CAS SciFinder

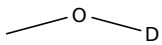
# Task History

## Initiating Search

February 21, 2025, 9:12 PM

Substances:

Filtered By:




Structure Match: **Substructure**

## Search Tasks

| Task | Search Type | View |
|---|---|---|
| Returned Substance Results + Filters (12,935) | Substances | View Results |
| Exported: Retrieved Related Reaction Results + Filters (403) | Reactions | View Results |

Filtered By:

Substance Role: **Reactant, Reagent, Solvent**

Catalyst: [(1,2,5,6-η)-1,5-Cyclooctadiene][(1*S*)-7'-(diphenylphosphino-κ*P*)-2,2',3,3'-tetrahydro-1,1'-spirobi[1*H*-indene]-7-carboxylato-κ*O*]iridium, [(1,2,5,6-η)-1,5-Cyclooctadiene][*N*-[(4,6-dimethoxy-2,3-dimethyl-1*H*-indol-7-yl-κ*N*)methylene]benzenaminato-κ*N*]iridium, (1,3-Dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]bis(2,2,2-trifluoroacetato-κ*O*)iridium, (1,3-Dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl][sulfato(2-)-κ*O*,κ*O*']iridium, (1,3-Dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)bis(nitrato-κ*O*)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium, [1,3-Dihydro-1-(phenylmethyl)-3-(2,4,6-trimethylphenyl)-2*H*-imidazol-2-ylidene]diiodo[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium, (1-Butyl-1,3-dihydro-3-methyl-2*H*-imidazol-2-ylidene)chloro[(1,2,5,6-η)-1,5-cyclooctadiene]iridium, [2-[[(1,1-Dimethylethyl)amino]carbonyl-κ*O*]-5-methoxyphenyl-κ*C*][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl](2,2,2-trifluoroacetato-κ*O*)iridium, Bis[(1,2,5,6-η)-1,5-

cyclooctadiene]di-μ-methoxydiiridium, Chloro[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl][2-(2-pyridinyl-κ*N*)phenyl-κ*C*]iridium, Chloro[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl][*N*-(8-quinolinyl-κ*N*)acetamidato-κ*N*]iridium, Chloro[(1,2,5,6-η)-1,5-cyclooctadiene][1,3-dihydro-1,3-bis[2,4,6-tri(methyl-$d_3$)phenyl-*3,5*-$d_2$]-2*H*-imidazol-2-ylidene]iridium, Chloro(1,5-cyclooctadiene)(1,3-dihydro-1,3-dimesityl-2*H*-imidazol-2-ylidene)iridium, Chloro[*N*-[4-(dimethylamino)phenyl]-2-pyridinecarboxamidato-κ$N^1$,κ$N^2$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium, Dichloro[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl][1,2,3-tris(1,1-dimethylethyl)-4-phenyl-1,3,2-diazagermetium-2-yl]iridium, Dichloro(1,3-dibutyl-1,3-dihydro-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium, Dichloro(1,3-dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium, Dichloro[1,3-dihydro-1-(phenylmethyl)-3-(2,4,6-trimethylphenyl)-2*H*-imidazol-2-ylidene][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium, Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene]diiridium, Di-μ-chlorobis[(5,6,11,12-η)-dibenzo[*a,e*]cyclooctene]diiridium, Di-μ-chlorodichlorobis[(1,2,5,6-η)-1,5-cyclooctadiene]diiridium, *fac*-Tris(2-(2-pyridinyl)phenyl)iridium, Iridate(1-), [[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$]hydroxy[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, sodium (1:1), Iridium, Iridium(1+), [1-[2-(2-benzoxazolyl-κ$N^3$)phenyl]-1,3-dihydro-3-methyl-2*H*-benzimidazol-2-ylidene-κ*C*]chloro[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, hexafluorophosphate(1-) (1:1), Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene][1-[[2-(diphenylphosphino-κ*P*)phenyl]methyl]-1,3-dihydro-3-phenyl-2*H*-imidazol-2-ylidene-κ*C*]-, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate(1-) (1:1), Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1), Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene][(α*R*,β*R*)-β-(diphenylphosphino-κ*P*)-*N*,α-dimethylbenzeneethanamine-κ*N*]-, tetrafluoroborate(1-), Iridium(1+), [2-[(1*S*)-7'-[bis[3,5-bis(1,1-dimethylethyl)phenyl]phosphino-κ*P*]-2,2',3,3'-tetrahydro-1,1'-spirobi[1*H*-inden]-7-yl]-4,5-dihydrooxazole-κ$N^3$][(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate(1-) (1:1), Iridium(1+), (2,2'-bipyridine-κ$N^1$,κ$N^{1'}$)bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), Iridium(1+), (2,2'-

bipyridine-κ*N*$^{1}$,κ*N*$^{1'}$)bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), Iridium(1+), [μ-[3,5-bis[(diphenylphosphino-κ*P*)methyl]-1*H*-pyrazolato-κ*N*$^{1}$:*N*$^{2}$]]bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-, tetrafluoroborate(1-), Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ*N*$^{1}$,κ*N*$^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ*N*$^{1}$,κ*N*$^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ*N*$^{1}$,κ*N*$^{1'}$]bis[5-fluoro-2-(5-methyl-2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), Iridium(1+), [(4*S*)-2-[(1*S*)-7'-[bis[3,5-bis(1,1-dimethylethyl)phenyl]phosphino-κ*P*]-2,2',3,3'-tetrahydro-1,1'-spirobi[1*H*-inden]-7-yl]-4,5-dihydro-4-methyloxazole-κ*N*$^{3}$][(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate(1-) (1:1), Iridium(1+), [(4*S*)-2-[(1*S*)-7'-[bis(3,5-dimethylphenyl)phosphino-κ*P*]-2,2',3,3'-tetrahydro-1,1'-spirobi[1*H*-inden]-7-yl]-4,5-dihydro-4-(1-naphthalenylmethyl)oxazole-κ*N*$^{3}$][(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate(1-) (1:1), Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κ*N*$^{1}$,κ*N*$^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1), Iridium(1+), [6-(1*H*-benzimidazol-2-yl-κ*N*$^{3}$)-2-pyridinol-κ*N*$^{1}$]chloro[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1), Iridium(1+), (acetonitrile-*2*,*2*,*2*-$d_3$)chloro(1,3-dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, 1,1,1-trifluoromethanesulfonate (1:1), Iridium(1+), aquacarbonylmethyl(trifluoromethanesulfonato-κ*O*)bis(triphenylphosphine)-, 1,1,1-trifluoromethanesulfonate (1:1), Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrafluoroborate(1-) (1:1), Iridium(1+), bis[3,5-difluoro-2-(2-pyridinyl-κ*N*)phenyl-κ*C*](1,10-phenanthroline-κ*N*$^{1}$,κ*N*$^{10}$)-, (*OC*-6-13)-, hexafluorophosphate(1-) (1:1), Iridium(1+), carbonyltris(1,3-dihydro-1,3-dimethyl-2*H*-benzimidazol-2-ylidene)-, (*SP*-4-2)-, tetrafluoroborate(1-) (1:1), Iridium(1+), chloro(1,10-phenanthroline-κ*N*$^{1}$,κ*N*$^{10}$)[(1,2,3,4,5-η)-1,2,3,4-tetramethyl-5-phenyl-2,4-cyclopentadien-1-yl]-, hexafluorophosphate(1-) (1:1), Iridium(1+), chloro[6-[6-(1,1-dimethylethyl)-1*H*-benzimidazol-2-yl-κ*N*$^{3}$]-2-pyridinol-κ*N*$^{1}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1), Iridium(1+), dicarbonyl[1,1'-methylenebis[1*H*-pyrazole-κ*N*$^{2}$]]-, (*SP*-4-2)-, tetraphenylborate(1-) (1:1), Iridium(1+), dicarbonylbis[1,3-dihydro-1-(4-methoxyphenyl)-3-methyl-2*H*-imidazol-2-ylidene]-, (*SP*-4-2)-,

tetrafluoroborate(1-) (1:1), Iridium(1+), hydro(methan-$d_3$-ol-*d*)[2-[(phenylimino-κ*N*)methyl]phenyl-κ*C*]bis(triphenylphosphine)-, (*OC*-6-14)-, hexafluorophosphate(1-) (1:1), Iridium(1+), hydro(pyridine)[tris[1-(diphenylphosphino-κ*P*)-3-methyl-1*H*-indol-2-yl]methyl-κ*C*]-, (*OC*-6-41)-, tetrafluoroborate(1-) (1:1), Iridium(2+), [μ-([2,2'-bipyrimidine]-4,4',6,6'-tetrol-κ$N^1$,κ$N^{1'}$:κ$N^3$,κ$N^{3'}$)]dichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, chloride (1:2), Iridium(2+), aqua(1,10-phenanthroline-κ$N^1$,κ$N^{10}$)[(1,2,3,4,5-η)-1,2,3,4-tetramethyl-5-phenyl-2,4-cyclopentadien-1-yl]-, hexafluorophosphate(1-) (1:2), Iridium(2+), aqua[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl](1,10-phenanthroline-κ$N^1$,κ$N^{10}$)-, hexafluorophosphate(1-) (1:2), Iridium(2+), bis(acetonitrile)(1,3-dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, 1,1,1-trifluoromethanesulfonate (1:2), Iridium(2+), diaqua(1,3-dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, 1,1,1-trifluoromethanesulfonate (1:2), Iridium(2+), di-μ-chlorobis(1,3-dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)bis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, stereoisomer, 1,1,1-trifluoromethanesulfonate (1:2), Iridium, [9-[[bis(1,1-dimethylethyl)phosphino-κ*P*]oxy]benzo[*h*]quinolin-10-yl-κ*C*,κ*N*]chlorohydro-, (*SP*-5-54)-, Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, Iridium, bromodicarbonyl[1-(1,1-dimethylethyl)-1,3-dihydro-3-[[6-(methoxymethyl)-2-pyridinyl]methyl]-2*H*-imidazol-2-ylidene]-, (*SP*-4-2)-, Iridium, chloro[(3-methyl-1*H*-imidazol-1-yl-2(3*H*)-ylidene)methylene-1,2-phenylene][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, Iridium, chloro[*N*-(2-methoxyphenyl)-2-pyridinecarboxamidato-κ$N^1$,κ$N^2$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Iridium, iodo[(3-methyl-1*H*-imidazol-1-yl-2(3*H*)-ylidene)methylene-1,2-phenylene][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, [*N*-[(1*S*,2*S*)-2-(Amino-κ*N*)-1,2-diphenylethyl]methanesulfonamidato(2-)-κ*N*][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium, (*OC*-6-22)-Tris[5-fluoro-2-(2-pyridinyl-κ*N*)phenyl-κ*C*]iridium, Sodium(1+), (1,4,7,10,13,16-hexaoxacyclooctadecane-κ$O^1$,κ$O^4$,κ$O^7$,κ$O^{10}$,κ$O^{13}$,κ$O^{16}$)-, (*OC*-6-11)-, (*OC*-6-11)-hexachloroiridate(2-), hydrate (2:1:3), Stereoisomer of [(1,2,5,6-η)-1,5-cyclooctadiene][(2*S*)-2-[[(11b*R*)-dinaphtho[2,1-*d*:1',2'-*f*][1,3,2]dioxaphosphepin-4-yl-κ*P*][(1*R*)-1-

| | |
|---|---|
| | phenylethyl]amino]-2-phenylethyl-κ*C*](η$^2$-ethene)iridium, (*TB*-5-13)-[*rel*-(11*R*,12*R*)-1,8-Bis(diphenylphosphino-κ*P*)-9,10-dihydro-11,12-bis(hydroxymethyl)-9,10-ethanoanthracen-9-yl-κ*C*]chlorohydroiridium, Tris[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]iridium |
| Document Type: | Journal |
| Language: | English |

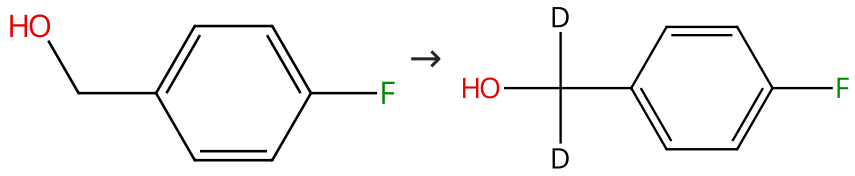
CAS SciFinder

## Reactions (128)

View in CAS SciFinder

**Scheme 1** (1 Reaction)

Steps: **1** Yield: **100%**




Suppliers (80)

Supplier (1)

**31-614-CAS-33408359**

Steps: **1** Yield: **100%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$, Sodium hydroxide-$d$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 7 h, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

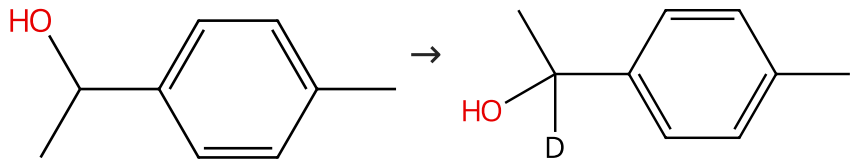
**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 2** (1 Reaction)

Steps: **1** Yield: **100%**




Suppliers (73)

Supplier (1)

**31-614-CAS-33408362**

Steps: **1** Yield: **100%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 21 h, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

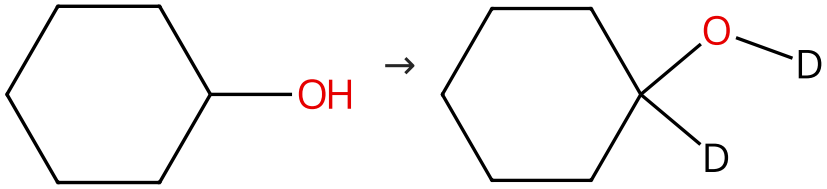
**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 3** (1 Reaction)

Steps: **1** Yield: **99%**




Suppliers (83)

31-614-CAS-33408360 Steps: **1** Yield: **99%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 2 d, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

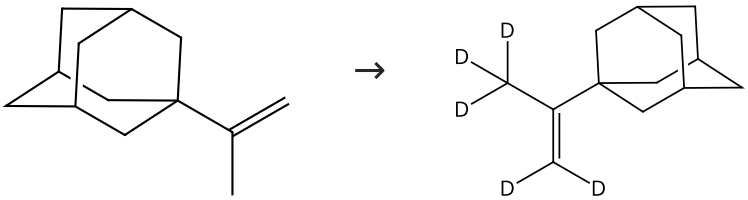
Experimental Protocols

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 4** (1 Reaction) Steps: **1** Yield: **99%**




Suppliers (11)

31-614-CAS-37018490 Steps: **1** Yield: **99%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, (*SP*-4-2)-[[2,2'-[(1*S*,2*S*)-1,2-Cyclohexanediylbis[(nitrilo-κ*N*)methylidyne]]bis[4,6-bis(1,1-dimethylethyl)phenolato-κ*O*]](2-)]cobalt, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Acetonitrile; 5 h, rt

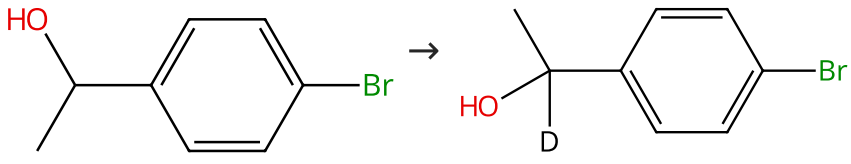
Experimental Protocols

**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 5** (1 Reaction) Steps: **1** Yield: **98%**




Suppliers (75)

Supplier (1)

31-614-CAS-33408371 Steps: **1** Yield: **98%**

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

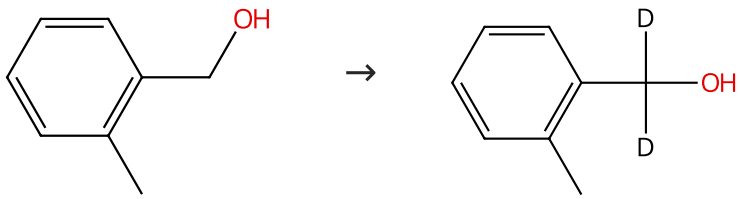
Chemical Science (2022), 13(30), 8744-8751.

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato (2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 21 h, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

**Scheme 6** (1 Reaction) Steps: **1** Yield: **98%**




Suppliers (85) Supplier (1)

31-614-CAS-33408350 Steps: **1** Yield: **98%**

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

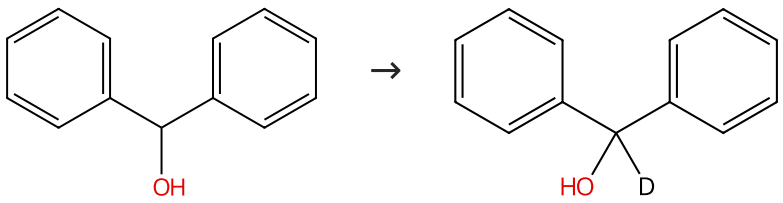
Chemical Science (2022), 13(30), 8744-8751.

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$, Sodium hydroxide-*d*
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato (2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 3 d, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

**Scheme 7** (1 Reaction) Steps: **1** Yield: **98%**




Suppliers (104) Supplier (1)

31-614-CAS-33408367 Steps: **1** Yield: **98%**

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

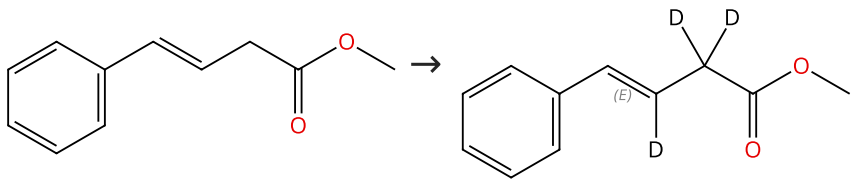
1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato (2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 2 d, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

**Scheme 8** (1 Reaction)

Steps: **1** Yield: **97%**




Suppliers (8)

Double bond geometry shown

**31-614-CAS-37018565**

Steps: **1** Yield: **97%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ*N*$^1$,κ*N*$^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ*N*)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ*N*$^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

Experimental Protocols

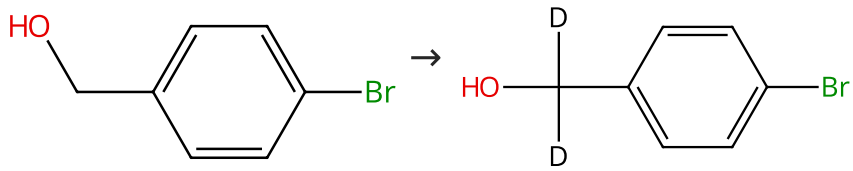
**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 9** (1 Reaction)

Steps: **1** Yield: **97%**




Suppliers (93)

Suppliers (5)

**31-614-CAS-33408357**

Steps: **1** Yield: **97%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$, Sodium hydroxide-*d*
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ*N*$^1$,κ*N*$^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 3 h, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 10** (1 Reaction)

Steps: **1** Yield: **96%**


Suppliers (19)

31-614-CAS-37018557 Steps: **1** Yield: **96%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ$N$)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ$N^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

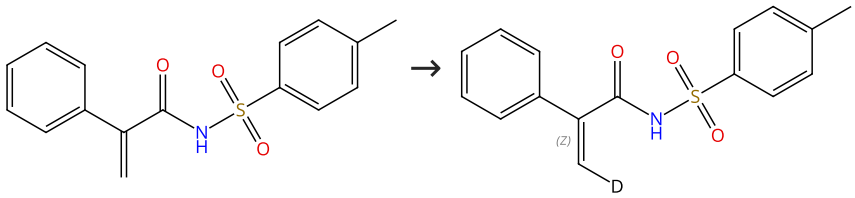
Experimental Protocols

**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 11** (1 Reaction) Steps: **1** Yield: **95%**



Double bond geometry shown

31-116-CAS-20391658 Steps: **1** Yield: **95%**

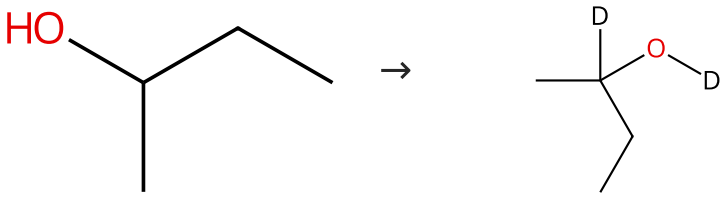
1.1 **Catalysts:** Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene]diiridium
**Solvents:** Methanol-$d_4$; 1.5 h, 70 °C

**Additive- and Ligand-Free Cross-Coupling Reactions between Alkenes and Alkynes by Iridium Catalysis**

By: Sun, Yaling; et al

Organic Letters (2019), 21(12), 4868-4872.

