CAS SciFinder

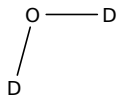
Task History

Initiating Search

February 22, 2025, 12:19 PM

Substances:

Filtered By:



Structure Match: **As Drawn**

Search Tasks

Task	Search Type	View
Returned Substance Results + Filters (1,728)	Substances	View Results
Exported: Retrieved Related Reaction Results + Filters (1,028)	Reactions	View Results

Filtered By:

Substance Role: **Reagent, Solvent**

Catalyst: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium, [(1,2,5,6-η)-1,5-Cyclooctadiene][(1,2,3,3a,7a-η)-1*H*-inden-1-yl]iridium, [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium, [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium, (1-Butyl-1,3-dihydro-3-methyl-2*H*-imidazol-2-ylidene)chloro[(1,2,5,6-η)-1,5-cyclooctadiene]iridium, [2-[Bis(1-methylethyl)phosphino-κ*P*]-*N*-[2-[bis(1-methylethyl)phosphino-κ*P*]-4-methylphenyl]-4-methylbenzenaminato-κ*N*]dihydroiridium, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium, 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*-phenyl-2-pyridinecarboxamidato-κN^1,κN^2)iridium, Chloro[3-[1-[(4-methoxyphenyl)imino-κ*N*]ethyl]-2-naphthalenyl-κ*C*][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium, Chloro[5-(dimethylamino)-2-(2-pyridinyl-κ*N*)phenyl-κ*C*][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]iridium, Chloro(α,α-dimethyl-2-pyridinemethanolato-κN^1,κO^2)[(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, 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-chlorotetrakis[(1,2-η)-cyclooctene]diiridium, *fac*-Tris(2-(2-pyridinyl)phenyl)iridium, Iridate(3-), tris[2-(2-pyridinyl-κ*N*)-4-sulfonatophenyl-κ*C*]-, sodium (1:3), (*OC*-6-22)-, Iridium, Iridium(1+), [1,1'-(4 *R*)-[4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[1,1-diphenylphosphine-κ*P*]][(1,2,5,6-η)-1,5-cyclooctadiene]-, 1,1,1-trifluoromethanesulfonate (1:1), Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene][(1,2-dimethyl-1,2-ethanediyl)bis[diphenylphosphine]-*P*,*P*']-, [*S*-(*R**,*R**)]-, salt with trifluoromethanesulfonic acid (1:1), Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene][1,3-dihydro-1,3-bis(2,4,6-trimethylphenyl)-2*H*-imidazol-2-ylidene](triphenylphosphine)-, hexafluorophosphate(1-) (1:1), Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1), Iridium(1+), (2,2'-bipyridine-κN^{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-κN^{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-κN^{1},κ$N^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1), Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^{1},κ$N^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^{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-κN^{1},κ$N^{1'}$]bis[3,5-difluoro-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-κN^{1},κ$N^{1'}$]bis[3,5-difluoro-2-(5-methyl-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-κN^{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-κN^{1},κ$N^{1'}$]bis[5-(1,1-dimethylethyl)-2-[4-(1,1-dimethylethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-), Iridium(1+), [4,4'-bis(trifluoromethyl)-2,2'-bipyridine-κN^{1},κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1), Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^{1},κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1), Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, 1,1,1-trifluoromethanesulfonate (1:1), Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrafluoroborate(1-) (1:1), Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate(1-) (1:1), Iridium(1+), bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*][*N*-(2-

pyridinyl-κ*N*)-2-pyridinamine-κN^1]-, chloride, (*OC*-6-33)-, Iridium(1+), bis[3,5-difluoro-2-(2-pyridinyl-κ*N*)phenyl-κ*C*](1,10-phenanthroline-κN^1,κN^{10})-, (*OC*-6-13)-, hexafluorophosphate(1-) (1:1), Iridium(1+), bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*](1,10-phenanthroline-κN^1,κN^{10})-, (*OC*-6-13)-, hexafluorophosphate(1-) (1:1), Iridium(1+), chloro[2-(4,5-dihydro-1*H*-imidazol-2-yl-κN^3)-4-methoxypyridine-κ*N*][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1), Iridium(1+), chloro[2-(4,5-dihydro-1*H*-imidazol-2-yl-κN^3)-5-methoxypyridine-κ*N*][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1), Iridium(1+), chloro[2-(4,5-dihydro-1*H*-imidazol-2-yl-κN^3)-*N*,*N*-diethyl-4-pyridinamine-κN^1][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1), Iridium(1+), chloro[2-(4,5-dihydro-1*H*-imidazol-2-yl-κN^3)-*N*,*N*-dimethyl-4-pyridinamine-κN^1][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1), Iridium(1+), chloro[2-(4,5-dihydro-1*H*-imidazol-2-yl-κN^3)pyridine-κ*N*][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1), Iridium(1+), chloro(η^5-2,4-cyclopentadien-1-yl)[2-(4,5-dihydro-1*H*-imidazol-2-yl-κN^3)-4-methoxypyridine-κ*N*]-, chloride (1:1), Iridium(1+), chloro[6-[6-(1,1-dimethylethyl)-1*H*-benzimidazol-2-yl-κN^3]-2-pyridinol-κN^1][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1), Iridium(1+), peroxytetrakis(trimethylphosphine)-, chloride (1:1), (*OC*-6-22)-, Iridium(1+), trihydro[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl](trimethylphosphine)-, 1,1,1-trifluoromethanesulfonate (1:1), Iridium(1+), tris[μ-[4-(1,1-dimethylethyl)benzenemethanethioato]]bis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, chloride (1:1), Iridium(1+), tris[μ-(benzeneethanethiolato)]bis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, chloride (1:1), stereoisomer, Iridium(1+), tris[μ-(benzenemethanethiolato)]bis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, chloride (1:1), Iridium(2+), aqua([2,2'-bipyridine]-4,4'-diol-κN^1,κ$N^{1'}$)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, sulfate (1:1), Iridium(2+), aqua([4,4'-bipyrimidine]-2,2',6,6'(1*H*,1'*H*,3*H*,3'*H*)-tetrone-κN^3,κ$N^{3'}$)[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, sulfate (1:1), Iridium(2+), diaquabis[4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[μ-(4-methylbenzenesulfonato-κ*O*:κ*O*')]bis(2-methyl-2-phenylpropyl)di-, stereoisomer, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate(1-) (1:2), Iridium(2+), triaqua[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, sulfate (1:1), Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κN^1,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, Iridium, compd. with ruthenium (1:2), Iridium, compd. with ruthenium (2:1), Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, [*N*-[(1*R*,2*R*)-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, [*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[2-(2-pyridinyl-κ*N*)-4-(3-pyridinyl)phenyl-κ*C*]iridium, (*OC*-6-22)-Tris[2-(2-pyridinyl-κ*N*)-4-(4-pyridinyl)phenyl-κ*C*]iridium, (*SP*-5-31)-(1-Methylethyl)[5,10,15,20-tetrakis(4-methylphenyl)-21*H*,23*H*-porphinato(2-)-κN^{21},κN^{22},κN^{23},κN^{24}]iridium, (*T*-4)-Oxotris(2,4,6-trimethylphenyl)iridium, Tris[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]iridium, Tris[3,5-difluoro-2-(2-pyridinyl-κ*N*)phenyl-κ*C*]iridium, Tris[5-methoxy-2-(2-pyridinyl-κ*N*)phenyl-κ*C*]iridium

Document Type: Journal

Language: English

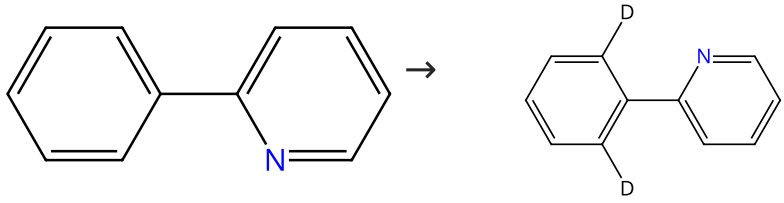
CAS SciFinder

Reactions (431)

View in CAS SciFinder

Scheme 1 (4 Reactions)

Steps: **1** Yield: **97-100%**



Suppliers (94)

Supplier (1)

31-116-CAS-3188716

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

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

31-116-CAS-17956528

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

1.1 **Reagents:** Water-d_2, Boron, bis[[2,2'-(imino-κ*N*)bis[ethanolato-κ*O*]](2-)]di-, (*B*-*B*)

1.2 **Catalysts:** Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene][1,3-dihydro-1,3-bis(2,4,6-trimethylphenyl)-2*H*-imidazol-2-ylidene](triphenylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane; 72 h, 20 °C

Efficient Water Reduction with sp^3-sp^3 Diboron(4) Compounds: Application to Hydrogenations, H-D Exchange Reactions, and Carbonyl Reductions

By: Flinker, Mathias; et al

Angewandte Chemie, International Edition (2017), 56(50), 15910-15915.

31-116-CAS-2196951

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

1.1 **Reagents:** Silver acetate, 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: Dichloromethane; 12 h, 60 °C

Experimental Protocols

Iridium-Catalyzed Phosphoramidation of Arene C-H Bonds with Phosphoryl Azide

By: Pan, Changduo; et al

Journal of Organic Chemistry (2014), 79(19), 9427-9432.

31-116-CAS-10546863

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

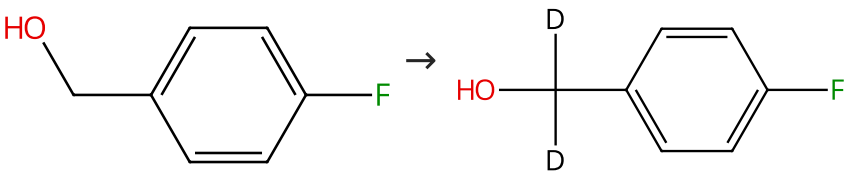
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 2 (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-)-κN^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

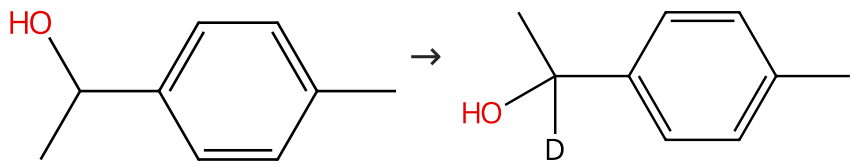
Experimental Protocols

Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 3 (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-)-κN^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 4 (2 Reactions) Steps: **1** Yield: **100%**

Suppliers (74) Supplier (1)

31-116-CAS-14496015 Steps: **1** Yield: **100%**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane; 92 h, rt

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

Experimental Protocols

Cyclocarbopalladation: Sequential Cyclization and C-H Activation/Stille Cross-Coupling in the Pd-5-Exo-Dig Reaction

By: Bour, Christophe; et al

Organic Letters (2005), 7(4), 653-656.

31-116-CAS-9449769 Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

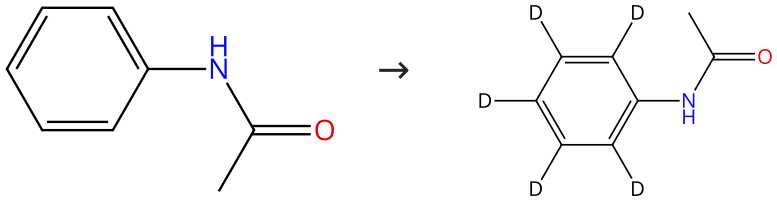
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 5 (1 Reaction)

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



Suppliers (108)

Suppliers (44)

31-116-CAS-20111040

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

1.1 **Reagents:** Water-d_2
Catalysts: Iridium
Solvents: Isopropanol; 24 h, rt

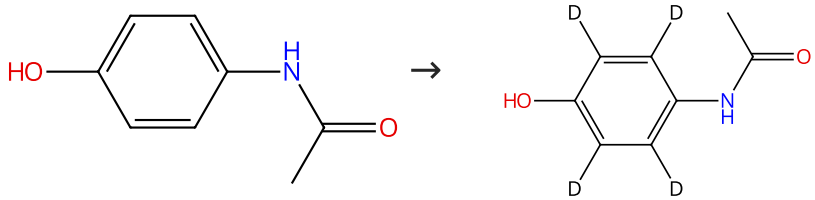
H-D Exchange Deuteration of Arenes at Room Temper ature

By: Sawama, Yoshinari; et al

Organic Process Research & Development (2019), 23(4), 648-653.

Scheme 6 (1 Reaction)

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



Suppliers (147)

Suppliers (60)

31-116-CAS-20111042

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

1.1 **Reagents:** Water-d_2
Catalysts: Iridium, Platinum
Solvents: Isopropanol; 24 h, rt

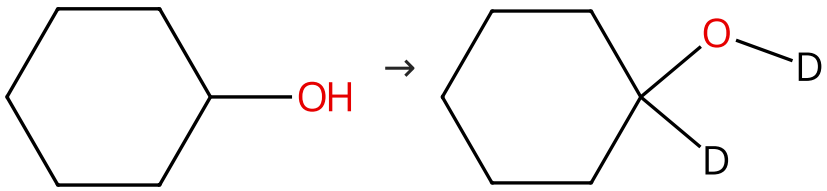
H-D Exchange Deuteration of Arenes at Room Temper ature

By: Sawama, Yoshinari; et al

Organic Process Research & Development (2019), 23(4), 648-653.

Scheme 7 (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-)-κN^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

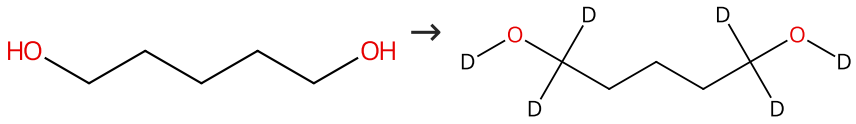
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 8 (1 Reaction)

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



Suppliers (92)

31-614-CAS-33408344

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

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

Experimental Protocols

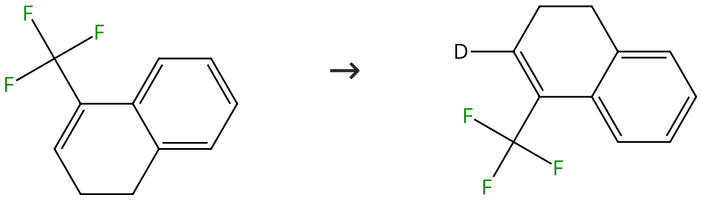
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 9 (1 Reaction)

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



Suppliers (9)

31-614-CAS-37018528

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

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

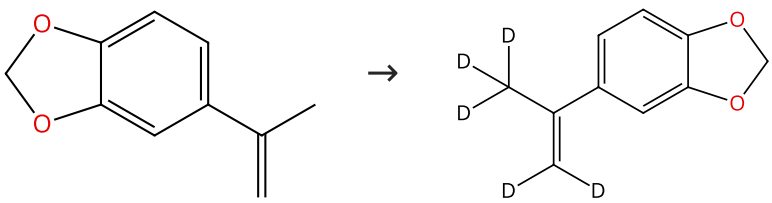
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 10 (1 Reaction)

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



Suppliers (10)

31-614-CAS-37018394 Steps: **1** Yield: **99%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

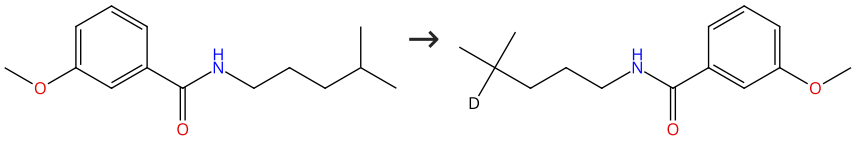
Experimental Protocols

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: **99%**



Supplier (1)

31-614-CAS-33530421 Steps: **1** Yield: **99%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κN]phenyl-κC]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 48 h, rt

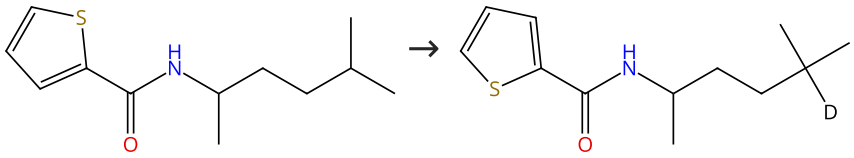
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 12 (1 Reaction) Steps: **1** Yield: **99%**



Suppliers (4)

31-614-CAS-33530418 Steps: **1** Yield: **99%**

1.1 **Reagents:** Water-d_2
Catalysts: 2,4,6-Tris(1-methylethyl)benzenethiol, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κN]phenyl-κC]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

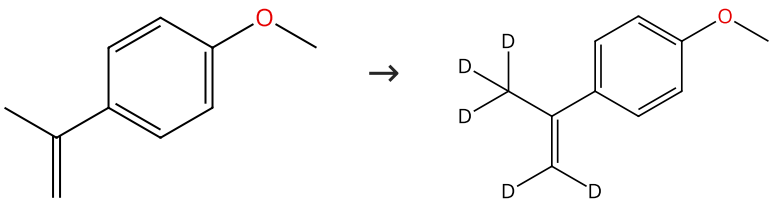
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 13 (1 Reaction)

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



Suppliers (63)

31-614-CAS-37018415

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

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

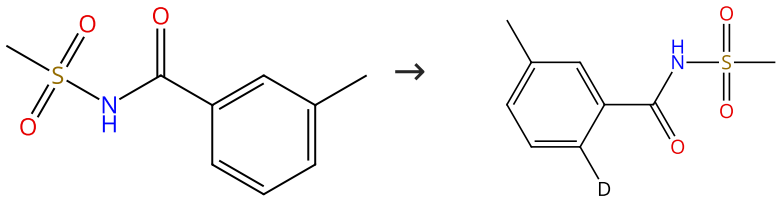
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 14 (2 Reactions)

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



Suppliers (2)

31-116-CAS-6695883

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

1.1 **Reagents:** Water-d_2
Catalysts: Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Toluene; 3 h, 70 °C

Experimental Protocols

Asymmetric Alkylation of N-Sulfonylbenzamides with Vinyl Ethers via C-H Bond Activation Catalyzed by Hydroxo iridium /Chiral Diene Complexes

By: Hatano, Miyuki; et al

Journal of the American Chemical Society (2016), 138(12), 4010-4013.

31-116-CAS-9095529

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

1.1 **Reagents:** (1*Z*)-1-Ethoxy-1-propene, (1*E*)-1-Ethoxy-1-propene, Water-d_2
Catalysts: Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Benzene-d_6; 0.5 h, 70 °C

Experimental Protocols

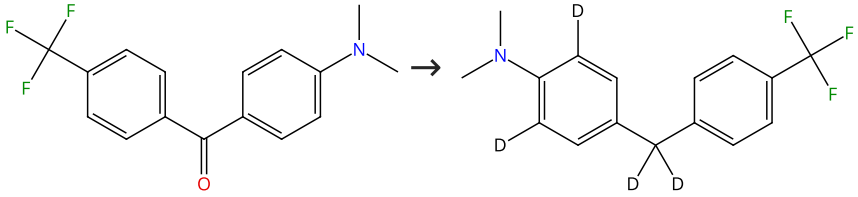
Asymmetric Alkylation of N-Sulfonylbenzamides with Vinyl Ethers via C-H Bond Activation Catalyzed by Hydroxo iridium /Chiral Diene Complexes

By: Hatano, Miyuki; et al

Journal of the American Chemical Society (2016), 138(12), 4010-4013.

Scheme 15 (1 Reaction)

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



Suppliers (7)

31-116-CAS-22909006 Steps: **1** Yield: **99%**

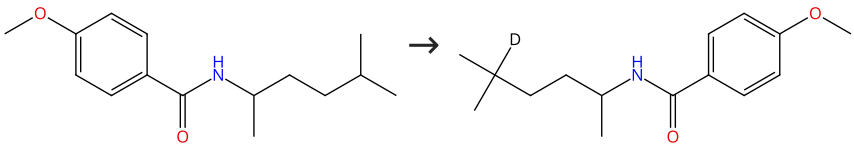
1.1 **Reagents:** Formic-*d* acid-*d*
Catalysts: Iridium(1+), chloro[2-(4,5-dihydro-1*H*-imidazol-2-yl-κN^3)-*N*,*N*-diethyl-4-pyridinamine-κN^1][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1)
Solvents: 1,1,1,3,3,3-Hexafluoro-2-propanol, Water-d_2; 2 h, 80 °C

Iridium-Catalysed Reductive Deoxygenation of Ketones with Formic Acid as Traceless Hydride Donor

By: Yang, Zhiheng; et al

Advanced Synthesis & Catalysis (2020), 362(23), 5496-5505.

Scheme 16 (1 Reaction) Steps: **1** Yield: **99%**



Supplier (1)

31-614-CAS-33530407 Steps: **1** Yield: **99%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

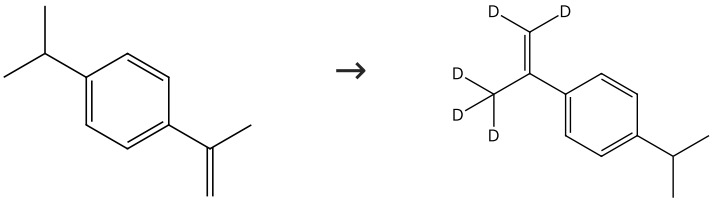
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 17 (1 Reaction) Steps: **1** Yield: **99%**



Suppliers (38)

31-614-CAS-37018410 Steps: **1** Yield: **99%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

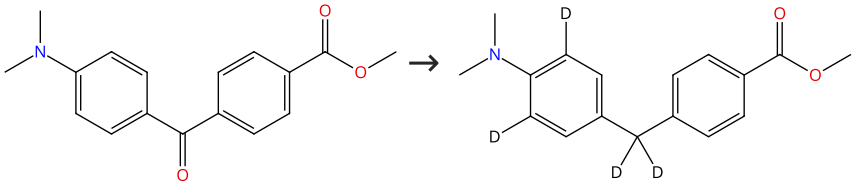
Experimental Protocols

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 18 (1 Reaction) Steps: **1** Yield: **99%**



31-116-CAS-22910640 Steps: **1** Yield: **99%**

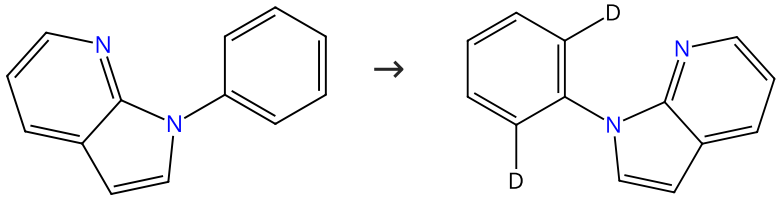
1.1 **Reagents:** Formic-*d* acid-*d*
Catalysts: Iridium(1+), chloro[2-(4,5-dihydro-1*H*-imidazol-2-yl-κN^3)-*N*,*N*-diethyl-4-pyridinamine-κN^1][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1)
Solvents: 1,1,1,3,3,3-Hexafluoro-2-propanol, Water-d_2; 2 h, 80 °C

Iridium-Catalysed Reductive Deoxygenation of Ketones with Formic Acid as Traceless Hydride Donor

By: Yang, Zhiheng; et al

Advanced Synthesis & Catalysis (2020), 362(23), 5496-5505.

Scheme 19 (2 Reactions) Steps: **1** Yield: **99%**



Suppliers (6)

31-116-CAS-18932011 Steps: **1** Yield: **99%**

1.1 **Reagents:** Water-d_2, [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: 1,2-Dichloroethane; 24 h, 80 °C

Experimental Protocols

Iridium-catalyzed C-H phosphoramidation of N-aryl-7-azaindoles with phosphoryl azides

By: Pan, Changduo; et al

Organic & Biomolecular Chemistry (2018), 16(20), 3711-3715.

31-614-CAS-31530285 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-
Solvents: 1-Butyl-3-methylimidazolium tetrafluoroborate; 2 h, rt

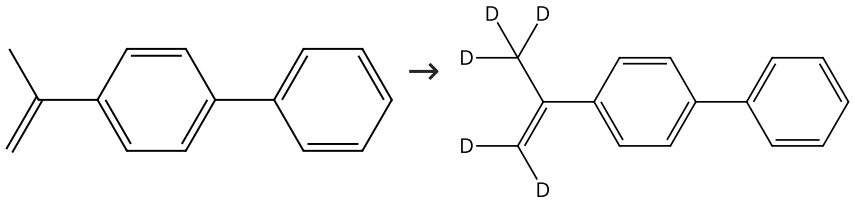
1.2 **Reagents:** Water-d_2; 2 h

N-Aroyloxycarbamates as switchable nitrogen and oxygen precursor: Ir/Cu controlled divergent C-H functionalization of heteroarenes

By: Liu, Shanshan; et al

Organic Chemistry Frontiers (2022), 9(8), 2093-2101.

