jonathan B.; et al

Journal of the American Chemical Society (2023), 145(42), 23000-23013.

Experimental Protocols

Scheme 107 (1 Reaction)

Steps: 1 Yield: 95%



Suppliers (42)

Suppliers (79)

31-614-CAS-35422504

Steps: 1 Yield: 95%

1.1 Reagents: Sodium trimethylsilanolate

Solvents: Tetrahydrofuran; 5 min, rt

1.2 Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa$ C<sup>1'</sup>]phosphine- $\kappa$ P][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-

Solvents: Tetrahydrofuran; 3 h, 50 °C

Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

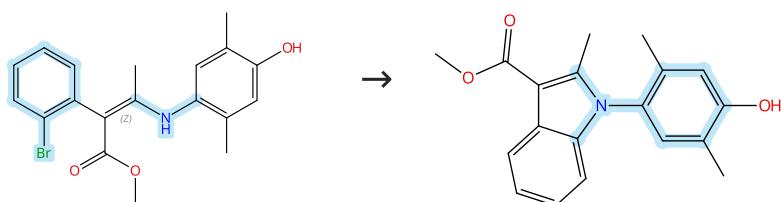
By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Experimental Protocols

Scheme 108 (1 Reaction)

Steps: 1 Yield: 95%



Double bond geometry shown

31-614-CAS-40129205

Steps: 1 Yield: 95%

1.1 Catalysts: Palladium diacetate, (-)-BINAP  
Solvents: Toluene; 20 min, rt

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

1.2 Reagents: Cesium carbonate  
Solvents: Toluene; 5 min, rt

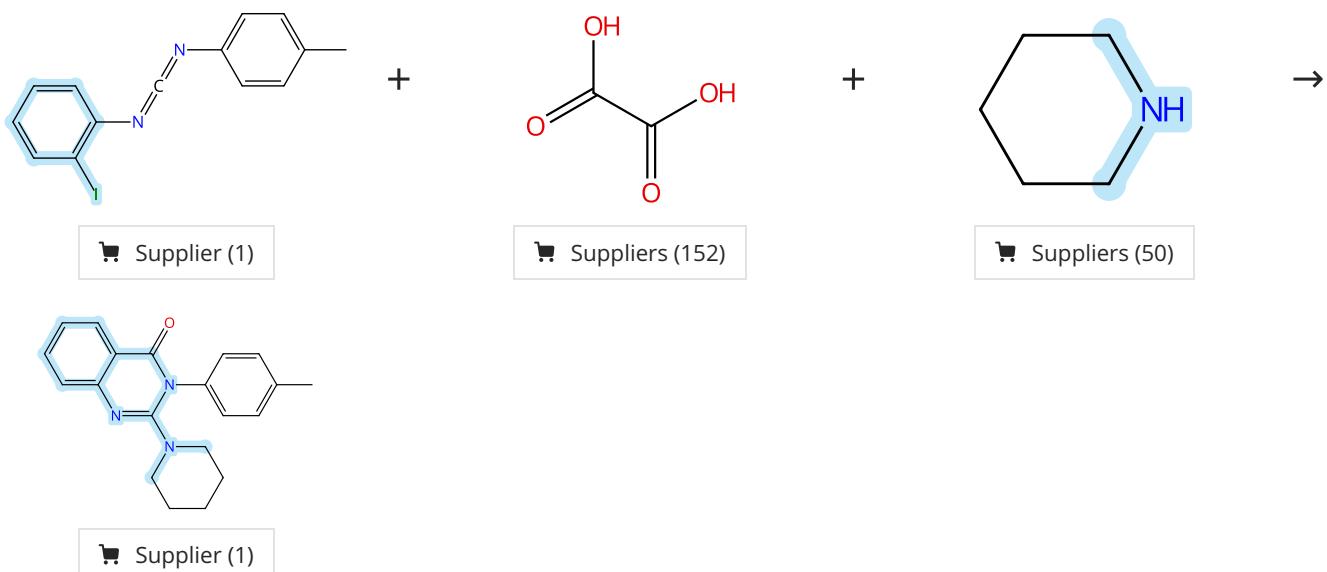
ACS Catalysis (2023), 13(11), 7680-7690.

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

Scheme 109 (1 Reaction)

Steps: 1 Yield: 95%



31-614-CAS-35649887

Steps: 1 Yield: 95%

1.1 Reagents: Potassium carbonate

Supported Palladium-Catalyzed Tandem Synthesis of 2-(Alkylamino/amino)-3-arylquinazolin-4(3H)-ones Employing C O Source

Catalysts: Palladium

By: Shaifali; et al

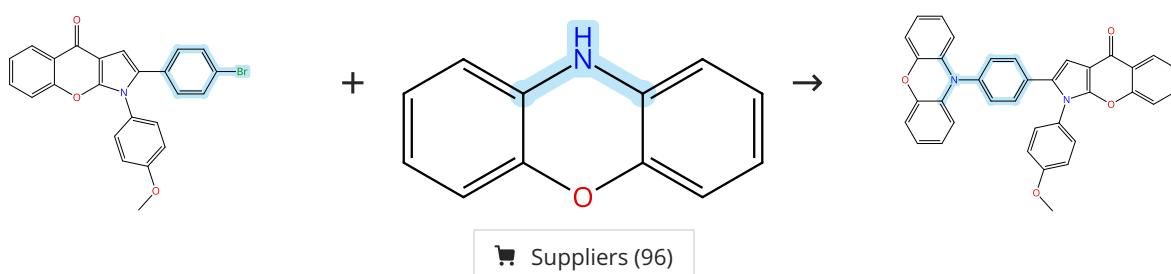
Solvents: Dimethylformamide, Xylene; 15 h, 130 °C

Chemistry - An Asian Journal (2023), 18(6), e202201288.

Experimental Protocols

Scheme 110 (1 Reaction)

Steps: 1 Yield: 95%



31-614-CAS-37557410

Steps: 1 Yield: 95%

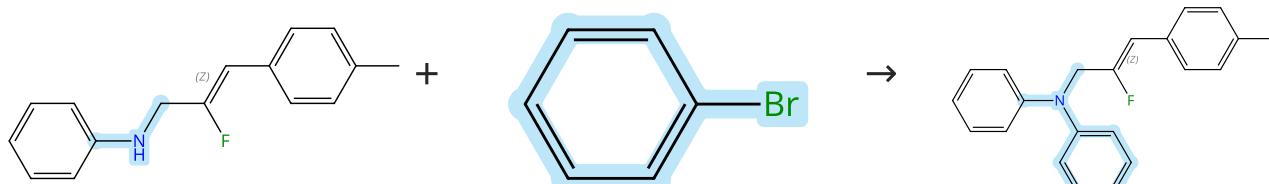
- 1.1 **Reagents:** Cesium carbonate, Tri-*tert*-butylphosphonium tetrafluoroborate  
**Catalysts:** Palladium diacetate  
**Solvents:** Toluene; 110 °C

I<sub>2</sub>-DMSO mediated dual α,β-C(sp<sup>2</sup>)-H functionalization/bicyclization of o-hydroxyphenyl enaminones to construct C2,C3-disubstituted chromone derivatives: chromeno[2,3-*b*]pyrrol-4(1*H*)-ones

By: Lei, Shuang-Gui; et al

Organic Chemistry Frontiers (2023), 10(19), 4843-4847.

Scheme 111 (1 Reaction)



Suppliers (71)

31-614-CAS-35248780

Steps: 1 Yield: 95%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium diacetate, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl  
**Solvents:** Toluene; 12 h, 110 °C

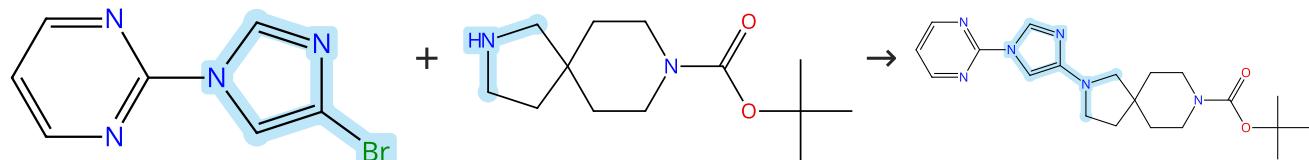
Pd-catalyzed access to mono- and di-fluoroallylic amines from primary anilines

By: Wang, Xingben; et al

Chemical Communications (Cambridge, United Kingdom) (2023), 59(4), 486-489.

Experimental Protocols

Scheme 112 (1 Reaction)



Suppliers (2)

Suppliers (81)

31-614-CAS-35422529

Steps: 1 Yield: 95%

- 1.1 **Reagents:** Sodium trimethylsilanolate  
**Solvents:** Tetrahydrofuran; 5 min, rt
- 1.2 **Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl-κC<sup>1'</sup>]phosphine-κP][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*4-2)-  
**Solvents:** Tetrahydrofuran; 3 h, 70 °C

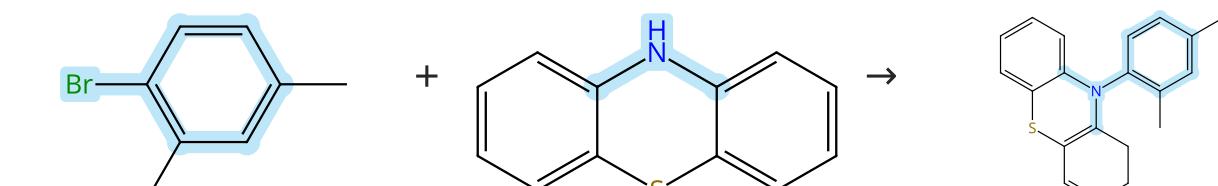
Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteraryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Experimental Protocols

Scheme 113 (1 Reaction)



Suppliers (84)

Suppliers (96)

31-614-CAS-35203607

Steps: 1 Yield: 95%

- 1.1 **Reagents:** Potassium *tert*-butoxide, Tri-*tert*-butylphosphine  
**Catalysts:** Palladium diacetate  
**Solvents:** Toluene; 24 h, 110 °C

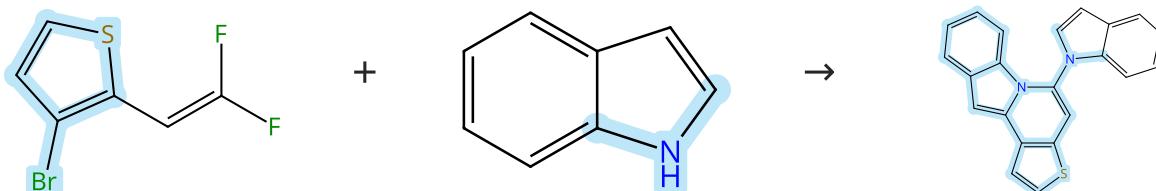
## Experimental Protocols

**The Effect of Molecular Conformations and Simulated "Self-Doping" in Phenothiazine Derivatives on Room-Temperature Phosphorescence**

By: Gao, Mingxue; et al

Angewandte Chemie, International Edition (2023), 62(5), e202214908.

Scheme 114 (1 Reaction)



Supplier (1)

Suppliers (109)

Steps: 1 Yield: 95%

31-614-CAS-37012578

Steps: 1 Yield: 95%

- 1.1 **Reagents:** Tripotassium phosphate  
**Solvents:** Dimethylformamide; 12 h, 100 °C; 100 °C → rt  
1.2 **Catalysts:** Triphenylphosphine, Palladium diacetate; 20 h, 140 °C; 140 °C → rt  
1.3 **Reagents:** Water

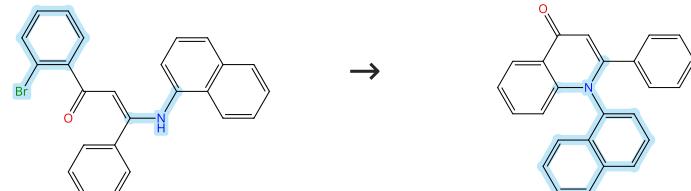
## Experimental Protocols

**Thienoindolizines and their Benzo-Fused Derivatives: Synthesis and Physical Properties**

By: Ausekle, Elina; et al

Chemistry - A European Journal (2023), 29(42), e202301038.

Scheme 115 (1 Reaction)



Steps: 1 Yield: 95%

31-614-CAS-36215363

Steps: 1 Yield: 95%

- 1.1 **Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-  
**Solvents:** Toluene; 20 h, 80 °C

## Experimental Protocols

**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

Scheme 116 (1 Reaction)



Suppliers (63)

Suppliers (119)

Suppliers (14)

Steps: 1 Yield: 95%

31-614-CAS-38970055

Steps: 1 Yield: 95%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa N^{\beta}$ )-1-naphthalenyl- $\kappa C$ ]-, (*SP*-4-4)

Solvents: 1,4-Dioxane; 24 h, 100 °C

Experimental Protocols

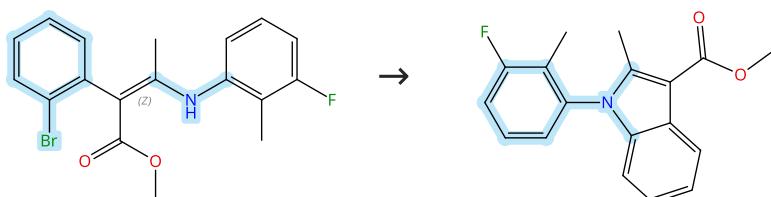
A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

## Scheme 117 (1 Reaction)

Steps: 1 Yield: 95%



Double bond geometry shown

31-614-CAS-40129194

Steps: 1 Yield: 95%

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

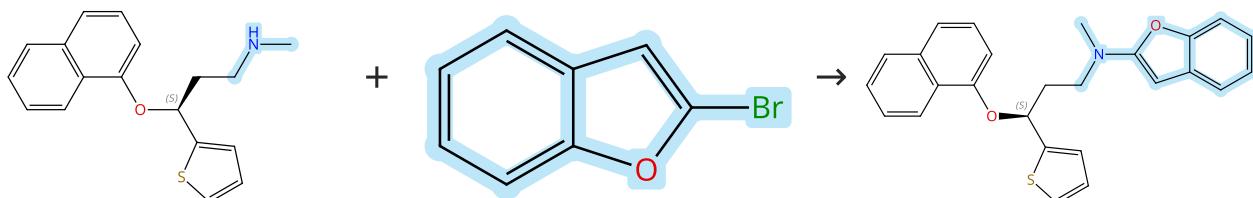
ACS Catalysis (2023), 13(11), 7680-7690.

1.1 Catalysts: Palladium diacetate, (-)-BINAP  
Solvents: Toluene; 20 min, rt  
1.2 Reagents: Cesium carbonate  
Solvents: Toluene; 5 min, rt  
1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

## Scheme 118 (1 Reaction)

Steps: 1 Yield: 95%

Absolute stereochemistry shown,  
Rotation (+)

Suppliers (67)

Absolute stereochemistry shown

Suppliers (57)

31-614-CAS-35422530

Steps: 1 Yield: 95%

Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

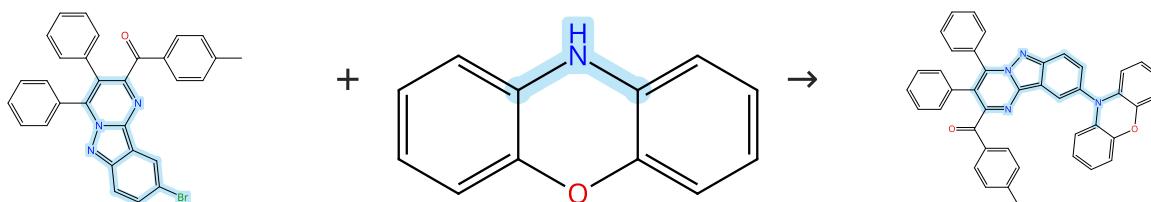
Journal of the American Chemical Society (2023), 145(6), 3323-3329.

1.1 Reagents: Sodium trimethylsilanolate  
Solvents: Tetrahydrofuran; 5 min, rt  
1.2 Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)  
Solvents: Tetrahydrofuran; 3 h, 70 °C

Experimental Protocols

Scheme 119 (1 Reaction)

Steps: 1 Yield: 95%



Suppliers (96)

31-614-CAS-36471773

Steps: 1 Yield: 95%

1.1 Reagents: Cesium carbonate, Tri-*tert*-butylphosphonium tetrafluoroborate

Catalysts: Palladium diacetate

Solvents: Toluene; 8 h, 110 °C

Experimental Protocols

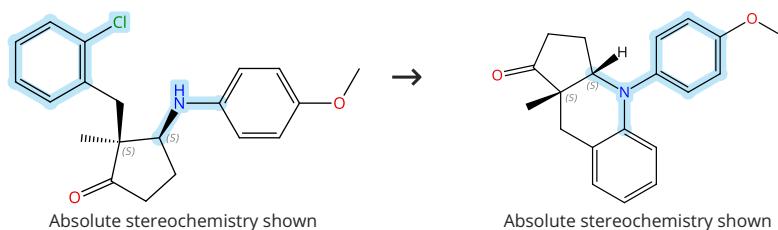
I<sub>2</sub>-Promoted gem-Diarylethene Involved Aza-Diels-Alder Reaction and Wagner-Meerwein Rearrangement: Construction of 2,3,4-Trisubstituted Pyrimido[1,2-b]indazole Skeletons

By: Zhou, You; et al

Organic Letters (2023), 25(19), 3386-3390.

Scheme 120 (1 Reaction)

Steps: 1 Yield: 95%



31-614-CAS-42013967

Steps: 1 Yield: 95%

1.1 Reagents: Cesium carbonate

Catalysts: Palladium diacetate, X-Phos

Solvents: 1,4-Dioxane; rt → 110 °C; 9 h, 110 °C

1.2 Solvents: Water

Experimental Protocols

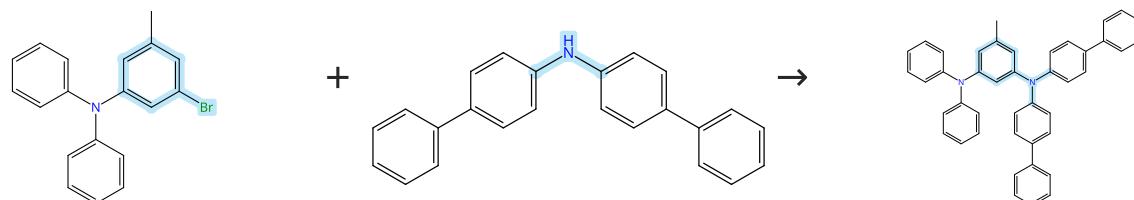
Catalytic Asymmetric Desymmetrization of Cyclic 1,3-Diketones Using Chiral Boro-phosphates

By: Chen, Minglei; et al

Organic Letters (2024), 26(18), 3951-3956.

Scheme 121 (1 Reaction)

Steps: 1 Yield: 95%



Suppliers (19)

Suppliers (82)

31-614-CAS-41860540

Steps: 1 Yield: 95%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; overnight, 110 °C

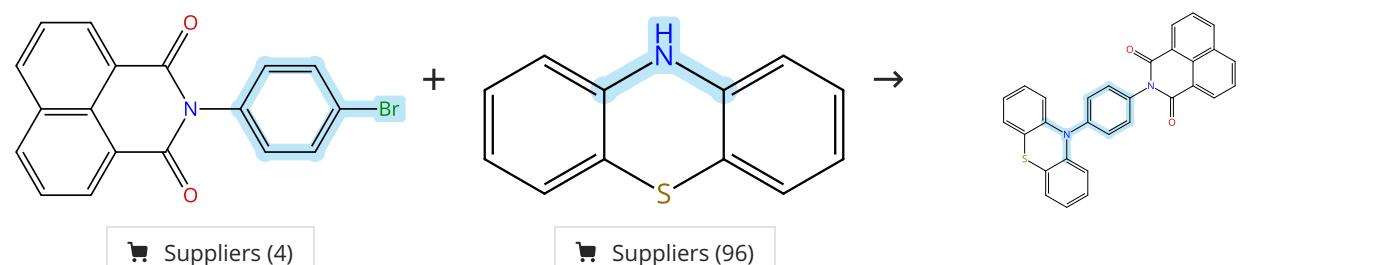
Experimental Protocols

Orienting Group Directed Cascade Borylation for Efficient One-Shot Synthesis of 1,4-BN-Doped Polycyclic Aromatic Hydrocarbons as Narrowband Organic Emitters

By: Wu, Lin; et al

Angewandte Chemie, International Edition (2024), 63(18), e202402020.

Scheme 122 (1 Reaction)



31-614-CAS-40244760

Steps: 1 Yield: 95%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 2 h, 150 °C

Experimental Protocols

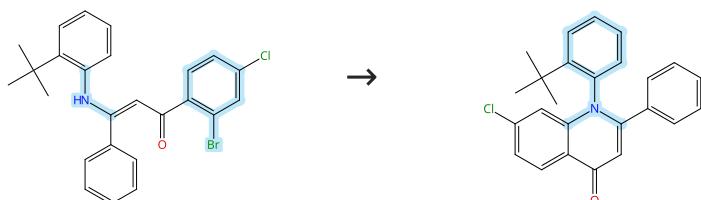
Long-Lived Charge-Separated State in Naphthalimide-Phenothiazine Compact Electron Donor-Acceptor Dyads: Effect of Molecular Conformation Restriction and Solvent Polarity

By: Xiao, Xiao; et al

Journal of Physical Chemistry B (2023), 127(31), 6982-6998.

Scheme 123 (1 Reaction)

Steps: 1 Yield: 95%



31-614-CAS-36215331

Steps: 1 Yield: 95%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

Experimental Protocols

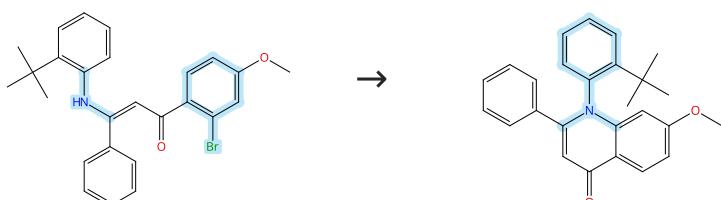
Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

Scheme 124 (1 Reaction)

Steps: 1 Yield: 95%



31-614-CAS-36215342

Steps: 1 Yield: 95%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

Solvents: Toluene; 20 h, 80 °C

Experimental Protocols

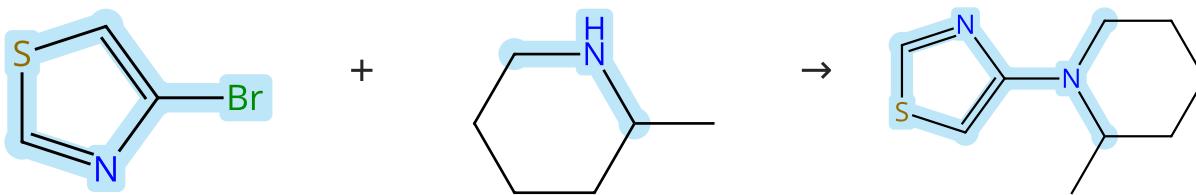
Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

Scheme 125 (1 Reaction)

Steps: 1 Yield: 95%



Suppliers (98)

Suppliers (51)

Supplier (1)

31-614-CAS-35422544

Steps: 1 Yield: 95%

## 1.1 Reagents: Sodium trimethylsilanolate

Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa P$ ][4-[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-

Solvents: Tetrahydrofuran; 3 h, 50 °C

## Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

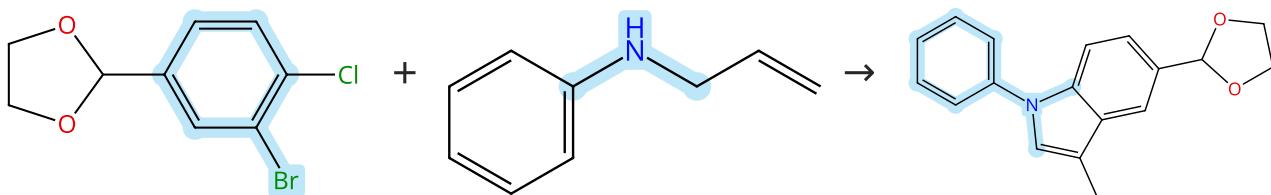
By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

## Experimental Protocols

Scheme 126 (1 Reaction)

Steps: 1 Yield: 95%



Suppliers (28)

Suppliers (63)

31-614-CAS-38970007

Steps: 1 Yield: 95%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa N^{\beta}$ )-1-naphthalenyl- $\kappa C$ ]-, (*SP*-4-4)-

Solvents: 1,4-Dioxane; 24 h, 100 °C

## A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

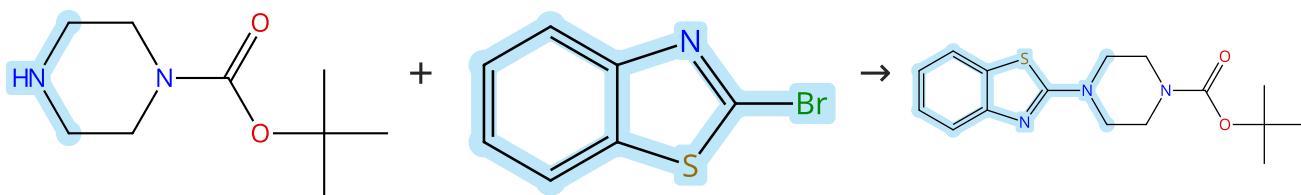
By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

## Experimental Protocols

Scheme 127 (1 Reaction)

Steps: 1 Yield: 95%



Suppliers (112)

Suppliers (79)

Suppliers (16)

31-614-CAS-36749007

Steps: 1 Yield: 95%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: 1,4-Dioxane; overnight, heated

## Structure-Activity relationships of replacements for the triazolopyridazine of Anti-Cryptosporidium lead SLU-2633

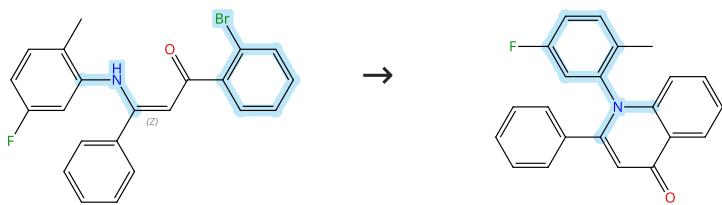
By: Oboh, Edmund; et al

Bioorganic &amp; Medicinal Chemistry (2023), 86, 117295.

## Experimental Protocols

**Scheme 128 (1 Reaction)**

Steps: 1 Yield: 95%



31-614-CAS-40129303

Steps: 1 Yield: 95%

**1.1 Reagents:** Potassium carbonate, Sodium hydroxide  
**Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene, 1,4-Dioxane; 18 h, 40 °C

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

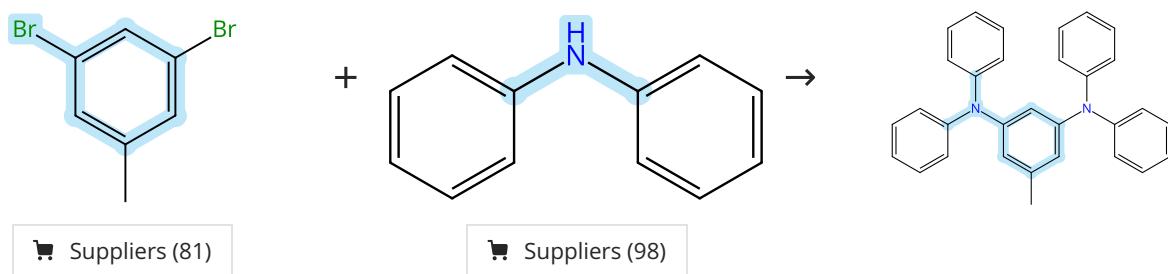
By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

Experimental Protocols

**Scheme 129 (1 Reaction)**

Steps: 1 Yield: 95%



31-614-CAS-41569301

Steps: 1 Yield: 95%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate  
**Solvents:** Toluene; overnight, 110 °C

Orienting Group Directed Cascade Borylation for Efficient One-Shot Synthesis of 1,4-BN-Doped Polycyclic Aromatic Hydrocarbons as Narrowband Organic Emitters

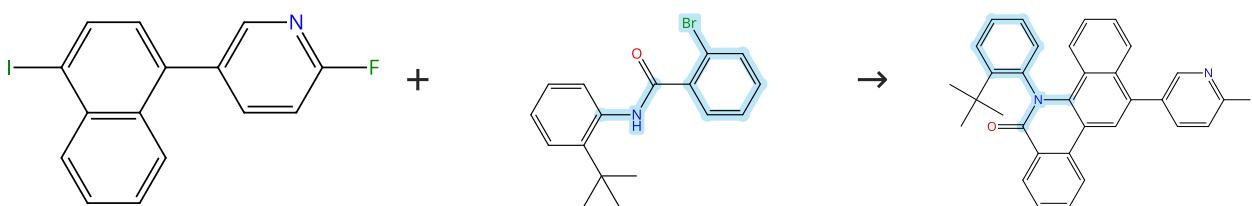
By: Wu, Lin; et al

Angewandte Chemie, International Edition (2024), 63(18), e202402020.

Experimental Protocols

**Scheme 130 (1 Reaction)**

Steps: 1 Yield: 95%



31-614-CAS-41071031

Steps: 1 Yield: 95%

**1.1 Reagents:** Norbornene, Silver sulfate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, (4S,4'S)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole  
**Solvents:** Toluene, Water; 36 h, 80 °C

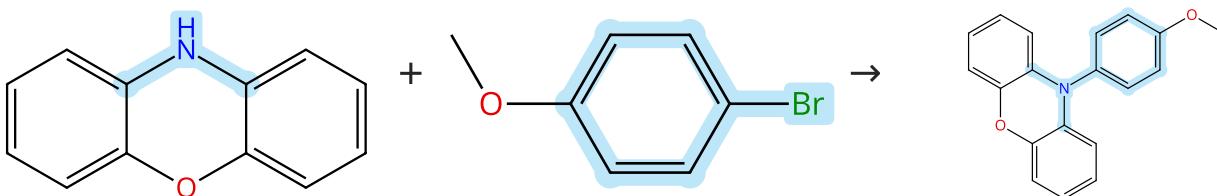
Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C-N axially chiral scaffolds

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

Experimental Protocols

Scheme 131 (1 Reaction)



Suppliers (96)

Suppliers (69)

Suppliers (4)

31-614-CAS-37287062

Steps: 1 Yield: 95%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 24 h, reflux

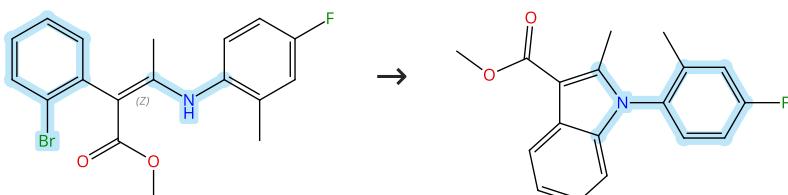
Structurally Diversified Calix[3]phenoxazines: Synthesis, Solid-State Conformational Investigation, and Host-Guest Chemistry

By: Mao, Lijun; et al

Organic Letters (2023), 25(30), 5597-5601.

Scheme 132 (1 Reaction)

Steps: 1 Yield: 95%



Double bond geometry shown

31-614-CAS-40129199

Steps: 1 Yield: 95%

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

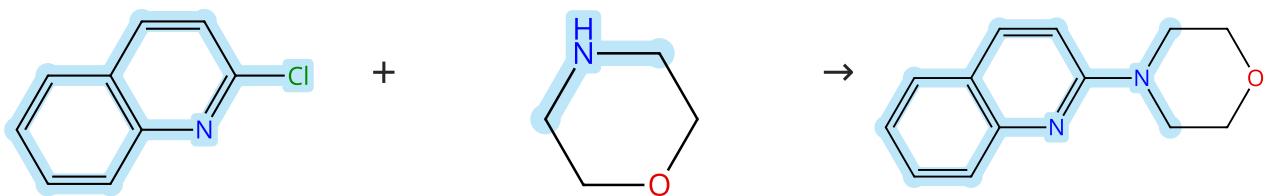
ACS Catalysis (2023), 13(11), 7680-7690.

1.1 Catalysts: Palladium diacetate, (-)-BINAP  
Solvents: Toluene; 20 min, rt  
1.2 Reagents: Cesium carbonate  
Solvents: Toluene; 5 min, rt  
1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

Scheme 133 (1 Reaction)

Steps: 1 Yield: 95%



Suppliers (88)

Suppliers (83)

Suppliers (17)

31-614-CAS-38030213

Steps: 1 Yield: 95%

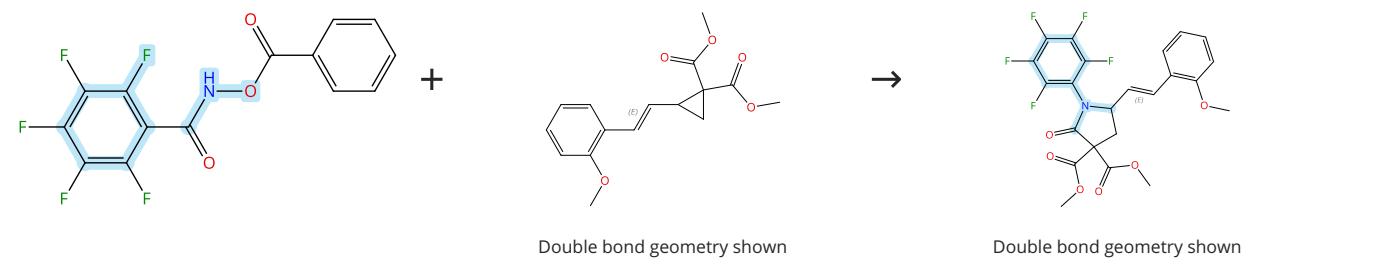
Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

Experimental Protocols

Scheme 134 (1 Reaction)



31-614-CAS-36837148

Steps: 1 Yield: 95%

**1.1 Reagents:** Cesium carbonate  
**Catalysts:** 2,2'-Bipyridine, Tris(dibenzylideneacetone)dipalladium  
**Solvents:** Tetrahydrofuran; 24 h, 50 °C

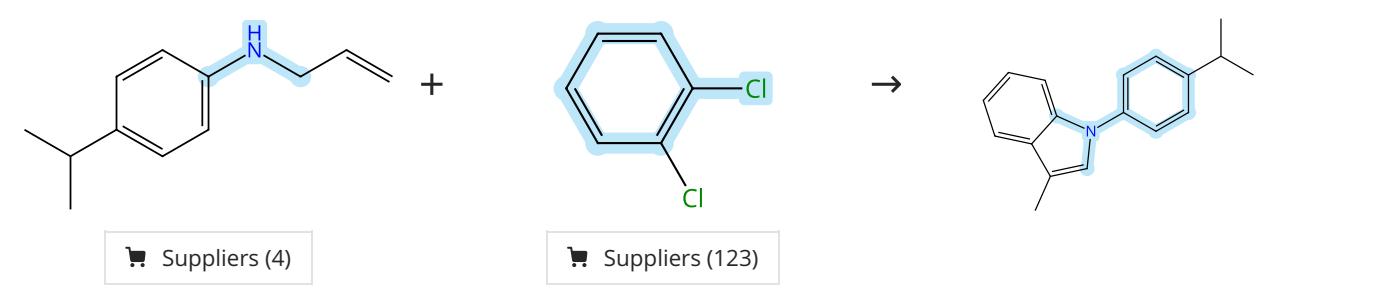
[3+2] Cycloaddition of Vinyl Cyclopropane and Hydroxylamines via Isocyanate Intermediate to  $\gamma$ -Lactams

By: Huang, Xiaobing; et al

Chinese Journal of Chemistry (2023), 41(16), 1937-1942.

Experimental Protocols

Scheme 135 (1 Reaction)



31-614-CAS-38969954

Steps: 1 Yield: 95%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa$ N<sup>3</sup>)-1-naphthalenyl- $\kappa$ C]-, (*SP*-4-4)-  
**Solvents:** 1,4-Dioxane; 24 h, 100 °C

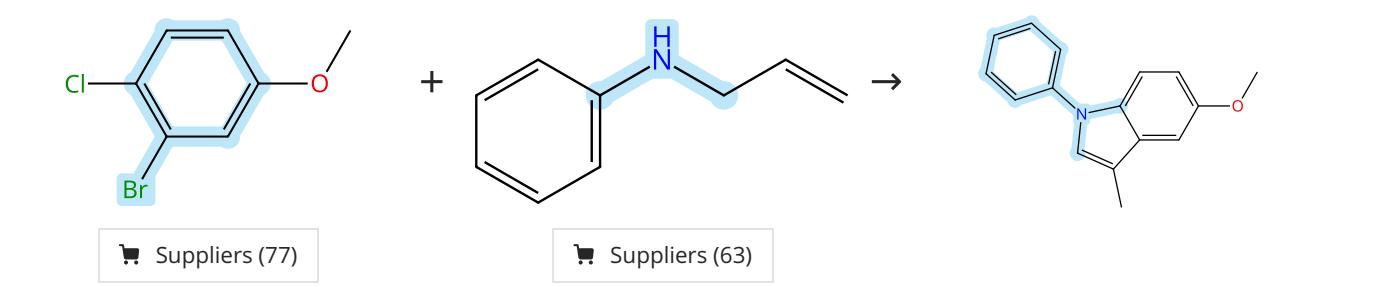
A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

Experimental Protocols

Scheme 136 (1 Reaction)



31-614-CAS-38969999

Steps: 1 Yield: 95%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa$ N<sup>3</sup>)-1-naphthalenyl- $\kappa$ C]-, (*SP*-4-4)-  
**Solvents:** 1,4-Dioxane; 24 h, 100 °C

A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

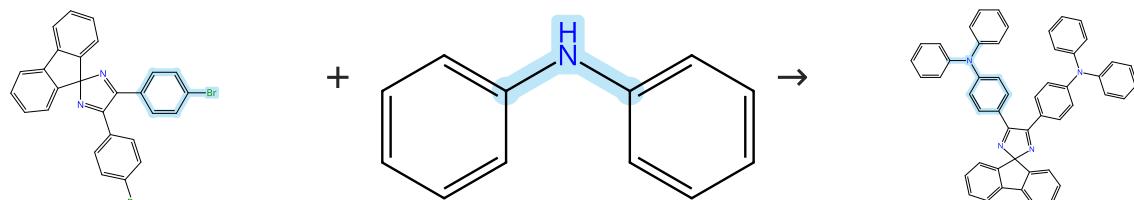
By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

Experimental Protocols

Scheme 137 (1 Reaction)

Steps: 1 Yield: 95%



Suppliers (98)

31-614-CAS-38470382

Steps: 1 Yield: 95%

1.1 Reagents: Sodium *tert*-butoxide, Tri-*tert*-butylphosphine  
Catalysts: Tris(dibenzylideneacetone)dipalladium  
Solvents: Toluene; overnight, 115 °C

Experimental Protocols

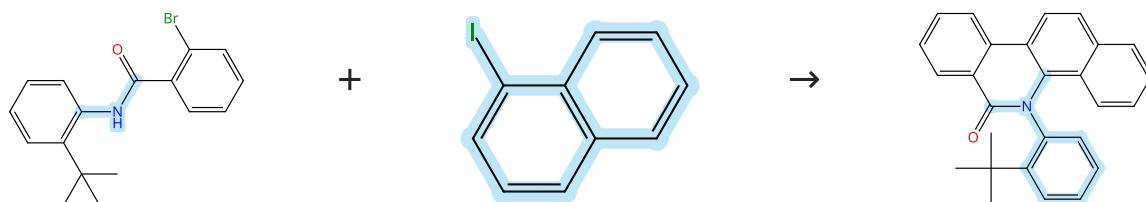
**A Breakthrough in Solution-Processed Ultra-Deep-Blue HLCT OLEDs: A Record External Quantum Efficiency Exceeding 10% Based on Novel V-Shaped Emitters**

By: Liao, Chuanxin; et al

Advanced Materials (Weinheim, Germany) (2023), 35(48), 2305310.

Scheme 138 (1 Reaction)

Steps: 1 Yield: 95%



Suppliers (5)

Suppliers (87)

31-614-CAS-41070998

Steps: 1 Yield: 95%

1.1 Reagents: Norbornene, Cesium carbonate  
Catalysts: Tris(dibenzylideneacetone)dipalladium, (4*S*,4'*S*)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole  
Solvents: Toluene, Water; 36 h, 80 °C

Experimental Protocols

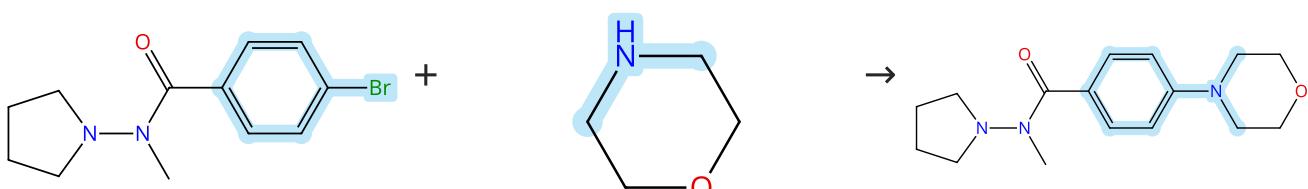
**Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C–N axially chiral scaffolds**

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

Scheme 139 (1 Reaction)

Steps: 1 Yield: 95%



Suppliers (83)

31-614-CAS-39746713

Steps: 1 Yield: 95%

1.1 Reagents: Cesium carbonate  
Catalysts: Palladium diacetate, X-Phos  
Solvents: 1,4-Dioxane; 20 h, 100 °C  
1.2 Reagents: Ammonium chloride  
Solvents: Water

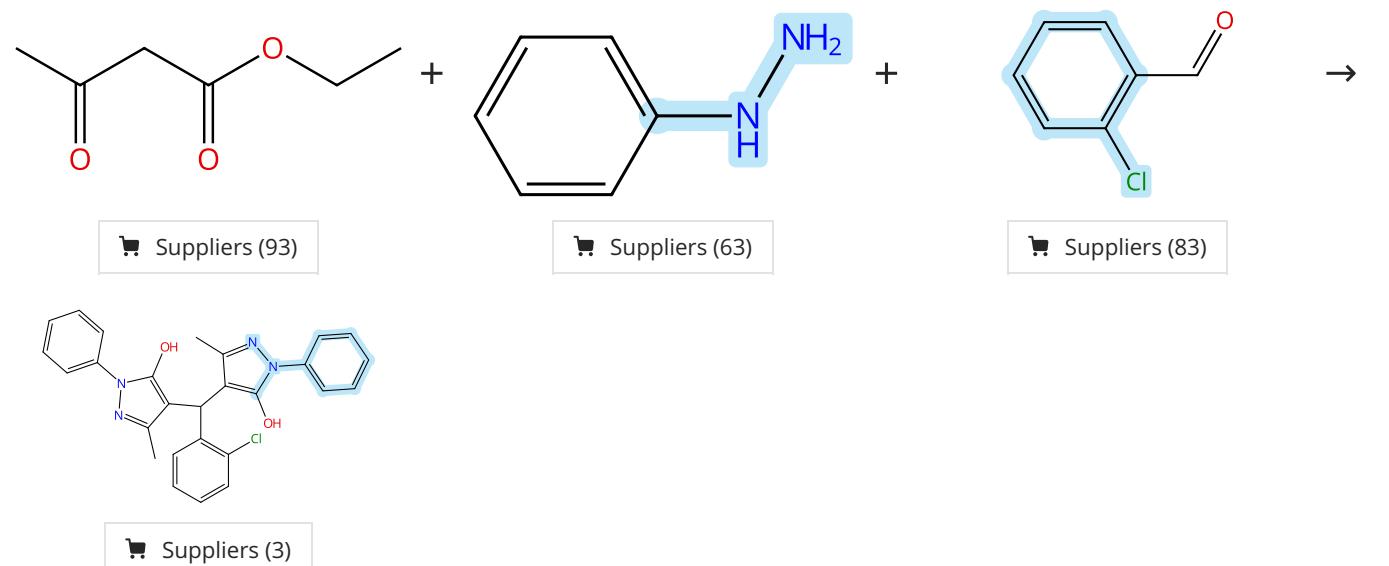
Experimental Protocols

**S<sub>N</sub>2 Reaction at the Amide Nitrogen Center Enables Hydrazide Synthesis**

By: Fang, Wen; et al

Angewandte Chemie, International Edition (2024), 63(14), e202317570.

Scheme 140 (1 Reaction)



31-614-CAS-41650745

Steps: 1 Yield: 95%

1.1 **Catalysts:** Iron oxide ( $\text{Fe}_3\text{O}_4$ ), Palladium, 1,4-Bis(4-pyridyl) benzene; 12 min, 60 °C

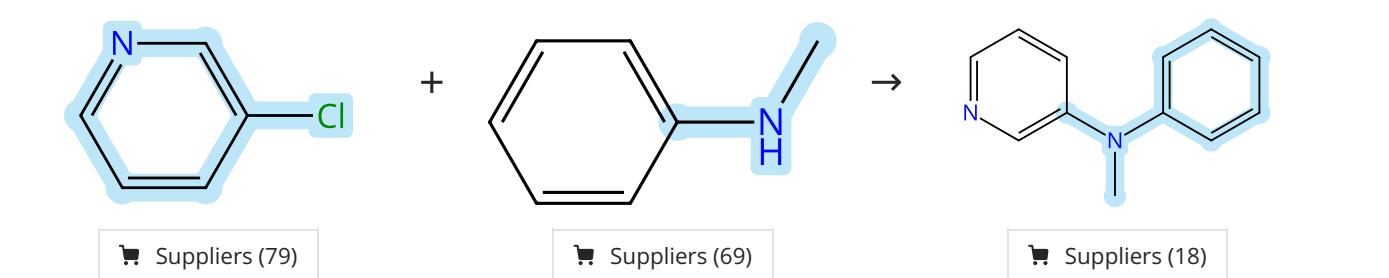
Experimental Protocols

Palladium immobilized onto 1,4-bis(pyrid-4-yl)benzene grafted to n-propyl-functionalized  $\text{Fe}_3\text{O}_4@\text{MCM}-41$  nanoparticles (PBPBPMF) as a novel, green, reusable, and versatile catalyst for preparing bis(pyrazolyl)methane and biphenyl derivatives

By: AlMohamadi, Hamad; et al

Research on Chemical Intermediates (2024), 50(8), 3619-3644.

Scheme 141 (1 Reaction)



31-614-CAS-38030254

Steps: 1 Yield: 95%

1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2-*n*)-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

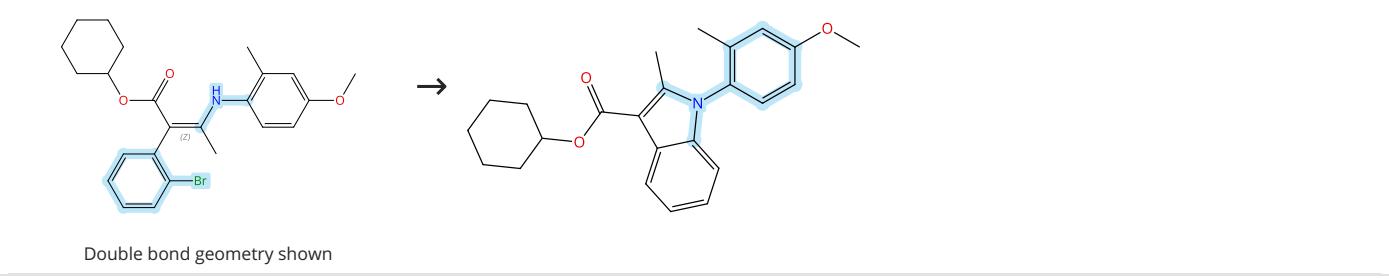
Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex ( $\text{SiPr}^{\text{Ph}}_2\text{Pd}(\text{cin})\text{Cl}$ ) at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

Scheme 142 (1 Reaction)

Steps: 1 Yield: 94%



31-614-CAS-40129217

Steps: 1 Yield: 94%

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

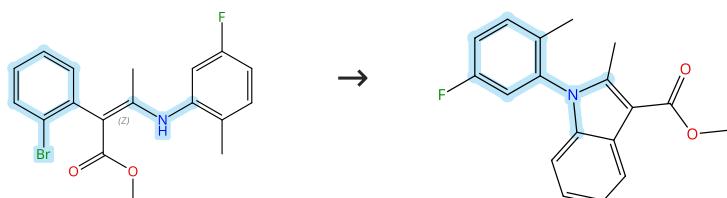
ACS Catalysis (2023), 13(11), 7680-7690.

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt
- 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt
- 1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

Scheme 143 (1 Reaction)

Steps: 1 Yield: 94%



Double bond geometry shown

31-614-CAS-40129201

Steps: 1 Yield: 94%

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

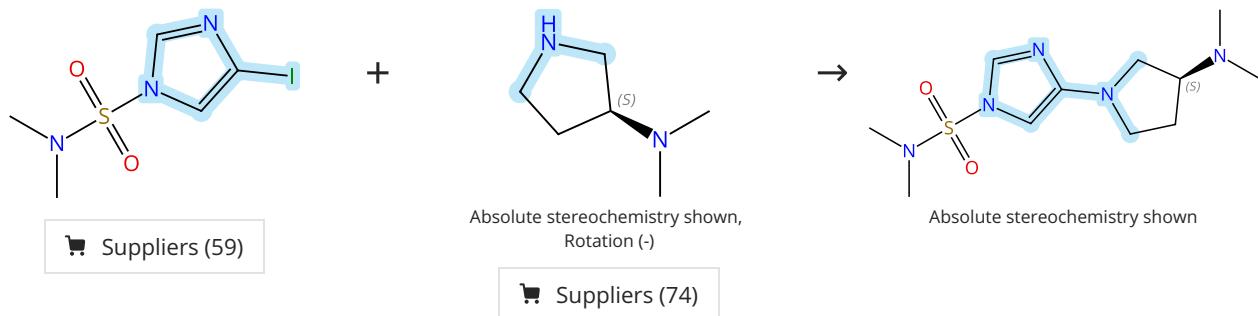
ACS Catalysis (2023), 13(11), 7680-7690.

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt
- 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt
- 1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

Scheme 144 (1 Reaction)

Steps: 1 Yield: 94%



31-614-CAS-35422514

Steps: 1 Yield: 94%

Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

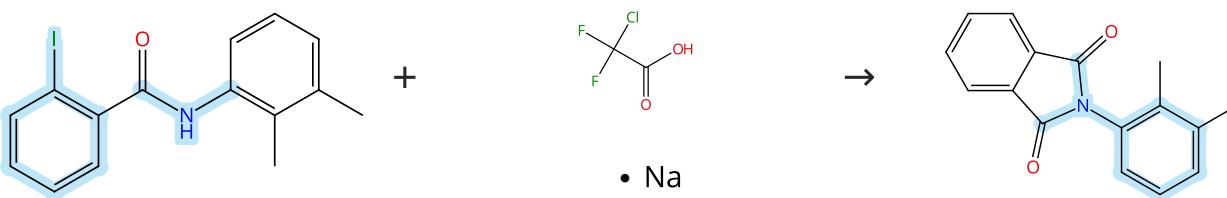
By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

- 1.1 **Reagents:** Sodium trimethylsilanolate  
**Solvents:** 1,4-Dioxane; 5 min, rt
- 1.2 **Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-  
**Solvents:** 1,4-Dioxane; 3 h, 50 °C

Experimental Protocols

Scheme 145 (1 Reaction)



Suppliers (11)

Suppliers (88)

Suppliers (13)

31-614-CAS-38558272

Steps: 1 Yield: 94%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Bis[2-(diphenylphosphino)phenyl] ether

Solvents: Dimethylformamide; 5 h, 95 °C

Synthesis of N-substituted phthalimides via Pd-catalyzed [4+1] cycloaddition reaction

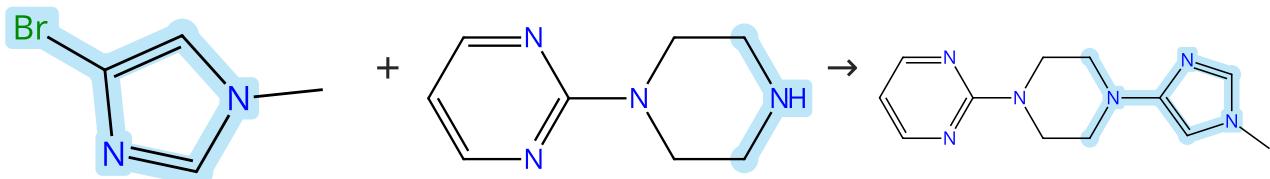
By: Hu, Chengxian; et al

Chemical Communications (Cambridge, United Kingdom) (2023), 59(100), 14839-14842.

Experimental Protocols

Scheme 146 (2 Reactions)

Steps: 1 Yield: 93-94%



Suppliers (85)

Suppliers (101)

31-614-CAS-35422512

Steps: 1 Yield: 94%

1.1 Reagents: Sodium trimethylsilanolate

Solvents: Tetrahydrofuran; 5 min, rt

1.2 Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-

Solvents: Tetrahydrofuran; 3 h, 70 °C

Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Experimental Protocols

31-614-CAS-42726355

Steps: 1 Yield: 93%

1.1 Reagents: Sodium trimethylsilanolate

Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-

Solvents: Tetrahydrofuran; 1 h, 70 °C; 2 h, 70 °C

Kinetic Modeling Enables Understanding of Off-Cycle Processes in Pd-Catalyzed Amination of Five-Membered Heteroaryl Halides

By: Raguram, Elaine Reichert; et al

Journal of the American Chemical Society (2024), 146(48), 33035-33047.

Experimental Protocols

Scheme 147 (1 Reaction)

Steps: 1 Yield: 94%



Suppliers (85)

31-614-CAS-40641318

Steps: 1 Yield: 94%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, tris[ $\mu$ -[(1,2- $\eta$ :4,5- $\eta$ )-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 24 h, 105 °C

Experimental Protocols

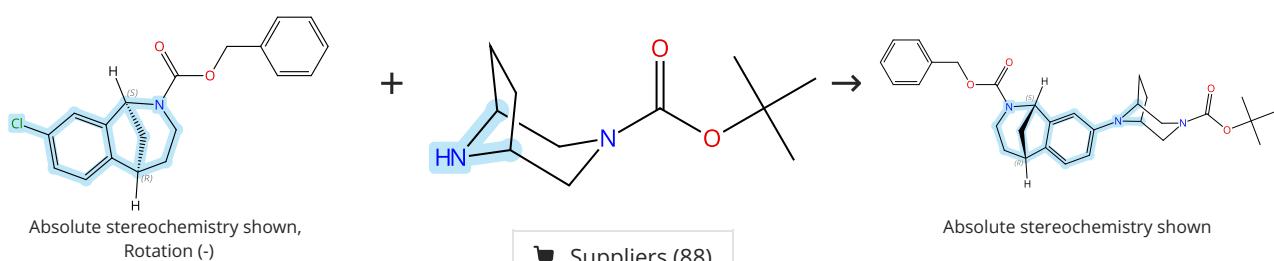
Synthesis of Azadioxa-Planar Triphenylboranes Bridged by Aryl- and Alkylimino Groups and Their Photophysical Properties

By: Kitamoto, Yuichi; et al

Journal of Organic Chemistry (2023), 88(9), 5852-5860.

Scheme 148 (1 Reaction)

Steps: 1 Yield: 94%



31-614-CAS-41349176

Steps: 1 Yield: 94%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: Toluene; 4 h, 100 °C

Experimental Protocols

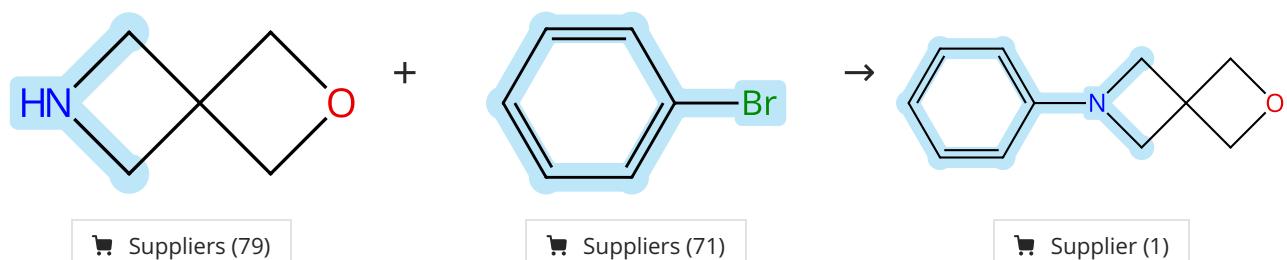
Structure-affinity relationships of stereoisomers of norbenzo morphan-derived  $\sigma_2$ R/TMEM97 modulators

By: Lu, Yan; et al

European Journal of Medicinal Chemistry (2023), 257, 115488.

Scheme 149 (1 Reaction)

Steps: 1 Yield: 94%



31-614-CAS-38465864

Steps: 1 Yield: 94%

1.1 Reagents: Cesium carbonate

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

Solvents: Toluene; 16 h, 100 °C

Experimental Protocols

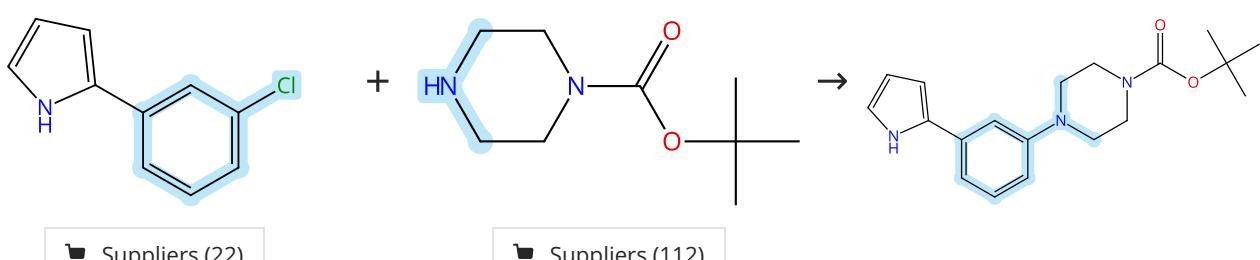
Introducing covalent warheads on spirocyclic  $sp^2$ - $sp^3$  fragments by innate C-H functionalization

By: Martinelli, Matteo; et al

Organic &amp; Biomolecular Chemistry (2023), 21(46), 9230-9235.

Scheme 150 (1 Reaction)

Steps: 1 Yield: 94%



31-614-CAS-41378274

Steps: 1 Yield: 94%

1.1 Reagents: Lithium bis(trimethylsilyl)amide

Catalysts: Tris(dibenzylideneacetone)dipalladium, 1*H*-Imidazolium, 1,3-bis[2,6-bis(1-methylethyl)phenyl]-, chloride (1:1)

Solvents: Tetrahydrofuran; 2 h, 80 °C

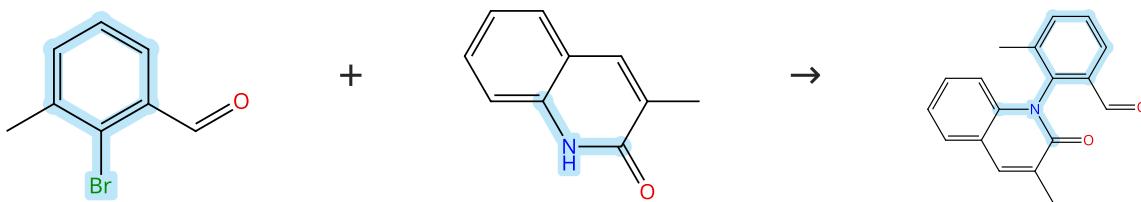
Experimental Protocols

5-HT<sub>6</sub> receptor neutral antagonists protect astrocytes: A lesson from 2-phenylpyrrole derivatives

By: Drop, Marcin; et al

European Journal of Medicinal Chemistry (2024), 275, 116615.

Scheme 151 (1 Reaction)



Suppliers (65)

Suppliers (51)

31-614-CAS-41335285

Steps: 1 Yield: 94%

1.1 Catalysts: Palladium, tris[μ-[(1,2-η:4,5-η)-(1*E*,4*D*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2*R*)-1-[*(1R*)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferroceneSolvents: *tert*-Butyl methyl ether; 30 min, rt

1.2 Reagents: Tripotassium phosphate; 36 h, 90 °C

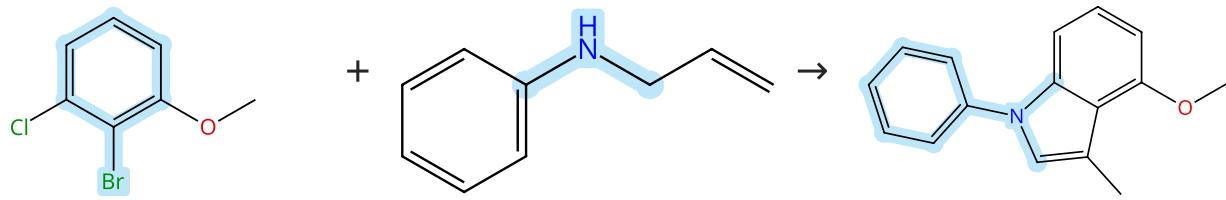
Experimental Protocols

Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

Scheme 152 (1 Reaction)



Suppliers (56)

Suppliers (63)

31-614-CAS-38969996

Steps: 1 Yield: 94%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl-κ<sup>β</sup>)-1-naphthalenyl-κ*C*]-, (*SP*-4-4)-

Solvents: 1,4-Dioxane; 24 h, 100 °C

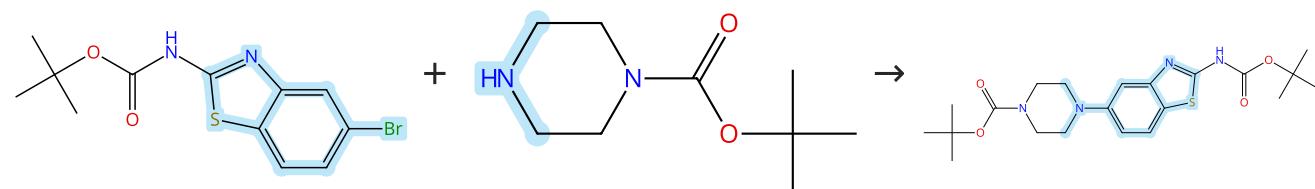
Experimental Protocols

A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

Scheme 153 (1 Reaction)



Suppliers (34)

Suppliers (112)

31-614-CAS-36748969

Steps: 1 Yield: 94%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: 1,4-Dioxane; overnight, heated

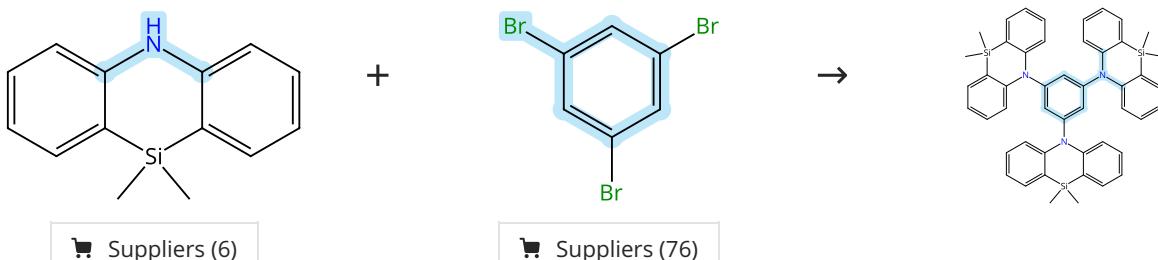
Experimental Protocols

Structure-Activity relationships of replacements for the triazolopyridazine of Anti-Cryptosporidium lead SLU-2633

By: Oboh, Edmund; et al

Bioorganic &amp; Medicinal Chemistry (2023), 86, 117295.

Scheme 154 (1 Reaction)



31-614-CAS-43547763

Steps: 1 Yield: 94%

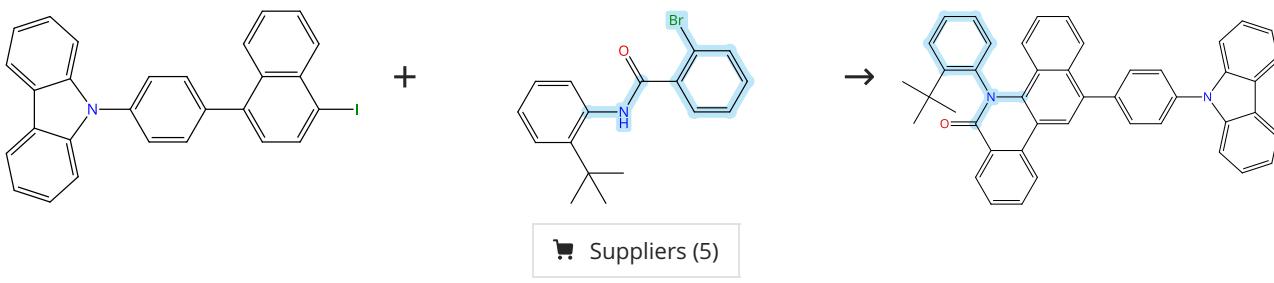
Borylation and rearrangement reactions of azasilaanthracenes to afford B,N-doped nanographenes

By: Zender, Elena; et al

Dalton Transactions (2024), 53(22), 9294-9300.

Experimental Protocols

Scheme 155 (1 Reaction)



31-614-CAS-41071027

Steps: 1 Yield: 94%

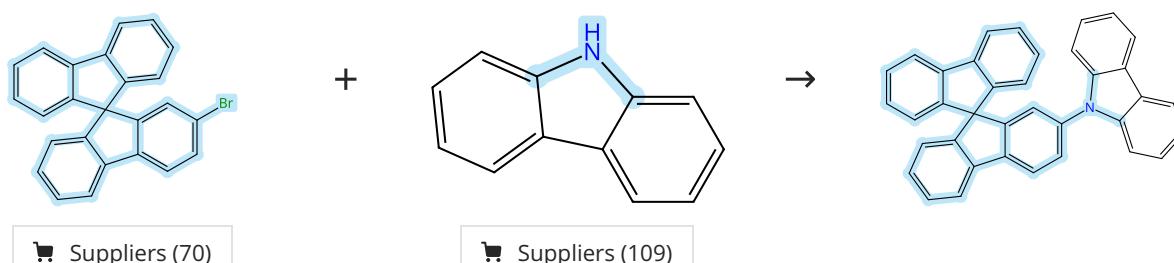
Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C-N axially chiral scaffolds

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

Experimental Protocols

Scheme 156 (1 Reaction)



31-614-CAS-43769878

Steps: 1 Yield: 94%

- 1.1 **Reagents:** Sodium *tert*-butoxide, Tri-*tert*-butylphosphine  
**Catalysts:** Palladium diacetate  
**Solvents:** Toluene; 12 h, reflux

## Experimental Protocols

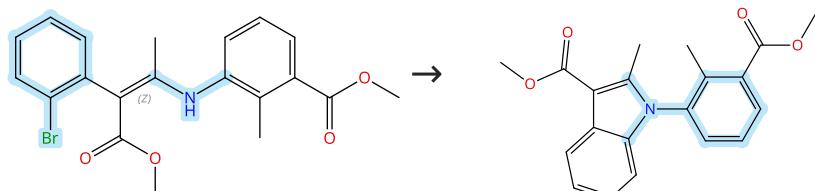
Utilizing spiro-type backbone donor to develop exciplex emitter and highly efficient phosphorescent OLEDs with low efficiency roll-off

By: Zhang, Ming; et al

IEEE Transactions on Electron Devices (2024), 71(11), 6864-6870.