**Scheme 12** (1 Reaction) Steps: **1** Yield: **94%**



Suppliers (90)

31-614-CAS-33408363 Steps: **1** Yield: **94%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 5 d, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

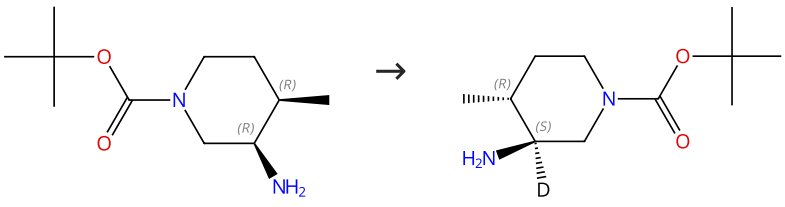
Experimental Protocols

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 13** (1 Reaction) Steps: **1** Yield: **93%**



Absolute stereochemistry shown

Relative stereochemistry shown

Suppliers (43)

31-614-CAS-40739758 Steps: **1** Yield: **93%**

1.1 **Reagents:** Methanol-$d_4$, Triisopropylsilanethiol
**Catalysts:** Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1); 40 h, rt

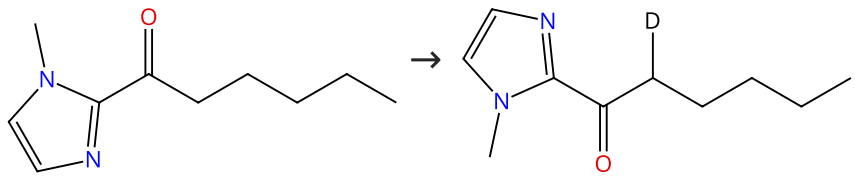
Experimental Protocols

**Visible-Light-Mediated, Diastereoselective Epimerization of Exocyclic Amines**

By: Vargas-Rivera, Maria A.; et al

Organic Letters (2023), 25(51), 9197-9201.

**Scheme 14** (1 Reaction) Steps: **1** Yield: **93%**




Suppliers (4)

31-116-CAS-23813551 Steps: **1** Yield: **93%**

1.1 **Reagents:** 3-Phenyl-1,4,2-dioxazol-5-one, 2-Propan-*2*-*d*-ol-*d*, 1,1,1,3,3,3-hexafluoro-
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-; 3 h, 70 °C

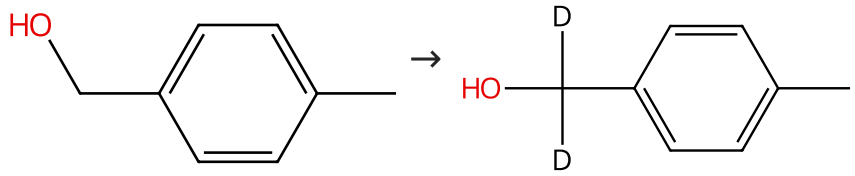
Experimental Protocols

**Iridium(III)-Catalyzed Direct Intermolecular Chemoselective α-Amidation of Masked Aliphatic Carboxylic Acids with Dioxazolones via Nitrene Transfer**

By: Mahato, Sanjit K.; et al

ACS Catalysis (2021), 11(12), 7126-7131.

**Scheme 15** (1 Reaction) Steps: **1** Yield: **92%**




Suppliers (90) Supplier (1)

31-614-CAS-33408356 Steps: **1** Yield: **92%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$, Sodium hydroxide-*d*
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 7 h, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

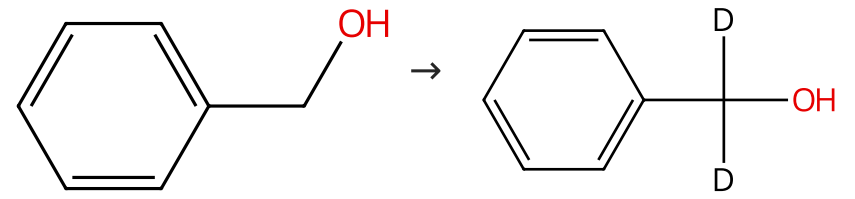
Experimental Protocols

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 16** (1 Reaction) Steps: **1** Yield: **91%**




Suppliers (161) Suppliers (39)

31-614-CAS-33408349 Steps: **1** Yield: **91%**

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

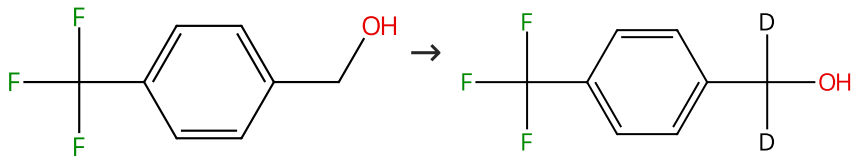
Chemical Science (2022), 13(30), 8744-8751.

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$, Sodium hydroxide-$d$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato (2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 7 h, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

**Scheme 17** (1 Reaction) Steps: **1** Yield: **91%**




Suppliers (85) Suppliers (2)

31-614-CAS-33408366 Steps: **1** Yield: **91%**

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

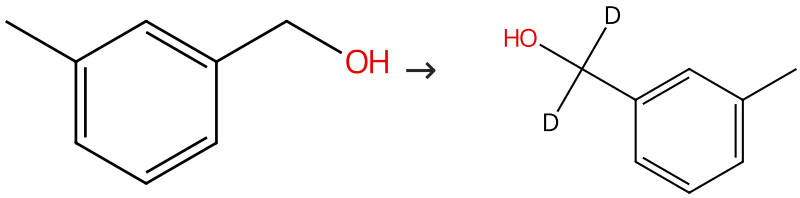
Chemical Science (2022), 13(30), 8744-8751.

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$, Sodium hydroxide-$d$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato (2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 3 h, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

**Scheme 18** (1 Reaction) Steps: **1** Yield: **91%**




Suppliers (72)

31-614-CAS-33408355 Steps: **1** Yield: **91%**

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

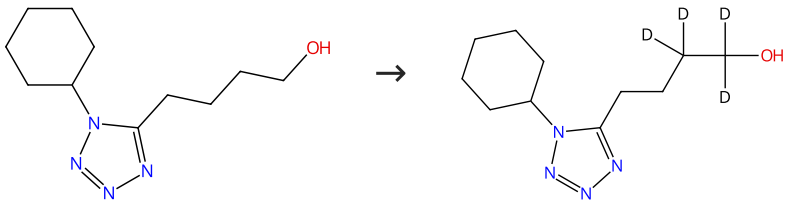
1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$, Sodium hydroxide-$d$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato (2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 7 h, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

**Scheme 19** (1 Reaction)

Steps: **1** Yield: **91%**




Suppliers (4)

**31-614-CAS-33408351**

Steps: **1** Yield: **91%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$, Sodium hydroxide-*d*
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 2 d, 100 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

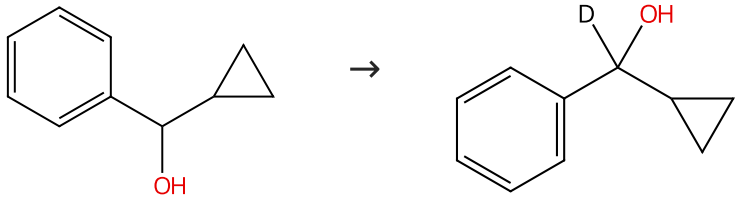
**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 20** (1 Reaction)

Steps: **1** Yield: **90%**




Suppliers (64)

**31-614-CAS-33408364**

Steps: **1** Yield: **90%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 1 d, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

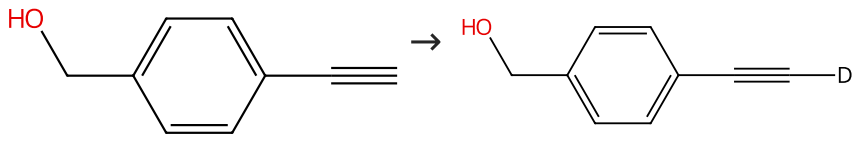
**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 21** (1 Reaction)

Steps: **1** Yield: **90%**




Suppliers (75)

31-614-CAS-33408378 Steps: **1** Yield: **90%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato (2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 3 h, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

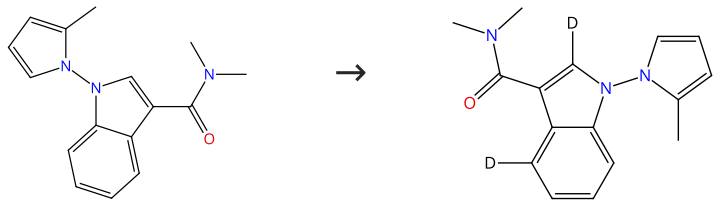
Experimental Protocols

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 22** (1 Reaction) Steps: **1** Yield: **90%**




31-614-CAS-36702158 Steps: **1** Yield: **90%**

1.1 **Catalysts:** Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene] diiridium, *R*-Xyl-BINAP
**Solvents:** Toluene; 10 min, rt

1.2 **Reagents:** Methanol-$d_4$
**Catalysts:** Sodium tetrakis[3,5-bis(trifluoromethyl)phenyl] borate; 12 h, 100 °C

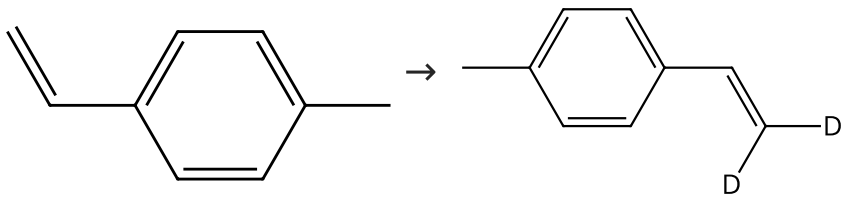
Experimental Protocols

**Enantioselective Synthesis of N-N Biaryl Atropisomers through Iridium(I)-Catalyzed C-H Alkylation with Acrylates**

By: Yin, Si-Yong; et al

Angewandte Chemie, International Edition (2023), 62(37), e202305067.

**Scheme 23** (1 Reaction) Steps: **1** Yield: **90%**




Suppliers (70) Supplier (1)

31-614-CAS-37018534 Steps: **1** Yield: **90%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ*N*)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ$N^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

Experimental Protocols

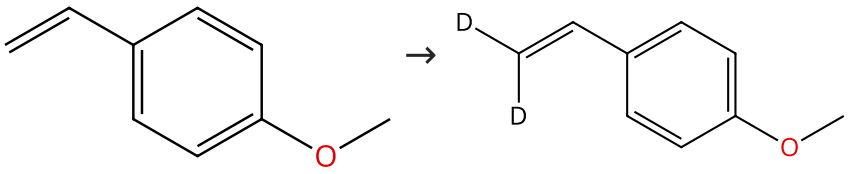
**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 24** (1 Reaction)

Steps: **1** Yield: **90%**




Suppliers (88)

**31-614-CAS-37018555**

Steps: **1** Yield: **90%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ$N$)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ$N^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

Experimental Protocols

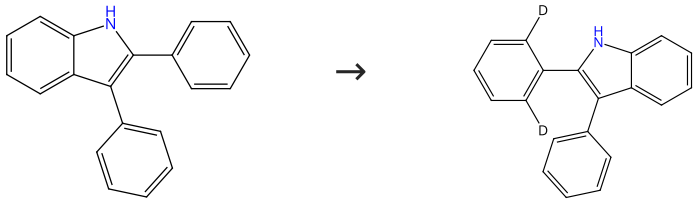
**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 25** (1 Reaction)

Steps: **1** Yield: **89%**




Suppliers (68)

**31-116-CAS-22314608**

Steps: **1** Yield: **89%**

1.1 **Reagents:** Zinc acetate, Methanol-$d_4$
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-
**Solvents:** 1,2-Dichloroethane; 15 h, 120 °C

Experimental Protocols

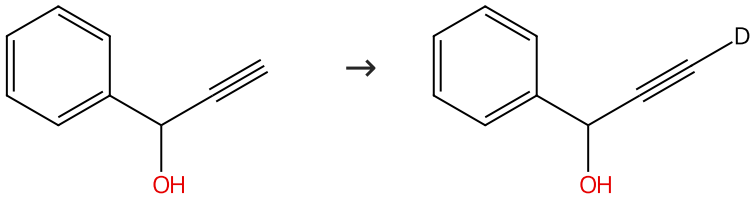
**Iridium-Catalyzed Oxidative Annulation of 2-Arylindoles with Benzoquinone Leading to Indolo[1,2-f]phenanthridin-6-ols**

By: Guo, Shenghai; et al

Advanced Synthesis & Catalysis (2020), 362(14), 3011-3020.

**Scheme 26** (1 Reaction)

Steps: **1** Yield: **89%**




Suppliers (93)

Supplier (1)

31-614-CAS-33408375 Steps: **1** Yield: **89%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 1 d, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

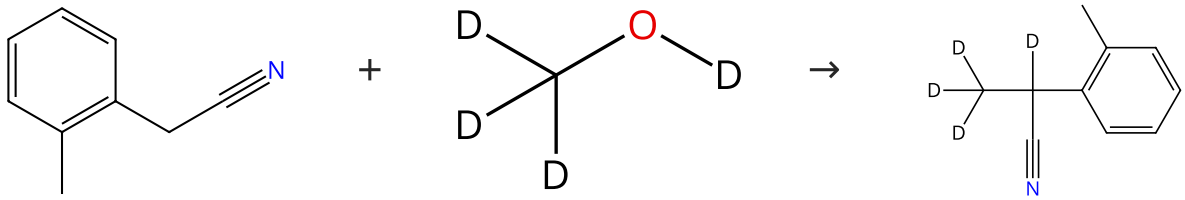
Experimental Protocols

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 27** (1 Reaction) Steps: **1** Yield: **88%**




Suppliers (79) Suppliers (248)

31-614-CAS-39266853 Steps: **1** Yield: **88%**

1.1 **Reagents:** Cesium carbonate
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-; 12 h, 125 °C

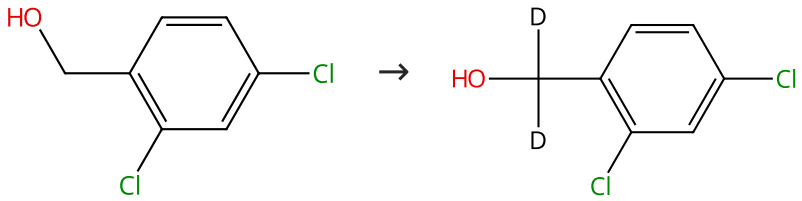
Experimental Protocols

**The α-trideuteromethylation of arylacetonitriles with deuterated methanol via deuterium autotransfer process catalyzed by a metal-ligand bifunctional iridium catalyst**

By: Liu, Deyun; et al

Journal of Catalysis (2024), 430, 115301.

**Scheme 28** (1 Reaction) Steps: **1** Yield: **87%**




Suppliers (108) Suppliers (22)

31-614-CAS-33408361 Steps: **1** Yield: **87%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$, Sodium hydroxide-*d*
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 1 d, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

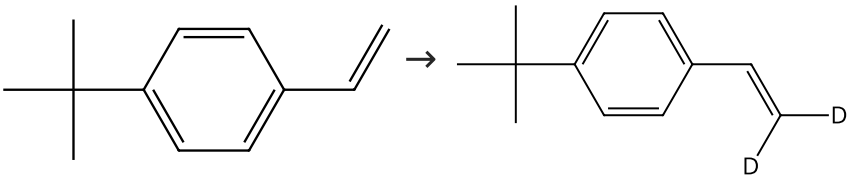
**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 29** (1 Reaction)

Steps: **1** Yield: **86%**




Suppliers (60)

Supplier (1)

**31-614-CAS-37018535**

Steps: **1** Yield: **86%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ$N$)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ$N^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

Experimental Protocols

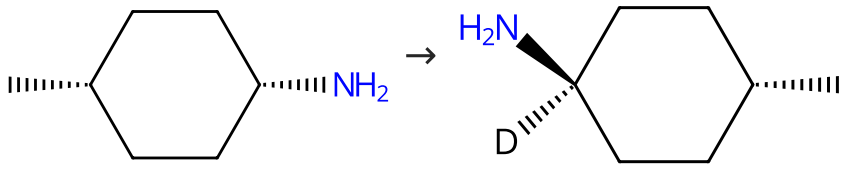
**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 30** (1 Reaction)

Steps: **1** Yield: **86%**




Relative stereochemistry shown

Relative stereochemistry shown

Suppliers (52)

**31-614-CAS-40739766**

Steps: **1** Yield: **86%**

1.1 **Reagents:** Methanol-$d_4$, Triisopropylsilanethiol
**Catalysts:** Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1); 40 h, rt

Experimental Protocols

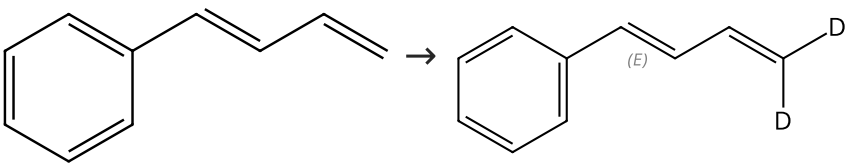
**Visible-Light-Mediated, Diastereoselective Epimerization of Exocyclic Amines**

By: Vargas-Rivera, Maria A.; et al

Organic Letters (2023), 25(51), 9197-9201.