Scheme 20 (1 Reaction) Steps: **1** Yield: **99%**



Suppliers (33)

31-614-CAS-37018422 Steps: **1** Yield: **99%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

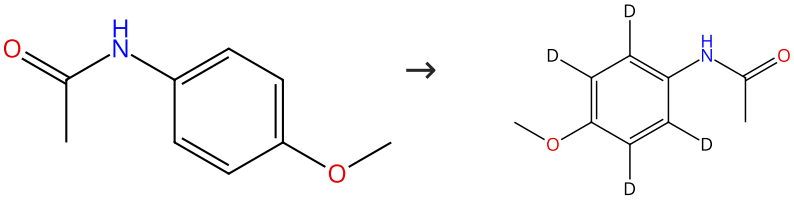
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 21 (1 Reaction)

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



Suppliers (84)

31-116-CAS-20111041

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

1.1 **Reagents:** Water-d_2
Catalysts: Iridium, Platinum
Solvents: Isopropanol; 24 h, rt

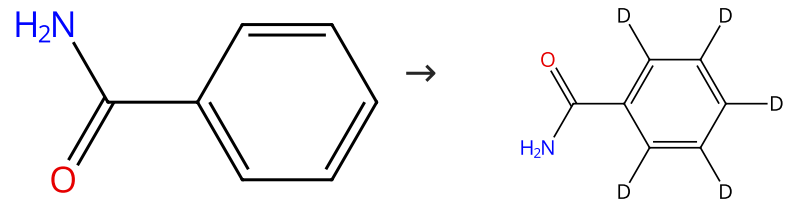
H-D Exchange Deuteration of Arenes at Room Temper ature

By: Sawama, Yoshinari; et al

Organic Process Research & Development (2019), 23(4), 648-653.

Scheme 22 (1 Reaction)

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



Suppliers (115)

Suppliers (31)

31-116-CAS-20111039

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

1.1 **Reagents:** Water-d_2
Catalysts: Iridium
Solvents: Isopropanol; 24 h, rt

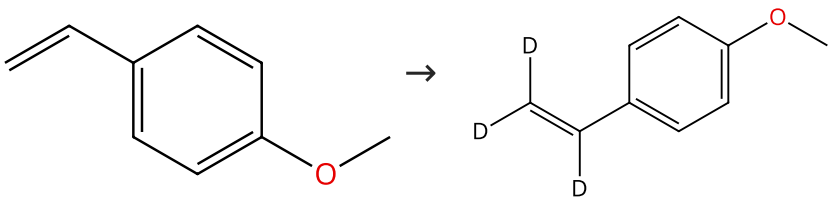
H-D Exchange Deuteration of Arenes at Room Temper ature

By: Sawama, Yoshinari; et al

Organic Process Research & Development (2019), 23(4), 648-653.

Scheme 23 (1 Reaction)

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



Suppliers (88)

31-116-CAS-15986847

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

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

Experimental Protocols

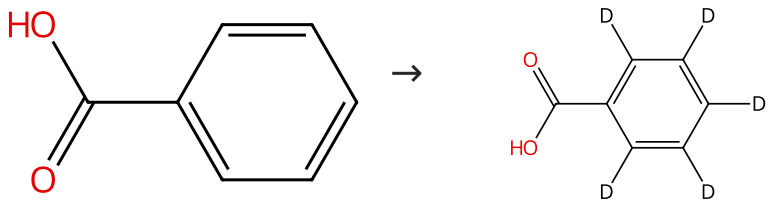
Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 24 (1 Reaction)

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



Suppliers (193)

Suppliers (62)

31-116-CAS-20111023

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

1.1 **Reagents:** Water-d_2
Catalysts: Iridium
Solvents: Isopropanol; 24 h, rt

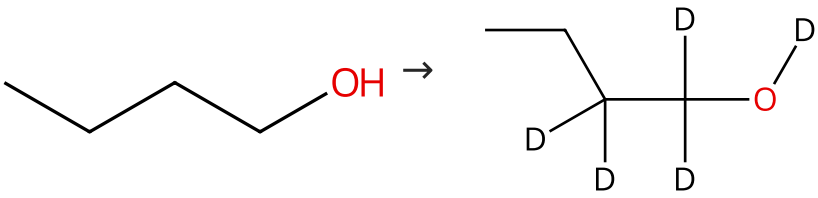
H-D Exchange Deuteration of Arenes at Room Temper ature

By: Sawama, Yoshinari; et al

Organic Process Research & Development (2019), 23(4), 648-653.

Scheme 25 (1 Reaction)

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



Suppliers (215)

31-614-CAS-33408341

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

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

Experimental Protocols

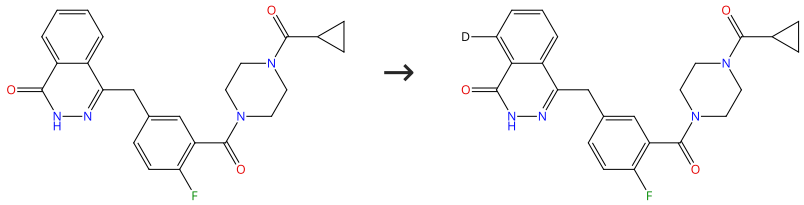
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 26 (1 Reaction)

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



Suppliers (101)

31-116-CAS-17956527

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

1.1 **Reagents:** Water-d_2, Boron, bis[[2,2'-(imino-κ*N*)bis[ethanolato-κ*O*]](2-)]di-, (*B*-*B*)

1.2 **Catalysts:** Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene][1,3-dihydro-1,3-bis(2,4,6-trimethylphenyl)-2*H*-imidazol-2-ylidene](triphenylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane; 72 h, 20 °C

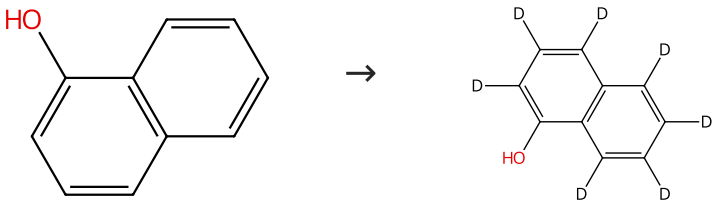
Efficient Water Reduction with sp^3-sp^3 Diboron(4) Compounds: Application to Hydrogenations, H-D Exchange Reactions, and Carbonyl Reductions

By: Flinker, Mathias; et al

Angewandte Chemie, International Edition (2017), 56(50), 15910-15915.

Scheme 27 (1 Reaction)

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



Suppliers (133)

Suppliers (33)

31-116-CAS-20111045

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

1.1 **Reagents:** Water-d_2
Catalysts: Iridium, Platinum
Solvents: Isopropanol; 24 h, rt

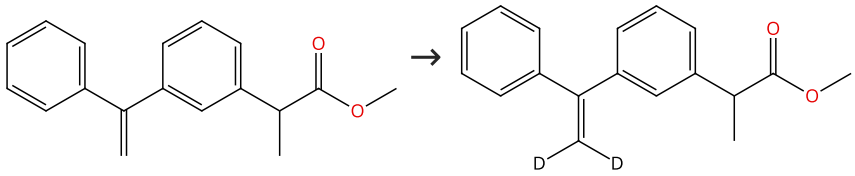
H-D Exchange Deuteration of Arenes at Room Temper ature

By: Sawama, Yoshinari; et al

Organic Process Research & Development (2019), 23(4), 648-653.

Scheme 28 (1 Reaction)

Steps: **1** Yield: **98%**



Suppliers (8)

31-614-CAS-37018529

Steps: **1** Yield: **98%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

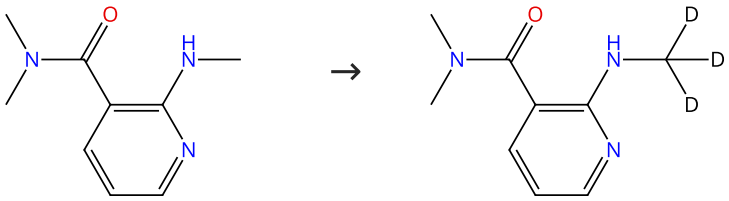
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 29 (1 Reaction)

Steps: **1** Yield: **98%**



Suppliers (3)

31-614-CAS-32010143

Steps: **1** Yield: **98%**

1.1 **Reagents:** Water-d_2
Catalysts: Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene]diiridium, Sodium tetrakis[3,5-bis(trifluoromethyl)phenyl]borate
Solvents: 1,4-Dioxane; 20 h, 80 °C

Experimental Protocols

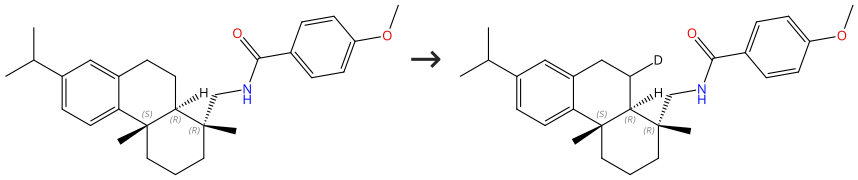
Ir-Catalyzed cyclization of α,ω-dienes with an N-methyl group via two C-H activation steps

By: Tanaka, Katsumasa; et al

Chemical Communications (Cambridge, United Kingdom) (2022), 58(35), 5371-5374.

Scheme 30 (1 Reaction)

Steps: **1** Yield: **98%**



Absolute stereochemistry shown, Rotation (-)

Absolute stereochemistry shown

Supplier (1)

31-614-CAS-33530429

Steps: **1** Yield: **98%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

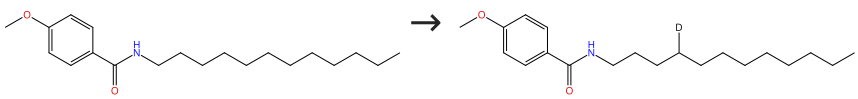
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 31 (1 Reaction)

Steps: **1** Yield: **98%**



Suppliers (16)

31-614-CAS-33530426

Steps: **1** Yield: **98%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

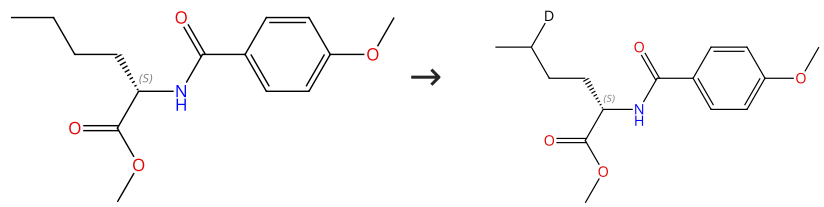
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 32 (1 Reaction)

Steps: **1** Yield: **98%**



Absolute stereochemistry shown, Rotation (+)

Absolute stereochemistry shown

31-614-CAS-33530427 Steps: **1** Yield: **98%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, 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)
Solvents: Chlorobenzene; 24 h, rt

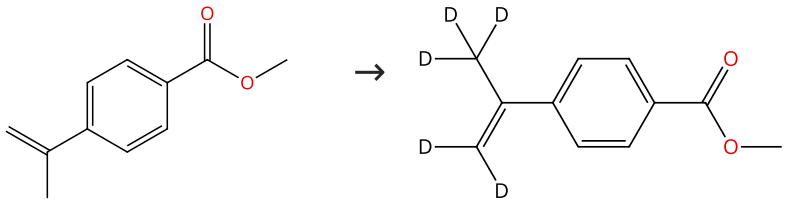
Experimental Protocols

Highly selective single and multiple deuteration of unactivated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 33 (1 Reaction) Steps: **1** Yield: **98%**



Suppliers (9)

31-614-CAS-37018444 Steps: **1** Yield: **98%**

1.1 **Reagents:** Water-d_2
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: Acetonitrile; 36 h, rt

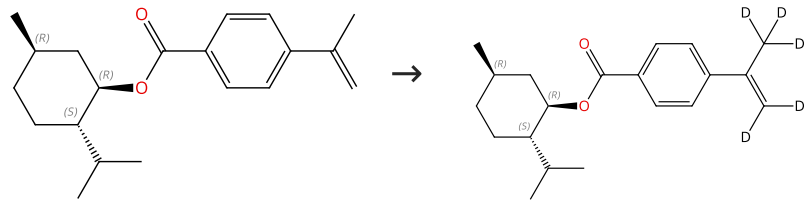
Experimental Protocols

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: **98%**



Absolute stereochemistry shown

Absolute stereochemistry shown

31-614-CAS-37018499 Steps: **1** Yield: **98%**

1.1 **Reagents:** Water-d_2
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: Acetonitrile; 36 h, rt

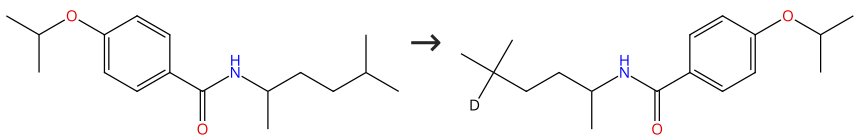
Experimental Protocols

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: **98%**



31-614-CAS-33530417 Steps: **1** Yield: **98%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

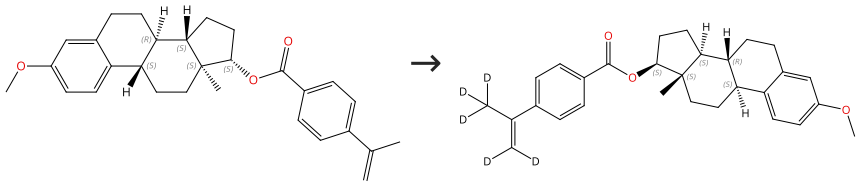
Experimental Protocols

Highly selective single and multiple deuteration of unactivated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 36 (1 Reaction) Steps: **1** Yield: **98%**



Absolute stereochemistry shown Absolute stereochemistry shown

31-614-CAS-37018498 Steps: **1** Yield: **98%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

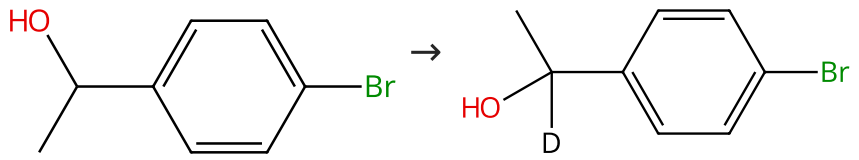
Experimental Protocols

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: **98%**



Suppliers (75) Supplier (1)

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

1.1 **Reagents:** Methanol-d_4, Water-d_2
Catalysts: Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κN^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

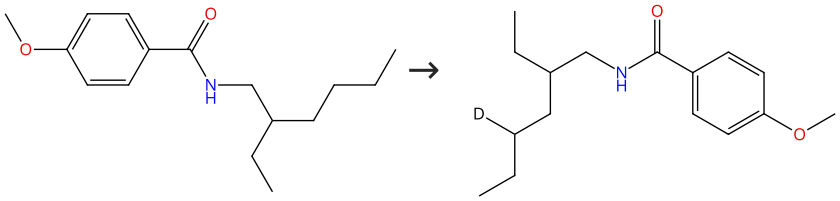
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 38 (1 Reaction)

Steps: **1** Yield: **98%**



Suppliers (15)

31-614-CAS-33530425

Steps: **1** Yield: **98%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

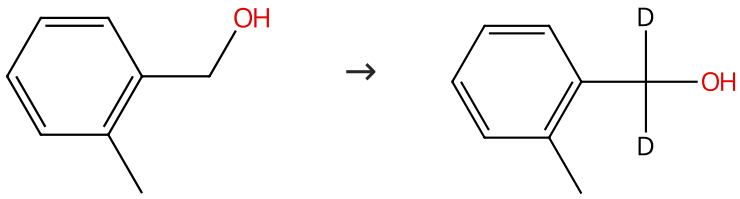
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 39 (1 Reaction)

Steps: **1** Yield: **98%**



Suppliers (85)

Supplier (1)

31-614-CAS-33408350

Steps: **1** Yield: **98%**

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-)-κN^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

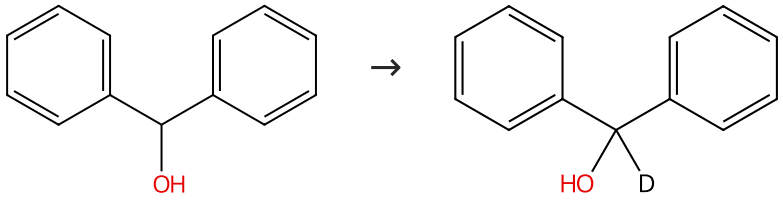
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 40 (1 Reaction)

Steps: **1** Yield: **98%**



Suppliers (104)

Supplier (1)

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

1.1 **Reagents:** Methanol-d_4, Water-d_2
Catalysts: Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato (2-)-κN^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

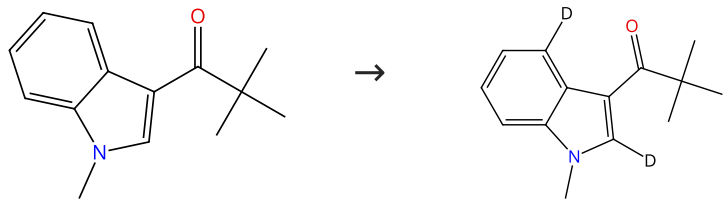
Experimental Protocols

Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 41 (5 Reactions) Steps: **1** Yield: **83-97%**



Suppliers (32)

31-614-CAS-33033747 Steps: **1** Yield: **97%**

1.1 **Reagents:** Pivalic acid, 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: 1,2-Dichloroethane; 18 h, 80 °C

Experimental Protocols

Rh(III)-Catalyzed dienylation and cyclopropylation of indoles at the C4 position with alkylidenecyclopropanes

By: Liu, Yan-Zhi; et al

Organic Chemistry Frontiers (2022), 9(16), 4287-4293.

31-116-CAS-20471675 Steps: **1** Yield: **91%**

1.1 **Reagents:** Pivalic acid, Water-d_2, Silver oxide (Ag_2O)
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; 2 h, 80 °C

C2/C4 Regioselective Heteroarylation of Indoles by Tuning C-H Metalation Modes

By: Chen, Shuyou; et al

ACS Catalysis (2019), 9(7), 6372-6379.

31-614-CAS-24624348 Steps: **1** Yield: **83%**

1.1 **Reagents:** Pivalic acid, 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: 1,2-Dichloroethane; 18 h, 0 °C

Experimental Protocols

Rhodium(III)-Catalyzed Regioselective C-H Allylation and Prenylation of Indoles at C4-Position

By: Zhang, Shang-Shi; et al

Advanced Synthesis & Catalysis (2022), 364(1), 64-70.

31-614-CAS-36670260 Steps: **1**

1.1 **Reagents:** Silver acetate, 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-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*] silver
Solvents: 1,2-Dichloroethane; 23 h, rt → 115 °C

Experimental Protocols

Iridium catalyzed C2 site-selective methylation of indoles using a pivaloyl directing group through weak chelation-assistance

By: Kathiravan, Subban; et al

RSC Advances (2023), 13(17), 11291-11295.

31-116-CAS-23535499 Steps: **1**

1.1 **Reagents:** Silver carbonate, 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-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*] silver
Solvents: 1,2-Dichloroethane; 120 °C

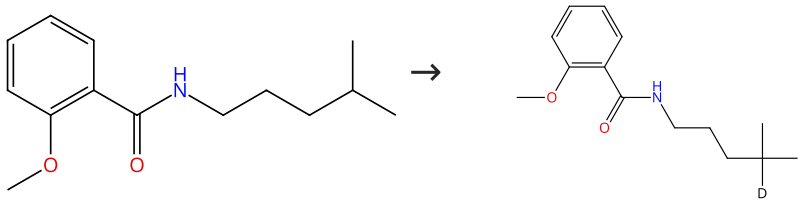
Experimental Protocols

Tandem Iridium-Catalyzed Decarbonylative C-H Activation of Indole: Sacrificial Electron-Rich Ketone-Assisted Bis-arylsulfenylation

By: Kathiravan, Subban; et al

Organic Letters (2021), 23(9), 3331-3336.

Scheme 42 (1 Reaction) Steps: **1** Yield: **97%**



Supplier (1)

31-614-CAS-33530545 Steps: **1** Yield: **97%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

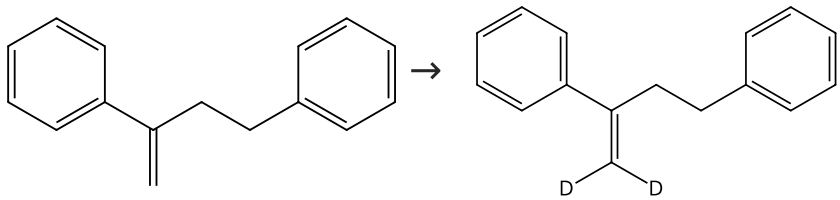
Experimental Protocols

Highly selective single and multiple deuteration of unactivated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 43 (1 Reaction) Steps: **1** Yield: **97%**



Suppliers (23)

31-116-CAS-15986818 Steps: **1** Yield: **97%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 14 h, 70 °C

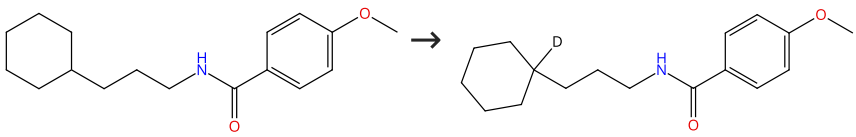
Experimental Protocols

Selective H/D exchange at vinyl and methylidene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 44 (1 Reaction) Steps: **1** Yield: **97%**



31-614-CAS-33530413 Steps: **1** Yield: **97%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

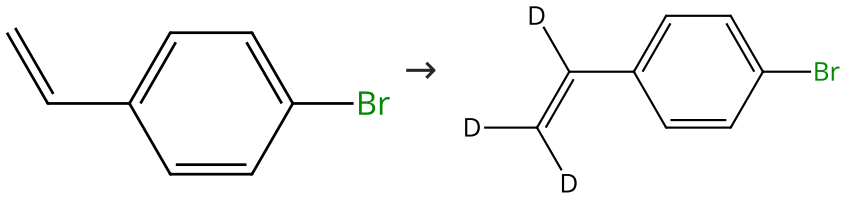
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 45 (1 Reaction) Steps: **1** Yield: **97%**



Suppliers (92)

31-116-CAS-15986846 Steps: **1** Yield: **97%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

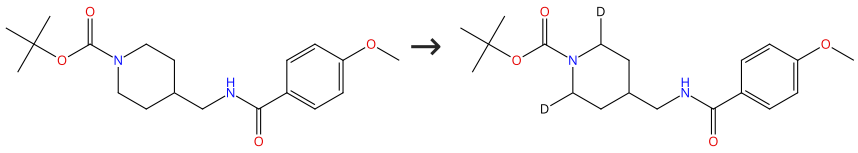
Experimental Protocols

Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 46 (1 Reaction) Steps: **1** Yield: **97%**



31-614-CAS-33530445 Steps: **1** Yield: **97%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

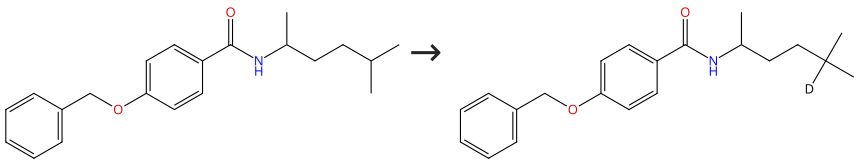
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 47 (1 Reaction) Steps: **1** Yield: **97%**



31-614-CAS-33530416 Steps: **1** Yield: **97%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 48 h, rt

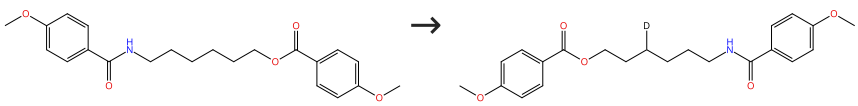
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 48 (1 Reaction) Steps: **1** Yield: **97%**