Scheme 157 (1 Reaction)

Steps: 1 Yield: 94%



Double bond geometry shown

31-614-CAS-40129193

Steps: 1 Yield: 94%

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt  
 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt  
 1.3 5 min, rt; 18 h, 60 °C

## Experimental Protocols

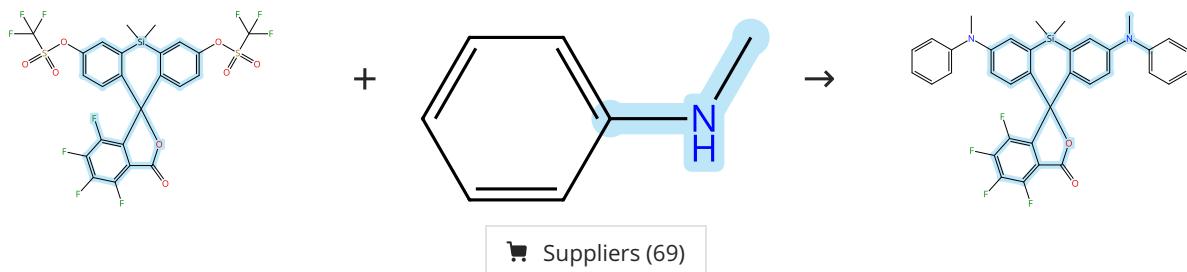
Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

Scheme 158 (1 Reaction)

Steps: 1 Yield: 94%



Suppliers (69)

31-614-CAS-39355756

Steps: 1 Yield: 94%

Optimized Red-Absorbing Dyes for Imaging and Sensing

- 1.1 **Reagents:** Cesium carbonate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, X-Phos  
**Solvents:** 1,4-Dioxane; 3 h, 80 °C

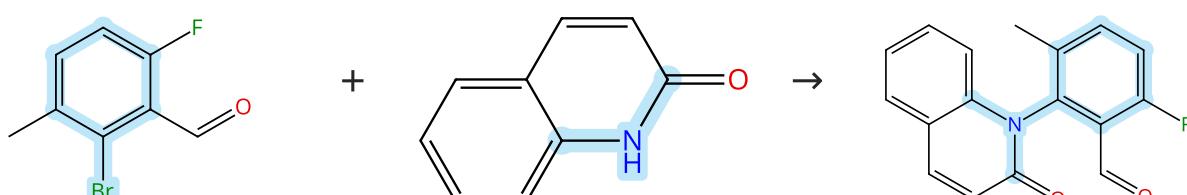
## Experimental Protocols

By: Grimm, Jonathan B.; et al

Journal of the American Chemical Society (2023), 145(42), 23000-23013.

Scheme 159 (1 Reaction)

Steps: 1 Yield: 94%



Suppliers (69)

Suppliers (83)

31-614-CAS-41335312

Steps: 1 Yield: 94%

**1.1 Catalysts:** Palladium, tris[ $\mu$ -[(1,2- $\eta$ ;4,5- $\eta$ )-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2*R*)-1-[([1*R*]-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferrocene

**Solvents:** *tert*-Butyl methyl ether; 30 min, rt

**1.2 Reagents:** Tripotassium phosphate; 36 h, 90 °C

Experimental Protocols

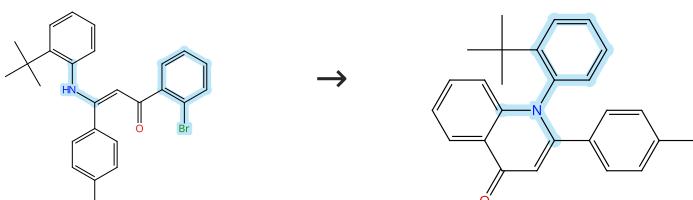
**Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination**

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

Scheme 160 (1 Reaction)

Steps: 1 Yield: 94%



31-614-CAS-36215339

Steps: 1 Yield: 94%

**1.1 Reagents:** Potassium carbonate

**Catalysts:** Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[([1*S*]-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-

**Solvents:** Toluene; 20 h, 80 °C

Experimental Protocols

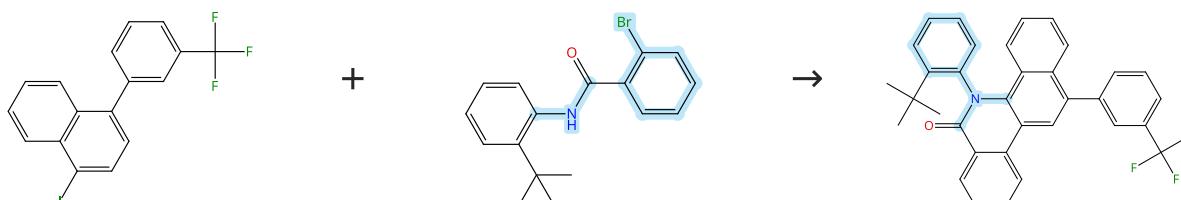
**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

Scheme 161 (1 Reaction)

Steps: 1 Yield: 94%



Suppliers (5)

31-614-CAS-41071017

Steps: 1 Yield: 94%

**1.1 Reagents:** Norbornene, Silver sulfate

**Catalysts:** Tris(dibenzylideneacetone)dipalladium, (4*S*,4'*S*)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole

**Solvents:** 1,2-Dichloroethane, Water; 36 h, 80 °C

Experimental Protocols

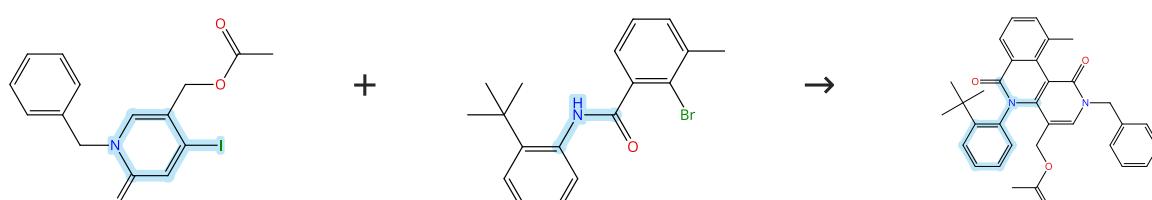
**Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C-N axially chiral scaffolds**

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

Scheme 162 (1 Reaction)

Steps: 1 Yield: 94%



Supplier (1)

31-614-CAS-39194502

Steps: 1 Yield: 94%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Tris(2-furyl)phosphine, Ethyl (1*S*,4*R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate

Solvents: Tetrahydrofuran; 5 min, rt; 48 h, 90 °C

Experimental Protocols

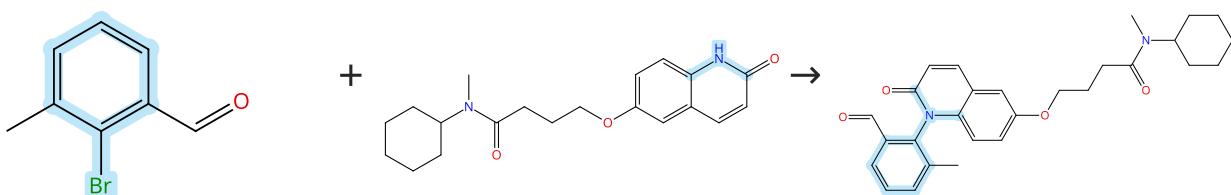
Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

Scheme 163 (1 Reaction)

Steps: 1 Yield: 94%



Suppliers (65)

Suppliers (66)

31-614-CAS-41335314

Steps: 1 Yield: 94%

1.1 Catalysts: Palladium, tris[ $\mu$ -[(1,2- $\eta$ ;4,5- $\eta$ )-(1*E*,4*D*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2*R*)-1-[ $(1R)$ -1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferroceneSolvents: *tert*-Butyl methyl ether; 30 min, rt

1.2 Reagents: Tripotassium phosphate; 36 h, 90 °C

Experimental Protocols

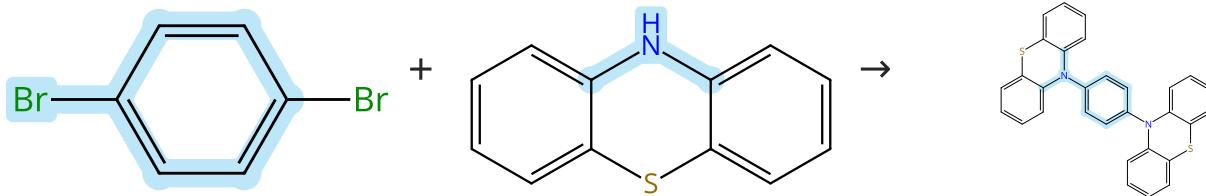
Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

Scheme 164 (1 Reaction)

Steps: 1 Yield: 94%



Suppliers (97)

Suppliers (96)

Supplier (1)

31-614-CAS-43376627

Steps: 1 Yield: 94%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

Solvents: Toluene; 10 - 30 min, 150 °C

Experimental Protocols

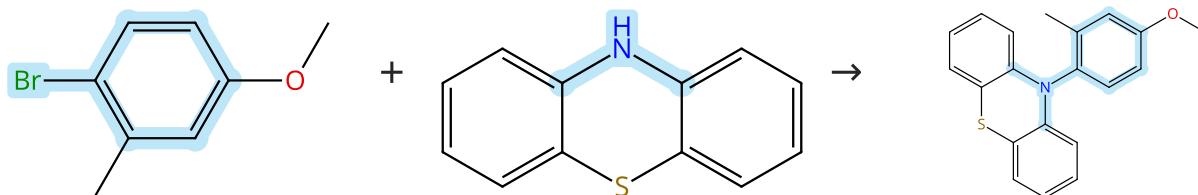
Microwave-Assisted Buchwald-Hartwig Double Amination: A Rapid and Promising Approach for the Synthesis of TADF Compounds

By: Mohd Jamel, Nor Shafiq; et al

ACS Omega (2024), 9(51), 50446-50457.

Scheme 165 (1 Reaction)

Steps: 1 Yield: 94%



Suppliers (79)

Suppliers (96)

31-614-CAS-35203621

Steps: 1 Yield: 94%

- 1.1 **Reagents:** Potassium *tert*-butoxide, Tri-*tert*-butylphosphine  
**Catalysts:** Palladium diacetate  
**Solvents:** Toluene; 24 h, 110 °C

## Experimental Protocols

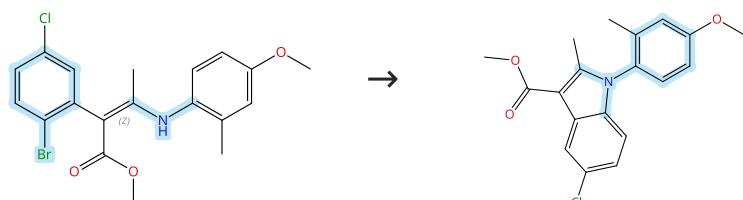
**The Effect of Molecular Conformations and Simulated "Self-Doping" in Phenothiazine Derivatives on Room-Temperature Phosphorescence**

By: Gao, Mingxue; et al

Angewandte Chemie, International Edition (2023), 62(5), e202214908.

## Scheme 166 (1 Reaction)

Steps: 1 Yield: 94%



Double bond geometry shown

31-614-CAS-40129181

Steps: 1 Yield: 94%

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt  
 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt  
 1.3 5 min, rt; 18 h, 60 °C

## Experimental Protocols

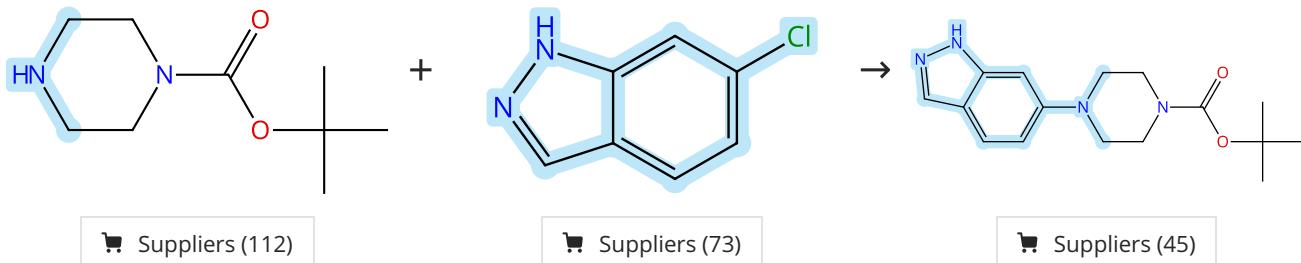
**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

## Scheme 167 (1 Reaction)

Steps: 1 Yield: 94%



Suppliers (112)

Suppliers (73)

Suppliers (45)

31-614-CAS-36749003

Steps: 1 Yield: 94%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine  
**Solvents:** 1,4-Dioxane; overnight, heated

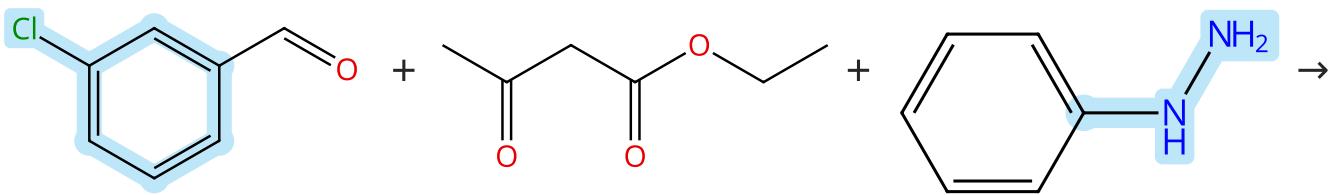
## Experimental Protocols

**Structure-Activity relationships of replacements for the triazolopyridazine of Anti-Cryptosporidium lead SLU-2633**

By: Oboh, Edmund; et al

Bioorganic &amp; Medicinal Chemistry (2023), 86, 117295.

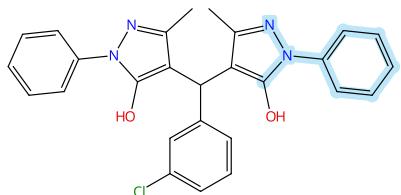
Scheme 168 (1 Reaction)



Suppliers (87)

Suppliers (93)

Suppliers (63)



31-614-CAS-41650768

Steps: 1 Yield: 94%

**1.1 Catalysts:** Iron oxide ( $\text{Fe}_3\text{O}_4$ ), Palladium, 1,4-Bis(4-pyridyl)benzene; 11 min, 60 °C

## Experimental Protocols

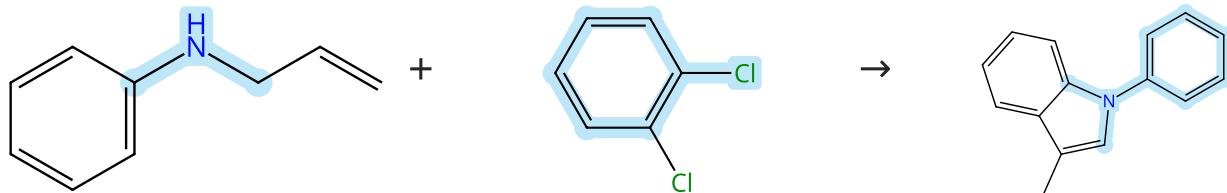
Palladium immobilized onto 1,4-bis(pyrid-4-yl)benzene grafted to n-propyl-functionalized  $\text{Fe}_3\text{O}_4@\text{MCM}-41$  nanoparticles (PBPBPMF) as a novel, green, reusable, and versatile catalyst for preparing bis(pyrazolyl)methane and biphenyl derivatives

By: AlMohamadi, Hamad; et al

Research on Chemical Intermediates (2024), 50(8), 3619-3644.

Scheme 169 (1 Reaction)

Steps: 1 Yield: 94%



Suppliers (63)

Suppliers (123)

Suppliers (5)

31-614-CAS-38969944

Steps: 1 Yield: 94%

**1.1 Reagents:** Sodium *tert*-butoxide

**Catalysts:** Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa\text{N}^{\beta}$ )-1-naphthalenyl- $\kappa\text{C}$ ]-, (*SP*-4-4)-

**Solvents:** 1,4-Dioxane; 24 h, 100 °C

## Experimental Protocols

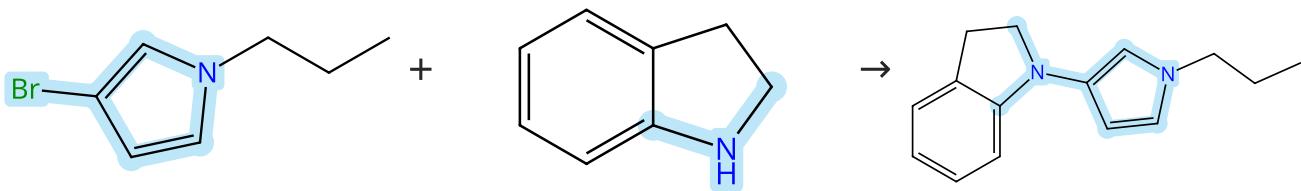
A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

By: Fan, Ruojian; et al

Organic Letters (2024), 26(1), 22-28.

Scheme 170 (1 Reaction)

Steps: 1 Yield: 94%



Suppliers (10)

Suppliers (93)

31-614-CAS-35422522

Steps: 1 Yield: 94%

**1.1 Reagents:** Sodium trimethylsilanolate  
**Solvents:** Tetrahydrofuran; 5 min, rt

**1.2 Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-  
**Solvents:** Tetrahydrofuran; 3 h, 90 °C

Experimental Protocols

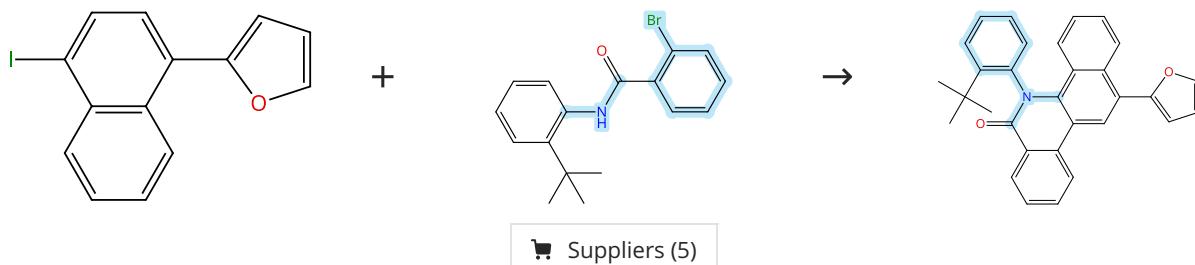
**Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteraryl Halides with Aliphatic Amines**

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

**Scheme 171 (1 Reaction)**

Steps: 1 Yield: 94%



31-614-CAS-41071030

Steps: 1 Yield: 94%

**1.1 Reagents:** Norbornene, Silver sulfate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, (4*S*,4'*S*)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole  
**Solvents:** Toluene, Water; 36 h, 80 °C

Experimental Protocols

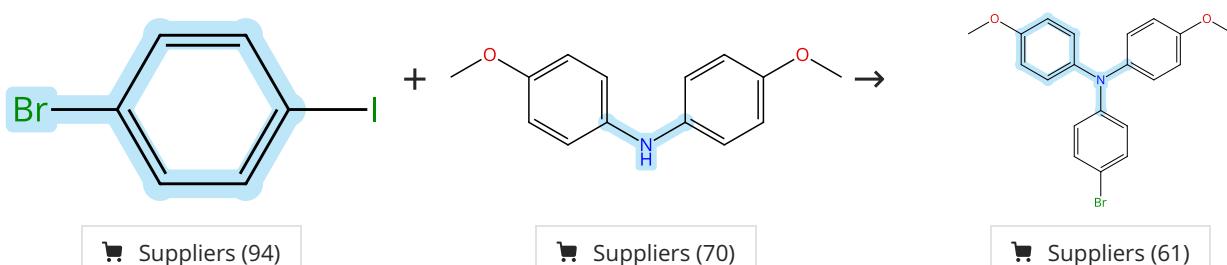
**Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C-N axially chiral scaffolds**

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

**Scheme 172 (1 Reaction)**

Steps: 1 Yield: 94%



31-614-CAS-40185497

Steps: 1 Yield: 94%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium diacetate, 1,1-Bis(diphenylphosphino)ferrocene  
**Solvents:** Toluene

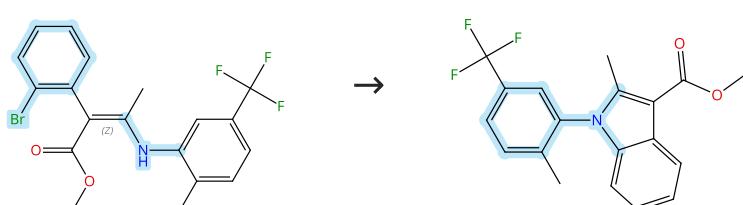
**Interplay between dual-state and aggregation-induced emission with ESIPT scaffolds containing triphenylamine substituents: Experimental and theoretical studies**

By: Stoerkler, Timothee; et al

Journal of Organic Chemistry (2023), 88(13), 9225-9236.

**Scheme 173 (1 Reaction)**

Steps: 1 Yield: 94%



Double bond geometry shown

31-614-CAS-40129200

Steps: 1 Yield: 94%

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

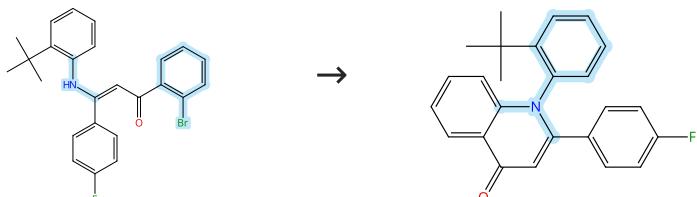
ACS Catalysis (2023), 13(11), 7680-7690.

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt
- 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt
- 1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

Scheme 174 (1 Reaction)

Steps: 1 Yield: 94%



31-614-CAS-36215325

Steps: 1 Yield: 94%

Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions

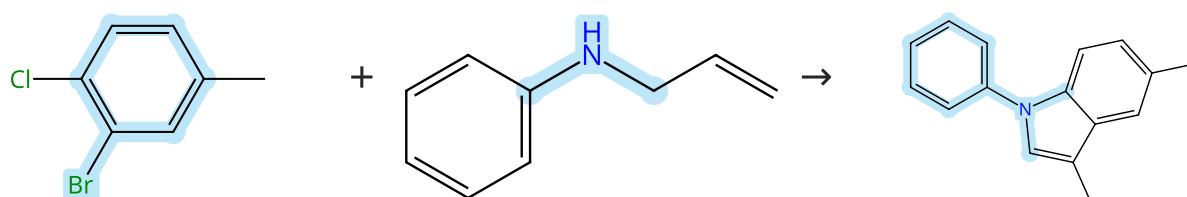
By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

Experimental Protocols

Scheme 175 (1 Reaction)

Steps: 1 Yield: 93%



Suppliers (69)

Suppliers (63)

31-614-CAS-38969993

Steps: 1 Yield: 93%

A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidine-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

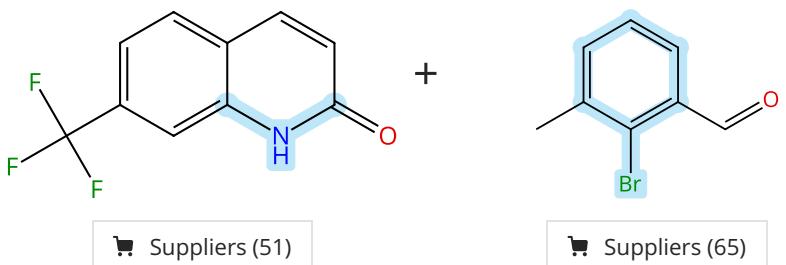
Organic Letters (2024), 26(1), 22-28.

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl-*kN*<sup>3</sup>)-1-naphthalenyl-*kC*]<sub>2</sub>, (*SP*-4-4)-  
**Solvents:** 1,4-Dioxane; 24 h, 100 °C

Experimental Protocols

Scheme 176 (1 Reaction)

Steps: 1 Yield: 93%



Suppliers (51)

Suppliers (65)

31-614-CAS-41335303

Steps: 1 Yield: 93%

**1.1 Catalysts:** Palladium, tris[ $\mu$ -[(1,2- $\eta$ ;4,5- $\eta$ )-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2*R*)-1-[(1*R*)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferrocene

**Solvents:** *tert*-Butyl methyl ether; 30 min, rt

**1.2 Reagents:** Tripotassium phosphate; 36 h, 90 °C

Experimental Protocols

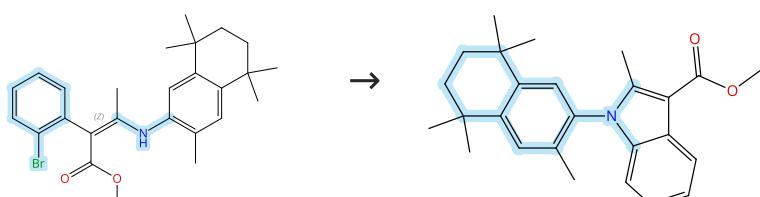
**Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination**

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

Scheme 177 (1 Reaction)

Steps: 1 Yield: 93%



Double bond geometry shown

31-614-CAS-40129216

Steps: 1 Yield: 93%

**1.1 Catalysts:** Palladium diacetate, (-)-BINAP

**Solvents:** Toluene; 20 min, rt

**1.2 Reagents:** Cesium carbonate

**Solvents:** Toluene; 5 min, rt

**1.3** 5 min, rt; 18 h, 60 °C

Experimental Protocols

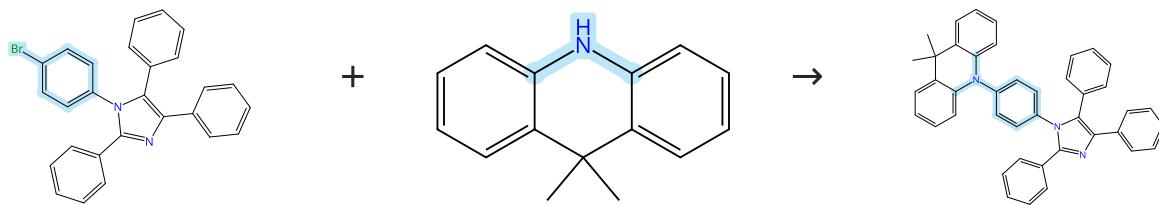
**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

Scheme 178 (1 Reaction)

Steps: 1 Yield: 93%



Suppliers (68)

31-614-CAS-36015632

Steps: 1 Yield: 93%

**1.1 Reagents:** Sodium *tert*-butoxide

**Catalysts:** Palladium diacetate, Tri-*tert*-butylphosphonium tetrafluoroborate

**Solvents:** Toluene; 24 h, 110 °C

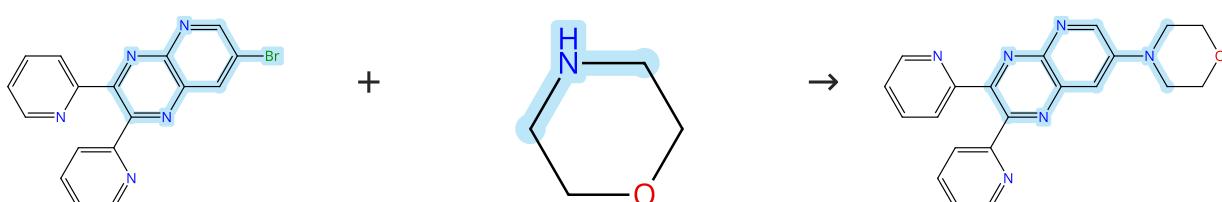
**Donor Influence on the Optoelectronic Properties of N-Substituted Tetraphenylimidazole Derivatives**

By: Matulaitis, Tomas; et al

ChemistrySelect (2023), 8(9), e202300274.

Scheme 179 (1 Reaction)

Steps: 1 Yield: 93%



Suppliers (83)

31-614-CAS-39479217

Steps: 1 Yield: 93%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium

Solvents: Toluene; 12 h, rt → 100 °C

Experimental Protocols

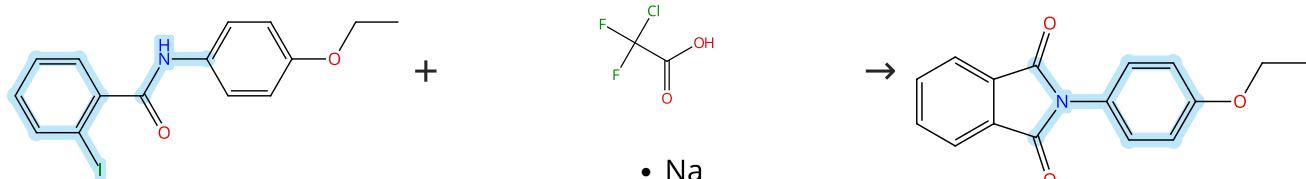
D-A Based 2,3-di(pyridin-2-yl)pyrido[2,3-b]pyrazine Amine derivatives as Blue-Orange Emitting Materials: Tuning of Opto-electrochemical and Theoretical properties

By: Mahadik, Suraj S.; et al

ChemistrySelect (2023), 8(48), e202303026.

**Scheme 180 (1 Reaction)**

Steps: 1 Yield: 93%



Suppliers (10)

Suppliers (88)

Suppliers (10)

31-614-CAS-38558268

Steps: 1 Yield: 93%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Bis[2-(diphenylphosphino)phenyl] ether

Solvents: Dimethylformamide; 5 h, 95 °C

Experimental Protocols

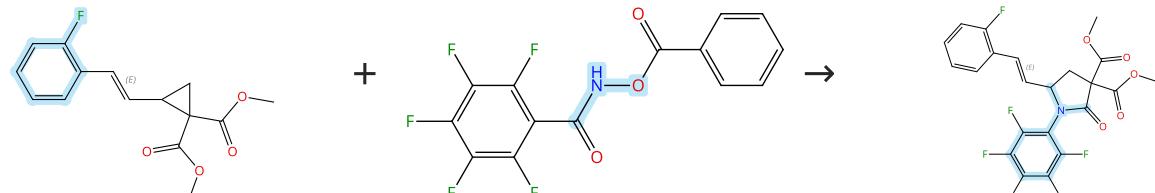
Synthesis of N-substituted phthalimides via Pd-catalyzed [4+1] cycloaddition reaction

By: Hu, Chengxian; et al

Chemical Communications (Cambridge, United Kingdom) (2023), 59(100), 14839-14842.

**Scheme 181 (1 Reaction)**

Steps: 1 Yield: 93%



Double bond geometry shown

Double bond geometry shown

31-614-CAS-36837152

Steps: 1 Yield: 93%

1.1 Reagents: Cesium carbonate

Catalysts: 2,2'-Bipyridine, Tris(dibenzylideneacetone)dipalladium

Solvents: Tetrahydrofuran; 24 h, 50 °C

Experimental Protocols

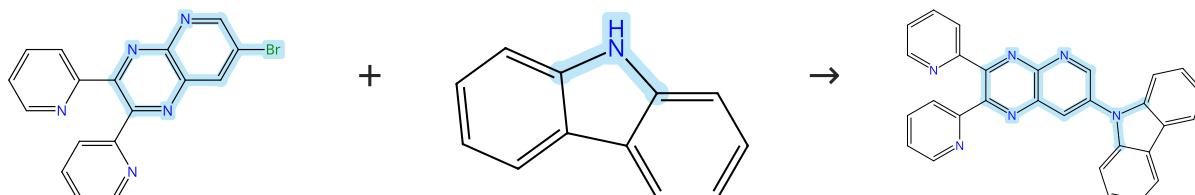
[3+2] Cycloaddition of Vinyl Cyclopropane and Hydroxylamines via Isocyanate Intermediate to  $\gamma$ -Lactams

By: Huang, Xiaobing; et al

Chinese Journal of Chemistry (2023), 41(16), 1937-1942.

**Scheme 182 (1 Reaction)**

Steps: 1 Yield: 93%



Suppliers (109)

31-614-CAS-39479219

Steps: 1 Yield: 93%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium

Solvents: Toluene; 12 h, rt → 100 °C

Experimental Protocols

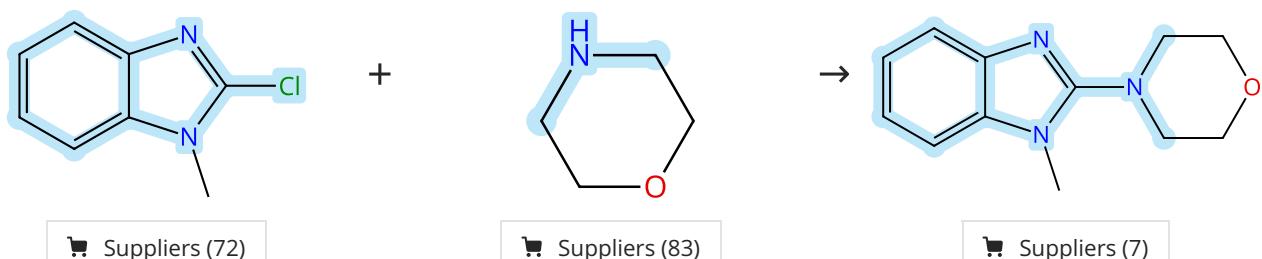
D-A Based 2,3-di(pyridin-2-yl)pyrido[2,3-b]pyrazine Amine derivatives as Blue-Orange Emitting Materials: Tuning of Opto-electrochemical and Theoretical properties

By: Mahadik, Suraj S.; et al

ChemistrySelect (2023), 8(48), e202303026.

## Scheme 183 (1 Reaction)

Steps: 1 Yield: 93%



31-614-CAS-38030228

Steps: 1 Yield: 93%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Stereoisomer of [(4S,5S)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3-η)-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

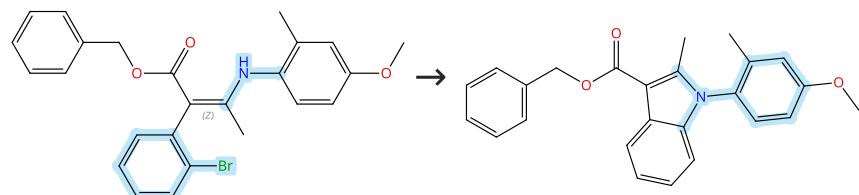
Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Scheme 184 (1 Reaction)

Steps: 1 Yield: 93%



Double bond geometry shown

31-614-CAS-40129222

Steps: 1 Yield: 93%

1.1 Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

Solvents: Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

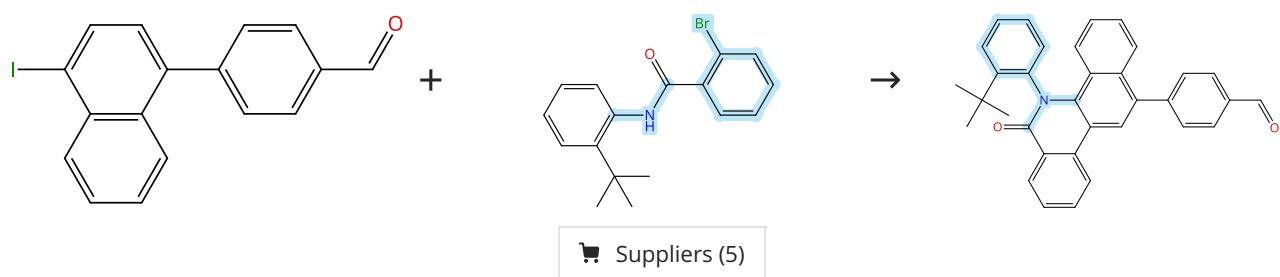
Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

## Scheme 185 (1 Reaction)

Steps: 1 Yield: 93%



31-614-CAS-41071039

Steps: 1 Yield: 93%

1.1 Reagents: Norbornene, Silver sulfate

Catalysts: Tris(dibenzylideneacetone)dipalladium, (4S,4'S)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole

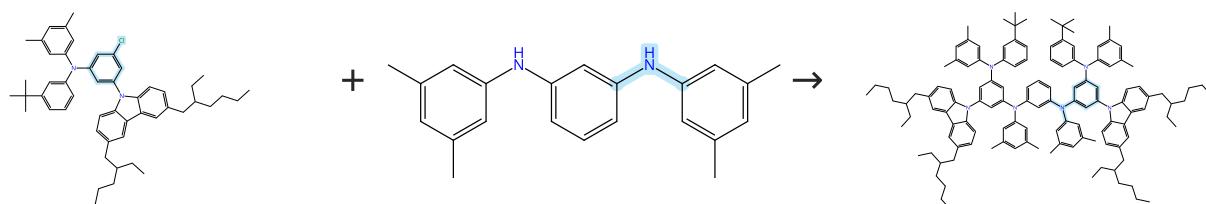
Solvents: Toluene, Water; 36 h, 80 °C

Experimental Protocols

Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C–N axially chiral scaffolds

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

**Scheme 186 (1 Reaction)**

Supplier (1)

31-614-CAS-38006367

Steps: 1 Yield: 93%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl

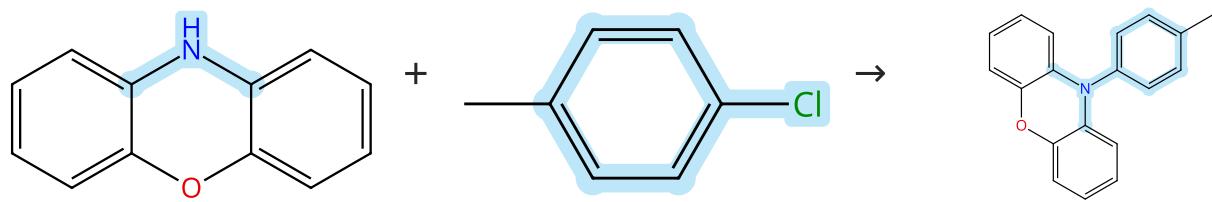
Solvents: *o*-Xylene; 2 h, 140 °C

Experimental Protocols

One-Shot Construction of BN-Embedded Heptadecacene Framework Exhibiting Ultra-narrowband Green Thermally Activated Delayed Fluorescence

By: Sano, Yusuke; et al

Journal of the American Chemical Society (2023), 145(21), 11504-11511.

**Scheme 187 (1 Reaction)**

Supplier (96)

Supplier (76)

Supplier (2)

31-614-CAS-42014429

Steps: 1 Yield: 93%

1.1 Catalysts: Phenylboronic acid, Palladium diacetate, 1*H*-Indole, 3-(dicyclohexylphosphino)-1-methyl-2-(2,3,4-trimethoxyphenyl)-

Solvents: Dichloromethane; rt

1.2 Reagents: Sodium *tert*-butoxide

Solvents: Toluene; rt; 24 h, 135 °C; 135 °C → rt

1.3 Solvents: Water; rt

Experimental Protocols

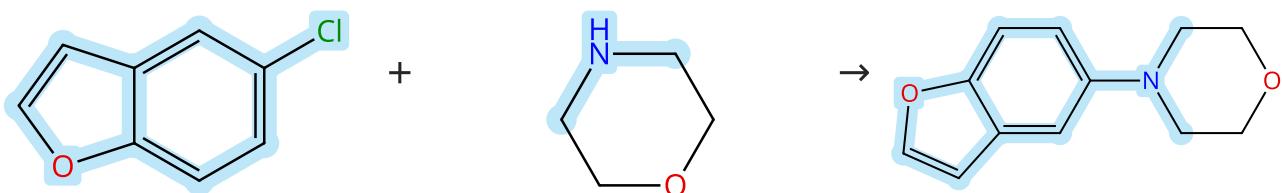
Application of indole-based monophosphine in ppm level Pd-catalyzed C–N bond formation

By: Li, Cheuk Long; et al

Journal of Organometallic Chemistry (2024), 1011, 123124.

**Scheme 188 (1 Reaction)**

Steps: 1 Yield: 93%



Suppliers (60)

Suppliers (83)

Supplier (1)

31-614-CAS-38030242

Steps: 1 Yield: 93%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

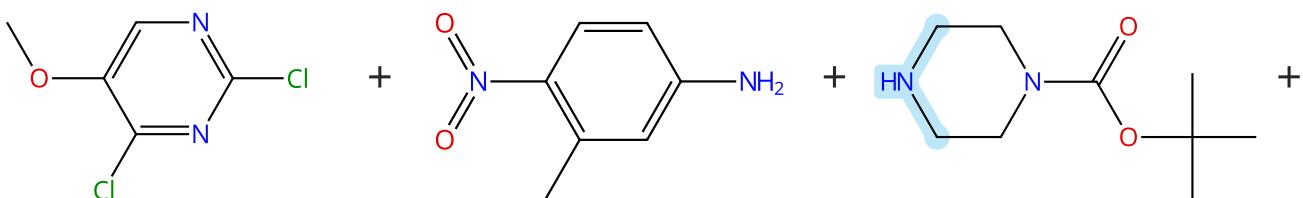
Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Scheme 189 (1 Reaction)

Steps: 1 Yield: 93%



Suppliers (75)

Suppliers (82)

Suppliers (112)



Suppliers (109)

31-614-CAS-36602307

Steps: 1 Yield: 93%

1.1 Reagents: Cesium carbonate  
Solvents: Dimethylformamide; 5 h, 80 °C1.2 Reagents: Diisopropylethylamine  
Solvents: 1-Butanol; 8 h, 120 °C1.3 Reagents: Hydrogen  
Catalysts: Palladium  
Solvents: Methanol; overnight, rt1.4 Reagents: 1-Hydroxybenzotriazole, 1-Ethyl-3-(3'-dimethylamino propyl)carbodiimide hydrochloride  
Solvents: Dimethylformamide; 6 h, rt1.5 Reagents: Hydrochloric acid  
Solvents: Dichloromethane, 1,4-Dioxane; 4 h, rt

Experimental Protocols

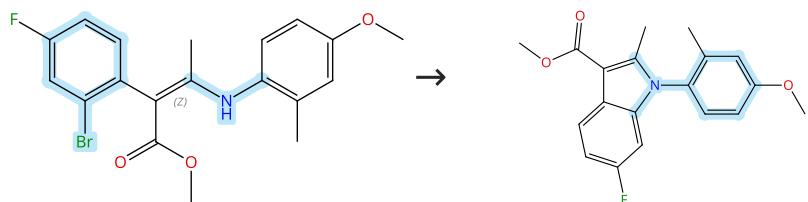
Discovery of Pyrimidinediamine Derivatives as Potent Methuosis Inducers for the Treatment of Triple-Negative Breast Cancer

By: He, Jia; et al

Journal of Medicinal Chemistry (2023), 66(11), 7421-7437.

**Scheme 190 (1 Reaction)**

Steps: 1 Yield: 93%



Double bond geometry shown

31-614-CAS-40129179

Steps: 1 Yield: 93%

1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

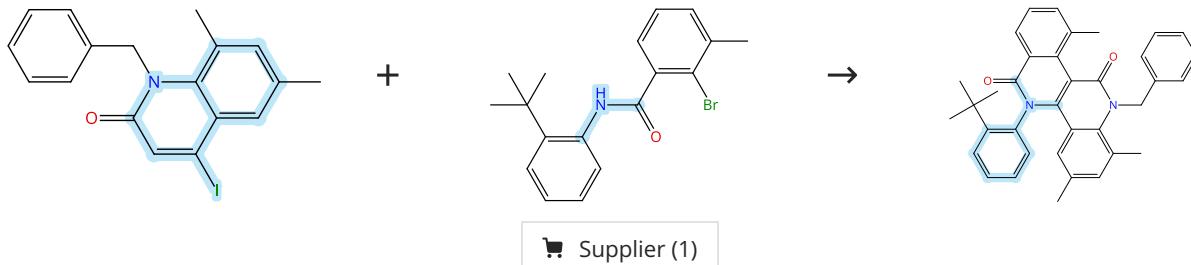
**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

**Scheme 191 (1 Reaction)**

Steps: 1 Yield: 93%



Supplier (1)

31-614-CAS-39194495

Steps: 1 Yield: 93%

1.1 **Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Ethyl (1*S,4R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate  
**Solvents:** Tetrahydrofuran; 5 min, rt; 48 h, 80 °C

Experimental Protocols

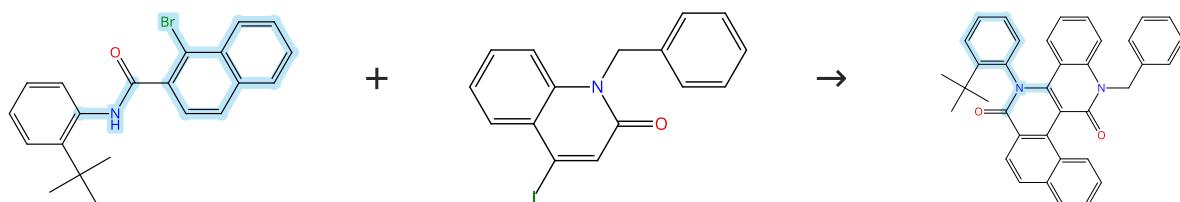
**Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality**

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

**Scheme 192 (1 Reaction)**

Steps: 1 Yield: 93%



31-614-CAS-39194509

Steps: 1 Yield: 93%

1.1 **Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Tris(2-furyl)phosphine, Ethyl (1*S,4R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate  
**Solvents:** Tetrahydrofuran; 5 min, rt; 48 h, 90 °C

Experimental Protocols

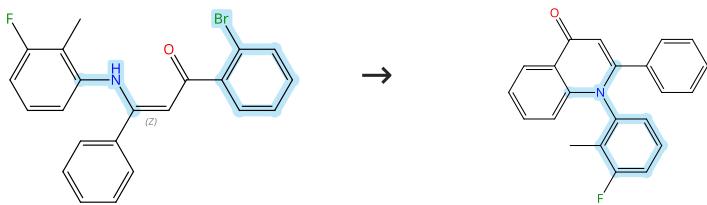
**Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality**

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

**Scheme 193 (1 Reaction)**

Steps: 1 Yield: 93%



Double bond geometry shown

31-614-CAS-40129287

Steps: 1 Yield: 93%

**1.1 Reagents:** Potassium carbonate, Sodium hydroxide  
**Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene, 1,4-Dioxane; 18 h, 40 °C

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

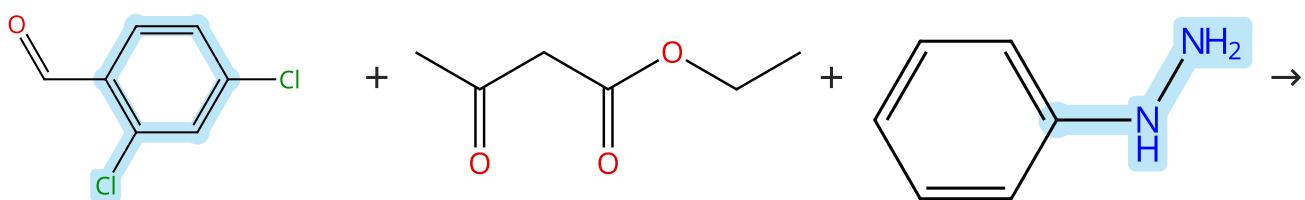
By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

Experimental Protocols

**Scheme 194 (1 Reaction)**

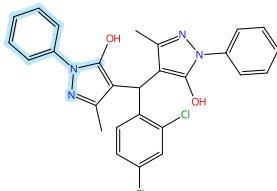
Steps: 1 Yield: 93%



Suppliers (93)

Suppliers (93)

Suppliers (63)



Suppliers (2)

31-614-CAS-41650760

Steps: 1 Yield: 93%

**1.1 Catalysts:** Iron oxide ( $\text{Fe}_3\text{O}_4$ ), Palladium, 1,4-Bis(4-pyridyl)benzene; 14 min, 60 °C

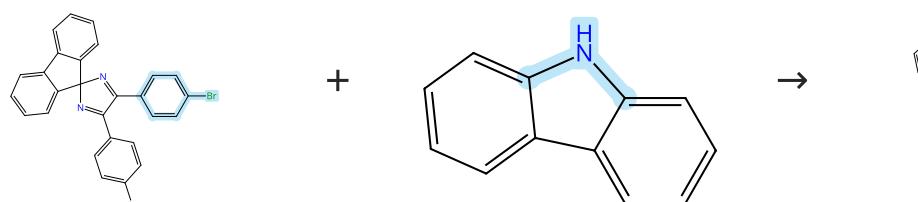
Palladium immobilized onto 1,4-bis(pyrid-4-yl)benzene grafted to n-propyl-functionalized  $\text{Fe}_3\text{O}_4@\text{MCM}-41$  nanoparticles (PBPBPMF) as a novel, green, reusable, and versatile catalyst for preparing bis(pyrazolyl)methane and biphenyl derivatives

By: AlMohamadi, Hamad; et al

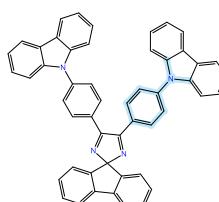
Research on Chemical Intermediates (2024), 50(8), 3619-3644.

**Scheme 195 (1 Reaction)**

Steps: 1 Yield: 93%



Suppliers (109)



31-614-CAS-38470381

Steps: 1 Yield: 93%

- 1.1 **Reagents:** Sodium *tert*-butoxide, Tri-*tert*-butylphosphine  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium  
**Solvents:** Toluene; overnight, 115 °C

## Experimental Protocols

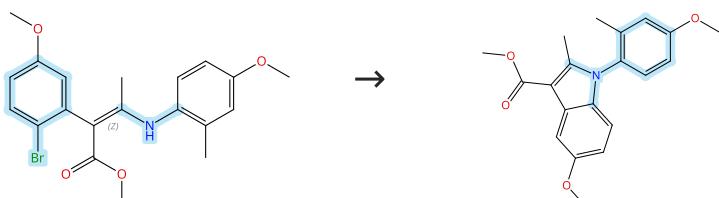
**A Breakthrough in Solution-Processed Ultra-Deep-Blue HLCT OLEDs: A Record External Quantum Efficiency Exceeding 10% Based on Novel V-Shaped Emitters**

By: Liao, Chuanxin; et al

Advanced Materials (Weinheim, Germany) (2023), 35(48), 2305310.

Scheme 196 (1 Reaction)

Steps: 1 Yield: 93%



Double bond geometry shown

31-614-CAS-40129178

Steps: 1 Yield: 93%

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt  
 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt  
 1.3 5 min, rt; 18 h, 60 °C

## Experimental Protocols

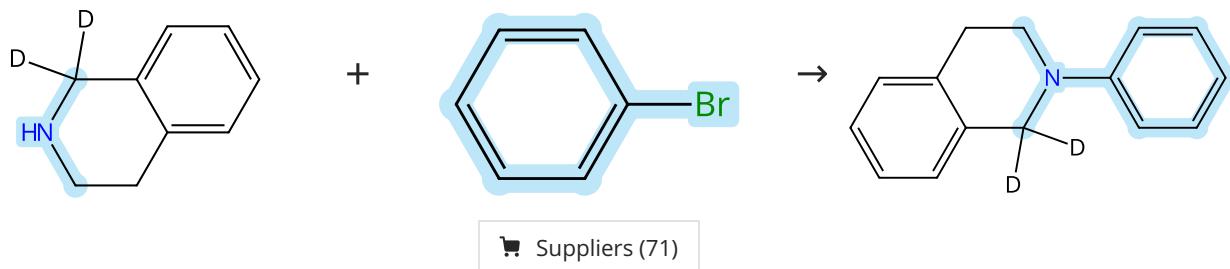
**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

Scheme 197 (1 Reaction)

Steps: 1 Yield: 93%



31-614-CAS-37741672

Steps: 1 Yield: 93%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl  
**Solvents:** Toluene; 5 min, rt  
 1.2 3 h, rt → 100 °C; 100 °C → rt  
 1.3 **Reagents:** Water; rt

## Experimental Protocols

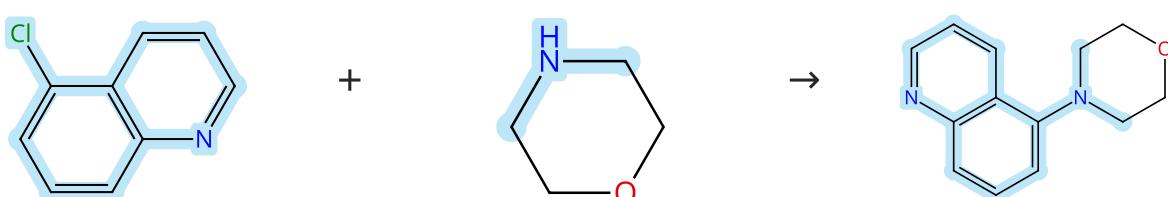
**Electrochemically-Driven Organocatalytic Enantioselective Oxidative Coupling of Tetrahydroisoquinolines and Acrylaldehyde**

By: Zhang, Qi-Ying; et al

Advanced Synthesis &amp; Catalysis (2023), 365(20), 3455-3460.

Scheme 198 (1 Reaction)

Steps: 1 Yield: 93%



31-614-CAS-38030199

Steps: 1 Yield: 93%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

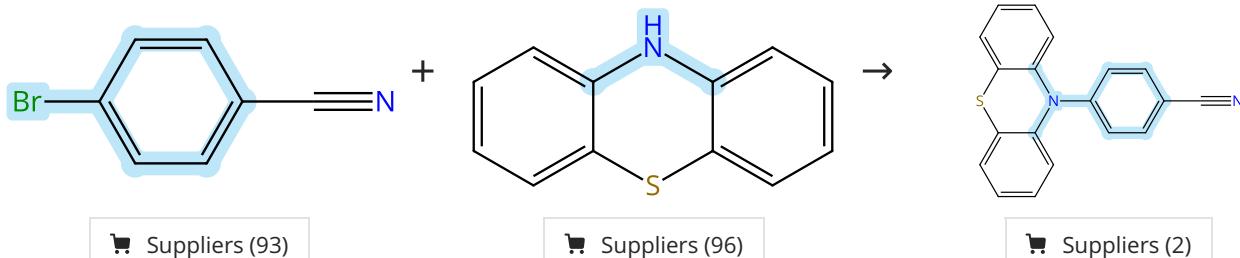
Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Scheme 199 (1 Reaction)

Steps: 1 Yield: 93%



31-614-CAS-41260537

Steps: 1 Yield: 93%

1.1 Reagents: Potassium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 15 h, reflux

Experimental Protocols

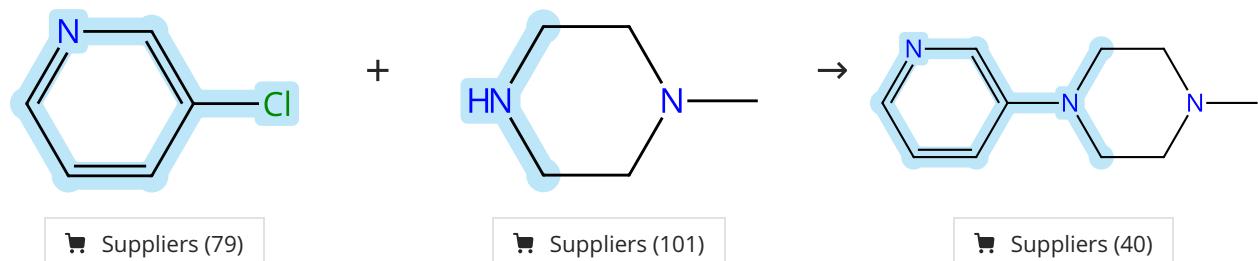
Photocascade chemoselective controlling of ambient thio (seleno)cyanates with alkenes via catalyst modulation

By: Hoque, Injamam Ul; et al

Nature Communications (2024), 15(1), 5739.

## Scheme 200 (1 Reaction)

Steps: 1 Yield: 93%



31-614-CAS-38030223

Steps: 1 Yield: 93%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

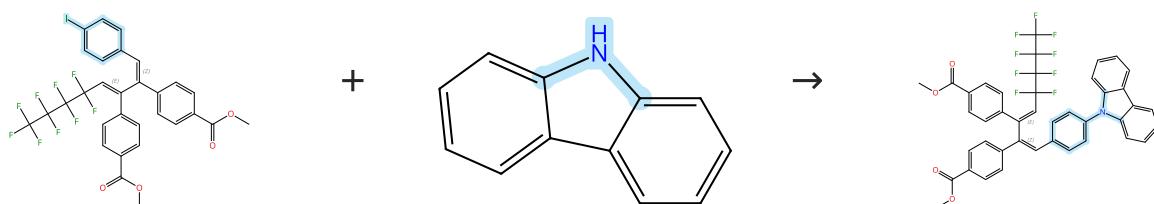
Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Scheme 201 (1 Reaction)

Steps: 1 Yield: 92%



31-614-CAS-41138216

Steps: 1 Yield: 92%

1.1 Reagents: Cesium carbonate

Catalysts: Palladium diacetate, 1,1'-(9,9-Dimethyl-9H-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]

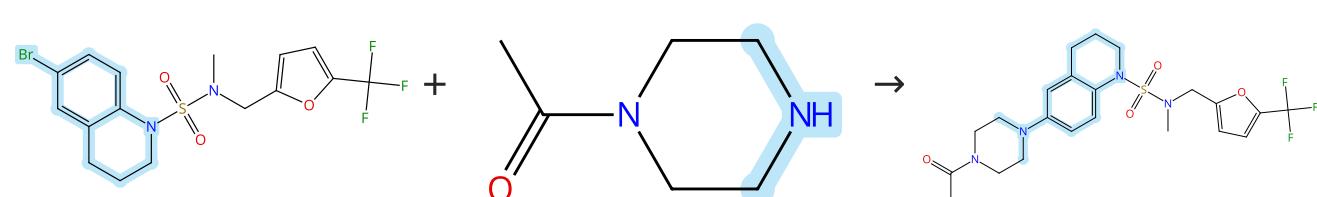
Solvents: 1,4-Dioxane; 8 h, 100 °C

Experimental Protocols

Chemo-, regio- and stereoselective access to polysubstituted 1,3-dienes via Nickel-catalyzed four-component reactions

By: Chen, Shanglin; et al

Nature Communications (2024), 15(1), 5479.

**Scheme 202 (1 Reaction)**

31-614-CAS-43475759

Steps: 1 Yield: 92%

1.1 Reagents: Cesium carbonate

Catalysts: Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

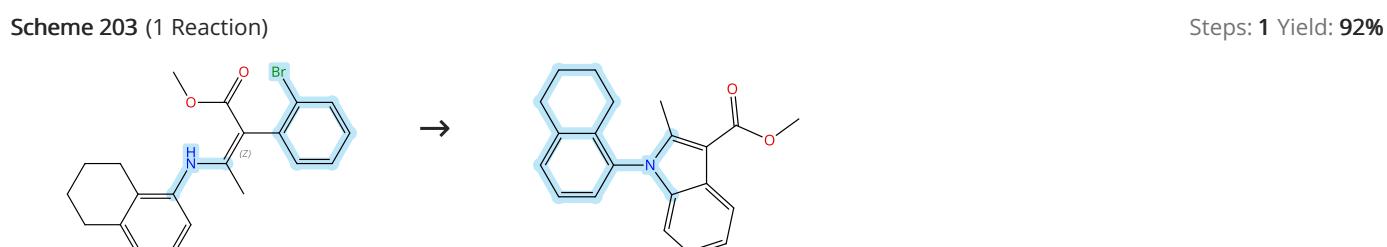
Solvents: 1,4-Dioxane; 6 h, 100 °C

Experimental Protocols

Discovery of Novel N-Sulfonamide-tetrahydroquinolines as Potent Retinoic Acid Receptor-Related Orphan Receptor  $\gamma$ t (R OR $\gamma$ t) Inverse Agonists for the Treatment of Psoriasis

By: Lv, Lunan; et al

Journal of Medicinal Chemistry (2024), 67(23), 21400-21420.

**Scheme 203 (1 Reaction)**

Double bond geometry shown

31-614-CAS-40129211

Steps: 1 Yield: 92%

1.1 Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

Solvents: Toluene; 5 min, rt

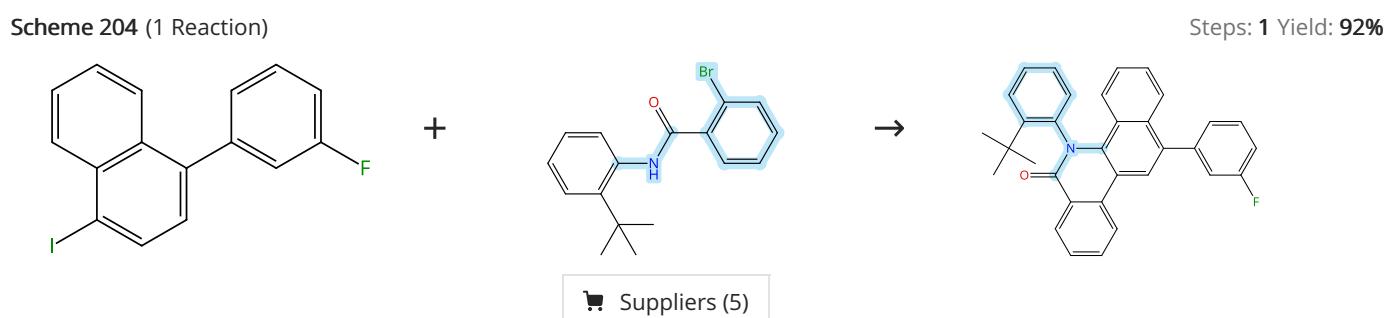
1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

**Scheme 204 (1 Reaction)**

31-614-CAS-41071029

Steps: 1 Yield: 92%

1.1 Reagents: Norbornene, Silver sulfate

Catalysts: Tris(dibenzylideneacetone)dipalladium, (4S,4'S)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole

Solvents: Toluene, Water; 36 h, 80 °C

Experimental Protocols

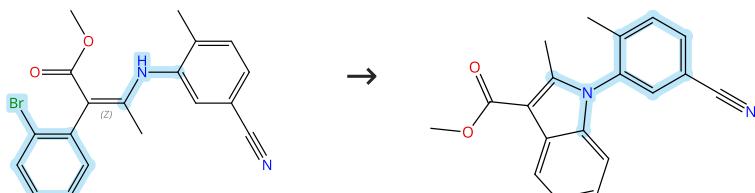
Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C–N axially chiral scaffolds

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

## Scheme 205 (1 Reaction)

Steps: 1 Yield: 92%



Double bond geometry shown

31-614-CAS-40129208

Steps: 1 Yield: 92%

1.1 Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

Solvents: Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

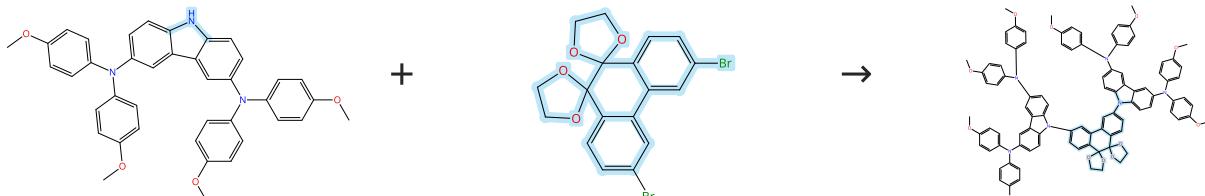
Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N–C Atropisomers

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

## Scheme 206 (1 Reaction)

Steps: 1 Yield: 92%



Suppliers (44)

31-614-CAS-36138035

Steps: 1 Yield: 92%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium diacetate, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; rt → 130 °C; 72 h, 130 °C

Experimental Protocols

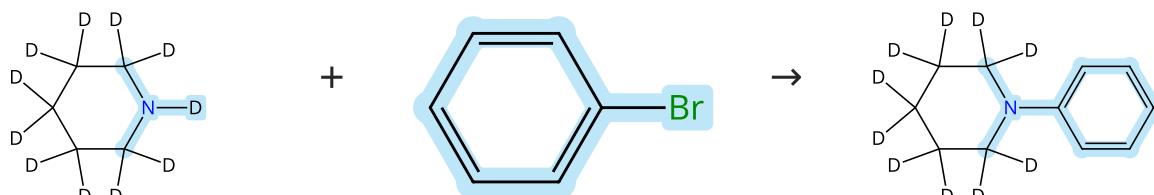
Dibenzodipyridophenazines with Dendritic Electron Donors Exhibiting Deep-Red Emission and Thermally Activated Delayed Fluorescence

By: Primrose, William L.; et al

Journal of Organic Chemistry (2023), 88(7), 4224-4233.

## Scheme 207 (1 Reaction)

Steps: 1 Yield: 92%



Suppliers (20)

Suppliers (71)

31-614-CAS-40985579

Steps: 1 Yield: 92%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine; 12 h, 115 °C

Experimental Protocols

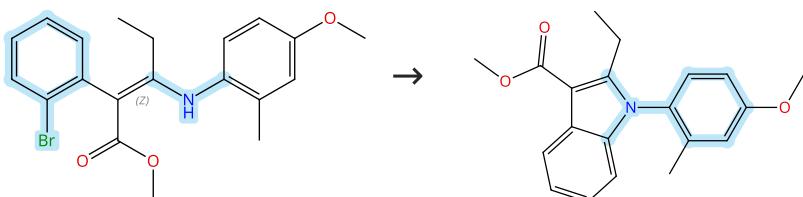
**Mechanistic Investigation, Wavelength-Dependent Reactivity, and Expanded Reactivity of N-Aryl Azacycle Photomediated Ring Contractions**

By: Kim, Sojung F.; et al

Journal of the American Chemical Society (2024), 146(8), 5580-5596.

**Scheme 208 (1 Reaction)**

Steps: 1 Yield: 92%



Double bond geometry shown

31-614-CAS-40129209

Steps: 1 Yield: 92%

1.1 Catalysts: Palladium diacetate, 1,1'-(*(1S)*-[1,1'-Binaphthalene]-2,2'-diyl)bis[1,1-bis(3,5-dimethylphenyl)phosphine]

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

Solvents: Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

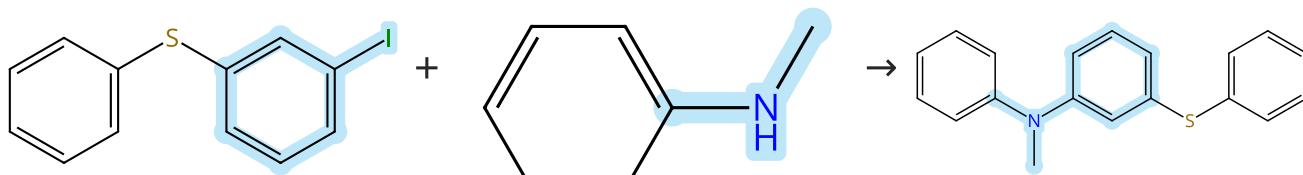
**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

**Scheme 209 (1 Reaction)**

Steps: 1 Yield: 92%



Suppliers (5)

Suppliers (69)

31-614-CAS-38029222

Steps: 1 Yield: 92%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, 2-(Di-*tert*-butylphosphino)biphenyl

Solvents: Toluene; 24 h, 100 °C

Experimental Protocols

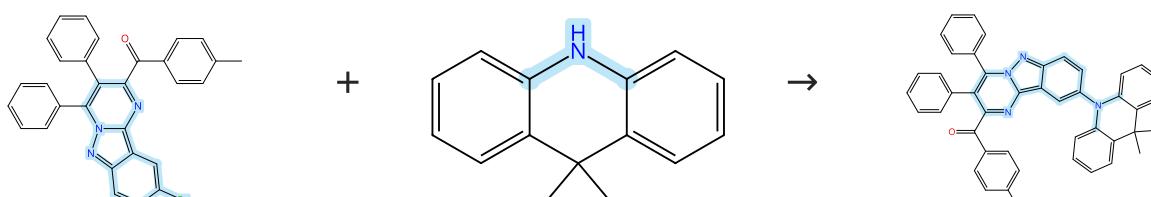
**Exploration on Metal-Catalytic Conversion of Sulfinyl Sulfones**

By: Li, Yilong; et al

ACS Catalysis (2023), 13(20), 13474-13483.

**Scheme 210 (1 Reaction)**

Steps: 1 Yield: 92%



Suppliers (68)

31-614-CAS-36471775

Steps: 1 Yield: 92%

**1.1 Reagents:** Cesium carbonate, Tri-*tert*-butylphosphonium tetrafluoroborate  
**Catalysts:** Palladium diacetate  
**Solvents:** Toluene; 8 h, 110 °C

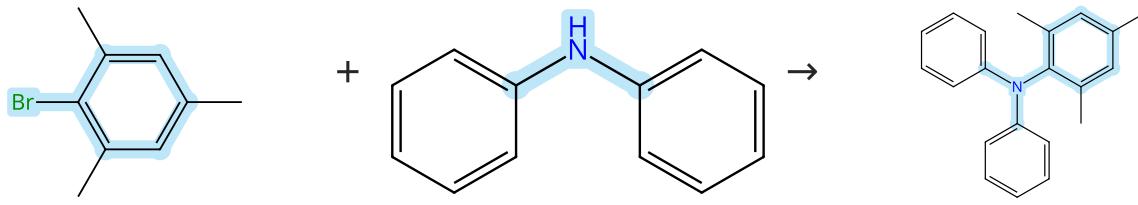
Experimental Protocols

I<sub>2</sub>-Promoted gem-Diarylethene Involved Aza-Diels-Alder Reaction and Wagner-Meerwein Rearrangement: Construction of 2,3,4-Trisubstituted Pyrimido[1,2-b]indazole Skeletons

By: Zhou, You; et al

Organic Letters (2023), 25(19), 3386-3390.