**Scheme 31** (1 Reaction)

Steps: **1** Yield: **85%**




Suppliers (27)

Double bond geometry shown

**31-614-CAS-37018568** Steps: **1** Yield: **85%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ*N*$^1$,κ*N*$^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ*N*)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ*N*$^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

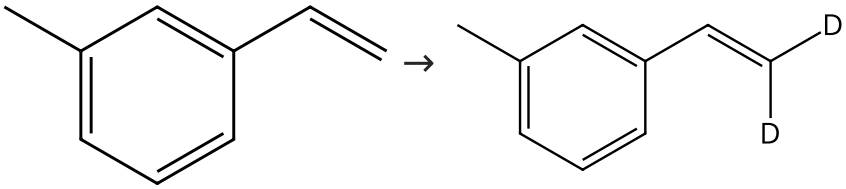
Experimental Protocols

**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 32** (1 Reaction) Steps: **1** Yield: **83%**




Suppliers (66)

**31-614-CAS-37018554** Steps: **1** Yield: **83%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ*N*$^1$,κ*N*$^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ*N*)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ*N*$^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

Experimental Protocols

**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 33** (1 Reaction) Steps: **1** Yield: **83%**


Suppliers (60)

**31-614-CAS-37018556** Steps: **1** Yield: **83%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ*N*$^1$,κ*N*$^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ*N*)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ*N*$^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

Experimental Protocols

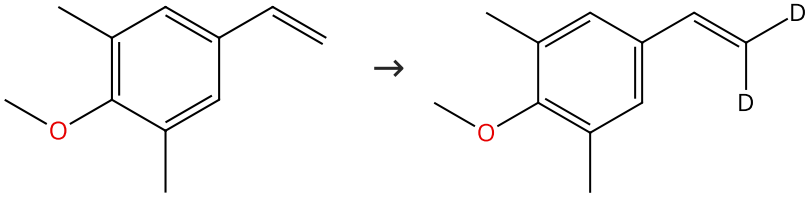
**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 34** (1 Reaction)

Steps: **1** Yield: **82%**




Suppliers (10)

**31-614-CAS-37018558**

Steps: **1** Yield: **82%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ$N$)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ$N^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

Experimental Protocols

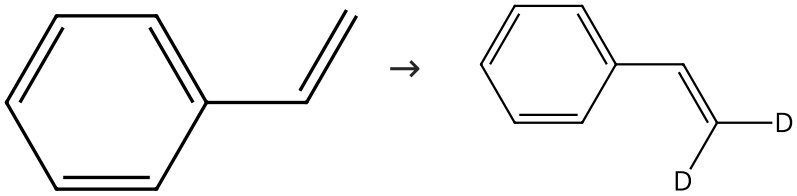
**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 35** (1 Reaction)

Steps: **1** Yield: **81%**




Suppliers (122)

Suppliers (20)

**31-614-CAS-37018536**

Steps: **1** Yield: **81%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ$N$)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ$N^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

Experimental Protocols

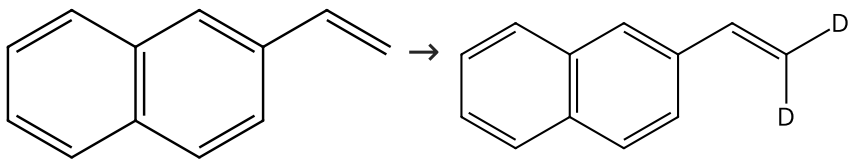
**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 36** (1 Reaction)

Steps: **1** Yield: **80%**




Suppliers (74)

31-614-CAS-37018551 Steps: **1** Yield: **80%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ$N$)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ$N^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

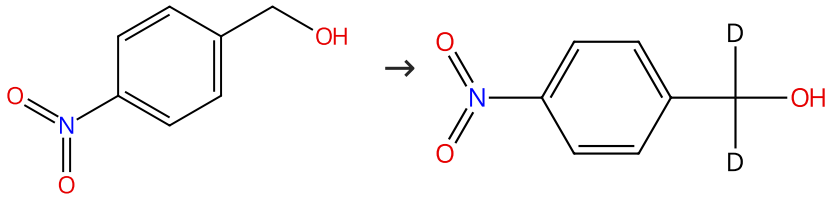
Experimental Protocols

**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 37** (1 Reaction) Steps: **1** Yield: **79%**




Suppliers (105)

31-614-CAS-33408365 Steps: **1** Yield: **79%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$, Sodium hydroxide-$d$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 13 h, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

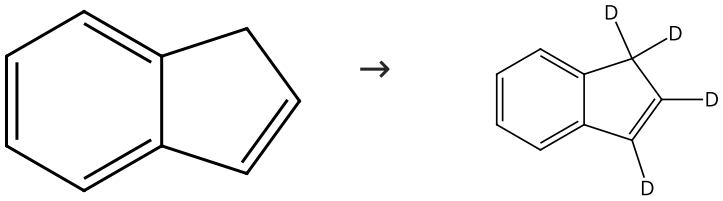
Experimental Protocols

**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 38** (1 Reaction) Steps: **1** Yield: **77%**




Suppliers (109)

31-614-CAS-37018559 Steps: **1** Yield: **77%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ$N$)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ$N^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

Experimental Protocols

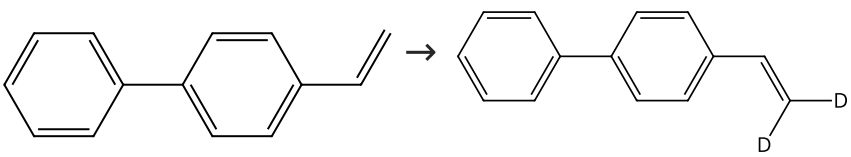
**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 39** (1 Reaction)

Steps: **1** Yield: **73%**




Suppliers (74)

Supplier (1)

**31-614-CAS-37018552**

Steps: **1** Yield: **73%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ$N$)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ$N^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

Experimental Protocols

**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 40** (1 Reaction)

Steps: **1** Yield: **70%**


**31-116-CAS-18874915**

Steps: **1** Yield: **70%**

1.1 **Reagents:** Pivalic acid
**Catalysts:** Nickel acetate, Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Silver hexafluoroantimonate
**Solvents:** 2-Propanol-*d*; 12 h, 80 °C

Experimental Protocols

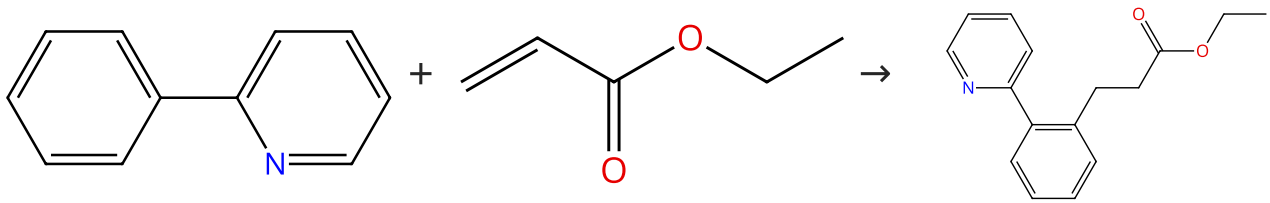
**Divergent Coupling of Anilines and Enones by Integr ation of C-H Activation and Transfer Hydroge nation**

By: Zhou, Xukai; et al

Angewandte Chemie, International Edition (2018), 57(22), 6681-6685.

**Scheme 41** (1 Reaction)

Steps: **1** Yield: **67%**




Suppliers (94)

Suppliers (76)

Supplier (1)

**31-085-CAS-9070584**

Steps: **1** Yield: **67%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*]silver, Chloro[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl][2-(2-pyridinyl-κ*N*)phenyl-κ*C*]iridium, Antimonate(1-), hexafluoro-, (*OC*-6-11)-, hydrogen, compd. with 2-phenylpyridine (1:1:1)
**Solvents:** 1,2-Dichloroethane; 6 h, 120 °C; 120 °C → rt

Experimental Protocols

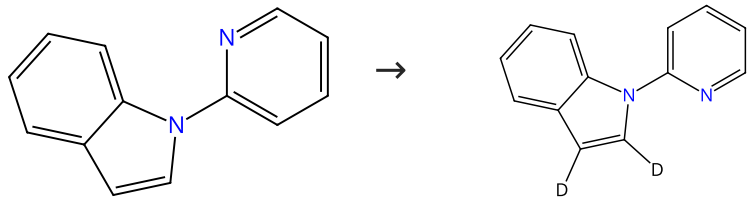
**Complete Switch of Selectivity in the C-H Alkenylation and Hydroarylation Catalyzed by Iridium: The Role of Directing Groups**

By: Kim, Jiyu; et al

Journal of the American Chemical Society (2015), 137(42), 13448-13451.

**Scheme 42** (1 Reaction)

Steps: **1** Yield: **64%**



Suppliers (36)

**31-614-CAS-24448981**

Steps: **1** Yield: **64%**

1.1 **Reagents:** Pivalic acid, Methanol-$d_4$, Silver hexafluoro antimonate
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-
**Solvents:** Acetonitrile; 2 h, 110 °C

1.2 **Reagents:** Sodium bicarbonate
**Solvents:** Water

Experimental Protocols

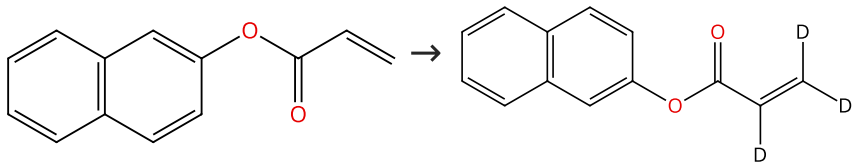
**Synthesis of Indolyl-Tethered Spiro[cyclobutane-1,1'-indenes] through Cascade Reactions of 1-(Pyridin-2-yl)-1H-indoles with Alkynyl Cyclobutanols**

By: Xu, Yuanshuang; et al

Organic Letters (2021), 23(21), 8510-8515.

**Scheme 43** (1 Reaction)

Steps: **1** Yield: **64%**



Suppliers (34)

**31-614-CAS-36702159**

Steps: **1** Yield: **64%**

1.1 **Catalysts:** Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene] diiridium, *R*-Xyl-BINAP
**Solvents:** Toluene; 10 min, rt

1.2 **Reagents:** Methanol-$d_4$
**Catalysts:** Sodium tetrakis[3,5-bis(trifluoromethyl)phenyl] borate; 12 h, 100 °C

Experimental Protocols

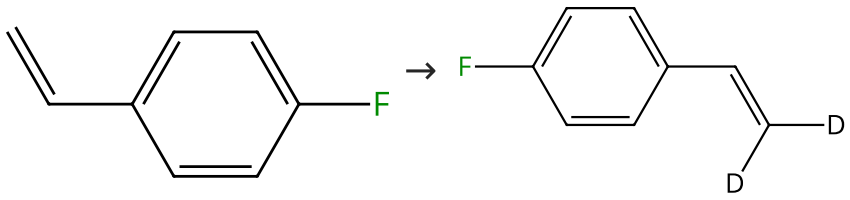
**Enantioselective Synthesis of N-N Biaryl Atropisomers through Iridium(I)-Catalyzed C-H Alkylation with Acrylates**

By: Yin, Si-Yong; et al

Angewandte Chemie, International Edition (2023), 62(37), e202305067.

**Scheme 44** (1 Reaction)

Steps: **1** Yield: **63%**



Suppliers (85)

31-614-CAS-37018533 Steps: **1** Yield: **63%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ$N$)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ$N^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

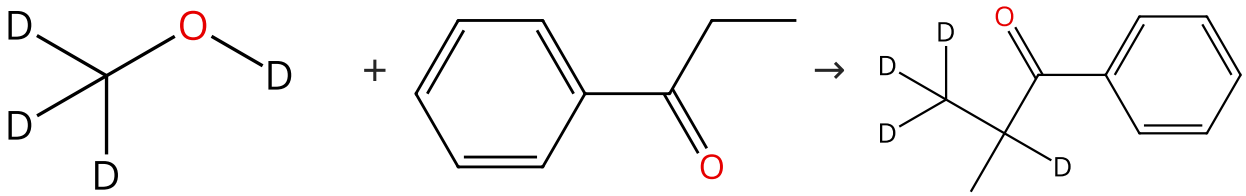
Experimental Protocols

**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 45** (1 Reaction) Steps: **1** Yield: **62%**



Suppliers (248) Suppliers (72)

31-614-CAS-31431741 Steps: **1** Yield: **62%**

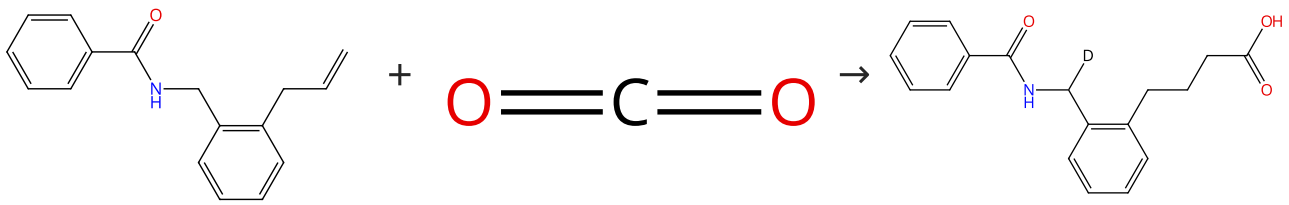
1.1 **Reagents:** Cesium carbonate
**Catalysts:** Iridate(1-), [[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$]hydroxy[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, sodium (1:1)
**Solvents:** Methanol-$d_4$; 12 h, 120 °C

**Iridium-catalyzed synthesis of β-methylated secondary alcohols using methanol**

By: Song, Ao; et al

Journal of Catalysis (2022), 407, 90-96.

**Scheme 46** (1 Reaction) Steps: **1** Yield: **59%**



Suppliers (17)

31-614-CAS-34401938 Steps: **1** Yield: **59%**

1.1 **Reagents:** Cesium carbonate, Methanol-$d_4$, *N*-Cyclohexyl-*N*-ethylcyclohexanamine
**Catalysts:** *fac*-Tris(2-(2-pyridinyl)phenyl)iridium
**Solvents:** Dimethyl sulfoxide; 48 h, 25 - 30 °C

1.2 **Reagents:** Hydrochloric acid
**Solvents:** Water

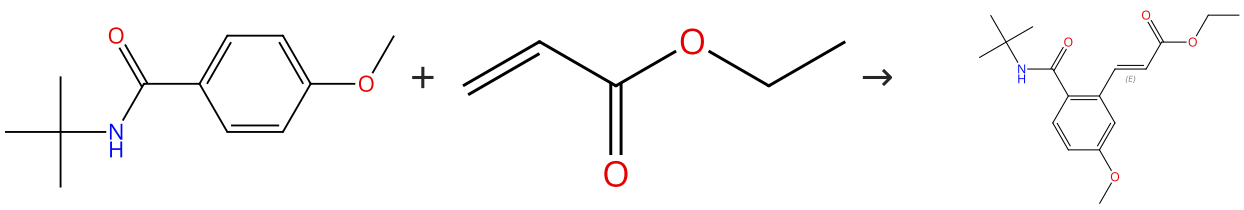
Experimental Protocols

**Visible-light photocatalytic di- and hydro-carboxylation of unactivated alkenes with $CO_2$**

By: Song, Lei; et al

Nature Catalysis (2022), 5(9), 832-838.

**Scheme 47** (1 Reaction) Steps: **1** Yield: **51%**



Suppliers (46) Suppliers (76)

Double bond geometry shown

31-177-CAS-18250011 Steps: **1** Yield: **51%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*]silver, [2-[[(1,1-Dimethylethyl)amino]carbonyl-κ*O*]-5-methoxyphenyl-κ*C*][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl](2,2,2-trifluoroacetato-κ*O*)iridium
**Solvents:** 1,2-Dichloroethane; 2 h, 70 °C; 70 °C → rt

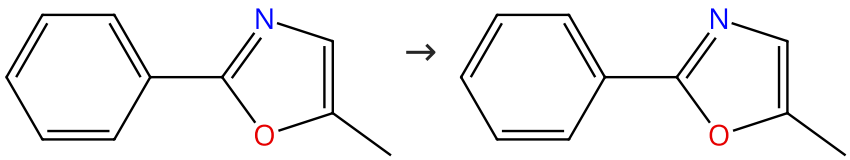
Experimental Protocols

**Complete Switch of Selectivity in the C-H Alkenylation and Hydroarylation Catalyzed by Iridium: The Role of Directing Groups**

By: Kim, Jiyu; et al

Journal of the American Chemical Society (2015), 137(42), 13448-13451.

**Scheme 48** (1 Reaction) Steps: **1** Yield: **45%**



Suppliers (21)

31-614-CAS-40343559 Steps: **1** Yield: **45%**

1.1 **Reagents:** 1-Adamantanecarboxylic acid, Silver triflate, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*]silver
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-
**Solvents:** Methanol-*d*; 12 h, 120 °C

1.2 **Reagents:** Sodium bicarbonate
**Solvents:** Water

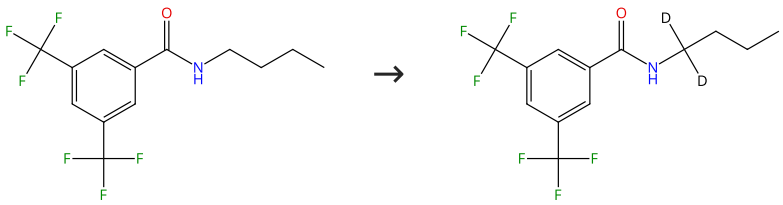
Experimental Protocols

**Synthesis of acridones via Ir(III)-catalyzed amination annulation of oxazoles with anthranils**

By: Zhou, Han-Yi; et al

Organic & Biomolecular Chemistry (2024), 22(20), 4036-4040.

**Scheme 49** (1 Reaction) Steps: **1** Yield: **40%**



Suppliers (5)

31-614-CAS-40796524 Steps: **1** Yield: **40%**

1.1 **Reagents:** *tert*-Butanol-$d_{10}$
**Catalysts:** Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), Nickel, [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]dibromo-, (*T*-4)-
**Solvents:** Ethyl acetate; 48 h, rt

Experimental Protocols

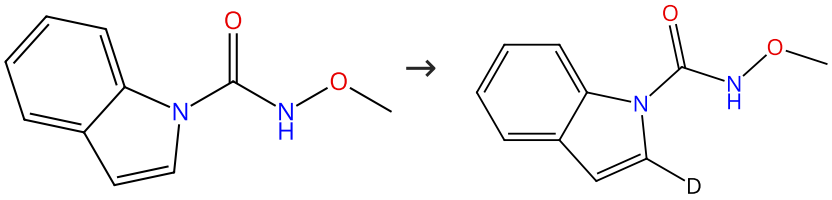
**Dehydrogenative Coupling of Alkylamines with Primary Alcohols Forming α-Amino Ketones**

By: Kawasaki, Tairin; et al

Journal of the American Chemical Society (2024), 146(26), 17566-17572.

**Scheme 50** (1 Reaction)

Steps: **1** Yield: **35%**



Supplier (1)

**31-614-CAS-24427671**

Steps: **1** Yield: **35%**

1.1 **Reagents:** Sodium acetate, Methanol-$d_4$
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-
**Solvents:** Methanol; 1 h, 25 °C

Experimental Protocols

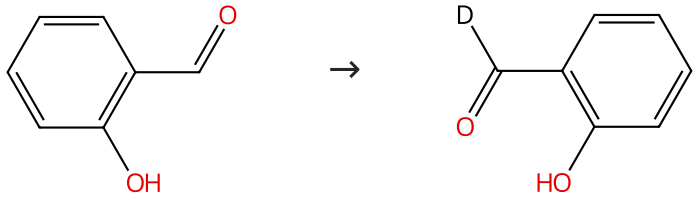
**Temperature-Controlled Divergent Synthesis of Tetrasubstituted Alkenes and Pyrrolo[1,2-a]indole Derivatives via Iridium Catalysis**

By: Liu, Siyu; et al

Asian Journal of Organic Chemistry (2021), 10(12), 3308-3320.

**Scheme 51** (1 Reaction)

Steps: **1** Yield: **31%**



Suppliers (102)

**31-116-CAS-23788473**

Steps: **1** Yield: **31%**

1.1 **Reagents:** Methanol-$d_4$, Tripotassium phosphate
**Catalysts:** Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene] diiridium
**Solvents:** Toluene; 36 h, 70 °C

Experimental Protocols

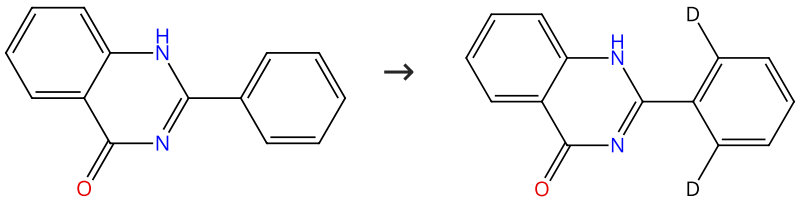
**Iridium-catalysed branched-selective hydroacylation of 1,3-dienes with salicylaldehydes**

By: Yang, Yang; et al

Chemical Communications (Cambridge, United Kingdom) (2021), 57(60), 7378-7381.