31-614-CAS-33530422 Steps: **1** Yield: **97%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

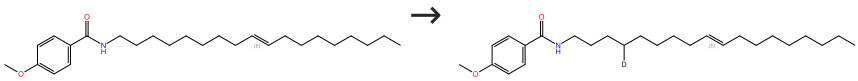
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 49 (1 Reaction) Steps: **1** Yield: **97%**



Double bond geometry shown Double bond geometry shown

31-614-CAS-33530428 Steps: **1** Yield: **97%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

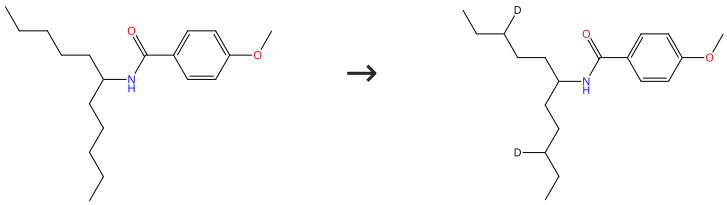
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 50 (1 Reaction) Steps: **1** Yield: **97%**



31-614-CAS-33530450 Steps: **1** Yield: **97%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 48 h, rt

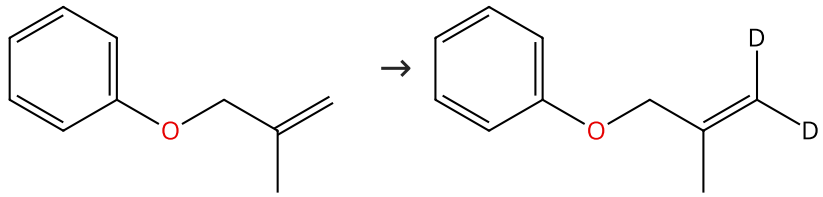
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 51 (1 Reaction) Steps: **1** Yield: **97%**



Suppliers (46)

31-116-CAS-15986819 Steps: **1** Yield: **97%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

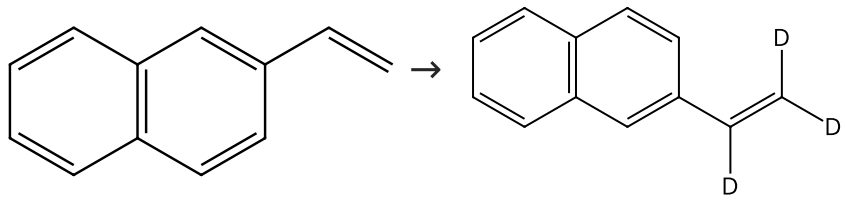
Experimental Protocols

Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 52 (1 Reaction) Steps: **1** Yield: **97%**



Suppliers (74)

31-116-CAS-15986811 Steps: **1** Yield: **97%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

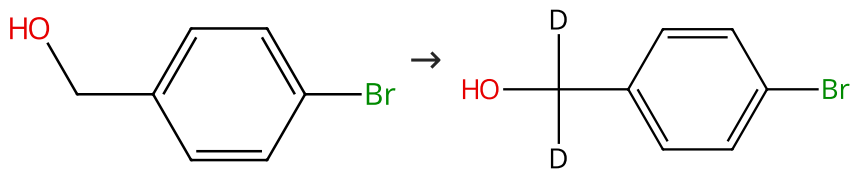
Experimental Protocols

Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 53 (1 Reaction) Steps: **1** Yield: **97%**



Suppliers (93)

Suppliers (5)

31-614-CAS-33408357 Steps: **1** Yield: **97%**

Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

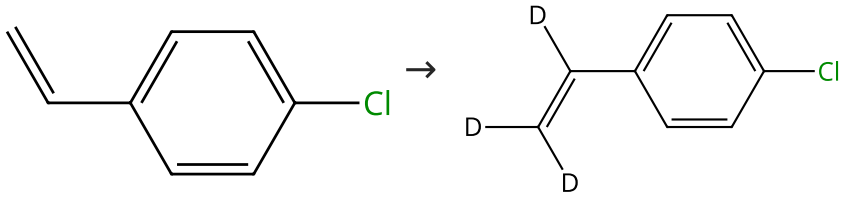
Chemical Science (2022), 13(30), 8744-8751.

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-)-κN^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 54 (1 Reaction) Steps: **1** Yield: **96%**



Suppliers (89)

31-116-CAS-15986852 Steps: **1** Yield: **96%**

Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

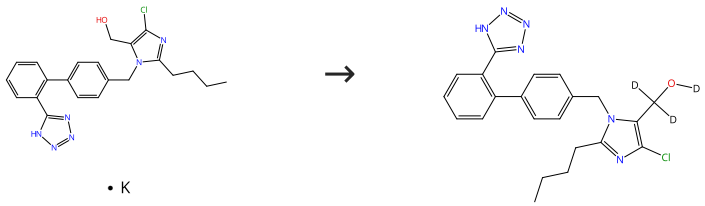
By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

Experimental Protocols

Scheme 55 (1 Reaction) Steps: **1** Yield: **96%**



Suppliers (120)

31-614-CAS-33408368 Steps: **1** Yield: **96%**

Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

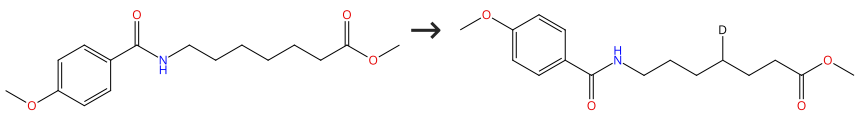
1.1 **Reagents:** Water-d_2, Sodium hydroxide-*d*
Catalysts: Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato(2-)-κN^1,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
Solvents: Isopropanol; 24 h, 100 °C

1.2 **Reagents:** Sulfuric acid
Solvents: Water; pH 7

Experimental Protocols

Scheme 56 (1 Reaction)

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



Supplier (1)

31-614-CAS-33530430

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

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

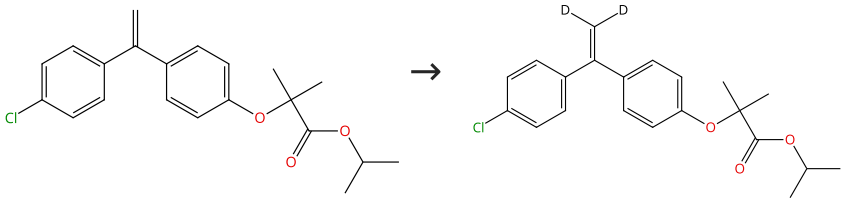
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 57 (1 Reaction)

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



31-614-CAS-37018531

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

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

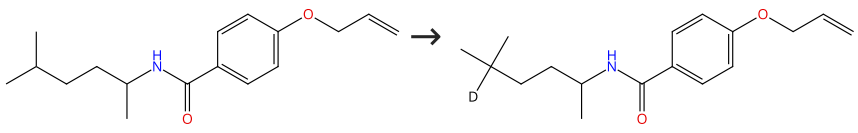
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 58 (1 Reaction)

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



31-614-CAS-33530414

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

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 48 h, rt

Experimental Protocols

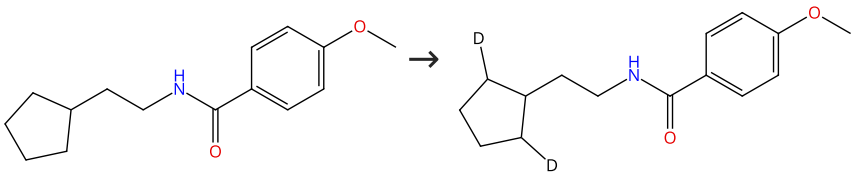
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 59 (1 Reaction)

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



31-614-CAS-33530447

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

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, 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)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

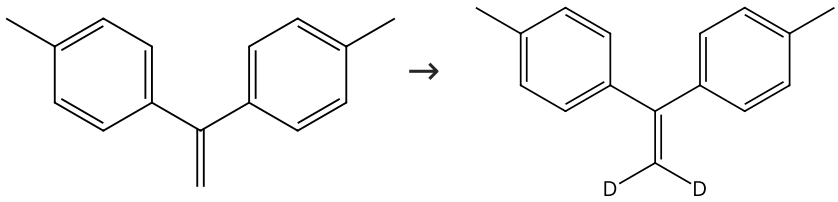
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 60 (1 Reaction)

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



Suppliers (29)

31-614-CAS-37018503

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

1.1 **Reagents:** Water-d_2
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: Acetonitrile; 36 h, rt

Experimental Protocols

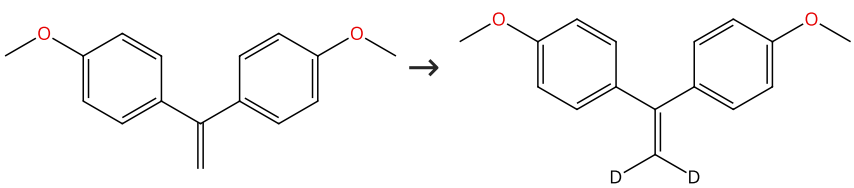
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 61 (1 Reaction)

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



Suppliers (25)

31-614-CAS-37018514 Steps: **1** Yield: **96%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

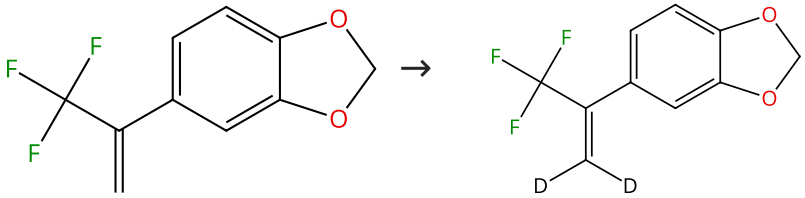
Experimental Protocols

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 62 (1 Reaction) Steps: **1** Yield: **96%**



Suppliers (4)

31-614-CAS-37018524 Steps: **1** Yield: **96%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 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 63 (1 Reaction) Steps: **1** Yield: **96%**

Suppliers (3)

31-614-CAS-37018484 Steps: **1** Yield: **96%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

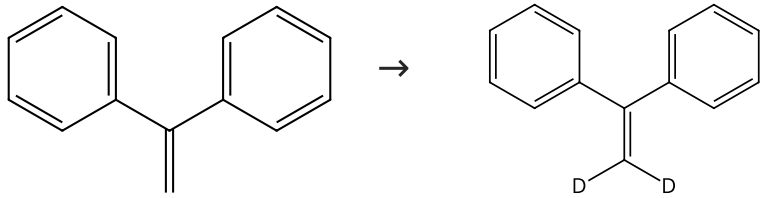
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 64 (1 Reaction)

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



Suppliers (77)

Supplier (1)

31-614-CAS-37018501

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

1.1 **Reagents:** Water-d_2
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: Acetonitrile; 36 h, rt

Experimental Protocols

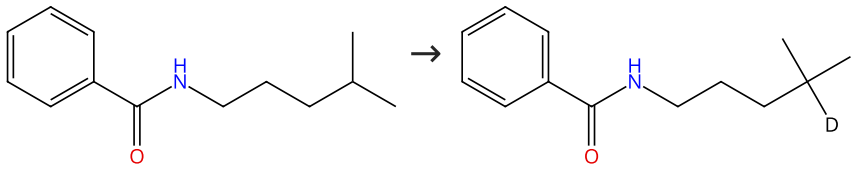
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 65 (1 Reaction)

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



Suppliers (6)

31-614-CAS-33530551

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

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, 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)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

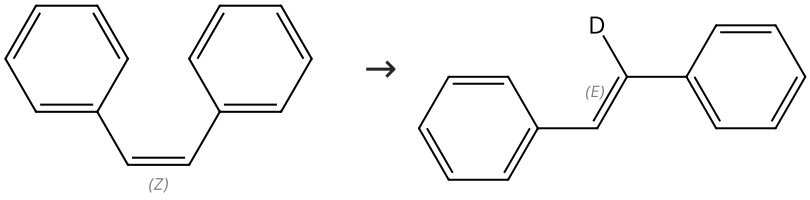
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 66 (1 Reaction)

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



Double bond geometry shown

Double bond geometry shown

Suppliers (65)

Supplier (1)

31-116-CAS-15986842 Steps: **1** Yield: **96%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 20 h, 70 °C

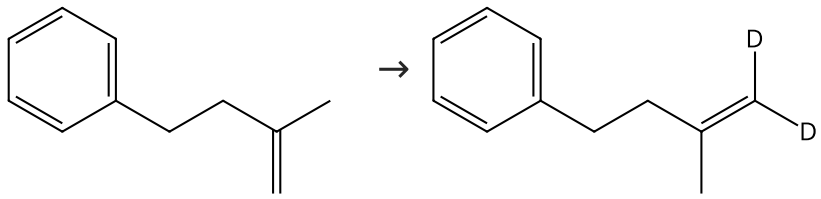
Experimental Protocols

Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 67 (1 Reaction) Steps: **1** Yield: **96%**



Suppliers (19) Supplier (1)

31-116-CAS-15986817 Steps: **1** Yield: **96%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

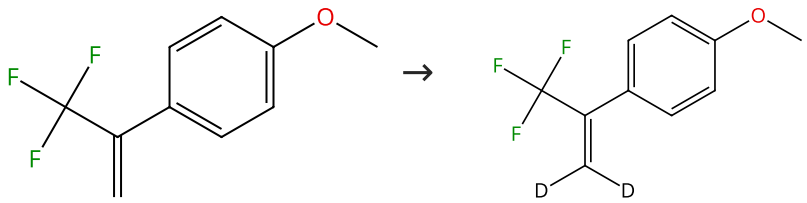
Experimental Protocols

Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 68 (1 Reaction) Steps: **1** Yield: **96%**



Suppliers (9)

31-614-CAS-37018526 Steps: **1** Yield: **96%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

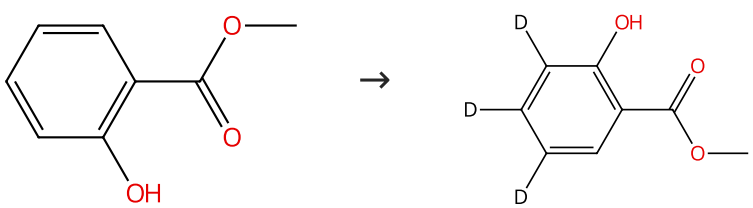
Experimental Protocols

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 69 (1 Reaction) Steps: **1** Yield: **95%**



Suppliers (138) Supplier (1)

31-116-CAS-20111044 Steps: **1** Yield: **95%**

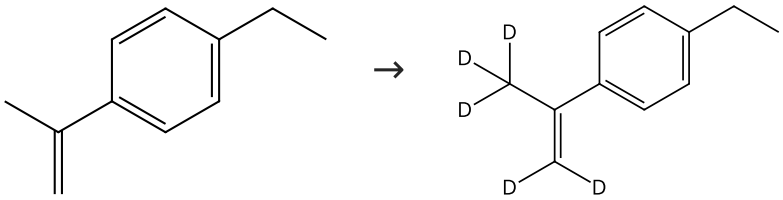
1.1 **Reagents:** Water-d_2
Catalysts: Iridium
Solvents: Isopropanol; 24 h, rt

H-D Exchange Deuteration of Arenes at Room Temper ature

By: Sawama, Yoshinari; et al

Organic Process Research & Development (2019), 23(4), 648-653.

Scheme 70 (1 Reaction) Steps: **1** Yield: **95%**



Suppliers (11)

31-614-CAS-37018398 Steps: **1** Yield: **95%**

1.1 **Reagents:** Water-d_2
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: Acetonitrile; 36 h, rt

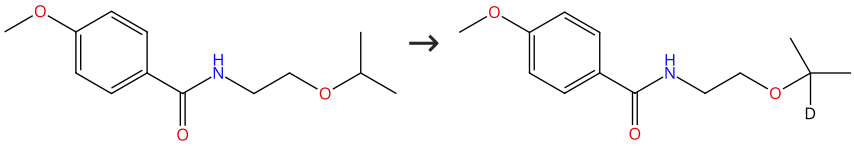
Experimental Protocols

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 71 (1 Reaction) Steps: **1** Yield: **95%**



Supplier (1)

31-614-CAS-33530409 Steps: **1** Yield: **95%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, 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)
Solvents: Chlorobenzene; 24 h, rt

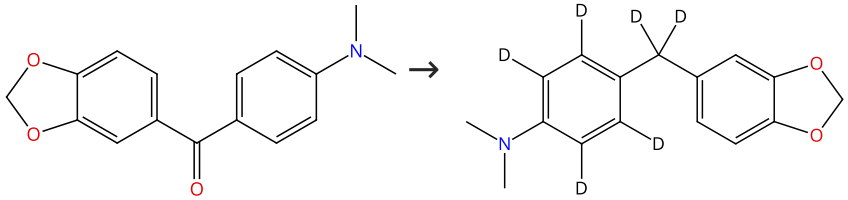
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 72 (1 Reaction) Steps: **1** Yield: **95%**



Suppliers (3)

31-116-CAS-22905180 Steps: **1** Yield: **95%**

1.1 **Reagents:** Formic-*d* acid-*d*
Catalysts: Iridium(1+), chloro[2-(4,5-dihydro-1*H*-imidazol-2-yl-κN^3)-*N*,*N*-diethyl-4-pyridinamine-κN^1][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1)
Solvents: 1,1,1,3,3,3-Hexafluoro-2-propanol, Water-d_2; 2 h, 80 °C

Iridium-Catalysed Reductive Deoxygenation of Ketones with Formic Acid as Traceless Hydride Donor

By: Yang, Zhiheng; et al

Advanced Synthesis & Catalysis (2020), 362(23), 5496-5505.

Scheme 73 (1 Reaction) Steps: **1** Yield: **95%**

Suppliers (14)

31-614-CAS-37018476 Steps: **1** Yield: **95%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

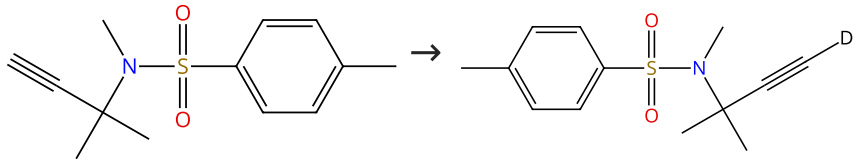
Experimental Protocols

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 74 (1 Reaction) Steps: **1** Yield: **95%**



31-614-CAS-40986148 Steps: **1** Yield: **95%**

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-
Solvents: Toluene; 12 h, 100 °C

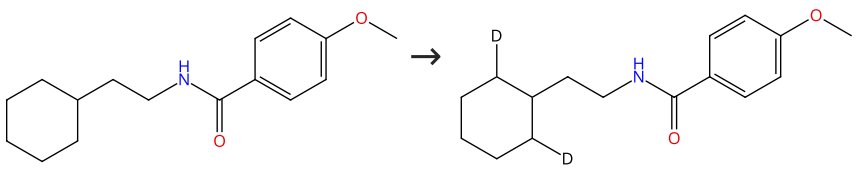
Experimental Protocols

Propargylic Dialkyl Effect for Cyclobutene Formation through Ir(III)-Catalyzed Cycloisomerization of 1,6-Enynes

By: Zhu, Xuanyu; et al

Organic Letters (2024), 26(4), 966-970.

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



Supplier (1)

31-614-CAS-33530441 Steps: **1** Yield: **95%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

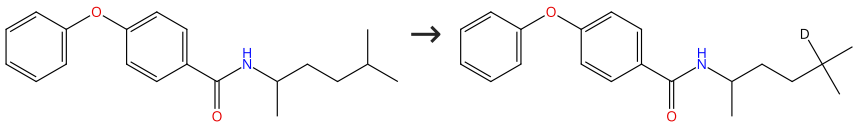
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 76 (1 Reaction) Steps: **1** Yield: **95%**



31-614-CAS-33530411 Steps: **1** Yield: **95%**

1.1 **Reagents:** Water-d_2
Catalysts: 2,4,6-Tris(1-methylethyl)benzenethiol, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 48 h, rt

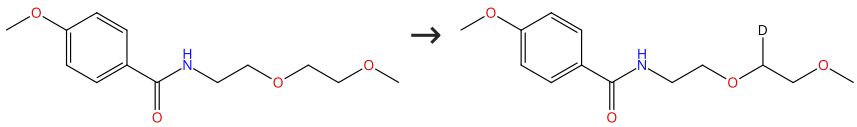
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 77 (1 Reaction) Steps: **1** Yield: **95%**



31-614-CAS-33530420 Steps: **1** Yield: **95%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

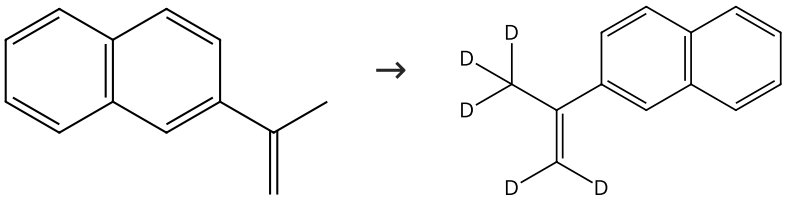
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 78 (1 Reaction) Steps: **1** Yield: **95%**



Suppliers (55)

31-614-CAS-37018472 Steps: **1** Yield: **95%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

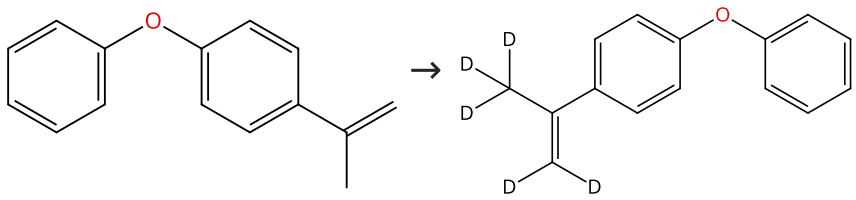
Experimental Protocols

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 79 (1 Reaction) Steps: **1** Yield: **95%**



Suppliers (12)

31-614-CAS-37018430 Steps: **1** Yield: **95%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

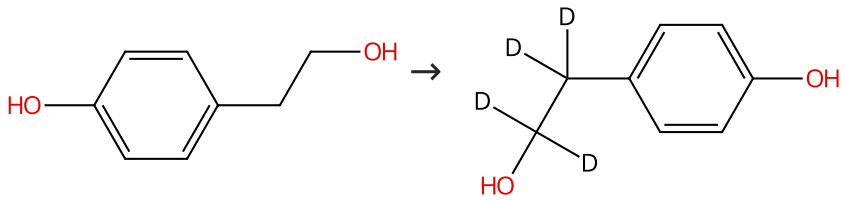
Experimental Protocols

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 80 (1 Reaction) Steps: **1** Yield: **95%**



Suppliers (130)

Suppliers (6)

31-614-CAS-33408348 Steps: **1** Yield: **95%**

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

Experimental Protocols

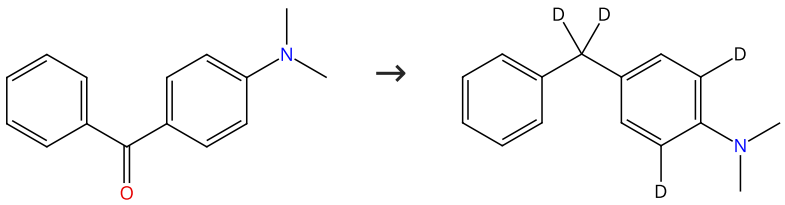
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 81 (1 Reaction)

Steps: **1** Yield: **95%**



Suppliers (86)

31-116-CAS-22907525

Steps: **1** Yield: **95%**

1.1 **Reagents:** Formic-*d* acid-*d*
Catalysts: Iridium(1+), chloro[2-(4,5-dihydro-1*H*-imidazol-2-yl-κN^3)-*N*,*N*-diethyl-4-pyridinamine-κN^1][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1)
Solvents: 1,1,1,3,3,3-Hexafluoro-2-propanol, Water-d_2; 2 h, 80 °C

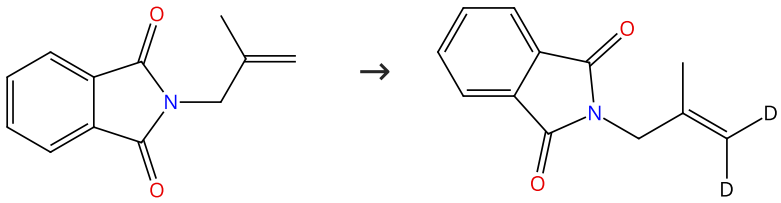
Iridium-Catalysed Reductive Deoxygenation of Ketones with Formic Acid as Traceless Hydride Donor

By: Yang, Zhiheng; et al

Advanced Synthesis & Catalysis (2020), 362(23), 5496-5505.