Scheme 211 (1 Reaction)



31-614-CAS-38128586

Steps: 1 Yield: 92%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium diacetate, Tri-*tert*-butylphosphine  
**Solvents:** Toluene; 110 °C

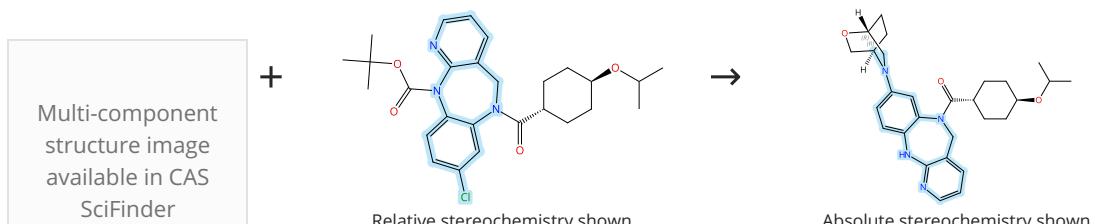
Experimental Protocols

Microwave-Assisted Synthesis of Poly[bis(4-phenyl)(2,4,6-trimethylphenyl)amine] (PTAA) with Well-Defined End Groups and Narrow Dispersity

By: Beck, Christian; et al

Organic Materials (2023), 5(3), 175-183.

Scheme 212 (1 Reaction)



31-614-CAS-40568912

Steps: 1 Yield: 92%

**1.1 Reagents:** Methanesulfonic acid, Cesium carbonate  
**Catalysts:** Palladium diacetate, X-Phos  
**Solvents:** Dimethylformamide; 18 h, 82 °C

Experimental Protocols

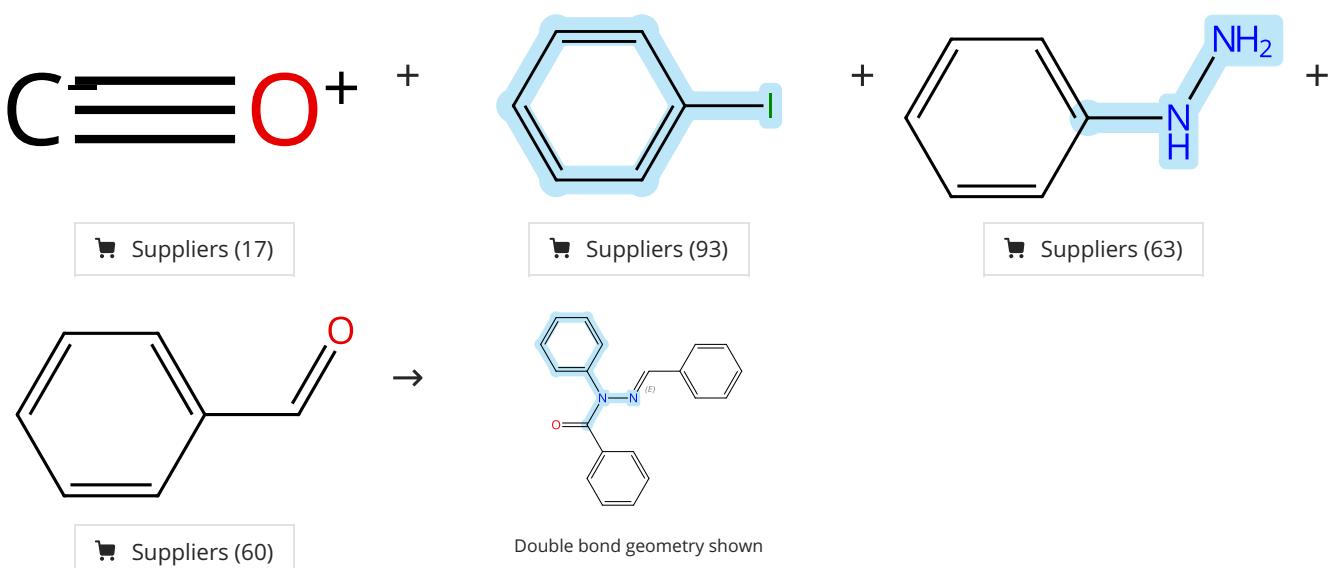
Process Development of a Tricyclic Diazepine-Based IDH1 Mutant Inhibitor

By: Maddess, Matthew L.; et al

Organic Process Research &amp; Development (2024), 28(6), 2343-2354.

Scheme 213 (1 Reaction)

Steps: 1 Yield: 92%



31-614-CAS-40733432

Steps: 1 Yield: 92%

1.1 Reagents: Sodium hydroxide  
 Catalysts: Bis(*tri-tert*-butylphosphine)palladium  
 Solvents: Anisole; 12 h, 4 MPa, 120 °C

**Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones**

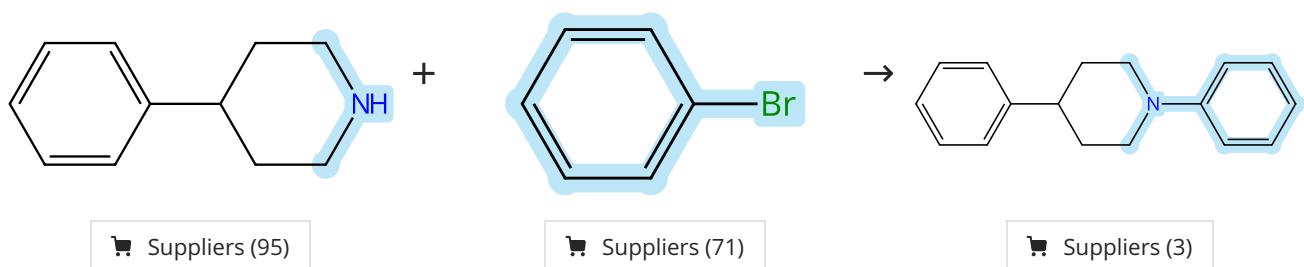
By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

Experimental Protocols

Scheme 214 (1 Reaction)

Steps: 1 Yield: 92%



31-614-CAS-40985576

Steps: 1 Yield: 92%

1.1 Reagents: Sodium *tert*-butoxide  
 Catalysts: Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine; 12 h, 115 °C

**Mechanistic Investigation, Wavelength-Dependent Reactivity, and Expanded Reactivity of N-Aryl Azacycle Photomediated Ring Contractions**

By: Kim, Sojung F.; et al

Journal of the American Chemical Society (2024), 146(8), 5580-5596.

Scheme 215 (1 Reaction)

Steps: 1 Yield: 92%



31-614-CAS-38060975

Steps: 1 Yield: 92%

1.1 Reagents: Cesium carbonate

Catalysts: Tris(dibenzylideneacetone)dipalladium, 1,1'-(9,9-Dimethyl-9H-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]

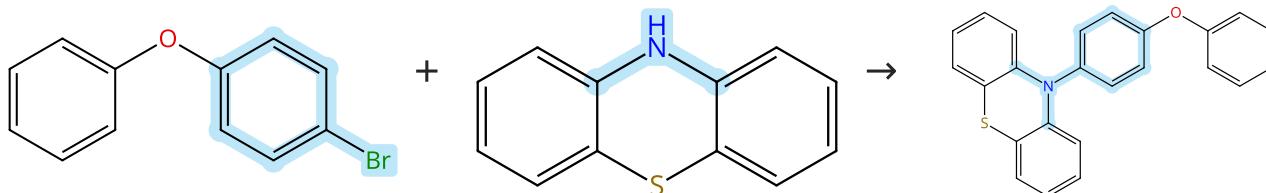
Solvents: Toluene; 12 h, 70 °C

Experimental Protocols

**Visible light induced regioselective C-3 thiocyanation of imidazoheterocycles through naphthalimide dye based photoredox catalysis**

By: Saha, Pallavi; et al

Organic &amp; Biomolecular Chemistry (2023), 21(42), 8471-8476.

**Scheme 216 (1 Reaction)**

Suppliers (74)

Suppliers (96)

31-614-CAS-41260531

Steps: 1 Yield: 92%

1.1 Reagents: Potassium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

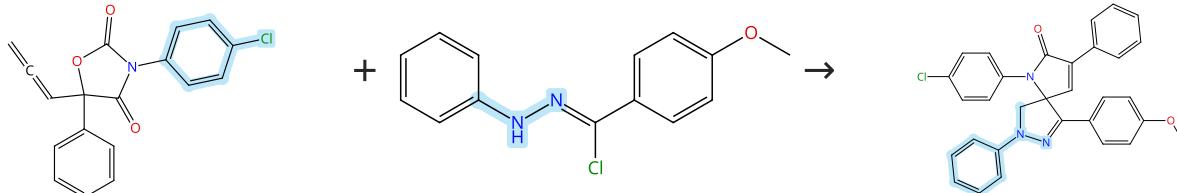
Solvents: Toluene; 15 h, reflux

Experimental Protocols

**Photocascade chemoselective controlling of ambient thio (seleno)cyanates with alkenes via catalyst modulation**

By: Hoque, Injamam Ul; et al

Nature Communications (2024), 15(1), 5739.

**Scheme 217 (1 Reaction)**

Supplier (1)

31-614-CAS-41716085

Steps: 1 Yield: 92%

1.1 Reagents: Triethylamine

Catalysts: Palladium, tris[μ-[(1,2-η;4,5-η)-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), 1,1'-[9,9-Dimethyl-9H-xanthene-4,5-diyl]bis[1,1-diphenylphosphine]

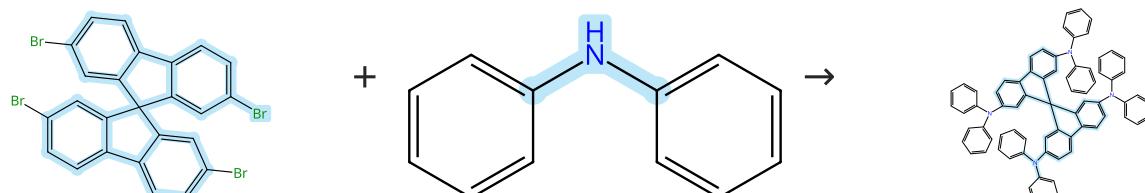
Solvents: Dichloromethane; 12 h, 25 °C

Experimental Protocols

**Pd-catalyzed sequential intramolecular annulation/intermolecular [3+2] cycloaddition of 5-allenyloxazolidine-2,4-diones with dipoles: synthesis of spiroheterocycles**

By: Dong, Yujie; et al

Chemical Communications (Cambridge, United Kingdom) (2024), 60(76), 10516-10519.

**Scheme 218 (1 Reaction)**

Suppliers (76)

Suppliers (98)

Suppliers (50)

31-614-CAS-36585091

Steps: 1 Yield: 92%

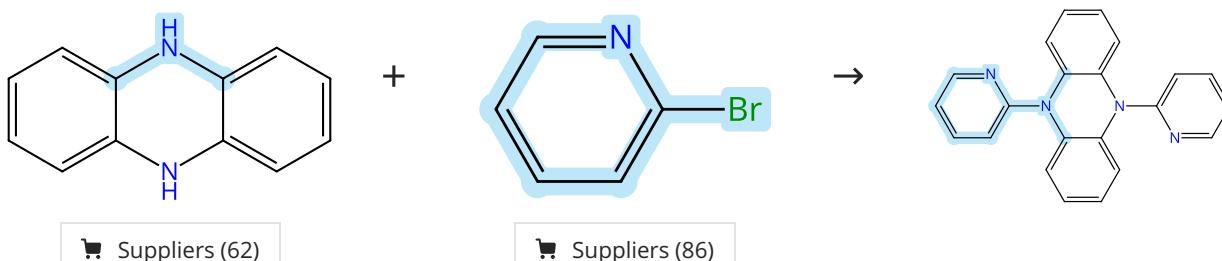
**1.1 Reagents:** Sodium *tert*-butoxide, Tri-*tert*-butylphosphine  
**Catalysts:** Palladium diacetate  
**Solvents:** Toluene; 12 h, 90 °C

Experimental Protocols

**Spiro-based triphenylamine molecule with steric structure as a cathode material for high-stable all organic lithium dual-ion batteries**

By: Huang, Liya; et al

Journal of Energy Chemistry (2023), 83, 24-31.

**Scheme 219 (1 Reaction)**

31-614-CAS-35436066

Steps: 1 Yield: 92%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate  
**Solvents:** Toluene; 24 h, rt → 115 °C

Experimental Protocols

**Aggregation Effect on Multiperformance Improvement in Aryl-Armed Phenazine-Based Emitters**

By: Wan, Qing; et al

Journal of the American Chemical Society (2023), 145(3), 1607-1616.

**Scheme 220 (1 Reaction)**

Steps: 1 Yield: 92%



31-614-CAS-36215360

Steps: 1 Yield: 92%

**1.1 Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-, (1*S*)-  
**Solvents:** Toluene; 20 h, 80 °C

Experimental Protocols

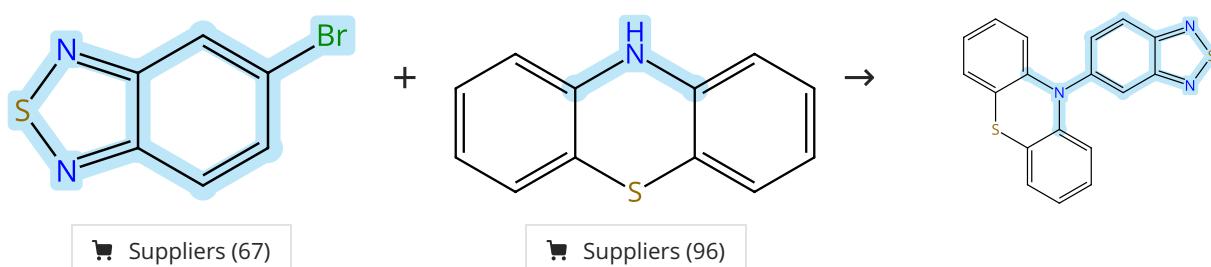
**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

**Scheme 221 (1 Reaction)**

Steps: 1 Yield: 92%



31-614-CAS-35475448

Steps: 1 Yield: 92%

**1.1 Reagents:** Sodium *tert*-butoxide, Tri-*tert*-butylphosphonium tetrafluoroborate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium  
**Solvents:** Toluene; 2 h, 50 °C

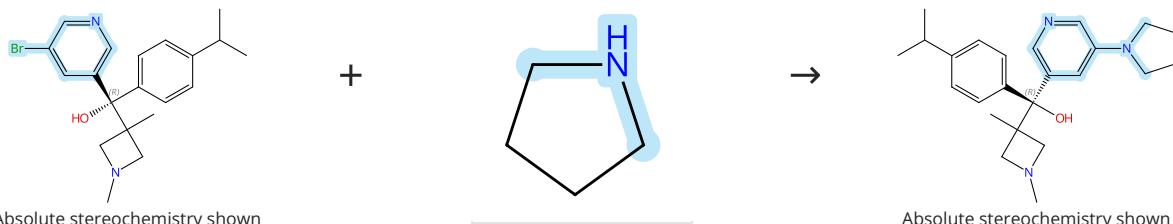
A red thermally activated delayed fluorescence emitter based on benzo[c][1,2,5]thiadiazole

By: Ma, You-Ping; et al

Dyes and Pigments (2023), 212, 111084.

Experimental Protocols

## Scheme 222 (1 Reaction)



Suppliers (74)

31-614-CAS-40632547

Steps: 1 Yield: 92%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, BINAP  
**Solvents:** Toluene; 105 min, rt → 100 °C

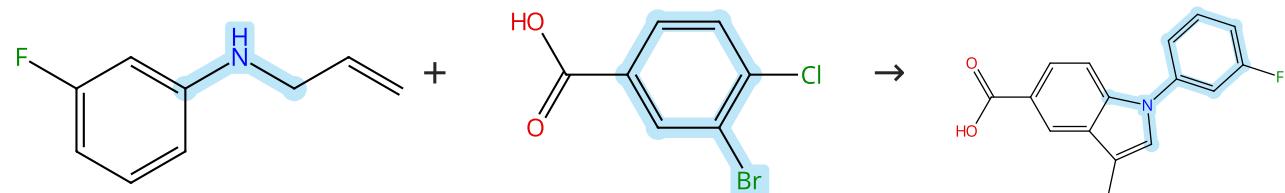
Discovery of the Clinical Candidate IDOR-1117-2520: A Potent and Selective Antagonist of CCR6 for Autoimmune Diseases

By: Meyer, Emmanuel A.; et al

Journal of Medicinal Chemistry (2024), 67(10), 8077-8098.

Experimental Protocols

## Scheme 223 (1 Reaction)



Suppliers (11)

Suppliers (89)

Supplier (1)

31-614-CAS-38970037

Steps: 1 Yield: 92%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl-κ*N*<sup>3</sup>)-1-naphthalenyl-κ*C*]-, (*SP*-4-4)  
**Solvents:** Mesitylene; 24 h, 100 °C

A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolylidene-Ligated Oxazoline Palladacycle

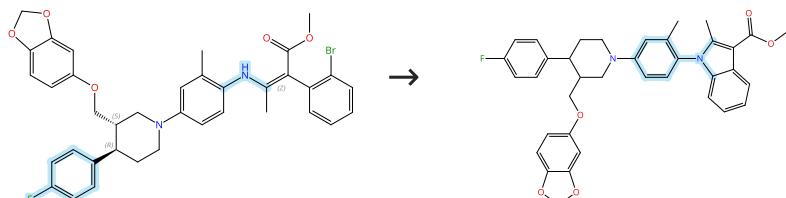
By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

Experimental Protocols

## Scheme 224 (1 Reaction)

Steps: 1 Yield: 92%



31-614-CAS-40129226

Steps: 1 Yield: 92%

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt
- 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt
- 1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

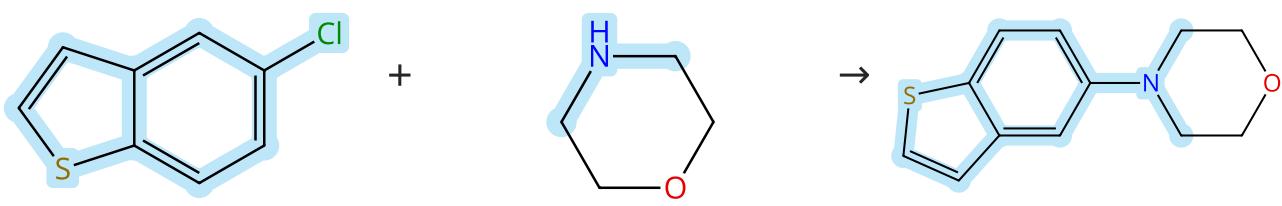
**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

Scheme 225 (1 Reaction)

Steps: 1 Yield: 92%



Suppliers (65)

Suppliers (83)

Suppliers (2)

31-614-CAS-38030222

Steps: 1 Yield: 92%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

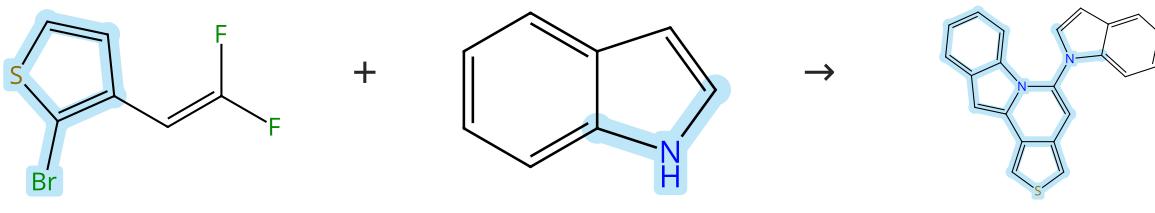
**Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature**

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

Scheme 226 (1 Reaction)

Steps: 1 Yield: 92%



Suppliers (109)

31-614-CAS-37012596

Steps: 1 Yield: 92%

- 1.1 **Reagents:** Tripotassium phosphate  
**Solvents:** Dimethylformamide; 12 h, 100 °C; 100 °C → rt
- 1.2 **Catalysts:** Triphenylphosphine, Palladium diacetate; 20 h, 140 °C; 140 °C → rt
- 1.3 **Reagents:** Water

Experimental Protocols

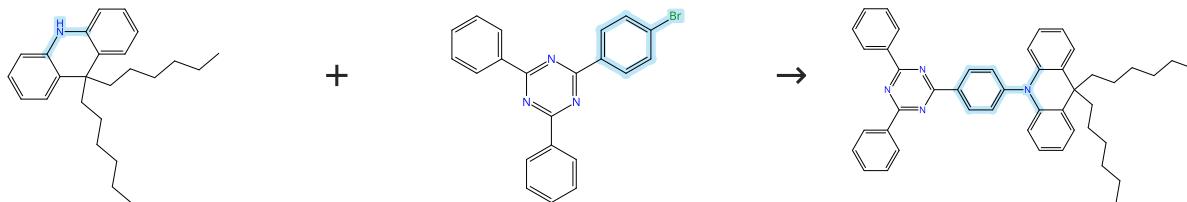
**Thienoindolizines and their Benzo-Fused Derivatives: Synthesis and Physical Properties**

By: Ausekle, Elina; et al

Chemistry - A European Journal (2023), 29(42), e202301038.

Scheme 227 (1 Reaction)

Steps: 1 Yield: 92%



Suppliers (25)

Suppliers (70)

31-614-CAS-39448775

Steps: 1 Yield: 92%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 16 h, reflux

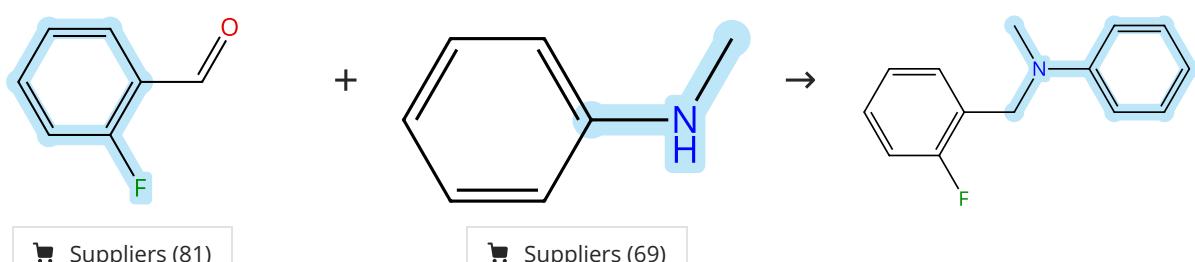
Experimental Protocols

Fabrication of robust and color-tunable luminescent elastomers via the high-functionality crosslinker strategy using vinyl-functionalized conjugated polymers

By: Xiong, Wenjuan; et al

Dyes and Pigments (2024), 222, 111915.

## Scheme 228 (1 Reaction)



31-614-CAS-38715676

Steps: 1 Yield: 92%

1.1 Reagents: Hydrogen

Catalysts: Palladium, Chitosan

Solvents: Toluene; 8 h, 3 MPa, rt → 120 °C

Experimental Protocols

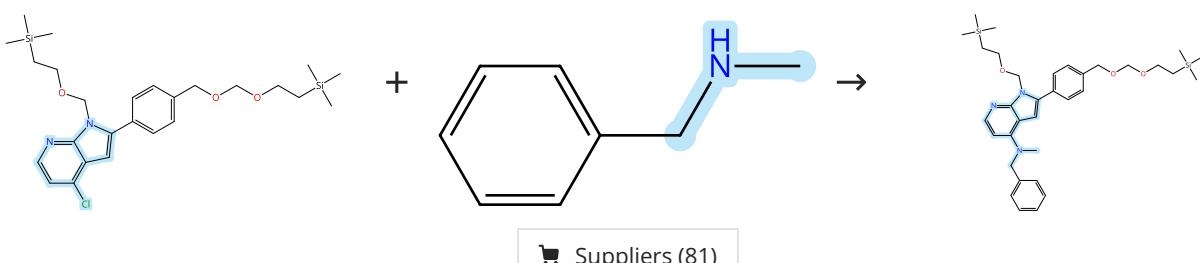
Highly dispersed and stable Pd nano-catalyst loaded on chitosan nanoporous carbon microspheres for one-pot reductive amination of amines with aldehydes

By: Yin, Xiaogang; et al

Applied Surface Science (2024), 648, 159047.

## Scheme 229 (1 Reaction)

Steps: 1 Yield: 92%



31-614-CAS-42383744

Steps: 1 Yield: 92%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: *tert*-Butanol; 5 h, 85 °C; 85 °C → rt

1.2 Reagents: Ammonium chloride

Solvents: Water; pH 7, rt

Experimental Protocols

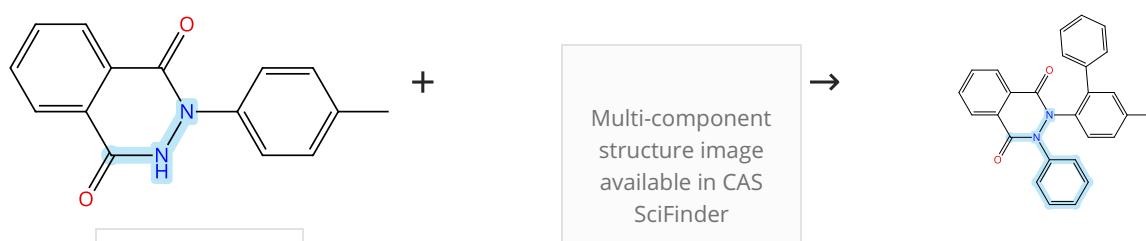
Synthetic Routes to 2-aryl-1*H*-pyrrolo[2,3-*b*]pyridin-4-amines: Cross-Coupling and Challenges in SEM-Deprotection

By: Merugu, Srinivas Reddy; et al

Molecules (2024), 29(19), 4743.

## Scheme 230 (1 Reaction)

Steps: 1 Yield: 92%



31-614-CAS-36273148

Steps: 1 Yield: 92%

1.1 **Reagents:** Potassium acetate, Oxygen  
**Catalysts:** Palladium diacetate, X-Phos  
**Solvents:** Dimethylformamide; 3 h, 1 atm, 130 °C

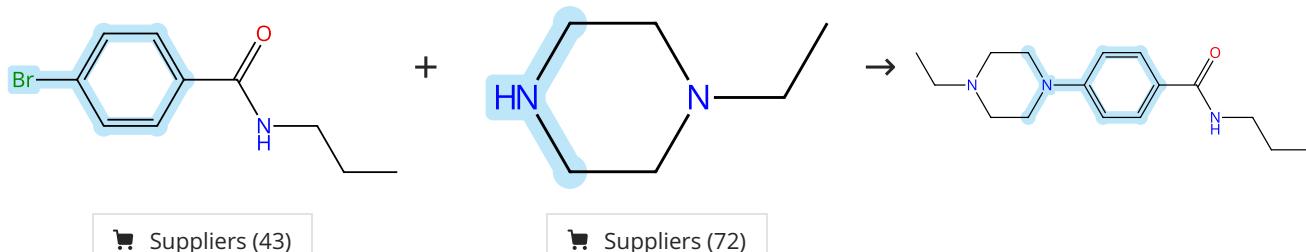
Palladium-Catalyzed Regioselective C-Arylation and C,N-Diarylation of N-Aryl-2,3-dihydrophthalazine-1,4-diones Using Diaryliodonium Salts

By: Naharwal, Sushma; et al

Synthesis (2023), 55(21), 3515-3525.

### Scheme 231 (1 Reaction)

Steps: 1 Yield: 92%



31-614-CAS-40551297

Steps: 1 Yield: 92%

1.1 **Reagents:** Cesium carbonate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, (+)-BINAP  
**Solvents:** Toluene, 1,4-Dioxane; 8 h, 90 °C

Experimental Protocols

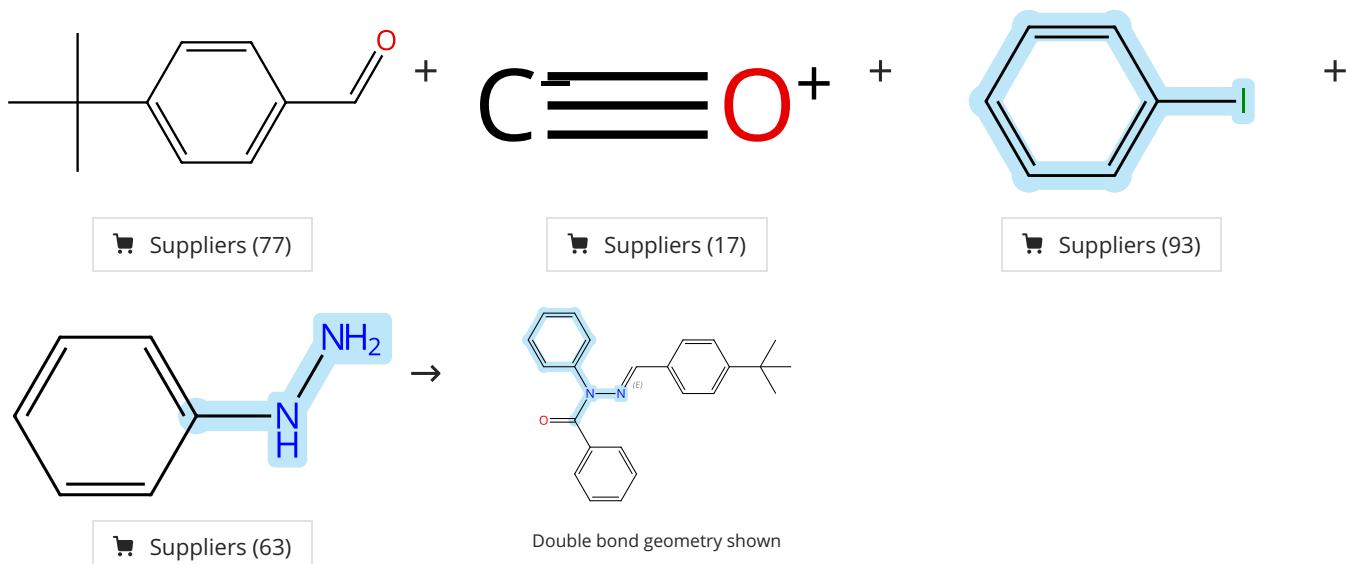
Explorations of Agonist Selectivity for the  $\alpha 9^*$  nAChR with Novel Substituted Carbamoyl/Amido/Heteroaryl Dialkylpic erazinium Salts and Their Therapeutic Implications in Pain and Inflammation

By: Andleeb, Hina; et al

Journal of Medicinal Chemistry (2024), 67(11), 8642-8666.

### Scheme 232 (1 Reaction)

Steps: 1 Yield: 92%



31-614-CAS-40733440

Steps: 1 Yield: 92%

1.1 **Reagents:** Sodium hydroxide  
**Catalysts:** Bis(*tri-tert*-butylphosphine)palladium  
**Solvents:** Anisole; 12 h, 4 MPa, 120 °C

Experimental Protocols

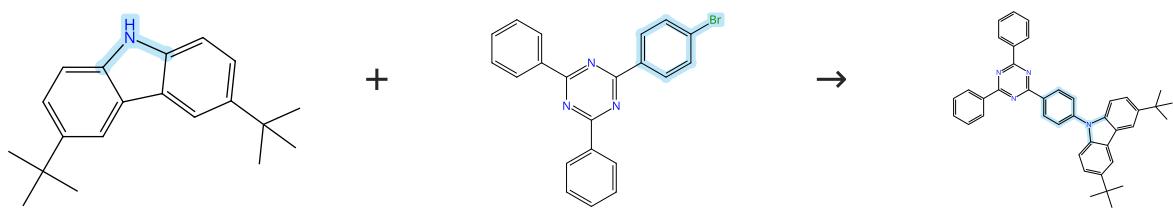
Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones

By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

Scheme 233 (1 Reaction)

Steps: 1 Yield: 92%



Suppliers (69)

Suppliers (70)

31-614-CAS-39342821

Steps: 1 Yield: 92%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium diacetate, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 24 h, 110 °C

Experimental Protocols

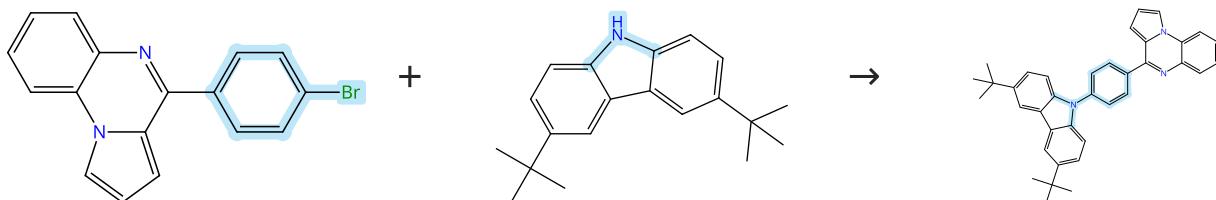
Efficient Blue Thermally Activated Delayed Fluorescence Molecules with Sandwich-Structured Through-Space Charge Transfer for Fabricating High-Performance OLEDs

By: Yang, Zuguo; et al

Advanced Optical Materials (2024), 12(13), 2302677.

Scheme 234 (1 Reaction)

Steps: 1 Yield: 92%



Supplier (1)

Suppliers (69)

31-614-CAS-39668009

Steps: 1 Yield: 92%

1.1 Reagents: Cesium carbonate

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

Solvents: Toluene; rt → 100 °C; 2 h, 100 °C

1.2 Reagents: Sodium chloride

Solvents: Water

Experimental Protocols

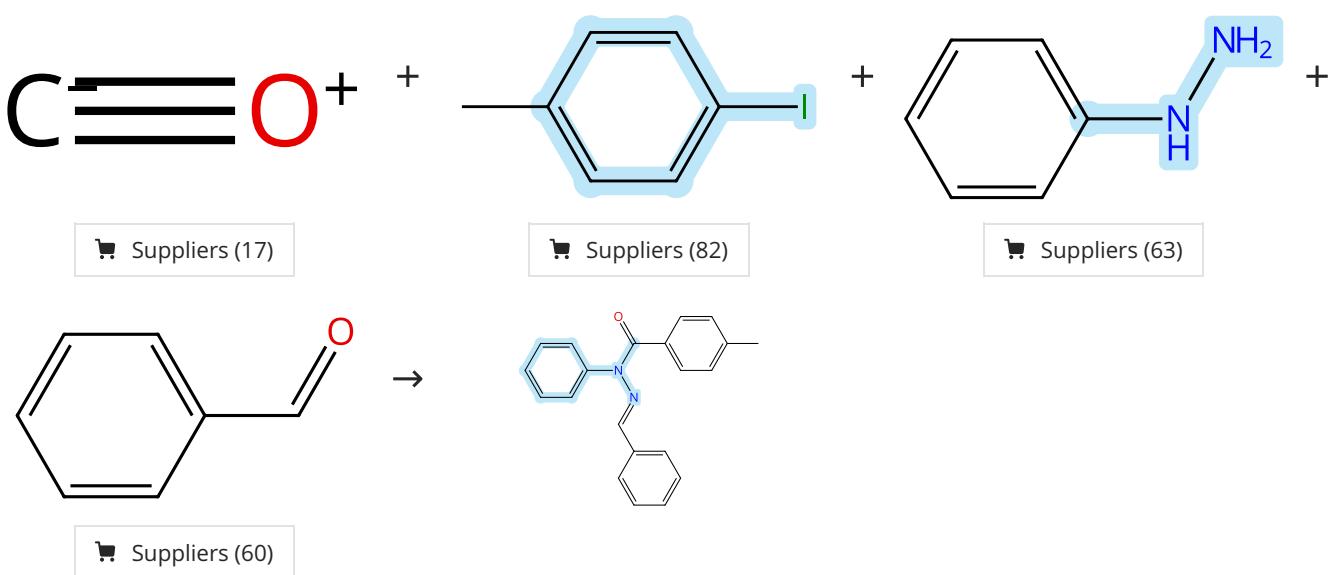
Controlling the molecular orbital overlap of pyrrolo[1,2-a]quinoxaline-based D-π-A materials via change structural rigidity of donor unit

By: Wang, Wenquan; et al

Journal of Molecular Structure (2024), 1306, 137829.

Scheme 235 (1 Reaction)

Steps: 1 Yield: 92%



31-614-CAS-40733456

Steps: 1 Yield: 92%

1.1 Reagents: Sodium hydroxide  
 Catalysts: Bis(*tri-tert*-butylphosphine)palladium  
 Solvents: Anisole; 12 h, 4 MPa, 120 °C

Experimental Protocols

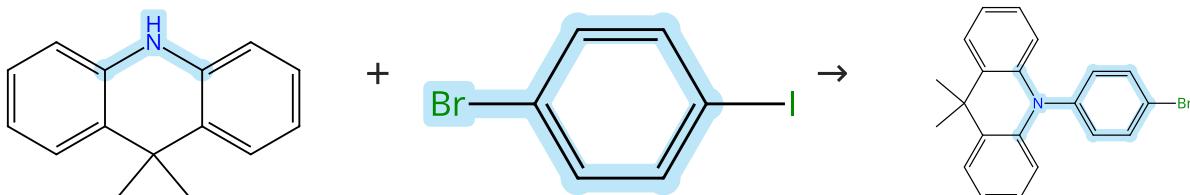
Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones

By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

## Scheme 236 (1 Reaction)

Steps: 1 Yield: 92%



Suppliers (68)

Suppliers (94)

Suppliers (51)

31-614-CAS-41247413

Steps: 1 Yield: 92%

1.1 Catalysts: Tris(dibenzylideneacetone)dipalladium, 1,1'-(9,9-Dimethyl-9*H*-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]  
 Solvents: Toluene; 0.5 h, rt  
 1.2 Reagents: Sodium *tert*-butoxide  
 Solvents: Toluene; 20 h, 80 °C

Experimental Protocols

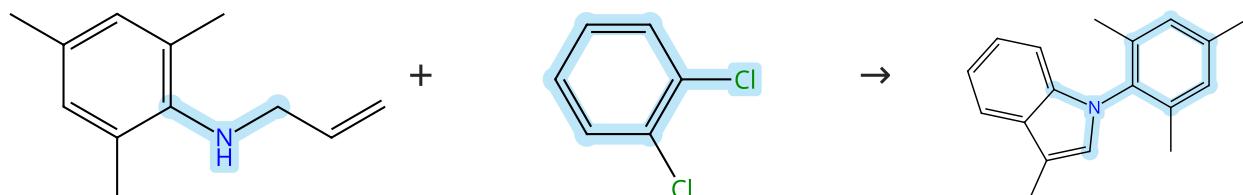
Photophysical and redox properties of new donor-acceptor-donor (DAD) compounds containing benzothiadiazole (A) and dimethyldihydroacridine (D) units: a combined experimental and theoretical study

By: Polesiak, Emilia; et al

Physical Chemistry Chemical Physics (2024), 26(30), 20690-20700.

## Scheme 237 (1 Reaction)

Steps: 1 Yield: 92%



Suppliers (3)

Suppliers (123)

31-614-CAS-38969967

Steps: 1 Yield: 92%

1.1 Reagents: Sodium *tert*-butoxide  
 Catalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa\text{N}^{\beta}$ )-1-naphthalenyl- $\kappa\text{C}$ ], (*SP*-4-4)-  
 Solvents: 1,4-Dioxane; 24 h, 100 °C

Experimental Protocols

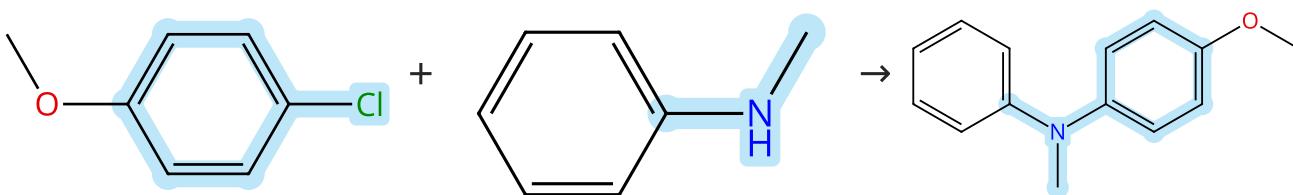
A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolylidene-Ligated Oxazoline Palladacycle

By: Fan, Ruojian; et al

Organic Letters (2024), 26(1), 22-28.

## Scheme 238 (1 Reaction)

Steps: 1 Yield: 92%



Suppliers (69)

Suppliers (69)

Suppliers (17)

31-614-CAS-42014404

Steps: 1 Yield: 92%

1.1 **Catalysts:** Palladium diacetate, 1*H*-Indole, 3-(dicyclohexylphosphino)-1-methyl-2-(2,3,4-trimethoxyphenyl)-

**Solvents:** Dichloromethane; rt

1.2 **Reagents:** Sodium *tert*-butoxide  
**Solvents:** Toluene, Hexane; rt; 24 h, 110 °C; 110 °C → rt

1.3 **Solvents:** Water; rt

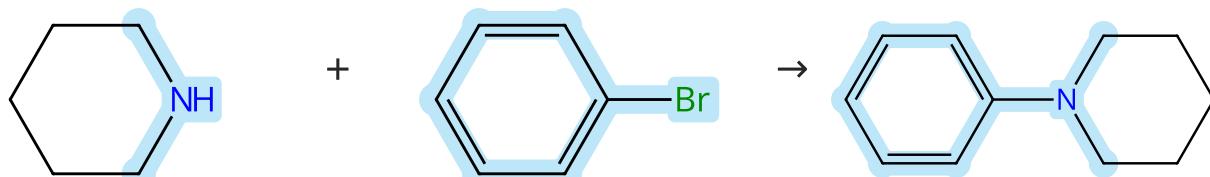
Experimental Protocols

Application of indole-based monophosphine in ppm level Pd-catalyzed C-N bond formation

By: Li, Cheuk Long; et al

Journal of Organometallic Chemistry (2024), 1011, 123124.

## Scheme 239 (1 Reaction)



Suppliers (50)

Suppliers (71)

Suppliers (60)

31-614-CAS-42934090

Steps: 1 Yield: 92%

1.1 **Catalysts:** Tris(dibenzylideneacetone)dipalladium, BINAP  
**Solvents:** Toluene; 1 h

1.2 **Reagents:** Sodium *tert*-butoxide; 15 h, 100 °C

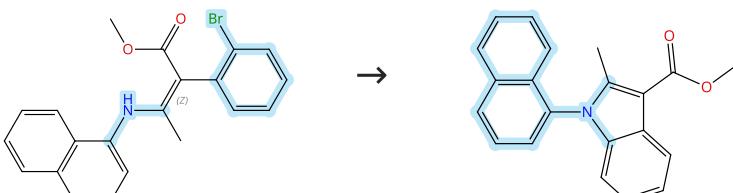
Experimental Protocols

Copper(I)-Catalyzed  $\alpha,\beta$ -Dehydrogenative [2 + 3] Heteroannulation of Saturated Amines with Diazirin dinone via Hydrogen Atom Transfer

By: Du, Zihang; et al

ACS Catalysis (2024), 14(23), 18107-18115.

## Scheme 240 (1 Reaction)



Double bond geometry shown

31-614-CAS-40129203

Steps: 1 Yield: 92%

1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt

1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

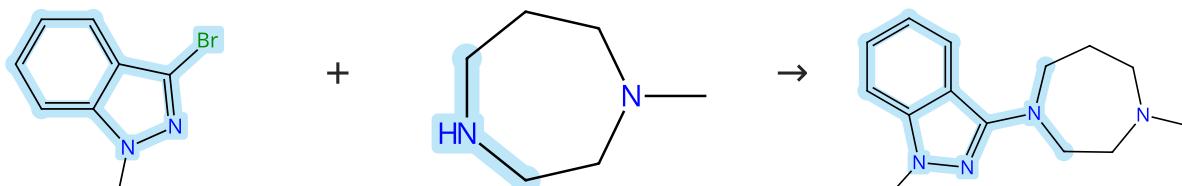
Experimental Protocols

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

## Scheme 241 (1 Reaction)



Suppliers (61)

Suppliers (70)

31-614-CAS-35422517

Steps: 1 Yield: 91%

1.1 **Reagents:** Sodium trimethylsilanolate  
**Solvents:** Tetrahydrofuran; 5 min, rt

1.2 **Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-  
**Solvents:** Tetrahydrofuran; 3 h, 90 °C

Experimental Protocols

**Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteraryl Halides with Aliphatic Amines**

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Scheme 242 (1 Reaction)

Steps: 1 Yield: 91%



Multi-component structure image available in CAS SciFinder

Suppliers (67)

31-614-CAS-36273155

Steps: 1 Yield: 91%

1.1 **Reagents:** Potassium acetate  
**Catalysts:** Palladium diacetate  
**Solvents:** Dimethylformamide; 2 h, 130 °C

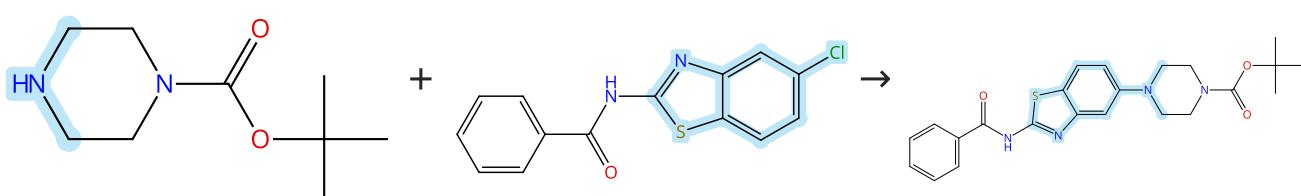
**Palladium-Catalyzed Regioselective C-Arylation and C,N-Diarylation of N-Aryl-2,3-dihydrophthalazine-1,4-diones Using Diaryliodonium Salts**

By: Naharwal, Sushma; et al

Synthesis (2023), 55(21), 3515-3525.

Scheme 243 (1 Reaction)

Steps: 1 Yield: 91%



Suppliers (112)

Suppliers (2)

31-614-CAS-36748975

Steps: 1 Yield: 91%

1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine  
**Solvents:** 1,4-Dioxane; overnight, heated

**Structure-Activity relationships of replacements for the triazolopyridazine of Anti-Cryptosporidium lead SLU-2633**

By: Oboh, Edmund; et al

Bioorganic &amp; Medicinal Chemistry (2023), 86, 117295.

Experimental Protocols

Scheme 244 (1 Reaction)



Suppliers (5)

Suppliers (123)

31-614-CAS-38969956

Steps: 1 Yield: 91%

## 1.1 Reagents:

Sodium *tert*-butoxide  
Catalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa N^{\beta}$ )-1-naphthalenyl- $\kappa C$ ]-, (*SP*-4-4)-

Solvents: 1,4-Dioxane; 24 h, 100 °C

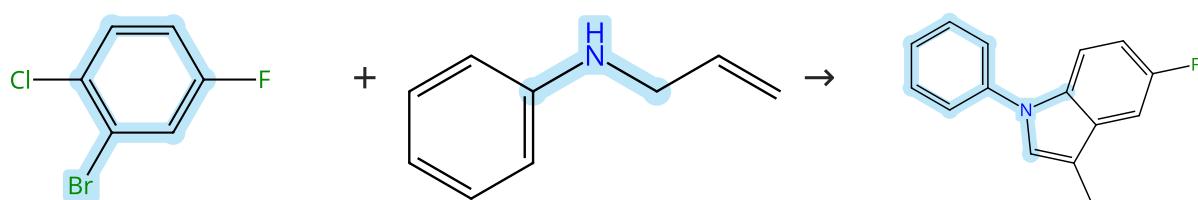
## A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

## Experimental Protocols

Scheme 245 (1 Reaction)



Suppliers (74)

Suppliers (63)

31-614-CAS-38969998

Steps: 1 Yield: 91%

## 1.1 Reagents:

Sodium *tert*-butoxide  
Catalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa N^{\beta}$ )-1-naphthalenyl- $\kappa C$ ]-, (*SP*-4-4)-

Solvents: 1,4-Dioxane; 24 h, 100 °C

## A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

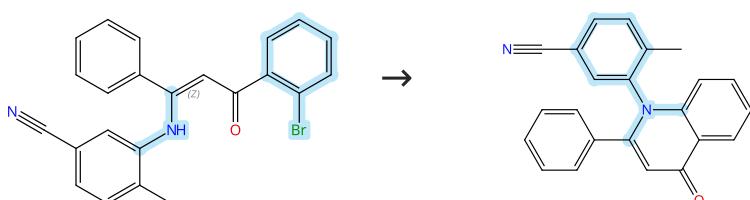
By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

## Experimental Protocols

Scheme 246 (1 Reaction)

Steps: 1 Yield: 91%



31-614-CAS-40129312

Steps: 1 Yield: 91%

## Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

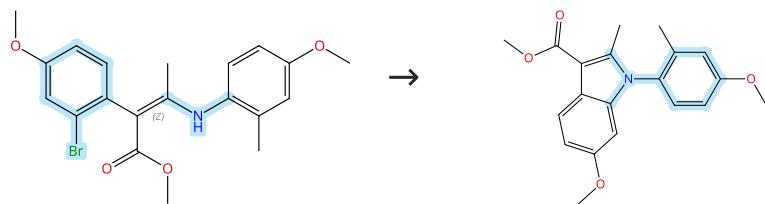
By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

## Experimental Protocols

**Scheme 247 (1 Reaction)**

Steps: 1 Yield: 91%



Double bond geometry shown

31-614-CAS-40129180

Steps: 1 Yield: 91%

1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt

ACS Catalysis (2023), 13(11), 7680-7690.

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

**Scheme 248 (1 Reaction)**

Steps: 1 Yield: 91%

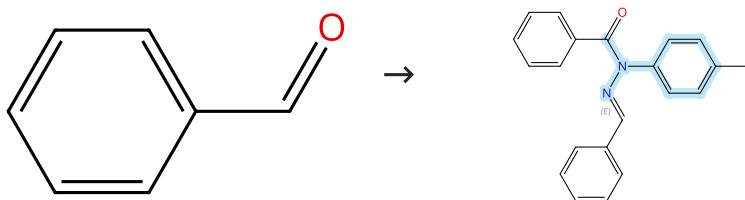


• HCl

Suppliers (86)

Suppliers (17)

Suppliers (93)



Suppliers (60)

Double bond geometry shown

31-614-CAS-40733477

Steps: 1 Yield: 91%

**Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones**

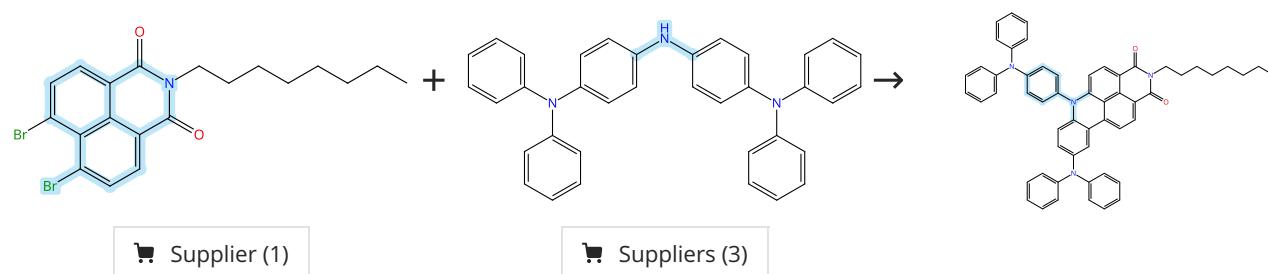
By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

Experimental Protocols

**Scheme 249 (1 Reaction)**

Steps: 1 Yield: 91%



Supplier (1)

Suppliers (3)

31-614-CAS-38653963

Steps: 1 Yield: 91%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tricyclohexylphosphine, Palladium diacetate, Tri-*tert*-butylphosphine, Tris(dibenzylideneacetone)dipalladium

Solvents: Toluene; 2 h, 90 °C

Experimental Protocols

**High-Performance Near-Infrared Chlorinated Rylene Carbonyl Fluorophores via Consecutive C-N and C-C Bond Formation**

By: Wu, Ze-Hua; et al

Angewandte Chemie, International Edition (2023), 62(52), e202315156.

Scheme 250 (1 Reaction)



31-614-CAS-35422519

Steps: 1 Yield: 91%

1.1 Reagents: Sodium trimethylsilanolate

Solvents: Tetrahydrofuran; 5 min, rt

1.2 Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl-κC<sup>1</sup>]phosphine-κP][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-

Solvents: Tetrahydrofuran; 3 h, 90 °C

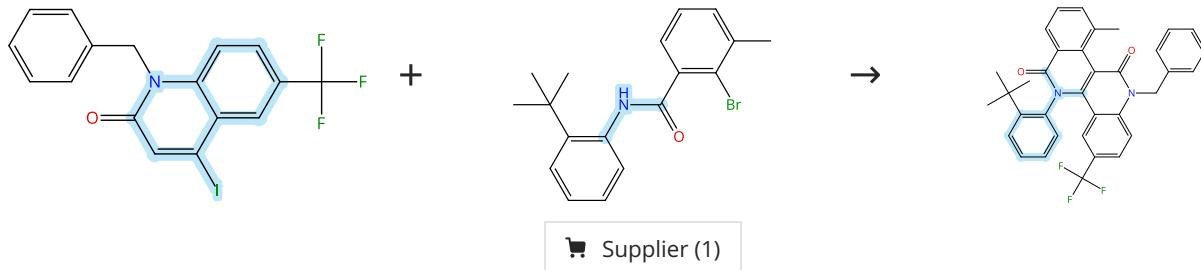
Experimental Protocols

**Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines**

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Scheme 251 (1 Reaction)



31-614-CAS-39194486

Steps: 1 Yield: 91%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ethyl (1*S*,4*R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate

Solvents: Tetrahydrofuran; 5 min, rt; 48 h, 80 °C

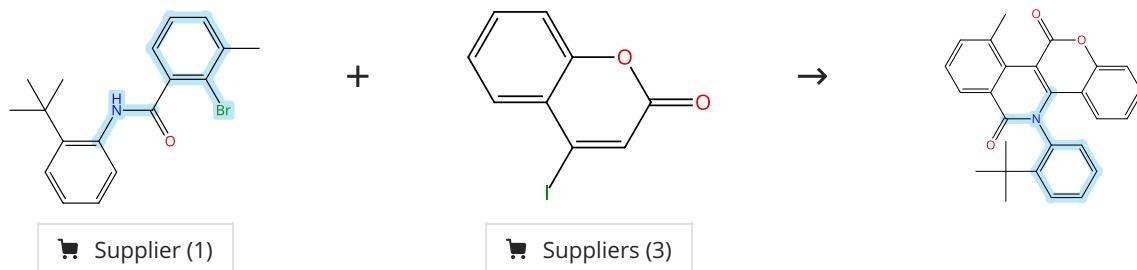
Experimental Protocols

**Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality**

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

Scheme 252 (1 Reaction)



31-614-CAS-39194498

Steps: 1 Yield: 91%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ethyl (1*S,4R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate

Solvents: Tetrahydrofuran; 5 min, rt; 48 h, 80 °C

Experimental Protocols

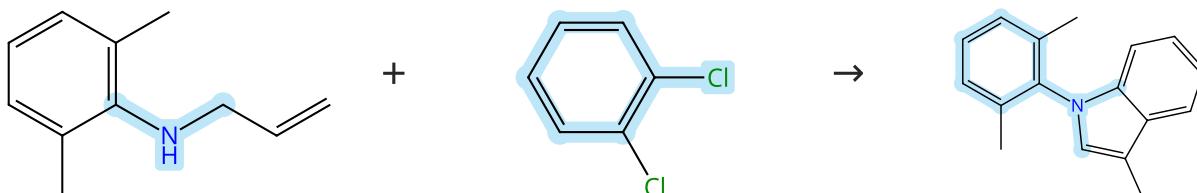
Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

Scheme 253 (1 Reaction)

Steps: 1 Yield: 91%



Suppliers (5)

Suppliers (123)

31-614-CAS-38969963

Steps: 1 Yield: 91%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa N^{\beta}$ )-1-naphthalenyl- $\kappa C$ ], (*SP*-4-4)-

Solvents: 1,4-Dioxane; 24 h, 100 °C

Experimental Protocols

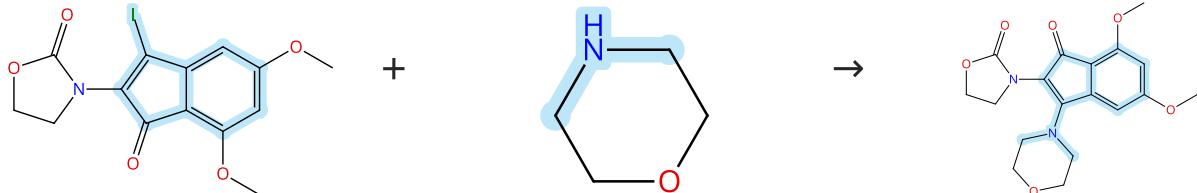
A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

Scheme 254 (1 Reaction)

Steps: 1 Yield: 91%



Suppliers (83)

31-614-CAS-38722563

Steps: 1 Yield: 91%

1.1 Reagents: Cesium carbonate

Catalysts: Palladium diacetate, BINAP

Solvents: Toluene; 16 h, rt → 120 °C

Experimental Protocols

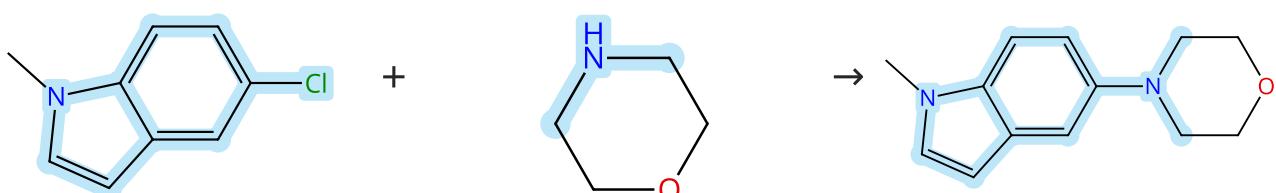
Synthesis of 2-amidoindenone derivatives through an ynamide carbosilylation/Houben-Hoesch cyclization 2-step sequence

By: Hansjacob, Pierre; et al

Organic &amp; Biomolecular Chemistry (2024), 22(1), 70-73.

Scheme 255 (1 Reaction)

Steps: 1 Yield: 91%



Suppliers (52)

Suppliers (83)

Supplier (1)

31-614-CAS-38030219

Steps: 1 Yield: 91%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

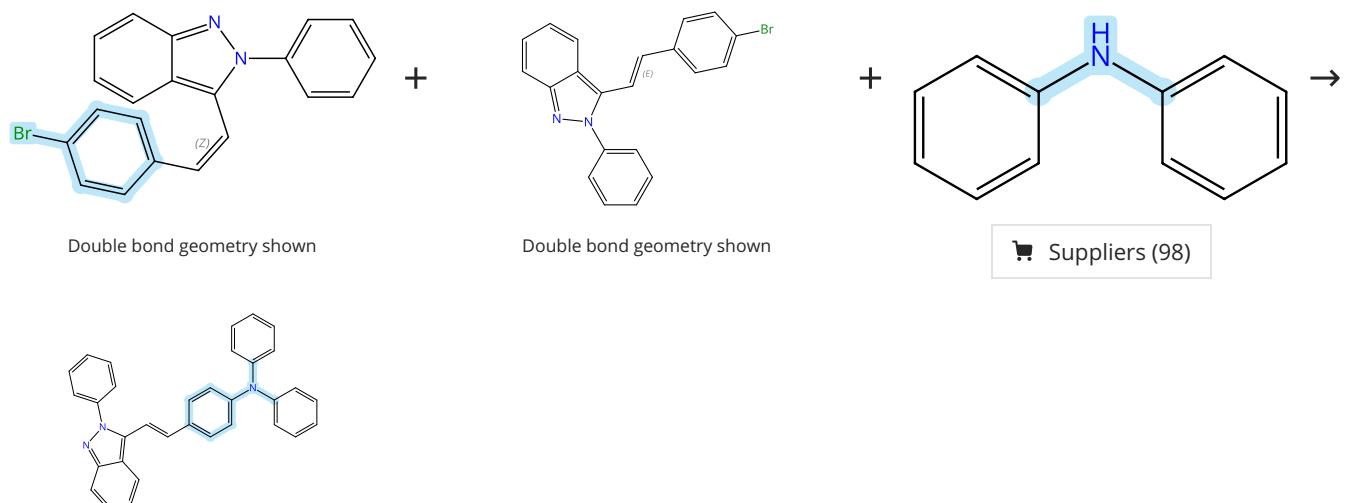
Experimental Protocols

Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Scheme 256 (1 Reaction)



31-614-CAS-43161592

Steps: 1 Yield: 91%

1.1 Reagents: Potassium *tert*-butoxide, Tri-*tert*-butylphosphonium tetrafluoroborate

Catalysts: Palladium diacetate

Solvents: *o*-Xylene; 24 h, 120 °C

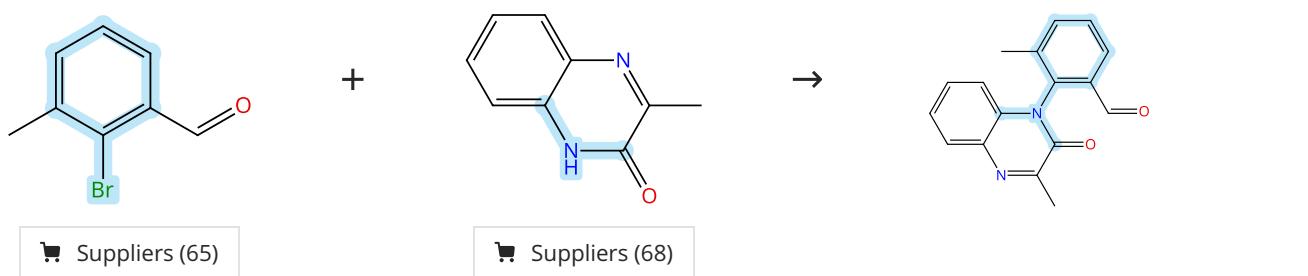
Experimental Protocols

Synthesis of E-3-Alkenyl 2H-Indazoles via Pd/Cu-Catalyzed Cross-coupling/Cyclization of 2-Iodoazooarenes with Terminal Allylenes and Visible-Light-Promoted Isomerization

By: Mei, Kuan; et al

ACS Catalysis (2024), 14(24), 18765-18773.

## Scheme 257 (1 Reaction)



31-614-CAS-41335300

Steps: 1 Yield: 91%

1.1 Catalysts: Palladium, tris[ $\mu$ -[(1,2- $\eta$ ;4,5- $\eta$ )-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2*R*)-1-[(1*R*)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferroceneSolvents: *tert*-Butyl methyl ether; 30 min, rt

1.2 Reagents: Tripotassium phosphate; 36 h, 90 °C

Experimental Protocols

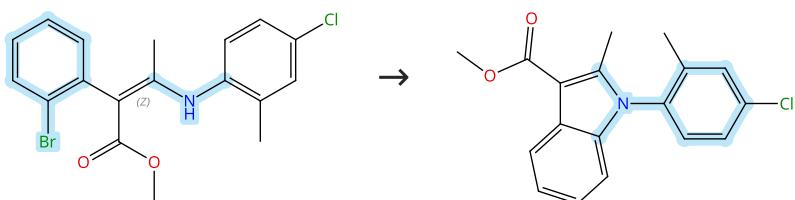
Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

Scheme 258 (1 Reaction)

Steps: 1 Yield: 91%



Double bond geometry shown

31-614-CAS-40129192

Steps: 1 Yield: 91%

1.1 Catalysts: Palladium diacetate, (-)-BINAP  
Solvents: Toluene; 20 min, rt

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

1.2 Reagents: Cesium carbonate  
Solvents: Toluene; 5 min, rt

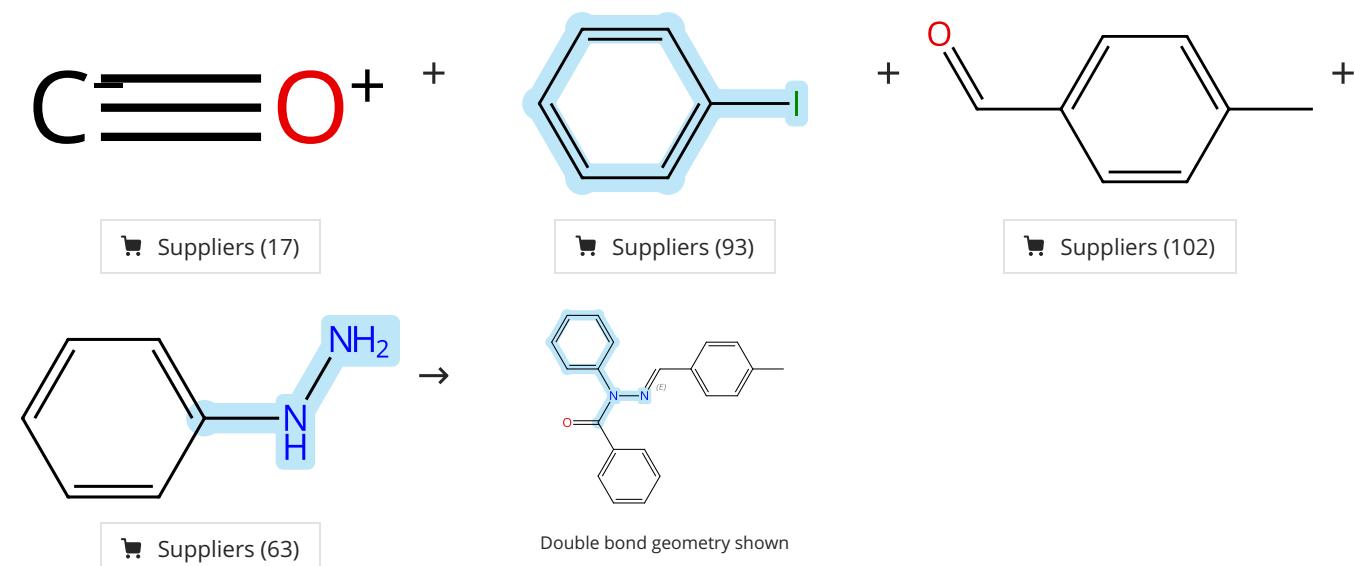
ACS Catalysis (2023), 13(11), 7680-7690.