**Scheme 52** (1 Reaction)

Steps: **1** Yield: **27%**



Suppliers (72)

**31-614-CAS-35237801**

Steps: **1** Yield: **27%**

1.1 **Reagents:** Calcium hydroxide, Cesium acetate
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*] silver
**Solvents:** Methanol-$d_4$, 1,1,1,3,3,3-Hexafluoro-2-propanol; 8 h, 100 °C

Experimental Protocols

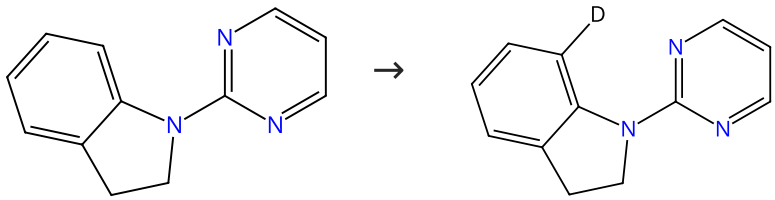
**Tandem C-C/C-N Bond Formation via Rh(III)-Catalyzed α-Fluoroalkenylation and Sequential Annulation of 2-Arylquinazolinones and gem-Difluorostyrenes**

By: Pang, Binghan; et al

Journal of Organic Chemistry (2023), 88(1), 143-153.

**Scheme 53** (1 Reaction)

Steps: **1** Yield: **20%**




Suppliers (10)

**31-116-CAS-6427781**

Steps: **1** Yield: **20%**

1.1 **Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*] silver
**Solvents:** Methanol-*d*; 16 h, rt

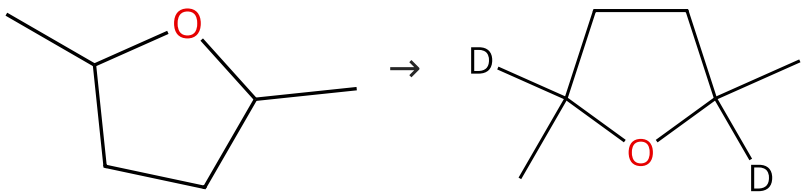
**Iridium(III)-Catalyzed C-7 Selective C-H Alkynylation of Indolines at Room Temperature**

By: Wu, Yunxiang; et al

Journal of Organic Chemistry (2015), 80(3), 1946-1951.

**Scheme 54** (1 Reaction)

Steps: **1**




Suppliers (54)

**31-614-CAS-40104451**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Thioacetic acid, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), (2,2'-bipyridine-κ$N^1$,κ$N^{1'}$)bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Methanol; 20 h, rt

Experimental Protocols

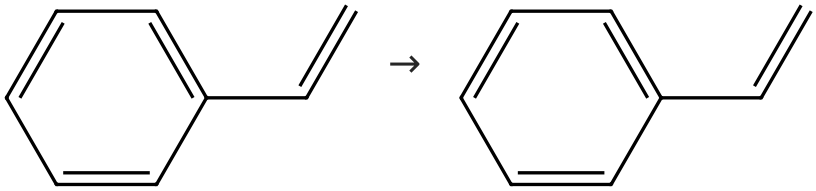
**Isotopic Fractionation as a Mechanistic Probe in Light-Driven C-H Bond Exchange Reactions**

By: Qiu, Guanqi; et al

Journal of the American Chemical Society (2023), 145(21), 11537-11543.

**Scheme 55** (1 Reaction)

Steps: **1**



Suppliers (122)

**31-614-CAS-30100546**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$, Silver triflate
**Catalysts:** Dichloro(1,3-dibutyl-1,3-dihydro-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium
**Solvents:** Methanol-$d_4$; 12 h, 100 °C

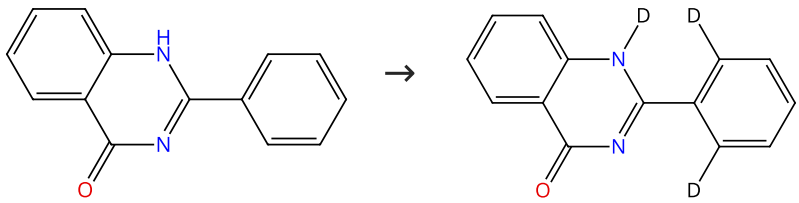
**Highly Stable Cp-Ir(III) Complexes with N-Heterocyclic Carbene Ligands as C-H Activation Catalysts for the Deuteration of Organic Molecules**

By: Corberan, Rosa; et al

Journal of the American Chemical Society (2006), 128(12), 3974-3979.

**Scheme 56** (1 Reaction)

Steps: **1**



Suppliers (72)

**31-116-CAS-19743476**

Steps: **1**

1.1 **Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Silver hexafluoroantimonate
**Solvents:** 1,2-Dichloroethane, Methanol-$d_4$; 12 h, 70 °C

Experimental Protocols

**Iridium(III)-Catalyzed Alkynylation of 2-(Hetero)arylquinazolin-4-one Scaffolds via C-H Bond Activation**

By: Rohokale, Rajendra S.; et al

Journal of Organic Chemistry (2019), 84(5), 2951-2961.

**Scheme 57** (1 Reaction)

Steps: **1**

Suppliers (410)

**31-614-CAS-29780071**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$, Silver triflate
**Catalysts:** Dichloro(1,3-dibutyl-1,3-dihydro-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium
**Solvents:** Methanol-$d_4$; 6 h, 100 °C

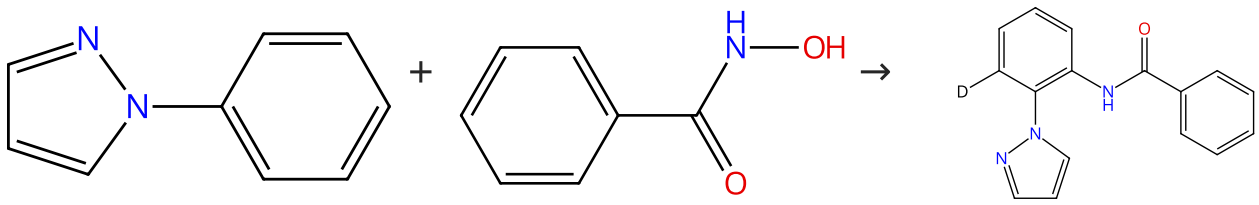
**Highly Stable Cp-Ir(III) Complexes with N-Heterocyclic Carbene Ligands as C-H Activation Catalysts for the Deuteration of Organic Molecules**

By: Corberan, Rosa; et al

Journal of the American Chemical Society (2006), 128(12), 3974-3979.

**Scheme 58** (1 Reaction)

Steps: **1**



Suppliers (90)

Suppliers (76)

**31-614-CAS-39581828**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*]silver
**Solvents:** Chlorobenzene; 60 min, 120 °C

Experimental Protocols

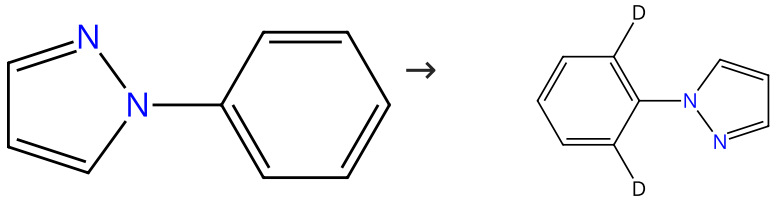
**Ir(III)/Ag(I)-catalyzed directly C-H amidation of arenes with O H-free hydroxyamides as amidating agents**

By: Zuo, Youpeng; et al

RSC Advances (2024), 14(9), 5975-5980.

**Scheme 59** (1 Reaction)

Steps: **1**



Suppliers (90)

**31-614-CAS-39581834**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*] silver
**Solvents:** Chlorobenzene; 60 min, 120 °C

Experimental Protocols

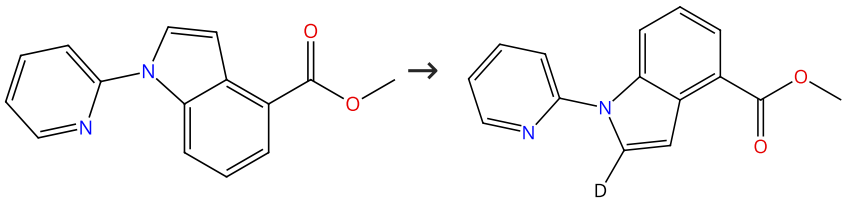
**Ir(III)/Ag(I)-catalyzed directly C-H amidation of arenes with O H-free hydroxyamides as amidating agents**

By: Zuo, Youpeng; et al

RSC Advances (2024), 14(9), 5975-5980.

**Scheme 60** (1 Reaction)

Steps: **1**



Supplier (1)

**31-614-CAS-25856816**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrafluoroborate(1-) (1:1), Potassium tetrakis(pentafluo rophenyl)borate, BINAP
**Solvents:** Tetrahydropyran; 1 h, 80 °C

Experimental Protocols

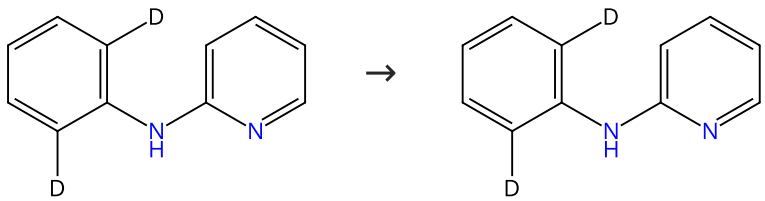
**Ir(I)-Catalyzed C-H Glycosylation for Synthesis of 2- Indolyl-C-Deoxyglycosides**

By: Yu, Changyue; et al

Advanced Synthesis & Catalysis (2021), 363(21), 4926-4931.

**Scheme 61** (1 Reaction)

Steps: **1**



compounds

**31-614-CAS-30838666**

Steps: **1**

1.1 **Reagents:** Methanol-*d*, Silver hexafluoroantimonate
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-; 24 h, 80 °C

Experimental Protocols

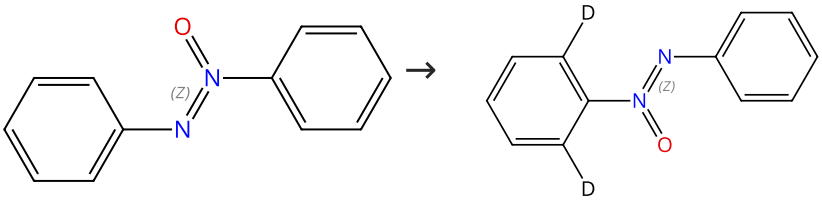
**An Ir(III)-catalyzed aryl C-H bond carbenoid functionalization cascade: access to 1,3-dihydroindol-2-ones**

By: Bai, Siyi; et al

Organic & Biomolecular Chemistry (2017), 15(17), 3638-3647.

**Scheme 62** (1 Reaction)

Steps: **1**



Double bond geometry shown

Double bond geometry shown

Suppliers (10)

**31-116-CAS-17915137**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Sodium acetate, Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Silver hexafluoroantimonate
**Solvents:** 1,2-Dichloroethane; 16 h, 100 °C

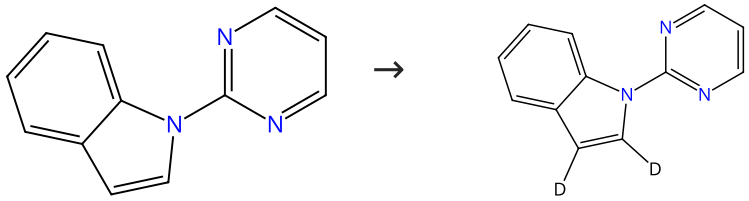
**Ir(III)-Catalyzed site-selective amidation of azoxybenzenes and late-stage transformation**

By: Zhang, Wenge; et al

Organic Chemistry Frontiers (2017), 4(11), 2202-2206.

**Scheme 63** (1 Reaction)

Steps: **1**



Suppliers (59)

**31-116-CAS-16435432**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-; 0.5 h, 100 °C

Experimental Protocols

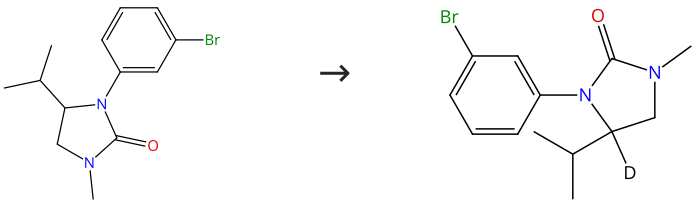
**Iridium(III)-Catalyzed Regioselective Carbenoid Insertion C-H Alkylation by α-Diazotized Meldrum's Acid**

By: Lv, Honggui; et al

European Journal of Organic Chemistry (2016), 2016(34), 5637-5641.

**Scheme 64** (1 Reaction)

Steps: **1**



**31-614-CAS-40104453**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Thioacetic acid, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Methanol; 20 h, rt

Experimental Protocols

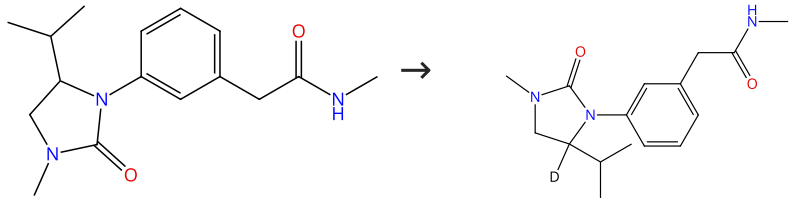
**Isotopic Fractionation as a Mechanistic Probe in Light-Driven C-H Bond Exchange Reactions**

By: Qiu, Guanqi; et al

Journal of the American Chemical Society (2023), 145(21), 11537-11543.

**Scheme 65** (1 Reaction)

Steps: **1**



**31-614-CAS-40104457**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Thioacetic acid, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[5-fluoro-2-(5-methyl-2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Methanol; 20 h, rt

Experimental Protocols

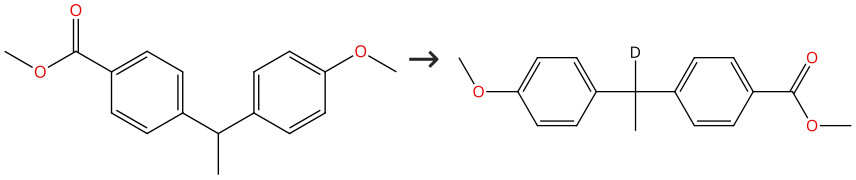
**Isotopic Fractionation as a Mechanistic Probe in Light-Driven C-H Bond Exchange Reactions**

By: Qiu, Guanqi; et al

Journal of the American Chemical Society (2023), 145(21), 11537-11543.

**Scheme 66** (1 Reaction)

Steps: **1**



**31-614-CAS-40104452**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Thioacetic acid, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Methanol; 20 h, rt

Experimental Protocols

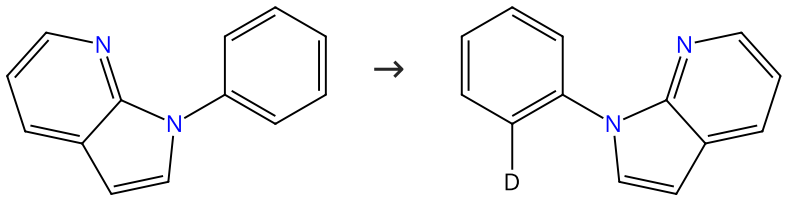
**Isotopic Fractionation as a Mechanistic Probe in Light-Driven C-H Bond Exchange Reactions**

By: Qiu, Guanqi; et al

Journal of the American Chemical Society (2023), 145(21), 11537-11543.

**Scheme 67** (1 Reaction)

Steps: **1**



Suppliers (6)

**31-116-CAS-14337978**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*]silver
**Solvents:** 1,2-Dichloroethane; 1 h, rt

Experimental Protocols

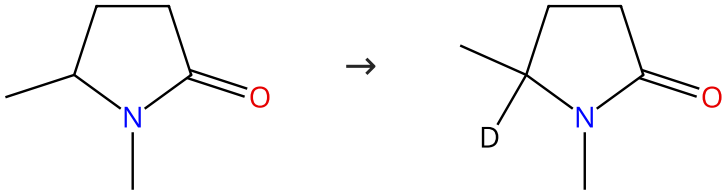
**Regioselective Ir(III)-catalyzed C-H alkynylation directed by 7-azaindoles**

By: Liu, Bin; et al

Organic & Biomolecular Chemistry (2016), 14(10), 2944-2949.

**Scheme 68** (1 Reaction)

Steps: **1**



Suppliers (40)

**31-614-CAS-40104450**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Thioacetic acid, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), (2,2'-bipyridine-κ$N^1$,κ$N^{1'}$)bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Methanol; 20 h, rt

Experimental Protocols

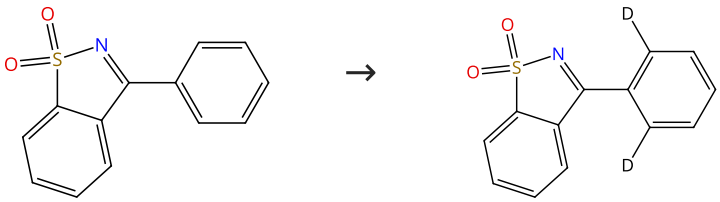
**Isotopic Fractionation as a Mechanistic Probe in Light-Driven C-H Bond Exchange Reactions**

By: Qiu, Guanqi; et al

Journal of the American Chemical Society (2023), 145(21), 11537-11543.

**Scheme 69** (2 Reactions)

Steps: **1**



Suppliers (30)

**31-116-CAS-19920386**

Steps: **1**

1.1 **Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Silver hexafluoro antimonate
**Solvents:** 1,2-Dichloroethane, Methanol-$d_4$; 24 h, 80 °C

Experimental Protocols

**Diastereoselective Spirocyclization of Cyclic N-Sulfonyl Ketimines with Nitroalkenes via Iridium-Catalyzed Redox-Neutral Cascade Reaction**

By: Mishra, Aniket; et al

Organic Letters (2019), 21(7), 2056-2059.

**31-116-CAS-18551007**

Steps: **1**

1.1 **Catalysts:** Silver triflate, Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, BOC-L-Phenylalanine
**Solvents:** 1,2-Dichloroethane; 0.5 h, 40 °C

1.2 **Solvents:** Methanol-$d_4$; 0.5 h, 40 °C

Experimental Protocols

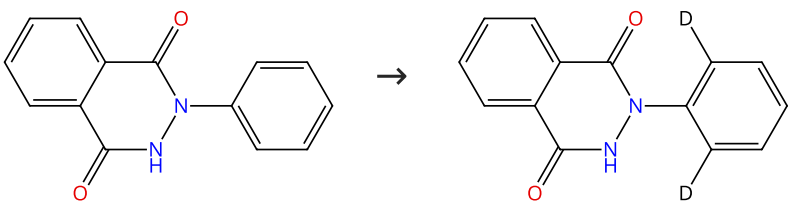
**Ir(III)/MPAA-Catalyzed Mild and Selective C-H Amidation of N-Sulfonyl Ketimines: Access To Benzosultam-Fused Quinazolines/Quinazolinones**

By: Mishra, Aniket; et al

Journal of Organic Chemistry (2018), 83(7), 3756-3767.

**Scheme 70** (1 Reaction)

Steps: **1**



Suppliers (38)

31-614-CAS-35549815 Steps: **1**

1.1 **Reagents:** Methanol-$d_4$, 1-Adamantanecarboxylic acid
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Silver hexafluoro antimonate
**Solvents:** 1,1,1,3,3,3-Hexafluoro-2-propanol; 25 °C; 12 h, 120 °C

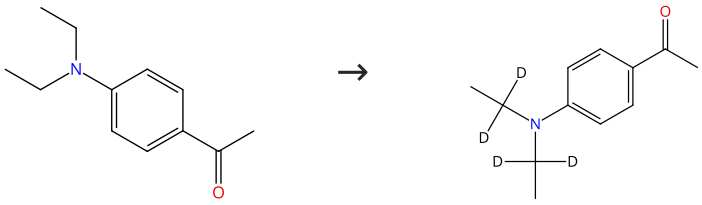
Experimental Protocols

**Ir(III)-Catalyzed Dual C-H Activation of 2-Aryl Phthalazinediones and 3-Aryl-2H-benzo[e][1,2,4]thiadiazine-1,1-dioxides for the Construction of Spiro-Fused Cyclic Frameworks**

By: Yogananda Chary, Devulapally; et al

Journal of Organic Chemistry (2023), 88(5), 2758-2772.