Scheme 82 (1 Reaction)

Steps: **1** Yield: **95%**



Suppliers (24)

31-116-CAS-15986820

Steps: **1** Yield: **95%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

Experimental Protocols

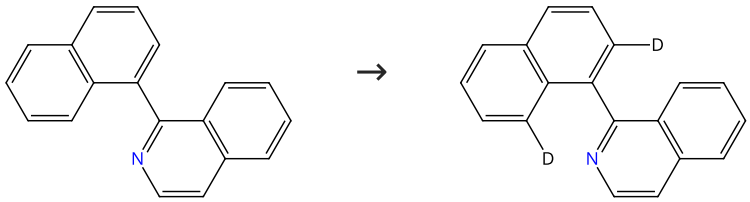
Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 83 (1 Reaction)

Steps: **1** Yield: **95%**



Suppliers (8)

31-614-CAS-37271938

Steps: **1** Yield: **95%**

1.1 **Catalysts:** 1,1'-[(4*R*)-[4,4'-Bi-1,3-benzodioxole]-5,5'-diyl]bis[1,1-diphenylphosphine], Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate(1-) (1:1)
Solvents: 1,4-Dioxane; 5 min, rt

1.2 **Reagents:** Water-d_2; 24 h, 80 °C

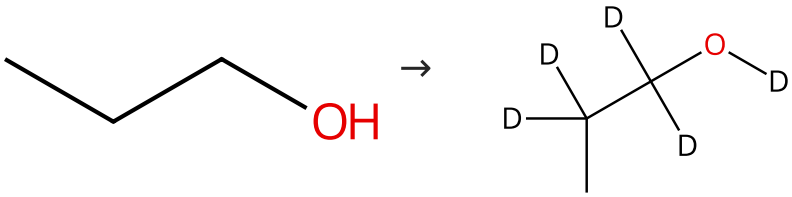
Iridium(I)-Catalyzed Atroposelective Alkenylation of Heterobiaryls with Terminal Alkynes

By: Xiong, Maoqian; et al

Organic Letters (2023), 25(31), 5703-5708.

Scheme 84 (1 Reaction)

Steps: **1** Yield: **95%**



Suppliers (169)

31-614-CAS-33408340

Steps: **1** Yield: **95%**

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

Experimental Protocols

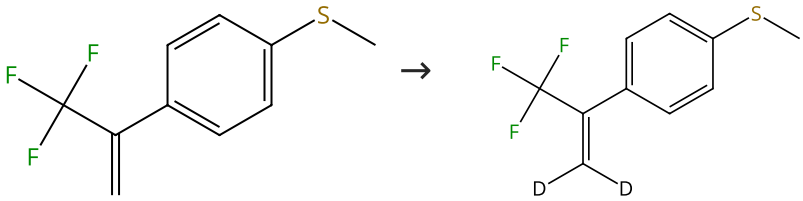
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 85 (1 Reaction)

Steps: **1** Yield: **94%**



Suppliers (6)

31-614-CAS-37018518

Steps: **1** Yield: **94%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

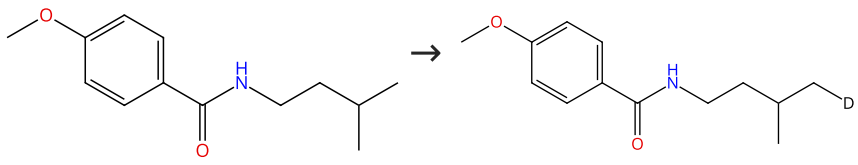
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 86 (1 Reaction)

Steps: **1** Yield: **94%**



Suppliers (9)

31-614-CAS-33530440 Steps: **1** Yield: **94%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

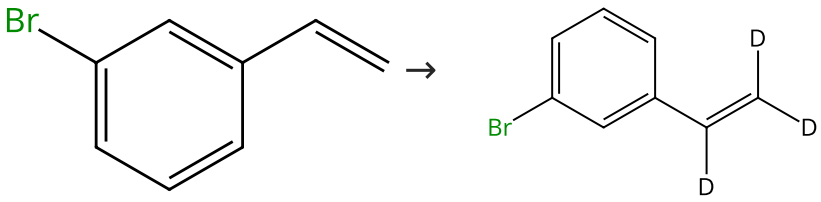
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 87 (1 Reaction) Steps: **1** Yield: **94%**



Suppliers (84)

31-116-CAS-15986850 Steps: **1** Yield: **94%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

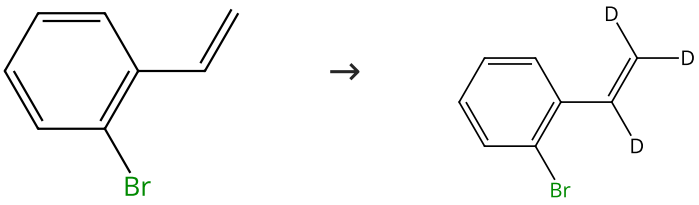
Experimental Protocols

Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 88 (1 Reaction) Steps: **1** Yield: **94%**



Suppliers (81)

31-116-CAS-15986810 Steps: **1** Yield: **94%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

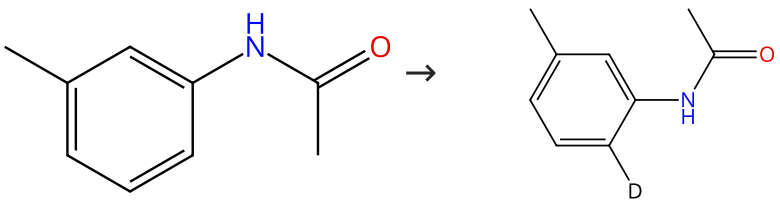
Experimental Protocols

Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 89 (2 Reactions) Steps: **1** Yield: **94%**



Suppliers (68)

31-116-CAS-19141241 Steps: **1** Yield: **94%**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate(1-) (1:1), 1820606-28-7
Solvents: 1,4-Dioxane; 30 min, rt

1.2 **Reagents:** Norbornene; 21 h, 135 °C

Experimental Protocols

Iridium-Catalyzed Direct Asymmetric Alkylation of Aniline Derivatives using 2-Norbornene

By: Shirai, Tomohiko; et al

Asian Journal of Organic Chemistry (2018), 7(6), 1054-1056.

31-116-CAS-10629470 Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, 1,1,1-trifluoromethanesulfonate (1:1), 1820981-94-9
Solvents: 1,4-Dioxane; 48 h, 120 °C

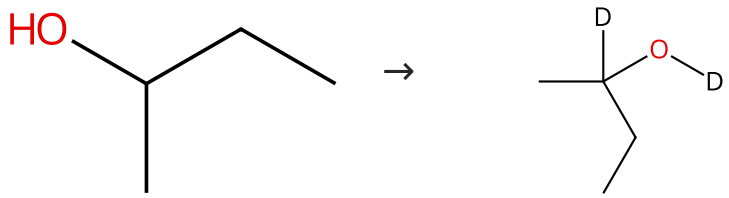
Experimental Protocols

Branch-selective alkene hydroarylation by cooperative destabilization: iridium-catalyzed ortho-alkylation of acetanilides

By: Crisenza, Giacomo E. M.; et al

Angewandte Chemie, International Edition (2015), 54(49), 14866-14870.

Scheme 90 (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-)-κN^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

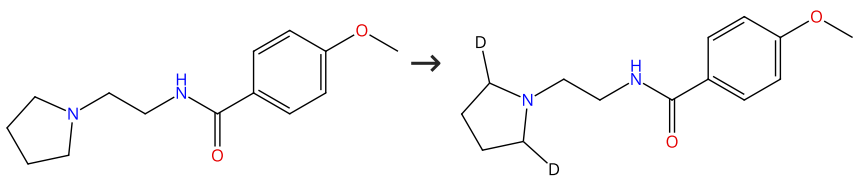
Experimental Protocols

Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 91 (1 Reaction) Steps: **1** Yield: **94%**



Suppliers (3)

31-614-CAS-33530449 Steps: **1** Yield: **94%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

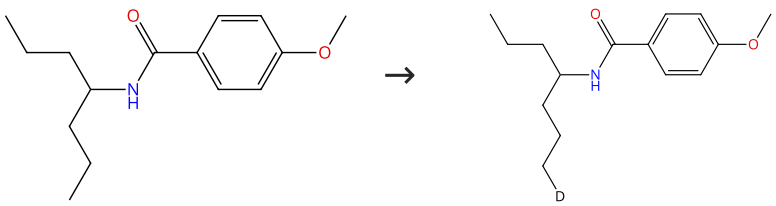
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 92 (1 Reaction) Steps: **1** Yield: **94%**



Suppliers (2)

31-614-CAS-33530434 Steps: **1** Yield: **94%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 93 (1 Reaction) Steps: **1** Yield: **94%**

Suppliers (76)

31-116-CAS-12032284 Steps: **1** Yield: **94%**

1.1 **Reagents:** Pinacolborane
Catalysts: 1,2-Bis(dimethylphosphino)ethane, [(1,2,5,6-η)-1,5-Cyclooctadiene][(1,2,3,3a,7a-η)-1*H*-inden-1-yl]iridium; rt → 150 °C; 3.25 h, 150 °C; 150 °C → rt

1.2 **Solvents:** Methanol; rt

1.3 **Reagents:** Water-d_2
Solvents: Tetrahydrofuran; 60 min, 150 °C

Experimental Protocols

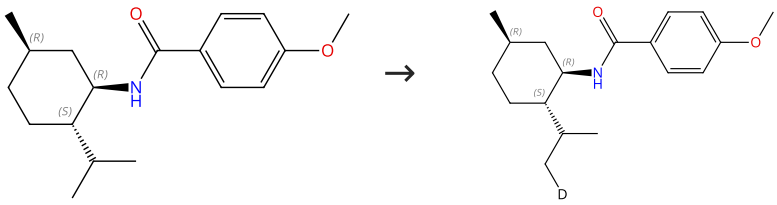
Harnessing C-H Borylation/Deborylation for Selective Deuter ation, Synthesis of Boronate Esters, and Late Stage Functiona lization

By: Kallepalli, Venkata A.; et al

Journal of Organic Chemistry (2015), 80(16), 8341-8353.

Scheme 94 (1 Reaction)

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



Absolute stereochemistry shown, Rotation (-)

Absolute stereochemistry shown

Supplier (1)

31-614-CAS-33530433

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

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N,N,N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

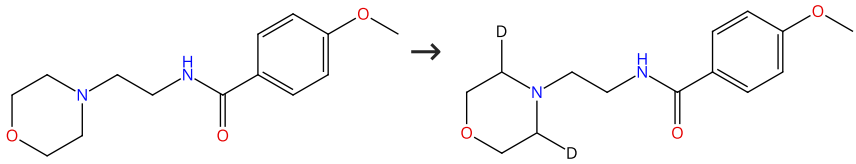
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 95 (1 Reaction)

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



Suppliers (5)

31-614-CAS-33530444

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

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N,N,N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

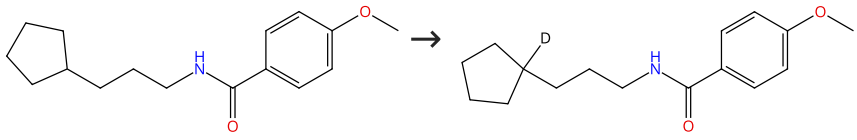
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 96 (1 Reaction)

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



31-614-CAS-33530408 Steps: **1** Yield: **93%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

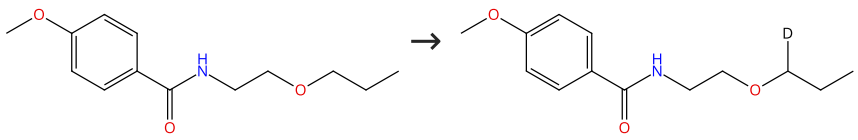
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 97 (1 Reaction) Steps: **1** Yield: **93%**



31-614-CAS-33530424 Steps: **1** Yield: **93%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 48 h, rt

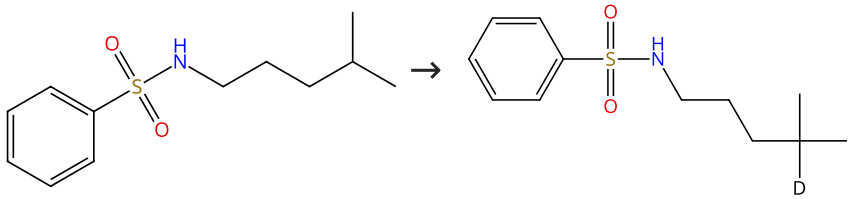
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 98 (1 Reaction) Steps: **1** Yield: **93%**



Suppliers (3)

31-614-CAS-33530544 Steps: **1** Yield: **93%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

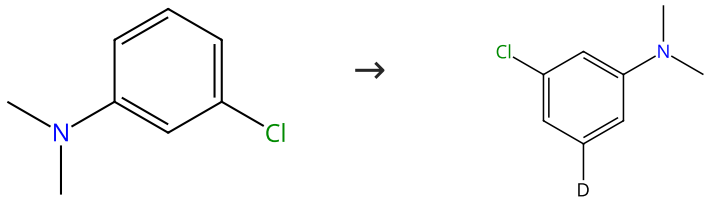
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 99 (1 Reaction)

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



Suppliers (59)

31-116-CAS-8970251

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

1.1 **Reagents:** Pinacolborane
Catalysts: 1,2-Bis(dimethylphosphino)ethane, [(1,2,5,6-η)-1,5-Cyclooctadiene][(1,2,3,3a,7a-η)-1*H*-inden-1-yl]iridium; rt → 150 °C; 18 h, 150 °C; 150 °C → rt

1.2 **Reagents:** Acetic anhydride, Water-d_2
Solvents: 1,2-Dimethoxyethane; 2 h, 150 °C; 150 °C → rt

1.3 **Reagents:** Sodium hydroxide
Solvents: Water; > pH 10, rt

Experimental Protocols

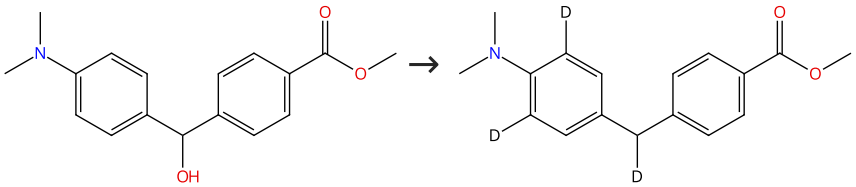
Harnessing C-H Borylation/Deborylation for Selective Deuteration, Synthesis of Boronate Esters, and Late Stage Functionalization

By: Kallepalli, Venkata A.; et al

Journal of Organic Chemistry (2015), 80(16), 8341-8353.

Scheme 100 (1 Reaction)

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



Suppliers (6)

31-116-CAS-22910654

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

1.1 **Reagents:** Formic-*d* acid-*d*
Catalysts: Iridium(1+), chloro[2-(4,5-dihydro-1*H*-imidazol-2-yl-κN^3)-4-methoxypyridine-κ*N*][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1)
Solvents: Water-d_2; 1 h, 80 °C

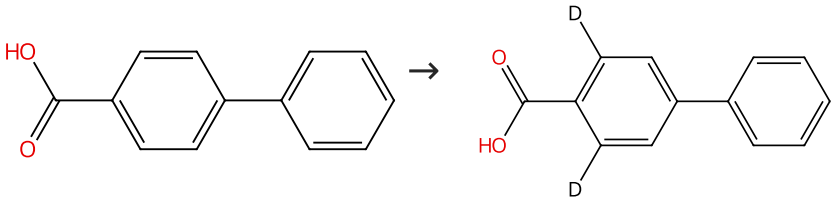
Iridium-Catalysed Reductive Deoxygenation of Ketones with Formic Acid as Traceless Hydride Donor

By: Yang, Zhiheng; et al

Advanced Synthesis & Catalysis (2020), 362(23), 5496-5505.

Scheme 101 (6 Reactions)

Steps: **1** Yield: **74-93%**



Suppliers (111)

31-116-CAS-14455538

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

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

31-116-CAS-6741401 Steps: **1** Yield: **93%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-9156395 Steps: **1** Yield: **78%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-5323596 Steps: **1** Yield: **74%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylformamide; 2 h, 90 °C

Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

31-116-CAS-2761266 Steps: **1** Yield: **74%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylformamide; 2 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-15155638 Steps: **1** Yield: **74%**

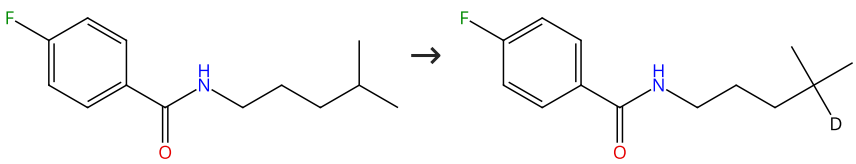
1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylformamide

Parallel chemistry investigations of ortho-directed hydrogen isotope exchange between substituted aromatics and isotopic water: novel catalysis by cyclooctadienyliridium(I)pentan-1,3-dionates

By: Kingston, Lee P.; et al

Tetrahedron Letters (2000), 41(15), 2705-2708.

Scheme 102 (1 Reaction) Steps: **1** Yield: **92%**



Suppliers (3)

31-614-CAS-33530549 Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

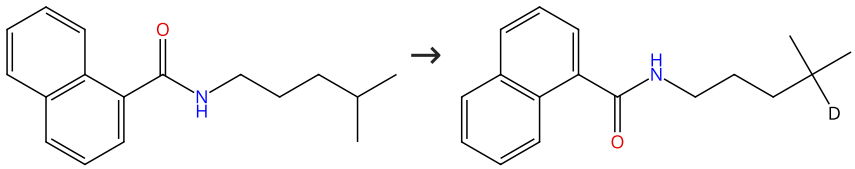
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 103 (1 Reaction) Steps: **1** Yield: **92%**



Supplier (1)

31-614-CAS-33530415 Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: 2,4,6-Tris(1-methylethyl)benzenethiol, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 48 h, rt

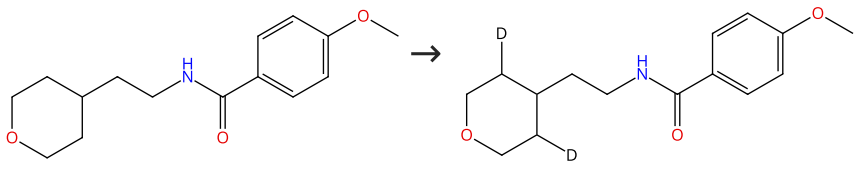
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 104 (1 Reaction) Steps: **1** Yield: **92%**



Supplier (1)

31-614-CAS-33530436 Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

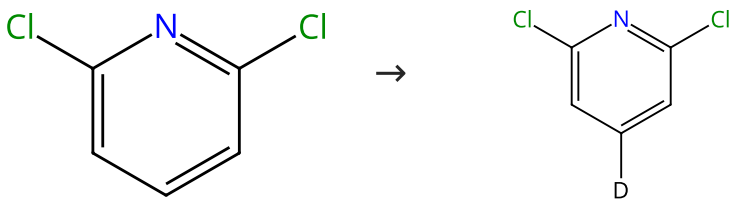
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 105 (1 Reaction)

Steps: **1** Yield: **92%**



Suppliers (90)

31-116-CAS-7169544

Steps: **1** Yield: **92%**

1.1 **Reagents:** Pinacolborane
Catalysts: 1,2-Bis(dimethylphosphino)ethane, [(1,2,5,6-η)-1,5-Cyclooctadiene][(1,2,3,3a,7a-η)-1*H*-inden-1-yl]iridium
Solvents: Heptane; rt → 150 °C; 3.25 h, 150 °C; 150 °C → rt

1.2 **Reagents:** Water-d_2
Solvents: Tetrahydrofuran; 60 min, 150 °C

Experimental Protocols

Harnessing C-H Borylation/Deborylation for Selective Deuteration, Synthesis of Boronate Esters, and Late Stage Functionalization

By: Kallepalli, Venkata A.; et al

Journal of Organic Chemistry (2015), 80(16), 8341-8353.

Scheme 106 (1 Reaction)

Steps: **1** Yield: **92%**

Suppliers (9)

31-614-CAS-31786827

Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2, *N*-(Methylsulfonyl)benzamide
Catalysts: Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 5 h, 70 °C

Experimental Protocols

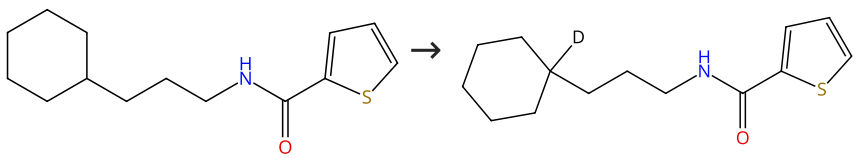
Non-stabilized Vinyl Anion Equivalents from Styrenes by N-Heterocyclic Carbene Catalysis and Its Use in Catalytic Nucleophilic Aromatic Substitution

By: Ito, Sora; et al

Journal of the American Chemical Society (2022), 144(15), 6714-6718.

Scheme 107 (1 Reaction)

Steps: **1** Yield: **92%**



Supplier (1)

31-614-CAS-33530419 Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: 2,4,6-Tris(1-methylethyl)benzenethiol, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

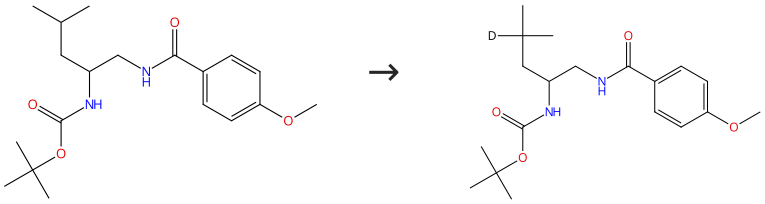
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 108 (1 Reaction) Steps: **1** Yield: **92%**



31-614-CAS-33530410 Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 48 h, rt

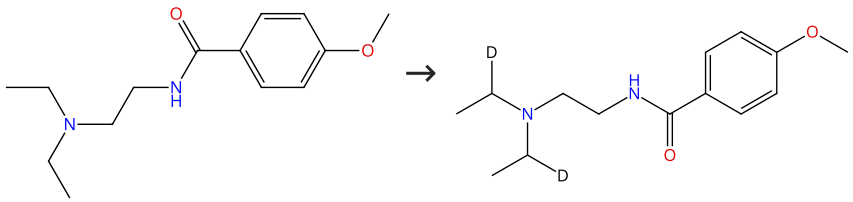
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 109 (1 Reaction) Steps: **1** Yield: **92%**



Suppliers (9)

31-614-CAS-33530451 Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

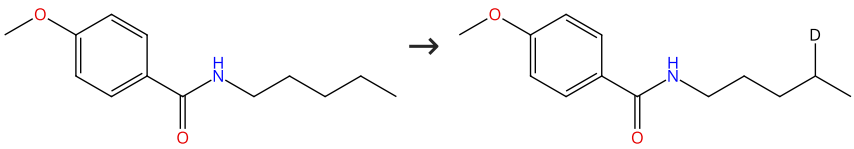
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 110 (1 Reaction)

Steps: **1** Yield: **92%**



Suppliers (14)

31-614-CAS-33530423

Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

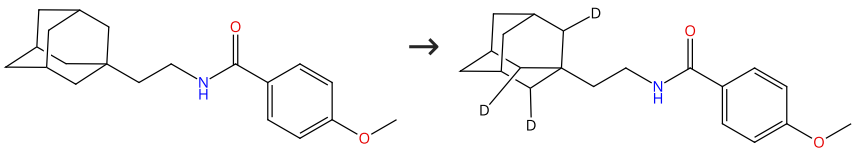
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 111 (1 Reaction)

Steps: **1** Yield: **92%**



Suppliers (5)

31-614-CAS-33530446

Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

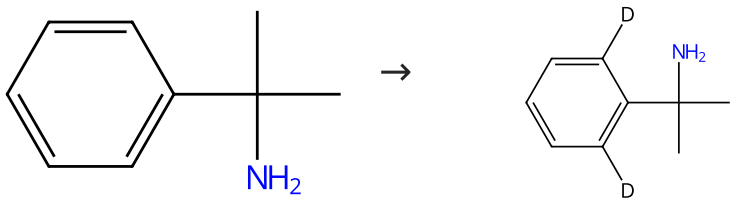
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 112 (3 Reactions)

Steps: **1** Yield: **48-92%**



Suppliers (88)

31-116-CAS-580121

Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

31-116-CAS-3785807 Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-12226159 Steps: **1** Yield: **48%**

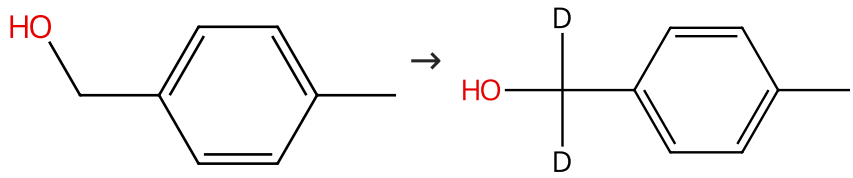
1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 113 (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-)-κN^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

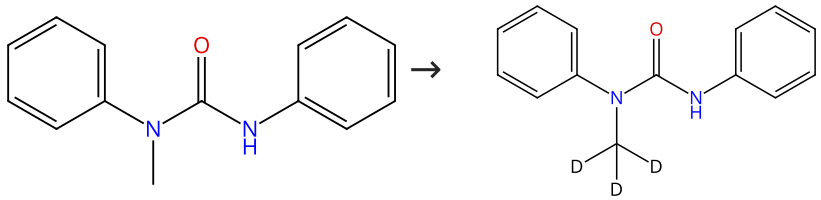
Experimental Protocols

Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 114 (1 Reaction) Steps: **1** Yield: **92%**



Suppliers (11)

31-116-CAS-17229536 Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium, 1,1'-(1,2-Phenylene)bis[1,1-bis(1-methylethyl)phosphine]
Solvents: 1,4-Dioxane; 3 h, 70 °C

Experimental Protocols

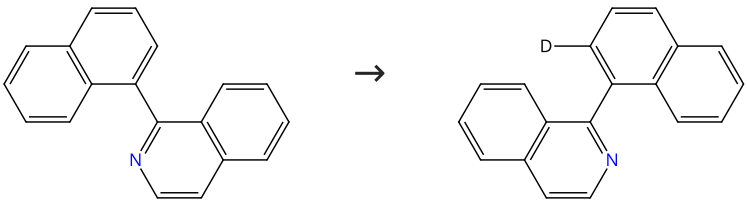
Hydroxoiridium-Catalyzed Hydroalkylation of Terminal Alkenes with Ureas by C(sp^3)-H Bond Activation

By: Yamauchi, Daisuke; et al

Angewandte Chemie, International Edition (2017), 56(25), 7200-7204.