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

Scheme 259 (1 Reaction)

Steps: 1 Yield: 91%



Suppliers (17)

Suppliers (93)

Suppliers (102)

Suppliers (63)

Double bond geometry shown

31-614-CAS-40733428

Steps: 1 Yield: 91%

Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones

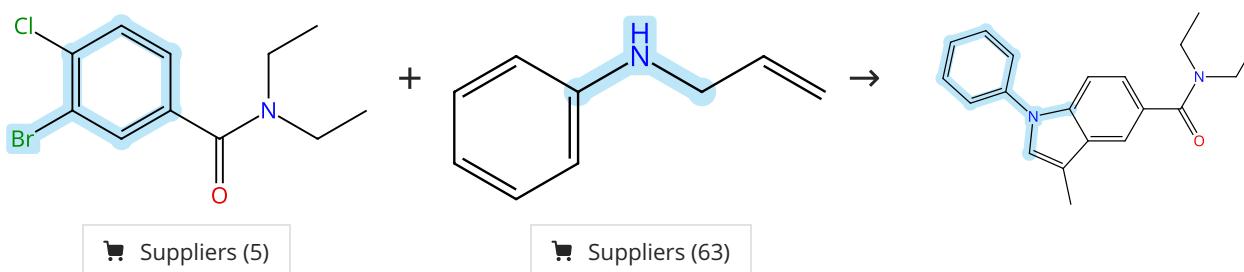
By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

Experimental Protocols

Scheme 260 (1 Reaction)

Steps: 1 Yield: 91%



Suppliers (5)

Suppliers (63)

31-614-CAS-38970015

Steps: 1 Yield: 91%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa N^{\beta}$ )-1-naphthalenyl- $\kappa Cl$ ], (*SP*-4-4)

Solvents: 1,4-Dioxane; 24 h, 100 °C

Experimental Protocols

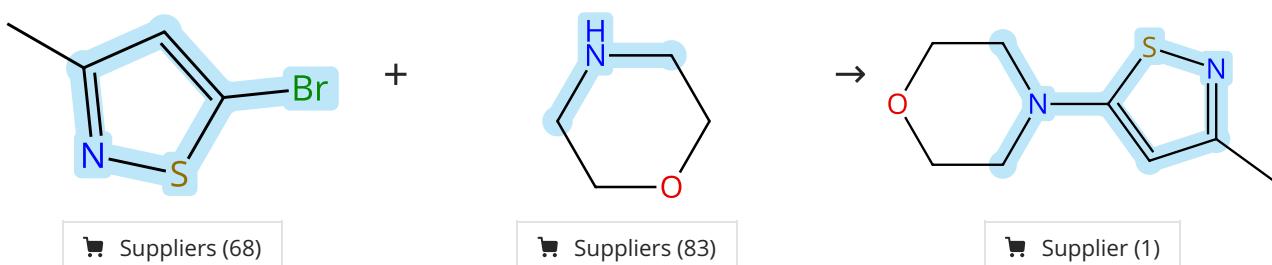
A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidine-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

Scheme 261 (1 Reaction)

Steps: 1 Yield: 91%



31-614-CAS-35422509

Steps: 1 Yield: 91%

1.1 Reagents: Sodium trimethylsilanolate

Solvents: Tetrahydrofuran; 5 min, rt

1.2 Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)

Solvents: Tetrahydrofuran; 3 h, 70 °C

1.3 Reagents: Ammonium chloride

Solvents: Ethyl acetate, Water

Experimental Protocols

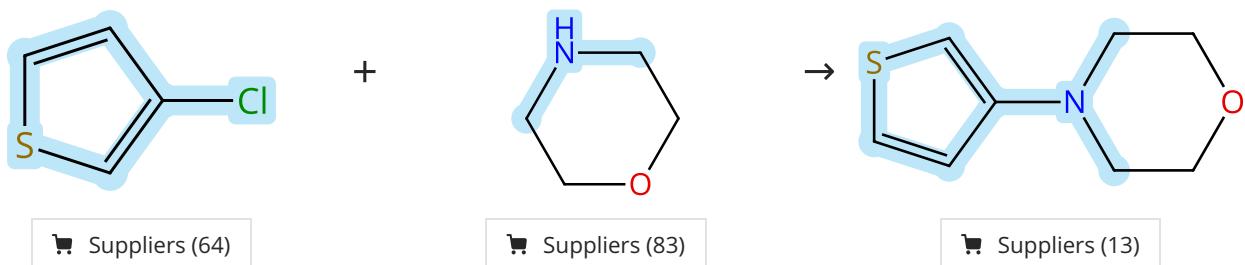
Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Scheme 262 (1 Reaction)

Steps: 1 Yield: 91%



31-614-CAS-38030207

Steps: 1 Yield: 91%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3-η)-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

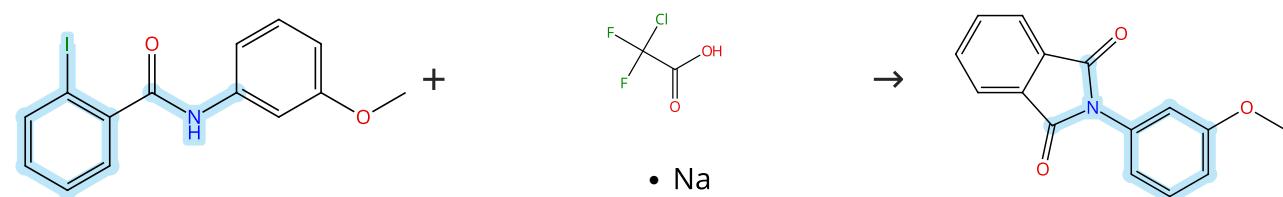
Experimental Protocols

Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr<sup>Ph2</sup>Pd(cin)Cl) at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

Scheme 263 (1 Reaction)

[Suppliers \(16\)](#)[Suppliers \(88\)](#)[Suppliers \(15\)](#)

31-614-CAS-38558262

Steps: 1 Yield: 91%

- 1.1 **Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Bis[2-(diphenylphosphino)phenyl] ether  
**Solvents:** Dimethylformamide; 5 h, 95 °C

**Synthesis of N-substituted phthalimides via Pd-catalyzed [4+1] cycloaddition reaction**

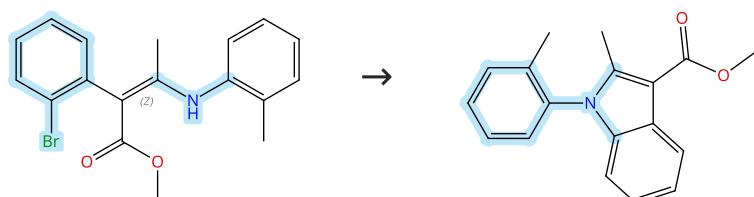
By: Hu, Chengxian; et al

Chemical Communications (Cambridge, United Kingdom) (2023), 59(100), 14839-14842.

Experimental Protocols

Scheme 264 (1 Reaction)

Steps: 1 Yield: 91%



Double bond geometry shown

31-614-CAS-40129196

Steps: 1 Yield: 91%

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt  
 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt  
 1.3 5 min, rt; 18 h, 60 °C

**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

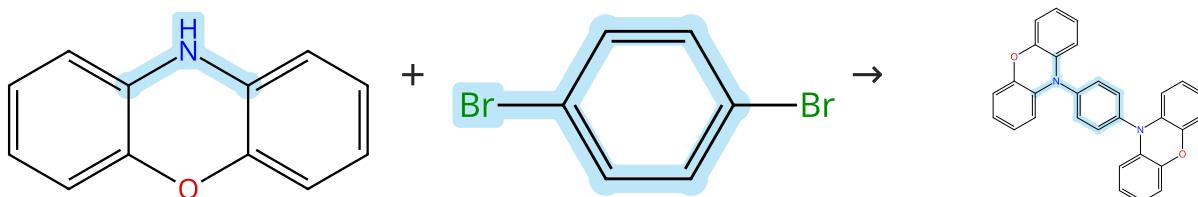
By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

Experimental Protocols

Scheme 265 (1 Reaction)

Steps: 1 Yield: 91%

[Suppliers \(96\)](#)[Suppliers \(97\)](#)

31-614-CAS-43376625

Steps: 1 Yield: 91%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, X-Phos  
**Solvents:** Toluene; 10 - 30 min, 150 °C

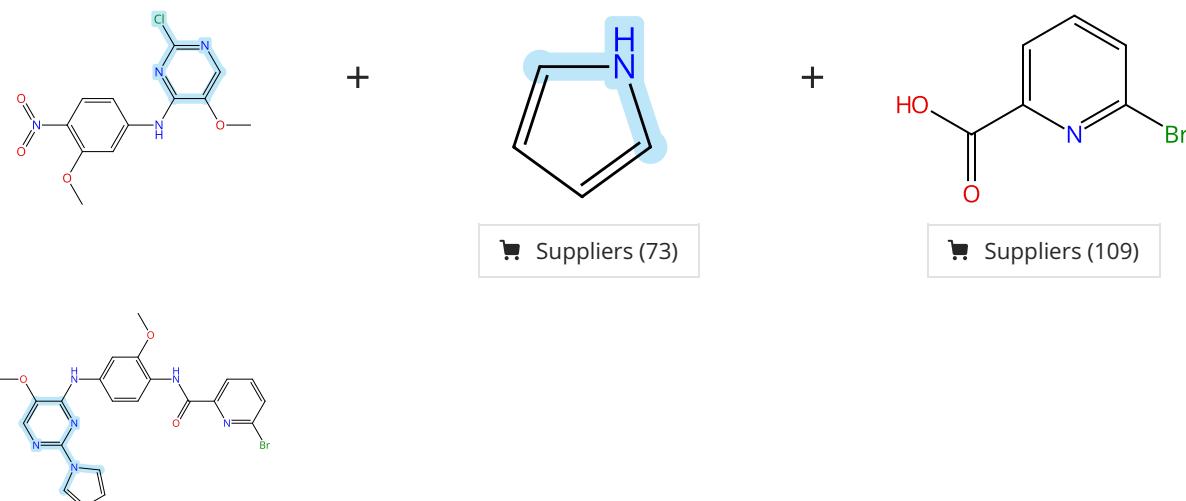
**Microwave-Assisted Buchwald-Hartwig Double Amination: A Rapid and Promising Approach for the Synthesis of TADF Compounds**

By: Mohd Jamel, Nor Shafiq; et al

ACS Omega (2024), 9(51), 50446-50457.

Experimental Protocols

Scheme 266 (1 Reaction)



31-614-CAS-36602338

Steps: 1 Yield: 91%

- 1.1 **Reagents:** Cesium carbonate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 1,1'-(9,9-Dimethyl-9H-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]  
**Solvents:** Toluene; 14 h, 140 °C
- 1.2 **Reagents:** Hydrogen  
**Catalysts:** Palladium  
**Solvents:** Methanol; overnight, rt
- 1.3 **Reagents:** 1-Hydroxybenzotriazole, 1-Ethyl-3-(3'-dimethylamino)propyl carbodiimide hydrochloride  
**Solvents:** Dimethylformamide; 6 h, rt

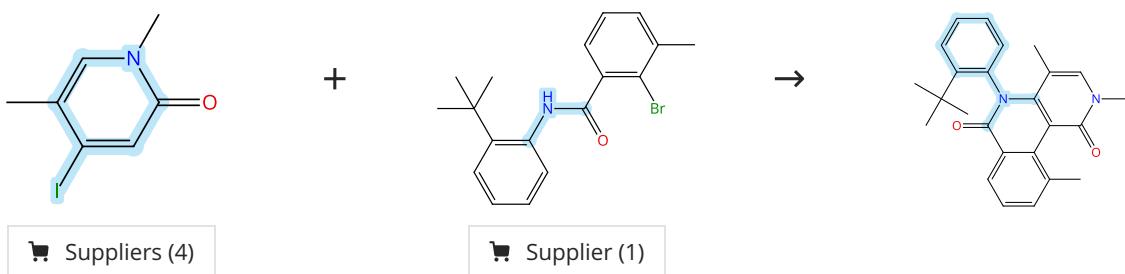
Experimental Protocols

**Discovery of Pyrimidinediamine Derivatives as Potent Methuosis Inducers for the Treatment of Triple-Negative Breast Cancer**

By: He, Jia; et al

Journal of Medicinal Chemistry (2023), 66(11), 7421-7437.

Scheme 267 (1 Reaction)



31-614-CAS-39194496

Steps: 1 Yield: 91%

- 1.1 **Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Tris(2-furyl)phosphine, Ethyl (1*S*,4*R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate  
**Solvents:** Tetrahydrofuran; 5 min, rt; 48 h, 90 °C

Experimental Protocols

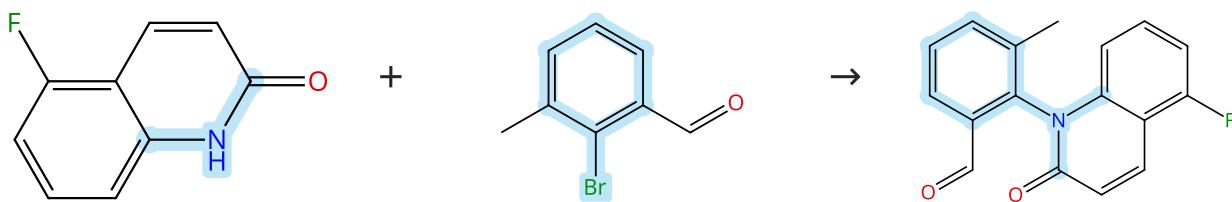
**Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality**

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

Scheme 268 (1 Reaction)

Steps: 1 Yield: 91%



Suppliers (49)

Suppliers (65)

31-614-CAS-41335290

Steps: 1 Yield: 91%

1.1 **Catalysts:** Palladium, tris[ $\mu$ -[(1,2- $\eta$ ;4,5- $\eta$ )-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2R)-1-[(1R)-1-[Bis(1,1-dimethylpropyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferrocene

**Solvents:** *tert*-Butyl methyl ether; 30 min, rt

1.2 **Reagents:** Tripotassium phosphate; 36 h, 90 °C

Experimental Protocols

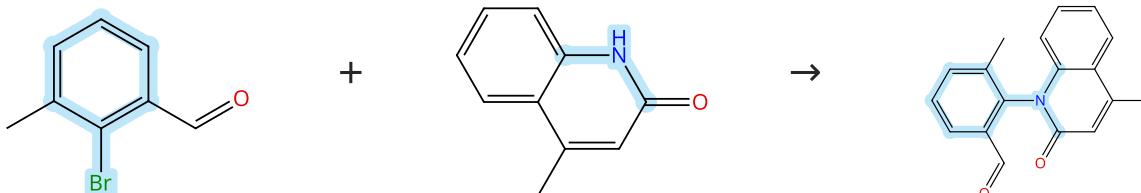
**Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination**

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

Scheme 269 (1 Reaction)

Steps: 1 Yield: 91%



Suppliers (65)

Suppliers (75)

31-614-CAS-41335284

Steps: 1 Yield: 91%

1.1 **Catalysts:** Palladium, tris[ $\mu$ -[(1,2- $\eta$ ;4,5- $\eta$ )-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2R)-1-[(1R)-1-[Bis(1,1-dimethylpropyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferrocene

**Solvents:** *tert*-Butyl methyl ether; 30 min, rt

1.2 **Reagents:** Tripotassium phosphate; 36 h, 90 °C

Experimental Protocols

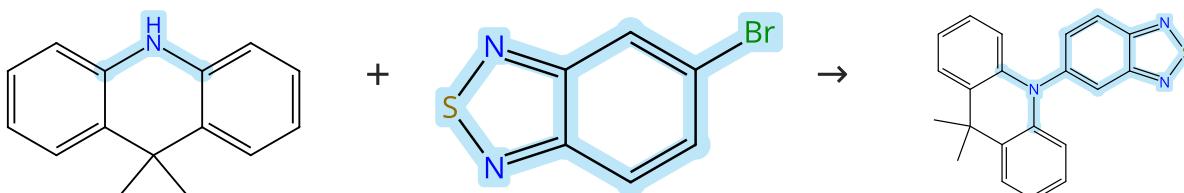
**Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination**

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

Scheme 270 (1 Reaction)

Steps: 1 Yield: 91%



Suppliers (68)

Suppliers (67)

31-614-CAS-35475454

Steps: 1 Yield: 91%

**A red thermally activated delayed fluorescence emitter based on benzo[c][1,2,5]thiadiazole**

By: Ma, You-Ping; et al

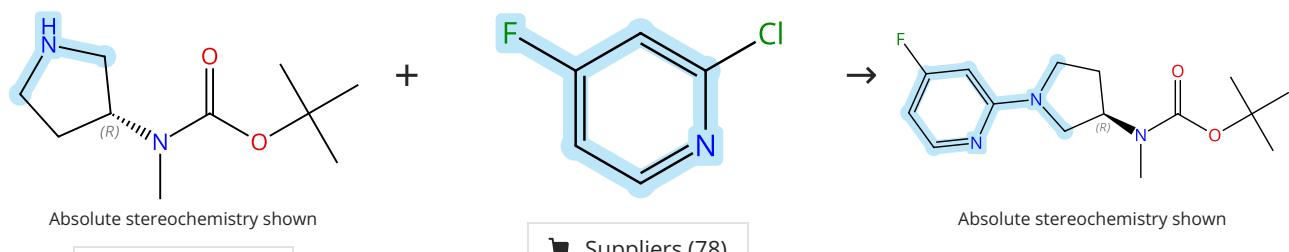
Dyes and Pigments (2023), 212, 111084.

1.1 **Reagents:** Sodium *tert*-butoxide, Tri-*tert*-butylphosphonium tetrafluoroborate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium  
**Solvents:** Toluene; 2 h, 50 °C

Experimental Protocols

## Scheme 271 (1 Reaction)

Steps: 1 Yield: 91%



31-614-CAS-38064655

Steps: 1 Yield: 91%

1.1 **Catalysts:** Tris(dibenzylideneacetone)dipalladium, BINAP  
**Solvents:** Toluene; rt; 18 h, 100 °C

Experimental Protocols

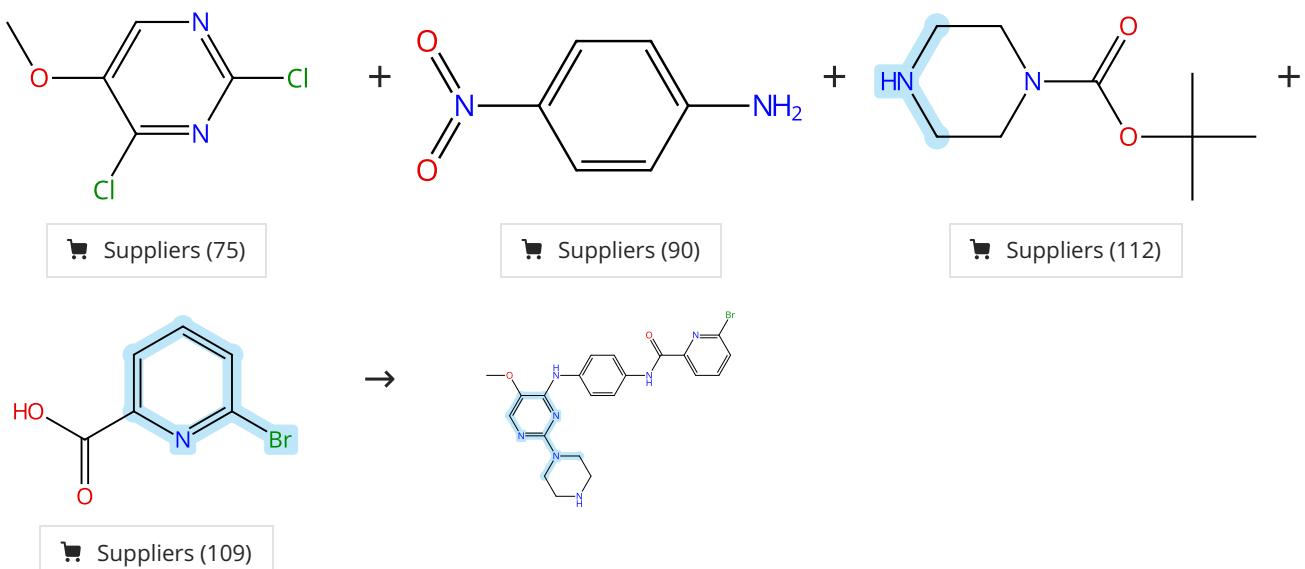
**Identification and Optimization of RNA-Splicing Modulators as Huntingtin Protein-Lowering Agents for the Treatment of Huntington's Disease**

By: Liu, Longbin; et al

Journal of Medicinal Chemistry (2023), 66(18), 13205-13246.

## Scheme 272 (1 Reaction)

Steps: 1 Yield: 91%



31-614-CAS-36602318

Steps: 1 Yield: 91%

1.1 **Reagents:** Cesium carbonate  
**Solvents:** Dimethylformamide; 5 h, 80 °C

1.2 **Reagents:** Diisopropylethylamine  
**Solvents:** 1-Butanol; 8 h, 120 °C

1.3 **Reagents:** Hydrogen  
**Catalysts:** Palladium  
**Solvents:** Methanol; overnight, rt

1.4 **Reagents:** 1-Hydroxybenzotriazole, 1-Ethyl-3-(3'-dimethylamino)propyl carbodiimide hydrochloride  
**Solvents:** Dimethylformamide; 6 h, rt

1.5 **Reagents:** Hydrochloric acid  
**Solvents:** Dichloromethane, 1,4-Dioxane; 4 h, rt

Experimental Protocols

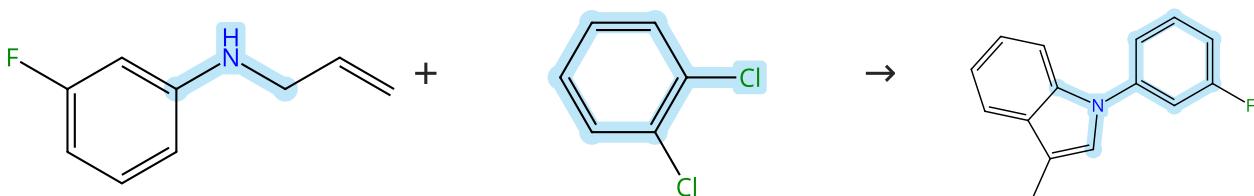
**Discovery of Pyrimidinediamine Derivatives as Potent Methuosis Inducers for the Treatment of Triple-Negative Breast Cancer**

By: He, Jia; et al

Journal of Medicinal Chemistry (2023), 66(11), 7421-7437.

## Scheme 273 (1 Reaction)

Steps: 1 Yield: 91%



Suppliers (11)

Suppliers (123)

31-614-CAS-38969961

Steps: 1 Yield: 91%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl-*kN*<sup>3</sup>)-1-naphthalenyl-*kC*]-, (*SP*-4-4)-

Solvents: 1,4-Dioxane; 24 h, 100 °C

## A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

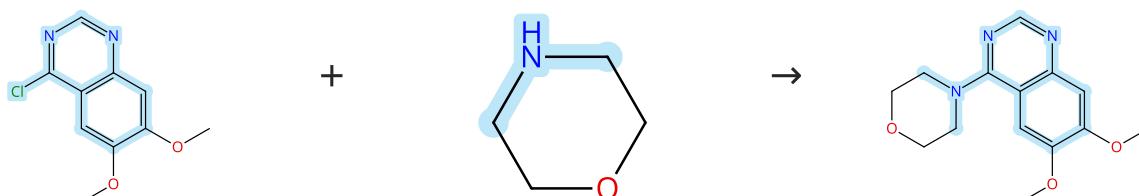
By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

## Experimental Protocols

## Scheme 274 (1 Reaction)

Steps: 1 Yield: 91%



Suppliers (84)

Suppliers (83)

Suppliers (6)

31-614-CAS-38030202

Steps: 1 Yield: 91%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3-η)-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °CSolvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2</sup>Pd(cin)Cl at Room Temperature

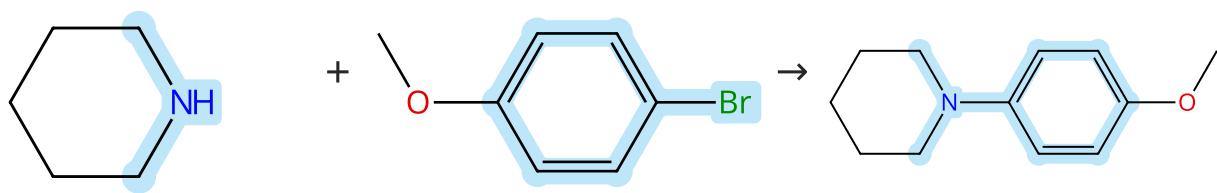
By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Experimental Protocols

## Scheme 275 (1 Reaction)

Steps: 1 Yield: 91%



Suppliers (50)

Suppliers (69)

Suppliers (9)

31-614-CAS-40985570

Steps: 1 Yield: 91%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine; 12 h, 115 °C

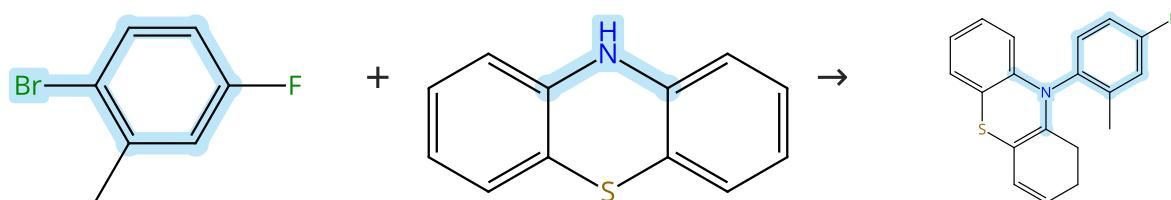
## Mechanistic Investigation, Wavelength-Dependent Reactivity, and Expanded Reactivity of N-Aryl Azacycle Photomediated Ring Contractions

By: Kim, Sojung F.; et al

Journal of the American Chemical Society (2024), 146(8), 5580-5596.

## Experimental Protocols

Scheme 276 (1 Reaction)



Suppliers (70)

Suppliers (96)

31-614-CAS-35203608

Steps: 1 Yield: 90%

1.1 Reagents: Potassium *tert*-butoxide, Tri-*tert*-butylphosphine  
Catalysts: Palladium diacetate  
Solvents: Toluene; 24 h, 110 °C

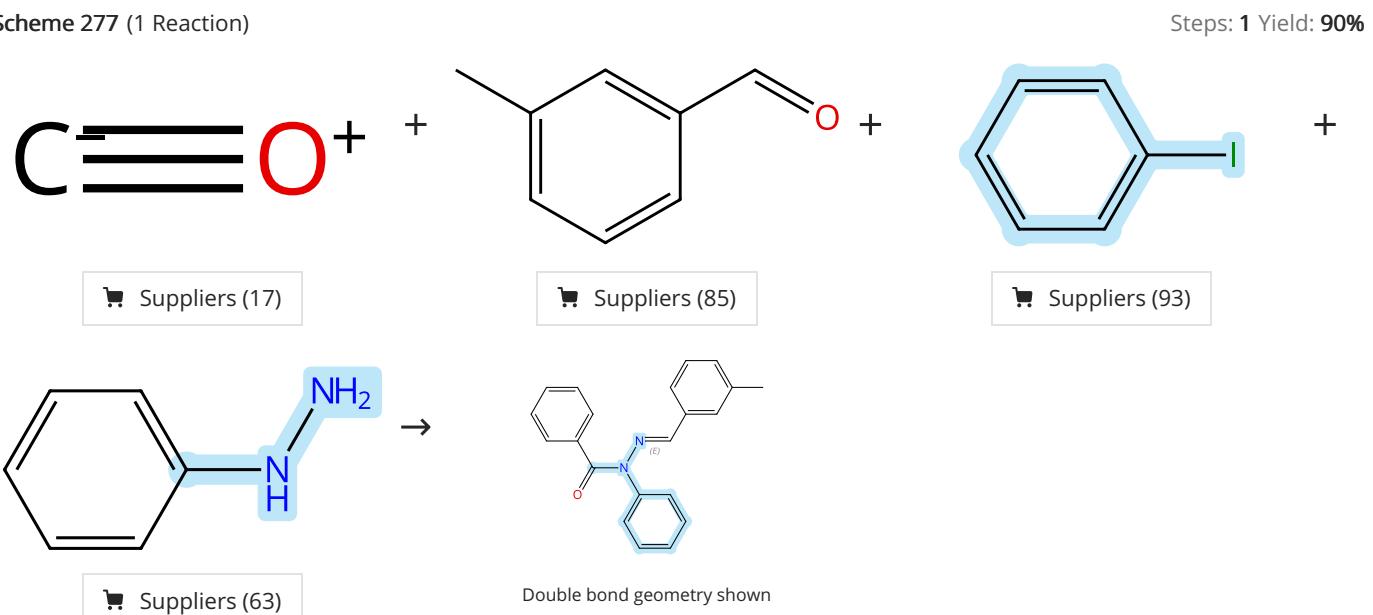
Experimental Protocols

The Effect of Molecular Conformations and Simulated "Self-Doping" in Phenothiazine Derivatives on Room-Temperature Phosphorescence

By: Gao, Mingxue; et al

Angewandte Chemie, International Edition (2023), 62(5), e202214908.

Scheme 277 (1 Reaction)



31-614-CAS-40733427

Steps: 1 Yield: 90%

1.1 Reagents: Sodium hydroxide  
Catalysts: Bis(*tri-tert*-butylphosphine)palladium  
Solvents: Anisole; 12 h, 4 MPa, 120 °C

Experimental Protocols

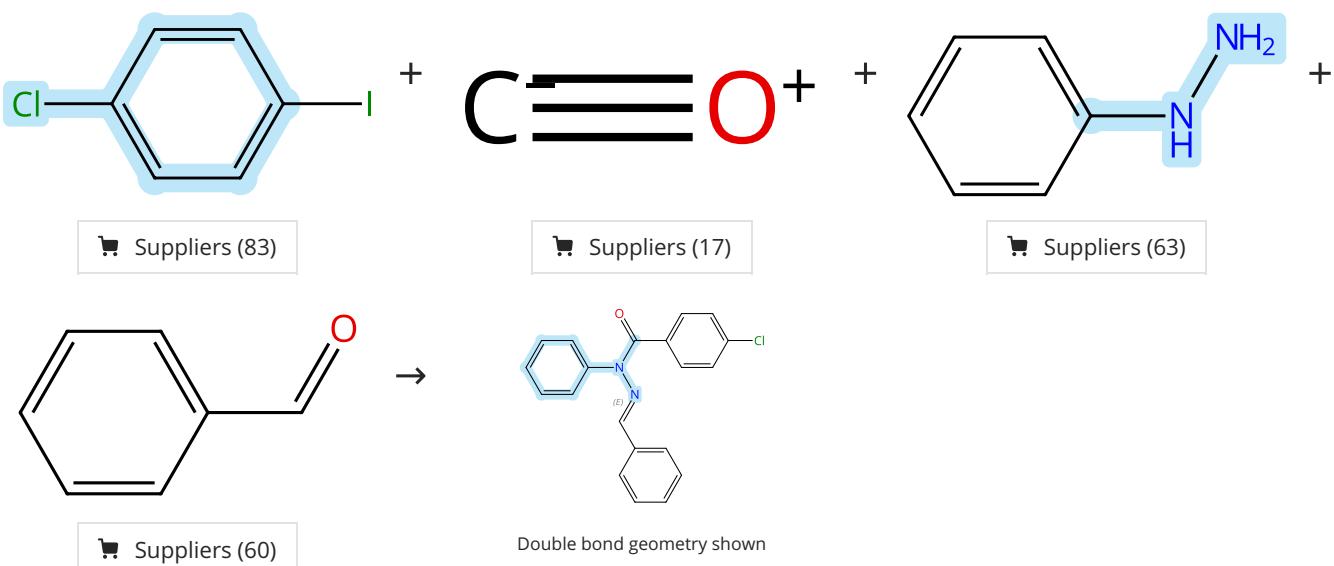
Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones

By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

Scheme 278 (1 Reaction)

Steps: 1 Yield: 90%



31-614-CAS-40733467

Steps: 1 Yield: 90%

- 1.1 **Reagents:** Sodium hydroxide  
**Catalysts:** Bis(*tri-tert*-butylphosphine)palladium  
**Solvents:** Anisole; 12 h, 4 MPa, 120 °C

**Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones**

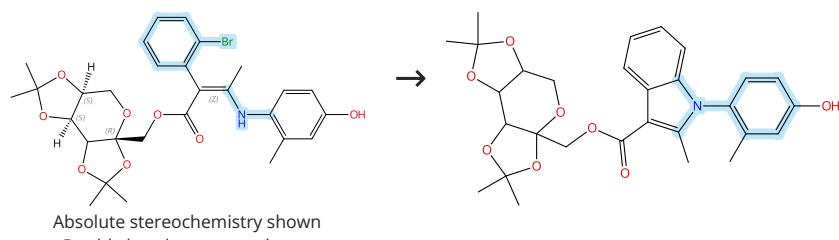
By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

Experimental Protocols

Scheme 279 (1 Reaction)

Steps: 1 Yield: 90%



31-614-CAS-40129235

Steps: 1 Yield: 90%

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt  
 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt  
 1.3 5 min, rt; 18 h, 60 °C

**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

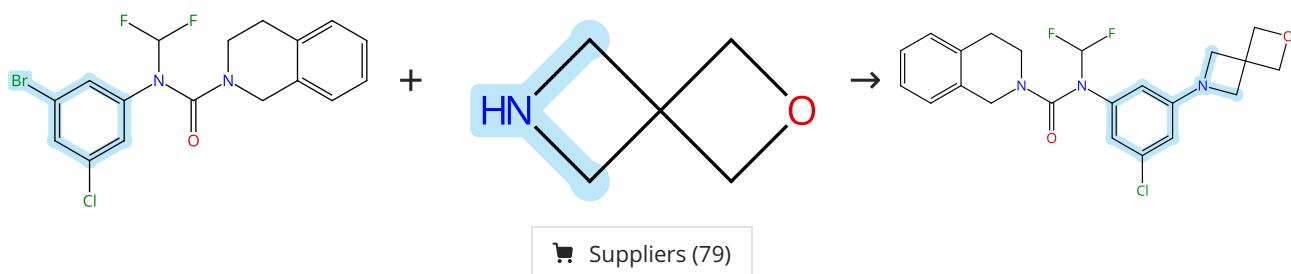
By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

Experimental Protocols

Scheme 280 (1 Reaction)

Steps: 1 Yield: 90%



31-614-CAS-39080854

Steps: 1 Yield: 90%

1.1 Reagents: Cesium carbonate

Catalysts: Palladium diacetate, Tri-*tert*-butylphosphine

Solvents: Toluene; 24 h, 105 °C

Experimental Protocols

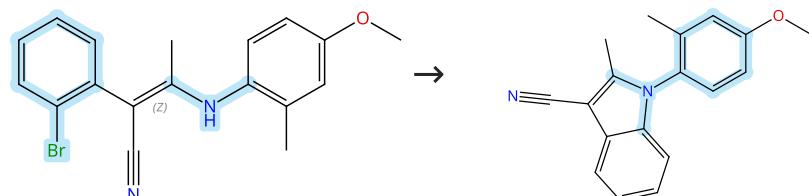
Access to N-Difluoromethyl Amides, (Thio)Carbamates, Ureas, and Formamides

By: Zivkovic, Filip G.; et al

Journal of the American Chemical Society (2024), 146(2), 1276-1281.

## Scheme 281 (1 Reaction)

Steps: 1 Yield: 90%



Double bond geometry shown

31-614-CAS-40129212

Steps: 1 Yield: 90%

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

1.1 Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

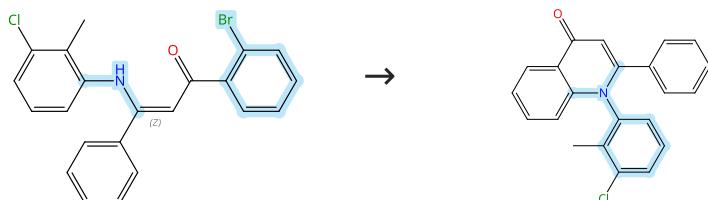
Solvents: Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

## Scheme 282 (1 Reaction)

Steps: 1 Yield: 90%



Double bond geometry shown

31-614-CAS-40129292

Steps: 1 Yield: 90%

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

1.1 Reagents: Potassium carbonate, Sodium hydroxide

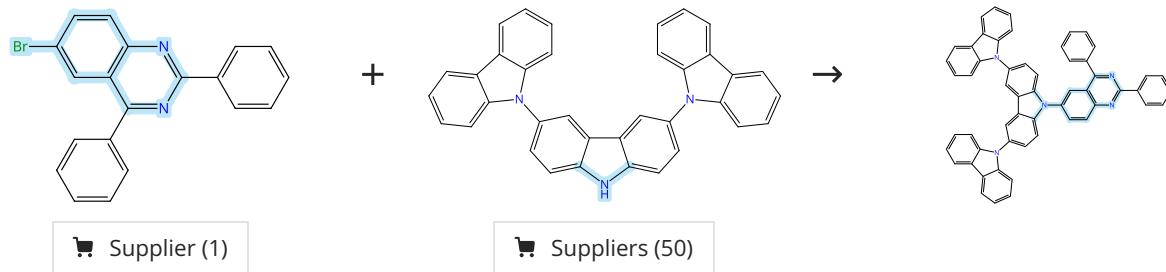
Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene, 1,4-Dioxane; 18 h, 40 °C

Experimental Protocols

## Scheme 283 (1 Reaction)

Steps: 1 Yield: 90%



31-614-CAS-36924727

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

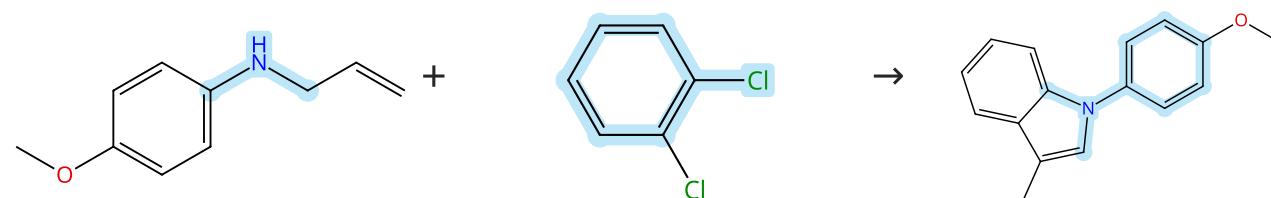
Solvents: Toluene; 15 h, reflux

Experimental Protocols

**Ortho-Lithiation driven one-pot synthesis of quinazolines via [2 + 2 + 2] cascade annulation of halofluorobenzenes with nitriles**

By: Hsueh, Jen-Chun; et al

Organic &amp; Biomolecular Chemistry (2023), 21(25), 5297-5304.

**Scheme 284 (1 Reaction)**

Suppliers (31)

Suppliers (123)

Suppliers (4)

31-614-CAS-38969957

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa$ N<sup>3</sup>)-1-naphthalenyl- $\kappa$ C]-, (*SP*-4-4)-

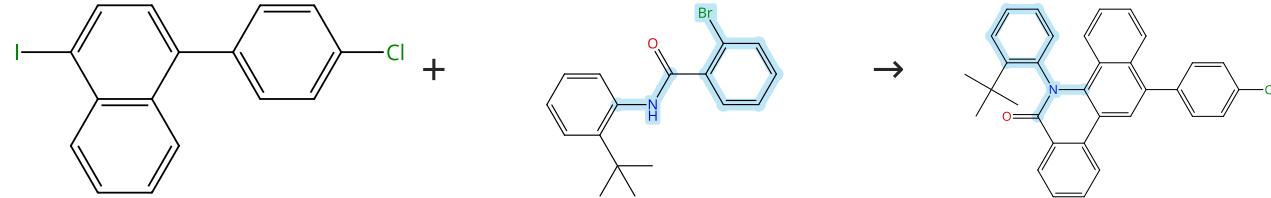
Solvents: 1,4-Dioxane; 24 h, 100 °C

Experimental Protocols

**A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle**

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

**Scheme 285 (1 Reaction)**

Suppliers (5)

31-614-CAS-41071016

Steps: 1 Yield: 90%

1.1 Reagents: Norbornene, Silver sulfate

Catalysts: Tris(dibenzylideneacetone)dipalladium, (4*S*,4'-*S*)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole

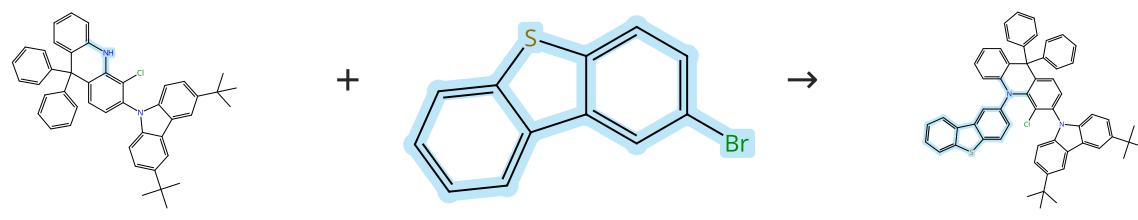
Solvents: Toluene, Water; 36 h, 80 °C

Experimental Protocols

**Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C-N axially chiral scaffolds**

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

**Scheme 286 (1 Reaction)**

Suppliers (80)

31-614-CAS-41198193

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

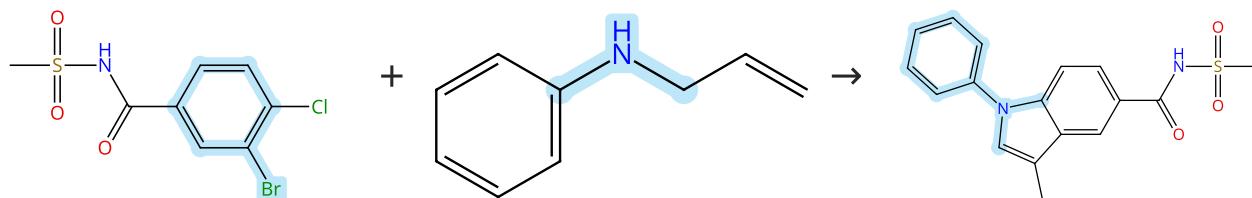
Solvents: Toluene; 12 h, 100 °C

Experimental Protocols

Ten-Dibenzothiophenyl-9,9-diphenylacridane-based multiple resonance emitters for high-efficiency narrowband green OLEDs with CIE  $\gamma > 0.7$  at high doping concentration ratios

By: Zhong, Rui; et al

Chemical Science (2024), 15(33), 13290-13298.

**Scheme 287 (1 Reaction)**

Suppliers (63)

Supplier (1)

31-614-CAS-38970012

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa$ N $\beta$ )-1-naphthalenyl- $\kappa$ C]-, (*SP*-4-4)-

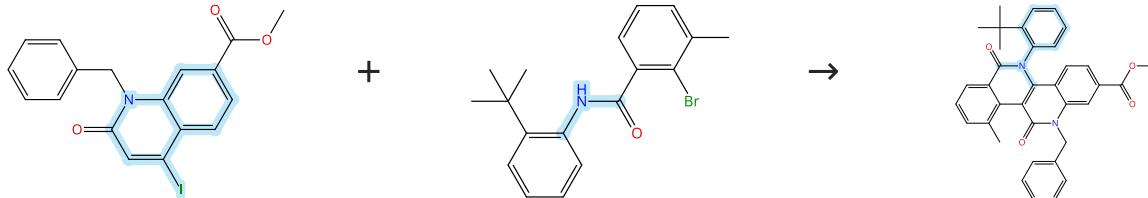
Solvents: 1,4-Dioxane; 12 h, 100 °C

Experimental Protocols

A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

**Scheme 288 (1 Reaction)**

Supplier (1)

31-614-CAS-39194492

Steps: 1 Yield: 90%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ethyl (1*S*,4*R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate

Solvents: Tetrahydrofuran; 5 min, rt; 48 h, 80 °C

Experimental Protocols

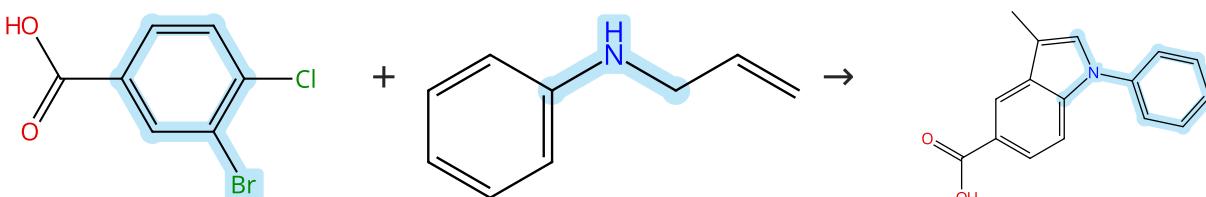
Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

**Scheme 289 (1 Reaction)**

Steps: 1 Yield: 90%



Suppliers (89)

Suppliers (63)

Supplier (1)

31-614-CAS-38970011

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa N^{\beta}$ )-1-naphthalenyl- $\kappa C$ ]-, (*SP*-4-4)

Solvents: 1,4-Dioxane; 24 h, 100 °C

Experimental Protocols

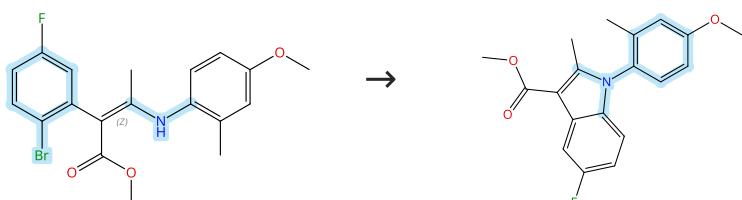
A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

Scheme 290 (1 Reaction)

Steps: 1 Yield: 90%



Double bond geometry shown

31-614-CAS-40129182

Steps: 1 Yield: 90%

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

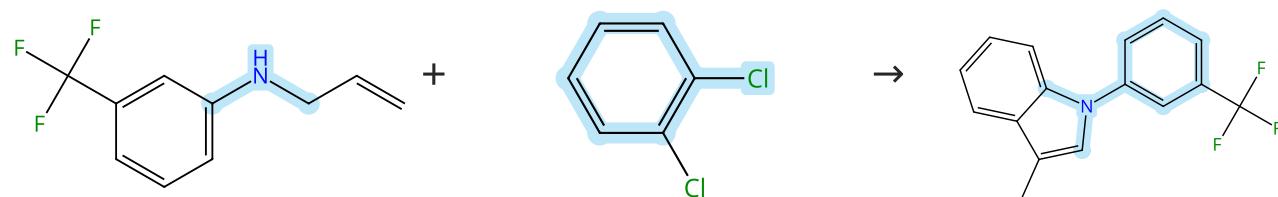
ACS Catalysis (2023), 13(11), 7680-7690.

1.1 Catalysts: Palladium diacetate, (-)-BINAP  
Solvents: Toluene; 20 min, rt  
1.2 Reagents: Cesium carbonate  
Solvents: Toluene; 5 min, rt  
1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

Scheme 291 (1 Reaction)

Steps: 1 Yield: 90%



Suppliers (15)

Suppliers (123)

31-614-CAS-38969960

Steps: 1 Yield: 90%

A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

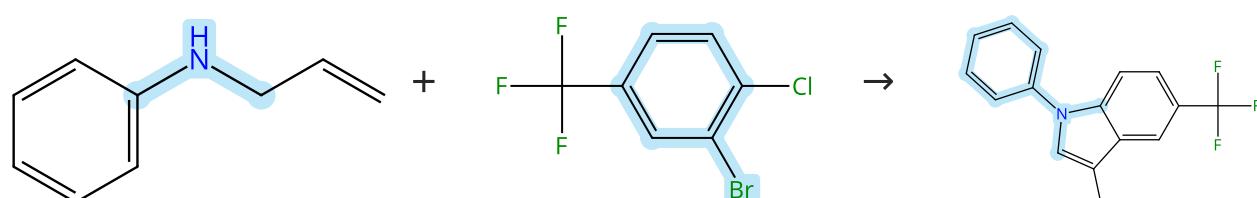
Organic Letters (2024), 26(1), 22-28.

1.1 Reagents: Sodium *tert*-butoxide  
Catalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa N^{\beta}$ )-1-naphthalenyl- $\kappa C$ ]-, (*SP*-4-4)  
Solvents: 1,4-Dioxane; 24 h, 100 °C

Experimental Protocols

Scheme 292 (1 Reaction)

Steps: 1 Yield: 90%



Suppliers (63)

Suppliers (68)

31-614-CAS-38970008

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa$ *N*<sup>3</sup>)-1-naphthalenyl- $\kappa$ *C*]-, (*SP*-4-4)

Solvents: 1,4-Dioxane; 24 h, 100 °C

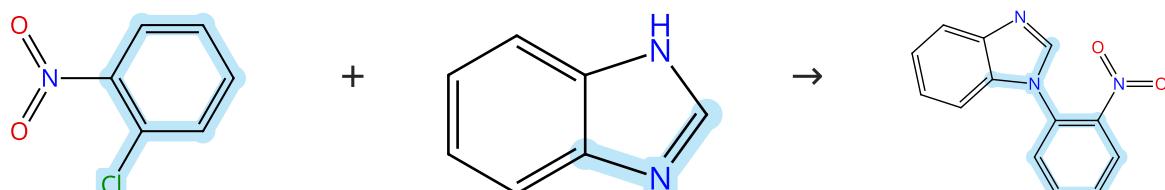
Experimental Protocols

A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

Scheme 293 (1 Reaction)



31-614-CAS-41203533

Steps: 1 Yield: 90%

1.1 Reagents: Cesium carbonate

Catalysts: Palladium

Solvents: Dimethylformamide; 7 h, 100 °C

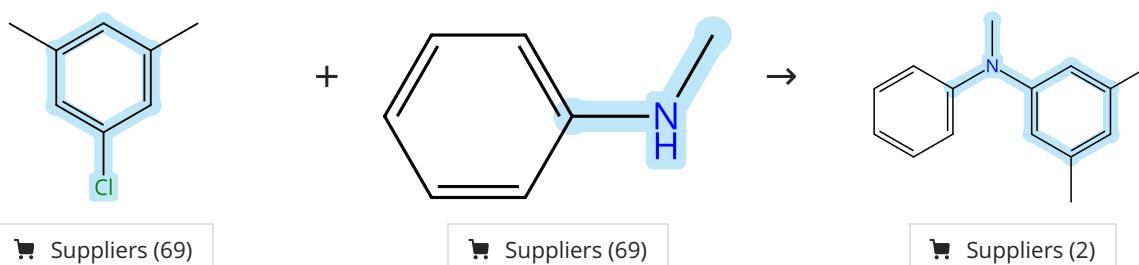
Experimental Protocols

Palladium nanoparticle immobilized on coconut coir extract coated boron carbon nitride: A green and sustainable nanocatalyst for cross-coupling reactions and HER studies

By: Chandrashekharan, Bhuwaneshwari; et al

Diamond and Related Materials (2024), 147, 111261.

Scheme 294 (1 Reaction)



31-614-CAS-42014410

Steps: 1 Yield: 90%

1.1 Catalysts: Palladium diacetate, 1*H*-Indole, 3-(dicyclohexylphosphino)-1-methyl-2-(2,3,4-trimethoxyphenyl)-

Solvents: Dichloromethane; rt

1.2 Reagents: Sodium *tert*-butoxide

Solvents: Toluene, Hexane; rt; 24 h, 110 °C; 110 °C → rt

1.3 Solvents: Water; rt

Experimental Protocols

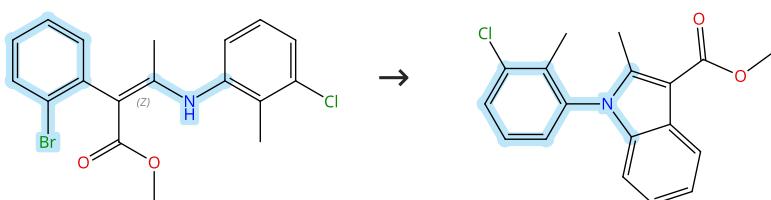
Application of indole-based monophosphine in ppm level Pd-catalyzed C-N bond formation

By: Li, Cheuk Long; et al

Journal of Organometallic Chemistry (2024), 1011, 123124.

Scheme 295 (1 Reaction)

Steps: 1 Yield: 90%



31-614-CAS-40129189

Steps: 1 Yield: 90%

**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

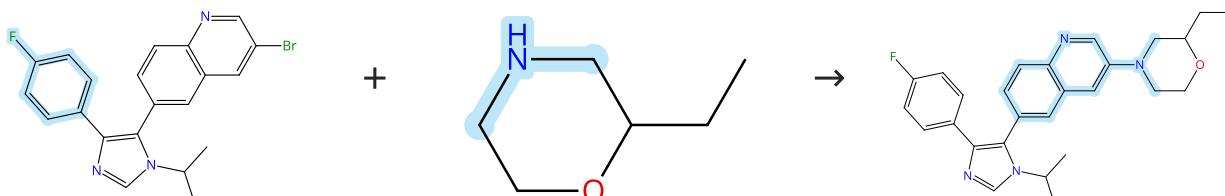
ACS Catalysis (2023), 13(11), 7680-7690.

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt
- 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt
- 1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

**Scheme 296 (1 Reaction)**

Steps: 1 Yield: 90%


🛒 Suppliers (75)

31-614-CAS-39722163

Steps: 1 Yield: 90%

**Fragment growth-based discovery of novel TNIK inhibitors for the treatment of colorectal cancer**

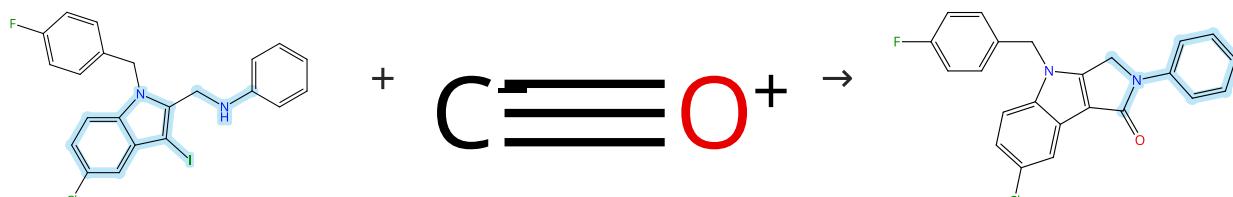
By: Teng, Yaxin; et al

European Journal of Medicinal Chemistry (2024), 268, 116240.

Experimental Protocols

**Scheme 297 (1 Reaction)**

Steps: 1 Yield: 90%


🛒 Suppliers (17)

31-614-CAS-37487008

Steps: 1 Yield: 90%

**Accessing Dihydropyrrolo[3,4-b]indol-1(2H)-ones via Pd-Catalyzed Intramolecular Aminocarbonylative Ring Closure**

By: Alam, Ryan M.; et al

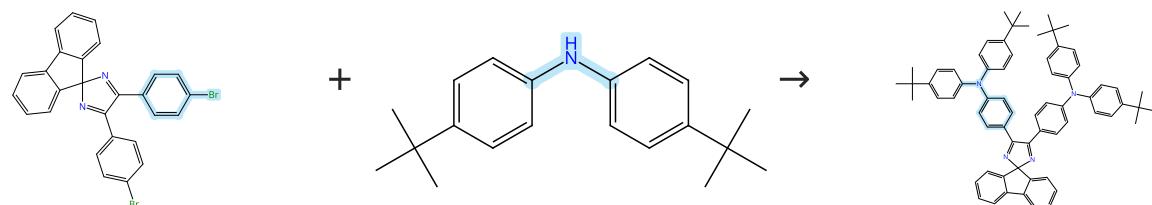
European Journal of Organic Chemistry (2023), 26(34), e202300646.

- 1.1 **Reagents:** Triethylamine  
**Catalysts:** Palladium diacetate, 1,1'-(9,9-Dimethyl-9*H*-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]  
**Solvents:** Toluene
- 1.2 **Reagents:** Formic acid, Triethylamine, Methanesulfonyl chloride; 10 min, rt; rt → 100 °C; 18 h, 100 °C

Experimental Protocols

**Scheme 298 (1 Reaction)**

Steps: 1 Yield: 90%


🛒 Suppliers (55)

31-614-CAS-38470391

Steps: 1 Yield: 90%

**1.1 Reagents:** Sodium *tert*-butoxide, Tri-*tert*-butylphosphine  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium  
**Solvents:** Toluene; overnight, 115 °C

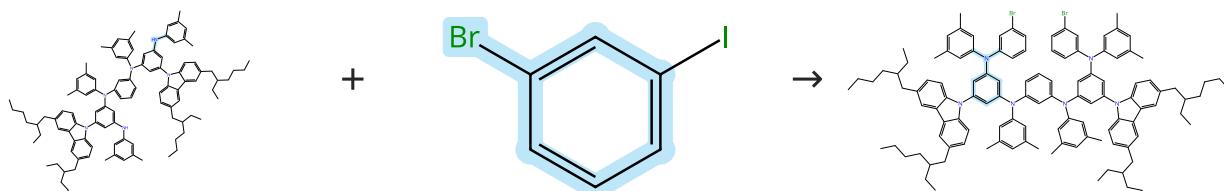
Experimental Protocols

A Breakthrough in Solution-Processed Ultra-Deep-Blue HLCT OLEDs: A Record External Quantum Efficiency Exceeding 10% Based on Novel V-Shaped Emitters

By: Liao, Chuanxin; et al

Advanced Materials (Weinheim, Germany) (2023), 35(48), 2305310.

## Scheme 299 (1 Reaction)



Suppliers (93)

31-614-CAS-38006381

Steps: 1 Yield: 90%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 1,1'-(9,9-Dimethyl-9*H*-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]  
**Solvents:** Toluene; 8 h, 70 °C

Experimental Protocols

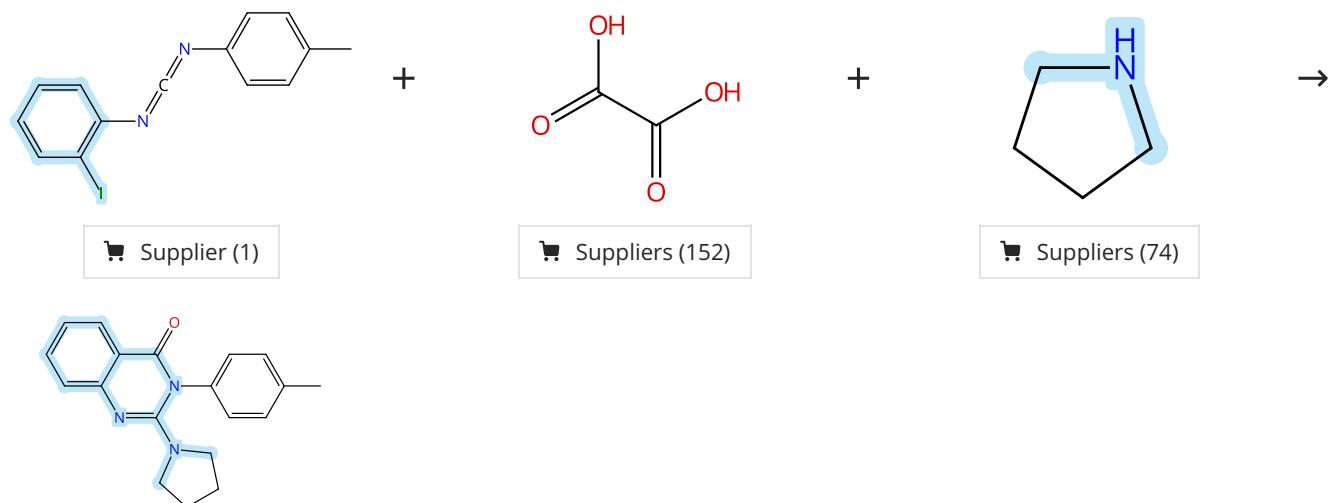
One-Shot Construction of BN-Embedded Heptadecacene Framework Exhibiting Ultra-narrowband Green Thermally Activated Delayed Fluorescence

By: Sano, Yusuke; et al

Journal of the American Chemical Society (2023), 145(21), 11504-11511.

## Scheme 300 (1 Reaction)

Steps: 1 Yield: 90%



Supplier (1)

Suppliers (152)

Suppliers (74)

31-614-CAS-35649898

Steps: 1 Yield: 90%

**1.1 Reagents:** Potassium carbonate  
**Catalysts:** Palladium  
**Solvents:** Dimethylformamide, Xylene; 15 h, 130 °C

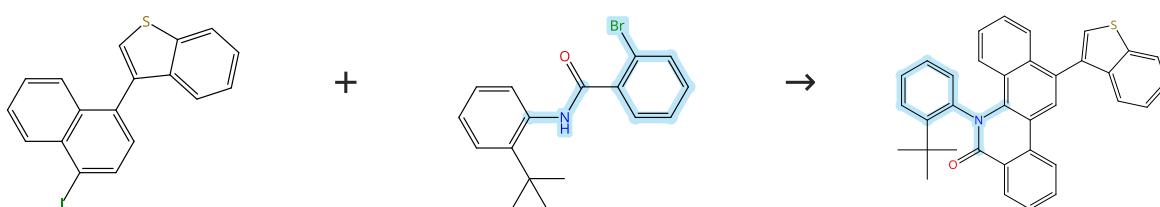
Experimental Protocols

Supported Palladium-Catalyzed Tandem Synthesis of 2-(Alkylamino/amino)-3-arylquinazolin-4(3H)-ones Employing C O Source

By: Shaifali; et al

Chemistry - An Asian Journal (2023), 18(6), e202201288.

Scheme 301 (1 Reaction)



Suppliers (5)

31-614-CAS-41071023

Steps: 1 Yield: 90%

1.1 Reagents: Norbornene, Silver sulfate

Catalysts: Tris(dibenzylideneacetone)dipalladium, (4S,4'S)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole  
Solvents: Toluene, Water; 36 h, 80 °C

Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C-N axially chiral scaffolds

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

Experimental Protocols

Scheme 302 (1 Reaction)



Suppliers (44)

31-614-CAS-36221264

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium diacetate, Tri-*tert*-butylphosphonium tetrafluoroborate

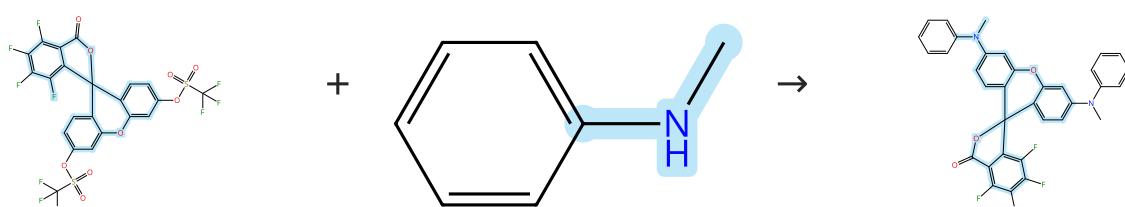
Solvents: Toluene; 12 h, 140 °C

Medium-Ring Strategy Enables Multiple Resonance Emitters with Twisted Geometry and Fast Spin-Flip to Suppress Efficiency Roll-Off

By: Lei, Bowen; et al

Angewandte Chemie, International Edition (2023), 62(12), e202218405.

Scheme 303 (1 Reaction)



Suppliers (69)

31-614-CAS-39355758

Steps: 1 Yield: 90%

Optimized Red-Absorbing Dyes for Imaging and Sensing

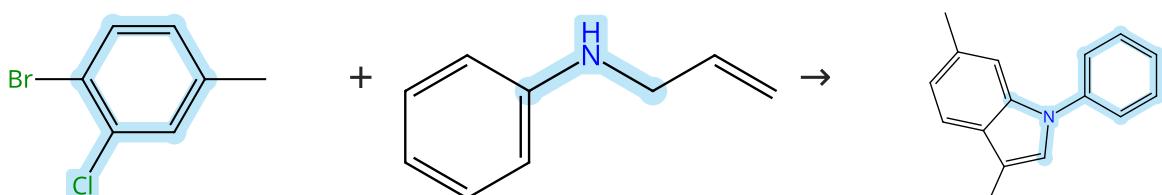
By: Grimm, Jonathan B.; et al

Journal of the American Chemical Society (2023), 145(42), 23000-23013.

Experimental Protocols

Scheme 304 (1 Reaction)

Steps: 1 Yield: 90%



Suppliers (68)

Suppliers (63)

31-614-CAS-38969994

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl-*kN*<sup>B</sup>)-1-naphthalenyl-*kC*]-, (*SP*-4-4)

Solvents: 1,4-Dioxane; 24 h, 100 °C

## A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

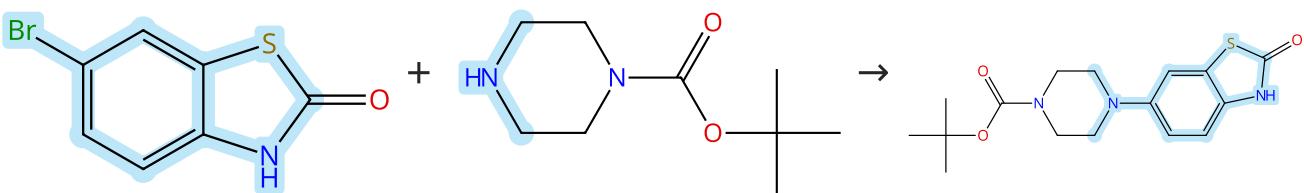
By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

## Experimental Protocols

Scheme 305 (1 Reaction)

Steps: 1 Yield: 90%



Suppliers (70)

Suppliers (112)

31-614-CAS-36748985

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: 1,4-Dioxane; overnight, heated

## Structure-Activity relationships of replacements for the triazolopyridazine of Anti-Cryptosporidium lead SLU-2633

By: Oboh, Edmund; et al

Bioorganic &amp; Medicinal Chemistry (2023), 86, 117295.

## Experimental Protocols

Scheme 306 (1 Reaction)

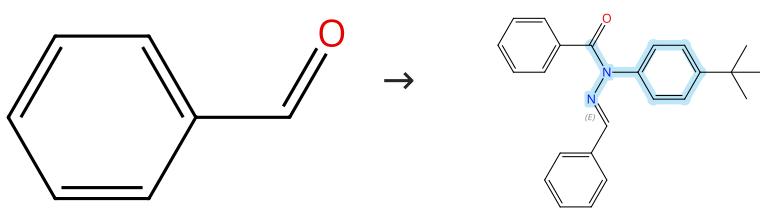
Steps: 1 Yield: 90%



Suppliers (66)

Suppliers (17)

Suppliers (93)



Suppliers (60)

Double bond geometry shown

31-614-CAS-40733492

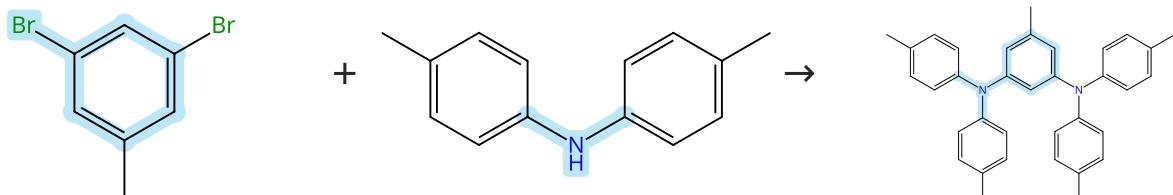
Steps: 1 Yield: 90%

**Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones**

By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

Experimental Protocols

**Scheme 307 (1 Reaction)**

Suppliers (81)

Suppliers (80)

Steps: 1 Yield: 90%

31-614-CAS-41860519

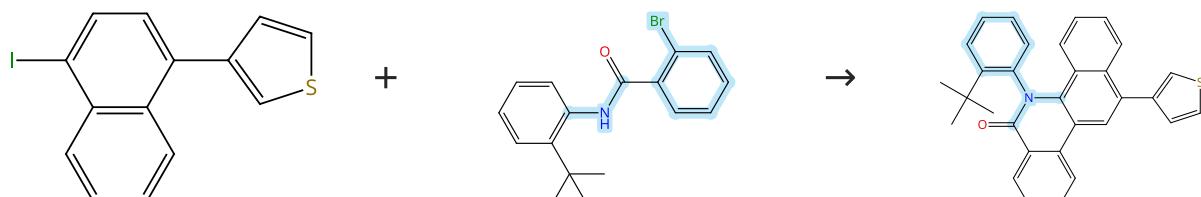
Steps: 1 Yield: 90%

**Orienting Group Directed Cascade Borylation for Efficient One-Shot Synthesis of 1,4-BN-Doped Polycyclic Aromatic Hydrocarbons as Narrowband Organic Emitters**

By: Wu, Lin; et al

Angewandte Chemie, International Edition (2024), 63(18), e202402020.

Experimental Protocols

**Scheme 308 (1 Reaction)**

Suppliers (5)

Steps: 1 Yield: 90%

31-614-CAS-41071038

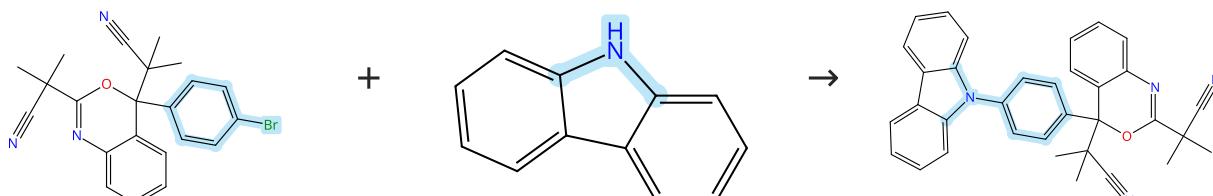
Steps: 1 Yield: 90%

**Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C-N axially chiral scaffolds**

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

Experimental Protocols

**Scheme 309 (1 Reaction)**

Suppliers (109)

Steps: 1 Yield: 90%

31-614-CAS-39507249

Steps: 1 Yield: 90%

1.1 Reagents: Cesium carbonate

Catalysts: Palladium diacetate, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 36 h, 110 °C

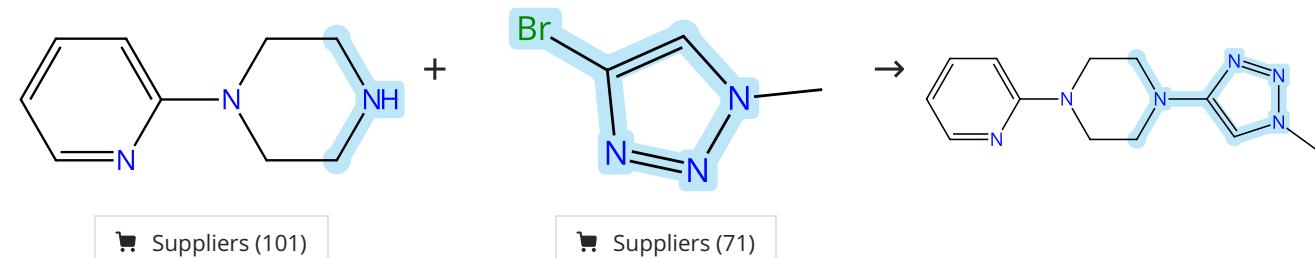
Experimental Protocols

Synthesis of 2,4-Dicyanoalkylated Benzoxazines through Radical-mediated Cascade Cyclization of Isocyanides with AIBN under Metal- and Additive-free Conditions

By: Ni, Mengjia; et al

Journal of Organic Chemistry (2024), 89(6), 3970-3976.