**Scheme 71** (1 Reaction) Steps: **1**




Suppliers (65)

31-614-CAS-40104456 Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Thioacetic acid, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[5-fluoro-2-(5-methyl-2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Methanol; 20 h, rt

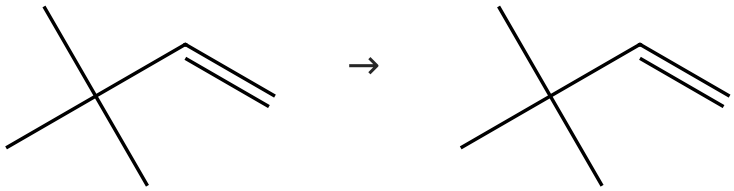
Experimental Protocols

**Isotopic Fractionation as a Mechanistic Probe in Light-Driven C-H Bond Exchange Reactions**

By: Qiu, Guanqi; et al

Journal of the American Chemical Society (2023), 145(21), 11537-11543.

**Scheme 72** (1 Reaction) Steps: **1**



Suppliers (51)

31-614-CAS-30907891 Steps: **1**

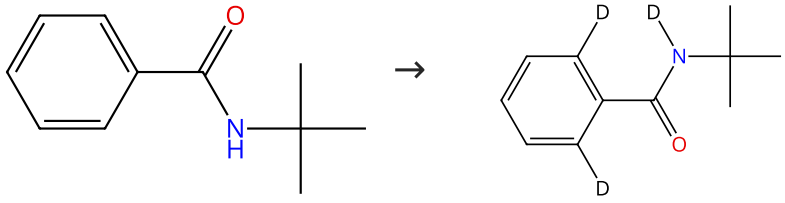
1.1 **Reagents:** Methanol-$d_4$, Silver triflate
**Catalysts:** Dichloro(1,3-dibutyl-1,3-dihydro-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium
**Solvents:** Methanol-$d_4$; 12 h, 100 °C

**Highly Stable Cp-Ir(III) Complexes with N-Heterocyclic Carbene Ligands as C-H Activation Catalysts for the Deuteration of Organic Molecules**

By: Corberan, Rosa; et al

Journal of the American Chemical Society (2006), 128(12), 3974-3979.

**Scheme 73** (1 Reaction) Steps: **1**




Suppliers (55)

31-116-CAS-6288479 Steps: **1**

1.1 **Catalysts:** Sodium acetate, Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Silver tetrafluoroborate
**Solvents:** 2,2,2-Trifluoroethan-*1,1-d*$_2$-ol-*d*; 1 h, 45 °C

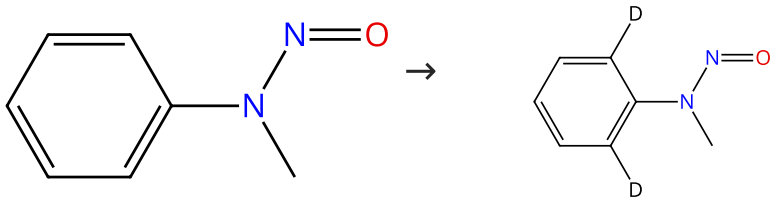
Experimental Protocols

**Cp*Ir(III)-Catalyzed Mild and Broad C-H Arylation of Arenes and Alkenes with Aryldiazonium Salts Leading to the External Oxidant-Free Approach**

By: Shin, Kwangmin; et al

Journal of the American Chemical Society (2015), 137(26), 8584-8592.

**Scheme 74** (1 Reaction) Steps: **1**



Suppliers (75)

31-116-CAS-23549855 Steps: **1**

1.1 **Reagents:** Silver acetate, Methanol-*d*$_4$, Water-*d*$_2$
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Silver hexafluoro antimonate
**Solvents:** Methanol; 1 h, rt

Experimental Protocols

**Rh(III)-Catalyzed Olefination and Alkylation of Arenes with Maleimides: A Tunable Strategy for C (sp$^2$)-H Functionalization**

By: Zhang, Wenjie; et al

Synthesis (2021), 53(13), 2229-2239.

**Scheme 75** (1 Reaction) Steps: **1**

Suppliers (109)

31-614-CAS-26350154 Steps: **1**

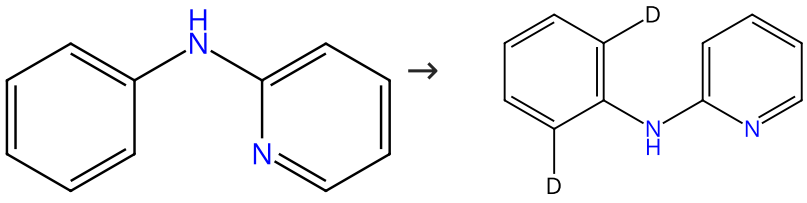
1.1 **Reagents:** Methanol-*d*$_4$, Silver triflate
**Catalysts:** Dichloro(1,3-dibutyl-1,3-dihydro-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium
**Solvents:** Methanol-*d*$_4$; 3 h, 100 °C

**Highly Stable Cp-Ir(III) Complexes with N-Heterocyclic Carbene Ligands as C-H Activation Catalysts for the Deuteration of Organic Molecules**

By: Corberan, Rosa; et al

Journal of the American Chemical Society (2006), 128(12), 3974-3979.

**Scheme 76** (1 Reaction) Steps: **1**



Suppliers (73)

compounds

31-116-CAS-17381737 Steps: 1

1.1 **Reagents:** Methanol-*d*, Silver hexafluoroantimonate
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-; 24 h, 80 °C

Experimental Protocols

**An Ir(III)-catalyzed aryl C-H bond carbenoid functionalization cascade: access to 1,3-dihydroindol-2-ones**

By: Bai, Siyi; et al

Organic & Biomolecular Chemistry (2017), 15(17), 3638-3647.

**Scheme 77** (1 Reaction) Steps: **1**


Suppliers (387)

31-614-CAS-27140623 Steps: 1

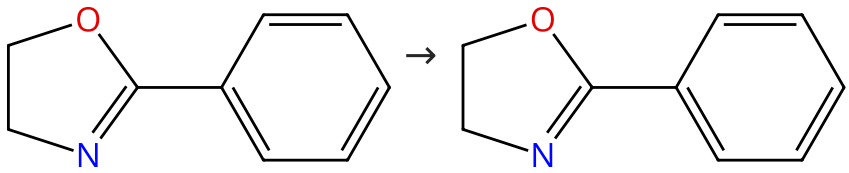
1.1 **Reagents:** Methanol-$d_4$, Silver triflate
**Catalysts:** Dichloro(1,3-dibutyl-1,3-dihydro-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium
**Solvents:** Methanol-$d_4$; 3 h, 100 °C

**Highly Stable Cp-Ir(III) Complexes with N-Heterocyclic Carbene Ligands as C-H Activation Catalysts for the Deuteration of Organic Molecules**

By: Corberan, Rosa; et al

Journal of the American Chemical Society (2006), 128(12), 3974-3979.

**Scheme 78** (1 Reaction) Steps: **1**




Suppliers (68)

31-614-CAS-43664072 Steps: 1

1.1 **Reagents:** Sodium acetate, Methanol-$d_4$
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-
**Solvents:** 2,2,2-Trifluoroethanol; 18 h, 140 °C

Experimental Protocols

**Integrating C-H activation/2-fold annulation: a modular access to heteroaryl-tethered oxazoloisoquinolinones**

By: Basak, Shubhajit; et al

Chemical Communications (Cambridge, United Kingdom) (2025), 61(8), 1693-1696.

**Scheme 79** (7 Reactions) Steps: **1**


Suppliers (179)

Suppliers (143)

**31-116-CAS-2682519** Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium(2+), di-μ-chlorobis(1,3-dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)bis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, stereoisomer, 1,1,1-trifluoromethanesulfonate (1:2), Iridium(1+), (acetonitrile-*2,2,2*-$d_3$)chloro(1,3-dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, 1,1,1-trifluoromethanesulfonate (1:1)
**Solvents:** Methanol-$d_4$; rt → 150 °C; 24 h, 150 °C; 150 °C → rt

Experimental Protocols

**Effect of Ancillary Ligands and Solvents on H/D Exchange Reactions Catalyzed by Cp*Ir Complexes**

By: Feng, Yuee; et al

Organometallics (2010), 29(13), 2857-2867.

**31-116-CAS-6653740** Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** (1,3-Dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)bis(nitrato-κ*O*)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium
**Solvents:** Methanol-$d_4$; rt → 150 °C; 24 h, 150 °C; 150 °C → rt

Experimental Protocols

**Effect of Ancillary Ligands and Solvents on H/D Exchange Reactions Catalyzed by Cp*Ir Complexes**

By: Feng, Yuee; et al

Organometallics (2010), 29(13), 2857-2867.

**31-116-CAS-221793** Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium(2+), bis(acetonitrile)(1,3-dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, 1,1,1-trifluoro methanesulfonate (1:2)
**Solvents:** Methanol-$d_4$; rt → 150 °C; 24 h, 150 °C; 150 °C → rt

Experimental Protocols

**Effect of Ancillary Ligands and Solvents on H/D Exchange Reactions Catalyzed by Cp*Ir Complexes**

By: Feng, Yuee; et al

Organometallics (2010), 29(13), 2857-2867.

**31-116-CAS-2404552** Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium(2+), diaqua(1,3-dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, 1,1,1-trifluoromethanesulfonate (1:2)
**Solvents:** Methanol-$d_4$; rt → 150 °C; 24 h, 150 °C; 150 °C → rt

Experimental Protocols

**Effect of Ancillary Ligands and Solvents on H/D Exchange Reactions Catalyzed by Cp*Ir Complexes**

By: Feng, Yuee; et al

Organometallics (2010), 29(13), 2857-2867.

**31-116-CAS-13663280** Steps: **1**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$
**Catalysts:** Dichloro(1,3-dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium
**Solvents:** Methanol-$d_4$, Water-$d_2$; rt → 150 °C; 24 h, 150 °C; 150 °C → rt

Experimental Protocols

**Effect of Ancillary Ligands and Solvents on H/D Exchange Reactions Catalyzed by Cp*Ir Complexes**

By: Feng, Yuee; et al

Organometallics (2010), 29(13), 2857-2867.

**31-116-CAS-4525955** Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** (1,3-Dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl][sulfato(2-)-κ*O*,κ*O*']iridium
**Solvents:** Methanol-$d_4$; rt → 150 °C; 24 h, 150 °C; 150 °C → rt

Experimental Protocols

**Effect of Ancillary Ligands and Solvents on H/D Exchange Reactions Catalyzed by Cp*Ir Complexes**

By: Feng, Yuee; et al

Organometallics (2010), 29(13), 2857-2867.

31-116-CAS-8788377 Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** (1,3-Dihydro-1,3,4,5-tetramethyl-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]bis(2,2,2-trifluoroacetato-κ*O*)iridium
**Solvents:** Methanol-$d_4$; rt → 150 °C; 24 h, 150 °C; 150 °C → rt

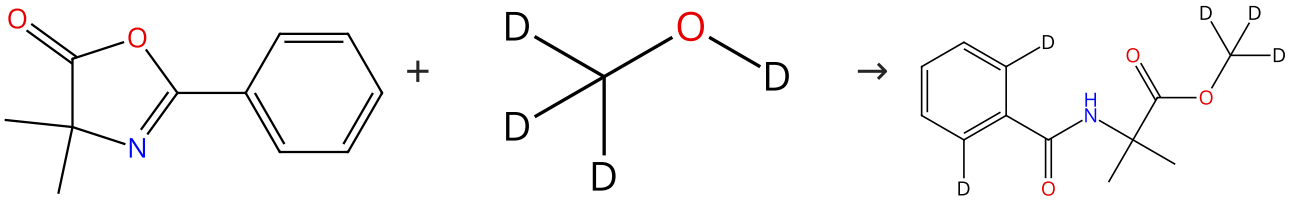
Experimental Protocols

**Effect of Ancillary Ligands and Solvents on H/D Exchange Reactions Catalyzed by Cp*Ir Complexes**

By: Feng, Yuee; et al

Organometallics (2010), 29(13), 2857-2867.

**Scheme 80** (1 Reaction) Steps: **1**



Suppliers (5) Suppliers (248)

31-614-CAS-39442851 Steps: **1**

1.1 **Reagents:** Copper oxide (CuO), Copper(II) triflate
**Catalysts:** Silver triflate, Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-; 1 h, 100 °C

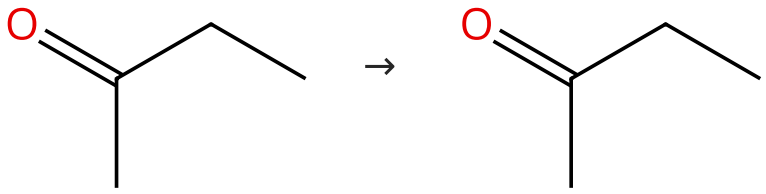
Experimental Protocols

**Ir (III)-catalyzed three-component cascade trifluoroethoxylation and one-pot method to construct complex amide compounds**

By: Zeng, Chengfu; et al

Youji Huaxue (2023), 43(3), 1115-1123.

**Scheme 81** (1 Reaction) Steps: **1**



Suppliers (130)

31-614-CAS-30579549 Steps: **1**

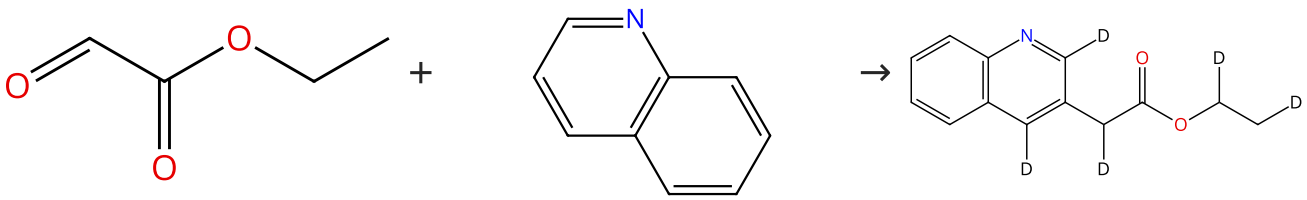
1.1 **Reagents:** Methanol-$d_4$, Silver triflate
**Catalysts:** Dichloro(1,3-dibutyl-1,3-dihydro-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium
**Solvents:** Methanol-$d_4$; 3 h, 100 °C

**Highly Stable Cp-Ir(III) Complexes with N-Heterocyclic Carbene Ligands as C-H Activation Catalysts for the Deuteration of Organic Molecules**

By: Corberan, Rosa; et al

Journal of the American Chemical Society (2006), 128(12), 3974-3979.

**Scheme 82** (1 Reaction) Steps: **1**



Suppliers (47) Suppliers (124)

31-614-CAS-42513224 Steps: **1**

1.1 **Reagents:** Formic-*d* acid, Ethanol-$d_6$, Formic-*d* acid, sodium salt, Water-$d_2$
**Catalysts:** Iridium (boron-doped ZrO2/SiO2 support); 1 h, 120 °C

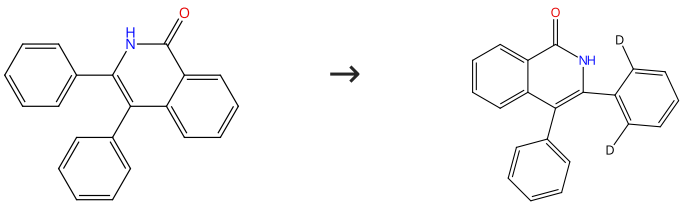
Experimental Protocols

**Reductive Coupling of N-Heteroarenes and 1,2-Dicarbonyls for Direct Access to γ-Amino Acids, Esters, and Ketones Using a Heterogeneous Single-Atom Iridium Catalyst**

By: Jia, Huanhuan; et al

Journal of the American Chemical Society (2024), 146(46), 31647-31655.

**Scheme 83** (1 Reaction) Steps: **1**




Suppliers (3)

31-614-CAS-31846806 Steps: **1**

1.1 **Reagents:** Cupric acetate
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-
**Solvents:** Acetonitrile, Methanol-$d_4$; 12 h, 120 °C

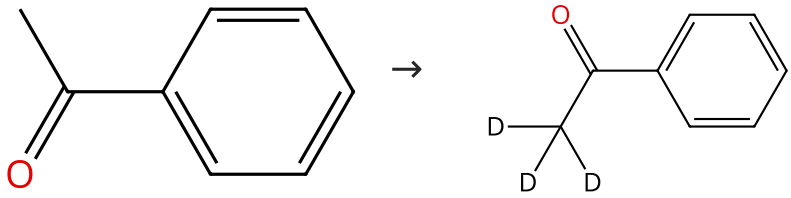
Experimental Protocols

**Iridium-catalyzed oxidative coupling and cycliz ation of NH isoquinolones with olefins leading to isoindolo [2,1-b]isoquinolin-5(7H)-one derivatives**

By: Yan, Kelu; et al

Tetrahedron Letters (2022), 97, 153779.

**Scheme 84** (2 Reactions) Steps: **1**




Suppliers (109) Suppliers (41)

31-116-CAS-3776550 Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Silver triflate, Dichloro[1,3-dihydro-1-(phenylmethyl)-3-(2,4,6-trimethylphenyl)-2*H*-imidazol-2-ylidene][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium (reaction products with (chloromethyl)phenyl-functionalized trimethylsi...)
**Solvents:** Methanol-$d_4$; 15 min, 100 °C

Experimental Protocols

**A tailored organometallic-inorganic hybrid mesostructured material: a route to a well-defined, active, and reusable heterogeneous iridium-NHC catalyst for H/D exchange**

By: Maishal, Tarun K.; et al

Angewandte Chemie, International Edition (2008), 47(45), 8654-8656.

31-116-CAS-1656612 Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Silver triflate, [1,3-Dihydro-1-(phenylmethyl)-3-(2,4,6-trimethylphenyl)-2*H*-imidazol-2-ylidene]diiodo[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium
**Solvents:** Methanol-$d_4$; 5 min, 100 °C

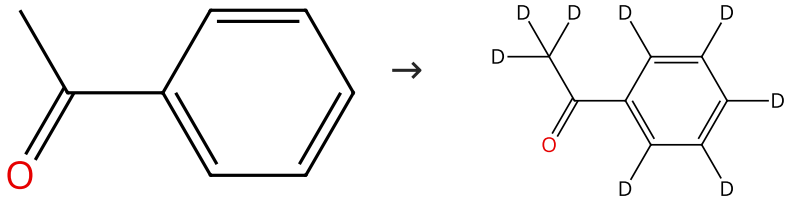
Experimental Protocols

**A tailored organometallic-inorganic hybrid mesostructured material: a route to a well-defined, active, and reusable heterogeneous iridium-NHC catalyst for H/D exchange**

By: Maishal, Tarun K.; et al

Angewandte Chemie, International Edition (2008), 47(45), 8654-8656.