Scheme 115 (1 Reaction)

Steps: **1** Yield: **92%**



Suppliers (8)

31-614-CAS-41473419

Steps: **1** Yield: **92%**

1.1 **Catalysts:** Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene] diiridium, Sodium tetrakis[3,5-bis(trifluoromethyl)phenyl] borate, Ferrocene, 1,1'-bis[(2*S*,5*S*)-2,5-diethyl-1-phospholanyl] -
Solvents: 1,4-Dioxane; 20 min, rt

1.2 **Reagents:** Water-d_2; 6 h, 130 °C

Experimental Protocols

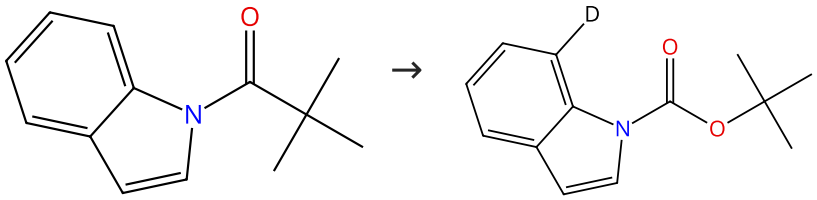
Iridium-Catalyzed Asymmetric Hydroarylation of Unactivated Alkenes with Heterobiaryls: Simultaneous Construction of Axial and Central Chirality

By: Li, Fei; et al

Organic Letters (2024), 26(32), 6835-6840.

Scheme 116 (1 Reaction)

Steps: **1** Yield: **92%**



Suppliers (8)

31-116-CAS-12476791

Steps: **1** Yield: **92%**

1.1 **Reagents:** Lithium acetate, 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-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*] silver
Solvents: 1,2-Dichloroethane; 1 h, rt → 120 °C

Experimental Protocols

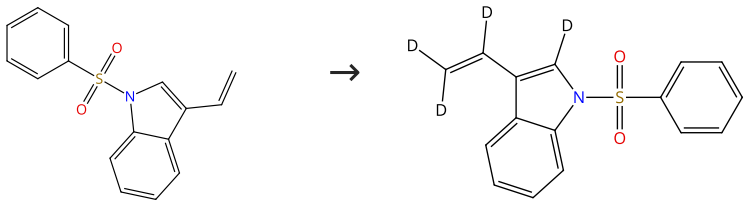
Iridium(III)-catalyzed regioselective C7-sulfonamidation of indoles

By: Song, Zengqiang; et al

Organic & Biomolecular Chemistry (2016), 14(21), 4804-4808.

Scheme 117 (1 Reaction)

Steps: **1** Yield: **92%**



Suppliers (3)

31-116-CAS-15986812

Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

Experimental Protocols

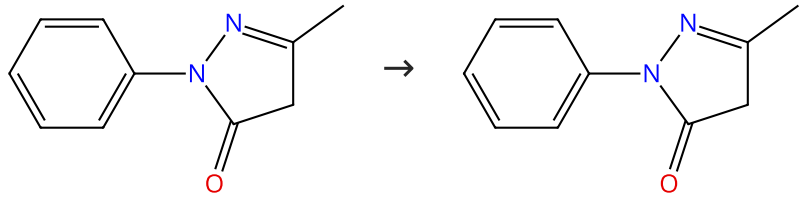
Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 118 (1 Reaction)

Steps: **1** Yield: **92%**



Suppliers (132)

31-614-CAS-29334974

Steps: **1** Yield: **92%**

1.1 **Reagents:** *p*-Toluenesulfonic acid, Water-d_2, Silver hexafluoroantimonate, Zinc triflate
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; 3 h, 120 °C

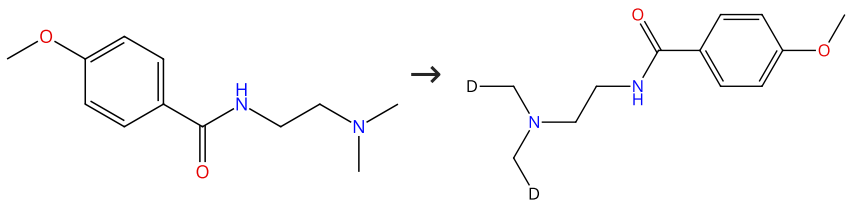
Iridium(III)-Catalyzed Tandem Annulation Synthesis of Pyrazolo[1,2-α]cinnolines from Pyrazolones and Sulfoxonium Ylides

By: Liu, Chen-Fei; et al

Journal of Organic Chemistry (2019), 84(1), 409-416.

Scheme 119 (1 Reaction)

Steps: **1** Yield: **92%**



Suppliers (9)

31-614-CAS-33530464

Steps: **1** Yield: **92%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

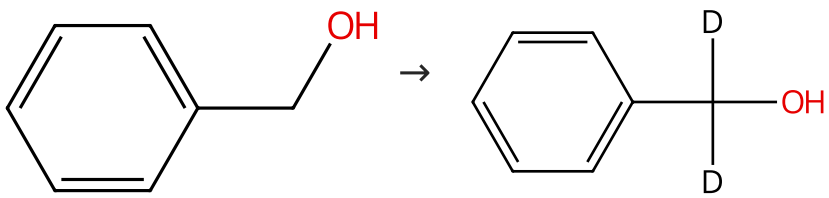
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 120 (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

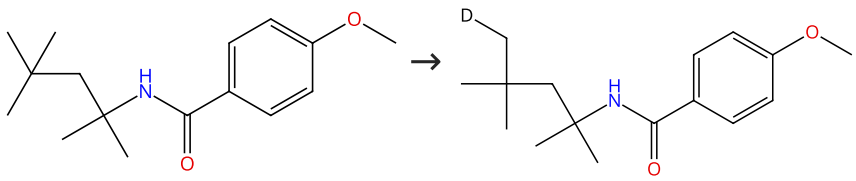
Chemical Science (2022), 13(30), 8744-8751.

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-)-κN^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 121 (1 Reaction) Steps: **1** Yield: **91%**



Suppliers (5)

31-614-CAS-33530435 Steps: **1** Yield: **91%**

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

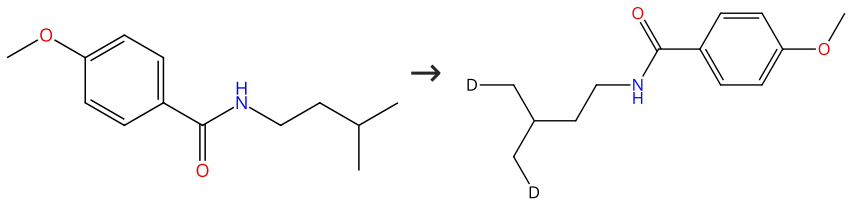
By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

Scheme 122 (1 Reaction) Steps: **1** Yield: **91%**



Suppliers (9)

31-614-CAS-33530438 Steps: **1** Yield: **91%**

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

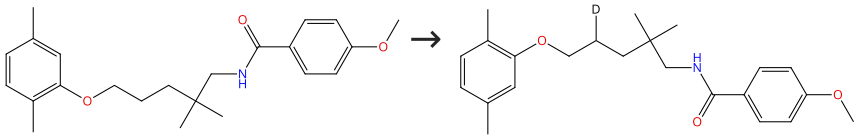
Nature Communications (2022), 13(1), 4224.

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 48 h, rt

Experimental Protocols

Scheme 123 (1 Reaction)

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



31-614-CAS-33530439

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

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

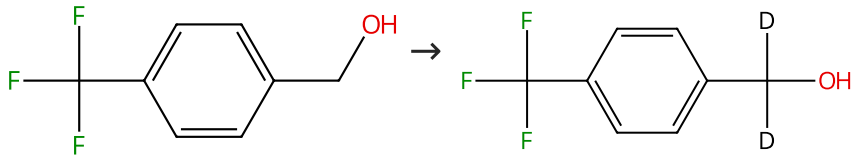
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 124 (1 Reaction)

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



Suppliers (85)

Suppliers (2)

31-614-CAS-33408366

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-)-κN^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

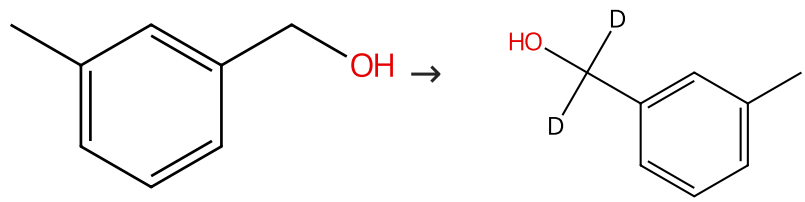
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 125 (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

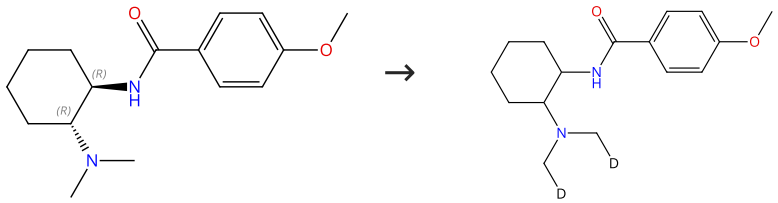
Chemical Science (2022), 13(30), 8744-8751.

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-)-κN^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 126 (1 Reaction) Steps: **1** Yield: **91%**



Relative stereochemistry shown

Suppliers (2)

31-614-CAS-33530461 Steps: **1** Yield: **91%**

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

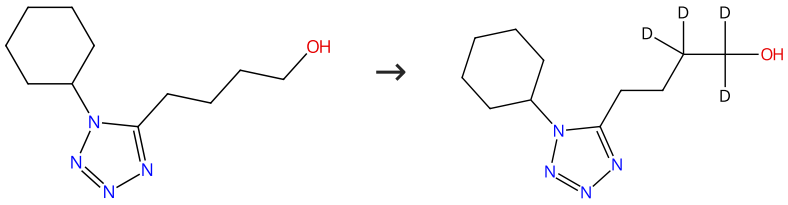
By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

Scheme 127 (1 Reaction) Steps: **1** Yield: **91%**



Suppliers (4)

31-614-CAS-33408351 Steps: **1** Yield: **91%**

Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

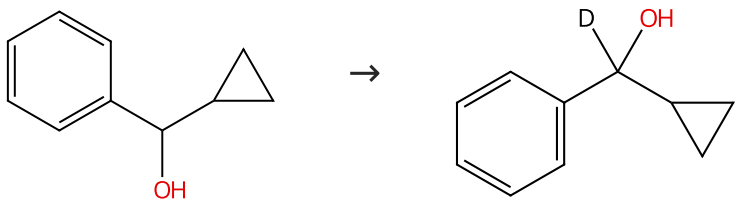
1.1 **Reagents:** Methanol-d_4, Water-d_2, Sodium hydroxide-*d*
Catalysts: Iridium, aqua[[2,2'-bipyridine]-6,6'(1*H*,1'*H*)-dionato (2-)-κN^1,κ$N^{1'}$][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-
Solvents: Isopropanol; 2 d, 100 °C

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

Experimental Protocols

Scheme 128 (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-)-κN^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

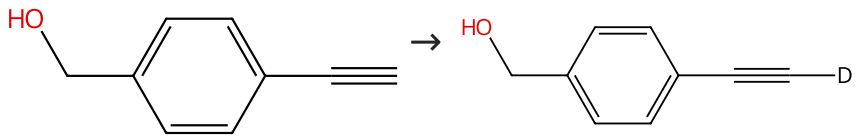
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 129 (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-)-κN^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

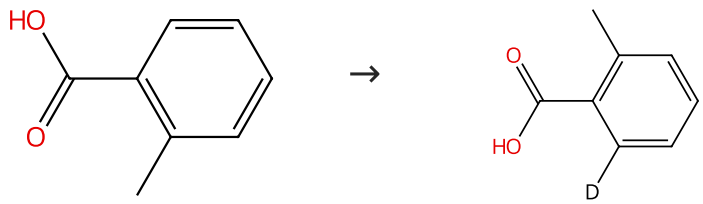
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 130 (2 Reactions)

Steps: **1** Yield: **47-90%**



Suppliers (92)

Suppliers (3)

31-116-CAS-18533492 Steps: **1** Yield: **90%**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(2+), triaqua[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, sulfate (1:1)
Solvents: 1,1,1,3,3,3-Hexafluoro-2-propanol; 48 h, 40 °C

1.2 **Reagents:** Sodium thiosulfate
Solvents: Water

1.3 **Reagents:** Hydrochloric acid
Solvents: Water; < pH 2

Experimental Protocols

Base- and Additive-Free Ir-Catalyzed ortho-Iodination of Benzoic Acids: Scope and Mechanistic Investigations

By: Erbing, Elis; et al

ACS Catalysis (2018), 8(2), 920-925.

31-116-CAS-20622498 Steps: **1** Yield: **47%**

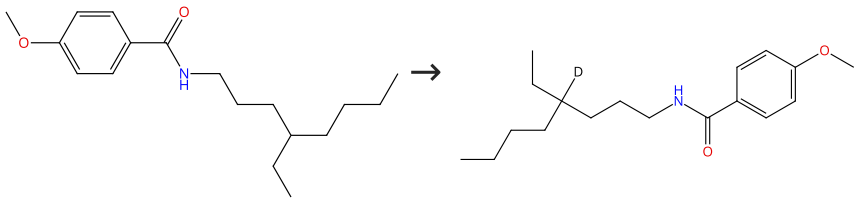
1.1 **Reagents:** Potassium carbonate, Water-d_2
Catalysts: Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Indium triflate
Solvents: Water; 1 h, 140 °C

Iridium-Catalyzed Synthesis of Substituted Indanones from Aromatic Carboxylates and Unsaturated Ketones

By: Zhang, Guodong; et al

ACS Catalysis (2019), 9(9), 8153-8158.

Scheme 131 (1 Reaction) Steps: **1** Yield: **90%**



31-614-CAS-33530406 Steps: **1** Yield: **90%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

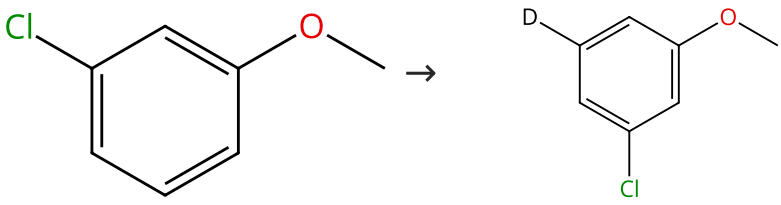
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 132 (1 Reaction) Steps: **1** Yield: **90%**



Suppliers (73)

31-116-CAS-11351433 Steps: **1** Yield: **90%**

1.1 **Reagents:** Pinacolborane
Catalysts: 1,2-Bis(dimethylphosphino)ethane, [(1,2,5,6-η)-1,5-Cyclooctadiene][(1,2,3,3a,7a-η)-1*H*-inden-1-yl]iridium; rt → 150 °C; 12 h, 150 °C; 150 °C → rt

1.2 **Reagents:** Water-d_2
Solvents: Tetrahydrofuran; 1 h, 150 °C

Experimental Protocols

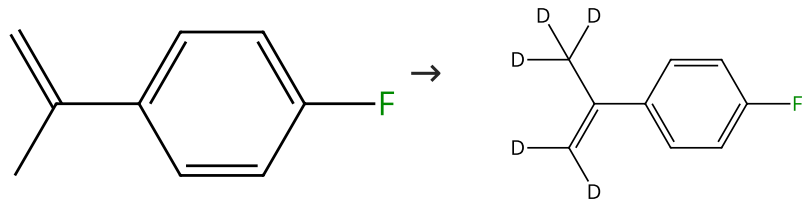
Harnessing C-H Borylation/Deborylation for Selective Deuteration, Synthesis of Boronate Esters, and Late Stage Functionalization

By: Kallepalli, Venkata A.; et al

Journal of Organic Chemistry (2015), 80(16), 8341-8353.

Scheme 133 (1 Reaction)

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



Suppliers (71)

31-614-CAS-37018421

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

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

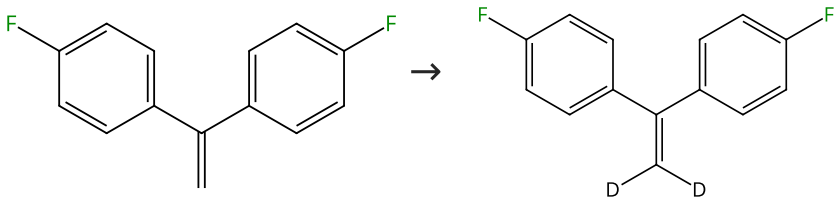
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 134 (1 Reaction)

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



Suppliers (23)

31-614-CAS-37018510

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

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

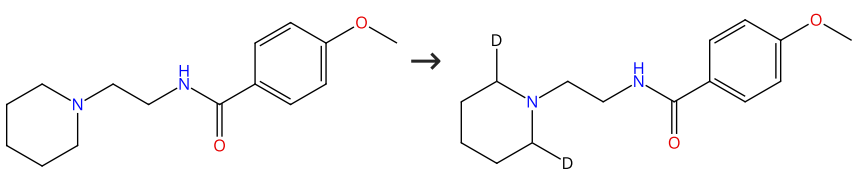
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 135 (1 Reaction)

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



Suppliers (9)

31-614-CAS-33530442 Steps: **1** Yield: **89%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 12 h, rt

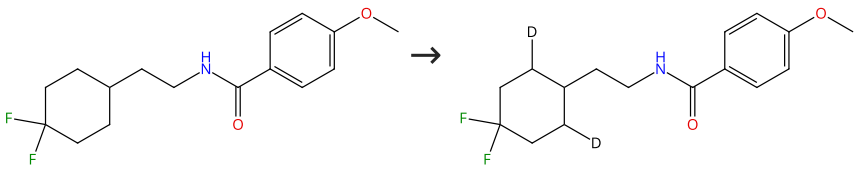
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 136 (1 Reaction) Steps: **1** Yield: **89%**



31-614-CAS-33530443 Steps: **1** Yield: **89%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

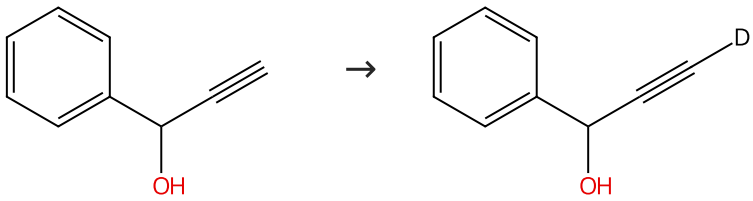
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 137 (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-)-κN^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

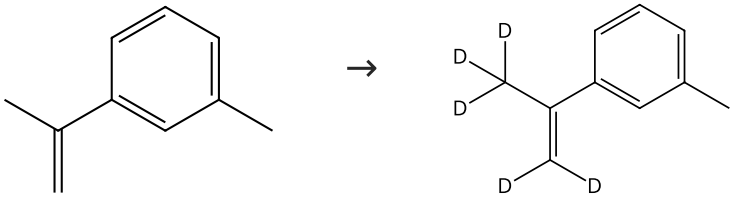
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 138 (1 Reaction)

Steps: **1** Yield: **88%**



Suppliers (61)

31-614-CAS-37018449

Steps: **1** Yield: **88%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

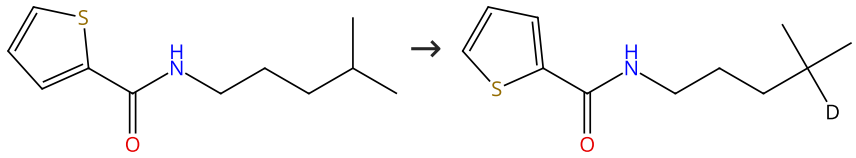
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 139 (1 Reaction)

Steps: **1** Yield: **88%**



Suppliers (11)

31-614-CAS-33530412

Steps: **1** Yield: **88%**

1.1 **Reagents:** Water-d_2
Catalysts: 2,4,6-Tris(1-methylethyl)benzenethiol, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κN]phenyl-κC]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

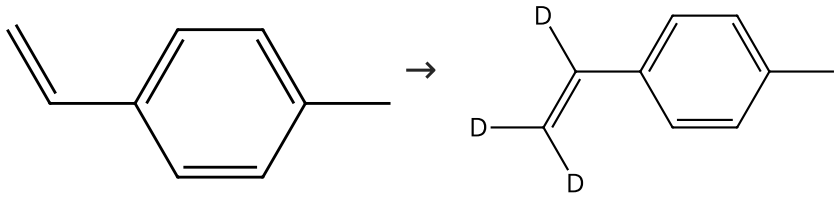
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 140 (1 Reaction)

Steps: **1** Yield: **88%**



Suppliers (70)

31-116-CAS-15986844 Steps: **1** Yield: **88%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

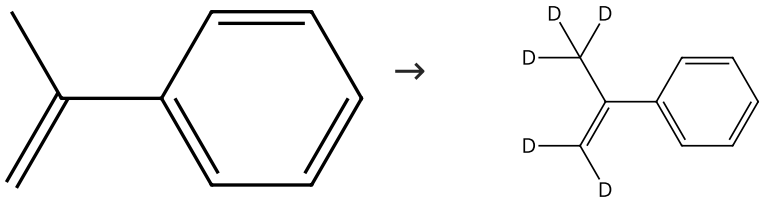
Experimental Protocols

Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 141 (1 Reaction) Steps: **1** Yield: **88%**



Suppliers (70) Supplier (1)

31-614-CAS-37018397 Steps: **1** Yield: **88%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

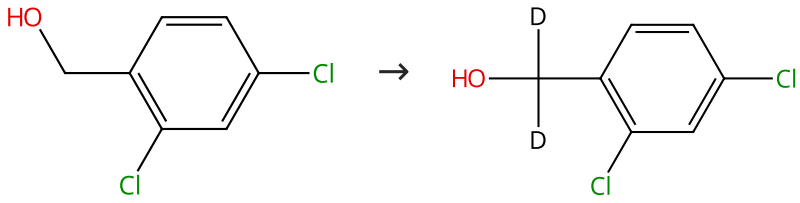
Experimental Protocols

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 142 (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-)-κN^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

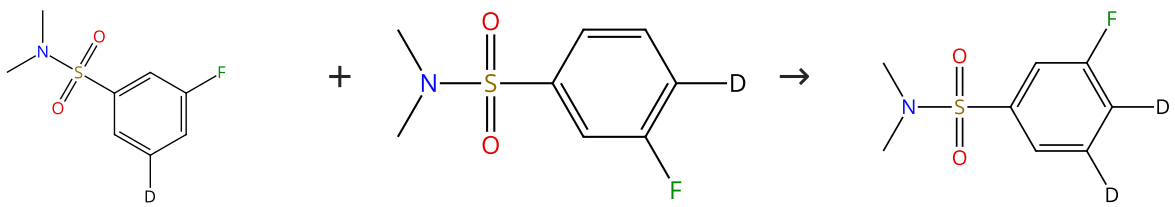
Experimental Protocols

Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 143 (1 Reaction) Steps: **1** Yield: **87%**



31-614-CAS-26524545 Steps: **1** Yield: **87%**

1.1 **Reagents:** Bis(pinacolato)diborane
Catalysts: Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-methoxydiiridium, 4,4'-Bis(1,1-dimethylethyl)-2,2'-bipyridine
Solvents: Tetrahydrofuran; 12 h, 50 °C; 50 °C → rt

1.2 **Reagents:** Silver oxide (Ag_2O)
Solvents: Tetrahydrofuran, Water-d_2; 12 h, rt → 50 °C; 50 °C → rt

1.3 **Reagents:** Bis(pinacolato)diborane
Catalysts: Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-methoxydiiridium, 4,4'-Bis(1,1-dimethylethyl)-2,2'-bipyridine
Solvents: Tetrahydrofuran; 12 h, 50 °C; 50 °C → rt

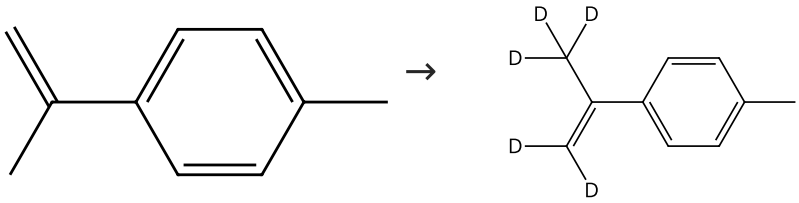
1.4 **Reagents:** Silver oxide (Ag_2O)
Solvents: Tetrahydrofuran, Water-d_2; 12 h, rt → 50 °C; 50 °C → rt

Cobalt-Catalyzed Borylation of Fluorinated Arenes: Thermodynamic Control of C(sp^2)-H Oxidative Addition Results in ortho-to-Fluorine Selectivity

By: Pabst, Tyler P.; et al

Journal of the American Chemical Society (2019), 141(38), 15378-15389.