## Scheme 310 (1 Reaction)



Suppliers (101)

Suppliers (71)

31-614-CAS-35422515

Steps: 1 Yield: 90%

1.1 Reagents: Sodium trimethylsilanolate  
Solvents: Tetrahydrofuran; 5 min, rt1.2 Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ [4-[2-(trimethylsilyl)ethoxy]carbonylphenyl]-, (*SP*-4-2)-  
Solvents: Tetrahydrofuran; 3 h, 90 °C

Experimental Protocols

Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

## Scheme 311 (1 Reaction)



Suppliers (71)

31-614-CAS-40259445

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium diacetate, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 12 h, 100 °C

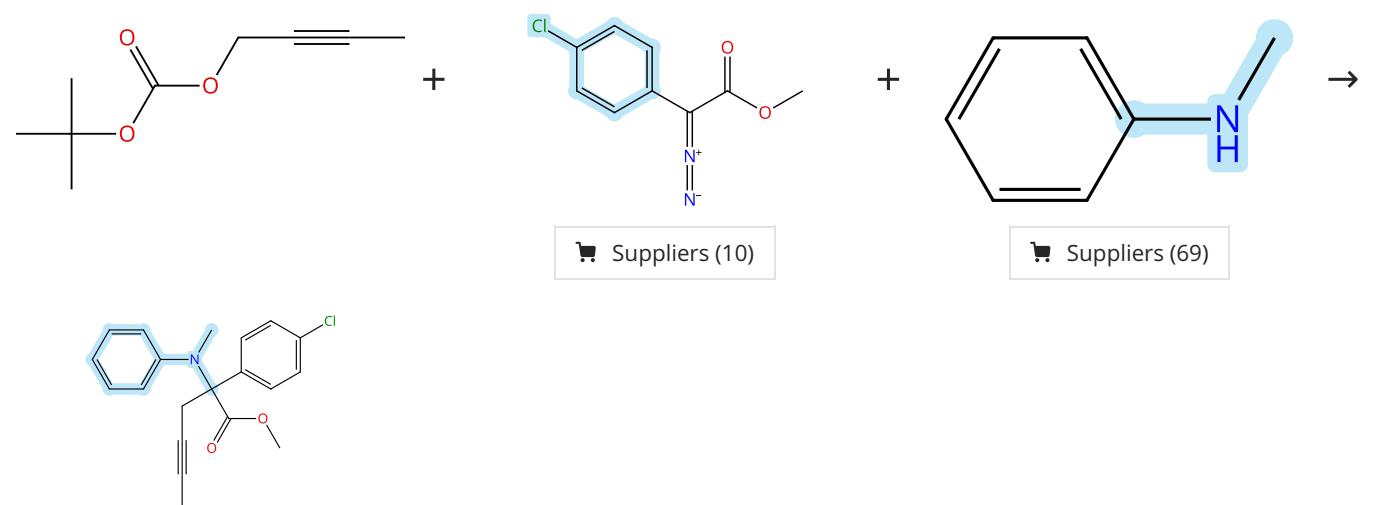
Experimental Protocols

Synthesis of Azepinoindoles and Oxepinoindoles through Bronsted-Acid-Catalyzed Cyclization of an In Situ Generated Dihydrospiroquinoline Intermediate

By: Mahato, Rina; et al

Organic Letters (2024), 26(18), 3911-3916.

Scheme 312 (1 Reaction)



31-614-CAS-37847482

Steps: 1 Yield: 90%

## 1.1 Reagents:

**Catalysts:** Cesium carbonate  
**Reagents:** Tris(dibenzylideneacetone)dipalladium, Rhodium, tetrakis[ $\mu$ -octanoato- $\kappa O:\kappa O'$ ]di-, (*Rh-Rh*), [3,6-Dimethoxy-2',4',6'-tris(1-methylethyl)[1,1'-biphenyl]-2-yl]bis(1,1-dimethylphosphine)

**Solvents:** Acetonitrile; 12 h, 80 °C

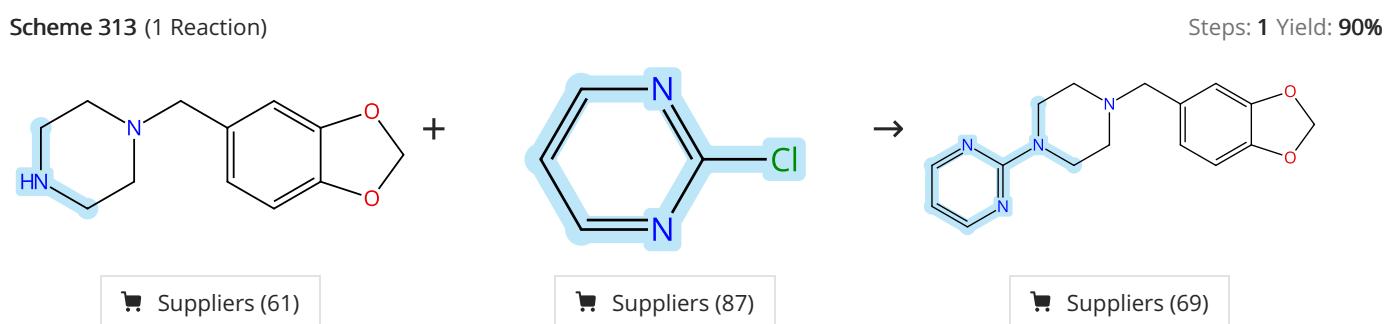
## Rh(II)/Pd(0) Dual-Catalyzed Regio-Divergent Three-Component Propargylic Substitution

By: Xu, Jie; et al

JACS Au (2023), 3(10), 2862-2872.

## Experimental Protocols

Scheme 313 (1 Reaction)



31-614-CAS-38030292

Steps: 1 Yield: 90%

## 1.1 Reagents:

**Catalysts:** Sodium *tert*-butoxide  
**Reagents:** Stereoisomer of [(4S,5S)-1,3-bis[2,6-bis(1-methyl-ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 2 h, 70 °C

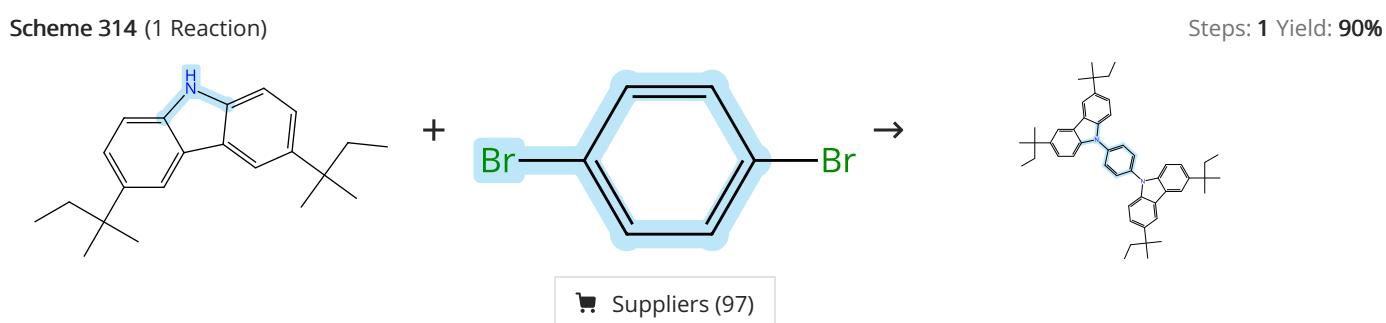
Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Experimental Protocols

Scheme 314 (1 Reaction)



31-614-CAS-43376622

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

Solvents: Toluene; 30 min, 150 °C

Experimental Protocols

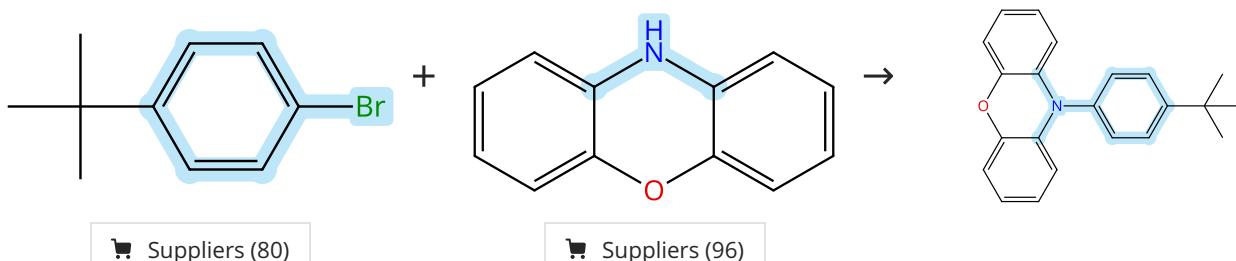
**Microwave-Assisted Buchwald-Hartwig Double Amination: A Rapid and Promising Approach for the Synthesis of TADF Compounds**

By: Mohd Jamel, Nor Shafiq; et al

ACS Omega (2024), 9(51), 50446-50457.

**Scheme 315 (1 Reaction)**

Steps: 1 Yield: 90%



31-614-CAS-37287073

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 24 h, reflux

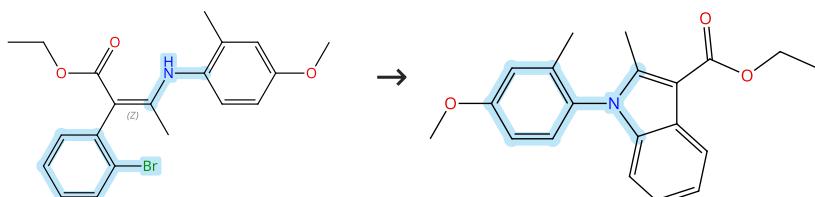
**Structurally Diversified Calix[3]phenoxazines: Synthesis, Solid-State Conformational Investigation, and Host-Guest Chemistry**

By: Mao, Lijun; et al

Organic Letters (2023), 25(30), 5597-5601.

**Scheme 316 (1 Reaction)**

Steps: 1 Yield: 90%



31-614-CAS-40129223

Steps: 1 Yield: 90%

1.1 Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

Solvents: Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

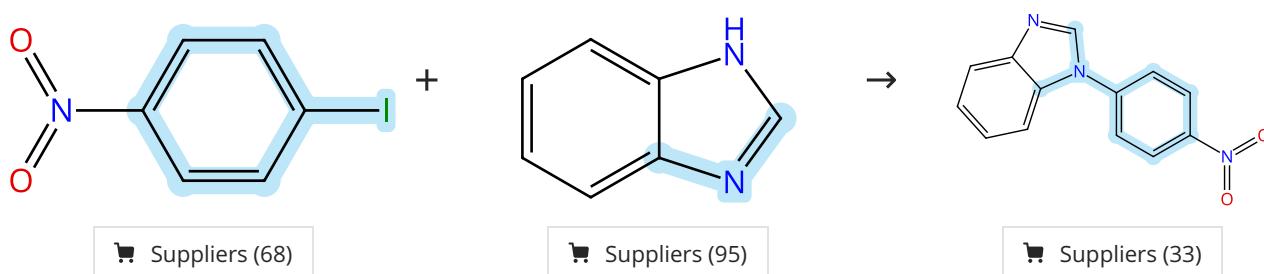
**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

**Scheme 317 (1 Reaction)**

Steps: 1 Yield: 90%



31-614-CAS-41203522

Steps: 1 Yield: 90%

1.1 Reagents: Cesium carbonate  
Catalysts: Palladium

Solvents: Dimethylformamide; 4 h, 100 °C

Experimental Protocols

Palladium nanoparticle immobilized on coconut coir extract coated boron carbon nitride: A green and sustainable nanocatalyst for cross-coupling reactions and HER studies

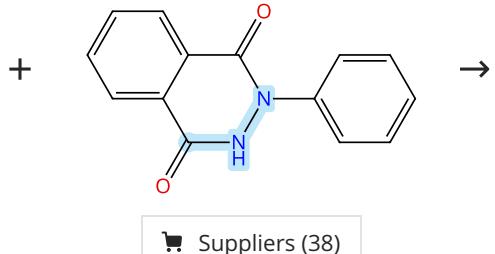
By: Chandrashekharan, Bhuwaneshwari; et al

Diamond and Related Materials (2024), 147, 111261.

## Scheme 318 (1 Reaction)

Steps: 1 Yield: 90%

Multi-component structure image available in CAS SciFinder



Suppliers (38)

Suppliers (67)

31-614-CAS-36273149

Steps: 1 Yield: 90%

1.1 Reagents: Potassium acetate, Oxygen

Catalysts: Palladium diacetate, X-Phos

Solvents: Dimethylformamide; 3 h, 1 atm, 130 °C

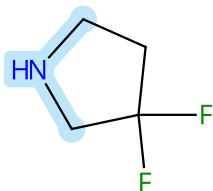
Palladium-Catalyzed Regioselective C-Arylation and C,N-Diarylation of N-Aryl-2,3-dihydrophthalazine-1,4-diones Using Diaryliodonium Salts

By: Naharwal, Sushma; et al

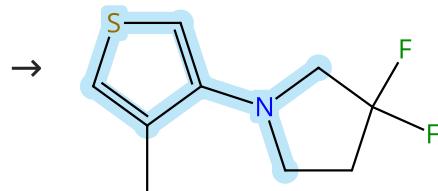
Synthesis (2023), 55(21), 3515-3525.

## Scheme 319 (1 Reaction)

Steps: 1 Yield: 90%



+



Suppliers (62)

Suppliers (73)

31-614-CAS-35422526

Steps: 1 Yield: 90%

1.1 Reagents: Sodium trimethylsilanolate

Solvents: Tetrahydrofuran; 5 min, rt

1.2 Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-

Solvents: Tetrahydrofuran; 3 h, 70 °C

Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

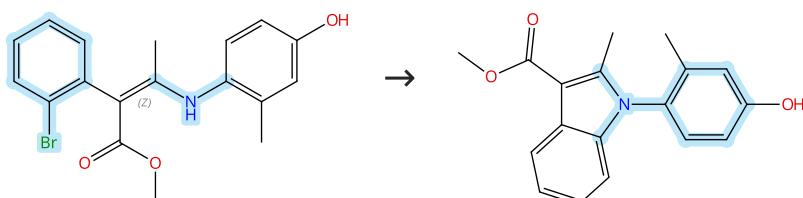
By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Experimental Protocols

## Scheme 320 (1 Reaction)

Steps: 1 Yield: 90%



Double bond geometry shown

31-614-CAS-40129198

Steps: 1 Yield: 90%

**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

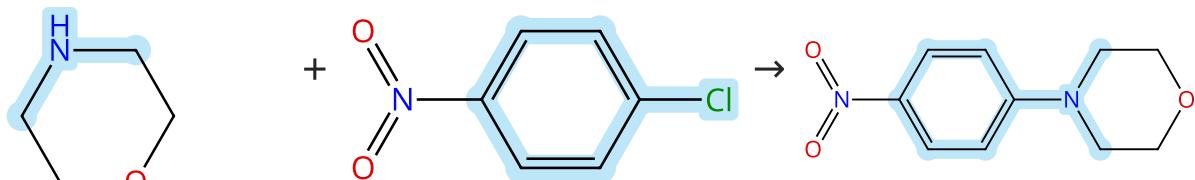
ACS Catalysis (2023), 13(11), 7680-7690.

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt
- 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt
- 1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

Scheme 321 (1 Reaction)

Steps: 1 Yield: 90%



Suppliers (83)

Suppliers (59)

Suppliers (72)

31-614-CAS-37222337

Steps: 1 Yield: 90%

**Indomuscone-Based Sterically Encumbered Phosphines as Ligands for Palladium-Catalyzed Reactions**

By: Garnes-Portoles, Francisco; et al

Journal of Organic Chemistry (2023), 88(9), 5962-5971.

Scheme 322 (1 Reaction)

Steps: 1 Yield: 90%



Suppliers (66)

Suppliers (50)

Suppliers (2)

31-614-CAS-35422574

Steps: 1 Yield: 90%

**Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines**

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

- 1.1 **Reagents:** Sodium trimethylsilanolate

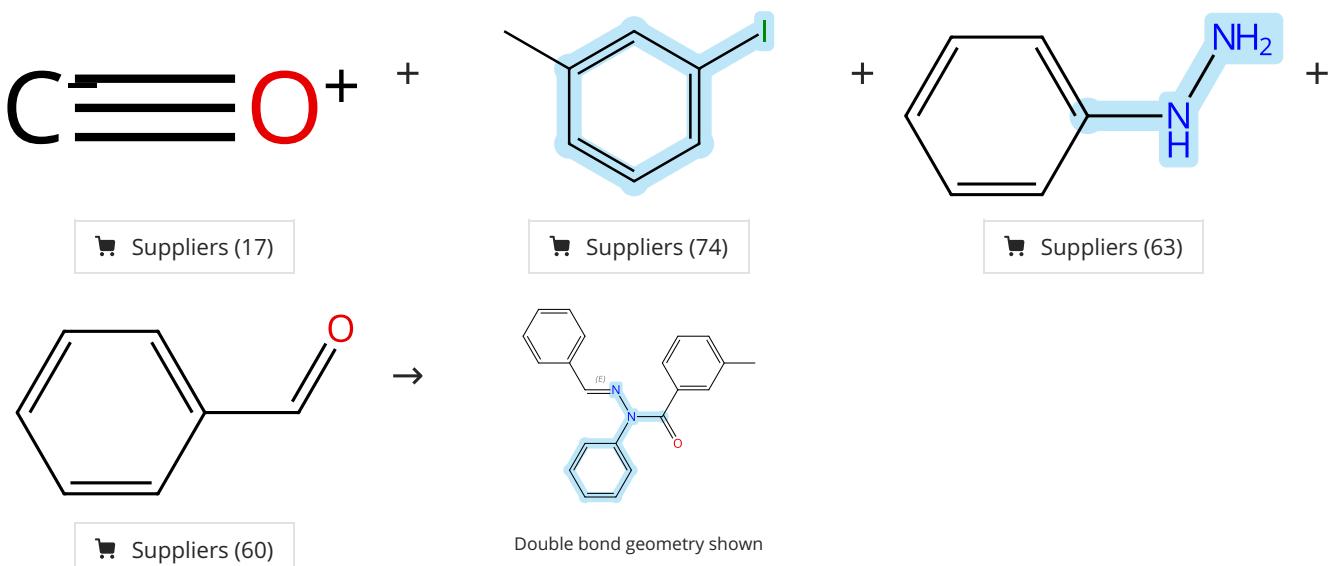
**Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl-κC<sup>1</sup>]phosphine-κP][4-[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-

**Solvents:** Tetrahydrofuran; rt → 90 °C; 3 h, 90 °C

Experimental Protocols

Scheme 323 (1 Reaction)

Steps: 1 Yield: 90%



31-614-CAS-40733459

Steps: 1 Yield: 90%

1.1 Reagents: Sodium hydroxide  
 Catalysts: Bis(*tri-tert*-butylphosphine)palladium  
 Solvents: Anisole; 12 h, 4 MPa, 120 °C

**Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones**

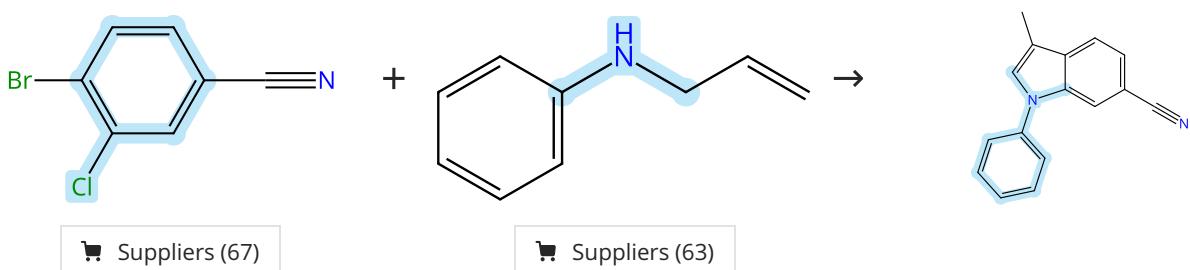
By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

Experimental Protocols

Scheme 324 (1 Reaction)

Steps: 1 Yield: 90%



31-614-CAS-38970006

Steps: 1 Yield: 90%

1.1 Reagents: Sodium *tert*-butoxide  
 Catalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl-*kN*<sup>3</sup>)-1-naphthalenyl-*kC*], (*SP*-4-4)  
 Solvents: 1,4-Dioxane; 24 h, 100 °C

**A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle**

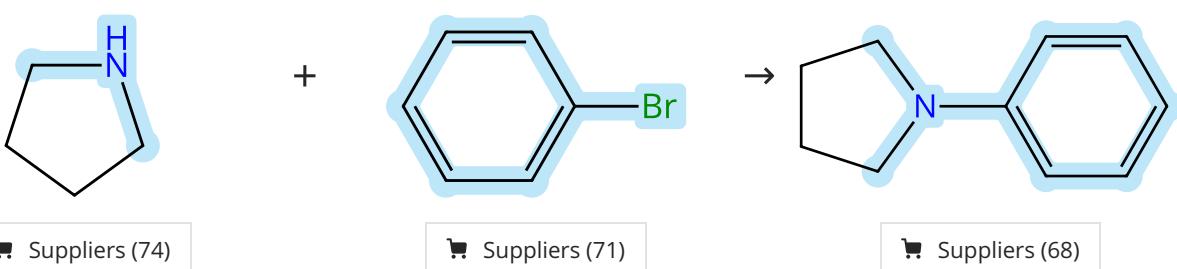
By: Fan, Ruojian; et al

Organic Letters (2024), 26(1), 22-28.

Experimental Protocols

Scheme 325 (1 Reaction)

Steps: 1 Yield: 90%



31-614-CAS-42934080

Steps: 1 Yield: 90%

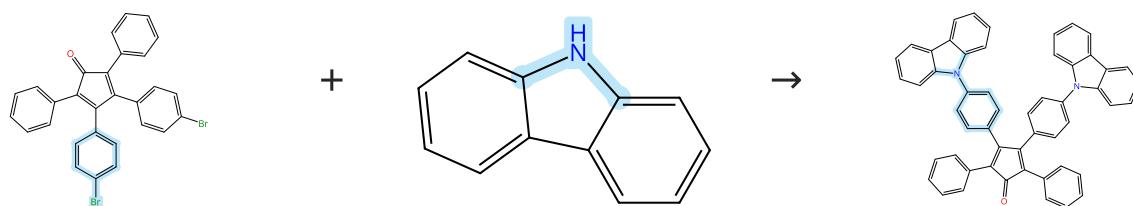
1.1 **Catalysts:** Tris(dibenzylideneacetone)dipalladium, BINAP**Solvents:** Toluene; 1 h1.2 **Reagents:** Sodium *tert*-butoxide; 15 h, 100 °C

Experimental Protocols

**Copper(I)-Catalyzed  $\alpha,\beta$ -Dehydrogenative [2 + 3] Heterocyclization of Saturated Amines with Diazirine dinone via Hydrogen Atom Transfer**

By: Du, Zihang; et al

ACS Catalysis (2024), 14(23), 18107-18115.

**Scheme 326 (1 Reaction)**

🛒 Suppliers (4)

🛒 Suppliers (109)

31-614-CAS-40743043

Steps: 1 Yield: 89%

1.1 **Reagents:** Sodium *tert*-butoxide, Tri-*tert*-butylphosphine**Catalysts:** Palladium diacetate**Solvents:** Toluene; rt; 3 h, 115 °C

Experimental Protocols

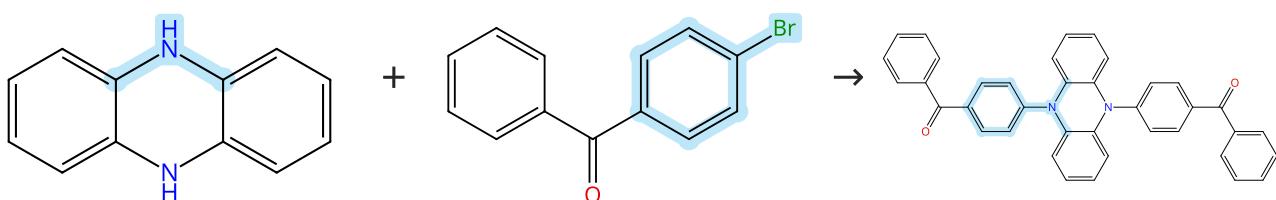
**Electroactive Carbazole-Based Polycyclic Aromatic Hydrocarbons: Synthesis, Photophysical Properties, and Computational Studies**

By: Wong, Hui Qi; et al

ACS Omega (2024), 9(27), 29379-29390.

**Scheme 327 (1 Reaction)**

Steps: 1 Yield: 89%



🛒 Suppliers (62)

🛒 Suppliers (77)

31-614-CAS-35436070

Steps: 1 Yield: 89%

1.1 **Reagents:** Sodium *tert*-butoxide**Catalysts:** Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate**Solvents:** Toluene; 24 h, rt → 115 °C

Experimental Protocols

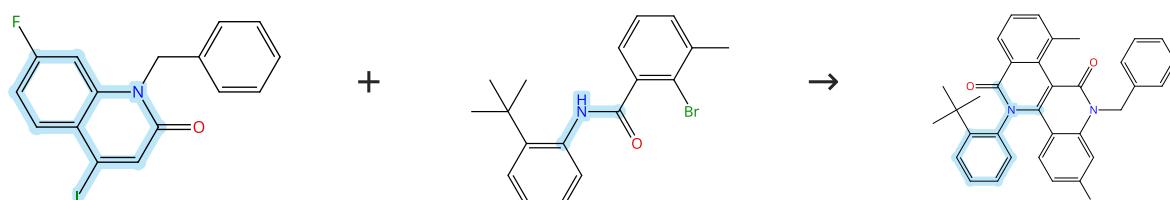
**Aggregation Effect on Multiperformance Improvement in Aryl-Armed Phenazine-Based Emitters**

By: Wan, Qing; et al

Journal of the American Chemical Society (2023), 145(3), 1607-1616.

**Scheme 328 (1 Reaction)**

Steps: 1 Yield: 89%



🛒 Supplier (1)

31-614-CAS-39194491

Steps: 1 Yield: 89%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ethyl (1*S,4R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate

Solvents: Tetrahydrofuran; 5 min, rt; 48 h, 80 °C

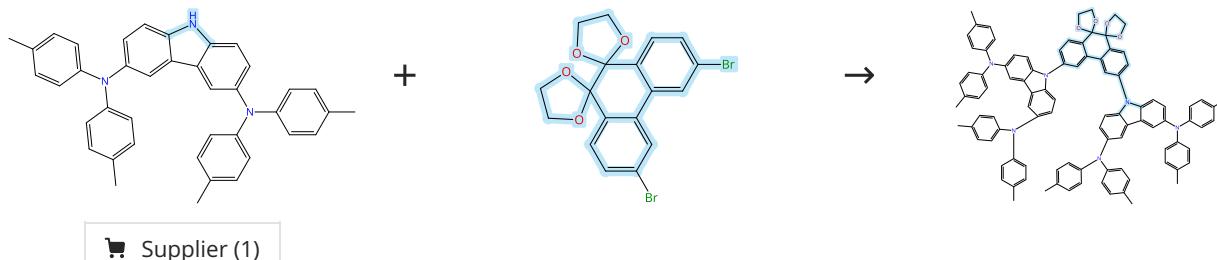
Experimental Protocols

Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

## Scheme 329 (1 Reaction)



Supplier (1)

31-614-CAS-36138039

Steps: 1 Yield: 89%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium diacetate, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; rt → 130 °C; 24 h, 130 °C

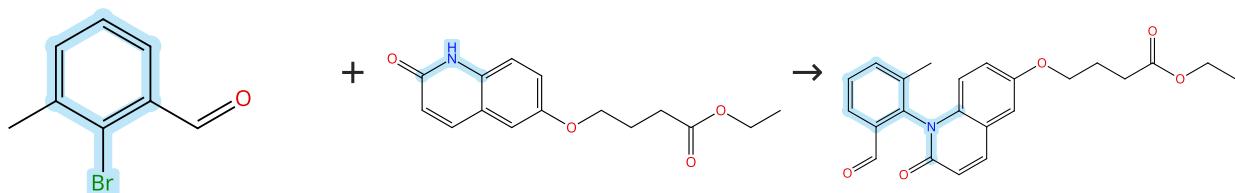
Experimental Protocols

Dibenzodipyridophenazines with Dendritic Electron Donors Exhibiting Deep-Red Emission and Thermally Activated Delayed Fluorescence

By: Primrose, William L.; et al

Journal of Organic Chemistry (2023), 88(7), 4224-4233.

## Scheme 330 (1 Reaction)



Suppliers (65)

Suppliers (3)

31-614-CAS-41335319

Steps: 1 Yield: 89%

1.1 Catalysts: Palladium, tris[μ-[(1,2-η;4,5-η)-(1*E,4E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2*R*)-1-[(1*R*)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferroceneSolvents: *tert*-Butyl methyl ether; 30 min, rt

1.2 Reagents: Tripotassium phosphate; 36 h, 90 °C

Experimental Protocols

Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

## Scheme 331 (1 Reaction)



Suppliers (98)

Suppliers (50)

31-614-CAS-39524859

Steps: 1 Yield: 89%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Palladium diacetate, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl

Solvents: Toluene; 1 h, 120 °C; 120 °C → rt

1.2 Reagents: Water; rt

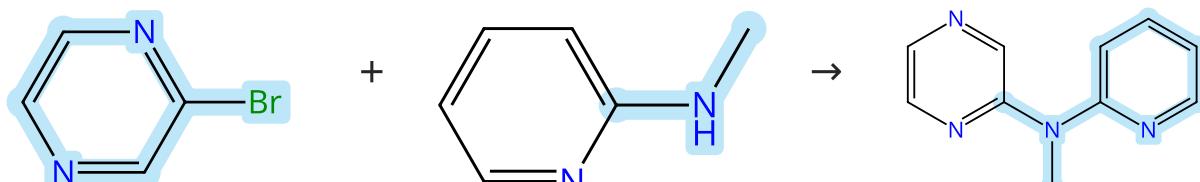
Experimental Protocols

**Metal-Free Directed Site-Selective Csp<sup>3</sup>-H Borylation of Saturated Cyclic Amines**

By: Kumar Someswara Ashwathappa, Puneeth; et al

Angewandte Chemie, International Edition (2023), 62(39), e202309295.

Scheme 332 (1 Reaction)



Suppliers (94)

Suppliers (73)

Supplier (1)

31-614-CAS-42547909

Steps: 1 Yield: 89%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: 1,1-Bis(diphenylphosphino)ferrocene, Tris(dibenzylideneacetone)dipalladium

Solvents: Toluene; 2 d, 130 °C

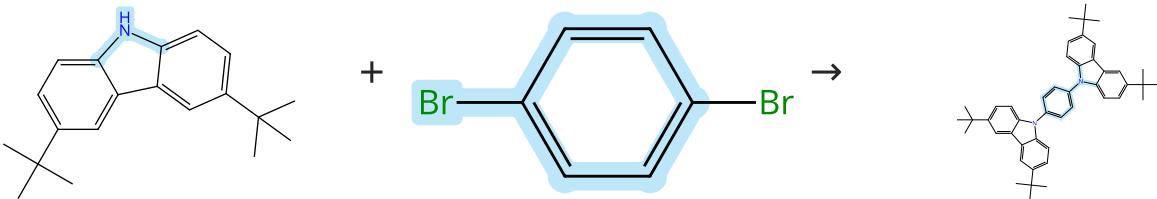
Experimental Protocols

**Ratiometric Imaging Detection of Amyloid-β Fibrils by a Dual-Emissive Tris-Heteroleptic Ruthenium Complex**

By: Wu, Si-Hai; et al

Inorganic Chemistry (2024), 63(39), 17983-17992.

Scheme 333 (1 Reaction)



Suppliers (69)

Suppliers (97)

Supplier (2)

31-614-CAS-43376621

Steps: 1 Yield: 89%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

Solvents: Toluene; 30 min, 150 °C

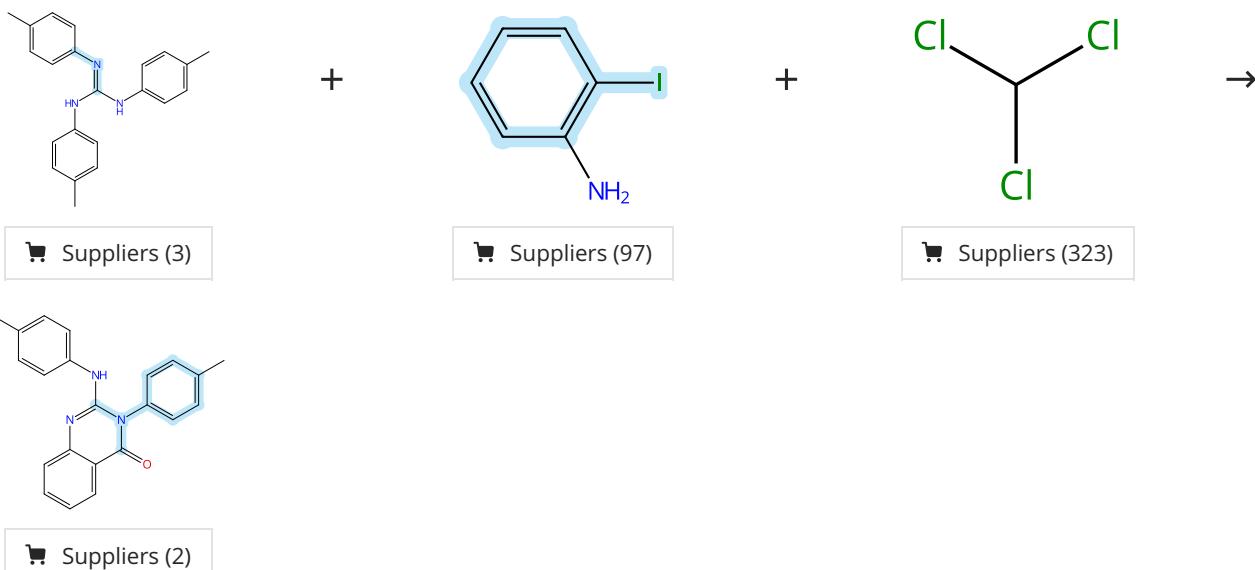
Experimental Protocols

**Microwave-Assisted Buchwald-Hartwig Double Amination: A Rapid and Promising Approach for the Synthesis of TADF Compounds**

By: Mohd Jamel, Nor Shafiq; et al

ACS Omega (2024), 9(51), 50446-50457.

Scheme 334 (1 Reaction)



31-614-CAS-42830442

Steps: 1 Yield: 89%

1.1 **Reagents:** Cesium hydroxide  
**Catalysts:** Bis(diphenylphosphino)methane, Palladium diacetate  
**Solvents:** Toluene; 15 h, 80 °C

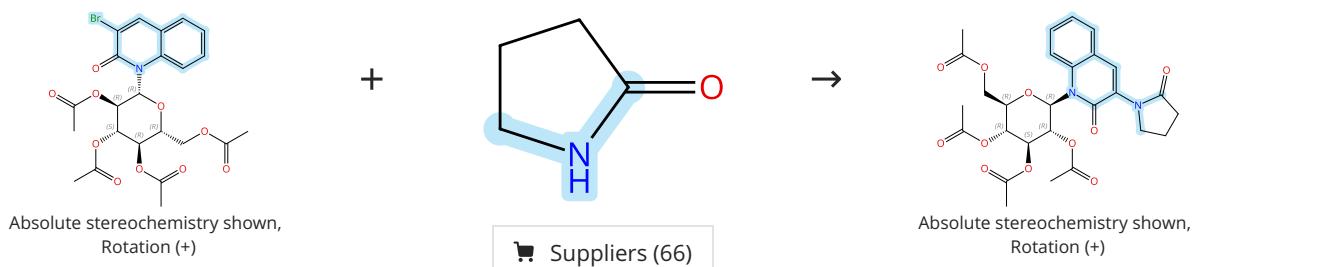
Experimental Protocols

Iodoaniline Dependent Formation of N-Aroylguanidines Versus 2-Aminoquinazolinones from Palladium(0) Catalyzed Aminocarbonylation of N-Arylguanidines

By: Yadav, Pooja; et al

European Journal of Organic Chemistry (2024), 27(46), e202400803.

Scheme 335 (1 Reaction)



31-614-CAS-40822548

Steps: 1 Yield: 89%

1.1 **Reagents:** Cesium carbonate  
**Catalysts:** Palladium diacetate, 1,1'-(9,9-Dimethyl-9H-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]  
**Solvents:** 1,4-Dioxane; 15 min, 130 °C

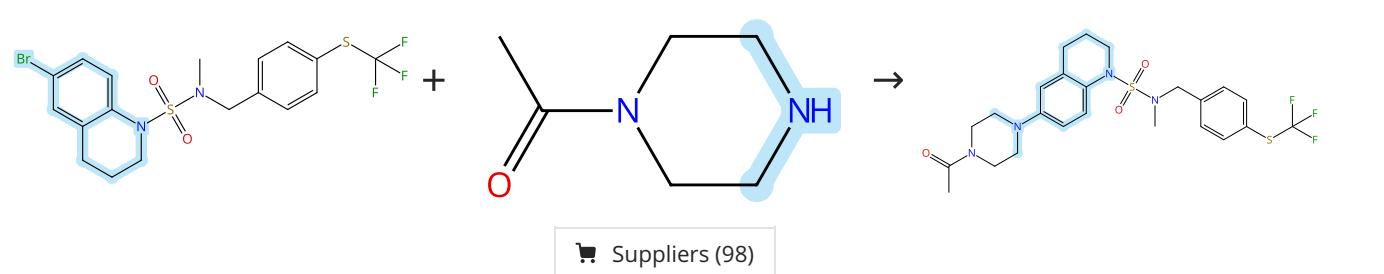
Experimental Protocols

Pd-Catalyzed Coupling of Bromo-N-( $\beta$ -glucopyranosyl)quinolin-2-ones with Amides: Synthesis of N-glucosyl-6BrCaQ Conjugates with Potent Anticancer Activity

By: Redjdal, Wafa; et al

ChemMedChem (2024), 19(15), e202400195.

Scheme 336 (1 Reaction)



31-614-CAS-43475753

Steps: 1 Yield: 89%

1.1 Reagents: Cesium carbonate

Catalysts: Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: 1,4-Dioxane; 6 h, 100 °C

Experimental Protocols

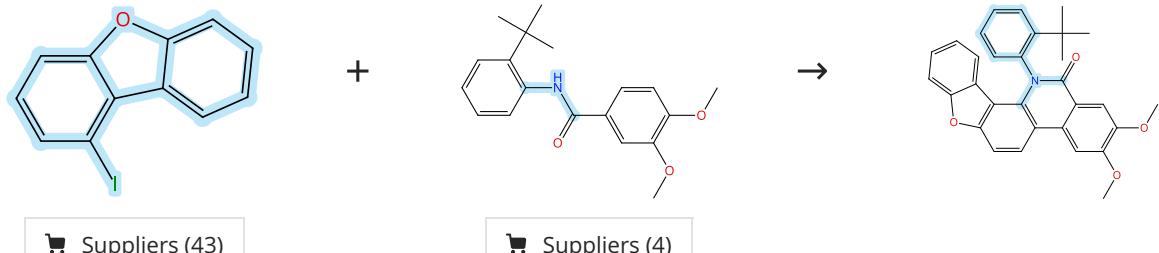
**Discovery of Novel N-Sulfonamide-tetrahydroquinolines as Potent Retinoic Acid Receptor-Related Orphan Receptor  $\gamma$  (R OR $\gamma$ ) Inverse Agonists for the Treatment of Psoriasis**

By: Lv, Lunan; et al

Journal of Medicinal Chemistry (2024), 67(23), 21400-21420.

**Scheme 337 (1 Reaction)**

Steps: 1 Yield: 89%



Suppliers (43)

Suppliers (4)

31-614-CAS-41071049

Steps: 1 Yield: 89%

1.1 Reagents: Norbornene, Silver sulfate

Catalysts: Tris(dibenzylideneacetone)dipalladium, (4S,4'S)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole

Solvents: Toluene, Water; 36 h, 80 °C

Experimental Protocols

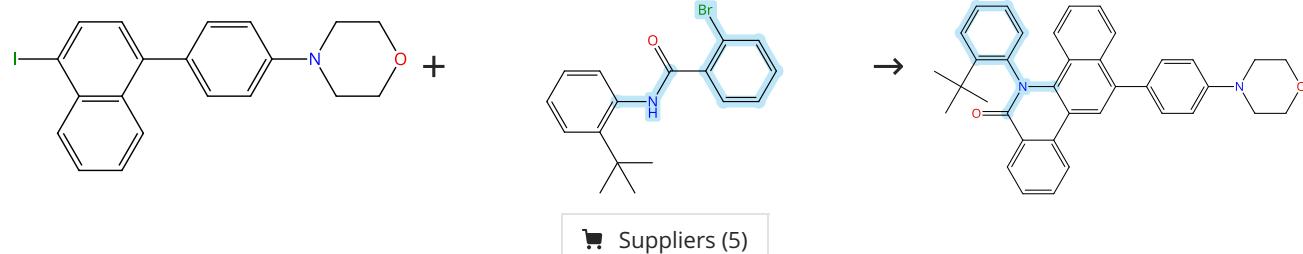
**Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C-N axially chiral scaffolds**

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

**Scheme 338 (1 Reaction)**

Steps: 1 Yield: 89%



Suppliers (5)

31-614-CAS-41071019

Steps: 1 Yield: 89%

1.1 Reagents: Norbornene, Silver sulfate

Catalysts: Tris(dibenzylideneacetone)dipalladium, (4S,4'S)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole

Solvents: Toluene, Water; 36 h, 80 °C

Experimental Protocols

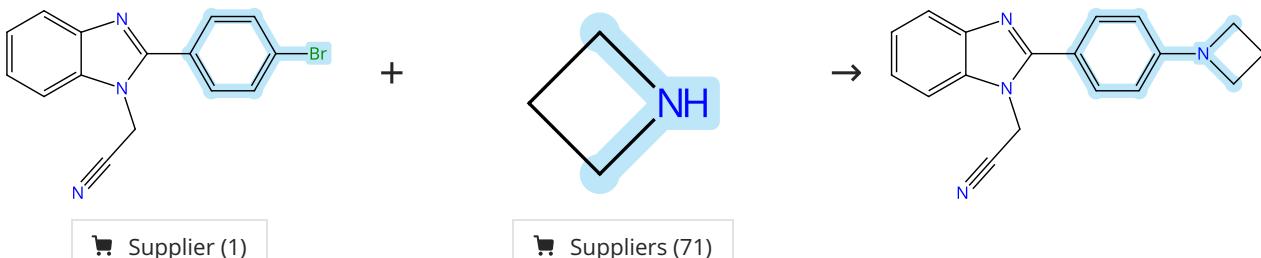
**Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C-N axially chiral scaffolds**

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

**Scheme 339 (1 Reaction)**

Steps: 1 Yield: 89%



Supplier (1)

Suppliers (71)

31-614-CAS-37774897

Steps: 1 Yield: 89%

1.1 Reagents: Cesium carbonate

Catalysts: Tris(dibenzylideneacetone)dipalladium

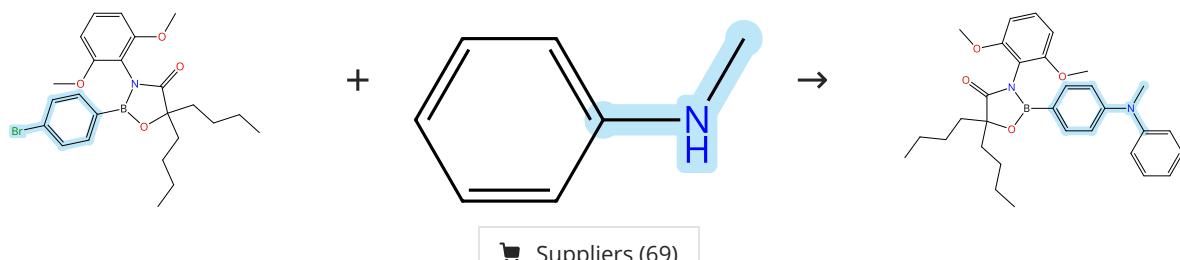
Solvents: 1,4-Dioxane; 12 h, 95 °C

Experimental Protocols

**K<sub>2</sub>S<sub>2</sub>O<sub>8</sub>** mediated metal free oxidative coupling of alcohols with 1,2-diaminobenzenes for synthesis of benzimidazoles, photophysical and DFT studies

By: Saha, Pallavi; et al

Journal of Molecular Structure (2023), 1294(Part\_2), 136431.

**Scheme 340 (1 Reaction)**

31-614-CAS-41196792

Steps: 1 Yield: 89%

1.1 Reagents: Potassium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

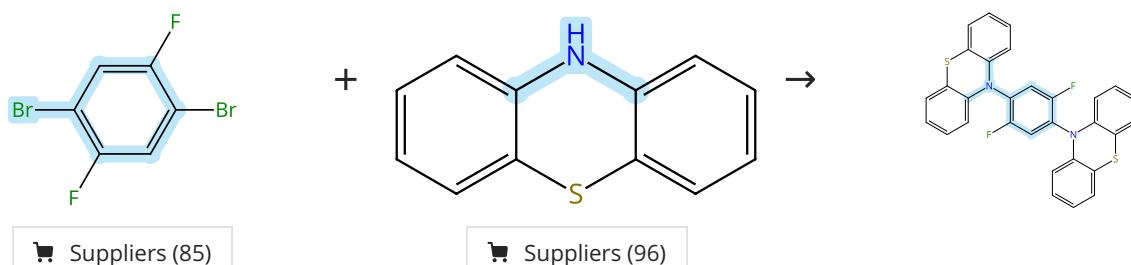
Solvents: Toluene; 24 h, 50 °C

Experimental Protocols

**Sterically Congested Protecting Group for a Boronyl Group in Iterative Aminations**

By: Nojiri, Takaki; et al

Chemistry - A European Journal (2024), 30(18), e202303953.

**Scheme 341 (1 Reaction)**

31-614-CAS-43376610

Steps: 1 Yield: 89%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

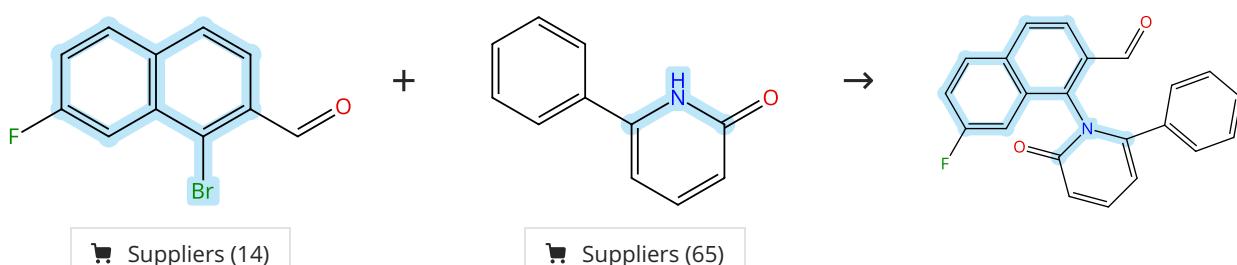
Solvents: Toluene; 10 - 30 min, 150 °C

Experimental Protocols

**Microwave-Assisted Buchwald-Hartwig Double Amination: A Rapid and Promising Approach for the Synthesis of TADF Compounds**

By: Mohd Jamel, Nor Shafiq; et al

ACS Omega (2024), 9(51), 50446-50457.

**Scheme 342 (1 Reaction)**

31-614-CAS-41335345

Steps: 1 Yield: 89%

**1.1 Catalysts:** Palladium, tris[ $\mu$ -[(1,2- $\eta$ ;4,5- $\eta$ )-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2*R*)-1-[(1*R*)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferrocene

**Solvents:** Toluene; 30 min, rt**1.2 Reagents:** Cesium carbonate; 36 h, 90 °C

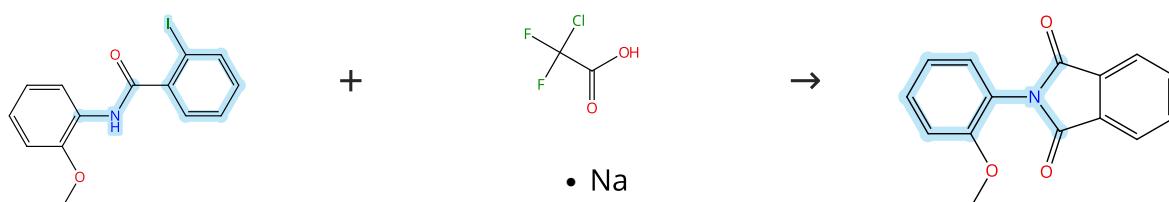
Experimental Protocols

**Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination**

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

Scheme 343 (1 Reaction)



Suppliers (17)

Suppliers (88)

Suppliers (15)

31-614-CAS-38558258

Steps: 1 Yield: 89%

**1.1 Reagents:** Potassium carbonate**Catalysts:** Palladium diacetate, Bis[2-(diphenylphosphino)phenyl] ether**Solvents:** Dimethylformamide; 5 h, 95 °C

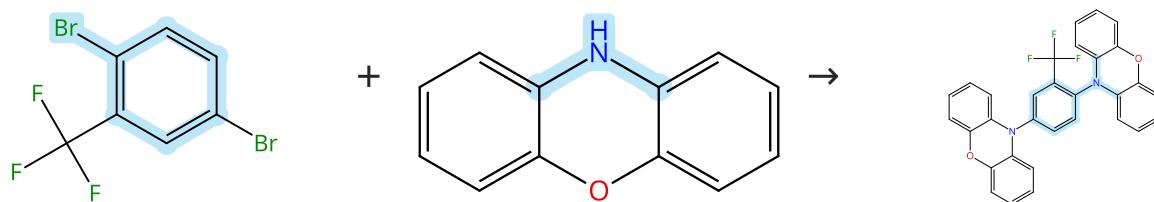
Experimental Protocols

**Synthesis of N-substituted phthalimides via Pd-catalyzed [4+1] cycloaddition reaction**

By: Hu, Chengxian; et al

Chemical Communications (Cambridge, United Kingdom) (2023), 59(100), 14839-14842.

Scheme 344 (1 Reaction)



Suppliers (72)

Suppliers (96)

31-614-CAS-43376614

Steps: 1 Yield: 89%

**1.1 Reagents:** Sodium *tert*-butoxide**Catalysts:** Tris(dibenzylideneacetone)dipalladium, X-Phos**Solvents:** Toluene; 10 - 30 min, 150 °C

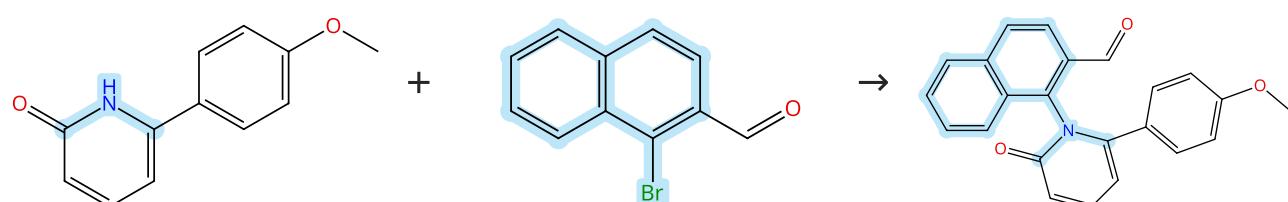
Experimental Protocols

**Microwave-Assisted Buchwald-Hartwig Double Amination: A Rapid and Promising Approach for the Synthesis of TADF Compounds**

By: Mohd Jamel, Nor Shafiq; et al

ACS Omega (2024), 9(51), 50446-50457.

Scheme 345 (1 Reaction)



Suppliers (27)

Suppliers (71)

31-614-CAS-41335324

Steps: 1 Yield: 89%

**1.1 Catalysts:** Palladium, tris[ $\mu$ -[(1,2- $\eta$ ;4,5- $\eta$ )-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2R)-1-[(1*R*)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferrocene

**Solvents:** Toluene; 30 min, rt**1.2 Reagents:** Cesium carbonate; 36 h, 90 °C

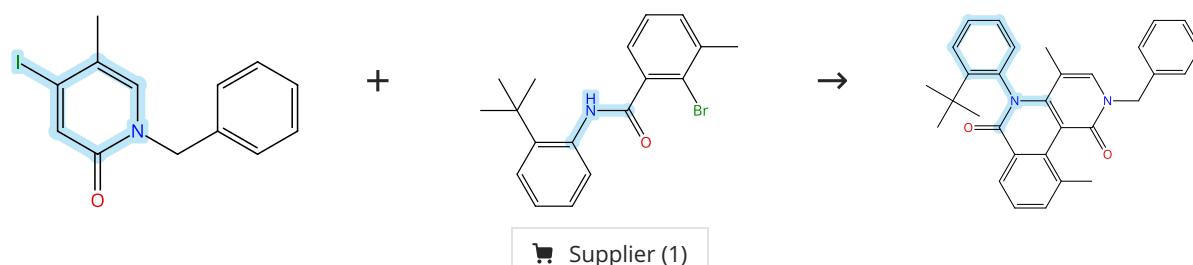
Experimental Protocols

**Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination**

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

Scheme 346 (1 Reaction)



31-614-CAS-39194499

Steps: 1 Yield: 89%

**1.1 Reagents:** Potassium carbonate**Catalysts:** Palladium diacetate, Tris(2-furyl)phosphine, Ethyl (1*S*,4*R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate**Solvents:** Tetrahydrofuran; 5 min, rt; 48 h, 90 °C

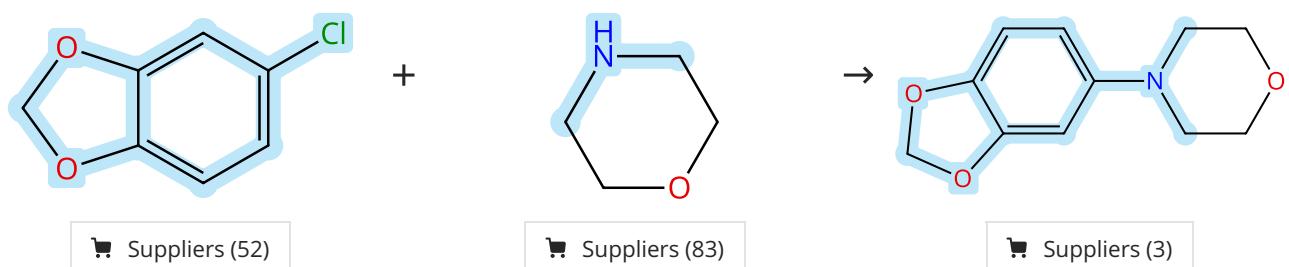
Experimental Protocols

**Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality**

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

Scheme 347 (1 Reaction)



31-614-CAS-38030239

Steps: 1 Yield: 89%

**1.1 Reagents:** Sodium *tert*-butoxide**Catalysts:** Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methylethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

**Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature**

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

Scheme 348 (1 Reaction)



31-614-CAS-38970016

Steps: 1 Yield: 89%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa N^{\beta}$ )-1-naphthalenyl- $\kappa C$ ], (*SP*-4-4)

Solvents: 1,4-Dioxane; 24 h, 100 °C

Experimental Protocols

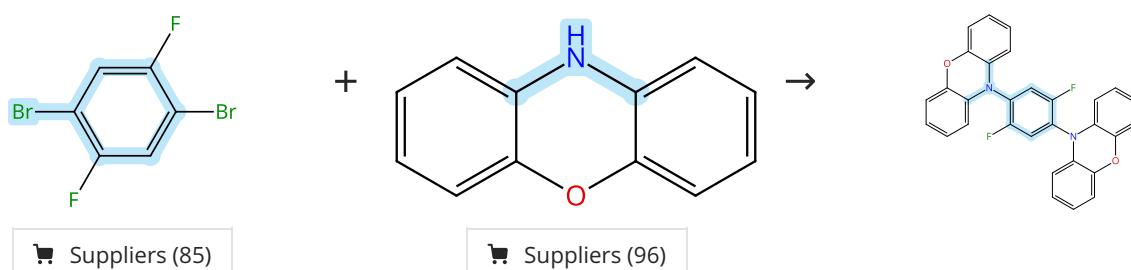
**A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle**

By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

Scheme 349 (1 Reaction)

Steps: 1 Yield: 89%



31-614-CAS-43376609

Steps: 1 Yield: 89%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

Solvents: Toluene; 10 - 30 min, 150 °C

Experimental Protocols

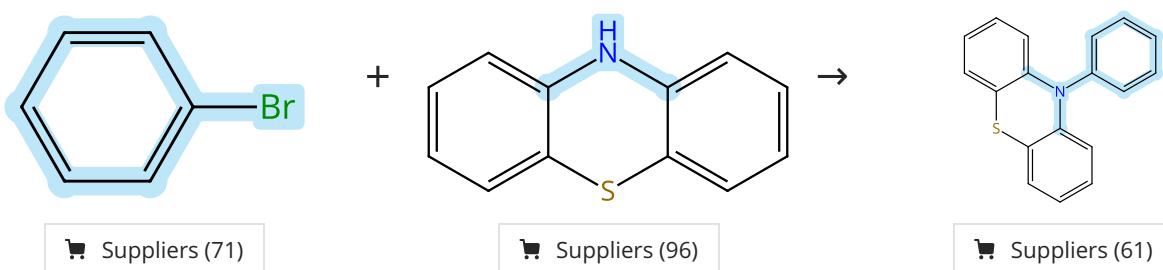
**Microwave-Assisted Buchwald-Hartwig Double Amination: A Rapid and Promising Approach for the Synthesis of TADF Compounds**

By: Mohd Jamel, Nor Shafiq; et al

ACS Omega (2024), 9(51), 50446-50457.

Scheme 350 (2 Reactions)

Steps: 1 Yield: 87-89%



31-614-CAS-41260530

Steps: 1 Yield: 89%

1.1 Reagents: Potassium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 15 h, reflux

Experimental Protocols

**Photocascade chemoselective controlling of ambient thio (seleno)cyanates with alkenes via catalyst modulation**

By: Hoque, Injamam Ul; et al

Nature Communications (2024), 15(1), 5739.

31-614-CAS-35203618

Steps: 1 Yield: 87%

1.1 Reagents: Potassium *tert*-butoxide, Tri-*tert*-butylphosphine

Catalysts: Palladium diacetate

Solvents: Toluene; 24 h, 110 °C

Experimental Protocols

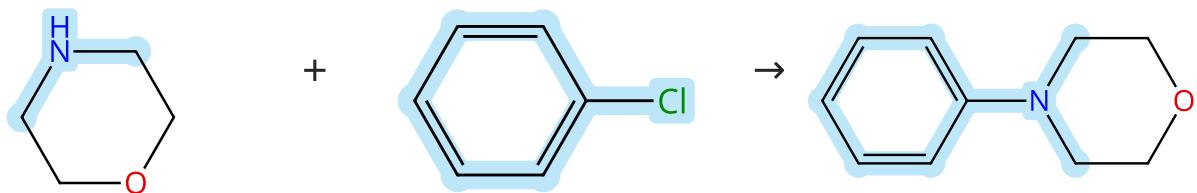
**The Effect of Molecular Conformations and Simulated "Self-Doping" in Phenothiazine Derivatives on Room-Temperature Phosphorescence**

By: Gao, Mingxue; et al

Angewandte Chemie, International Edition (2023), 62(5), e202214908.

Scheme 351 (1 Reaction)

Steps: 1 Yield: 89%



Suppliers (83)

Suppliers (119)

Suppliers (74)

31-614-CAS-37222328

Steps: 1 Yield: 89%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 2942266-81-9  
**Solvents:** 1,4-Dioxane; 80 °C

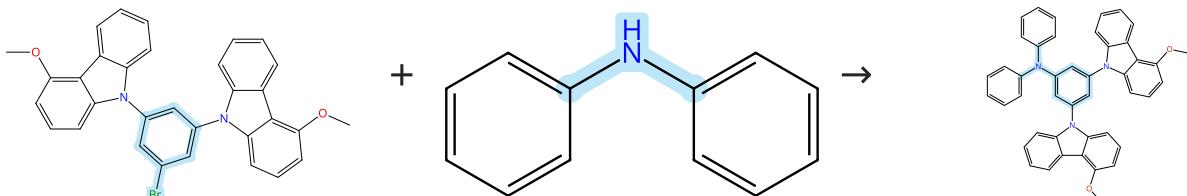
**Indomuscone-Based Sterically Encumbered Phosphines as Ligands for Palladium-Catalyzed Reactions**

By: Garnes-Portoles, Francisco; et al

Journal of Organic Chemistry (2023), 88(9), 5962-5971.

Scheme 352 (1 Reaction)

Steps: 1 Yield: 89%



Suppliers (98)

31-614-CAS-41289994

Steps: 1 Yield: 89%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate  
**Solvents:** Toluene; 23 h, 115 °C

## Experimental Protocols

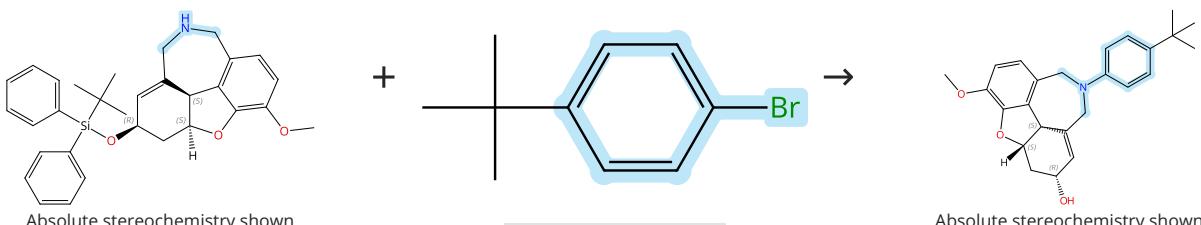
**Low-Temperature Cross-Linkable Hole Transport Material Based on Carbazole Derivatives Design and Applications in Solution-Processed OLEDs**

By: Zhou, Zhou; et al

Macromolecules (Washington, DC, United States) (2024), 57(9), 4130-4140.

Scheme 353 (1 Reaction)

Steps: 1 Yield: 88%



Absolute stereochemistry shown

Suppliers (80)

Absolute stereochemistry shown

31-614-CAS-36197160

Steps: 1 Yield: 88%

1.1 **Catalysts:** Palladium diacetate, BINAP  
**Solvents:** Toluene; 4 h, rt

1.2 **Reagents:** Potassium *tert*-butoxide  
**Solvents:** Toluene; 24 h, 110 °C

1.3 **Reagents:** Water

1.4 **Reagents:** Hydrochloric acid  
**Solvents:** Methanol, Water; rt; overnight, 35 °C

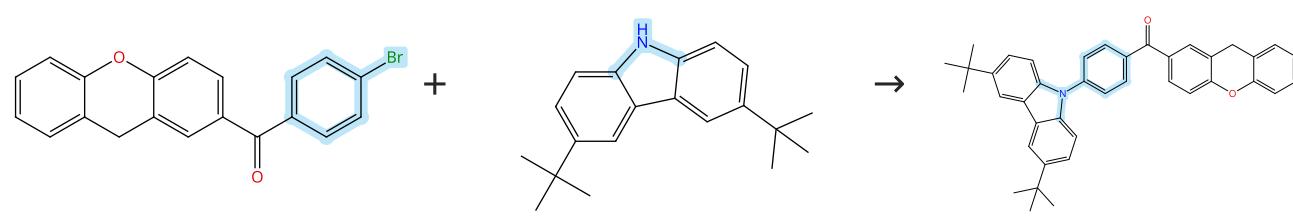
1.5 **Reagents:** Ammonium hydroxide  
**Solvents:** Water; pH 10

Experimental Protocols

**Palladium-Catalyzed Synthesis, Acetylcholinesterase Inhibition, and Neuroprotective Activities of N-Aryl Galantamine Analogues**

By: Zhang, Yang; et al

Journal of Natural Products (2023), 86(4), 939-946.

**Scheme 354 (1 Reaction)**

Suppliers (69)

31-614-CAS-35336595

Steps: 1 Yield: 88%

1.1 **Reagents:** Sodium *tert*-butoxide

**Catalysts:** Bis(*tri-tert*-butylphosphine)palladium

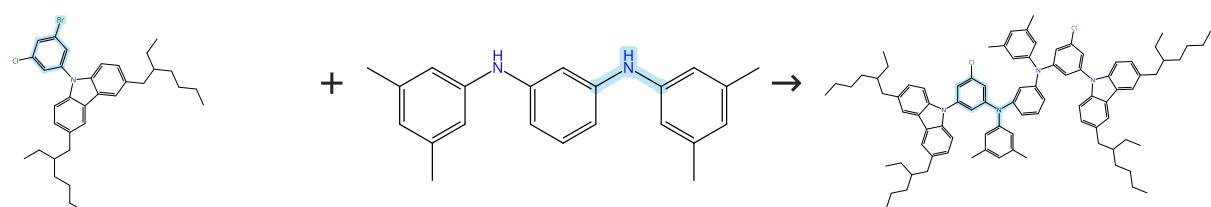
**Solvents:** Toluene; 24 h, 110 °C

Experimental Protocols

**Aggregation-induced emission and reversible high-contrast mechanofluorochromic behavior of dicyanoethylenes modified by xanthene and carbazole**

By: Feng, Xiucun; et al

Dyes and Pigments (2023), 209(Part\_A), 110901.

**Scheme 355 (1 Reaction)**

Supplier (1)

31-614-CAS-38006387

Steps: 1 Yield: 88%

1.1 **Reagents:** Sodium *tert*-butoxide

**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl

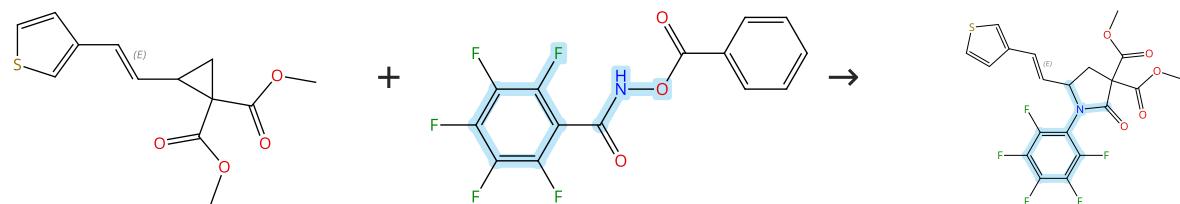
**Solvents:** Toluene; 24 h, 90 °C

Experimental Protocols

**One-Shot Construction of BN-Embedded Heptadecacene Framework Exhibiting Ultra-narrowband Green Thermally Activated Delayed Fluorescence**

By: Sano, Yusuke; et al

Journal of the American Chemical Society (2023), 145(21), 11504-11511.