**Scheme 85** (1 Reaction) Steps: **1**



Suppliers (109) Suppliers (39)

**31-116-CAS-15979163** Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Dichloro[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl][1,2,3-tris(1,1-dimethylethyl)-4-phenyl-1,3,2-diazagermetium-2-yl]iridium; 24 h, 110 °C

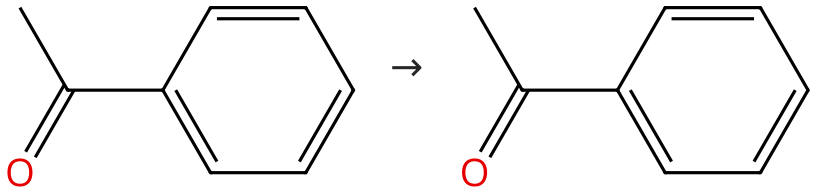
Experimental Protocols

**Amidinatogermylene Metal Complexes as Homogeneous Catalysts in Alcoholic Media**

By: Alvarez-Rodriguez, Lucia; et al

Organometallics (2016), 35(15), 2516-2523.

**Scheme 86** (1 Reaction) Steps: **1**



Suppliers (109)

**31-614-CAS-25520471** Steps: **1**

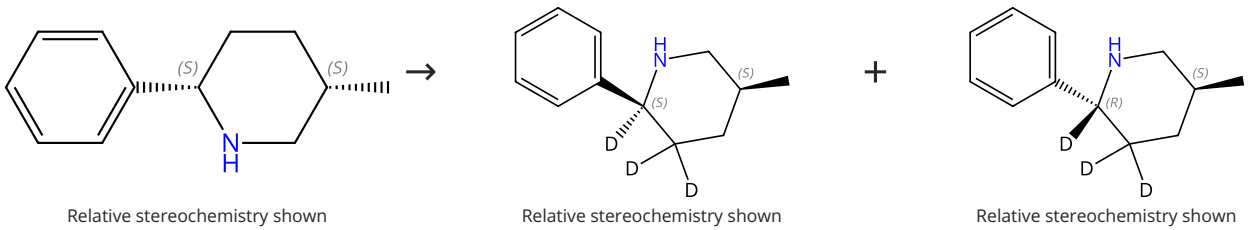
1.1 **Reagents:** Methanol-$d_4$, Silver triflate
**Catalysts:** Dichloro(1,3-dibutyl-1,3-dihydro-2*H*-imidazol-2-ylidene)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium
**Solvents:** Methanol-$d_4$; 12 h, 100 °C

**Highly Stable Cp-Ir(III) Complexes with N-Heterocyclic Carbene Ligands as C-H Activation Catalysts for the Deuteration of Organic Molecules**

By: Corberan, Rosa; et al

Journal of the American Chemical Society (2006), 128(12), 3974-3979.

**Scheme 87** (1 Reaction) Steps: **1** Yield: **95%**



Relative stereochemistry shown Relative stereochemistry shown Relative stereochemistry shown

Suppliers (2)

**31-116-CAS-23178793** Steps: **1** Yield: **95%**

1.1 **Reagents:** Thiophenol
**Catalysts:** Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Methanol-$d_4$; 40 h, rt

Experimental Protocols

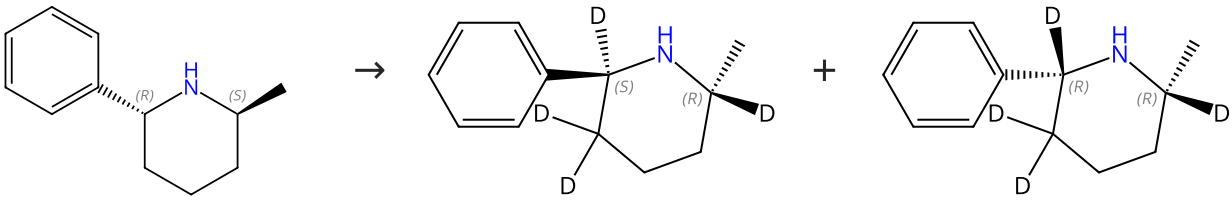
**General Light-Mediated, Highly Diastereoselective Piperidine Epimerization: From Most Accessible to Most Stable Stereoisomer**

By: Shen, Zican; et al

Journal of the American Chemical Society (2021), 143(1), 126-131.

**Scheme 88** (1 Reaction)

Steps: **1** Yield: **93%**



Relative stereochemistry shown

Relative stereochemistry shown

Relative stereochemistry shown

Suppliers (2)

**31-116-CAS-23179939**

Steps: **1** Yield: **93%**

1.1 **Reagents:** Thiophenol
**Catalysts:** Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Methanol-$d_4$; 40 h, rt

Experimental Protocols

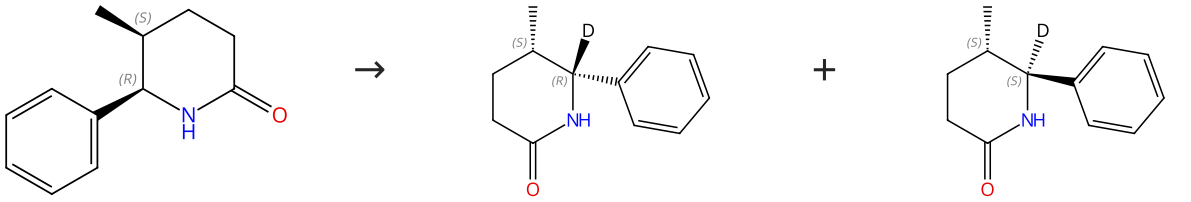
**General Light-Mediated, Highly Diastereoselective Piperidine Epimerization: From Most Accessible to Most Stable Stereoisomer**

By: Shen, Zican; et al

Journal of the American Chemical Society (2021), 143(1), 126-131.

**Scheme 89** (1 Reaction)

Steps: **1** Yield: **93%**



Relative stereochemistry shown

Relative stereochemistry shown

Relative stereochemistry shown

**31-614-CAS-32698466**

Steps: **1** Yield: **93%**

1.1 **Reagents:** Quinuclidine, Methanol-$d_4$, Triisopropylsilanethiol
**Catalysts:** Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1); 20 h, rt

Experimental Protocols

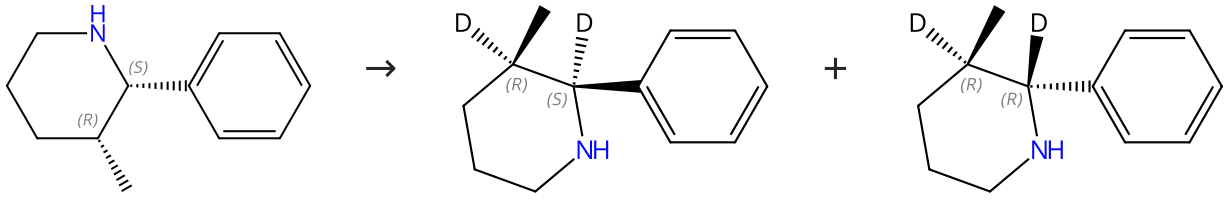
**Visible Light-Mediated, Highly Diastereoselective Epimerization of Lactams from the Most Accessible to the More Stable Stereoisomer**

By: Kazerouni, Amaan M.; et al

ACS Catalysis (2022), 12(13), 7798-7803.

**Scheme 90** (1 Reaction)

Steps: **1** Yield: **90%**



Relative stereochemistry shown

Relative stereochemistry shown

Relative stereochemistry shown

Suppliers (3)

**31-116-CAS-23177800**

Steps: **1** Yield: **90%**

1.1 **Reagents:** Thiophenol
**Catalysts:** Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Methanol-$d_4$; 40 h, rt

Experimental Protocols

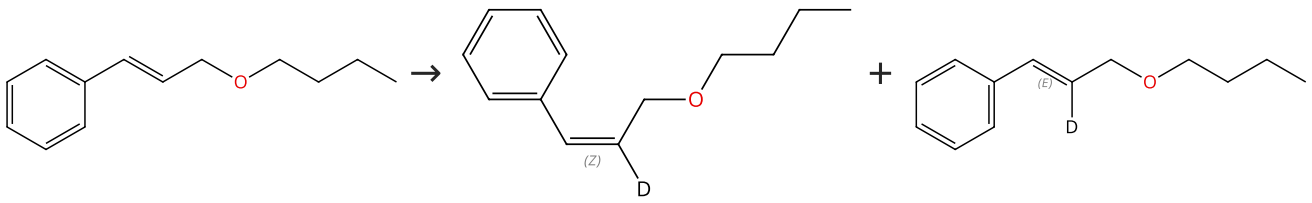
**General Light-Mediated, Highly Diastereoselective Piperidine Epimerization: From Most Accessible to Most Stable Stereoisomer**

By: Shen, Zican; et al

Journal of the American Chemical Society (2021), 143(1), 126-131.

**Scheme 91** (1 Reaction)

Steps: **1** Yield: **89%**




Double bond geometry shown

Double bond geometry shown

**31-614-CAS-37018566**

Steps: **1** Yield: **89%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ*N*$^1$,κ*N*$^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ*N*)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ*N*$^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

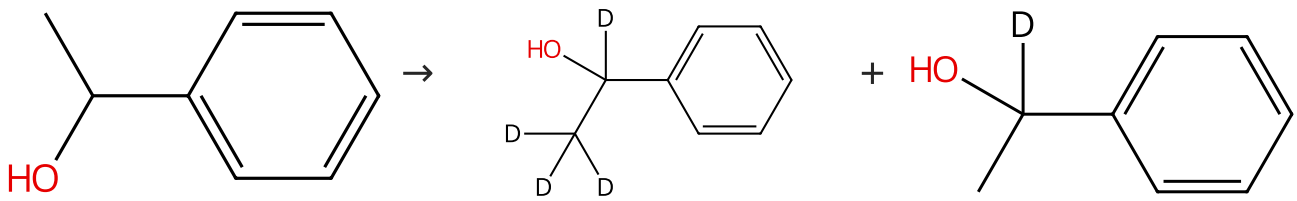
**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 92** (1 Reaction)

Steps: **1** Yield: **84%**




Suppliers (75)

Suppliers (17)

Suppliers (21)

**31-614-CAS-33408369**

Steps: **1** Yield: **84%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ*N*$^1$,κ*N*$^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 21 h, 80 °C

1.2 **Reagents:** Sulfuric acid
**Solvents:** Water; pH 5

Experimental Protocols

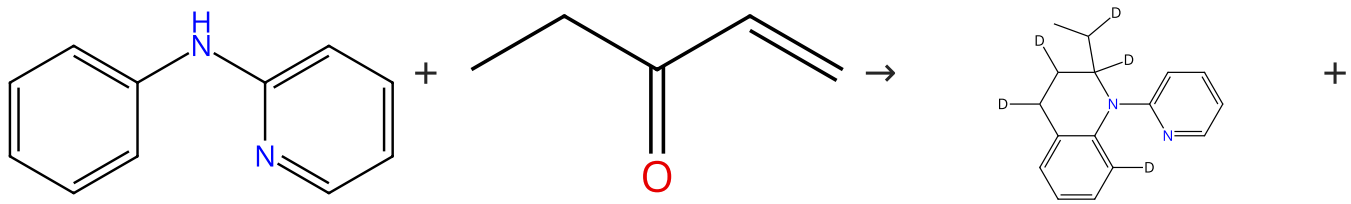
**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

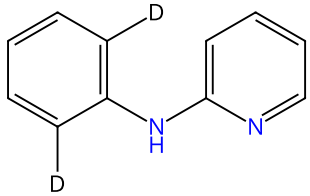
**Scheme 93** (1 Reaction)

Steps: **1** Yield: **82%**




Suppliers (73)

Suppliers (35)



31-085-CAS-18874912 Steps: **1** Yield: **82%**

1.1 **Reagents:** Pivalic acid
**Catalysts:** Nickel acetate, Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Silver hexafluoroantimonate
**Solvents:** 2-Propanol-*d*; 12 h, 80 °C

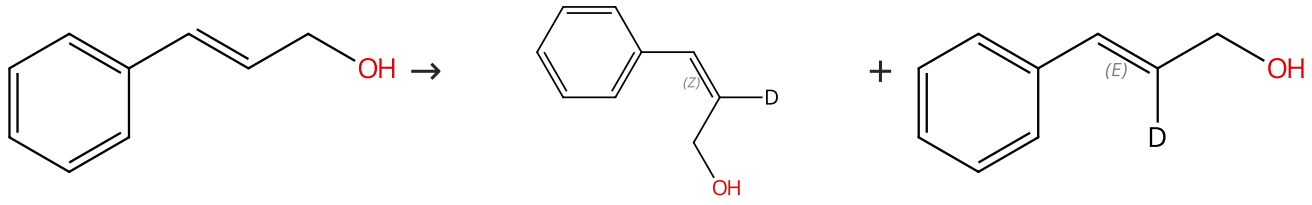
Experimental Protocols

**Divergent Coupling of Anilines and Enones by Integr ation of C-H Activation and Transfer Hydroge nation**

By: Zhou, Xukai; et al

Angewandte Chemie, International Edition (2018), 57(22), 6681-6685.

**Scheme 94** (1 Reaction) Steps: **1** Yield: **79%**




Suppliers (95)

Double bond geometry shown

Double bond geometry shown

Supplier (1)

31-614-CAS-37018563 Steps: **1** Yield: **79%**

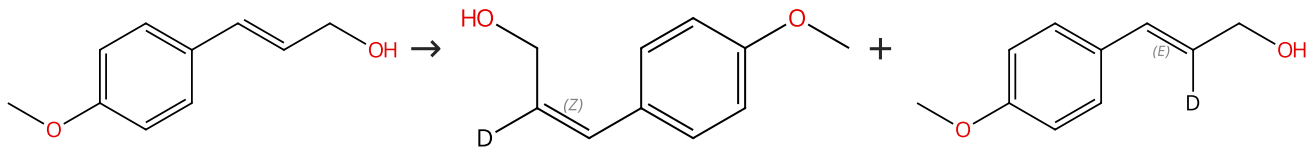
1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ*N*$^1$,κ*N*$^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ*N*)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ*N*$^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 95** (1 Reaction) Steps: **1** Yield: **75%**




Suppliers (57)

Double bond geometry shown

Double bond geometry shown

31-614-CAS-37018564 Steps: **1** Yield: **75%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ*N*$^1$,κ*N*$^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ*N*)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ*N*$^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

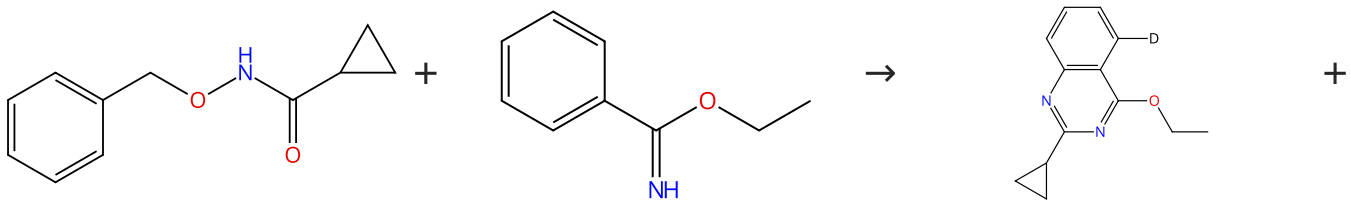
**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

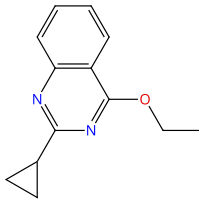
**Scheme 96** (1 Reaction)

Steps: **1** Yield: **69%**



Suppliers (6)

Suppliers (20)



**31-614-CAS-24223554**

Steps: **1** Yield: **69%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Silver hexafluoro antimonate
**Solvents:** 1,2-Dichloroethane; 4 h, 120 °C

Experimental Protocols

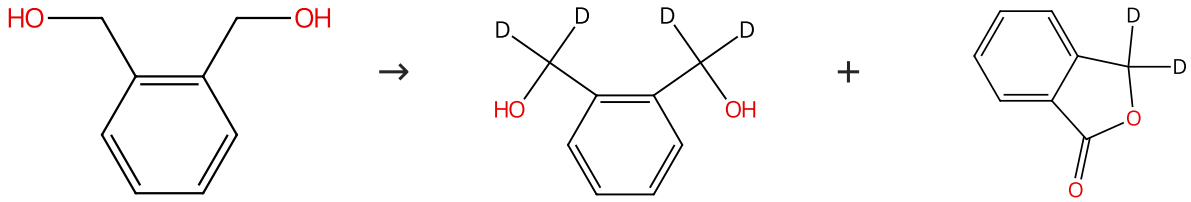
**Efficient Synthesis of Quinazolines from Aryl Imidates and N-Alkoxyamide by Ir(III)-Catalyzed C-H Amidation/Cyclization**

By: Fan, Wei-Tai; et al

European Journal of Organic Chemistry (2021), 2021(29), 4144-4147.

**Scheme 97** (1 Reaction)

Steps: **1** Yield: **68%**



Suppliers (86)

Supplier (1)

**31-614-CAS-33408370**

Steps: **1** Yield: **68%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$, Sodium hydroxide-$d$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 3 d, 80 °C

Experimental Protocols

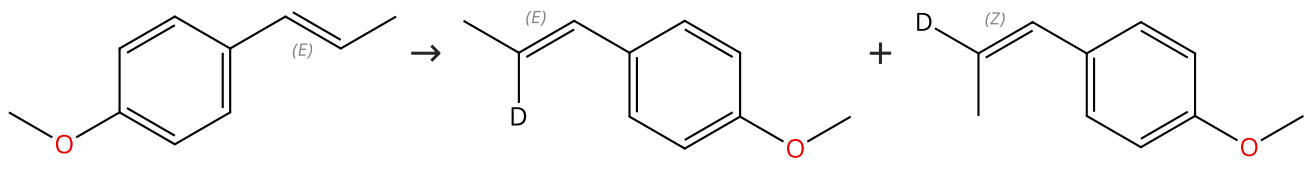
**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 98** (1 Reaction)

Steps: **1** Yield: **66%**



Double bond geometry shown

Double bond geometry shown

Double bond geometry shown

Suppliers (103)

31-614-CAS-37018562 Steps: **1** Yield: **66%**

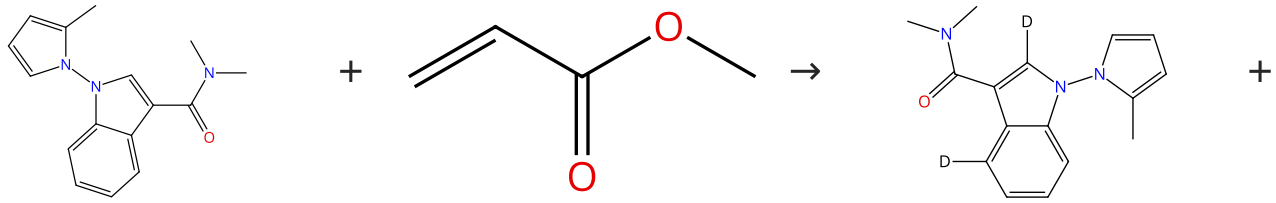
1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ$N$)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ$N^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

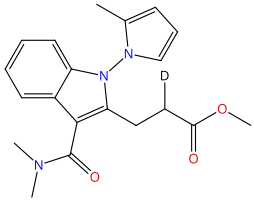
By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 99** (1 Reaction) Steps: **1** Yield: **65%**



Suppliers (66)



31-614-CAS-36702157 Steps: **1** Yield: **65%**

1.1 **Catalysts:** Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene] diiridium, *R*-Xyl-BINAP
**Solvents:** Toluene; 10 min, rt

1.2 **Reagents:** Methanol-$d_4$
**Catalysts:** Sodium tetrakis[3,5-bis(trifluoromethyl)phenyl] borate; 12 h, 100 °C

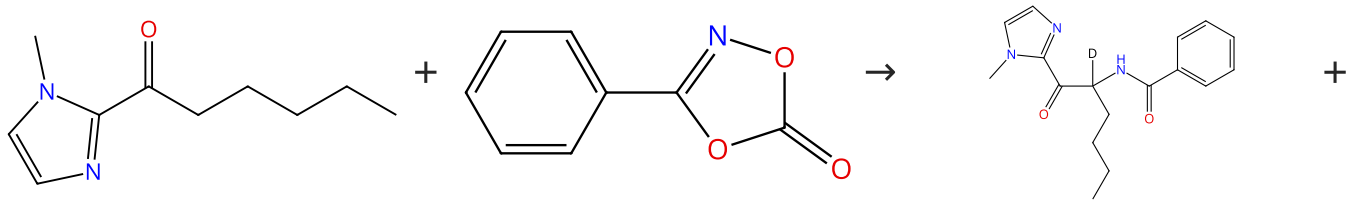
Experimental Protocols

**Enantioselective Synthesis of N-N Biaryl Atropisomers through Iridium(I)-Catalyzed C-H Alkylation with Acrylates**

By: Yin, Si-Yong; et al

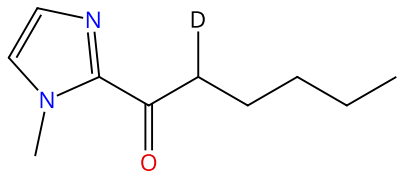
Angewandte Chemie, International Edition (2023), 62(37), e202305067.