Scheme 144 (1 Reaction) Steps: **1** Yield: **86%**



Suppliers (50) Supplier (1)

31-614-CAS-37018403 Steps: **1** Yield: **86%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

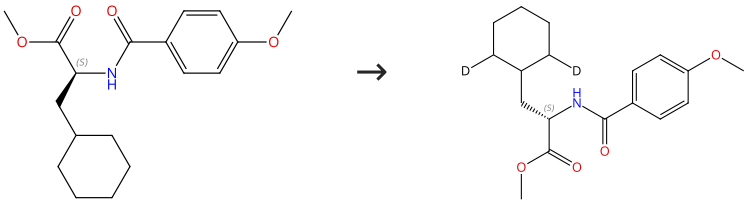
Experimental Protocols

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 145 (1 Reaction) Steps: **1** Yield: **86%**



Absolute stereochemistry shown Absolute stereochemistry shown

31-614-CAS-33530437 Steps: **1** Yield: **86%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

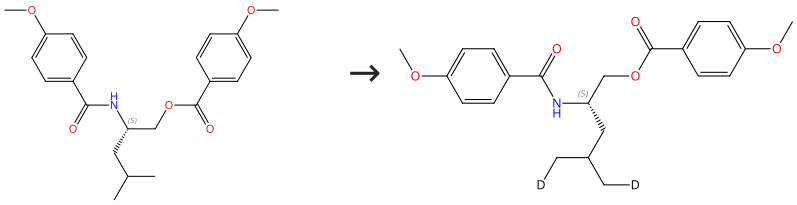
Highly selective single and multiple deuteration of unactivated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 146 (1 Reaction)

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



Absolute stereochemistry shown

Absolute stereochemistry shown

31-614-CAS-33530457

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

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

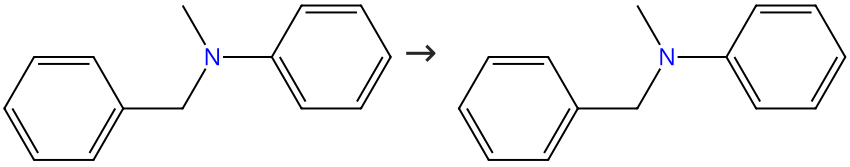
Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 147 (1 Reaction)

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



Suppliers (56)

31-614-CAS-28305991

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

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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

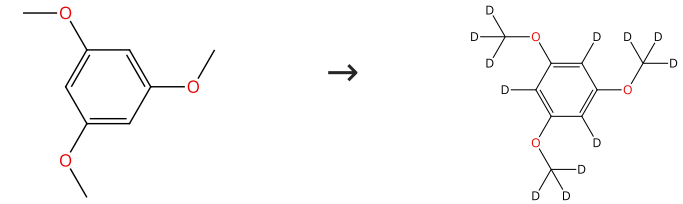
Regioselective, Photocatalytic α-Functionalization of Amines

By: Leng, Lingying; et al

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

Scheme 148 (1 Reaction)

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



Suppliers (109)

31-116-CAS-23896486

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

1.1 **Reagents:** Water-d_2
Catalysts: Iridium
Solvents: Isopropanol; 3 d, 110 °C

Experimental Protocols

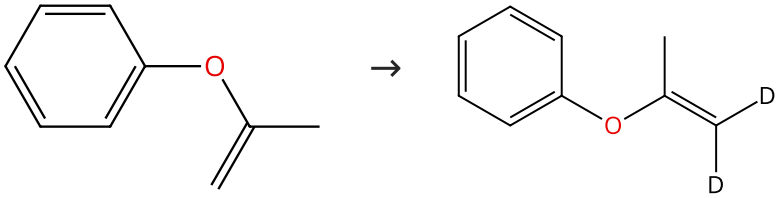
Gold-Catalyzed Tandem Oxidative Coupling Reaction between β-Ketoallenes and Electron-Rich Arenes to 2-Furylmeth ylarenes

By: Yasukawa, Naoki; et al

Organic Letters (2021), 23(15), 5891-5895.

Scheme 149 (1 Reaction)

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



Suppliers (4)

31-116-CAS-15986821

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

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

Experimental Protocols

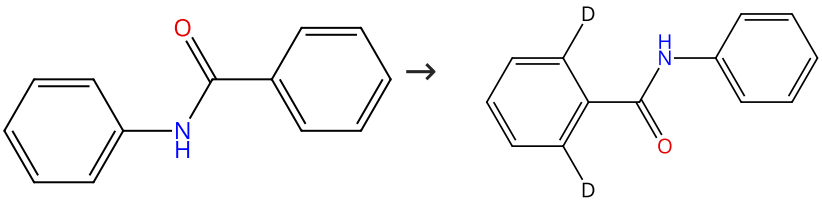
Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 150 (3 Reactions)

Steps: **1** Yield: **32-86%**



Suppliers (89)

31-116-CAS-15217329

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

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylformamide; 4 h, 95 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-15485988

Steps: **1** Yield: **58%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-11318553

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

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 5 h, 95 °C

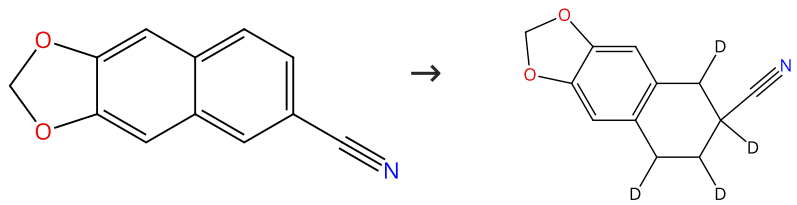
Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

Scheme 151 (1 Reaction)

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



Suppliers (22)

31-614-CAS-37081761

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

1.1 **Reagents:** Water-d_2
Catalysts: Tris(4-methoxyphenyl)phosphine, 2,4,6-Tris(1-methylethyl)benzenethiol, 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: Acetonitrile; 72 h, 20 °C

Experimental Protocols

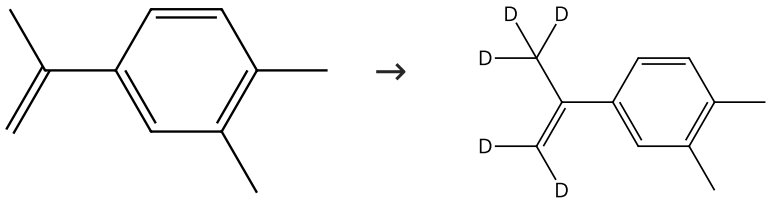
Photocatalytic phosphine-mediated water activation for radical hydrogenation

By: Zhang, Jingjing; et al

Nature (London, United Kingdom) (2023), 619(7970), 506-513.

Scheme 152 (1 Reaction)

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



Suppliers (13)

31-614-CAS-37018457

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

1.1 **Reagents:** Water-d_2
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: Acetonitrile; 36 h, rt

Experimental Protocols

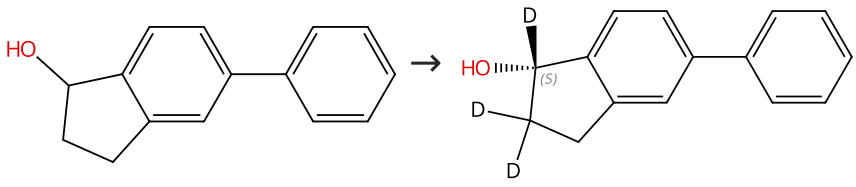
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 153 (1 Reaction)

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



Absolute stereochemistry shown

Suppliers (3)

31-614-CAS-41434440 Steps: **1** Yield: **85%**

1.1 **Reagents:** Potassium carbonate
Catalysts: [*N*-[(1*R*,2*R*)-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
Solvents: 1,4-Dioxane, Water-d_2; 24 h

1.2 **Reagents:** Ammonium chloride
Solvents: Water

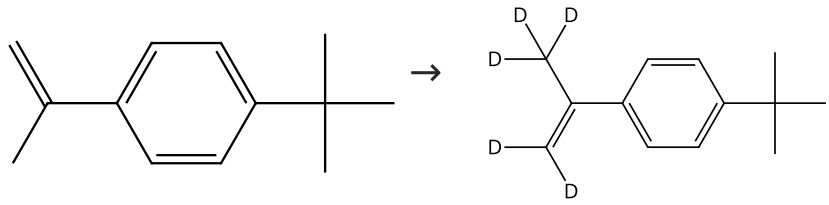
Experimental Protocols

Electrocatalytic cyclic deracemization enabled by a chemically modified electrode

By: Zhu, Cheng-Jie; et al

Nature Catalysis (2024), 7(8), 878-888.

Scheme 154 (1 Reaction) Steps: **1** Yield: **85%**



Suppliers (23)

31-614-CAS-37018412 Steps: **1** Yield: **85%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

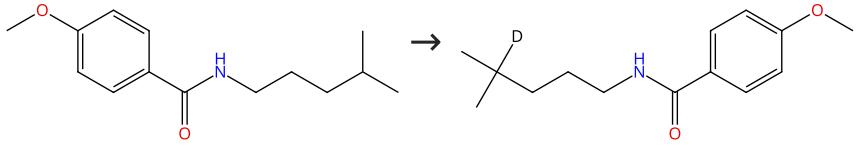
Experimental Protocols

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 155 (1 Reaction) Steps: **1** Yield: **85%**



Supplier (1)

31-614-CAS-33530405 Steps: **1** Yield: **85%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 156 (1 Reaction)

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

Suppliers (12)

31-614-CAS-37018474

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

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

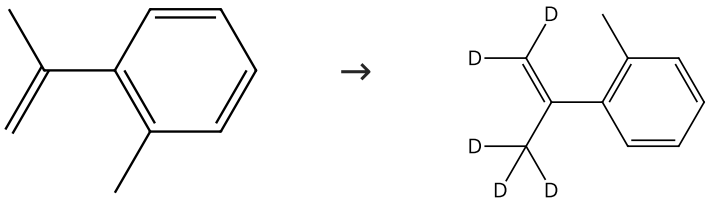
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 157 (1 Reaction)

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



Suppliers (49)

31-614-CAS-37018467

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

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

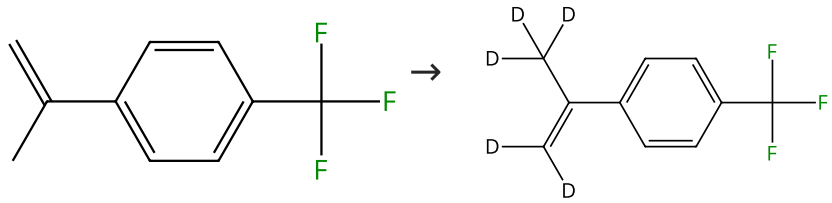
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 158 (1 Reaction)

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



Suppliers (33)

31-614-CAS-37018438 Steps: **1** Yield: **84%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

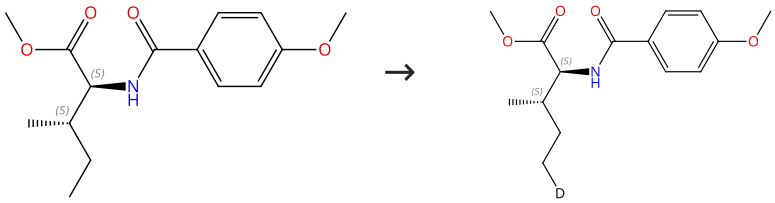
Experimental Protocols

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 159 (1 Reaction) Steps: **1** Yield: **83%**



Absolute stereochemistry shown Absolute stereochemistry shown

Supplier (1)

31-614-CAS-33530432 Steps: **1** Yield: **83%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

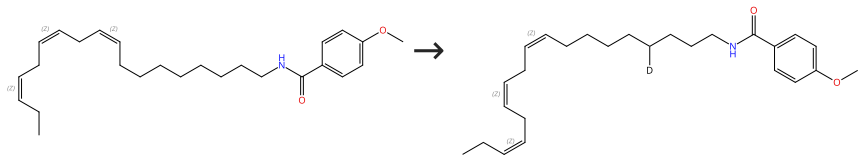
Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 160 (1 Reaction) Steps: **1** Yield: **83%**



Double bond geometry shown Double bond geometry shown

31-614-CAS-33530431 Steps: **1** Yield: **83%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis(4-methoxyphenyl) disulfide, 1-Butanaminium, *N*,*N*,*N*-tributyl-, dibutyl phosphate, Iridium(1+), [5,5'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κ*N*]phenyl-κ*C*]-, hexafluorophosphate(1-) (1:1)
Solvents: Chlorobenzene; 24 h, rt

Experimental Protocols

Highly selective single and multiple deuter ation of unacti vated C(sp^3)-H bonds

By: Li, Nian; et al

Nature Communications (2022), 13(1), 4224.

Scheme 161 (1 Reaction)

Steps: **1** Yield: **83%**

Suppliers (54)

31-116-CAS-15986845

Steps: **1** Yield: **83%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

Experimental Protocols

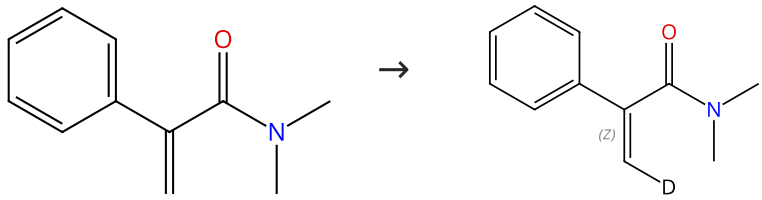
Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 162 (1 Reaction)

Steps: **1** Yield: **83%**



Suppliers (8)

Double bond geometry shown

31-116-CAS-20720448

Steps: **1** Yield: **83%**

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-, Silver tetrafluoroborate
Solvents: Ethyl acetate; 1.5 h, rt → 100 °C

Experimental Protocols

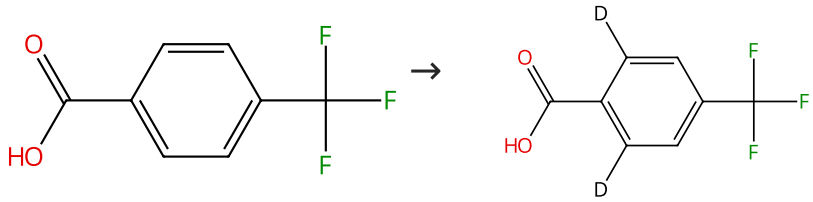
Iridium-Catalyzed Cross-Coupling Reactions of Alkenes by Hydrogen Transfer

By: Meng, Keke; et al

Organic Letters (2019), 21(20), 8219-8224.

Scheme 163 (1 Reaction)

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



Suppliers (94)

31-116-CAS-22461112

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

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-; 2 min; 1 h, 170 °C

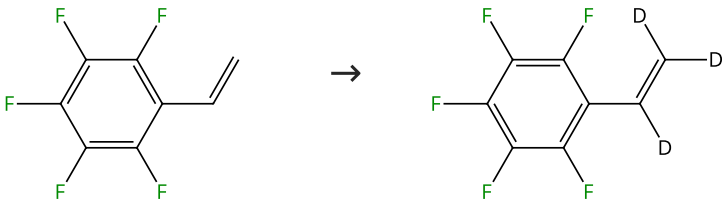
Ir^{III}-Catalyzed Selective ortho-Monoiodination of Benzoic Acids with Unbiased C-H Bonds

By: Weis, Erik; et al

Chemistry - A European Journal (2020), 26(45), 10185-10190.

Scheme 164 (1 Reaction)

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



Suppliers (83)

31-116-CAS-15986841

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

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

Experimental Protocols

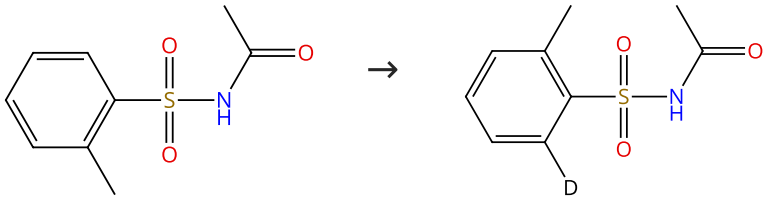
Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 165 (1 Reaction)

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



Suppliers (5)

31-116-CAS-20579031

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

1.1 **Reagents:** Acetic acid-*d*, Water-d_2
Catalysts: Silver carbonate, 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; 12 h, 80 °C

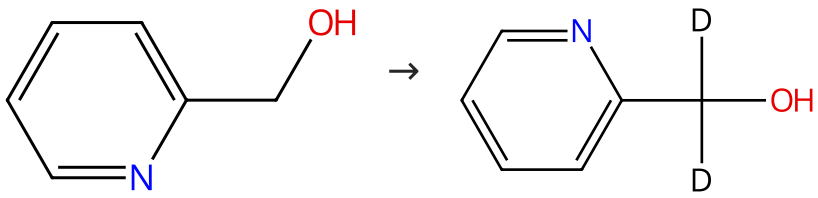
Iridium-Catalyzed ortho-C-H Amidation of Benzenesul fonamides with Sulfonyl Azides

By: Hou, Hongcen; et al

Advanced Synthesis & Catalysis (2019), 361(18), 4393-4398.

Scheme 166 (1 Reaction)

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



Suppliers (94)

31-614-CAS-33408345

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

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

Experimental Protocols

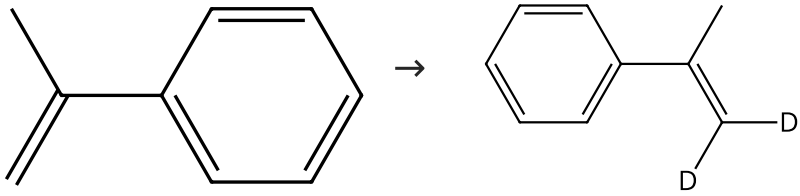
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 167 (1 Reaction)

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



Suppliers (70)

Suppliers (2)

31-116-CAS-15986816

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

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 20 h, 70 °C

Experimental Protocols

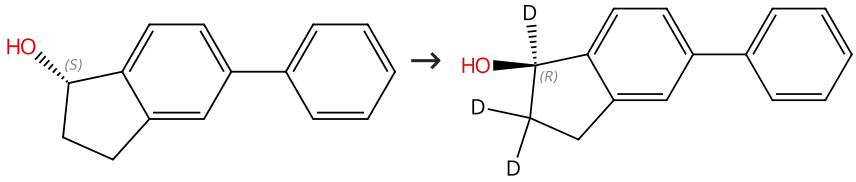
Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 168 (1 Reaction)

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



Absolute stereochemistry shown, Rotation (+)

Absolute stereochemistry shown

31-614-CAS-41434445

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

1.1 **Reagents:** Potassium carbonate
Catalysts: [*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
Solvents: 1,4-Dioxane, Water-d_2; 24 h

1.2 **Reagents:** Ammonium chloride
Solvents: Water

Experimental Protocols

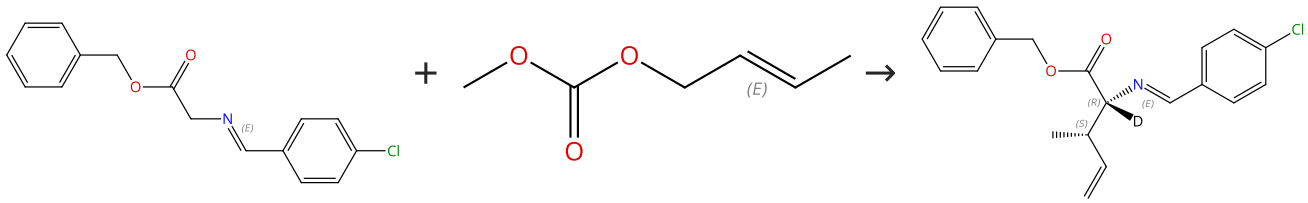
Electrocatalytic cyclic deracemization enabled by a chemically modified electrode

By: Zhu, Cheng-Jie; et al

Nature Catalysis (2024), 7(8), 878-888.

Scheme 169 (1 Reaction)

Steps: **1** Yield: **79%**



Double bond geometry shown

Double bond geometry shown

Absolute stereochemistry shown, Rotation (+)
Double bond geometry shown

Suppliers (2)

31-614-CAS-36688277 Steps: **1** Yield: **79%**

1.1 **Reagents:** Propylamine
Catalysts: Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene] diiridium, (11b*R*)-*N*,*N*-Bis[(1*R*)-1-phenylethyl]dinaphtho[2,1-*d*:1',2'-*f*][1,3,2]dioxaphosphepin-4-amine
Solvents: Tetrahydrofuran; 30 min, 50 °C

1.2 **Catalysts:** Tetrakis(acetonitrile)copper(1+) tetrafluoroborate, (2*S*)-1-[(4*R*)-4,5-Dihydro-4-(1-methylethyl)-2-oxazolyl]-2-(diphenylphosphino)ferrocene
Solvents: Dichloromethane; 0.5 h, rt

1.3 **Reagents:** Triethylamine, Water-d_2
Solvents: Dichloromethane; 10 min, rt

1.4 **Solvents:** Dichloromethane; 14 h, 25 °C

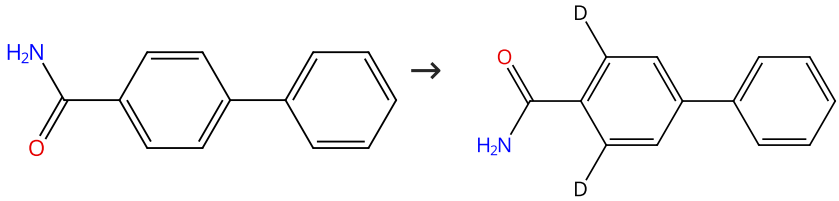
Experimental Protocols

Stereodivergent synthesis of enantioenriched α-deuterated α-amino acids via cascade Cu(I)-catalyzed H-D exchange and dual Cu- and Ir-catalyzed allylation

By: Fu, Cong; et al

Organic Letters (2022), 24(30), 5562-5567.