**Scheme 356 (1 Reaction)**

Double bond geometry shown

Double bond geometry shown

31-614-CAS-36837168

Steps: 1 Yield: 88%

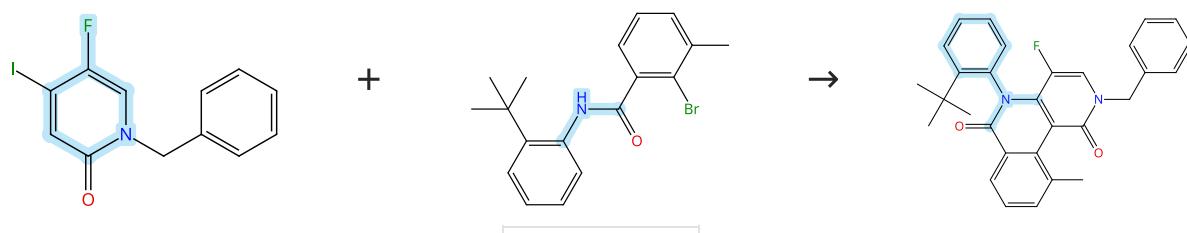
**1.1 Reagents:** Cesium carbonate  
**Catalysts:** 2,2'-Bipyridine, Tris(dibenzylideneacetone)dipalladium  
**Solvents:** Tetrahydrofuran; 24 h, 50 °C

[3+2] Cycloaddition of Vinyl Cyclopropane and Hydroxylamines via Isocyanate Intermediate to  $\gamma$ -Lactams

By: Huang, Xiaobing; et al

Chinese Journal of Chemistry (2023), 41(16), 1937-1942.

Experimental Protocols

**Scheme 357 (1 Reaction)**

31-614-CAS-39194504

Steps: 1 Yield: 88%

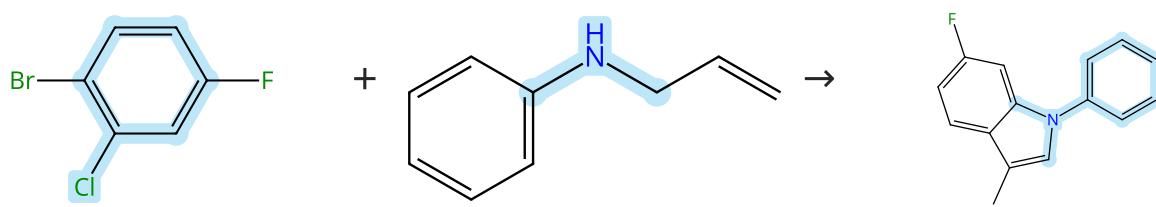
**1.1 Reagents:** Potassium carbonate  
**Catalysts:** Palladium diacetate, Tris(2-furyl)phosphine, Ethyl (1*S*,4*R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate  
**Solvents:** Tetrahydrofuran; 5 min, rt; 48 h, 90 °C

Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

Experimental Protocols

**Scheme 358 (1 Reaction)**

31-614-CAS-38970004

Steps: 1 Yield: 88%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl- $\kappa$ N<sup>B</sup>)-1-naphthalenyl- $\kappa$ C]-, (*SP*-4-4)-  
**Solvents:** 1,4-Dioxane; 24 h, 100 °C

A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

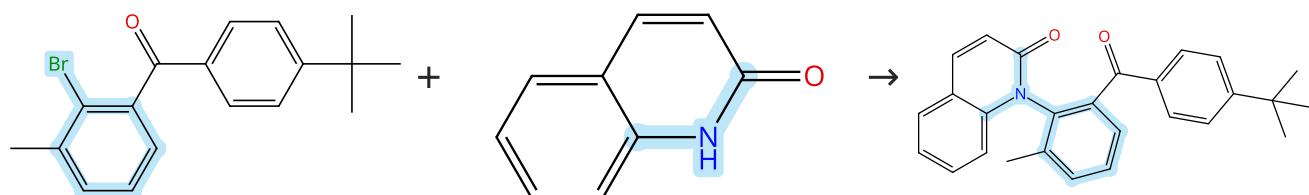
By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

Experimental Protocols

Scheme 359 (1 Reaction)

Steps: 1 Yield: 88%



Supplier (1)

Suppliers (83)

31-614-CAS-41335322

Steps: 1 Yield: 88%

- 1.1 **Catalysts:** Palladium, tris[ $\mu$ -[(1,2- $\eta$ :4,5- $\eta$ )-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2R)-1-[(1R)-1-[Bis(1,1-dimethyl ethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferrocene  
**Solvents:** *tert*-Butyl methyl ether; 30 min, rt
- 1.2 **Reagents:** Potassium carbonate; 36 h, 100 °C

**Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination**

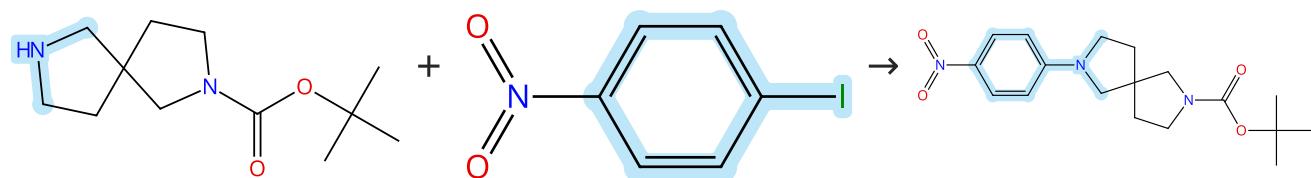
By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

Experimental Protocols

Scheme 360 (1 Reaction)

Steps: 1 Yield: 88%



Suppliers (79)

Suppliers (68)

Supplier (1)

31-614-CAS-37375289

Steps: 1 Yield: 88%

- 1.1 **Catalysts:** Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl  
**Solvents:** Toluene
- 1.2 **Reagents:** Sodium *tert*-butoxide; 100 °C
- 1.3 **Solvents:** Water; rt

**Discovery of AD258 as a Sigma Receptor Ligand with Potent Antialloodynic Activity**

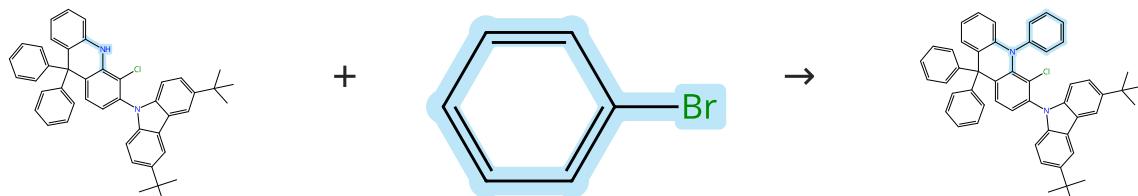
By: Dichiara, Maria; et al

Journal of Medicinal Chemistry (2023), 66(16), 11447-11463.

Experimental Protocols

Scheme 361 (1 Reaction)

Steps: 1 Yield: 88%



Suppliers (71)

31-614-CAS-41198194

Steps: 1 Yield: 88%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate  
**Solvents:** Toluene; 12 h, 100 °C

**Ten-Dibenzothiophenyl-9,9-diphenylacridane-based multiple resonance emitters for high-efficiency narrowband green OLEDs with CIE  $y > 0.7$  at high doping concentrations**

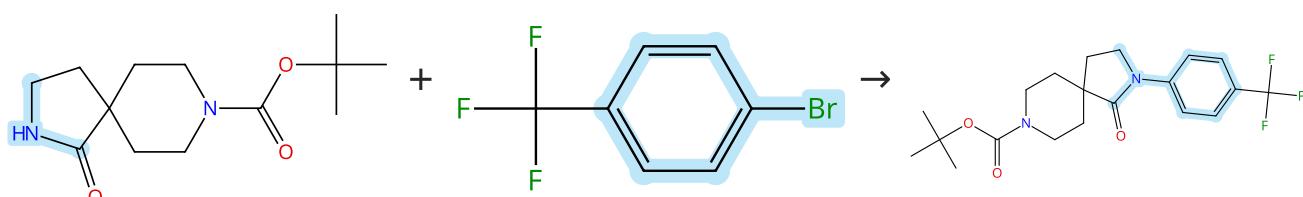
By: Zhong, Rui; et al

Chemical Science (2024), 15(33), 13290-13298.

Experimental Protocols

Scheme 362 (1 Reaction)

Steps: 1 Yield: 88%



Suppliers (72)

Suppliers (79)

31-614-CAS-39795706

Steps: 1 Yield: 88%

## 1.1 Reagents: Cesium carbonate

Catalysts: Tris(dibenzylideneacetone)dipalladium, 1,1'-(9,9-

Dimethyl-9H-xanthene-4,5-diyil)bis[1,1-diphenylphosphine]

Solvents: 1,4-Dioxane; 16 h, 100 °C

## Discovery and Optimization of Selective Brain-Penetrant EBP Inhibitors that Enhance Oligodendrocyte Formation

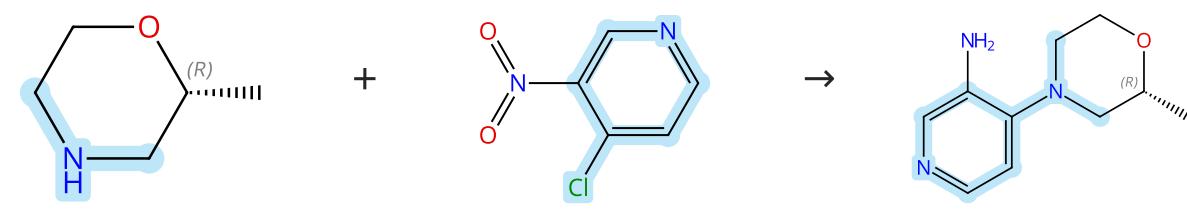
By: Dorel, Ruth; et al

Journal of Medicinal Chemistry (2024), 67(6), 4819-4832.

## Experimental Protocols

Scheme 363 (1 Reaction)

Steps: 1 Yield: 88%



Absolute stereochemistry shown

Suppliers (66)

Suppliers (87)

Absolute stereochemistry shown

31-614-CAS-40479714

Steps: 1 Yield: 88%

## 1.1 Reagents: Diisopropylethylamine

Solvents: Dichloromethane; 14 h, 50 °C

## 1.2 Reagents: Hydrogen

Catalysts: Palladium

Solvents: Methanol; 1 h, 1 atm, rt

## Design, Structure-Activity Relationships, and In Vivo Evaluation of Potent and Brain-Penetrant Imidazo[1,2-b]pyridazines as Glycogen Synthase Kinase-3β (GSK-3β) Inhibitors

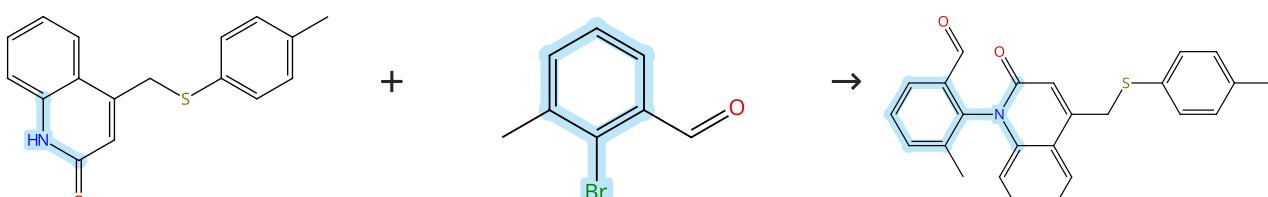
By: Hartz, Richard A.; et al

Journal of Medicinal Chemistry (2023), 66(6), 4231-4252.

## Experimental Protocols

Scheme 364 (1 Reaction)

Steps: 1 Yield: 88%



Suppliers (65)

31-614-CAS-41335308

Steps: 1 Yield: 88%

## 1.1 Catalysts: Palladium, tris[μ-[(1,2-η;4,5-η)-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2R)-1-[(1R)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferrocene

Solvents: *tert*-Butyl methyl ether; 30 min, rt

## 1.2 Reagents: Tripotassium phosphate; 36 h, 90 °C

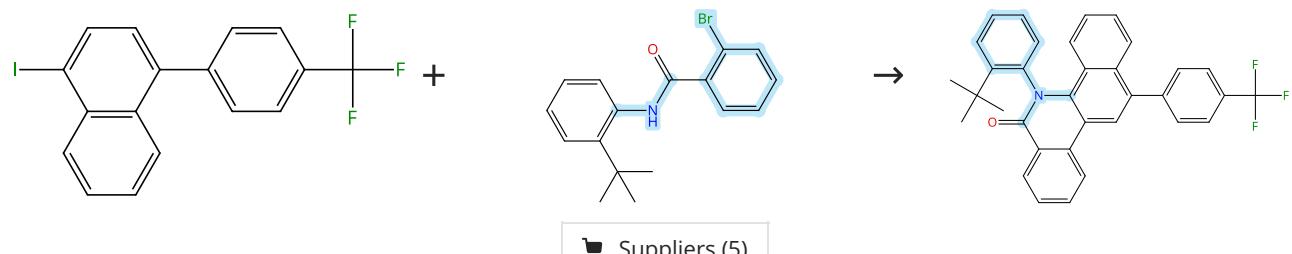
## Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

## Experimental Protocols

Scheme 365 (1 Reaction)



31-614-CAS-41071024

Steps: 1 Yield: 88%

**1.1 Reagents:** Norbornene, Silver sulfate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, (*4S,4'S*)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole  
**Solvents:** Toluene, Water; 36 h, 80 °C

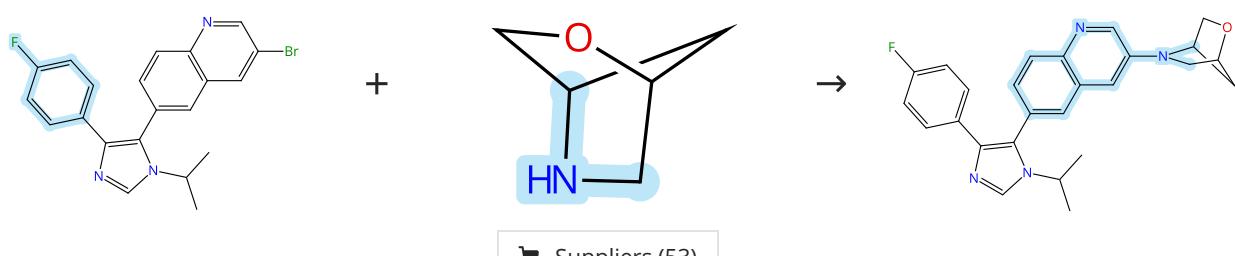
Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C–N axially chiral scaffolds

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

Experimental Protocols

Scheme 366 (1 Reaction)



31-614-CAS-39722127

Steps: 1 Yield: 88%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 2'-(Dicyclohexylphosphino)-*N,N*-dimethyl[1,1'-biphenyl]-2-amine  
**Solvents:** Toluene; 18 h, 100 °C

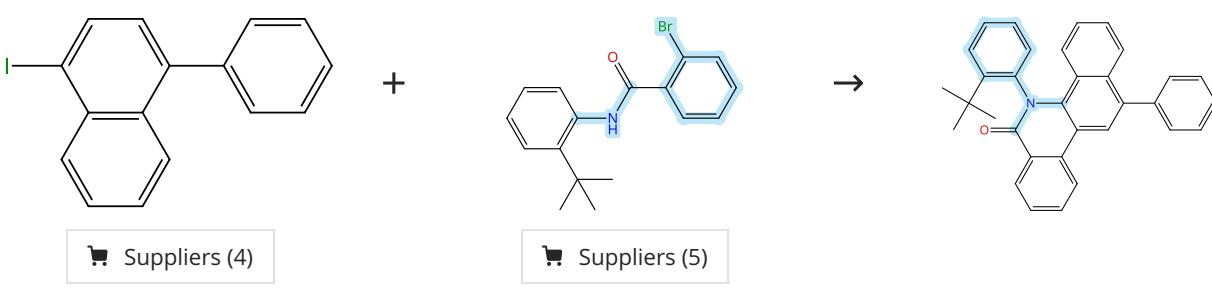
Fragment growth-based discovery of novel TNK inhibitors for the treatment of colorectal cancer

By: Teng, Yixin; et al

European Journal of Medicinal Chemistry (2024), 268, 116240.

Experimental Protocols

Scheme 367 (1 Reaction)



31-614-CAS-41071034

Steps: 1 Yield: 88%

**1.1 Reagents:** Norbornene, Silver sulfate  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, (*4S,4'S*)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole  
**Solvents:** Toluene, Water; 36 h, 80 °C

Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C–N axially chiral scaffolds

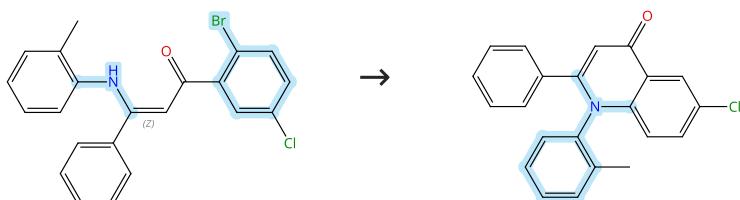
By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

Experimental Protocols

**Scheme 368 (1 Reaction)**

Steps: 1 Yield: 88%



Double bond geometry shown

31-614-CAS-40129278

Steps: 1 Yield: 88%

- 1.1 **Reagents:** Potassium carbonate, Sodium hydroxide  
**Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene, 1,4-Dioxane; 18 h, 40 °C

Experimental Protocols

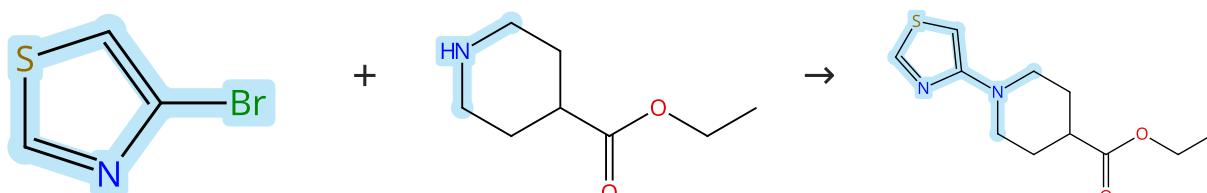
**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

**Scheme 369 (1 Reaction)**

Steps: 1 Yield: 88%



Suppliers (98)

Suppliers (104)

31-614-CAS-35422502

Steps: 1 Yield: 88%

- 1.1 **Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[2-(trimethylsilyl)ethoxy]carbonyl phenyl]-, (*SP*-4-2)-  
**Solvents:** Tetrahydrofuran; 5 min, rt

- 1.2 **Reagents:** Sodium trimethylsilanolate

- Solvents:** Tetrahydrofuran; 1 h, 50 °C; 2 h, 50 °C

Experimental Protocols

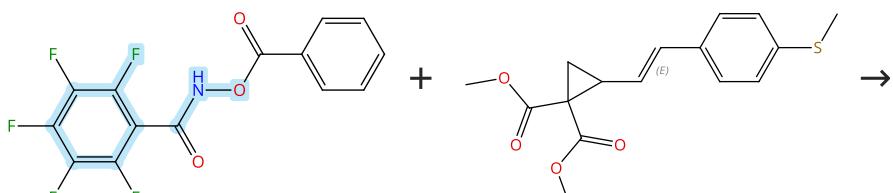
**Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines**

By: Reichert, Elaine C.; et al

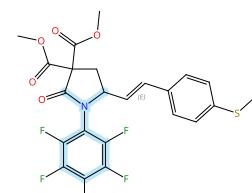
Journal of the American Chemical Society (2023), 145(6), 3323-3329.

**Scheme 370 (1 Reaction)**

Steps: 1 Yield: 88%



Double bond geometry shown



Double bond geometry shown

31-614-CAS-36837165

Steps: 1 Yield: 88%

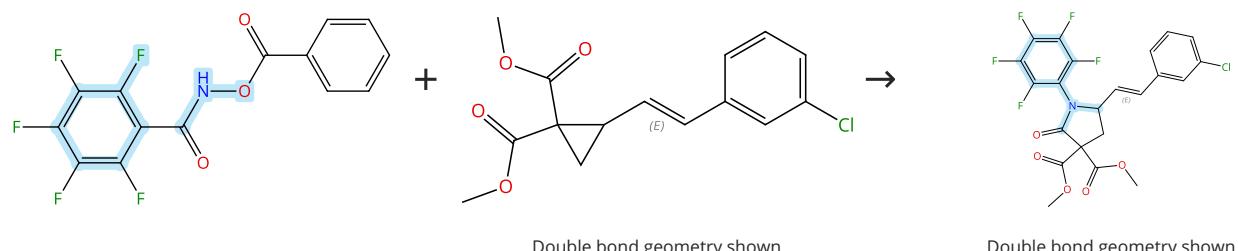
- 1.1 **Reagents:** Cesium carbonate  
**Catalysts:** 2,2'-Bipyridine, Tris(dibenzylideneacetone)dipalladium  
**Solvents:** Tetrahydrofuran; 24 h, 50 °C

Experimental Protocols

**[3+2] Cycloaddition of Vinyl Cyclopropane and Hydroxy Iamines via Isocyanate Intermediate to  $\gamma$ -Lactams**

By: Huang, Xiaobing; et al

Chinese Journal of Chemistry (2023), 41(16), 1937-1942.

**Scheme 371 (1 Reaction)**

31-614-CAS-36837163

Steps: 1 Yield: 88%

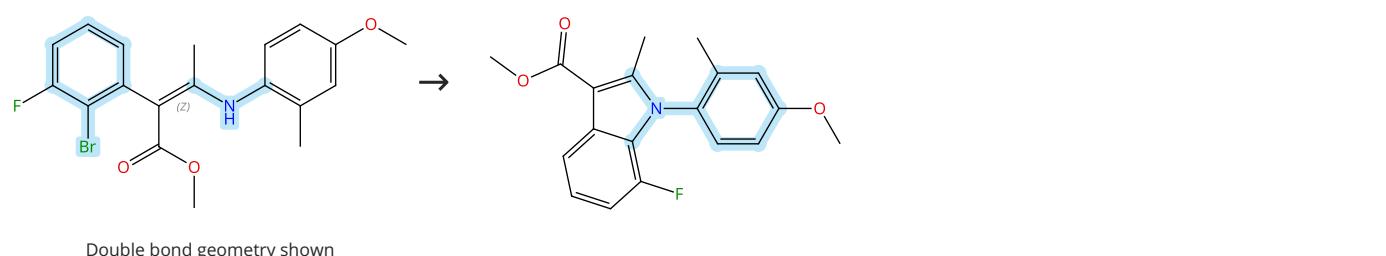
**1.1 Reagents:** Cesium carbonate  
**Catalysts:** 2,2'-Bipyridine, Tris(dibenzylideneacetone)dipalladium  
**Solvents:** Tetrahydrofuran; 24 h, 50 °C

Experimental Protocols

[3+2] Cycloaddition of Vinyl Cyclopropane and Hydroxylamines via Isocyanate Intermediate to  $\gamma$ -Lactams

By: Huang, Xiaobing; et al

Chinese Journal of Chemistry (2023), 41(16), 1937-1942.

**Scheme 372 (1 Reaction)**

31-614-CAS-40129186

Steps: 1 Yield: 88%

**1.1 Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt  
  
**1.2 Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt  
  
**1.3** 5 min, rt; 18 h, 60 °C

Experimental Protocols

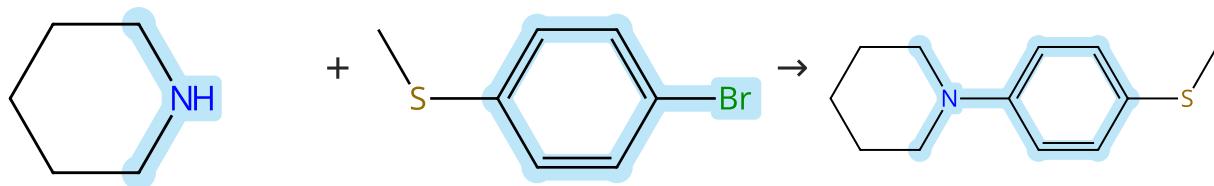
Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

**Scheme 373 (1 Reaction)**

Steps: 1 Yield: 88%



31-614-CAS-40985569

Steps: 1 Yield: 88%

**1.1 Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine; 12 h, 115 °C

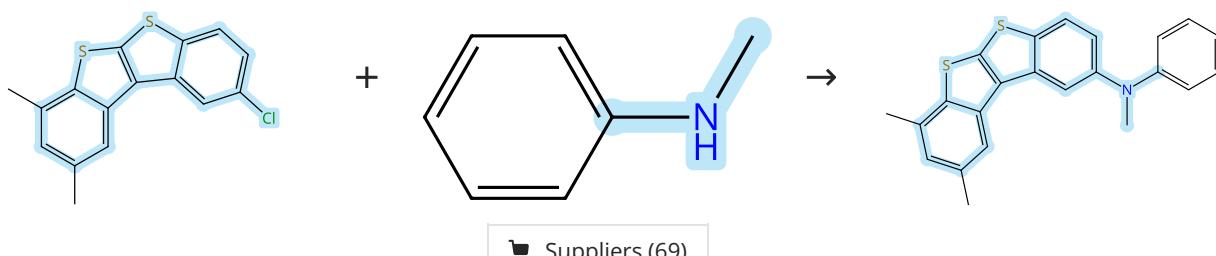
Experimental Protocols

Mechanistic Investigation, Wavelength-Dependent Reactivity, and Expanded Reactivity of N-Aryl Azacycle Photomediated Ring Contractions

By: Kim, Sojung F.; et al

Journal of the American Chemical Society (2024), 146(8), 5580-5596.

Scheme 374 (1 Reaction)



31-614-CAS-38030181

Steps: 1 Yield: 88%

1.1 Reagents: Potassium *tert*-butoxide

Catalysts: Palladium diacetate, Bis(1,1-dimethylethyl)[2',4',6'-tris(1-methylethyl)[1,1'-biphenyl]-2-yl]phosphine

Solvents: Xylene; rt → 130 °C; 4 h, 130 °C

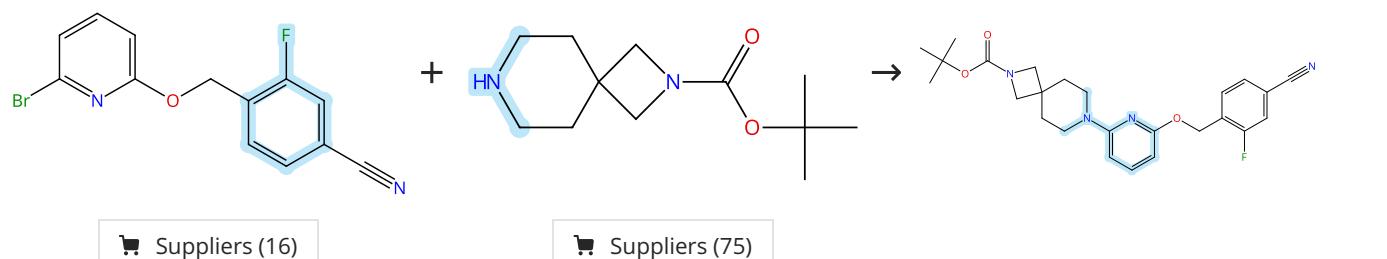
Experimental Protocols

Synthesis of [1]Benzothieno[2,3-*b*][1]benzothiophenes from 3-Arylbenzo[*b*]thiophenes through Iodine-Mediated Sulfur Insertion Reaction

By: Ito, Kazuki; et al

Journal of Organic Chemistry (2023), 88(20), 14797-14802.

Scheme 375 (1 Reaction)



31-614-CAS-36967124

Steps: 1 Yield: 88%

1.1 Reagents: Cesium carbonate

Catalysts: Tris(dibenzylideneacetone)dipalladium, BINAP

Solvents: Toluene; rt → 120 °C; 3 h, 120 °C

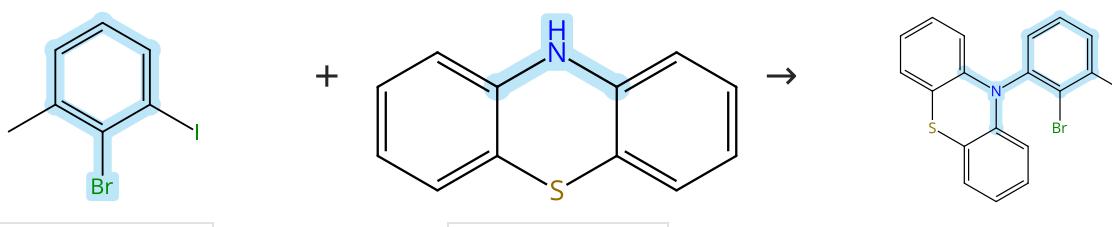
Experimental Protocols

Discovery of Novel 5,6-Dihydro-1,2,4-triazine Derivatives as Efficacious Glucagon-Like Peptide-1 Receptor Agonists

By: Chen, Lili; et al

Journal of Medicinal Chemistry (2023), 66(12), 7988-8010.

Scheme 376 (1 Reaction)



31-614-CAS-41966288

Steps: 1 Yield: 88%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium diacetate, Tri-*tert*-butylphosphonium tetrafluoroborate

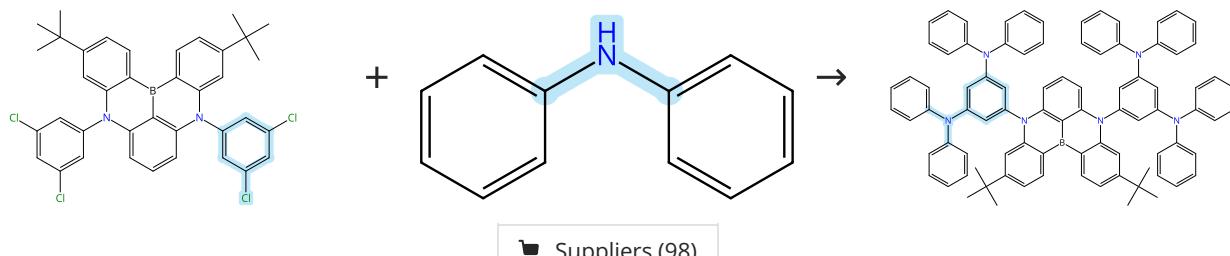
Solvents: Toluene; 20 h, 100 °C

Experimental Protocols

Bis-Ortho-Donor-Modification of Boracyclic π-Electron Systems beyond Steric Protection to Produce Thermally Activated Delayed Fluorescence Materials

By: Narita, Hiroki; et al

Angewandte Chemie, International Edition (2024), 63(30), e202405412.

**Scheme 377 (1 Reaction)**

31-614-CAS-44475285

Steps: 1 Yield: 88%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborateSolvents: *o*-Xylene; 14 h, 120 °C**Sequential Multiple Borylation Toward an Ultrapure Green Thermally Activated Delayed Fluorescence Material**

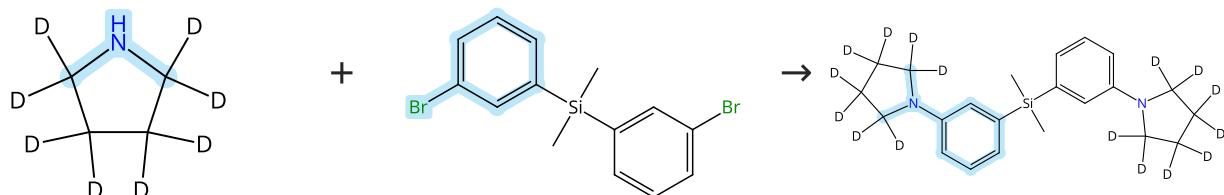
By: Uemura, Shigetada; et al

Journal of the American Chemical Society (2023), 145(3), 1505-1511.

Experimental Protocols

**Scheme 378 (1 Reaction)**

Steps: 1 Yield: 88%



31-614-CAS-39355649

Steps: 1 Yield: 88%

**Optimized Red-Absorbing Dyes for Imaging and Sensing**

1.1 Reagents: Cesium carbonate

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

Solvents: 1,4-Dioxane; 18 h, 100 °C

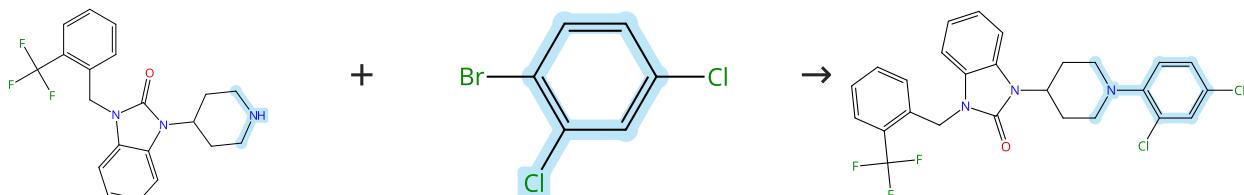
By: Grimm, Jonathan B.; et al

Journal of the American Chemical Society (2023), 145(42), 23000-23013.

Experimental Protocols

**Scheme 379 (1 Reaction)**

Steps: 1 Yield: 88%



31-614-CAS-39924731

Steps: 1 Yield: 88%

**Discovery and Characterization of a New Class of C5aR1 Antagonists Showing In Vivo Activity**

By: Hubler, Francis; et al

Journal of Medicinal Chemistry (2024), 67(5), 4100-4119.

Experimental Protocols

**Scheme 380 (1 Reaction)**

Suppliers (98)

Suppliers (86)

Suppliers (20)

31-614-CAS-36208219

Steps: 1 Yield: 88%

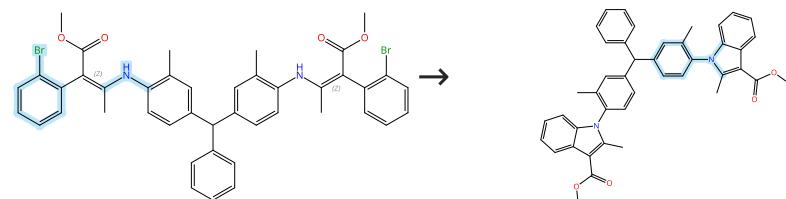
- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium diacetate, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl  
**Solvents:** Toluene; 1 h, 90 °C

**Spiroborate-Based Host Materials with High Triplet Energies and Ambipolar Charge-Transport Properties**

By: Hayakawa, Masahiro; et al

Angewandte Chemie, International Edition (2023), 62(14), e202217512.

Experimental Protocols

**Scheme 381 (1 Reaction)**

Steps: 1 Yield: 88%

31-614-CAS-40129234

Steps: 1 Yield: 88%

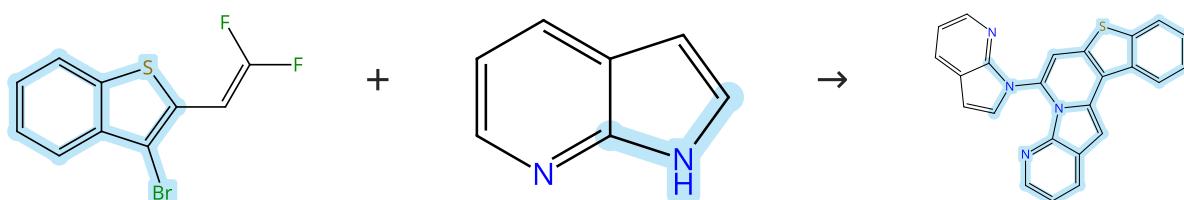
- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt  
 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt  
 1.3 5 min, rt; 18 h, 60 °C

**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

Experimental Protocols

**Scheme 382 (1 Reaction)**

Steps: 1 Yield: 88%

31-614-CAS-37012601

Steps: 1 Yield: 88%

- 1.1 **Reagents:** Tripotassium phosphate  
**Solvents:** Dimethylformamide; 12 h, 100 °C; 100 °C → rt  
 1.2 **Catalysts:** Triphenylphosphine, Palladium diacetate; 20 h, 140 °C; 140 °C → rt  
 1.3 **Reagents:** Water

**Thienoindolizines and their Benzo-Fused Derivatives: Synthesis and Physical Properties**

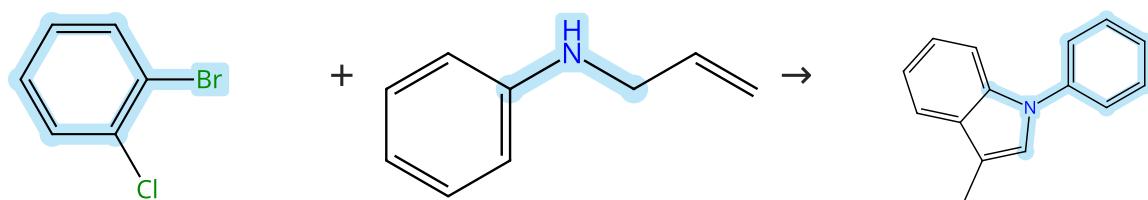
By: Ausekle, Elina; et al

Chemistry - A European Journal (2023), 29(42), e202301038.

Experimental Protocols

Scheme 383 (1 Reaction)

Steps: 1 Yield: 88%



Suppliers (84)

Suppliers (63)

Suppliers (5)

31-614-CAS-38970020

Steps: 1 Yield: 88%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, [7,9-bis[2,6-bis(1-methylethyl)phenyl]-7,9-dihydro-8*H*-acenaphth[1,2-*d*]imidazol-8-ylidene]bromo[2-(4,5-dihydro-4,4-dimethyl-2-oxazolyl-*kN*<sup>3</sup>)-1-naphthalenyl-*kC*]-, (*SP*-4,4)-

Solvents: 1,4-Dioxane; 24 h, 100 °C

## A General Protocol toward Synthesis of 3-Methylindoles Using Acenaphthoimidazolidene-Ligated Oxazoline Palladacycle

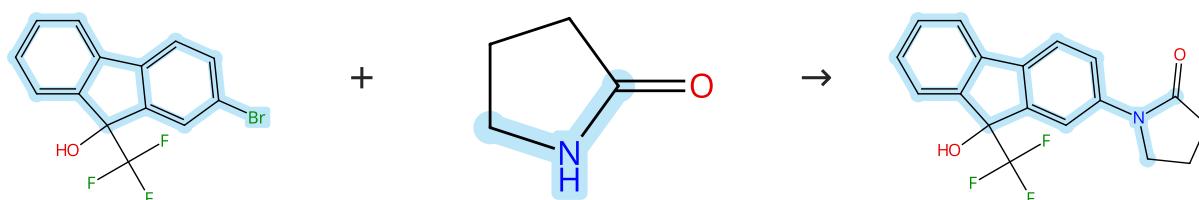
By: Fan, Ruqian; et al

Organic Letters (2024), 26(1), 22-28.

## Experimental Protocols

Scheme 384 (1 Reaction)

Steps: 1 Yield: 88%



Supplier (1)

Suppliers (66)

Supplier (1)

31-614-CAS-41229772

Steps: 1 Yield: 88%

## 1.1 Reagents: Cesium carbonate

Catalysts: Palladium, tris[μ-[(1,2-η;4,5-η)-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), 1,1'-(9,9-Dimethyl-9*H*-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]

Solvents: 1,4-Dioxane; 4 h, 100 °C

## Design and synthesis of novel fluorene derivatives as inhibitors of pyruvate dehydrogenase kinase

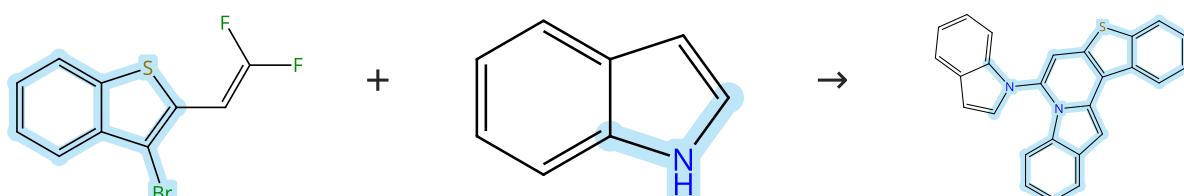
By: Inoue, Masafumi; et al

Bioorganic &amp; Medicinal Chemistry Letters (2024), 109, 129839.

## Experimental Protocols

Scheme 385 (1 Reaction)

Steps: 1 Yield: 88%



Suppliers (109)

31-614-CAS-37012588

Steps: 1 Yield: 88%

1.1 Reagents: Tripotassium phosphate

Solvents: Dimethylformamide; 12 h, 100 °C; 100 °C → rt

1.2 Catalysts: Triphenylphosphine, Palladium diacetate; 20 h, 140 °C; 140 °C → rt

1.3 Reagents: Water

Experimental Protocols

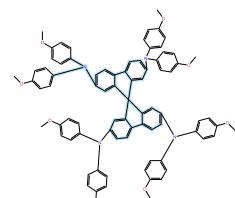
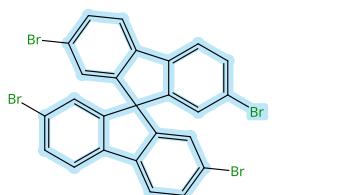
**Thienoindolizines and their Benzo-Fused Derivatives:  
Synthesis and Physical Properties**

By: Ausekle, Elina; et al

Chemistry - A European Journal (2023), 29(42), e202301038.

Scheme 386 (1 Reaction)

Steps: 1 Yield: 88%



Suppliers (76)

Suppliers (70)

Suppliers (85)

31-614-CAS-39661719

Steps: 1 Yield: 88%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tri-*tert*-butylphosphine, Tris(dibenzylideneacetone) dipalladium

Solvents: Toluene; 16 h, 110 °C

Experimental Protocols

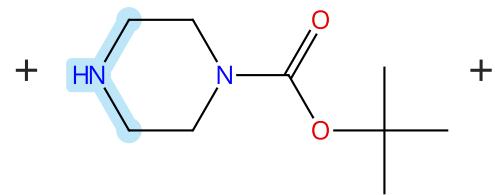
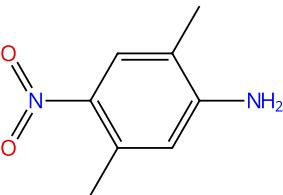
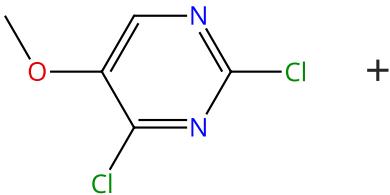
**Selective photochemical synthesis of primary arylamines and symmetric diarylamines via amination of aryl bromides using Ni(NH<sub>3</sub>)<sub>6</sub>Cl<sub>2</sub> as a nitrogen source and catalyst**

By: Xu, Zhehui; et al

Organic Chemistry Frontiers (2024), 11(8), 2313-2318.

Scheme 387 (1 Reaction)

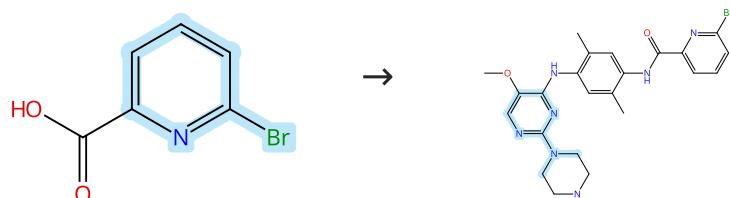
Steps: 1 Yield: 88%



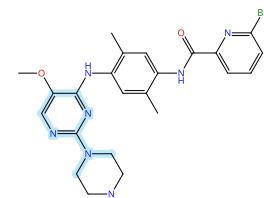
Suppliers (75)

Suppliers (59)

Suppliers (112)



Suppliers (109)



31-614-CAS-36602326

Steps: 1 Yield: 88%

- 1.1 **Reagents:** Cesium carbonate  
**Solvents:** Dimethylformamide; 5 h, 80 °C
- 1.2 **Reagents:** Diisopropylethylamine  
**Solvents:** 1-Butanol; 8 h, 120 °C
- 1.3 **Reagents:** Hydrogen  
**Catalysts:** Palladium  
**Solvents:** Methanol; overnight, rt
- 1.4 **Reagents:** 1-Hydroxybenzotriazole, 1-Ethyl-3-(3'-dimethylamino)propylcarbodiimide hydrochloride  
**Solvents:** Dimethylformamide; 6 h, rt
- 1.5 **Reagents:** Hydrochloric acid  
**Solvents:** Dichloromethane, 1,4-Dioxane; 4 h, rt

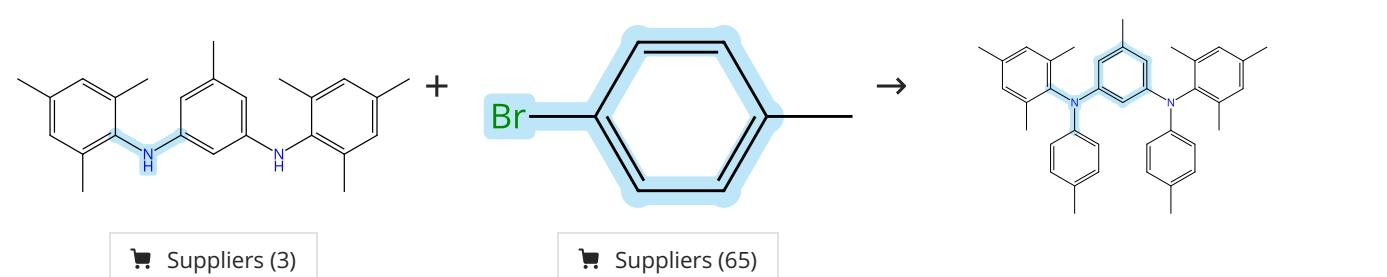
## Experimental Protocols

**Discovery of Pyrimidinediamine Derivatives as Potent Methuosis Inducers for the Treatment of Triple-Negative Breast Cancer**

By: He, Jia; et al

Journal of Medicinal Chemistry (2023), 66(11), 7421-7437.

Scheme 388 (1 Reaction)



31-614-CAS-41860564

Steps: 1 Yield: 88%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine  
**Solvents:** Toluene; overnight, 110 °C

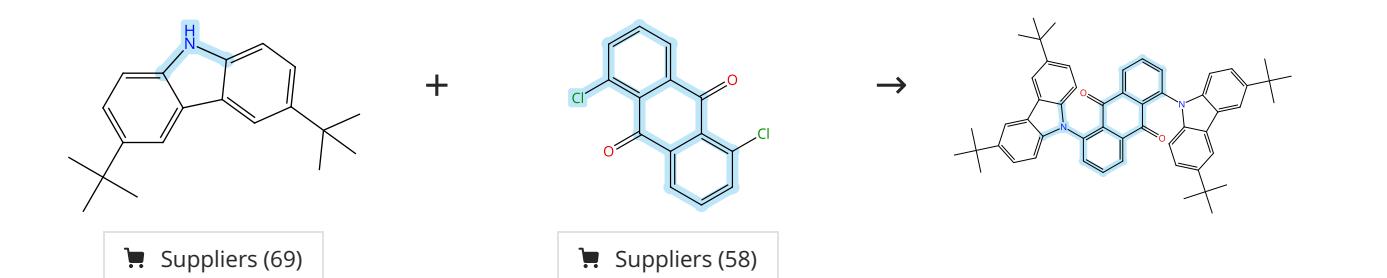
## Experimental Protocols

**Orienting Group Directed Cascade Borylation for Efficient One-Shot Synthesis of 1,4-BN-Doped Polycyclic Aromatic Hydrocarbons as Narrowband Organic Emitters**

By: Wu, Lin; et al

Angewandte Chemie, International Edition (2024), 63(18), e202402020.

Scheme 389 (1 Reaction)



31-614-CAS-38100953

Steps: 1 Yield: 88%

- 1.1 **Reagents:** Cesium carbonate  
**Catalysts:** 1,1-Bis(diphenylphosphino)ferrocene, Tris(dibenzylideneacetone)dipalladium  
**Solvents:** Toluene; 12 h, 100 °C

## Experimental Protocols

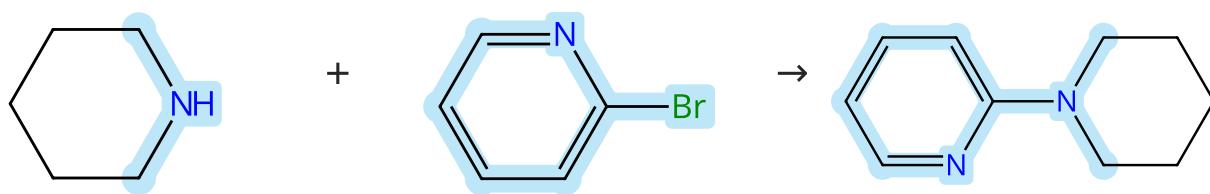
**Thermally activated delayed fluorescence and high-contrast mechanochromism of anthrone-based donor-acceptor systems**

By: Sudhakar, Pagidi; et al

Frontiers in Chemistry (Lausanne, Switzerland) (2023), 11, 1248267.

Scheme 390 (1 Reaction)

Steps: 1 Yield: 88%



Suppliers (50)

Suppliers (86)

Suppliers (30)

31-614-CAS-39252506

Steps: 1 Yield: 88%

## 1.1 Reagents:

Sodium *tert*-butoxide  
Catalysts: Palladium diacetate, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl  
Solvents: Toluene; 1 h, 120 °C; 120 °C → rt

## 1.2 Reagents:

Water; rt

Experimental Protocols

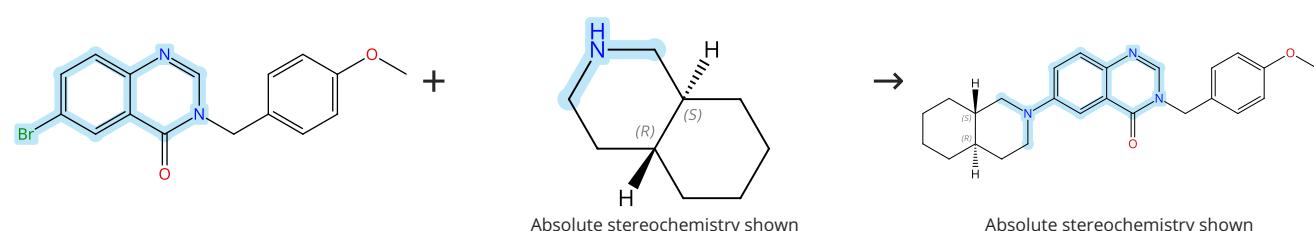
Metal-Free Directed Site-Selective Csp<sup>3</sup>-H Borylation of Saturated Cyclic Amines

By: Kumar Someswara Ashwathappa, Puneeth; et al

Angewandte Chemie, International Edition (2023), 62(39), e202309295.

Scheme 391 (1 Reaction)

Steps: 1 Yield: 88%



Suppliers (10)

31-614-CAS-38625342

Steps: 1 Yield: 88%

## 1.1 Reagents:

Cesium carbonate  
Catalysts: Palladium diacetate, 1,1'-(9,9-Dimethyl-9*H*-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]  
Solvents: 1,4-Dioxane; overnight, rt → 90 °C

Experimental Protocols

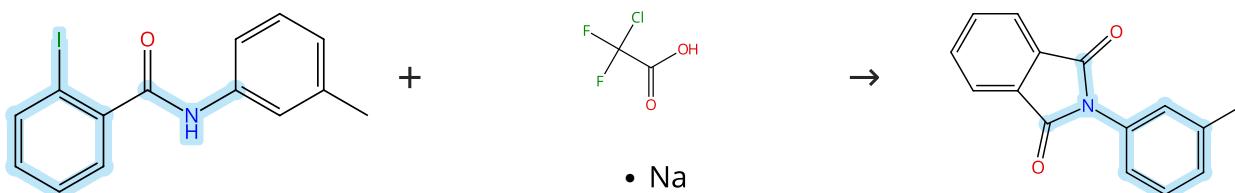
## Fragment-Based Screening Identifies New Quinazolinone-Based Inositol Hexakisphosphate Kinase (IP6K) Inhibitors

By: Heitmann, Tyler; et al

ACS Medicinal Chemistry Letters (2023), 14(12), 1760-1766.

Scheme 392 (1 Reaction)

Steps: 1 Yield: 88%



Suppliers (16)

Suppliers (88)

Suppliers (19)

31-614-CAS-38558266

Steps: 1 Yield: 88%

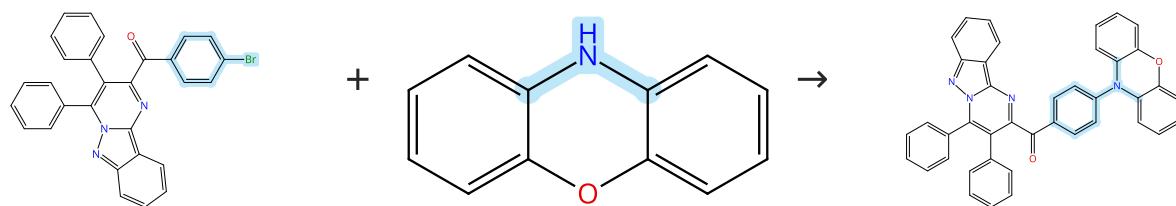
## Synthesis of N-substituted phthalimides via Pd-catalyzed [4+1] cycloaddition reaction

By: Hu, Chengxian; et al

Chemical Communications (Cambridge, United Kingdom) (2023), 59(100), 14839-14842.

Experimental Protocols

Scheme 393 (1 Reaction)



Suppliers (96)

31-614-CAS-36471772

Steps: 1 Yield: 87%

1.1 Reagents: Cesium carbonate, Tri-*tert*-butylphosphonium tetrafluoroborate

Catalysts: Palladium diacetate

Solvents: Toluene; 8 h, 110 °C

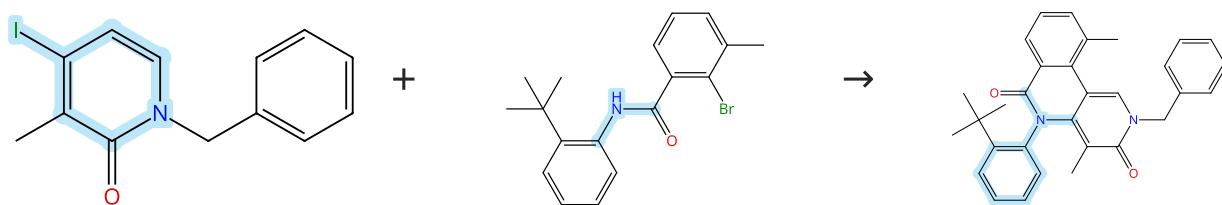
Experimental Protocols

I<sub>2</sub>-Promoted gem-Diarylethene Involved Aza-Diels-Alder Reaction and Wagner-Meerwein Rearrangement: Construction of 2,3,4-Trisubstituted Pyrimido[1,2-b]indazole Skeletons

By: Zhou, You; et al

Organic Letters (2023), 25(19), 3386-3390.

Scheme 394 (1 Reaction)



Suppliers (3)

Supplier (1)

31-614-CAS-39194507

Steps: 1 Yield: 87%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Tris(2-furyl)phosphine, Ethyl (1*S*,4*R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate

Solvents: Tetrahydrofuran; 5 min, rt; 48 h, 60 °C

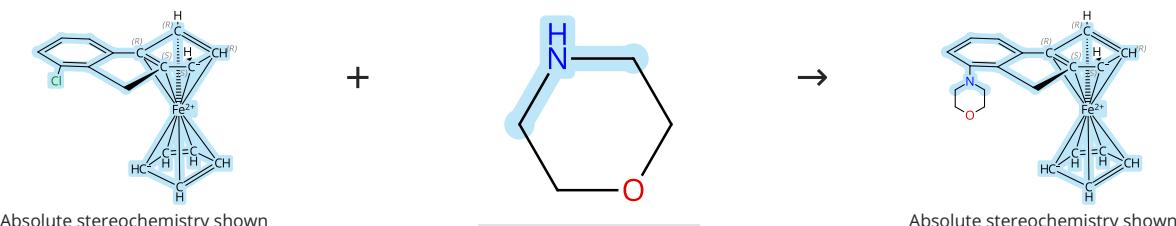
Experimental Protocols

Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

Scheme 395 (1 Reaction)



Suppliers (83)

31-614-CAS-37543189

Steps: 1 Yield: 87%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: Toluene; 24 h, 80 °C

Experimental Protocols

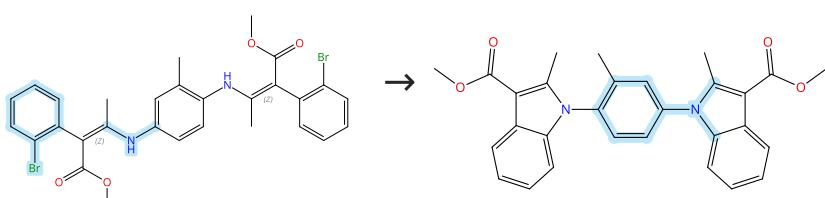
Design and synthesis of a new family of planar and central chiral ferrocenyl phosphine ligands

By: Ling, Li; et al

Chemical Communications (Cambridge, United Kingdom) (2023), 59(19), 2739-2742.

## Scheme 396 (1 Reaction)

Steps: 1 Yield: 87%



Double bond geometry shown

## 31-614-CAS-40129224

Steps: 1 Yield: 87%

1.1 Catalysts: Palladium diacetate, (-)-BINAP  
Solvents: Toluene; 20 min, rt

## Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

1.2 Reagents: Cesium carbonate  
Solvents: Toluene; 5 min, rt

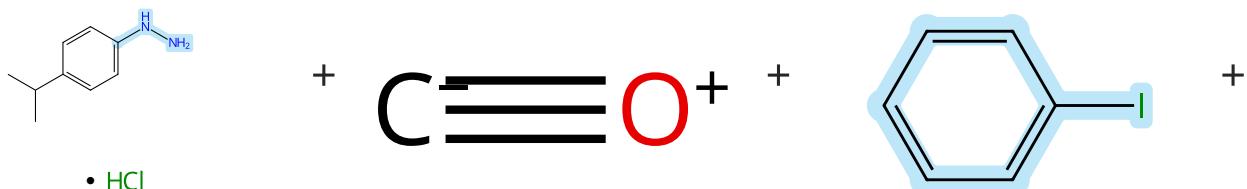
ACS Catalysis (2023), 13(11), 7680-7690.

1.3 5 min, rt; 18 h, 60 °C

## Experimental Protocols

## Scheme 397 (1 Reaction)

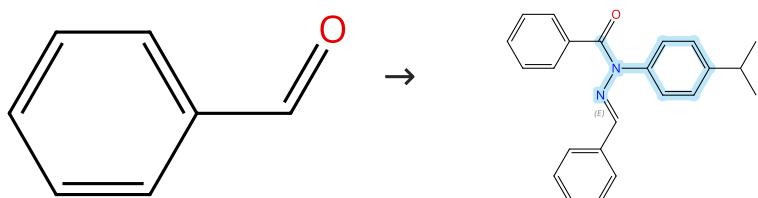
Steps: 1 Yield: 87%



Suppliers (68)

Suppliers (17)

Suppliers (93)



Suppliers (60)

Double bond geometry shown

## 31-614-CAS-40733493

Steps: 1 Yield: 87%

## Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones

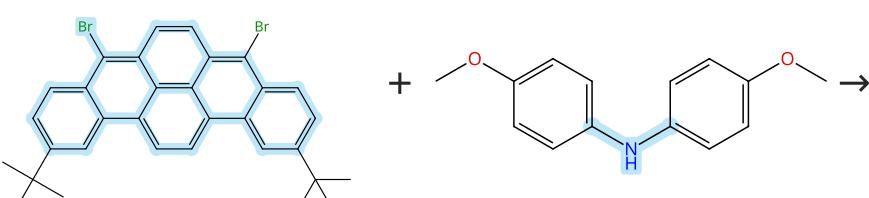
By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

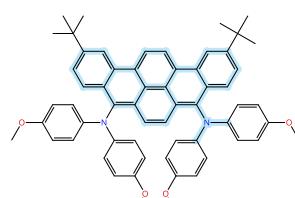
## Experimental Protocols

## Scheme 398 (1 Reaction)

Steps: 1 Yield: 87%



Suppliers (70)



31-614-CAS-35326246

Steps: 1 Yield: 87%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 17 h, 125 °C

Experimental Protocols

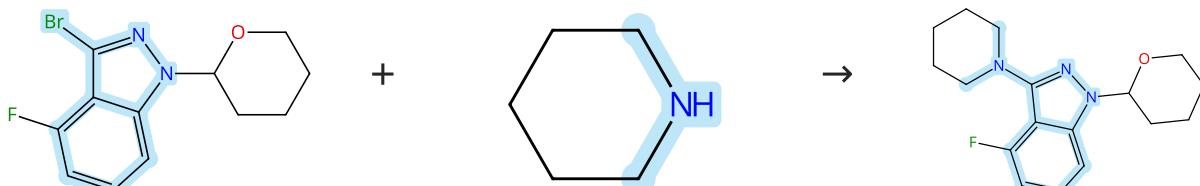
Solvent-tunable exciton-charge transfer mixed state enhances emission of functionalized benzo[*rst*]pentaphene through symmetry breaking

By: Xu, Xiushang; et al

Chemical Communications (Cambridge, United Kingdom) (2023), 59(6), 720-723.

Scheme 399 (1 Reaction)

Steps: 1 Yield: 87%



Suppliers (4)

Suppliers (50)

31-614-CAS-35422569

Steps: 1 Yield: 87%

1.1 Reagents: Sodium trimethylsilanolate

Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl-κC<sup>1'</sup>]phosphine-κP][4-[2-(trimethylsilyl)ethoxy]carbonyl phenyl]-, (*SP*-4-2)-

Solvents: Tetrahydrofuran; rt → 90 °C; 3 h, 90 °C

Experimental Protocols

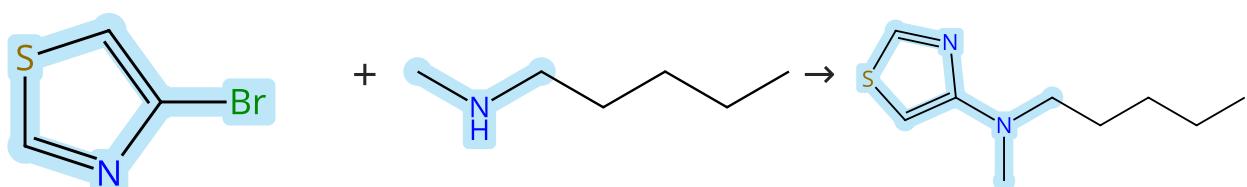
Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Scheme 400 (1 Reaction)

Steps: 1 Yield: 87%



Suppliers (98)

Suppliers (60)

31-614-CAS-35422539

Steps: 1 Yield: 87%

1.1 Reagents: Sodium trimethylsilanolate

Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl-κC<sup>1'</sup>]phosphine-κP][4-[2-(trimethylsilyl)ethoxy]carbonyl phenyl]-, (*SP*-4-2)-

Solvents: Tetrahydrofuran; 3 h, 50 °C

Experimental Protocols

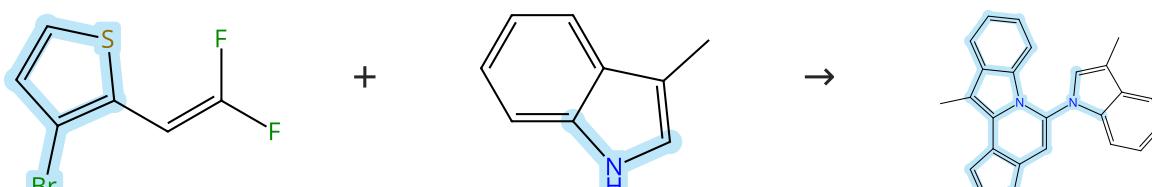
Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Scheme 401 (1 Reaction)

Steps: 1 Yield: 87%



Supplier (1)

Suppliers (105)

31-614-CAS-37012571

Steps: 1 Yield: 87%

1.1 Reagents: Tripotassium phosphate

Solvents: Dimethylformamide; 12 h, 100 °C; 100 °C → rt

1.2 Catalysts: Triphenylphosphine, Palladium diacetate; 20 h, 140 °C; 140 °C → rt

1.3 Reagents: Water

Experimental Protocols

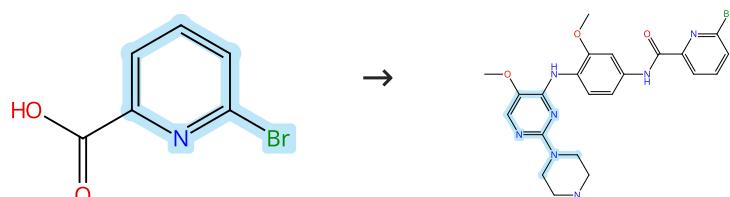
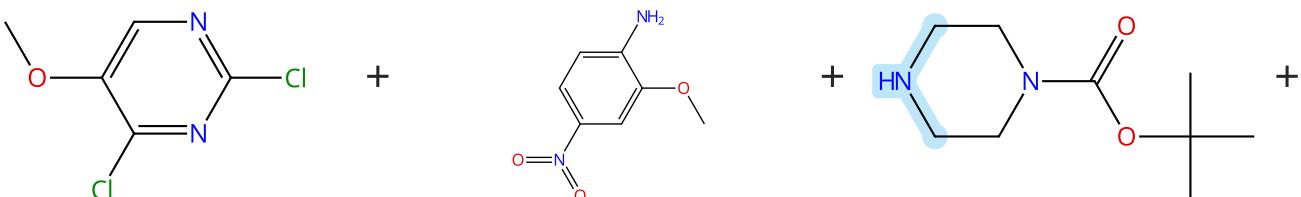
**Thienoindolizines and their Benzo-Fused Derivatives:  
Synthesis and Physical Properties**

By: Ausekle, Elina; et al

Chemistry - A European Journal (2023), 29(42), e202301038.

Scheme 402 (1 Reaction)

Steps: 1 Yield: 87%



Suppliers (109)

31-614-CAS-36602314

Steps: 1 Yield: 87%

1.1 Reagents: Cesium carbonate

Solvents: Dimethylformamide; 5 h, 80 °C

1.2 Reagents: Diisopropylethylamine

Solvents: 1-Butanol; 8 h, 120 °C

1.3 Reagents: Hydrogen

Catalysts: Palladium

Solvents: Methanol; overnight, rt

1.4 Reagents: 1-Hydroxybenzotriazole, 1-Ethyl-3-(3'-dimethylaminopropyl)carbodiimide hydrochloride

Solvents: Dimethylformamide; 6 h, rt

1.5 Reagents: Hydrochloric acid

Solvents: Dichloromethane, 1,4-Dioxane; 4 h, rt

Experimental Protocols

**Discovery of Pyrimidinediamine Derivatives as Potent  
Methuosis Inducers for the Treatment of Triple-Negative  
Breast Cancer**

By: He, Jia; et al

Journal of Medicinal Chemistry (2023), 66(11), 7421-7437.

Scheme 403 (1 Reaction)

Steps: 1 Yield: 87%



31-614-CAS-36215327

Steps: 1 Yield: 87%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate, Ferrocene, 1-(diphenylphosphino)-2-[(1*S*)-1-[(diphenylphosphino)propylamino]ethyl]-,(1*S*)-

Solvents: Toluene; 20 h, 80 °C

Experimental Protocols

**Synthesis of N-Substituted 4-Quinolones via Palladium-Catalyzed Enantioselective C-N Coupling and Base-Promoted Reactions**

By: Pu, Xiaoyun; et al

Advanced Synthesis &amp; Catalysis (2023), 365(8), 1152-1157.

**Scheme 404 (1 Reaction)**

Steps: 1 Yield: 87%



31-614-CAS-38556052

Steps: 1 Yield: 87%

1.1 Reagents: Potassium carbonate

Catalysts: Palladium diacetate

Solvents: Dimethylformamide; 12 h, 110 °C

Experimental Protocols

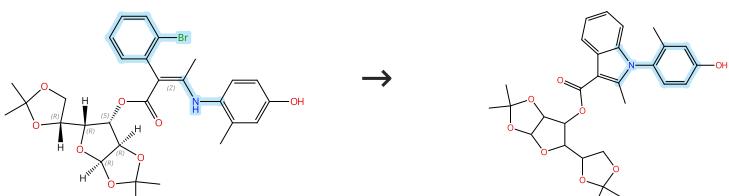
**Preparation of pyridopyrazines through tandem Pd-catalyzed C-N/C-C coupling reactions of Ugi adducts**

By: Takallou, Ahmad; et al

Organic &amp; Biomolecular Chemistry (2023), 21(48), 9530-9533.