**Scheme 100** (1 Reaction) Steps: **1** Yield: **63%**



Suppliers (4)

Suppliers (41)



31-116-CAS-23809105 Steps: **1** Yield: **63%**

1.1 **Reagents:** 2-Propan-*2-d*-ol-*d*, 1,1,1,3,3,3-hexafluoro-
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-; 10 min, 70 °C

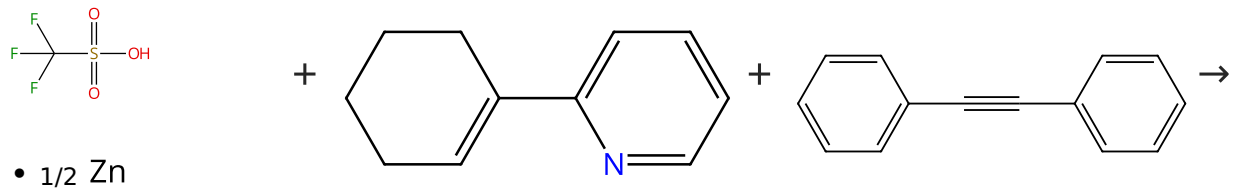
Experimental Protocols

**Iridium(III)-Catalyzed Direct Intermolecular Chemoselective α-Amidation of Masked Aliphatic Carboxylic Acids with Dioxazolones via Nitrene Transfer**

By: Mahato, Sanjit K.; et al

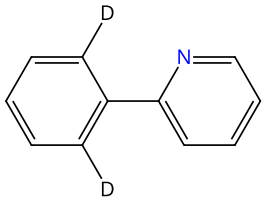
ACS Catalysis (2021), 11(12), 7126-7131.

**Scheme 101** (1 Reaction) Steps: **1** Yield: **59%**




Suppliers (90) Suppliers (33) Suppliers (88)

Multi-component structure image available in CAS SciFinder




Supplier (1)

31-614-CAS-41216431 Steps: **1** Yield: **59%**

1.1 **Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-
**Solvents:** Methanol-$d_4$; 2 h, 60 °C

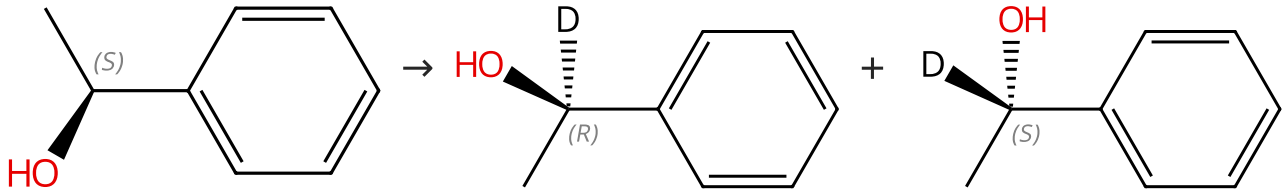
Experimental Protocols

**Electrooxidative iridium-catalyzed $sp^2$ C-H activation-annulation leading to cationic π-extended heteroaromatics**

By: Yang, Qi-Liang; et al

Organic Chemistry Frontiers (2024), 11(17), 4849-4856.

**Scheme 102** (1 Reaction) Steps: **1** Yield: **48%**




Absolute stereochemistry shown, Rotation (-)

Absolute stereochemistry shown

Absolute stereochemistry shown

Suppliers (96)

31-614-CAS-33408372 Steps: **1** Yield: **48%**

1.1 **Reagents:** Methanol-$d_4$, Water-$d_2$
**Catalysts:** Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κ$N^1$,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
**Solvents:** Isopropanol; 21 h, 80 °C

Experimental Protocols

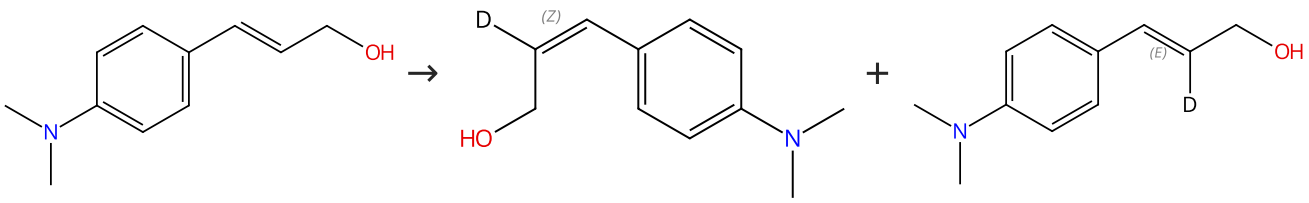
**Iridium-catalyzed α-selective deuteration of alcohols**

By: Itoga, Moeko; et al

Chemical Science (2022), 13(30), 8744-8751.

**Scheme 103** (1 Reaction)

Steps: **1** Yield: **46%**




Suppliers (6)

Double bond geometry shown

Double bond geometry shown

**31-614-CAS-37018567**

Steps: **1** Yield: **46%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ*N*$^1$,κ*N*$^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ*N*)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ*N*$^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

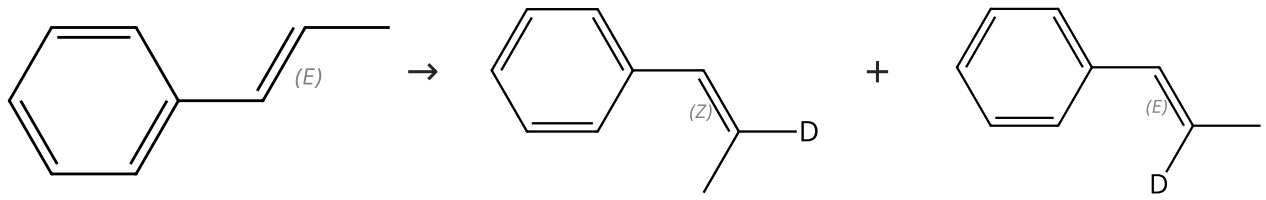
**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 104** (1 Reaction)

Steps: **1** Yield: **44%**




Double bond geometry shown

Double bond geometry shown

Double bond geometry shown

Suppliers (59)

Supplier (1)

**31-614-CAS-37018561**

Steps: **1** Yield: **44%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ*N*$^1$,κ*N*$^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κ*N*)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κ*N*$^1$)cobalt
**Solvents:** Dimethylformamide; 36 h, rt

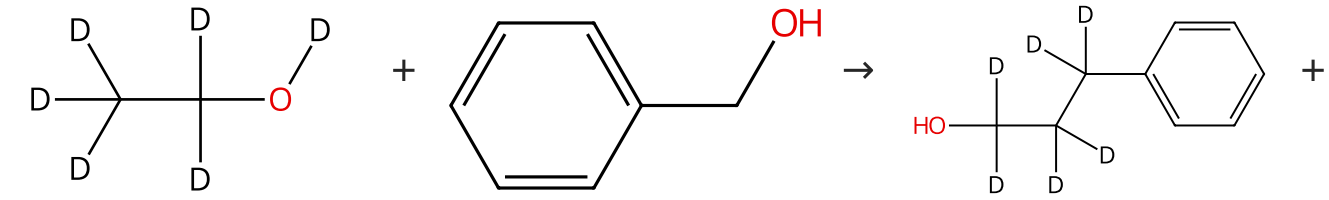
**Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange**

By: Jia, Zongbin; et al

CCS Chemistry (2023), 5(5), 1069-1076.

**Scheme 105** (1 Reaction)

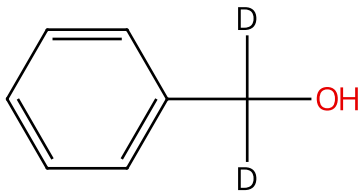
Steps: **1** Yield: **39%**



Suppliers (66)

Suppliers (161)

Supplier (1)



Suppliers (39)

**31-116-CAS-22501245**

Steps: **1** Yield: **39%**

1.1 **Reagents:** Potassium *tert*-butoxide
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-
**Solvents:** Tetrahydrofuran; 24 h, 100 °C

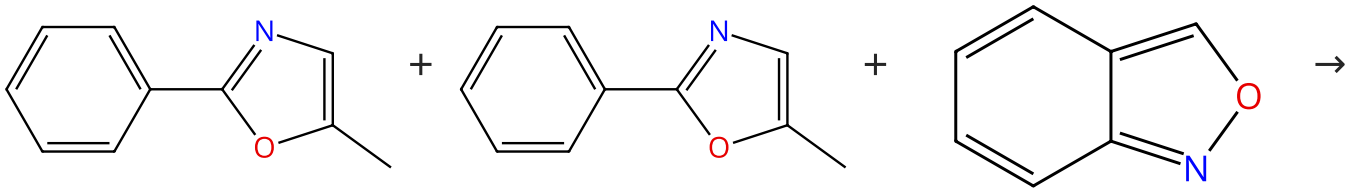
**Iridium Complex Catalyzed C2-Extension of Primary Alcohols with Ethanol via Hydrogen Autotransfer Reaction**

By: Kobayashi, Masaki; et al

Journal of Organic Chemistry (2020), 85(18), 11952-11958.

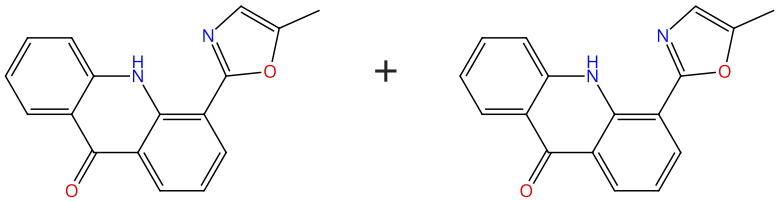
**Scheme 106** (1 Reaction)

Steps: **1** Yield: **39%**



Suppliers (21)

Suppliers (70)



**31-614-CAS-40343563**

Steps: **1** Yield: **39%**

1.1 **Reagents:** 1-Adamantanecarboxylic acid, Silver triflate, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*]silver
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-
**Solvents:** Methanol-*d*; 12 h, 120 °C

1.2 **Reagents:** Sodium bicarbonate
**Solvents:** Water

Experimental Protocols

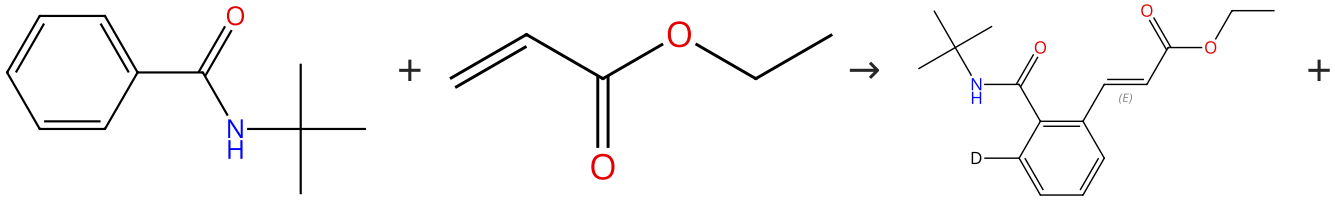
**Synthesis of acridones via Ir(III)-catalyzed amination annulation of oxazoles with anthranils**

By: Zhou, Han-Yi; et al

Organic & Biomolecular Chemistry (2024), 22(20), 4036-4040.

**Scheme 107** (1 Reaction)

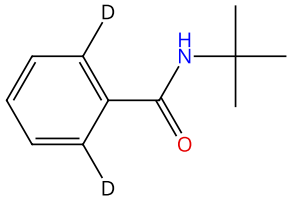
Steps: **1** Yield: **32%**



Suppliers (55)

Suppliers (76)

Double bond geometry shown



**31-116-CAS-6942209**

Steps: **1** Yield: **32%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*] silver
**Solvents:** 1,2-Dichloroethane; 1 h, 70 °C; 70 °C → rt

Experimental Protocols

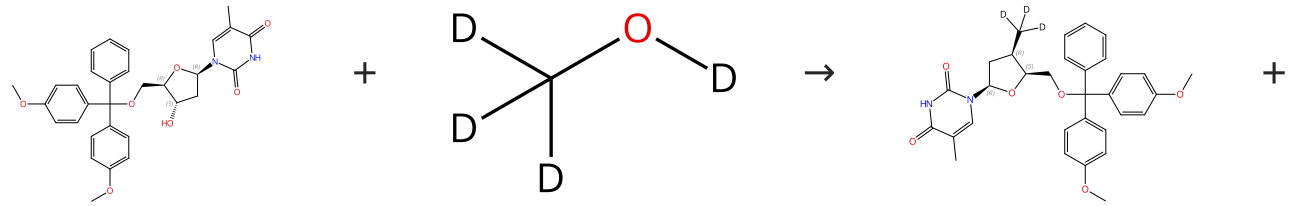
**Complete Switch of Selectivity in the C-H Alkenylation and Hydroarylation Catalyzed by Iridium: The Role of Directing Groups**

By: Kim, Jiyu; et al

Journal of the American Chemical Society (2015), 137(42), 13448-13451.

**Scheme 108** (1 Reaction)

Steps: **1** Yield: **32%**

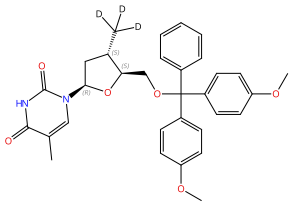


Absolute stereochemistry shown, Rotation (+)

Suppliers (102)

Suppliers (248)

Absolute stereochemistry shown



Absolute stereochemistry shown

**31-614-CAS-39967508**

Steps: **1** Yield: **32%**

1.1 **Reagents:** Benzoxazolium, 5,7-bis(1,1-dimethylethyl)-3-phenyl-, tetrafluoroborate(1-) (1:1)
**Solvents:** *tert*-Butyl methyl ether; 10 min, rt

1.2 **Reagents:** Pyridine; rt; 45 min, rt

1.3 **Reagents:** Benzoyl peroxide, Quinuclidine
**Catalysts:** Bis(acetylacetonato)nickel, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Dimethyl sulfoxide, *tert*-Butyl methyl ether; 1 h, rt

Experimental Protocols

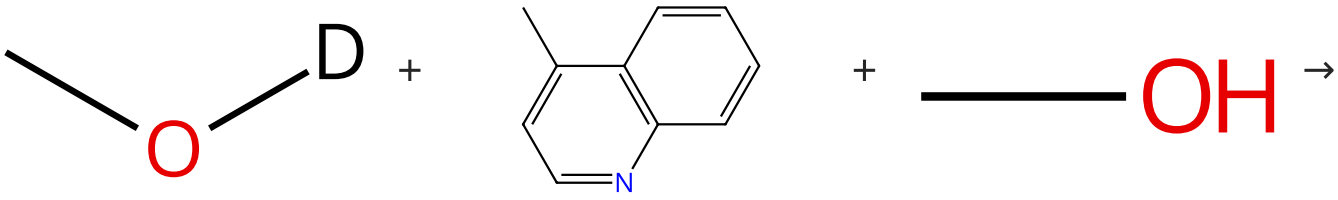
**Alcohol-alcohol cross-coupling enabled by S H2 radical sorting**

By: Chen, Ruizhe; et al

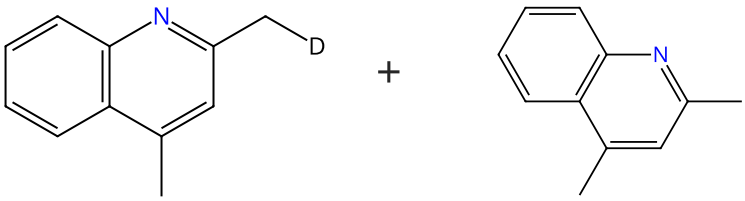
Science (Washington, DC, United States) (2024), 383(6689), 1350-1357.

**Scheme 109** (1 Reaction)

Steps: **1** Yield: **24%**



Suppliers (49) | Suppliers (75) | Suppliers (471)



Suppliers (89)

**31-614-CAS-30929097**

Steps: **1** Yield: **24%**

1.1 **Reagents:** Hydrochloric acid
**Catalysts:** Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ$N$]phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** 1,2-Dichloroethane, Water; 24 h

Experimental Protocols

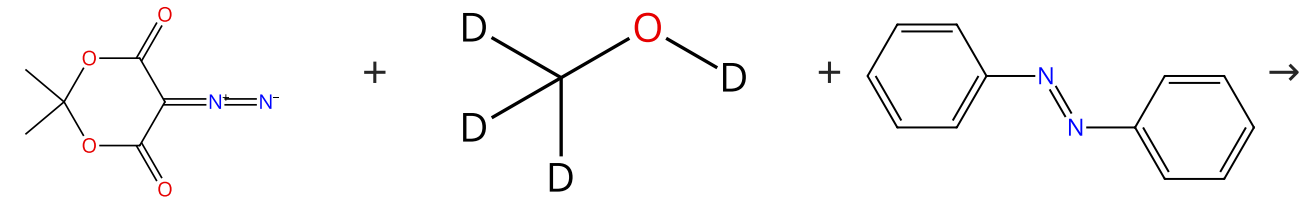
**The Alkylation and Reduction of Heteroarenes with Alcohols Using Photoredox Catalyzed Hydrogen Atom Transfer via Chlorine Atom Generation**

By: Zidan, Montserrat; et al

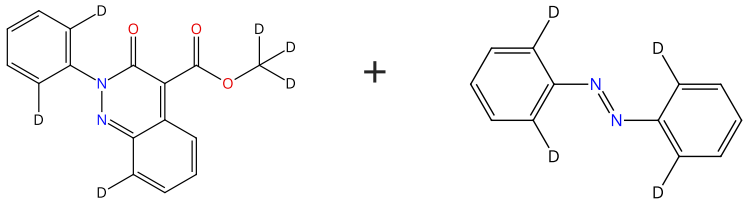
European Journal of Organic Chemistry (2020), 2020(10), 1453-1458.

**Scheme 110** (1 Reaction)

Steps: **1**



Suppliers (49) | Suppliers (248) | Suppliers (76)



**31-116-CAS-19850307**

Steps: **1**

1.1 **Reagents:** Water-$d_2$
**Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Indium triflate; 6 h, 80 °C

Experimental Protocols

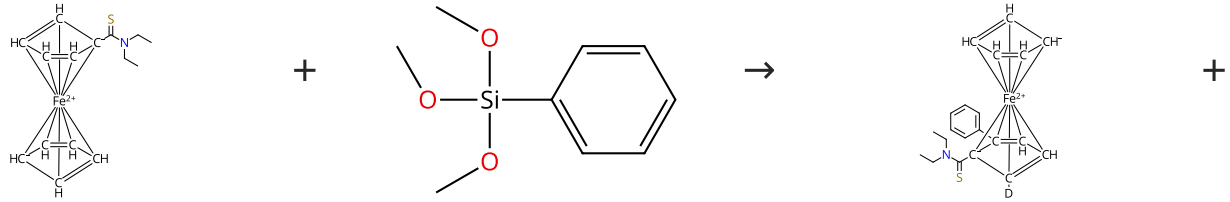
**Ir(III)-Catalyzed [4 + 2] cycliz ation of azobenzene and diazotized Meldrum's acid for the synthesis of cinnolin-3(2H)-one**

By: Borah, Gongutri; et al

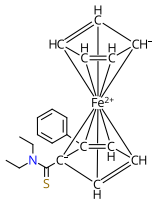
Organic & Biomolecular Chemistry (2019), 17(9), 2554-2563.