Scheme 170 (4 Reactions) Steps: **1** Yield: **50-79%**



Suppliers (63)

31-116-CAS-904 Steps: **1** Yield: **79%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-4250540 Steps: **1** Yield: **65%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylformamide; 2 h, 91 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-1067127 Steps: **1** Yield: **50%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

31-116-CAS-13737532 Steps: **1** Yield: **50%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

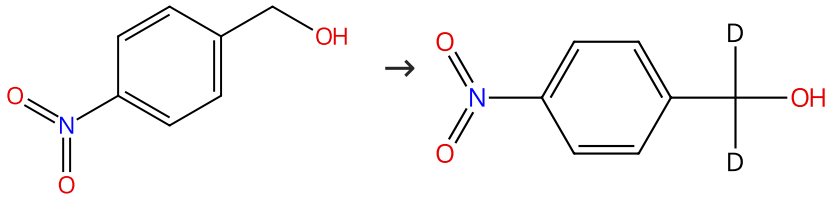
Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 171 (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-)-κN^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

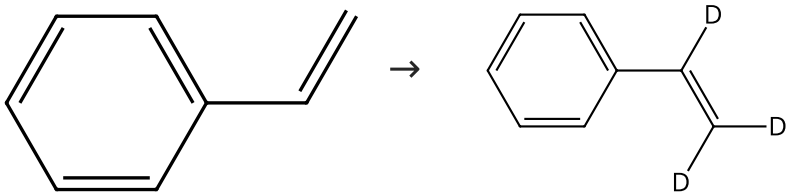
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 172 (1 Reaction)

Steps: **1** Yield: **77%**



Suppliers (122)

Suppliers (22)

31-116-CAS-15986843

Steps: **1** Yield: **77%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

Experimental Protocols

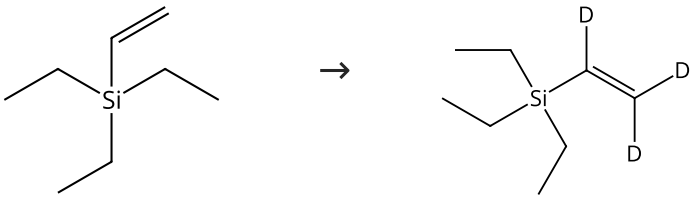
Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 173 (1 Reaction)

Steps: **1** Yield: **77%**



Suppliers (51)

31-116-CAS-15986814

Steps: **1** Yield: **77%**

1.1 **Reagents:** Water-d_2
Catalysts: *N*-(Methylsulfonyl)benzamide, Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Tetrahydrofuran; 3 h, 70 °C

Experimental Protocols

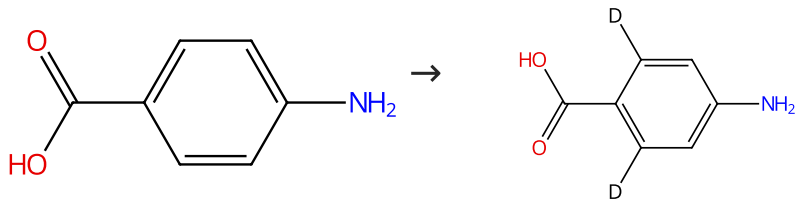
Selective H/D exchange at vinyl and methyl idene groups with D_2O catalyzed by an iridium complex

By: Hatano, Miyuki; et al

Organic Letters (2016), 18(15), 3674-3677.

Scheme 174 (3 Reactions)

Steps: **1** Yield: **56-77%**



Suppliers (137)

Suppliers (12)

31-116-CAS-7458773

Steps: **1** Yield: **77%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

31-116-CAS-161178

Steps: **1** Yield: **77%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-3120046

Steps: **1** Yield: **56%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

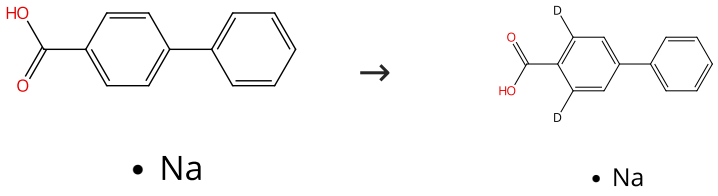
Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 175 (3 Reactions)

Steps: **1** Yield: **27-77%**



• Na

• Na

Suppliers (4)

31-116-CAS-2587431

Steps: **1** Yield: **77%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

31-116-CAS-8009220 Steps: **1** Yield: **77%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-7323401 Steps: **1** Yield: **27%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 176 (1 Reaction) Steps: **1** Yield: **77%**

31-614-CAS-27466901 Steps: **1** Yield: **77%**

1.1 **Reagents:** Water-d_2, 2-*tert*-Butyl-1,1,3,3-tetramethylguanidine, Triisopropylsilanethiol
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-(5-methyl-2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Dimethylformamide, Water-d_2; 3 h, rt

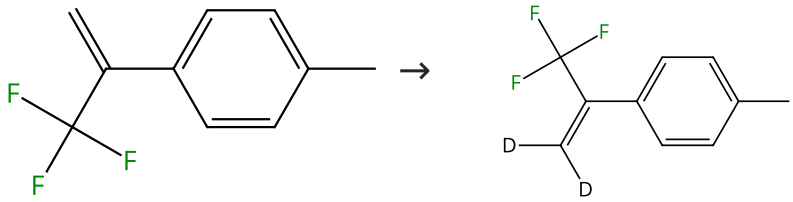
Experimental Protocols

Photoredox-mediated hydrogen isotope exchange reactions of amino acids, peptides, and peptide-derived drugs

By: Legros, Fabien; et al

Chemistry - A European Journal (2020), 26(56), 12738-12742.

Scheme 177 (1 Reaction) Steps: **1** Yield: **77%**



Suppliers (11)

31-614-CAS-37018511 Steps: **1** Yield: **77%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

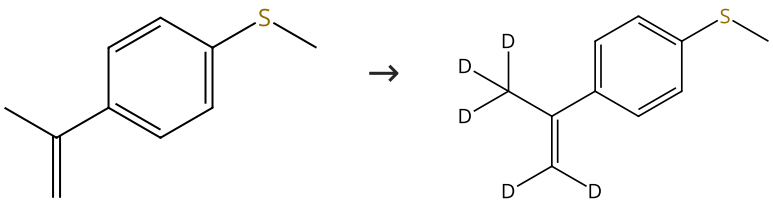
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 178 (1 Reaction)

Steps: **1** Yield: **77%**



Suppliers (8)

31-614-CAS-37018418

Steps: **1** Yield: **77%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

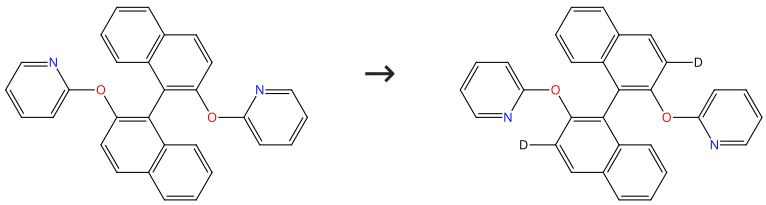
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 179 (1 Reaction)

Steps: **1** Yield: **76%**



31-614-CAS-31118815

Steps: **1** Yield: **76%**

1.1 **Reagents:** Sodium acetate, Silver acetate, Silver triflate
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, Water-d_2; 3 h, 140 °C

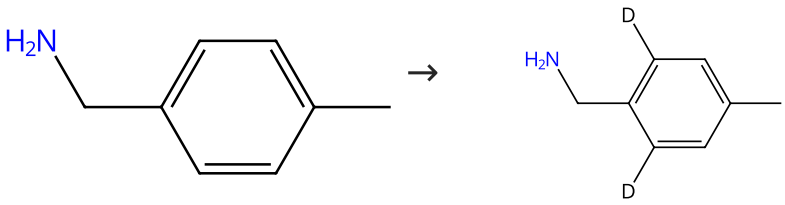
Iridium(III)-catalyzed two-fold C-H alkylation of BINOLs with allyl alcohols

By: Liu, Hao; et al

Organic Chemistry Frontiers (2022), 9(2), 471-475.

Scheme 180 (3 Reactions)

Steps: **1** Yield: **65-75%**



Suppliers (86)

31-116-CAS-12583619

Steps: **1** Yield: **75%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-14133067 Steps: **1** Yield: **70%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

31-116-CAS-963629 Steps: **1** Yield: **65%**

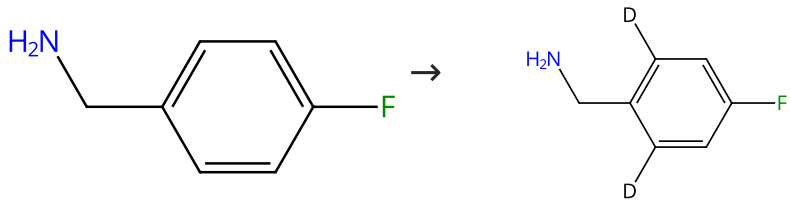
1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 181 (1 Reaction) Steps: **1** Yield: **75%**



Suppliers (91)

31-116-CAS-11992848 Steps: **1** Yield: **75%**

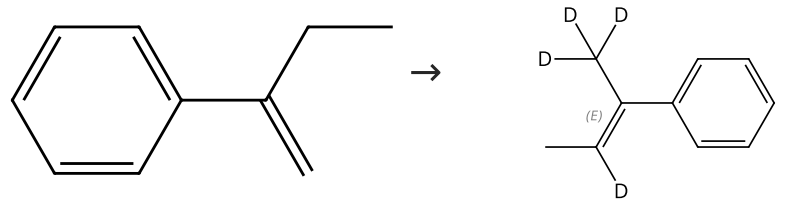
1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

Scheme 182 (1 Reaction) Steps: **1** Yield: **75%**



Suppliers (53)

Double bond geometry shown

31-614-CAS-37018571 Steps: **1** Yield: **75%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

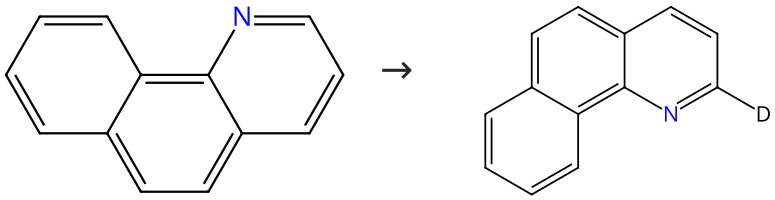
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 183 (2 Reactions)

Steps: **1** Yield: **58-75%**



Suppliers (81)

31-116-CAS-10837174

Steps: **1** Yield: **75%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-14673868

Steps: **1** Yield: **58%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

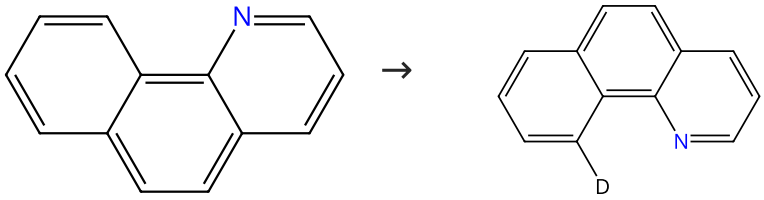
Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 184 (1 Reaction)

Steps: **1** Yield: **75%**



Suppliers (81)

31-116-CAS-13844798

Steps: **1** Yield: **75%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 5 h, 95 °C

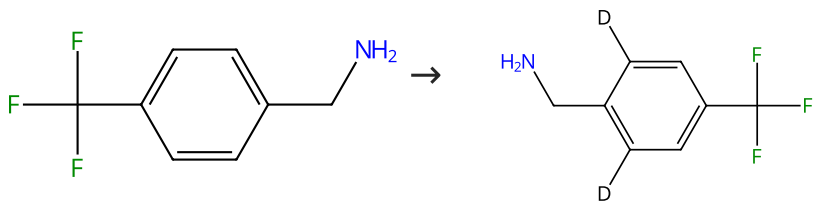
Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

Scheme 185 (2 Reactions)

Steps: **1** Yield: **28-75%**



Suppliers (91)

31-116-CAS-14404085 Steps: **1** Yield: **75%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-9479178 Steps: **1** Yield: **28%**

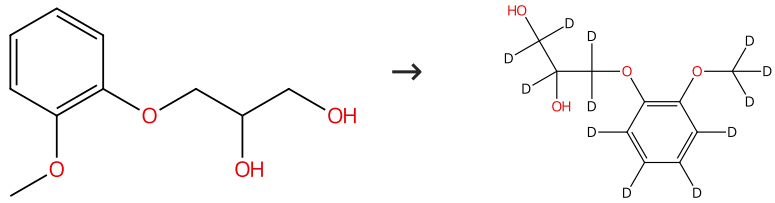
1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 186 (1 Reaction) Steps: **1** Yield: **75%**



Suppliers (101)

31-614-CAS-33408342 Steps: **1** Yield: **75%**

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

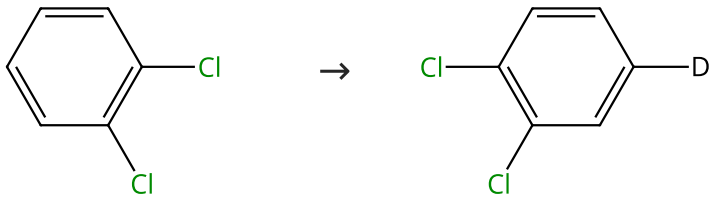
Experimental Protocols

Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 187 (1 Reaction) Steps: **1** Yield: **74%**



Suppliers (139)

31-116-CAS-11759455 Steps: **1** Yield: **74%**

1.1 **Reagents:** Pinacolborane
Catalysts: 1,2-Bis(dimethylphosphino)ethane, [(1,2,5,6-η)-1,5-Cyclooctadiene][(1,2,3,3a,7a-η)-1*H*-inden-1-yl]iridium; rt → 150 °C; 3.5 h, 150 °C; 150 °C → rt

1.2 **Solvents:** Methanol; rt

1.3 **Reagents:** Water-d_2
Solvents: Tetrahydrofuran; 30 min, 150 °C

Experimental Protocols

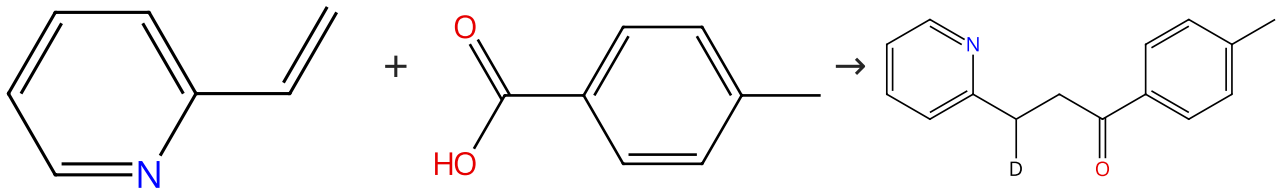
Harnessing C-H Borylation/Deborylation for Selective Deuteration, Synthesis of Boronate Esters, and Late Stage Functionalization

By: Kallepalli, Venkata A.; et al

Journal of Organic Chemistry (2015), 80(16), 8341-8353.

Scheme 188 (1 Reaction)

Steps: **1** Yield: **72%**



Suppliers (79)

Suppliers (103)

31-116-CAS-19898935

Steps: **1** Yield: **72%**

1.1 **Reagents:** Triphenylphosphine
Catalysts: Dipotassium phosphate, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κN]phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane, Water-d_2; 48 h, rt

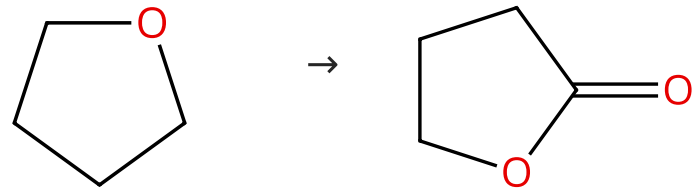
A general deoxygenation approach for synthesis of ketones from aromatic carboxylic acids and alkenes

By: Zhang, Muliang; et al

Nature Communications (2018), 9(1), 1-10.

Scheme 189 (1 Reaction)

Steps: **1** Yield: **72%**



Suppliers (410)

Suppliers (64)

31-494-CAS-9657856

Steps: **1** Yield: **72%**

1.1 **Reagents:** Ceric ammonium nitrate
Catalysts: Iridium(2+), triaqua[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, sulfate (1:1)
Solvents: Water-d_2; 20 min, rt

Experimental Protocols

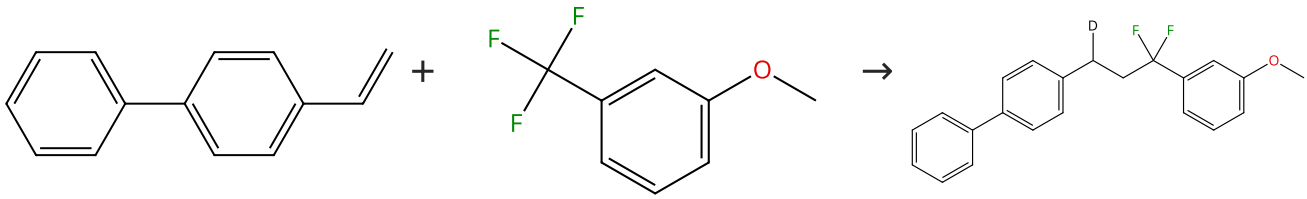
Cp* Iridium Complexes Give Catalytic Alkane Hydroxylation with Retention of Stereochemistry

By: Zhou, Meng; et al

Journal of the American Chemical Society (2010), 132(36), 12550-12551.

Scheme 190 (1 Reaction)

Steps: **1** Yield: **72%**



Suppliers (74)

Suppliers (75)

31-614-CAS-40148871

Steps: **1** Yield: **72%**

1.1 **Reagents:** Diisopropylamine, Water-d_2
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κN]phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Acetonitrile; 18 h, rt

Experimental Protocols

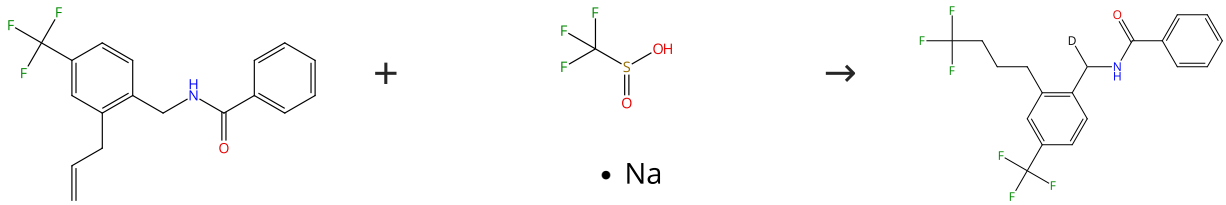
Selective Mono-Defluorinative Cross-Coupling of Trifluoromethyl arenes via Multiphoton Photoredox Catalysis

By: Jia, Jiaqi; et al

Chemistry - A European Journal (2024), 30(23), e202302927.

Scheme 191 (1 Reaction)

Steps: **1** Yield: **71%**



Suppliers (78)

31-116-CAS-22806575

Steps: **1** Yield: **71%**

1.1 **Reagents:** Carbon dioxide, Cesium carbonate, Water-d_2, Propanoic acid, 2,2-dimethyl-, potassium salt (1:1)
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Dimethylacetamide; 24 h, 22 - 25 °C

1.2 **Reagents:** Hydrochloric acid
Solvents: Water; 5 min, rt

Experimental Protocols

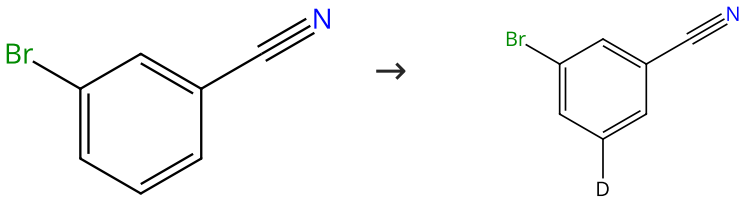
Visible-Light Photoredox-Catalyzed Remote Difunctionalizing Carboxylation of Unactivated Alkenes with CO_2

By: Song, Lei; et al

Angewandte Chemie, International Edition (2020), 59(47), 21121-21128.

Scheme 192 (1 Reaction)

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



Suppliers (88)

31-116-CAS-13839245

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

1.1 **Reagents:** Pinacolborane, 4,4'-Bis(1,1-dimethylethyl)-2,2'-bipyridine
Catalysts: Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-methoxydiiridium
Solvents: Heptane; 1 min, rt

1.2 6 h, rt

1.3 **Reagents:** Water-d_2
Solvents: Tetrahydrofuran; 2 h, 150 °C

Experimental Protocols

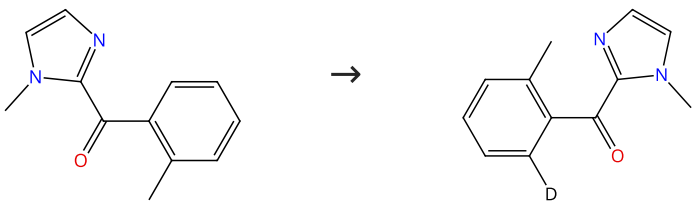
Harnessing C-H Borylation/Deborylation for Selective Deuteration, Synthesis of Boronate Esters, and Late Stage Functionalization

By: Kallepalli, Venkata A.; et al

Journal of Organic Chemistry (2015), 80(16), 8341-8353.

Scheme 193 (1 Reaction)

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



Suppliers (6)

31-614-CAS-36980193 Steps: **1** Yield: **68%**

1.1 **Reagents:** Lithium acetate, Water-d_2
Catalysts: Silver acetate, Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Sodium tetrakis[3,5-bis(trifluoromethyl)phenyl]borate
Solvents: 1,2-Dichloroethane; 24 h, rt

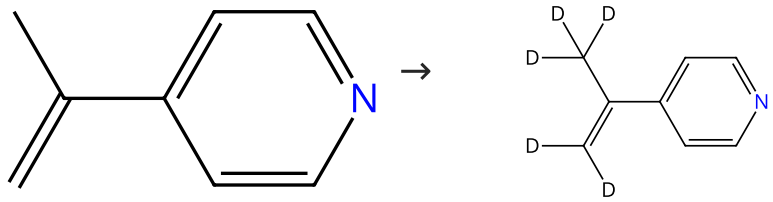
Experimental Protocols

Ir(III)-Catalyzed C(sp^2)-H Amidation of 2-Aroylimidazoles with 2,2,2-Trichloroethoxycarbonyl Azide (TrocN$_3$)

By: Mahato, Sanjit K.; et al

Journal of Organic Chemistry (2022), 87(24), 16390-16398.