**Scheme 405 (1 Reaction)**

Steps: 1 Yield: 87%

Absolute stereochemistry shown  
Double bond geometry shown

31-614-CAS-40129221

Steps: 1 Yield: 87%

1.1 Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

Solvents: Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

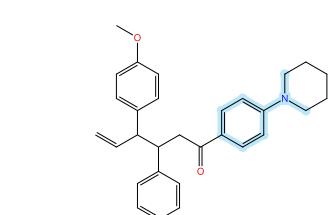
ACS Catalysis (2023), 13(11), 7680-7690.

**Scheme 406 (1 Reaction)**

Steps: 1 Yield: 87%



Relative stereochemistry shown



Suppliers (50)

31-614-CAS-35770349

Steps: 1 Yield: 87%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium diacetate, 1,1'-(9,9-Dimethyl-9-*H*-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]

Solvents: Tetrahydrofuran; 45 min, 100 °C

Experimental Protocols

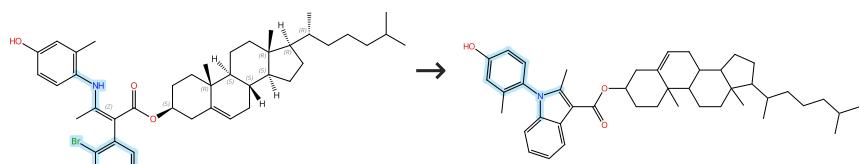
**Iron-Catalyzed Coupling of Alkenes and Enones: Sakurai-Michael-type Conjugate Addition of Catalytic Allyliron Nucleophiles**

By: Scrivener, Sarah G.; et al

Organic Letters (2023), 25(9), 1420-1424.

**Scheme 407 (1 Reaction)**

Steps: 1 Yield: 87%



Absolute stereochemistry shown

Double bond geometry shown

31-614-CAS-40129227

Steps: 1 Yield: 87%

**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

1.1 Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

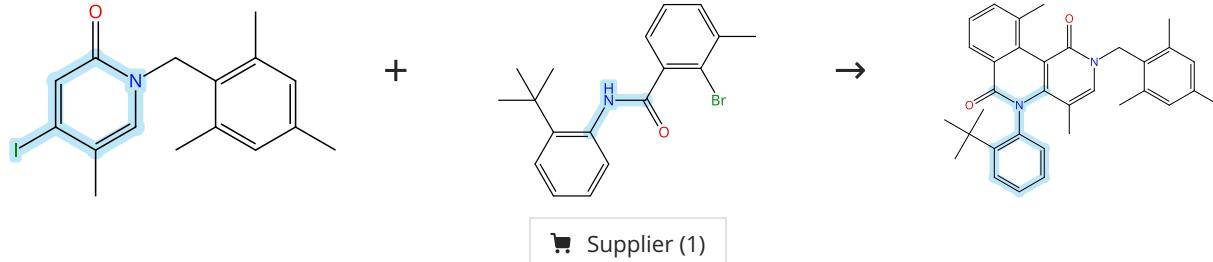
Solvents: Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

**Scheme 408 (1 Reaction)**

Steps: 1 Yield: 87%



31-614-CAS-39194503

Steps: 1 Yield: 87%

**Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality**

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

1.1 Reagents: Potassium carbonate

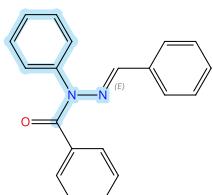
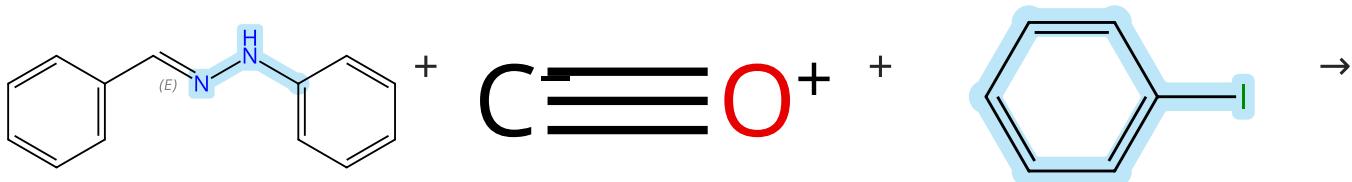
Catalysts: Palladium diacetate, Tris(2-furyl)phosphine, Ethyl (1*S*,4*R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate

Solvents: Tetrahydrofuran; 5 min, rt; 48 h, 90 °C

Experimental Protocols

Scheme 409 (1 Reaction)

Steps: 1 Yield: 87%



Double bond geometry shown

31-614-CAS-40733509

Steps: 1 Yield: 87%

**Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones**

1.1 Reagents: Sodium hydroxide

Catalysts: Bis(*tri-tert*-butylphosphine)palladium  
Solvents: Anisole; 12 h, 4 MPa, 120 °C

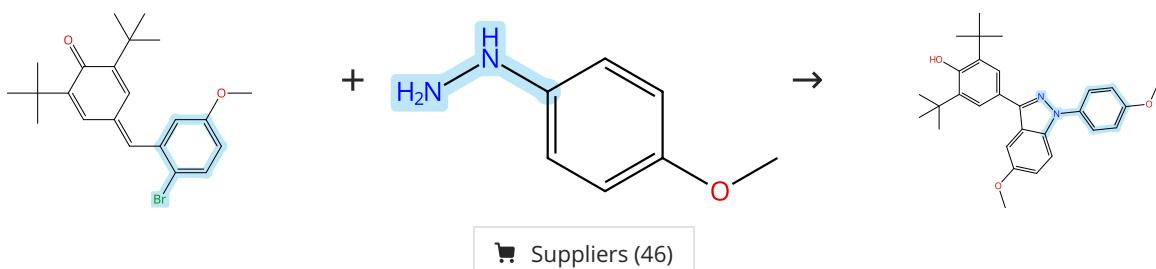
By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

Experimental Protocols

Scheme 410 (1 Reaction)

Steps: 1 Yield: 87%



31-614-CAS-38947674

Steps: 1 Yield: 87%

**Synthesis and Photophysical Properties of 3-Substituted-1H-Indazoles: A Pd-Catalyzed Double C-N Bond Formation Strategy via 1,6-Conjugate Addition**1.1 Reagents: Potassium *tert*-butoxide

Catalysts: Palladium diacetate, 1,3-Bis(diphenylphosphino)propane

Solvents: Toluene; 15 h, 110 °C

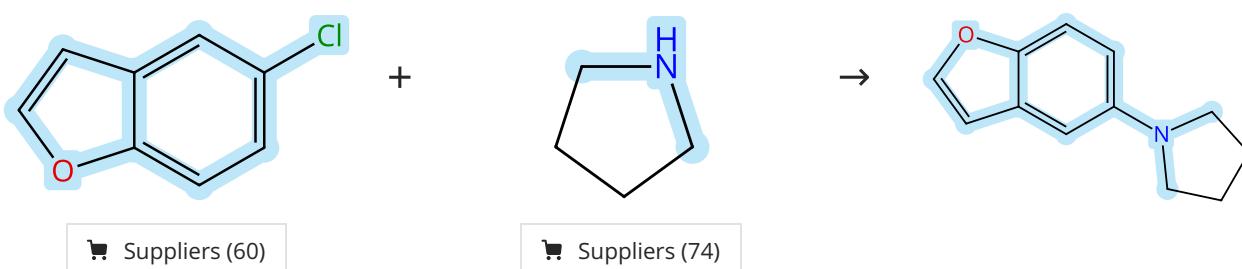
By: Kayastha, Nasib; et al

Journal of Organic Chemistry (2024), 89(1), 402-413.

Experimental Protocols

Scheme 411 (1 Reaction)

Steps: 1 Yield: 87%



31-614-CAS-38030241

Steps: 1 Yield: 87%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

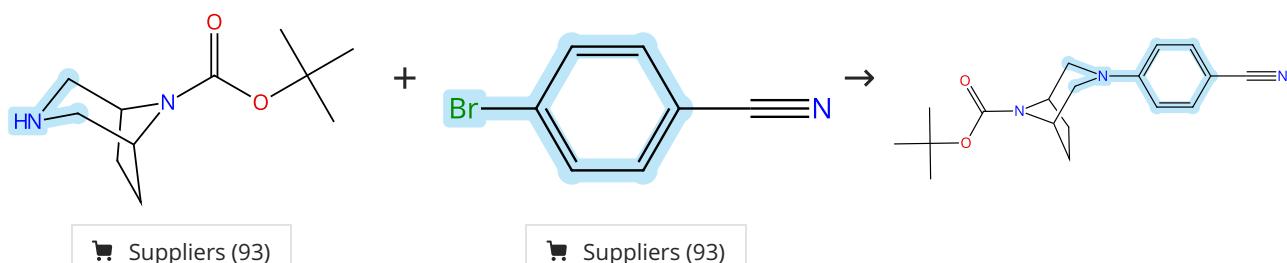
Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (Si Pr)<sup>Ph2</sup>Pd(cin)Cl at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Scheme 412 (1 Reaction)

Steps: 1 Yield: 87%



31-614-CAS-38701043

Steps: 1 Yield: 87%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, BINAP  
Solvents: Toluene; 12 h, 80 °C; 80 °C → rt

1.2 Reagents: Water; rt

Experimental Protocols

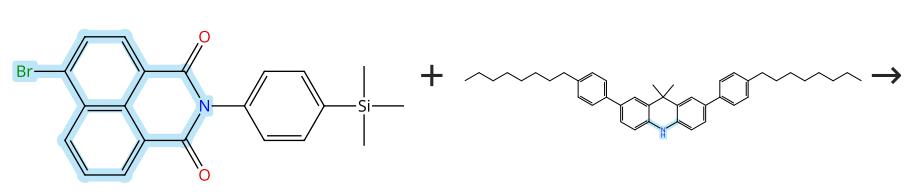
Discovery of (2*S*)-N-(6-cyano-5-(trifluoromethyl)pyridin-3-yl)-3-(6-(4-cyanophenyl)-3,6-diazabicyclo[3.1.1]heptan-3-yl)-2-hydroxy-2-methylpropanamide as a Highly Potent and Selective Topical Androgen Receptor Antagonist for Androgenetic Alopecia Treatment

By: Zhang, Wenqiang; et al

Journal of Medicinal Chemistry (2024), 67(1), 322-348.

## Scheme 413 (1 Reaction)

Steps: 1 Yield: 87%



31-614-CAS-35689822

Steps: 1 Yield: 87%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: 1,1-Bis(diphenylphosphino)ferrocene, Tris (dibenzylideneacetone)dipalladium  
Solvents: Toluene; overnight, 100 °C

Experimental Protocols

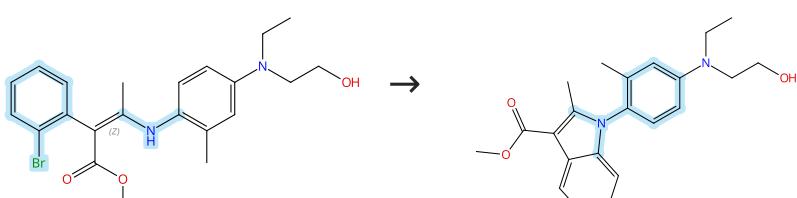
Color Tuning in Thermally Activated Delayed Fluorescence Polymers with Carbazole and Tetramethylphenylene Backbone

By: Liu, Shen; et al

Macromolecules (Washington, DC, United States) (2023), 56(3), 876-882.

## Scheme 414 (1 Reaction)

Steps: 1 Yield: 87%



31-614-CAS-40129218

Steps: 1 Yield: 87%

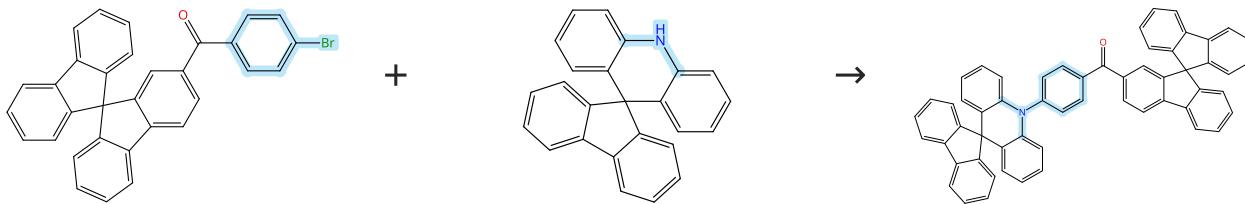
**Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers**

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

- 1.1 **Catalysts:** Palladium diacetate, (-)-BINAP  
**Solvents:** Toluene; 20 min, rt
- 1.2 **Reagents:** Cesium carbonate  
**Solvents:** Toluene; 5 min, rt
- 1.3 5 min, rt; 18 h, 60 °C

Experimental Protocols

**Scheme 415 (1 Reaction)**

Suppliers (55)

Steps: 1 Yield: 87%

31-614-CAS-36470314

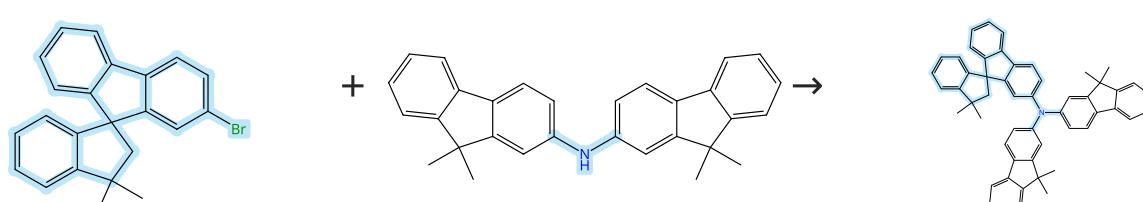
Steps: 1 Yield: 87%

**An efficient aggregation-enhanced delayed fluorescence luminogen created with spiro donors and carbonyl acceptor for applications as an emitter and sensitizer in high-performance organic light-emitting diodes**

By: Chen, Hao; et al

Aggregate (2023), 4(2), e244.

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate  
**Solvents:** Toluene; 12 h, 110 °C

**Scheme 416 (1 Reaction)**

Suppliers (57)

Steps: 1 Yield: 87%

31-614-CAS-39557552

Steps: 1 Yield: 87%

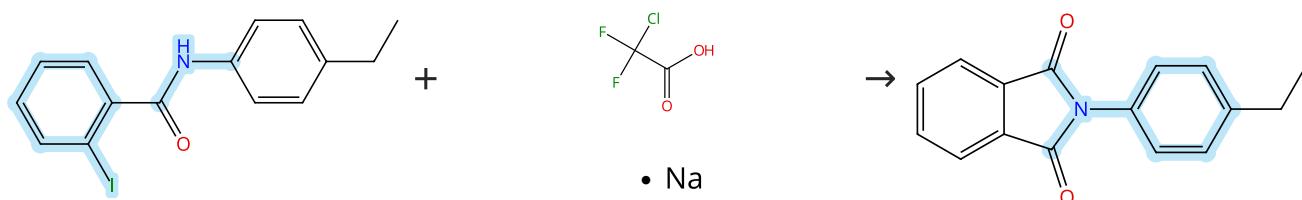
**A Scalable and Chromatography-Free Synthesis of N,N-Bis(9,9-dimethyl-9H-fluoren-2-yl)-3',3',4',7'-tetramethyl-2',3'-dihydro spiro[fluorene-9,1'-indene]-2-amine, a new Hole Transport Material for Organic Solar Cells**

By: Aeschi, Yves; et al

Helvetica Chimica Acta (2024), 107(3), e202300220.

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 4-[Bis(1,1-dimethylethyl)phosphino]-*N,N*-dimethylbenzenamine  
**Solvents:** Toluene; 16 h, reflux
- 1.2 **Reagents:** L-Ascorbic acid  
**Solvents:** Water; cooled

Experimental Protocols

**Scheme 417 (1 Reaction)**

Suppliers (15)

Suppliers (88)

Suppliers (14)

Steps: 1 Yield: 87%

31-614-CAS-38558259

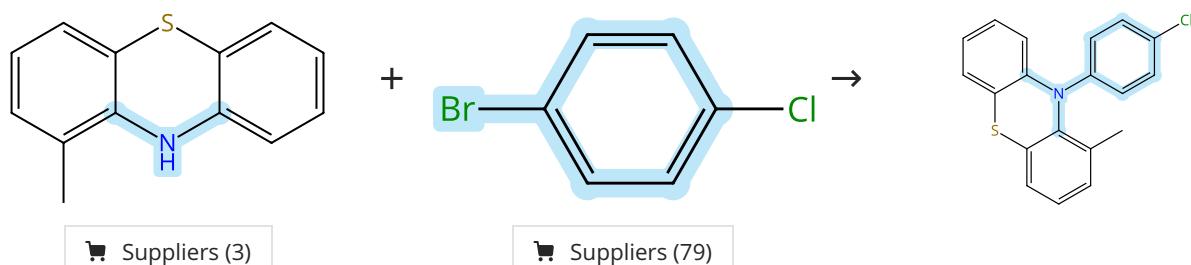
Steps: 1 Yield: 87%

**Synthesis of N-substituted phthalimides via Pd-catalyzed [4+1] cycloaddition reaction**

By: Hu, Chengxian; et al

Chemical Communications (Cambridge, United Kingdom) (2023), 59(100), 14839-14842.

Experimental Protocols

**Scheme 418 (1 Reaction)**

31-614-CAS-35203601

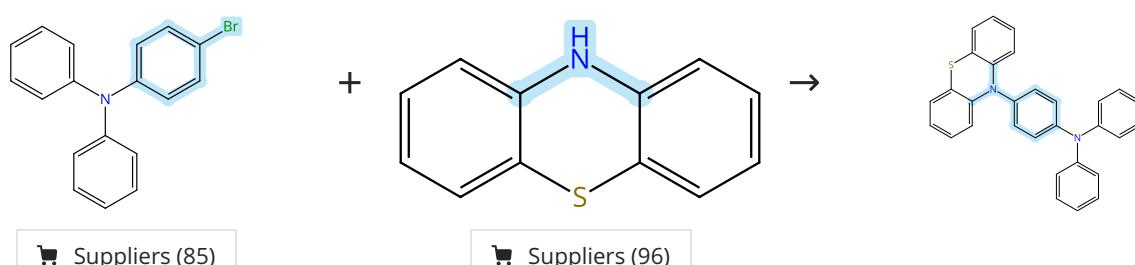
Steps: 1 Yield: 87%

**The Effect of Molecular Conformations and Simulated "Self-Doping" in Phenothiazine Derivatives on Room-Temperature Phosphorescence**

By: Gao, Mingxue; et al

Angewandte Chemie, International Edition (2023), 62(5), e202214908.

Experimental Protocols

**Scheme 419 (1 Reaction)**

31-614-CAS-42988972

Steps: 1 Yield: 87%

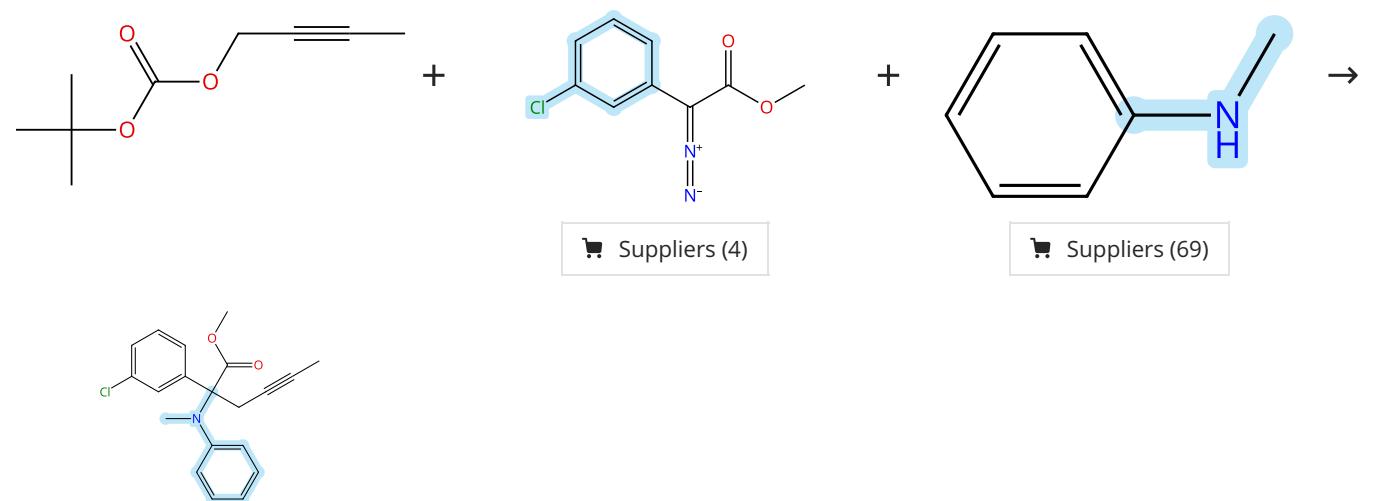
**Photoinduced room-temperature phosphorescence of triphenylamine-phenothiazine derivative-doped polymers**

By: Li, Nan; et al

Youji Huaxue (2024), 44(8), 2487-2494.

Experimental Protocols

Scheme 420 (1 Reaction)



31-614-CAS-37847485

Steps: 1 Yield: 87%

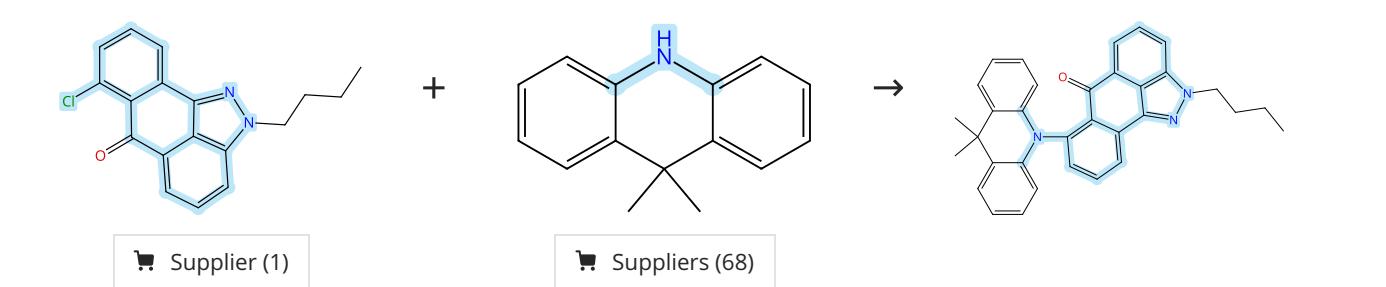
**1.1 Reagents:** Cesium carbonate**Catalysts:** Tris(dibenzylideneacetone)dipalladium, Rhodium, tetrakis[ $\mu$ -octanoato- $\kappa O:\kappa O'$ ]di-, (*Rh-Rh*), [3,6-Dimethoxy-2',4',6'-tris(1-methylethyl)[1,1'-biphenyl]-2-yl]bis(1,1-dimethylphosphine)**Solvents:** Acetonitrile; 12 h, 80 °C**Rh(II)/Pd(0) Dual-Catalyzed Regio-Divergent Three-Component Propargylic Substitution**

By: Xu, Jie; et al

JACS Au (2023), 3(10), 2862-2872.

## Experimental Protocols

Scheme 421 (1 Reaction)



31-614-CAS-38100958

Steps: 1 Yield: 87%

**1.1 Reagents:** Cesium carbonate**Catalysts:** 1,1-Bis(diphenylphosphino)ferrocene, Tris(dibenzylideneacetone)dipalladium**Solvents:** Toluene; 12 h, 100 °C**Thermally activated delayed fluorescence and high-contrast mechanochromism of anthrone-based donor-acceptor systems**

By: Sudhakar, Pagidi; et al

Frontiers in Chemistry (Lausanne, Switzerland) (2023), 11, 1248267.

## Experimental Protocols

Scheme 422 (1 Reaction)



31-614-CAS-43376617

Steps: 1 Yield: 87%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

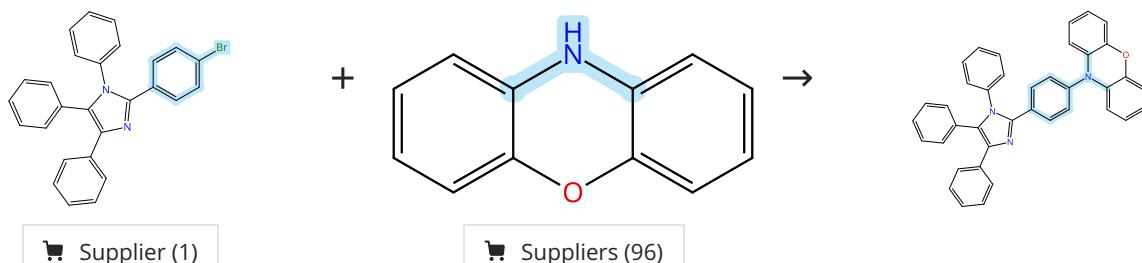
Solvents: Toluene; 10 - 30 min, 150 °C

Experimental Protocols

**Microwave-Assisted Buchwald-Hartwig Double Amination: A Rapid and Promising Approach for the Synthesis of TADF Compounds**

By: Mohd Jamel, Nor Shafiq; et al

ACS Omega (2024), 9(51), 50446-50457.

**Scheme 423 (2 Reactions)**

31-614-CAS-39191933

Steps: 1 Yield: 87%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium diacetate, Tri-*tert*-butylphosphine

Solvents: Toluene; 14 h, 100 °C

Experimental Protocols

**Sulphur-induced structural rearrangement in the self-sensitization photo-oxidation behaviour of phenothiazine-imidazole molecules**

By: Chen, Jianai; et al

Chemical Communications (Cambridge, United Kingdom) (2024), 60(14), 1888-1891.

31-614-CAS-35649482

Steps: 1 Yield: 87%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium diacetate, Tri-*tert*-butylphosphine

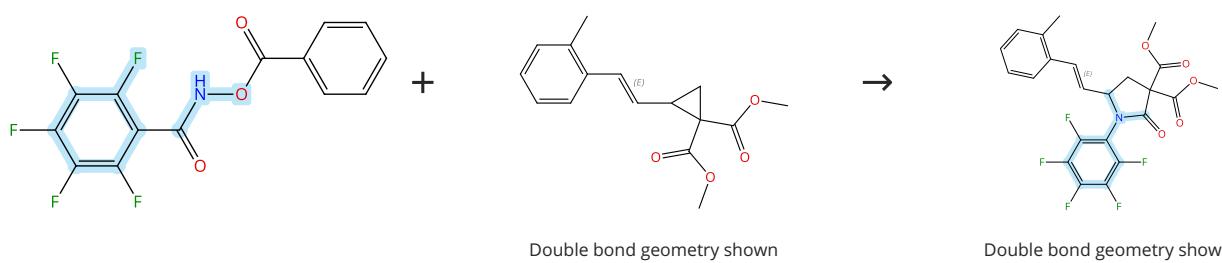
Solvents: Toluene; 14 h, 100 °C

Experimental Protocols

**Rapid photo-oxidation reactions of imidazole derivatives accelerated by planar quinoid oxidation-state structures**

By: Yu, Yue; et al

Journal of Materials Chemistry A: Materials for Energy and Sustainability (2023), 11(10), 5067-5075.

**Scheme 424 (1 Reaction)**

31-614-CAS-36837149

Steps: 1 Yield: 87%

1.1 Reagents: Cesium carbonate

Catalysts: 2,2'-Bipyridine, Tris(dibenzylideneacetone)dipalladium

Solvents: Tetrahydrofuran; 24 h, 50 °C

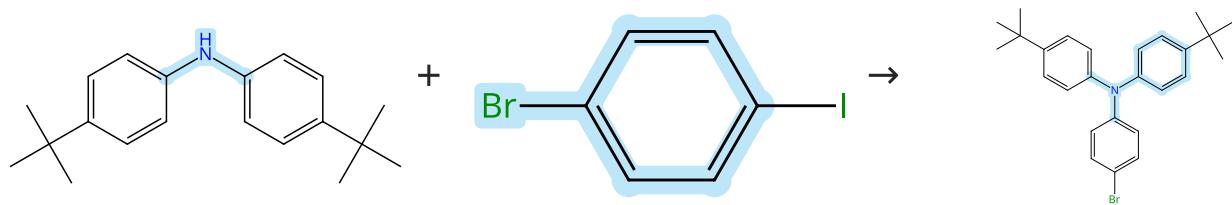
Experimental Protocols

**[3+2] Cycloaddition of Vinyl Cyclopropane and Hydroxy amines via Isocyanate Intermediate to  $\gamma$ -Lactams**

By: Huang, Xiaobing; et al

Chinese Journal of Chemistry (2023), 41(16), 1937-1942.

## Scheme 425 (1 Reaction)



31-614-CAS-39979350

Steps: 1 Yield: 87%

1.1 Reagents: Sodium *tert*-butoxide  
Catalysts: Palladium diacetate, X-Phos  
Solvents: Toluene; 15 h, 110 °C

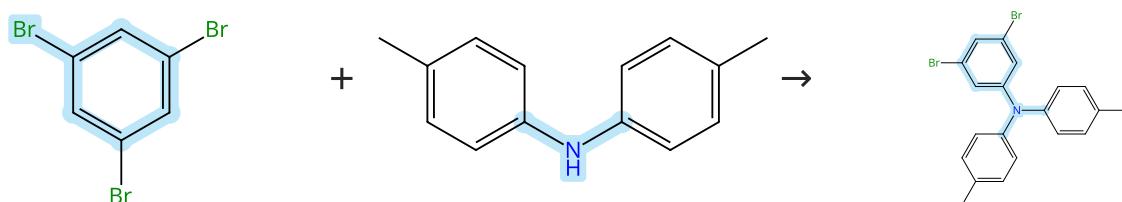
Experimental Protocols

A Rational Design of Electrochemically and Photophysically Tunable Triarylamine Luminophores by Consecutive (Pseudo-)Four-Component Syntheses

By: Kohlbecher, Regina; et al

Chemistry - A European Journal (2024), 30(17), e202304119.

## Scheme 426 (1 Reaction)



31-614-CAS-36221266

Steps: 1 Yield: 87%

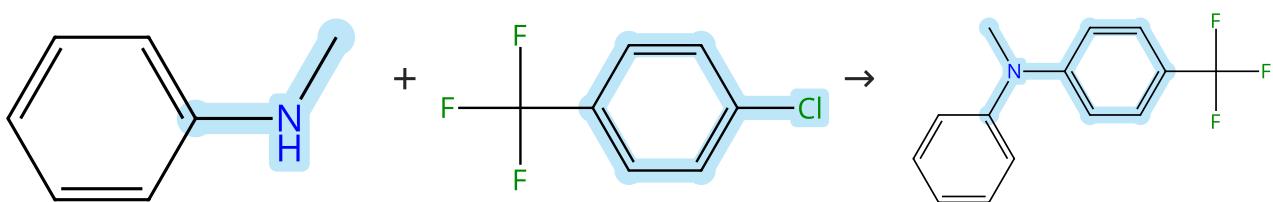
1.1 Reagents: Sodium *tert*-butoxide  
Catalysts: Palladium diacetate, 1,1'-(9,9-Dimethyl-9*H*-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]  
Solvents: Toluene; 12 h, 140 °C

Medium-Ring Strategy Enables Multiple Resonance Emitters with Twisted Geometry and Fast Spin-Flip to Suppress Efficiency Roll-Off

By: Lei, Bowen; et al

Angewandte Chemie, International Edition (2023), 62(12), e202218405.

## Scheme 427 (1 Reaction)



31-614-CAS-42014402

Steps: 1 Yield: 87%

1.1 Catalysts: Palladium diacetate, 1*H*-Indole, 3-(dicyclohexylphosphino)-1-methyl-2-(2,3,4-trimethoxyphenyl)-

Application of indole-based monophosphine in ppm level Pd-catalyzed C-N bond formation

By: Li, Cheuk Long; et al

Journal of Organometallic Chemistry (2024), 1011, 123124.

1.2 Reagents: Sodium *tert*-butoxide

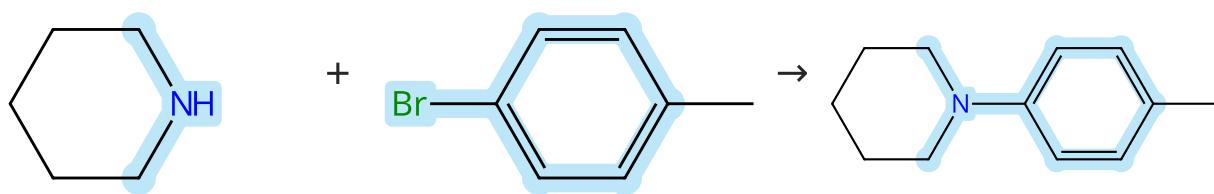
Solvents: Toluene, Hexane; rt; 24 h, 110 °C; 110 °C → rt

1.3 Solvents: Water; rt

Experimental Protocols

Scheme 428 (1 Reaction)

Steps: 1 Yield: 87%



Suppliers (50)

Suppliers (65)

Suppliers (10)

31-614-CAS-40985571

Steps: 1 Yield: 87%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine; 12 h, 115 °C

Experimental Protocols

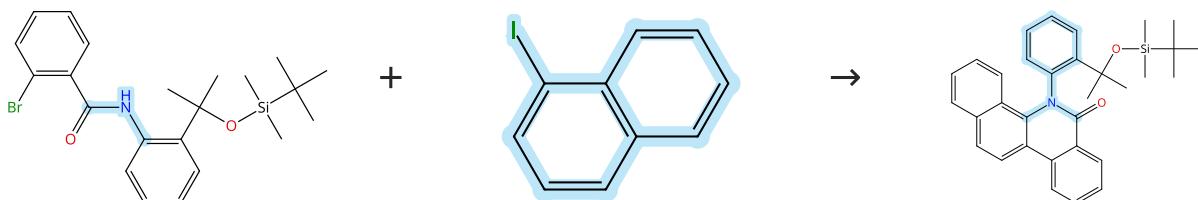
**Mechanistic Investigation, Wavelength-Dependent Reactivity, and Expanded Reactivity of N-Aryl Azacycle Photomediated Ring Contractions**

By: Kim, Sojung F.; et al

Journal of the American Chemical Society (2024), 146(8), 5580-5596.

Scheme 429 (1 Reaction)

Steps: 1 Yield: 87%



Suppliers (87)

31-614-CAS-41071053

Steps: 1 Yield: 87%

1.1 Reagents: Norbornene, Silver sulfate

Catalysts: Tris(dibenzylideneacetone)dipalladium, (4*S*,4'*S*)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole

Solvents: Toluene, Water; 36 h, 80 °C

Experimental Protocols

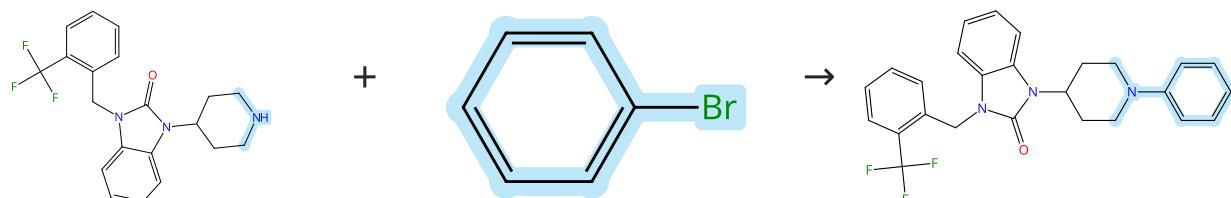
**Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C–N axially chiral scaffolds**

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

Scheme 430 (1 Reaction)

Steps: 1 Yield: 86%



Suppliers (71)

31-614-CAS-39924726

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, BINAP

Solvents: Toluene; 100 °C

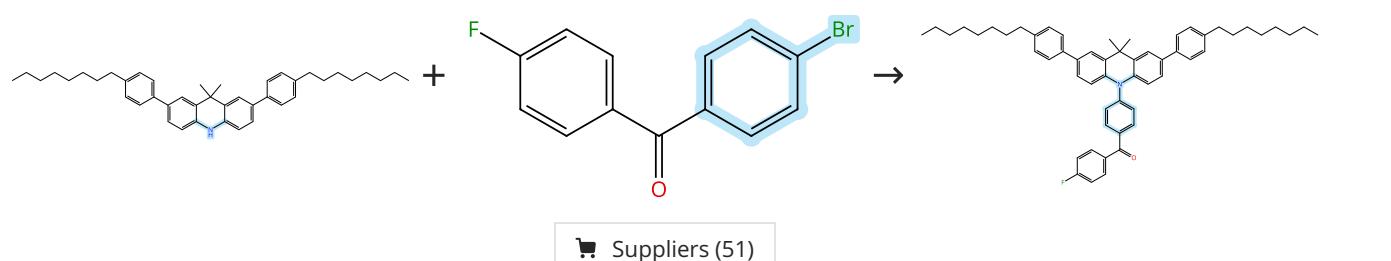
Experimental Protocols

**Discovery and Characterization of a New Class of C5aR1 Antagonists Showing In Vivo Activity**

By: Hubler, Francis; et al

Journal of Medicinal Chemistry (2024), 67(5), 4100-4119.

Scheme 431 (1 Reaction)



31-614-CAS-35689812

Steps: 1 Yield: 86%

- 1.1 Reagents: Cesium carbonate  
 Catalysts: 1,1-Bis(diphenylphosphino)ferrocene, Tris(dibenzylideneacetone)dipalladium  
 Solvents: Toluene; overnight, 100 °C

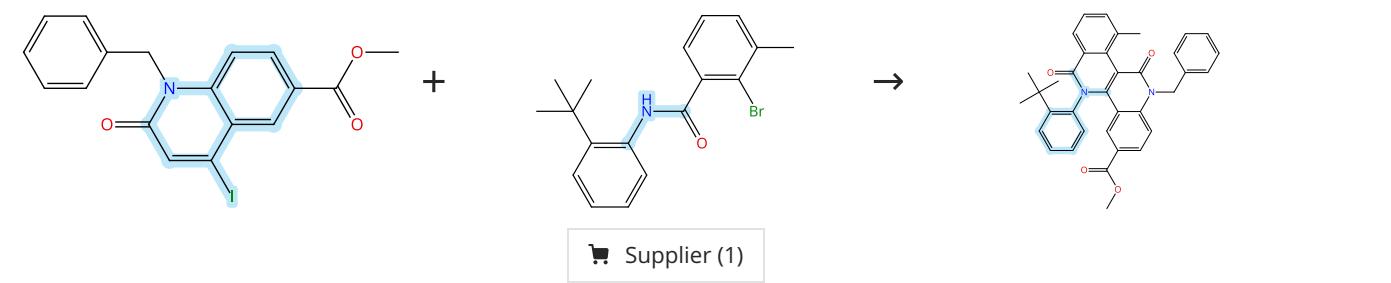
Experimental Protocols

**Color Tuning in Thermally Activated Delayed Fluorescence Polymers with Carbazole and Tetramethylphenylene Backbone**

By: Liu, Shen; et al

Macromolecules (Washington, DC, United States) (2023), 56(3), 876-882.

Scheme 432 (1 Reaction)



31-614-CAS-39194483

Steps: 1 Yield: 86%

- 1.1 Reagents: Potassium carbonate  
 Catalysts: Palladium diacetate, Ethyl (1*S*,4*R*)-bicyclo[2.2.1]hept-2-ene-2-carboxylate  
 Solvents: Tetrahydrofuran; 5 min, rt; 48 h, 80 °C

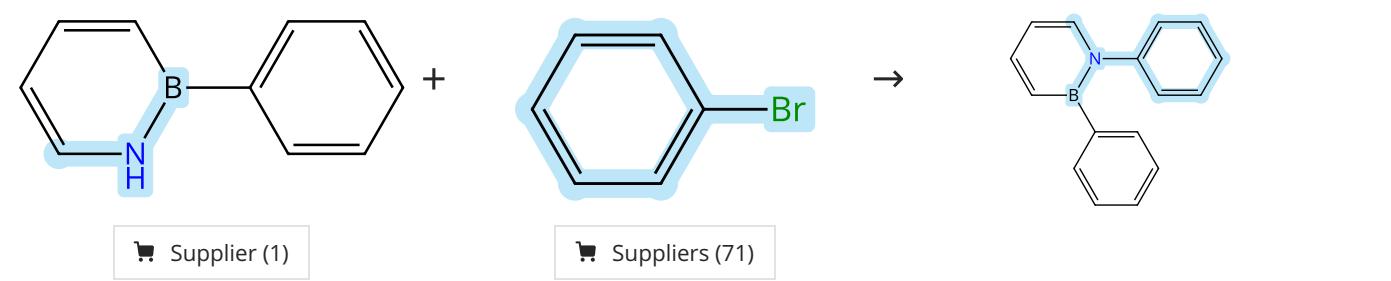
Experimental Protocols

**Asymmetric Two-Component Alkenyl Catellani Reaction for the Construction of C-N Axial Chirality**

By: Wu, Chenggui; et al

Chinese Journal of Chemistry (2024), 42(7), 699-704.

Scheme 433 (1 Reaction)



31-614-CAS-39279528

Steps: 1 Yield: 86%

**N-Functionalization of 1,2-Azaborines**

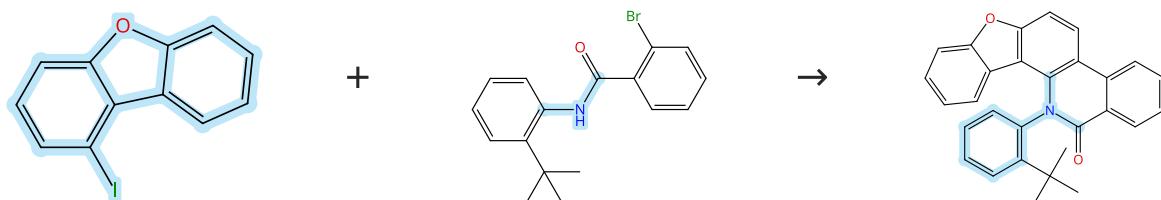
- 1.1 Reagents: Sodium *tert*-butoxide  
 Catalysts: Tris(dibenzylideneacetone)dipalladium, 1'-[Bis(1,1-dimethylethyl)phosphino]-1,2,3,4,5-pentaphenylferrocene  
 Solvents: Toluene; 14 h, 85 °C

Experimental Protocols

By: Lee, Hyelee; et al

Synlett (2023), 34(18), 2169-2174.

Scheme 434 (1 Reaction)



Suppliers (43)

Suppliers (5)

31-614-CAS-41071014

Steps: 1 Yield: 86%

1.1 Reagents: Norbornene, Silver sulfate

Catalysts: Tris(dibenzylideneacetone)dipalladium, (4S,4'S)-4,4',5,5'-Tetrahydro-4,4'-bis(1-methylethyl)-1,1'-bis[3-(trifluoromethyl)phenyl]-2,2'-bi-1*H*-imidazole  
Solvents: Toluene, Water; 36 h, 80 °C

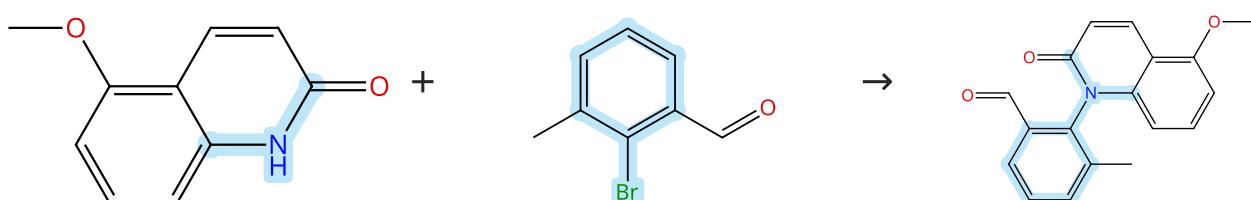
Chiral dinitrogen ligand enabled asymmetric Pd/norbornene cooperative catalysis toward the assembly of C-N axially chiral scaffolds

By: Jin, Liang; et al

Nature Communications (2024), 15(1), 4908.

Experimental Protocols

Scheme 435 (1 Reaction)



Suppliers (59)

Suppliers (65)

31-614-CAS-41335288

Steps: 1 Yield: 86%

1.1 Catalysts: Palladium, tris[μ-[(1,2-η;4,5-η)-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2*R*)-1-[(1*R*)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferrocene  
Solvents: *tert*-Butyl methyl ether; 30 min, rt

Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination

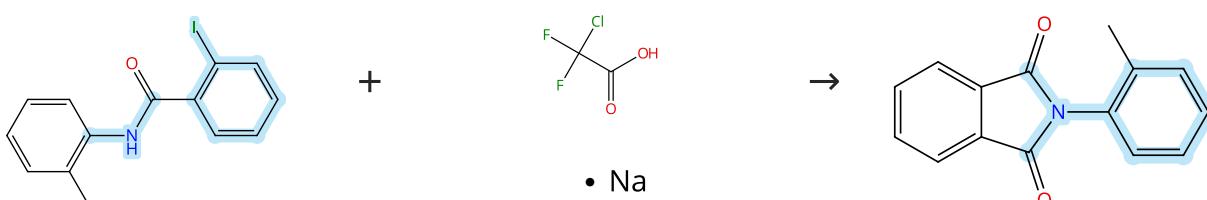
By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

1.2 Reagents: Tripotassium phosphate; 36 h, 90 °C

Experimental Protocols

Scheme 436 (1 Reaction)



Suppliers (14)

Suppliers (88)

Suppliers (24)

31-614-CAS-38558263

Steps: 1 Yield: 86%

1.1 Reagents: Potassium carbonate

Synthesis of N-substituted phthalimides via Pd-catalyzed [4+1] cycloaddition reaction

Catalysts: Palladium diacetate, Bis[2-(diphenylphosphino)phenyl] ether  
Solvents: Dimethylformamide; 5 h, 95 °C

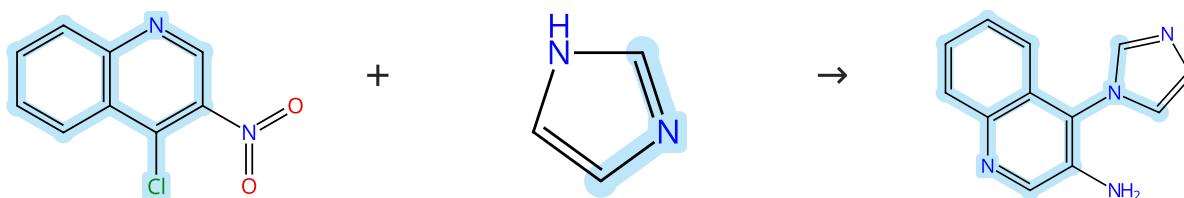
By: Hu, Chengxian; et al

Chemical Communications (Cambridge, United Kingdom) (2023), 59(100), 14839-14842.

Experimental Protocols

Scheme 437 (1 Reaction)

Steps: 1 Yield: 86%



Suppliers (68)

Suppliers (201)

Suppliers (3)

31-614-CAS-42982231

Steps: 1 Yield: 86%

1.1 Reagents: Potassium hydroxide

Solvents: Dimethyl sulfoxide, Water; 4 h, 20 - 30 °C

1.2 Reagents: Hydrogen

Catalysts: Palladium

Solvents: Methanol; 3 h, 20 - 30 °C

Sequential Decarboxylation, Substitution, Cyclization and Oxidation with Iodine-DMSO Catalytic System: A New Methodology for the Construction of Imidazoquinoxaline Motifs

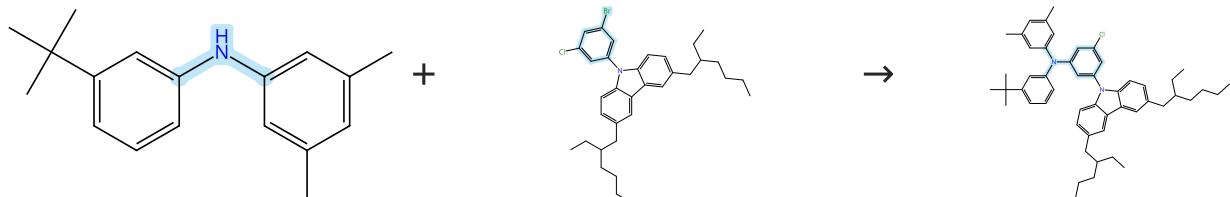
By: Chiranjeevi, Yakkanti; et al

ChemistrySelect (2024), 9(44), e202404332.

Experimental Protocols

Scheme 438 (1 Reaction)

Steps: 1 Yield: 86%



31-614-CAS-38006364

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 2 h, 50 °C

One-Shot Construction of BN-Embedded Heptadecacene Framework Exhibiting Ultra-narrowband Green Thermally Activated Delayed Fluorescence

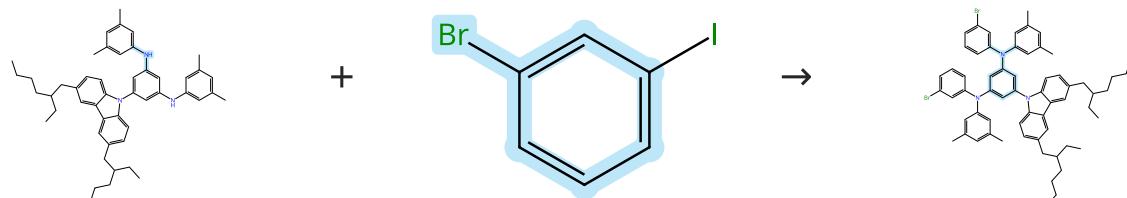
By: Sano, Yusuke; et al

Journal of the American Chemical Society (2023), 145(21), 11504-11511.

Experimental Protocols

Scheme 439 (1 Reaction)

Steps: 1 Yield: 86%



Suppliers (93)

31-614-CAS-38006382

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, 1,1'-(9,9-Dimethyl-9*H*-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]

Solvents: Toluene; 6 h, 70 °C

One-Shot Construction of BN-Embedded Heptadecacene Framework Exhibiting Ultra-narrowband Green Thermally Activated Delayed Fluorescence

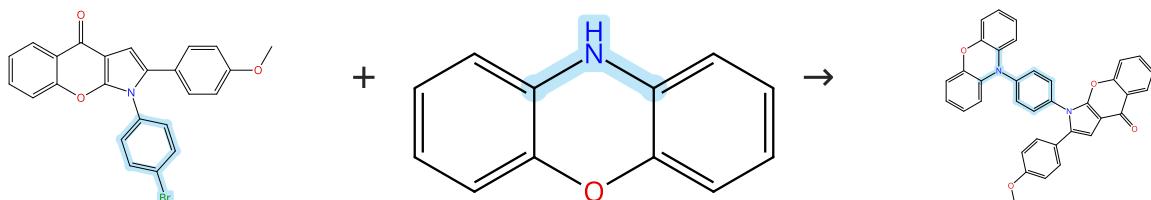
By: Sano, Yusuke; et al

Journal of the American Chemical Society (2023), 145(21), 11504-11511.

Experimental Protocols

Scheme 440 (1 Reaction)

Steps: 1 Yield: 86%



Suppliers (96)

31-614-CAS-37557408

Steps: 1 Yield: 86%

1.1 Reagents: Cesium carbonate, Tri-*tert*-butylphosphonium tetrafluoroborate

Catalysts: Palladium diacetate

Solvents: Toluene; 110 °C

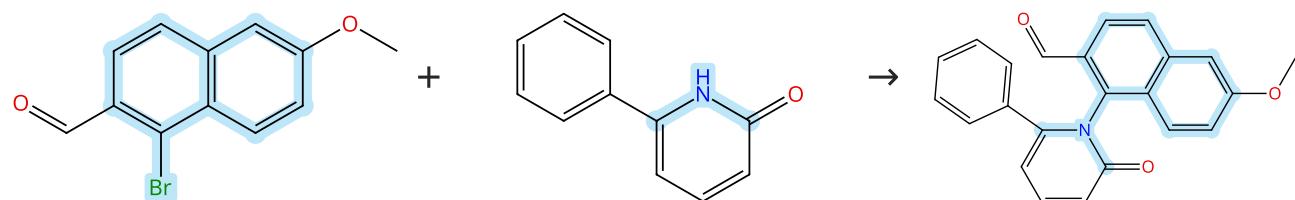
I<sub>2</sub>-DMSO mediated dual α,β-C(sp<sup>2</sup>)-H functionalization/bicyclization of o-hydroxyphenyl enaminones to construct C2,C3-disubstituted chromone derivatives: chromeno[2,3-*b*]pyrrol-4(1*H*)-ones

By: Lei, Shuang-Gui; et al

Organic Chemistry Frontiers (2023), 10(19), 4843-4847.

Scheme 441 (1 Reaction)

Steps: 1 Yield: 86%



Suppliers (4)

Suppliers (65)

31-614-CAS-41335347

Steps: 1 Yield: 86%

1.1 Catalysts: Palladium, tris[μ-[(1,2-η;4,5-η)-(1E,4E)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2*R*)-1-[(1*R*)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferrocene

Solvents: Toluene; 30 min, rt

1.2 Reagents: Cesium carbonate; 36 h, 90 °C

Experimental Protocols

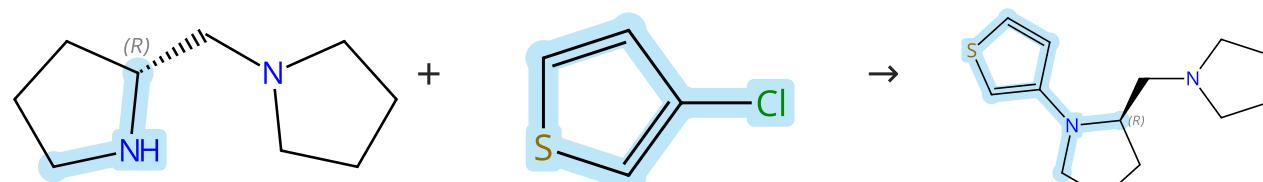
Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

Scheme 442 (1 Reaction)

Steps: 1 Yield: 86%

Absolute stereochemistry shown,  
Rotation (-)

Suppliers (64)

Absolute stereochemistry shown

Suppliers (68)

31-614-CAS-35422524

Steps: 1 Yield: 86%

1.1 **Reagents:** Sodium trimethylsilanolate  
**Solvents:** Tetrahydrofuran; 5 min, rt

1.2 **Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)  
**Solvents:** Tetrahydrofuran; 3 h, 70 °C

Experimental Protocols

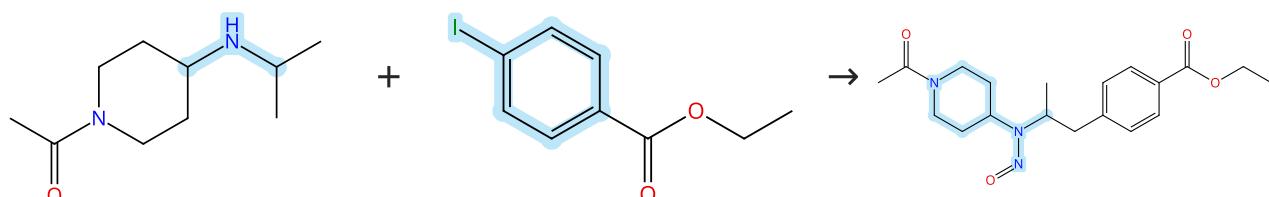
**Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines**

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

**Scheme 443 (1 Reaction)**

Steps: 1 Yield: 86%



Suppliers (34)

Suppliers (85)

31-614-CAS-42625422

Steps: 1 Yield: 86%

1.1 **Reagents:** Isoamyl nitrite; 12 h, 60 °C1.2 **Reagents:** Silver trifluoroacetate

**Catalysts:** Palladium diacetate, Glycine, *N*-(1,6-dihydro-5-nitro-6-oxo-2-pyridinyl)carbonyl]-, methyl ester

**Solvents:** 1,1,1,3,3-Hexafluoro-2-propanol; 24 h, 100 °C

Experimental Protocols

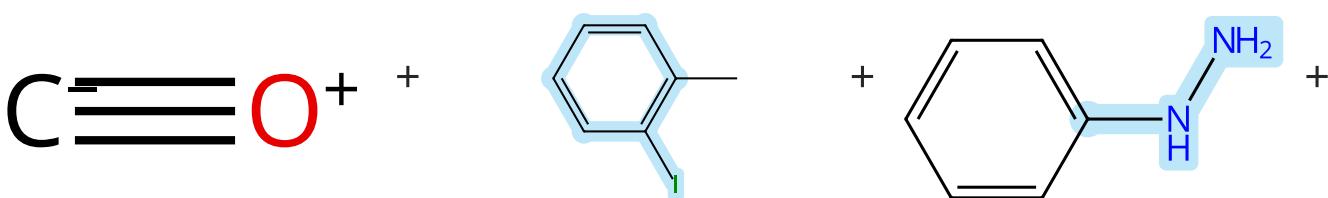
**Efficient Construction of  $\beta$ -Arylethylamines via Selective C(sp<sup>3</sup>)-H Arylation of Aliphatic Amines**

By: Tu, Hua; et al

ACS Catalysis (2024), 14(23), 17535-17546.

**Scheme 444 (1 Reaction)**

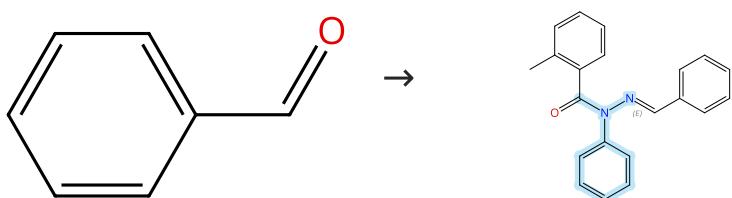
Steps: 1 Yield: 86%



Suppliers (17)

Suppliers (75)

Suppliers (63)



Suppliers (60)

Double bond geometry shown

31-614-CAS-40733464

Steps: 1 Yield: 86%

1.1 **Reagents:** Sodium hydroxide

**Catalysts:** Bis(*tri-tert*-butylphosphine)palladium

**Solvents:** Anisole; 12 h, 4 MPa, 120 °C

Experimental Protocols

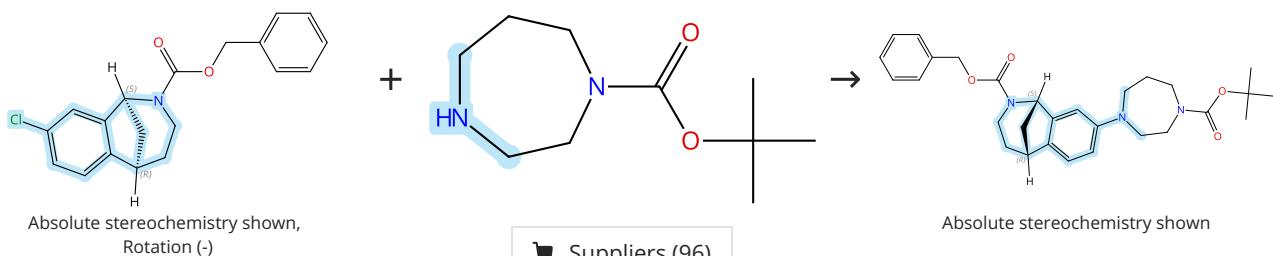
**Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones**

By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

**Scheme 445 (1 Reaction)**

Steps: 1 Yield: 86%



31-614-CAS-41349169

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: Toluene; 4 h, 100 °C

Structure-affinity relationships of stereoisomers of norbenzomorphan-derived  $\sigma_2$ R/TMEM97 modulators

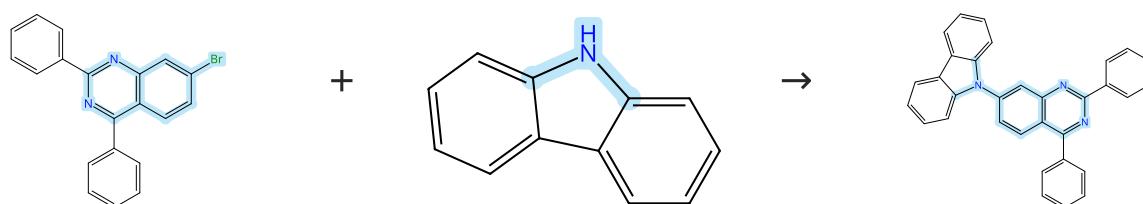
By: Lu, Yan; et al

European Journal of Medicinal Chemistry (2023), 257, 115488.

Experimental Protocols

**Scheme 446 (1 Reaction)**

Steps: 1 Yield: 86%



31-614-CAS-36924725

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

Solvents: Toluene; 15 h, reflux

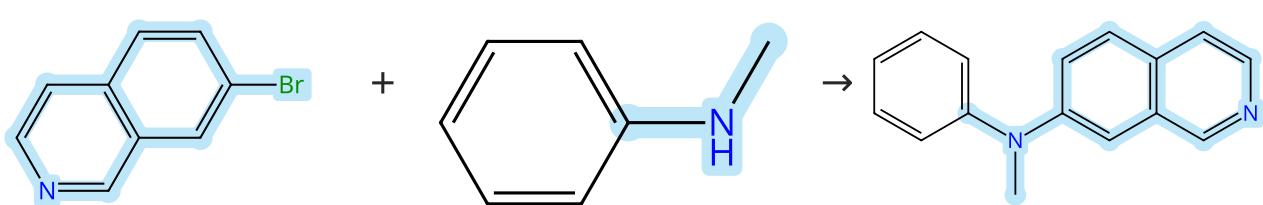
Ortho-Lithiation driven one-pot synthesis of quinazolines via [2 + 2 + 2] cascade annulation of halofluorobenzenes with nitriles

By: Hsueh, Jen-Chun; et al

Organic &amp; Biomolecular Chemistry (2023), 21(25), 5297-5304.

**Scheme 447 (1 Reaction)**

Steps: 1 Yield: 86%



31-614-CAS-43159505

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, 1,1'-(9,9-Dimethyl-9*H*-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]

Solvents: 1,4-Dioxane; rt → 90 °C; 24 h, 90 °C

Ruthenium-Catalyzed Carbocycle-Selective Hydrogenation of Fused Heteroarenes

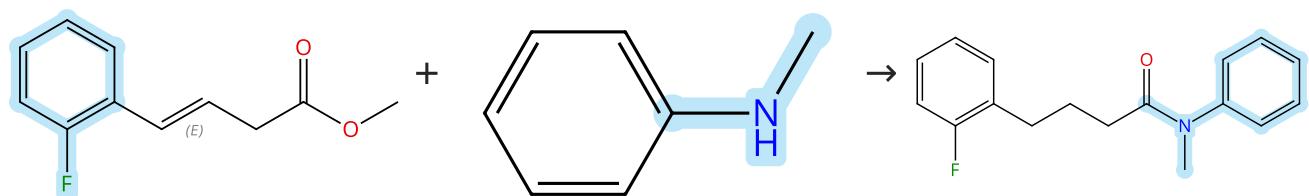
By: Luo, Chenguang; et al

Journal of the American Chemical Society (2024), 146(51), 35043-35056.

Experimental Protocols

**Scheme 448 (1 Reaction)**

Steps: 1 Yield: 86%



Double bond geometry shown

Suppliers (69)

Supplier (1)

**31-614-CAS-39786403**

Steps: 1 Yield: 86%

1.1 Reagents: Hydrogen

Catalysts: Palladium

Solvents: Methanol; overnight, rt

1.2 Reagents: Methylmagnesium bromide

Solvents: Diethyl ether; rt → 0 °C; 0 °C; 0 °C; 0 °C → rt;  
overnight, rt

1.3 Reagents: Hydrochloric acid

Solvents: Water; rt

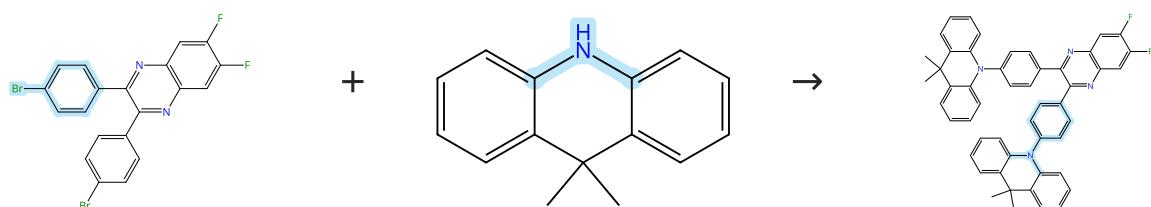
## Experimental Protocols

**Tertiary Amides as Directing Groups for Enantioselective C-H Amination using Ion-Paired Rhodium Complexes**

By: Paterson, Kieran J.; et al

Angewandte Chemie, International Edition (2024), 63(14),  
e202317489.**Scheme 449 (1 Reaction)**

Steps: 1 Yield: 86%



Supplier (3)

Suppliers (68)

**31-614-CAS-43376638**

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

Solvents: Toluene; 30 min, 130 °C

## Experimental Protocols

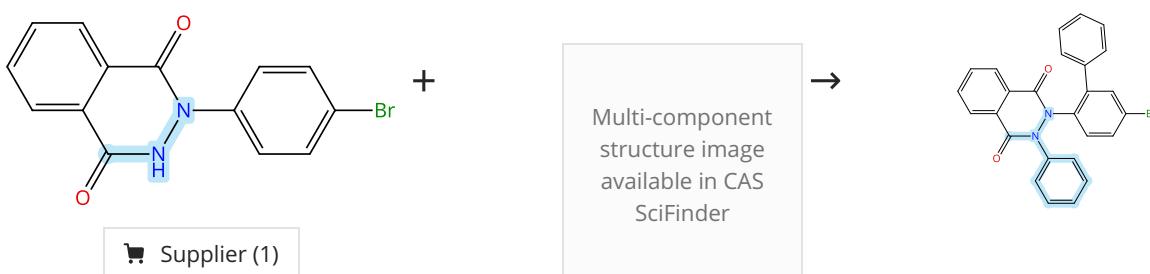
**Microwave-Assisted Buchwald-Hartwig Double Amination: A Rapid and Promising Approach for the Synthesis of TADF Compounds**

By: Mohd Jamel, Nor Shafiq; et al

ACS Omega (2024), 9(51), 50446-50457.

**Scheme 450 (1 Reaction)**

Steps: 1 Yield: 86%



31-614-CAS-36273153

Steps: 1 Yield: 86%

1.1 Reagents: Potassium acetate, Oxygen

Catalysts: Palladium diacetate, X-Phos

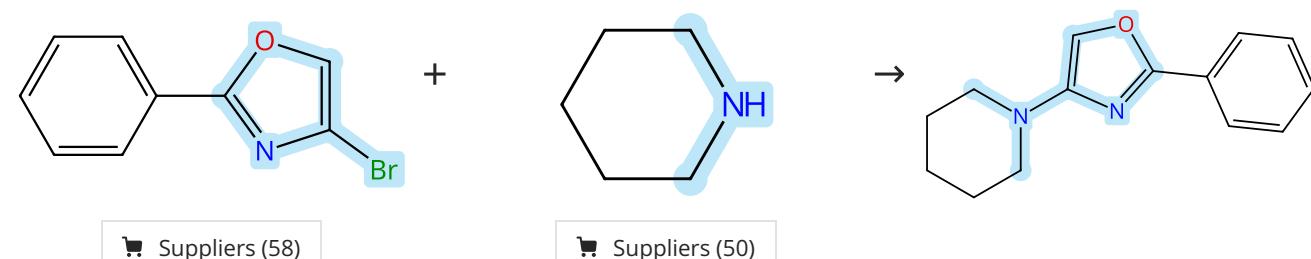
Solvents: Dimethylformamide; 3 h, 1 atm, 130 °C

Palladium-Catalyzed Regioselective C-Arylation and C,N-Diarylation of N-Aryl-2,3-dihydrophthalazine-1,4-diones Using Diaryliodonium Salts

By: Naharwal, Sushma; et al

Synthesis (2023), 55(21), 3515-3525.