**Scheme 111** (1 Reaction)

Steps: **1**



Suppliers (81)



**31-614-CAS-34442419**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$, Silver fluoride
**Catalysts:** Cupric acetate, Silver acetate, Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-
**Solvents:** Tetrahydrofuran; 12 h, 80 °C

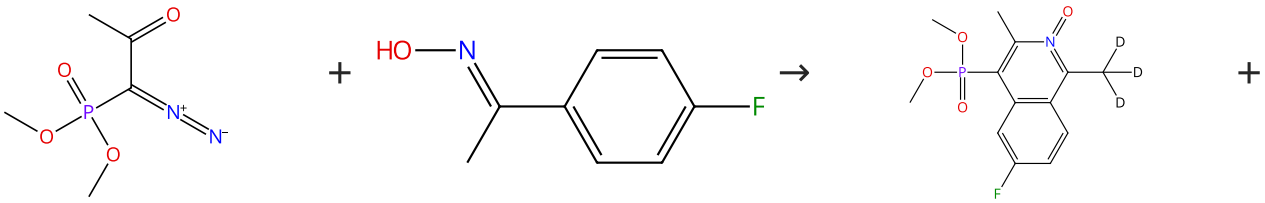
**Thioamide-Directed Transition-Metal-Catalyzed C($sp^2$)-H Vinylation and Arylation of Ferrocenes**

By: Li, Hao; et al

Advanced Synthesis & Catalysis (2022), 364(17), 2926-2931.

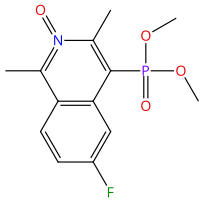
**Scheme 112** (1 Reaction)

Steps: **1**



Suppliers (95)

Suppliers (29)



**31-116-CAS-7037858**

Steps: **1**

1.1 **Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*]silver
**Solvents:** Methanol-$d_4$; 12 h, 30 °C

Experimental Protocols

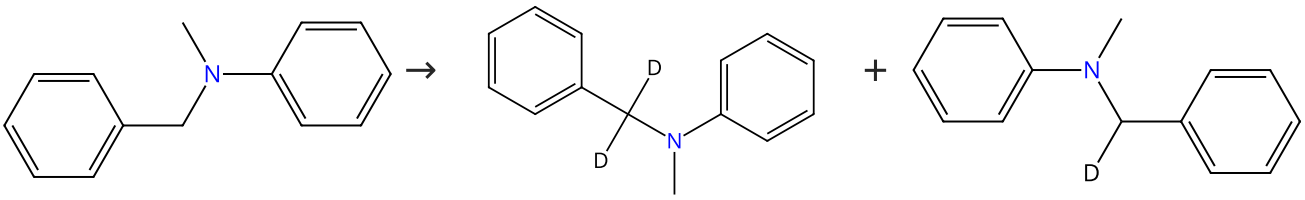
**Ir(III)-Catalyzed Synthesis of Isoquinoline N-Oxides from Aryloxime and α-Diazocarbonyl Compounds**

By: Phatake, Ravindra S.; et al

Organic Letters (2016), 18(2), 292-295.

**Scheme 113** (1 Reaction)

Steps: **1**



Suppliers (56)

**31-116-CAS-22283107**

Steps: **1**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ$N$)phenyl-κ$C$]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Dichloromethane; 24 h, 24 °C

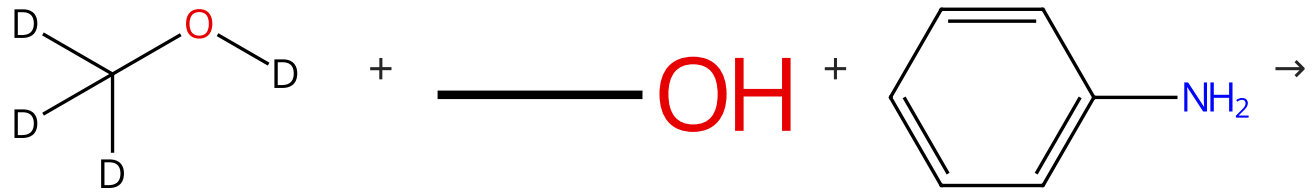
**Regioselective, Photocatalytic α-Functionalization of Amines**

By: Leng, Lingying; et al

Journal of the American Chemical Society (2020), 142(28), 11972-11977.

**Scheme 114** (1 Reaction)

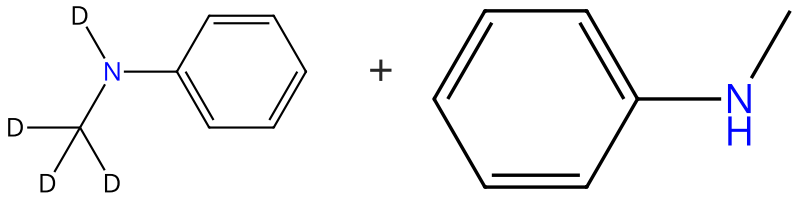
Steps: **1**



Suppliers (248)

Suppliers (471)

Suppliers (120)



Suppliers (79)

**31-032-CAS-23664192**

Steps: **1**

1.1 **Reagents:** Cesium carbonate
**Catalysts:** Iridium (complex with 2,6-dicyanopyridine homopolymer, pentamethylcyclopentadie...), 2,6-Pyridinedicarbonitrile, homopolymer (complex with pentamethylcyclopentadienyliridium(III) dichloride dimer)
**Solvents:** Methanol; 12 h, 125 °C

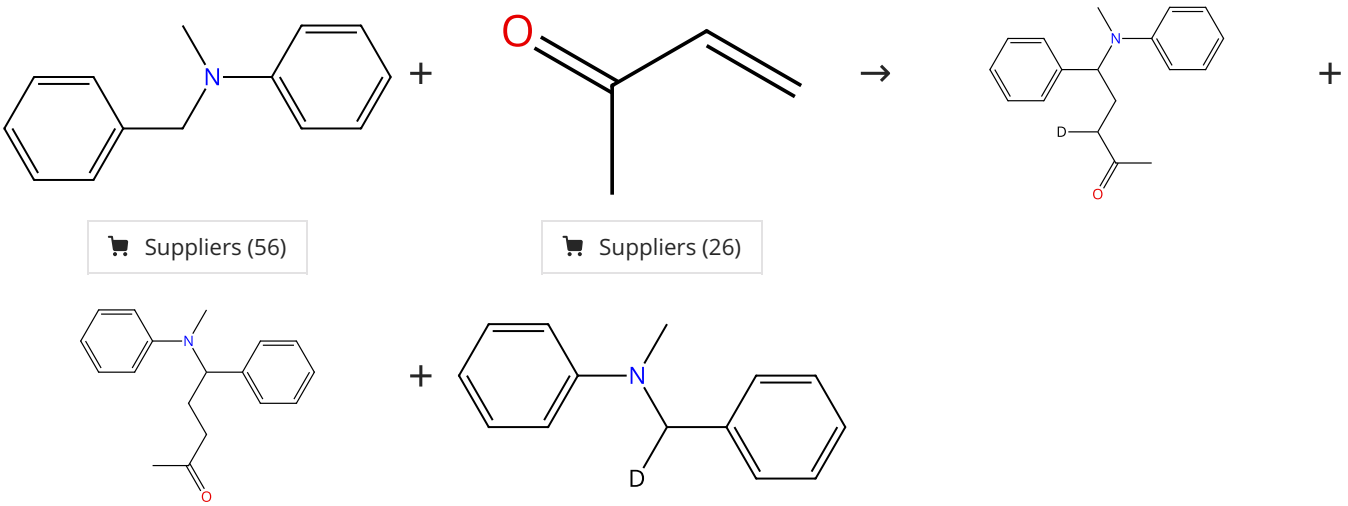
**Recyclable covalent triazine framework-supported iridium catalyst for the N-methylation of amines with methanol in the presence of carbonate**

By: Liu, Peng; et al

Journal of Catalysis (2021), 396, 281-290.

**Scheme 115** (1 Reaction)

Steps: **1** Yield: **41%**




**31-116-CAS-22283108**

Steps: **1** Yield: **41%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Dichloromethane; 4 h, 24 °C

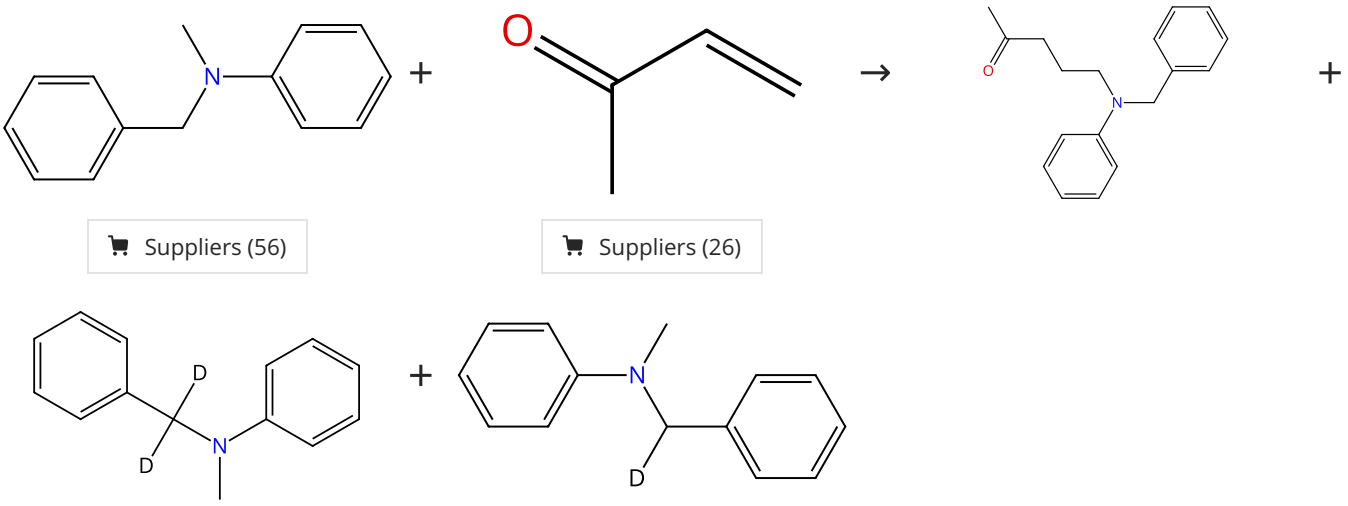
**Regioselective, Photocatalytic α-Functionalization of Amines**

By: Leng, Lingying; et al

Journal of the American Chemical Society (2020), 142(28), 11972-11977.

**Scheme 116** (1 Reaction)

Steps: **1** Yield: **35%**




**31-614-CAS-29352699**

Steps: **1** Yield: **35%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Acetonitrile; 4 h, 24 °C

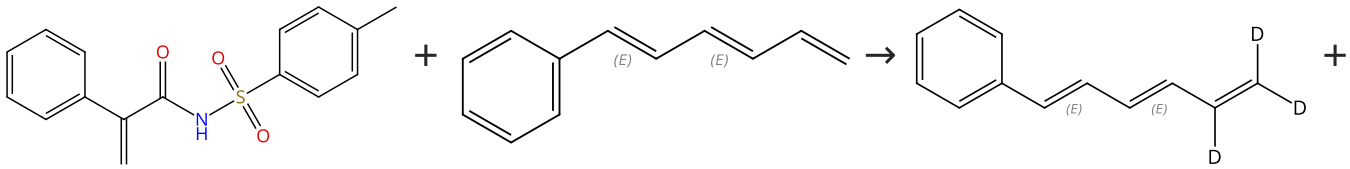
**Regioselective, Photocatalytic α-Functionalization of Amines**

By: Leng, Lingying; et al

Journal of the American Chemical Society (2020), 142(28), 11972-11977.

**Scheme 117** (1 Reaction)

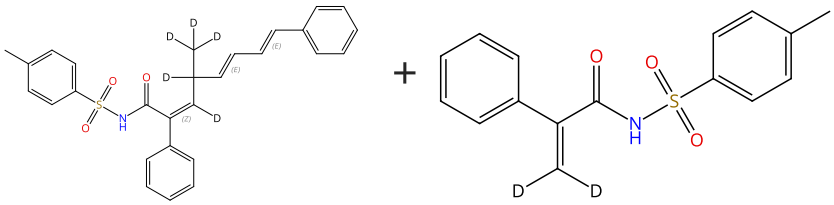
Steps: **1** Yield: **31%**



Double bond geometry shown

Double bond geometry shown

Suppliers (2)



Double bond geometry shown

**31-614-CAS-36270101**

Steps: **1** Yield: **31%**

1.1 **Reagents:** Methanol-*d*
**Catalysts:** Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-methoxydi iridium; 45 min, 60 °C

Experimental Protocols

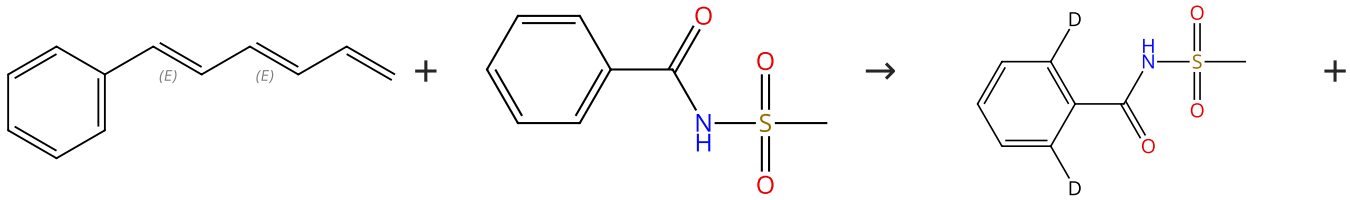
**Chelation-assisted iridium-catalyzed hydroalkenylation and hydroarylation/cyclization with conjugated trienes**

By: Liao, Yilei; et al

Organic & Biomolecular Chemistry (2023), 21(17), 3537-3541.

**Scheme 118** (1 Reaction)

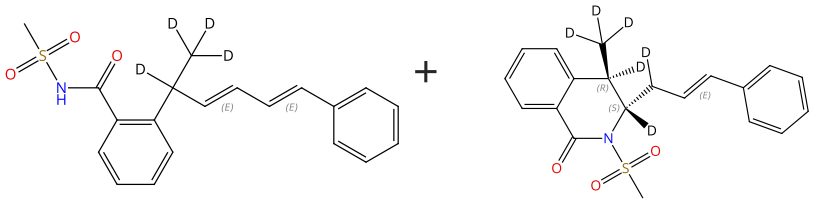
Steps: **1** Yield: **21%**



Double bond geometry shown

Suppliers (2)

Suppliers (11)



Relative stereochemistry shown
Double bond geometry shown

Double bond geometry shown

**31-614-CAS-36270099**

Steps: **1** Yield: **21%**

1.1 **Reagents:** Ethanol-*d*
**Catalysts:** Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-methoxydi iridium; 12 h, 60 °C

Experimental Protocols

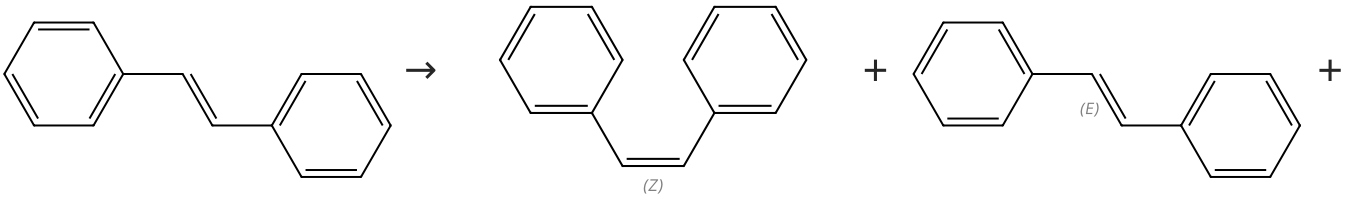
**Chelation-assisted iridium-catalyzed hydroalkenylation and hydroarylation/cyclization with conjugated trienes**

By: Liao, Yilei; et al

Organic & Biomolecular Chemistry (2023), 21(17), 3537-3541.

**Scheme 119** (1 Reaction)

Steps: **1**



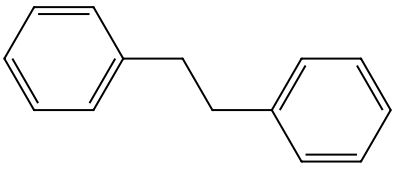
Suppliers (11)

Double bond geometry shown

Suppliers (65)

Double bond geometry shown

Suppliers (79)



Suppliers (93)

**31-242-CAS-4844934** Steps: **1**

1.1 **Reagents:** Hydrogen
**Catalysts:** Iridium(1+), [μ-[3,5-bis[(diphenylphosphino-κ*P*)methyl]-1*H*-pyrazolato-κ$N^1$:$N^2$]]bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-, tetrafluoroborate(1-)
**Solvents:** Methanol-$d_4$

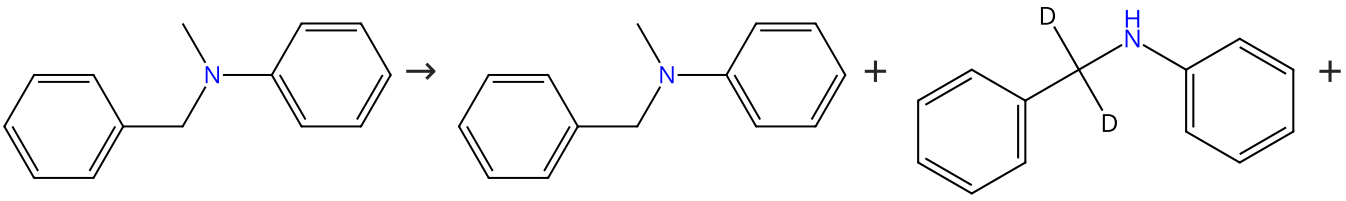
**Bimetallic reactivity. Oxidative-addition and reductive-elimination reactions of rhodium and iridium bimetallic complexes**

By: Schenck, Terry G.; et al

Inorganic Chemistry (1985), 24(15), 2338-44.

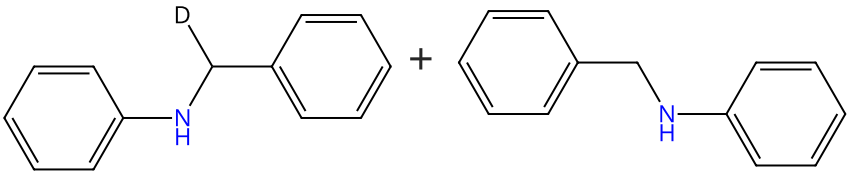
**Scheme 120** (1 Reaction)

Steps: **1** Yield: **60%**



Suppliers (56)

Suppliers (2)



Suppliers (91)

**31-614-CAS-26049872** Steps: **1** Yield: **60%**

1.1 **Reagents:** Methanol-$d_4$
**Catalysts:** Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κ$N^1$,κ$N^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
**Solvents:** Acetonitrile; 24 h, 24 °C

**Regioselective, Photocatalytic α-Functionalization of Amines**

By: Leng, Lingying; et al

Journal of the American Chemical Society (2020), 142(28), 11972-11977.