## Scheme 451 (1 Reaction)



31-614-CAS-35422580

Steps: 1 Yield: 86%

1.1 Reagents: Sodium trimethylsilanolate

Catalysts: Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-

Solvents: Tetrahydrofuran; rt → 90 °C; 3 h, 90 °C

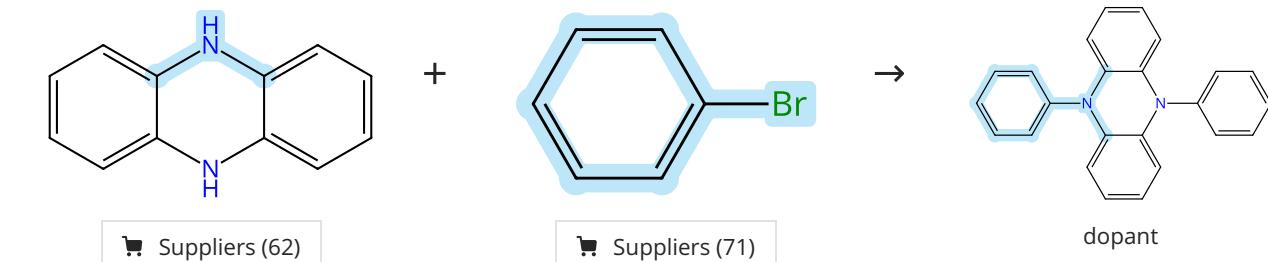
Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteroaryl Halides with Aliphatic Amines

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

## Experimental Protocols

## Scheme 452 (1 Reaction)



31-614-CAS-36834260

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium diacetate, Tri-*tert*-butylphosphine

Solvents: Toluene; 8 h, rt → 115 °C

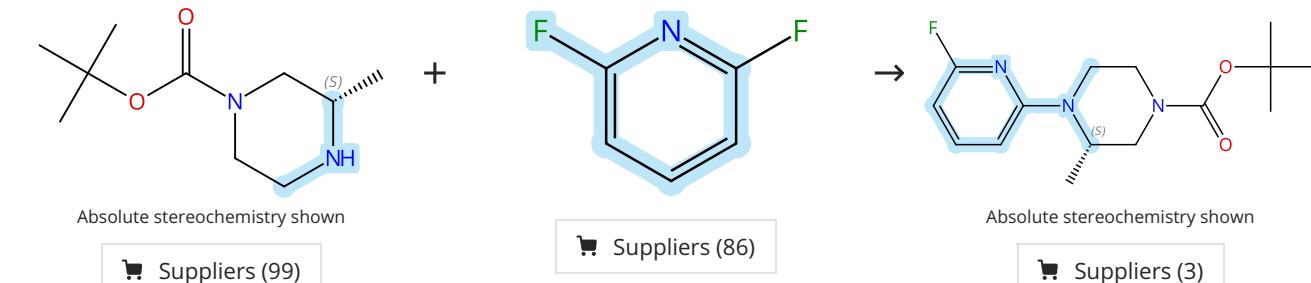
Radical Afterglow Emission Harnessed by Doping N, N'-Diaryl-5,10-Dihydrophenazines to Epoxy Resins

By: Su, Yonghao; et al

Advanced Optical Materials (2023), 11(20), 2300604.

## Experimental Protocols

## Scheme 453 (1 Reaction)



31-614-CAS-44154266

Steps: 1 Yield: 86%

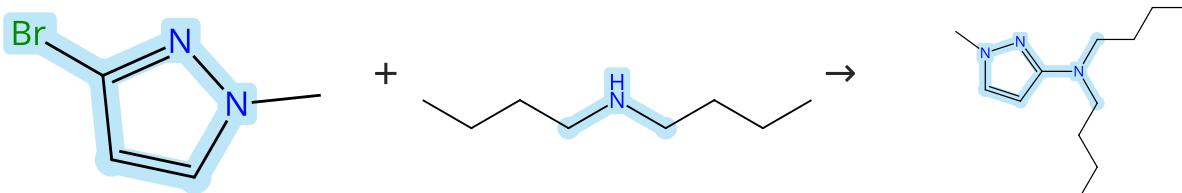
- 1.1 **Reagents:** Lithium bis(trimethylsilyl)amide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 1,1'-(9,9-Dimethyl-9*H*-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]  
**Solvents:** Tetrahydrofuran; 16 h, 90 °C

**Discovery of OICR12694: A Novel, Potent, Selective, and Orally Bioavailable BCL6 BTB Inhibitor**

By: Mamai, Ahmed; et al

ACS Medicinal Chemistry Letters (2023), 14(2), 199-210.

Scheme 454 (1 Reaction)



Suppliers (71)

Suppliers (71)

Steps: 1 Yield: 86%

31-614-CAS-35422518

Steps: 1 Yield: 86%

- 1.1 **Reagents:** Sodium trimethylsilanolate  
**Solvents:** Tetrahydrofuran; 5 min, rt  
 1.2 **Catalysts:** Palladium, bromo[dicyclohexyl[3-(1,1-dimethylethoxy)-6-methoxy-2',6'-bis(1-methylethyl)[1,1'-biphenyl]-2-yl- $\kappa C^1$ ]phosphine- $\kappa P$ ][4-[[2-(trimethylsilyl)ethoxy]carbonyl]phenyl]-, (*SP*-4-2)-  
**Solvents:** Tetrahydrofuran; 3 h, 90 °C

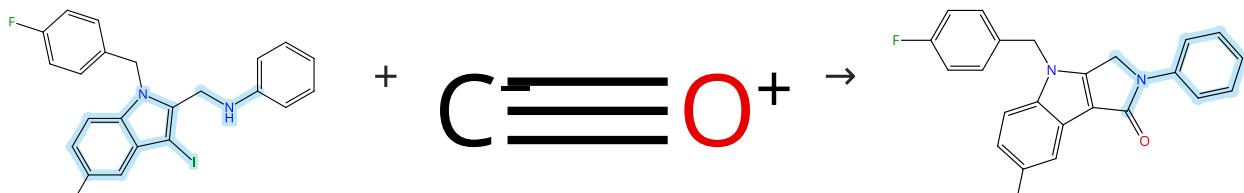
**Pd-Catalyzed Amination of Base-Sensitive Five-Membered Heteraryl Halides with Aliphatic Amines**

By: Reichert, Elaine C.; et al

Journal of the American Chemical Society (2023), 145(6), 3323-3329.

Experimental Protocols

Scheme 455 (1 Reaction)



Suppliers (17)

Steps: 1 Yield: 86%

31-614-CAS-37487005

Steps: 1 Yield: 86%

- 1.1 **Reagents:** Triethylamine  
**Catalysts:** Palladium diacetate, 1,1'-(9,9-Dimethyl-9*H*-xanthene-4,5-diyl)bis[1,1-diphenylphosphine]  
**Solvents:** Toluene  
 1.2 **Reagents:** Formic acid, Triethylamine, Methanesulfonyl chloride; 10 min, rt; rt → 100 °C; 18 h, 100 °C

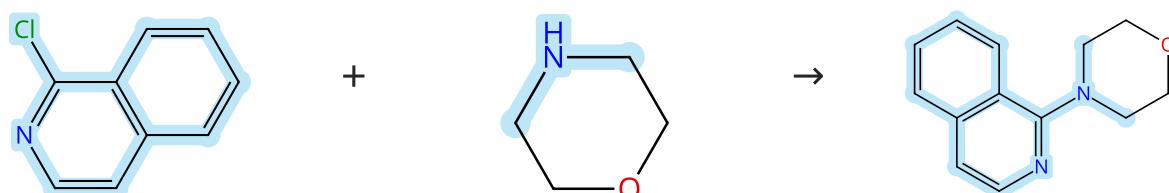
**Accessing Dihydropyrrolo[3,4-*b*]indol-1(2*H*)-ones via Pd-Catalyzed Intramolecular Aminocarbonylative Ring Closure**

By: Alam, Ryan M.; et al

European Journal of Organic Chemistry (2023), 26(34), e202300646.

Experimental Protocols

Scheme 456 (1 Reaction)



Suppliers (96)

Suppliers (83)

Suppliers (7)

Steps: 1 Yield: 86%

31-614-CAS-38030211

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

Experimental Protocols

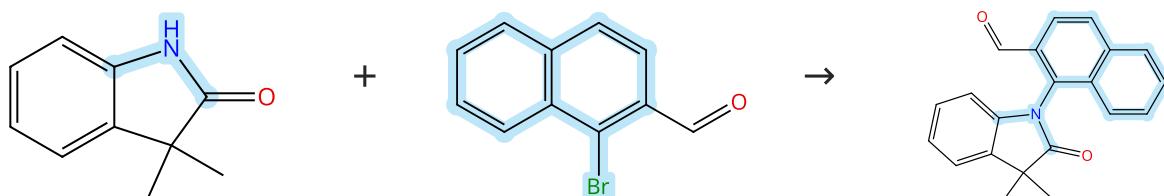
Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2</sup>Pd(cin)Cl at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Scheme 457 (1 Reaction)

Steps: 1 Yield: 86%



Suppliers (68)

Suppliers (71)

31-614-CAS-41335342

Steps: 1 Yield: 86%

1.1 Catalysts: Palladium, tris[ $\mu$ -[(1,2- $\eta$ :4,5- $\eta$ )-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2*R*)-1-[(1*S*)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-[bis[4-(trifluoromethyl)phenyl]phosphino]ferrocene  
Solvents: Toluene; 30 min, rt

1.2 Reagents: Cesium carbonate; 36 h, 90 °C

Experimental Protocols

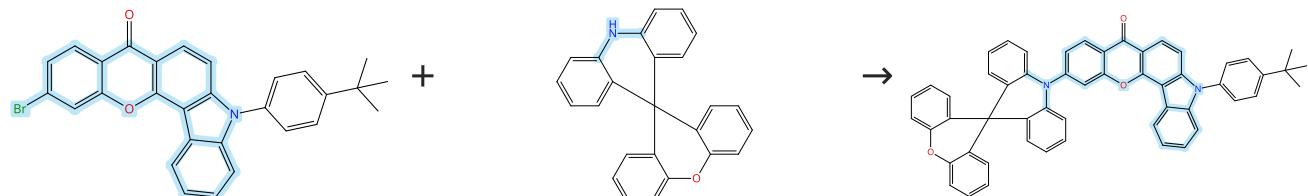
Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination

By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

## Scheme 458 (1 Reaction)

Steps: 1 Yield: 86%



Suppliers (9)

31-614-CAS-36259544

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate  
Solvents: Toluene; 12 h, 120 °C

Experimental Protocols

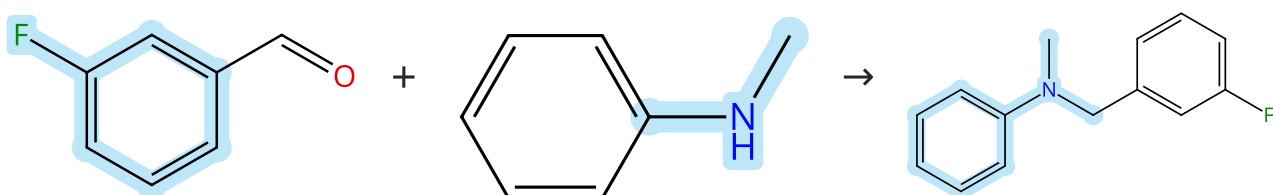
Realizing efficient blue and deep-blue delayed fluorescence materials with record-beating electroluminescence efficiencies of 43.4%

By: Fu, Yan; et al

Nature Communications (2023), 14(1), 2019.

## Scheme 459 (1 Reaction)

Steps: 1 Yield: 86%



Suppliers (81)

Suppliers (69)

Suppliers (4)

31-614-CAS-38715684

Steps: 1 Yield: 86%

1.1 Reagents: Hydrogen

Catalysts: Palladium, Chitosan

Solvents: Toluene; 8 h, 3 MPa, rt → 120 °C

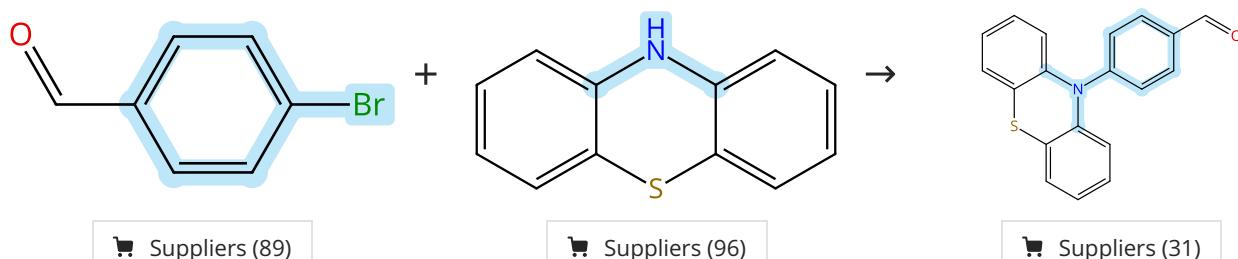
Experimental Protocols

Highly dispersed and stable Pd nano-catalyst loaded on chitosan nanoporous carbon microspheres for one-pot reductive amination of amines with aldehydes

By: Yin, Xiaogang; et al

Applied Surface Science (2024), 648, 159047.

## Scheme 460 (1 Reaction)



31-614-CAS-36312535

Steps: 1 Yield: 86%

1.1 Reagents: Potassium carbonate, Tri-*tert*-butylphosphonium tetrafluoroborate

Catalysts: Palladium diacetate

Solvents: Toluene; 12 h, reflux

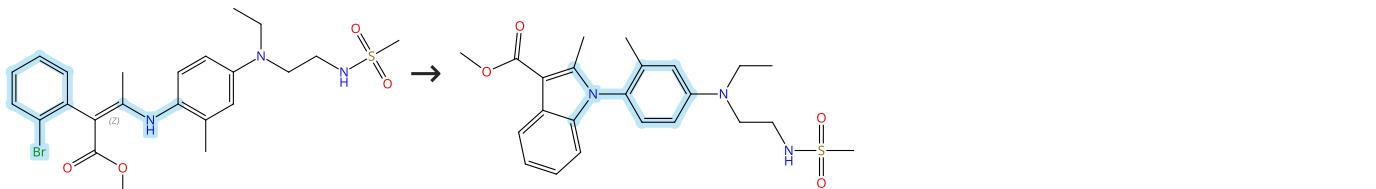
Experimental Protocols

Highly transparent to red/green/blue photo-crosslinkable polymer for patterned electrochromic device

By: Lv, Xiaojing; et al

Journal of Materials Chemistry C: Materials for Optical and Electronic Devices (2023), 11(16), 5490-5497.

## Scheme 461 (1 Reaction)



31-614-CAS-40129225

Steps: 1 Yield: 86%

1.1 Catalysts: Palladium diacetate, (-)-BINAP

Solvents: Toluene; 20 min, rt

1.2 Reagents: Cesium carbonate

Solvents: Toluene; 5 min, rt

1.3 5 min, rt; 18 h, 60 °C

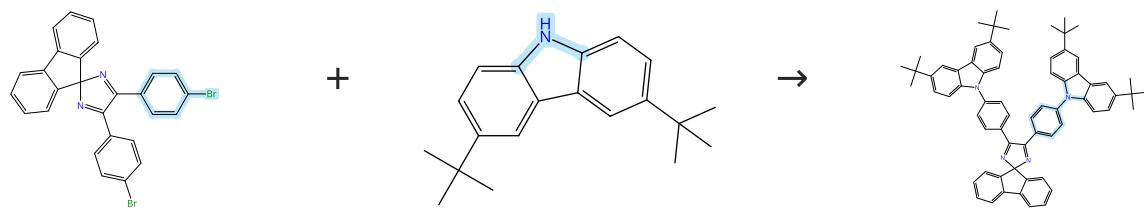
Experimental Protocols

Pd-Catalyzed Asymmetric Amination of Enamines: Expedient Synthesis of Structurally Diverse N-C Atropisomers

By: Zhang, Peng; et al

ACS Catalysis (2023), 13(11), 7680-7690.

## Scheme 462 (1 Reaction)



31-614-CAS-38470383

Steps: 1 Yield: 86%

- 1.1 Reagents: Sodium *tert*-butoxide, Tri-*tert*-butylphosphine  
 Catalysts: Tris(dibenzylideneacetone)dipalladium  
 Solvents: Toluene; overnight, 115 °C

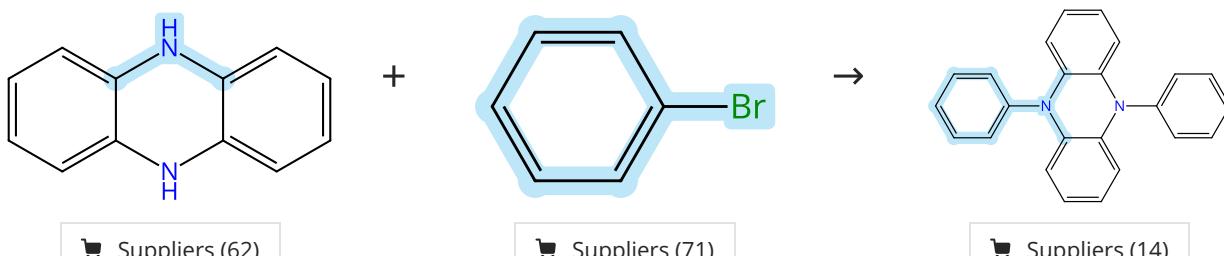
## Experimental Protocols

**A Breakthrough in Solution-Processed Ultra-Deep-Blue HLLCT OLEDs: A Record External Quantum Efficiency Exceeding 10% Based on Novel V-Shaped Emitters**

By: Liao, Chuanxin; et al

Advanced Materials (Weinheim, Germany) (2023), 35(48), 2305310.

Scheme 463 (1 Reaction)



31-614-CAS-41192577

Steps: 1 Yield: 86%

- 1.1 Reagents: Sodium *tert*-butoxide  
 Catalysts: Palladium, tris[ $\mu$ -(1,2- $\eta$ ;4,5- $\eta$ )-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), Tri-*tert*-butylphosphonium tetrafluoroborate  
 Solvents: Toluene; rt → 120 °C; 8 h, 120 °C

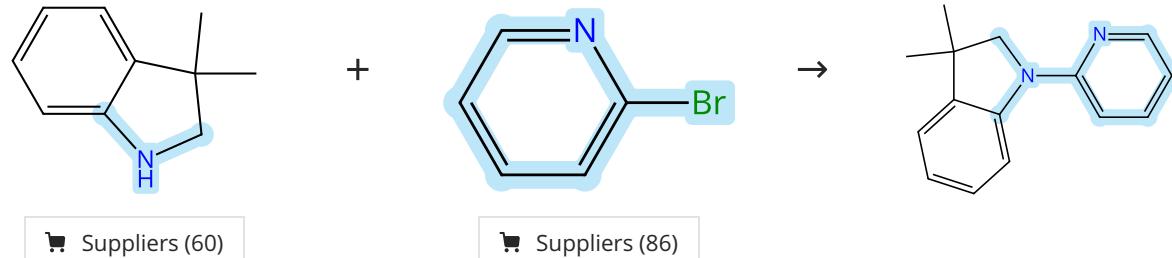
## Experimental Protocols

**Stable aryl-armed dihydrophenazines-based radicals**

By: Liu, Lu; et al

Chemical Engineering Journal (Amsterdam, Netherlands) (2024), 496, 154156.

Scheme 464 (1 Reaction)



31-614-CAS-39567734

Steps: 1 Yield: 86%

- 1.1 Reagents: Potassium *tert*-butoxide  
 Catalysts: Tris(dibenzylideneacetone)dipalladium, 1*H*-Imidazolium, 1,3-bis[2,4,6-tris(diphenylmethyl)phenyl]-, chloride (1:1)  
 Solvents: Toluene; overnight, 100 °C

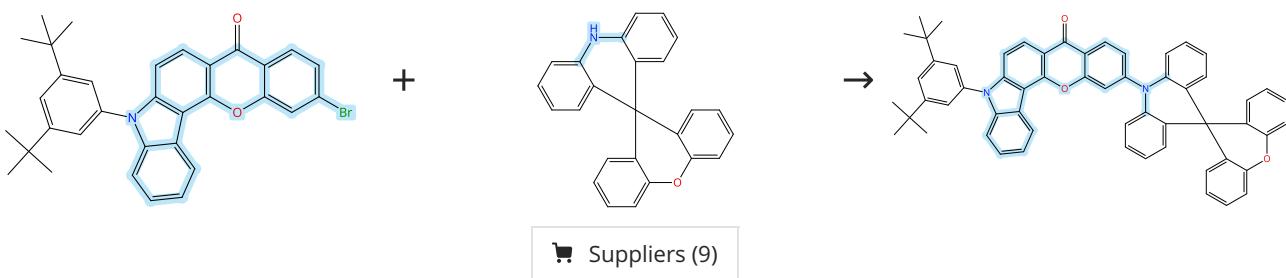
## Experimental Protocols

**Copper-catalyzed direct  $\alpha$ -peroxidation of nitrogen heterocycles**

By: Gerard, Phideline; et al

ARKIVOC (Gainesville, FL, United States) (2024), (5), 202312154.

Scheme 465 (1 Reaction)



31-614-CAS-36259558

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 12 h, 120 °C

Experimental Protocols

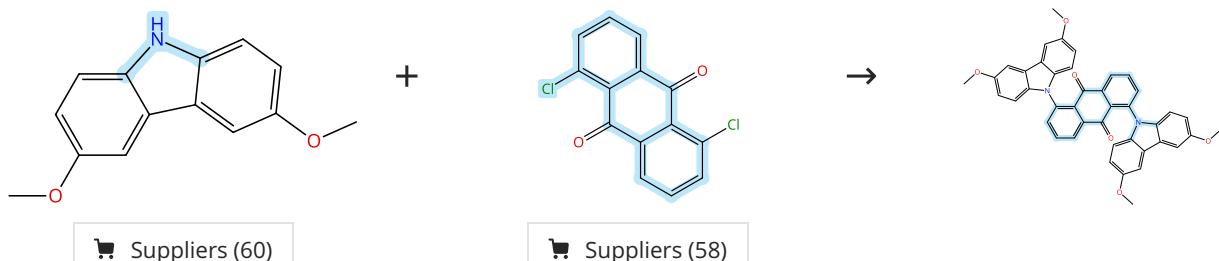
Realizing efficient blue and deep-blue delayed fluorescence materials with record-beating electroluminescence efficiencies of 43.4%

By: Fu, Yan; et al

Nature Communications (2023), 14(1), 2019.

## Scheme 466 (1 Reaction)

Steps: 1 Yield: 86%



31-614-CAS-38100965

Steps: 1 Yield: 86%

1.1 Reagents: Cesium carbonate

Catalysts: 1,1-Bis(diphenylphosphino)ferrocene, Tris(dibenzylideneacetone)dipalladium

Solvents: Toluene; 12 h, 100 °C

Experimental Protocols

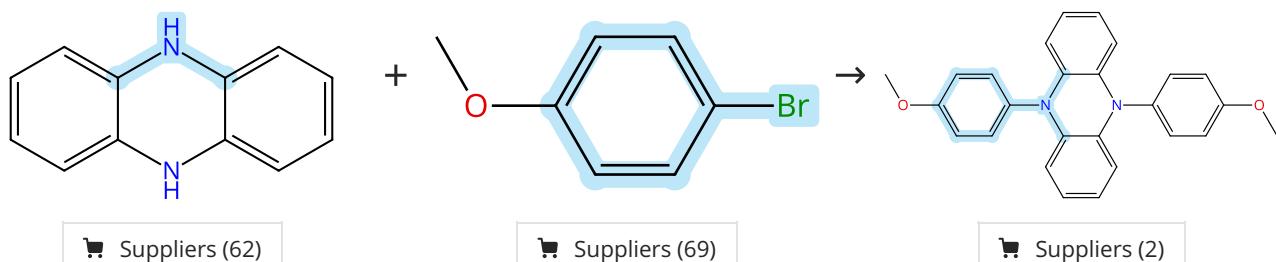
Thermally activated delayed fluorescence and high-contrast mechanochromism of anthrone-based donor-acceptor systems

By: Sudhakar, Pagidi; et al

Frontiers in Chemistry (Lausanne, Switzerland) (2023), 11, 1248267.

## Scheme 467 (1 Reaction)

Steps: 1 Yield: 86%



31-614-CAS-41192574

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Palladium, tris[ $\mu$ -[(1,2- $\eta$ :4,5- $\eta$ )-(1*E*,4*E*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), Tri-*tert*-butylphosphonium tetrafluoroborateSolvents: Toluene; rt  $\rightarrow$  120 °C; 8 h, 120 °C

Experimental Protocols

Stable aryl-armed dihydrophenazines-based radicals

By: Liu, Lu; et al

Chemical Engineering Journal (Amsterdam, Netherlands) (2024), 496, 154156.

## Scheme 468 (1 Reaction)

Steps: 1 Yield: 86%



31-614-CAS-40985633

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine; 12 h, 115 °C

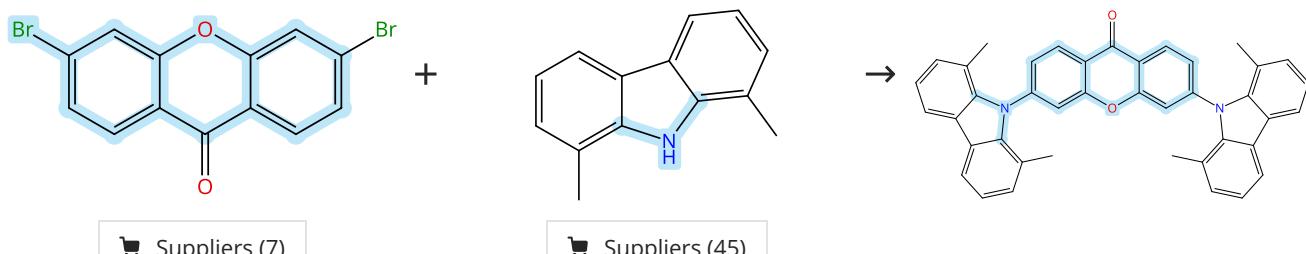
## Experimental Protocols

**Mechanistic Investigation, Wavelength-Dependent Reactivity, and Expanded Reactivity of N-Aryl Azacycle Photomediated Ring Contractions**

By: Kim, Sojung F.; et al

Journal of the American Chemical Society (2024), 146(8), 5580-5596.

Scheme 469 (1 Reaction)



31-614-CAS-36112934

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; 8 h, rt → 120 °C

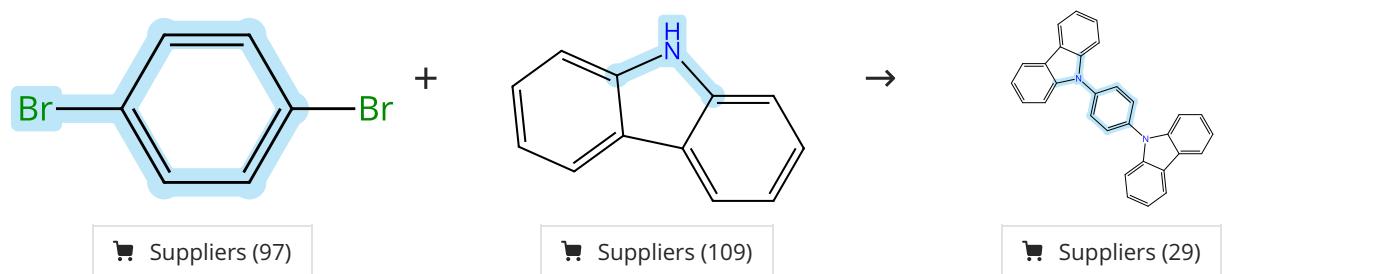
## Experimental Protocols

**Towards efficient blue delayed-fluorescence molecules by modulating torsion angle between electron donor and acceptor**

By: Chen, Jinke; et al

CCS Chemistry (2023), 5(3), 598-606.

Scheme 470 (1 Reaction)



31-614-CAS-43376619

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

Solvents: Toluene; 30 min, 150 °C

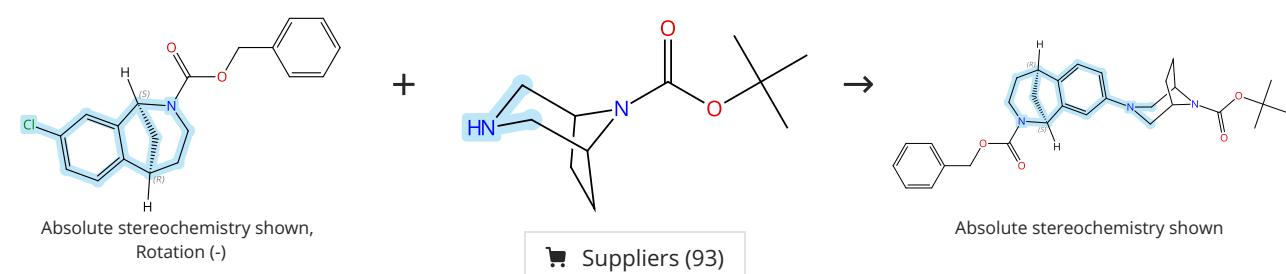
## Experimental Protocols

**Microwave-Assisted Buchwald-Hartwig Double Amination: A Rapid and Promising Approach for the Synthesis of TADF Compounds**

By: Mohd Jamel, Nor Shafiq; et al

ACS Omega (2024), 9(51), 50446-50457.

Scheme 471 (1 Reaction)



31-614-CAS-41349178

Steps: 1 Yield: 86%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: Toluene; 4 h, 100 °C

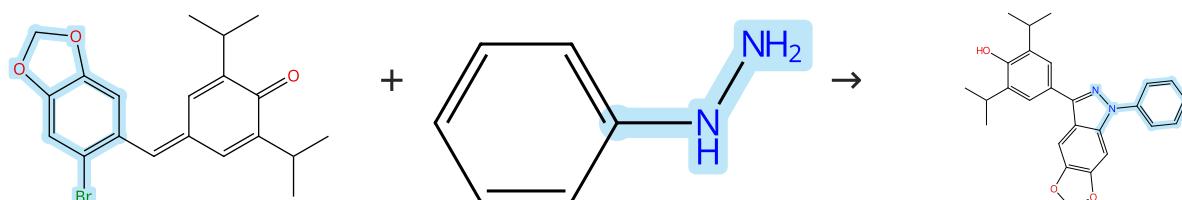
Experimental Protocols

Structure-affinity relationships of stereoisomers of norbenzomorphan-derived  $\sigma_2$ R/TMEM97 modulators

By: Lu, Yan; et al

European Journal of Medicinal Chemistry (2023), 257, 115488.

Scheme 472 (1 Reaction)



Suppliers (63)

31-614-CAS-38947690

Steps: 1 Yield: 85%

1.1 Reagents: Potassium *tert*-butoxide

Catalysts: Palladium diacetate, 1,3-Bis(diphenylphosphino)propane

Solvents: Toluene; 15 h, 110 °C

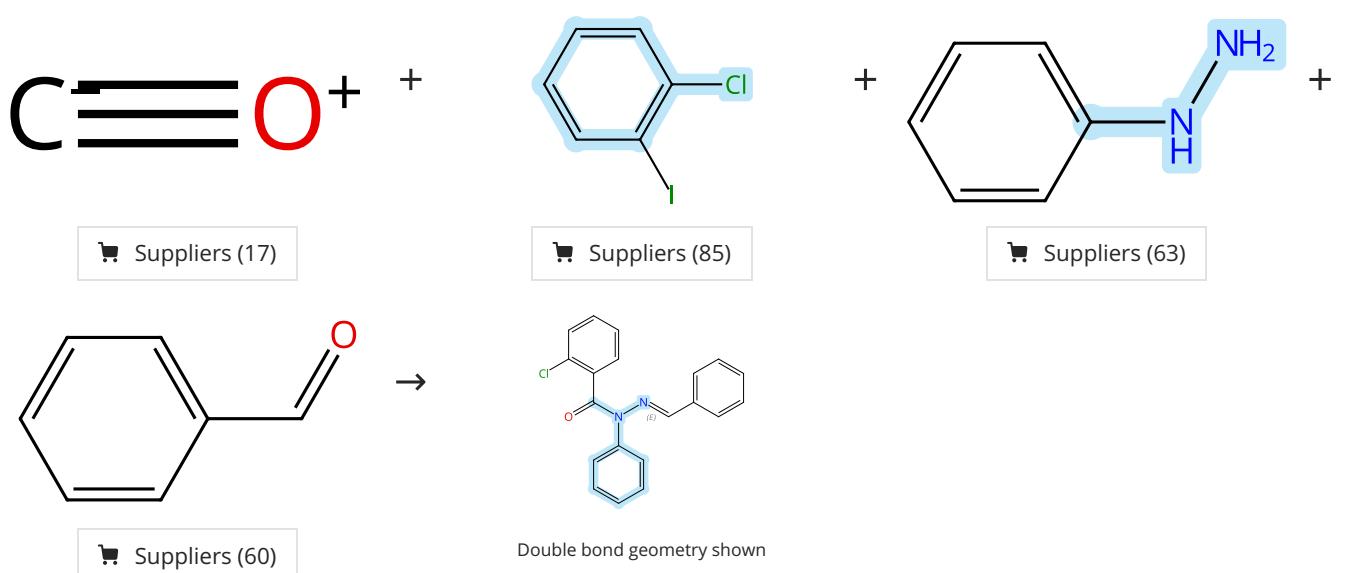
Experimental Protocols

Synthesis and Photophysical Properties of 3-Substituted-1H-Indazoles: A Pd-Catalyzed Double C-N Bond Formation Strategy via 1,6-Conjugate Addition

By: Kayastha, Nasib; et al

Journal of Organic Chemistry (2024), 89(1), 402-413.

Scheme 473 (1 Reaction)



31-614-CAS-40733470

Steps: 1 Yield: 85%

1.1 Reagents: Sodium hydroxide

Catalysts: Bis(*tri-tert*-butylphosphine)palladium

Solvents: Anisole; 12 h, 4 MPa, 120 °C

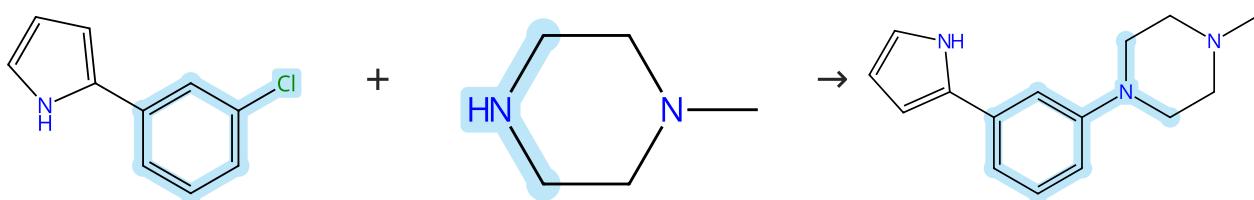
Experimental Protocols

Palladium-Catalyzed Multicomponent Carbonylation of Halides to Acylhydrazones

By: Liang, Qianqian; et al

Journal of Organic Chemistry (2024), 89(12), 8537-8545.

Scheme 474 (1 Reaction)



Suppliers (22)

Suppliers (101)

31-614-CAS-41378276

Steps: 1 Yield: 85%

1.1 Reagents: Lithium bis(trimethylsilyl)amide

Catalysts: Tris(dibenzylideneacetone)dipalladium, 1*H*-Imidazolium, 1,3-bis[2,6-bis(1-methylethyl)phenyl]-, chloride (1:1)

Solvents: Tetrahydrofuran; 2 h, 80 °C

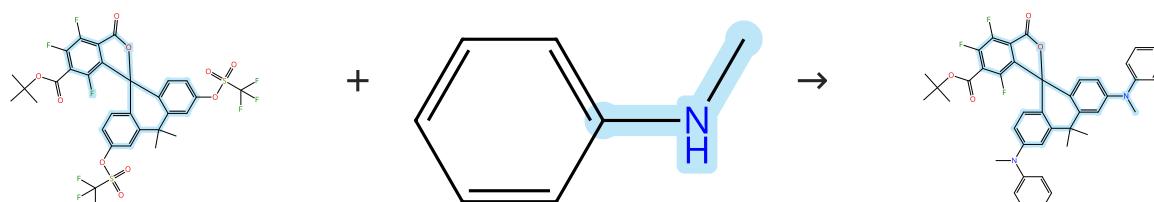
5-HT<sub>6</sub> receptor neutral antagonists protect astrocytes: A lesson from 2-phenylpyrrole derivatives

By: Drop, Marcin; et al

European Journal of Medicinal Chemistry (2024), 275, 116615.

Experimental Protocols

Scheme 475 (1 Reaction)



Suppliers (69)

31-614-CAS-39355812

Steps: 1 Yield: 85%

Optimized Red-Absorbing Dyes for Imaging and Sensing

1.1 Reagents: Cesium carbonate

Catalysts: Tris(dibenzylideneacetone)dipalladium, X-Phos

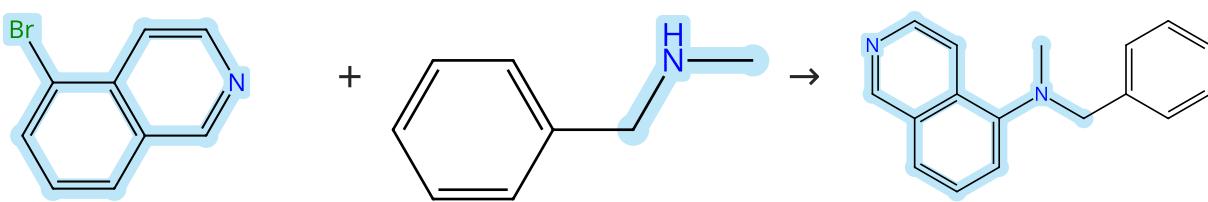
Solvents: 1,4-Dioxane; 4 h, 100 °C

By: Grimm, Jonathan B.; et al

Journal of the American Chemical Society (2023), 145(42), 23000-23013.

Experimental Protocols

Scheme 476 (1 Reaction)



Suppliers (98)

Suppliers (81)

31-614-CAS-43159478

Steps: 1 Yield: 85%

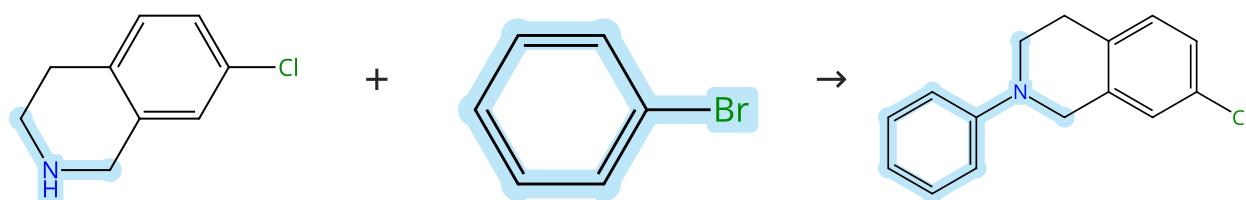
Ruthenium-Catalyzed Carbocycle-Selective Hydrogenation of Fused Heteroarenes

By: Luo, Chenguang; et al

Journal of the American Chemical Society (2024), 146(51), 35043-35056.

Experimental Protocols

Scheme 477 (1 Reaction)



Suppliers (78)

Suppliers (71)

Supplier (1)

31-614-CAS-37741666

Steps: 1 Yield: 85%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl

Solvents: Toluene; 5 min, rt

1.2 3 h, rt → 100 °C; 100 °C → rt

1.3 Reagents: Water; rt

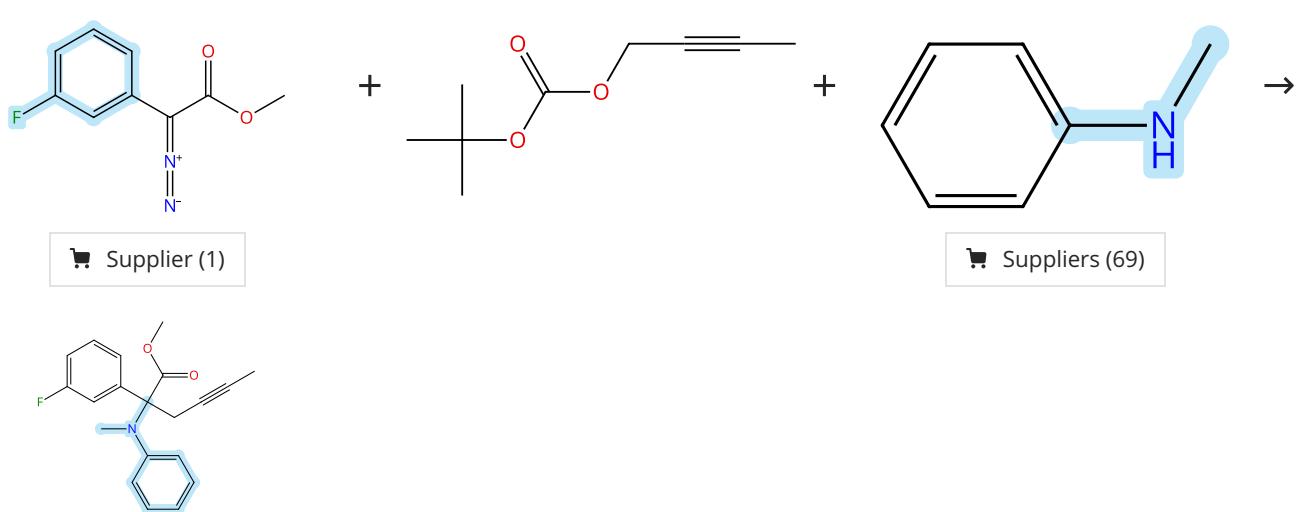
Experimental Protocols

Electrochemically-Driven Organocatalytic Enantioselective Oxidative Coupling of Tetrahydroisoquinolines and Acrylaldehyde

By: Zhang, Qi-Ying; et al

Advanced Synthesis &amp; Catalysis (2023), 365(20), 3455-3460.

Scheme 478 (1 Reaction)



Supplier (1)

Suppliers (69)

31-614-CAS-37847481

Steps: 1 Yield: 85%

Rh(II)/Pd(0) Dual-Catalyzed Regio-Divergent Three-Component Propargylation Substitution

By: Xu, Jie; et al

JACS Au (2023), 3(10), 2862-2872.

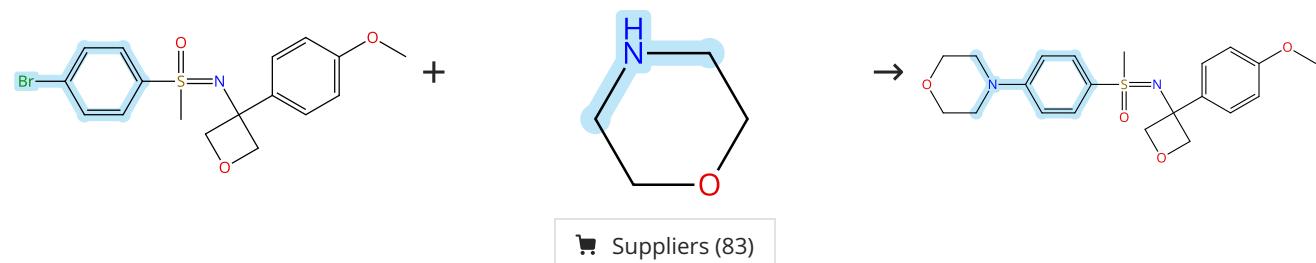
1.1 Reagents: Cesium carbonate

Catalysts: Tris(dibenzylideneacetone)dipalladium, Rhodium, tetrakis[μ-(octanoato-κO:κO')]di-, (*Rh*-*Rh*), [3,6-Dimethoxy-2',4',6'-tris(1-methylethyl)[1,1'-biphenyl]-2-yl]bis(1,1-dimethylphosphine)

Solvents: Acetonitrile; 12 h, 80 °C

Experimental Protocols

Scheme 479 (1 Reaction)



Suppliers (83)

31-614-CAS-42964717

Steps: 1 Yield: 85%

1.1 **Reagents:** Tripotassium phosphate  
**Catalysts:** Palladium diacetate, 2-(Di-*tert*-butylphosphino)biphenyl  
**Solvents:** Tetrahydrofuran; 23 h, 65 °C

Experimental Protocols

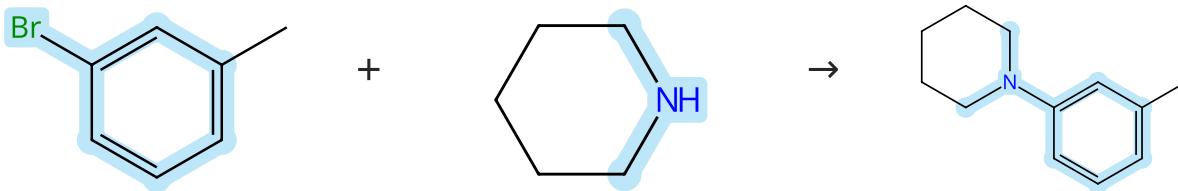
**Harnessing Oxetane and Azetidine Sulfonyl Fluorides for Opportunities in Drug Discovery**

By: Symes, Oliver L.; et al

Journal of the American Chemical Society (2024), 146(51), 35377-35389.

**Scheme 480 (1 Reaction)**

Steps: 1 Yield: 85%



Suppliers (57)

Suppliers (50)

Suppliers (8)

31-614-CAS-40985573

Steps: 1 Yield: 85%

1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine; 12 h, 115 °C

Experimental Protocols

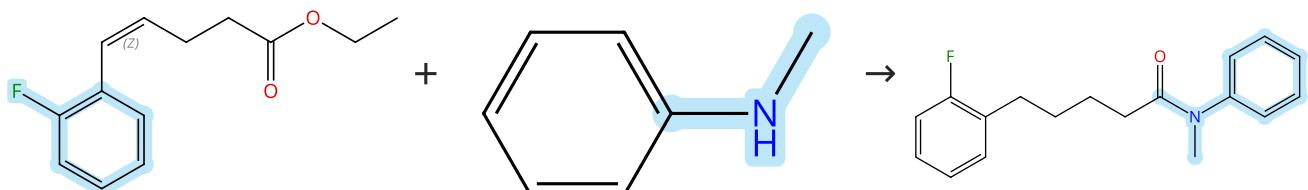
**Mechanistic Investigation, Wavelength-Dependent Reactivity, and Expanded Reactivity of N-Aryl Azacycle Photomediated Ring Contractions**

By: Kim, Sojung F.; et al

Journal of the American Chemical Society (2024), 146(8), 5580-5596.

**Scheme 481 (1 Reaction)**

Steps: 1 Yield: 85%



Double bond geometry shown

Suppliers (69)

31-614-CAS-39786418

Steps: 1 Yield: 85%

1.1 **Reagents:** Hydrogen**Catalysts:** Palladium**Solvents:** Methanol; overnight, rt1.2 **Reagents:** Methylmagnesium bromide**Solvents:** Diethyl ether; rt → 0 °C; 0 °C; 0 °C; 0 °C → rt; overnight, rt1.3 **Reagents:** Hydrochloric acid**Solvents:** Water; rt

Experimental Protocols

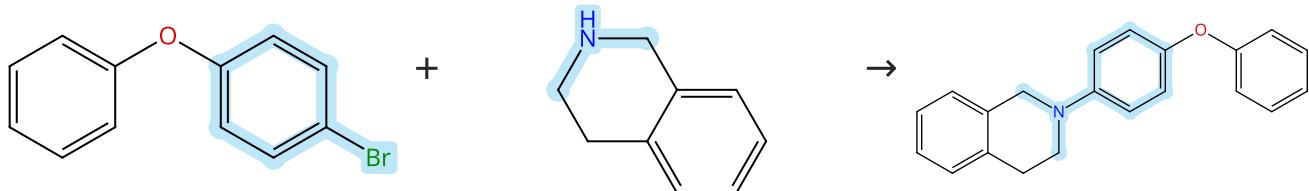
**Tertiary Amides as Directing Groups for Enantioselective C-H Amination using Ion-Paired Rhodium Complexes**

By: Paterson, Kieran J.; et al

Angewandte Chemie, International Edition (2024), 63(14), e202317489.

## Scheme 482 (1 Reaction)

Steps: 1 Yield: 85%



Suppliers (74)

Suppliers (92)

## 31-614-CAS-37741624

Steps: 1 Yield: 85%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl  
**Solvents:** Toluene; 5 min, rt  
 1.2 3 h, rt → 100 °C; 100 °C → rt  
 1.3 **Reagents:** Water; rt

**Electrochemically-Driven Organocatalytic Enantioselective Oxidative Coupling of Tetrahydroisoquinolines and Acrylaldehyde**

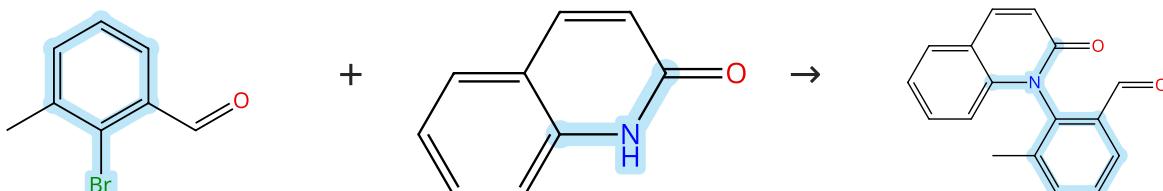
By: Zhang, Qi-Ying; et al

Advanced Synthesis &amp; Catalysis (2023), 365(20), 3455-3460.

## Experimental Protocols

## Scheme 483 (1 Reaction)

Steps: 1 Yield: 85%



Suppliers (65)

Suppliers (83)

## 31-614-CAS-41335283

Steps: 1 Yield: 85%

- 1.1 **Catalysts:** Palladium, tris[ $\mu$ -[(1,2- $\eta$ ;4,5- $\eta$ )-(1*E*,4*D*)-1,5-diphenyl-1,4-pentadien-3-one]]di-, compd. with trichloromethane (1:1), (2*R*)-1-[ $(1R)$ -1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(di-2-furanylphosphino)ferrocene  
**Solvents:** *tert*-Butyl methyl ether; 30 min, rt  
 1.2 **Reagents:** Tripotassium phosphate; 36 h, 90 °C

**Intermolecular Buchwald-Hartwig Reactions for Enantioselective Synthesis of Diverse Atropisomers: Rerouting the C-N Forming Mechanism to Substrate Oxygen-Assisted Reductive Elimination**

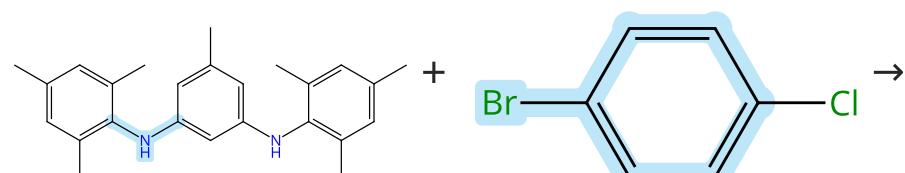
By: Wang, Wei; et al

Journal of the American Chemical Society (2024), 146(24), 16567-16580.

## Experimental Protocols

## Scheme 484 (1 Reaction)

Steps: 1 Yield: 85%



Suppliers (3)

Suppliers (79)

31-614-CAS-41860561

Steps: 1 Yield: 85%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine

Solvents: Toluene; overnight, 110 °C

Experimental Protocols

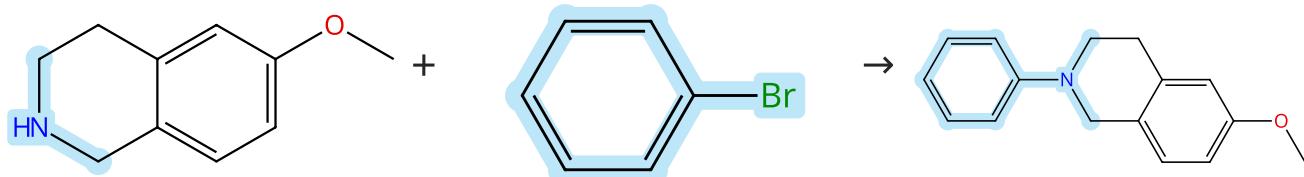
Orienting Group Directed Cascade Borylation for Efficient One-Shot Synthesis of 1,4-BN-Doped Polycyclic Aromatic Hydrocarbons as Narrowband Organic Emitters

By: Wu, Lin; et al

Angewandte Chemie, International Edition (2024), 63(18), e202402020.

Scheme 485 (1 Reaction)

Steps: 1 Yield: 85%



Suppliers (83)

Suppliers (71)

31-614-CAS-37741676

Steps: 1 Yield: 85%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl

Solvents: Toluene; 5 min, rt

1.2 3 h, rt → 100 °C; 100 °C → rt

1.3 Reagents: Water; rt

Experimental Protocols

Electrochemically-Driven Organocatalytic Enantioselective Oxidative Coupling of Tetrahydroisoquinolines and Acrylaldehyde

By: Zhang, Qi-Ying; et al

Advanced Synthesis &amp; Catalysis (2023), 365(20), 3455-3460.

Scheme 486 (1 Reaction)

Steps: 1 Yield: 85%



Suppliers (89)

Suppliers (50)

Suppliers (85)

31-614-CAS-42934082

Steps: 1 Yield: 85%

1.1 Catalysts: Tris(dibenzylideneacetone)dipalladium, BINAP

Solvents: Toluene; 1 h

1.2 Reagents: Sodium *tert*-butoxide; 15 h, 100 °C

Experimental Protocols

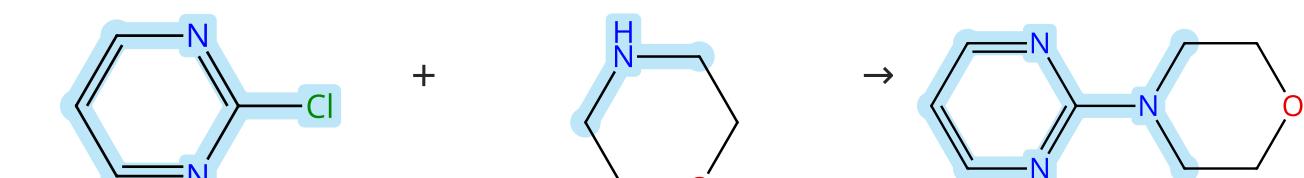
Copper(I)-Catalyzed  $\alpha,\beta$ -Dehydrogenative [2 + 3] Heteroannulation of Saturated Amines with Diazirin dinone via Hydrogen Atom Transfer

By: Du, Zihang; et al

ACS Catalysis (2024), 14(23), 18107-18115.

Scheme 487 (1 Reaction)

Steps: 1 Yield: 85%



Suppliers (87)

Suppliers (83)

Suppliers (48)

31-614-CAS-38030215

Steps: 1 Yield: 85%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Stereoisomer of [(4*S*,5*S*)-1,3-bis[2,6-bis(1-methyl ethyl)phenyl]-4,5-diphenyl-2-imidazolidinylidene]chloro[(1,2,3- $\eta$ )-1-phenyl-2-propen-1-yl]palladium; 4 h, 25 °C

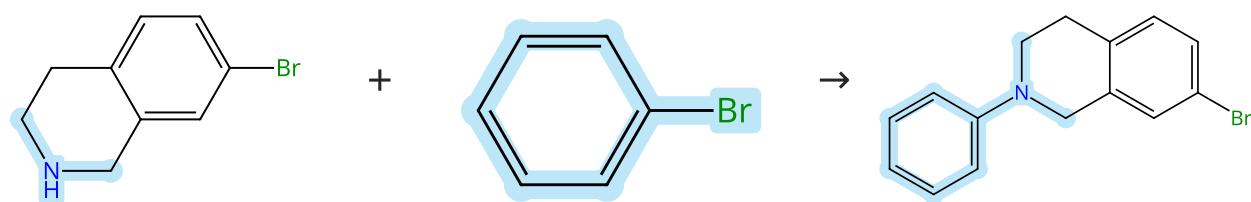
Experimental Protocols

Solvent-Free Buchwald-Hartwig Amination of Heteroaryl Chlorides by N-Heterocyclic Carbene-Palladium Complex (SI Pr)<sup>Ph2Pd(cin)Cl</sup> at Room Temperature

By: Ouyang, Jia-Sheng; et al

Organic Letters (2023), 25(41), 7491-7496.

## Scheme 488 (1 Reaction)



31-614-CAS-37741667

Steps: 1 Yield: 85%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl

Solvents: Toluene; 5 min, rt

1.2 3 h, rt → 100 °C; 100 °C → rt

1.3 Reagents: Water; rt

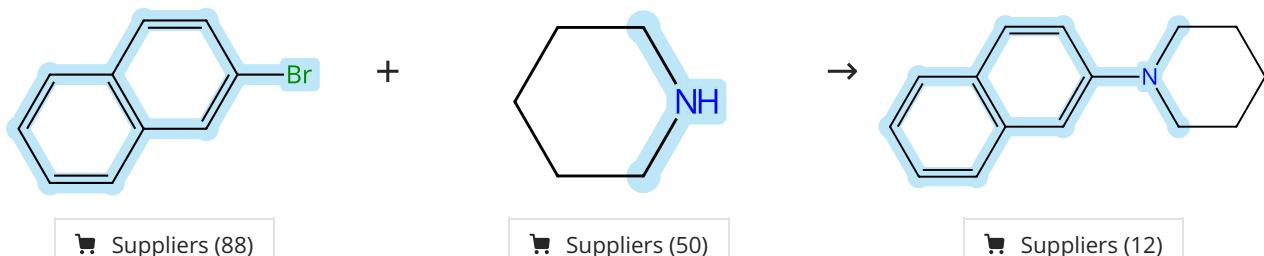
Experimental Protocols

Electrochemically-Driven Organocatalytic Enantioselective Oxidative Coupling of Tetrahydroisoquinolines and Acrylaldehyde

By: Zhang, Qi-Ying; et al

Advanced Synthesis &amp; Catalysis (2023), 365(20), 3455-3460.

## Scheme 489 (1 Reaction)



31-614-CAS-40985575

Steps: 1 Yield: 85%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Palladium diacetate, [2',6'-Bis(1-methylethoxy)[1,1'-biphenyl]-2-yl]dicyclohexylphosphine; 12 h, 115 °C

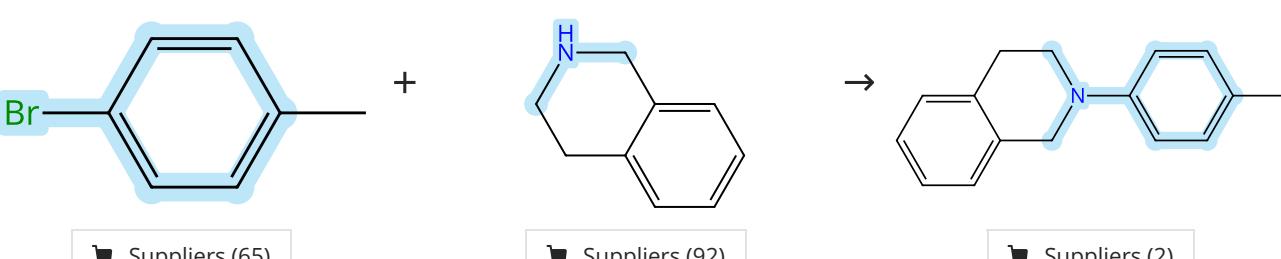
Experimental Protocols

Mechanistic Investigation, Wavelength-Dependent Reactivity, and Expanded Reactivity of N-Aryl Azacycle Photomediated Ring Contractions

By: Kim, Sojung F.; et al

Journal of the American Chemical Society (2024), 146(8), 5580-5596.

## Scheme 490 (1 Reaction)



31-614-CAS-37741640

Steps: 1 Yield: 85%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl

Solvents: Toluene; 5 min, rt

1.2 3 h, rt → 100 °C; 100 °C → rt

1.3 Reagents: Water; rt

Experimental Protocols

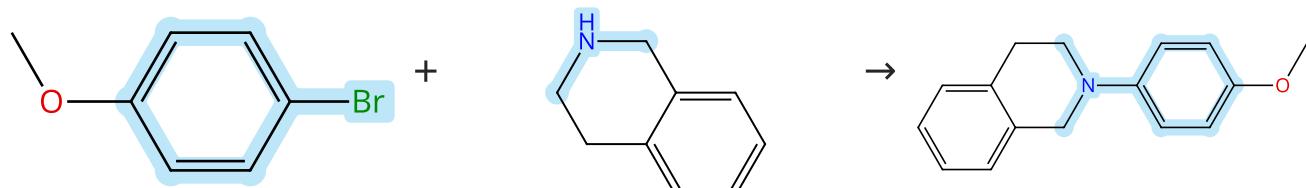
**Electrochemically-Driven Organocatalytic Enantioselective Oxidative Coupling of Tetrahydroisoquinolines and Acrylaldehyde**

By: Zhang, Qi-Ying; et al

Advanced Synthesis &amp; Catalysis (2023), 365(20), 3455-3460.

**Scheme 491 (1 Reaction)**

Steps: 1 Yield: 85%



Suppliers (69)

Suppliers (92)

Suppliers (32)

31-614-CAS-37741632

Steps: 1 Yield: 85%

1.1 Reagents: Sodium *tert*-butoxide

Catalysts: Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl

Solvents: Toluene; 5 min, rt

1.2 3 h, rt → 100 °C; 100 °C → rt

1.3 Reagents: Water; rt

Experimental Protocols

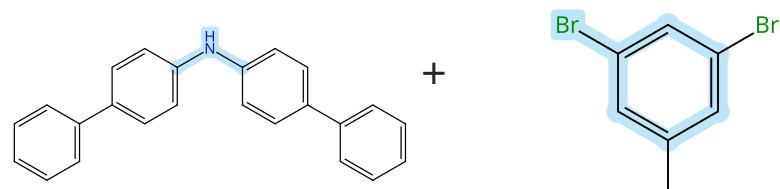
**Electrochemically-Driven Organocatalytic Enantioselective Oxidative Coupling of Tetrahydroisoquinolines and Acrylaldehyde**

By: Zhang, Qi-Ying; et al

Advanced Synthesis &amp; Catalysis (2023), 365(20), 3455-3460.

**Scheme 492 (1 Reaction)**

Steps: 1 Yield: 85%



Suppliers (82)

Suppliers (81)

31-614-CAS-41860520

Steps: 1 Yield: 85%

1.1 Reagents: Sodium *tert*-butoxideCatalysts: Tris(dibenzylideneacetone)dipalladium, Tri-*tert*-butylphosphonium tetrafluoroborate

Solvents: Toluene; overnight, 110 °C

Experimental Protocols

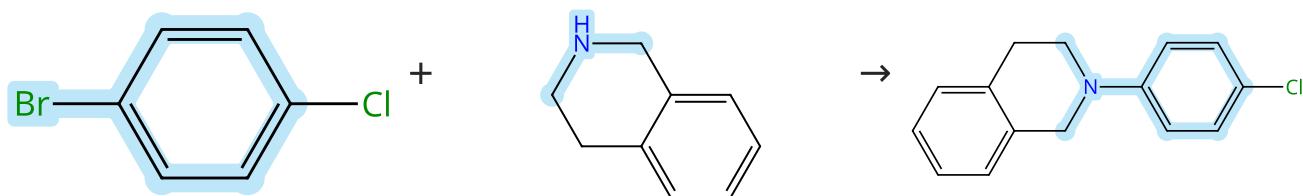
**Orienting Group Directed Cascade Borylation for Efficient One-Shot Synthesis of 1,4-BN-Doped Polycyclic Aromatic Hydrocarbons as Narrowband Organic Emitters**

By: Wu, Lin; et al

Angewandte Chemie, International Edition (2024), 63(18), e202402020.

Scheme 493 (1 Reaction)

Steps: 1 Yield: 85%



Suppliers (79)

Suppliers (92)

Suppliers (29)

31-614-CAS-37741660

Steps: 1 Yield: 85%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl  
**Solvents:** Toluene; 5 min, rt  
 1.2 3 h, rt → 100 °C; 100 °C → rt  
 1.3 **Reagents:** Water; rt

**Electrochemically-Driven Organocatalytic Enantioselective Oxidative Coupling of Tetrahydroisoquinolines and Acrylaldehyde**

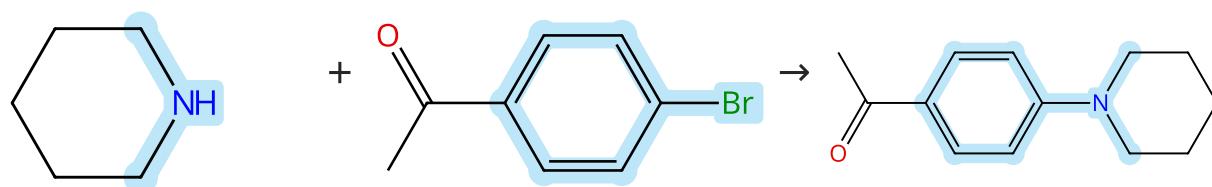
By: Zhang, Qi-Ying; et al

Advanced Synthesis &amp; Catalysis (2023), 365(20), 3455-3460.

Experimental Protocols

Scheme 494 (1 Reaction)

Steps: 1 Yield: 85%



Suppliers (50)

Suppliers (80)

Suppliers (63)

31-614-CAS-42934085

Steps: 1 Yield: 85%

- 1.1 **Catalysts:** Tris(dibenzylideneacetone)dipalladium, BINAP  
**Solvents:** Toluene; 1 h  
 1.2 **Reagents:** Sodium *tert*-butoxide; 15 h, 100 °C

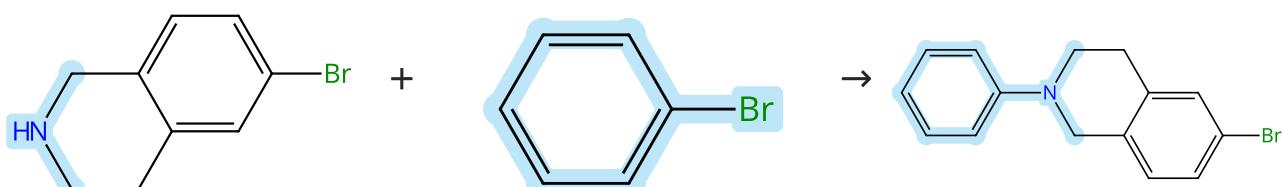
**Copper(I)-Catalyzed  $\alpha,\beta$ -Dehydrogenative [2 + 3] Heteroannulation of Saturated Amines with Diazirine dinone via Hydrogen Atom Transfer**

By: Du, Zihang; et al

ACS Catalysis (2024), 14(23), 18107-18115.

Scheme 495 (1 Reaction)

Steps: 1 Yield: 85%



Suppliers (84)

Suppliers (71)

31-614-CAS-37741654

Steps: 1 Yield: 85%

- 1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl  
**Solvents:** Toluene; 5 min, rt  
 1.2 3 h, rt → 100 °C; 100 °C → rt  
 1.3 **Reagents:** Water; rt

**Electrochemically-Driven Organocatalytic Enantioselective Oxidative Coupling of Tetrahydroisoquinolines and Acrylaldehyde**

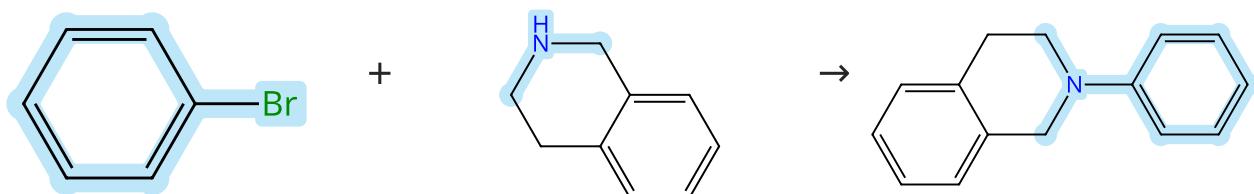
By: Zhang, Qi-Ying; et al

Advanced Synthesis &amp; Catalysis (2023), 365(20), 3455-3460.

Experimental Protocols

Scheme 496 (1 Reaction)

Steps: 1 Yield: 85%



Suppliers (71)

Suppliers (92)

Suppliers (51)

31-614-CAS-37741630

Steps: 1 Yield: 85%

1.1 **Reagents:** Sodium *tert*-butoxide  
**Catalysts:** Tris(dibenzylideneacetone)dipalladium, 2-Dicyclohexylphosphino-2',6'-dimethoxybiphenyl  
**Solvents:** Toluene; 5 min, rt

1.2 3 h, rt → 100 °C; 100 °C → rt

1.3 **Reagents:** Water; rt

Experimental Protocols

**Electrochemically-Driven Organocatalytic Enantioselective Oxidative Coupling of Tetrahydroisoquinolines and Acrylaldehyde**

By: Zhang, Qi-Ying; et al

Advanced Synthesis &amp; Catalysis (2023), 365(20), 3455-3460.

Copyright © 2025 American Chemical Society (ACS). All Rights Reserved.

Internal use only. Redistribution is subject to the terms of your CAS SciFinder License Agreement and CAS information Use Policies.