Scheme 194 (1 Reaction) Steps: **1** Yield: **67%**



Suppliers (25)

31-614-CAS-37018482 Steps: **1** Yield: **67%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1), (*OC*-6-42)-Chlorobis[[1,2-cyclohexanedione 1,2-di(oximato-κN)](1-)](*N*,*N*-dimethyl-4-pyridinamine-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

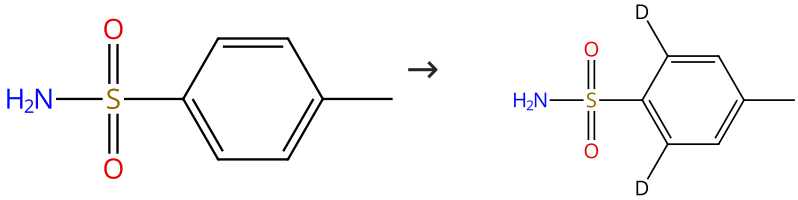
Experimental Protocols

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 195 (3 Reactions) Steps: **1** Yield: **50-66%**



Suppliers (99)

31-116-CAS-5314601 Steps: **1** Yield: **66%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

31-116-CAS-2430088 Steps: **1** Yield: **66%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-8827576 Steps: **1** Yield: **50%**

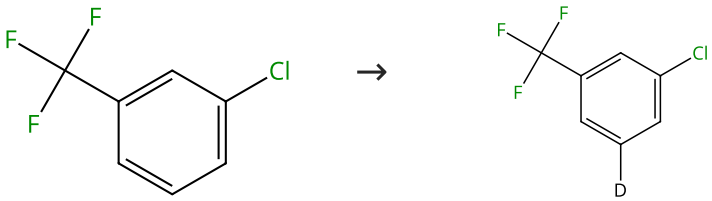
1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 196 (1 Reaction) Steps: **1** Yield: **66%**



Suppliers (62)

31-116-CAS-7433901 Steps: **1** Yield: **66%**

1.1 **Reagents:** Pinacolborane
Catalysts: 1,2-Bis(dimethylphosphino)ethane, [(1,2,5,6-η)-1,5-Cyclooctadiene][(1,2,3,3a,7a-η)-1*H*-inden-1-yl]iridium
Solvents: Cyclohexane; rt → 150 °C; 3.0 h, 150 °C; 150 °C → rt

1.2 **Reagents:** Water-d_2
Solvents: Tetrahydrofuran; 90 min, 150 °C

Experimental Protocols

Harnessing C-H Borylation/Deborylation for Selective Deuteration, Synthesis of Boronate Esters, and Late Stage Functionalization

By: Kallepalli, Venkata A.; et al

Journal of Organic Chemistry (2015), 80(16), 8341-8353.

Scheme 197 (1 Reaction) Steps: **1** Yield: **62%**

Suppliers (4)

31-614-CAS-37018456 Steps: **1** Yield: **62%**

1.1 **Reagents:** Water-d_2
Catalysts: Diisopropylethylamine, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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-κN^1)cobalt
Solvents: Acetonitrile; 36 h, rt

Experimental Protocols

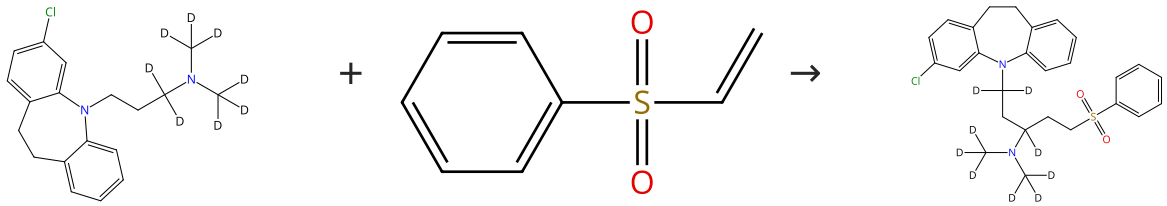
Visible light promoted direct deuteration of alkenes via Co(III)-H mediated H/D exchange

By: Jia, Zongbin; et al

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

Scheme 198 (1 Reaction)

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



Suppliers (94)

31-614-CAS-24525027

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

1.1 **Reagents:** Water-d_2
Catalysts: 1,1,1-Triphenylsilanethiol, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Toluene; 1 min, 28 °C; 8 h, 28 °C

Experimental Protocols

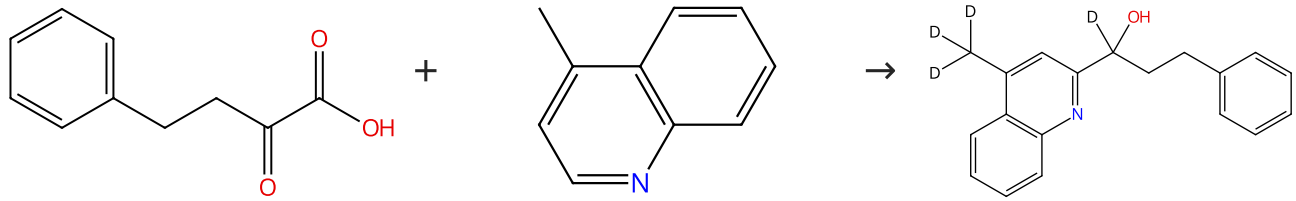
Site-selective α-C-H Functionalization of Trialkylamines via Reversible HAT-Catalysis

By: Shen, Yangyang; et al

Journal of the American Chemical Society (2021), 143(45), 18952-18959.

Scheme 199 (1 Reaction)

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



Suppliers (68)

Suppliers (75)

31-614-CAS-31486606

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

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κN]phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Methanol; 48 h, 50 °C

1.2 **Reagents:** Sodium carbonate
Solvents: Water

Experimental Protocols

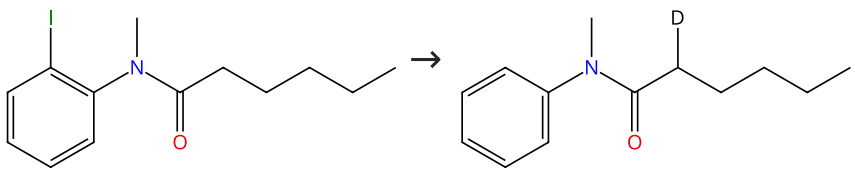
Photoredox Neutral Decarboxylative Hydroxyalkylations of Heteroarenes with α-Keto Acids

By: Ji, Xiaochen; et al

Journal of Organic Chemistry (2022), 87(6), 4168-4182.

Scheme 200 (1 Reaction)

Steps: **1** Yield: **58%**



Suppliers (2)

Supplier (1)

31-614-CAS-43333942 Steps: **1** Yield: **58%**

1.1 **Reagents:** Cesium carbonate, Diisopropylethylamine, Water-d_2
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-(5-methyl-2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Dimethyl sulfoxide; 16 h, 1 atm, rt

1.2 **Reagents:** Hydrochloric acid
Solvents: Water; pH 1

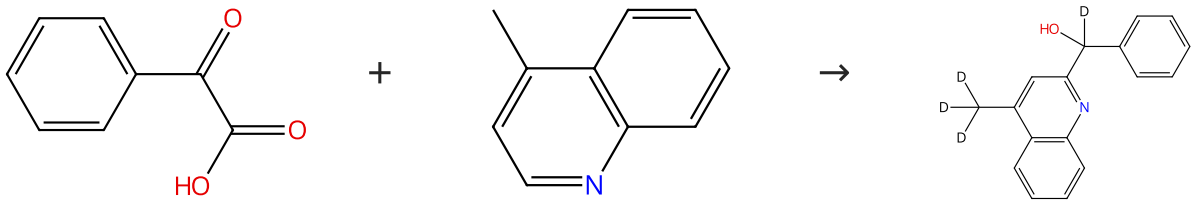
Experimental Protocols

Remote C(sp^3)-H Carboxylation with CO_2 via Visible-Light-Catalyzed 1,5-Hydrogen Atom Transfer

By: Huang, Haoran; et al

Organic Letters (2024), 26(51), 11195-11200.

Scheme 201 (1 Reaction) Steps: **1** Yield: **58%**



Suppliers (112) Suppliers (75)

31-614-CAS-31486604 Steps: **1** Yield: **58%**

1.1 **Reagents:** Trifluoroacetic acid, Water-d_2, Zinc triflate
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κN]phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Methanol; 48 h, 50 °C

1.2 **Reagents:** Sodium carbonate
Solvents: Water

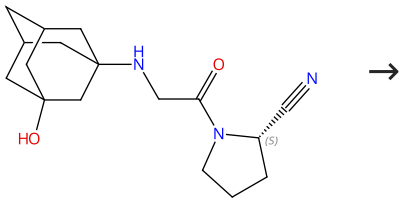
Experimental Protocols

Photoredox Neutral Decarboxylative Hydroxyalkylations of Heteroarenes with α-Keto Acids

By: Ji, Xiaochen; et al

Journal of Organic Chemistry (2022), 87(6), 4168-4182.

Scheme 202 (1 Reaction) Steps: **1** Yield: **56%**



Absolute stereochemistry shown, Rotation (-)

Multi-component structure image available in CAS SciFinder

Suppliers (109)

31-614-CAS-27788809 Steps: **1** Yield: **56%**

1.1 **Reagents:** Water-d_2, 2-*tert*-Butyl-1,1,3,3-tetramethylguanidine, Triisopropylsilanethiol
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-(5-methyl-2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Dimethylformamide, Water-d_2; 3 h, rt

Experimental Protocols

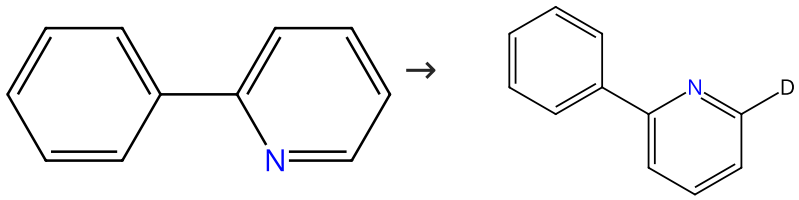
Photoredox-mediated hydrogen isotope exchange reactions of amino acids, peptides, and peptide-derived drugs

By: Legros, Fabien; et al

Chemistry - A European Journal (2020), 26(56), 12738-12742.

Scheme 203 (1 Reaction)

Steps: **1** Yield: **54%**



Suppliers (94)

Supplier (1)

31-116-CAS-5201358

Steps: **1** Yield: **54%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

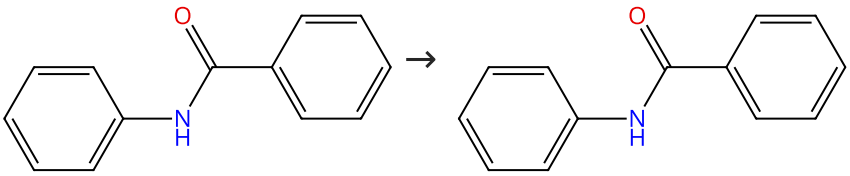
Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 204 (1 Reaction)

Steps: **1** Yield: **53%**



Suppliers (89)

31-614-CAS-30956872

Steps: **1** Yield: **53%**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [1,1'-(4*R*)-[4,4'-bi-1,3-benzodioxole]-5,5'-diylbis[1,1-diphenylphosphine-κ*P*]][(1,2,5,6-η)-1,5-cyclooctadiene]-, 1,1,1-trifluoromethanesulfonate (1:1)
Solvents: 1,4-Dioxane; 24 h, 120 °C

Experimental Protocols

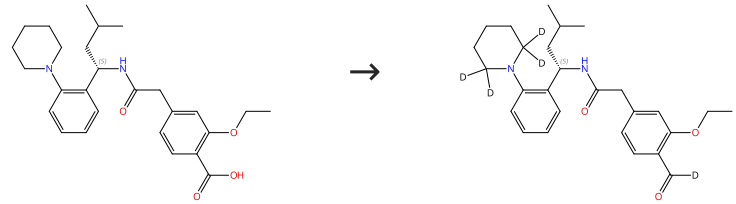
Ir-Catalyzed Enantioselective Intra- and Intermolecular Formal C-H Conjugate Addition to β-Substituted α,β-Unsaturated Esters

By: Shibata, Takanori; et al

Asian Journal of Organic Chemistry (2018), 7(7), 1411-1418.

Scheme 205 (1 Reaction)

Steps: **1** Yield: **52%**



Absolute stereochemistry shown, Rotation (+)

Absolute stereochemistry shown

Suppliers (106)

31-116-CAS-19502689 Steps: **1** Yield: **52%**

1.1 **Reagents:** Triphenylphosphine, Dipotassium phosphate, Water-d_2
Catalysts: 2,4,6-Tris(1-methylethyl)benzenethiol, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κN]phenyl-κC]-, (OC-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane; 36 h, rt

1.2 **Reagents:** Water; rt

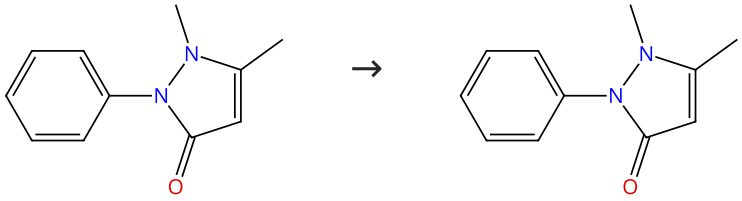
Experimental Protocols

Deoxygenative Deuteration of Carboxylic Acids with D_2O

By: Zhang, Muliang; et al

Angewandte Chemie, International Edition (2019), 58(1), 312-316.

Scheme 206 (2 Reactions) Steps: **1** Yield: **25-51%**



Suppliers (99)

31-116-CAS-4455282 Steps: **1** Yield: **51%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-12528949 Steps: **1** Yield: **25%**

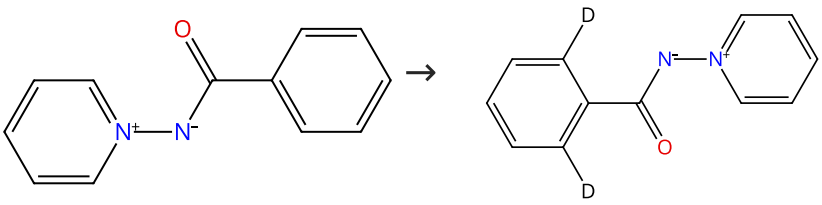
1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 207 (1 Reaction) Steps: **1** Yield: **50%**



Suppliers (5)

31-614-CAS-42421295 Steps: **1** Yield: **50%**

1.1 **Reagents:** Potassium acetate, 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: 2,2,2-Trifluoroethanol, Water; 24 h, 100 °C

Ir(III)-catalyzed C-H alkenylation/annulation of N-iminopyridinium ylides with acrylates and alkynes

By: Chen, Xiaopei; et al

Tetrahedron (2024), 168, 134322.

Scheme 208 (1 Reaction)

Steps: **1** Yield: **50%**

31-614-CAS-36222321

Steps: **1** Yield: **50%**

1.1 **Reagents:** Triphenylphosphine, Dipotassium phosphate, Water-d_2
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κN]phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane; 48 h, rt

1.2 **Reagents:** Water; rt

Experimental Protocols

Photoredox-Mediated Deoxygenative Radical Additions of Aromatic Acids to Vinyl Boronic Esters and gem-Diboryl alkenes

By: Nagaraju, Anugula; et al

Chemistry - A European Journal (2023), 29(3), e202202646.

Scheme 209 (1 Reaction)

Steps: **1** Yield: **50%**

Absolute stereochemistry shown

Absolute stereochemistry shown

31-614-CAS-40118618

Steps: **1** Yield: **50%**

1.1 **Reagents:** Water-d_2
Catalysts: Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene] diiridium, Sodium tetrakis[3,5-bis(trifluoromethyl)phenyl] borate
Solvents: Toluene; 12 h, rt → 100 °C

Experimental Protocols

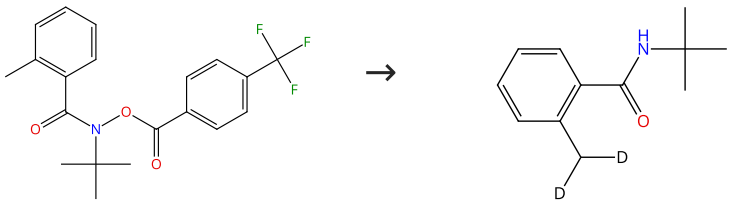
Reversible-Hydrogen-Transfer-Mediated Anomerization of Azaheterocyclyl 2-Deoxy-C-glycosides and Mechanistic Studies

By: Mu, Qiu-Qi; et al

ACS Catalysis (2023), 13(8), 5656-5664.

Scheme 210 (1 Reaction)

Steps: **1** Yield: **48%**



31-614-CAS-36994349

Steps: **1** Yield: **48%**

1.1 **Reagents:** Cesium carbonate, Diisopropylethylamine, Water-d_2
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κN]phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Dimethylformamide; 48 h, 1 atm, rt

Experimental Protocols

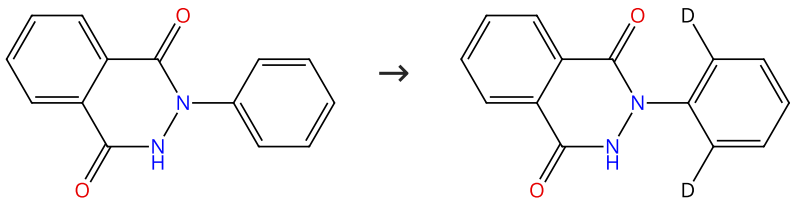
Photocarboxylation of remote C-H bonds through nitrogen-centred radical 1,5-hydrogen atom transfer

By: Li, Wenke; et al

Green Chemistry (2023), 25(13), 5030-5034.

Scheme 211 (1 Reaction)

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



Suppliers (38)

31-614-CAS-40822335

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

1.1 **Reagents:** 1-Adamantanecarboxylic acid, 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-
Solvents: 1,2-Dichloroethane; 0.5 h, 100 °C

Experimental Protocols

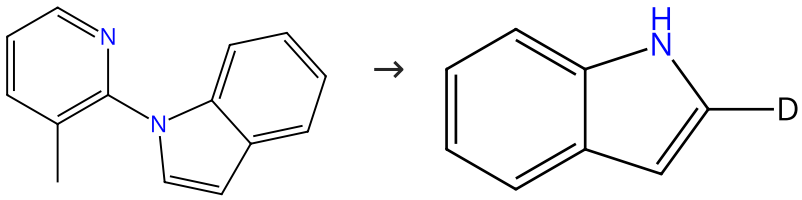
Synthesis of Phthalazino[2,3-a]cinnoline-6,8,13(5H)-triones via Ir(III)-Catalyzed Dehydrogenative C-H/N-H Functionalization of N-Aryl Phthalazinones

By: Zhang, Chao; et al

Advanced Synthesis & Catalysis (2024), 366(13), 2996-3000.

Scheme 212 (1 Reaction)

Steps: **1** Yield: **43%**



Suppliers (3)

Suppliers (12)

31-614-CAS-34491693

Steps: **1** Yield: **43%**

1.1 **Reagents:** Norbornene, Water-d_2
Catalysts: Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene] diiridium
Solvents: Toluene; 22 h, 80 °C

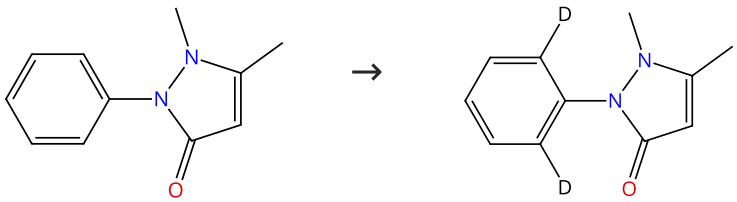
3-Alkyl-2-pyridyl Directing Group-Enabled C2 Selective C-H Silylation of Indoles and Pyrroles via an Iridium Catalyst

By: Sun, Hui; et al

Journal of Organic Chemistry (2022), 87(19), 13346-13351.

Scheme 213 (1 Reaction)

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



Suppliers (99)

31-116-CAS-9594461

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

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

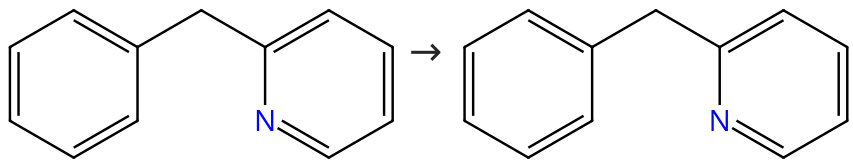
Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

Scheme 214 (2 Reactions)

Steps: **1** Yield: **4-40%**



Suppliers (66)

31-116-CAS-15386002

Steps: **1** Yield: **40%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-5535980

Steps: **1** Yield: **4%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

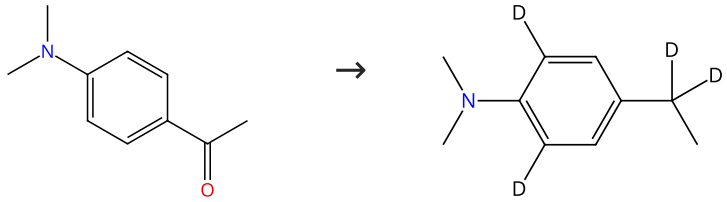
Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 215 (1 Reaction)

Steps: **1** Yield: **40%**



Suppliers (83)

31-116-CAS-22909026

Steps: **1** Yield: **40%**

1.1 **Reagents:** Formic-*d* acid-*d*
Catalysts: Iridium(1+), chloro[2-(4,5-dihydro-1*H*-imidazol-2-yl-κN^3)-*N*,*N*-diethyl-4-pyridinamine-κN^1][(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]-, chloride (1:1)
Solvents: 1,1,1,3,3,3-Hexafluoro-2-propanol, Water-d_2; 2 h, 80 °C

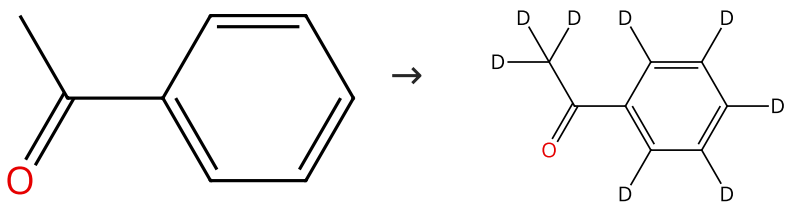
Iridium-Catalysed Reductive Deoxygenation of Ketones with Formic Acid as Traceless Hydride Donor

By: Yang, Zhiheng; et al

Advanced Synthesis & Catalysis (2020), 362(23), 5496-5505.

Scheme 216 (1 Reaction)

Steps: **1** Yield: **40%**



Suppliers (109)

Suppliers (39)

31-116-CAS-20111043 Steps: **1** Yield: **40%**

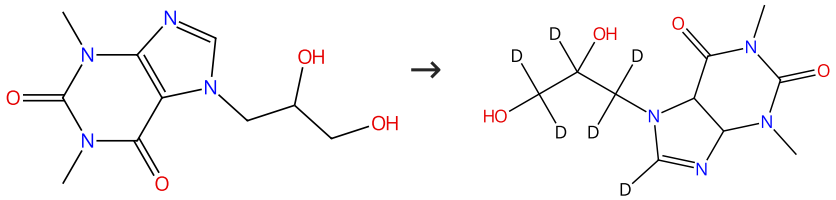
1.1 **Reagents:** Water-d_2
Catalysts: Iridium
Solvents: Isopropanol; 24 h, rt

H-D Exchange Deuteration of Arenes at Room Temper ature

By: Sawama, Yoshinari; et al

Organic Process Research & Development (2019), 23(4), 648-653.

Scheme 217 (1 Reaction) Steps: **1** Yield: **37%**



Suppliers (98)

31-614-CAS-33408347 Steps: **1** Yield: **37%**

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

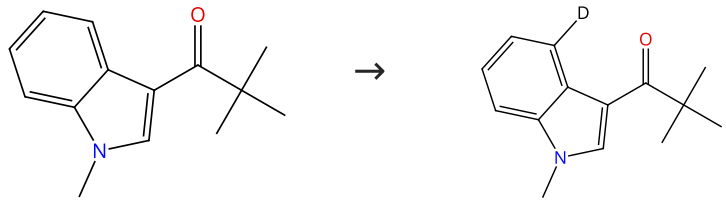
Experimental Protocols

Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 218 (1 Reaction) Steps: **1** Yield: **35%**



Suppliers (32)

31-116-CAS-20471674 Steps: **1** Yield: **35%**

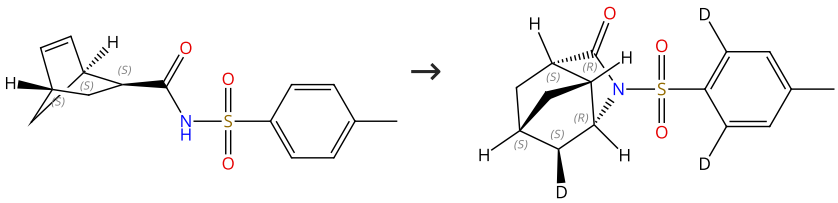
1.1 **Reagents:** Pivalic acid, Water-d_2, Silver oxide (Ag_2O)
Catalysts: Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-, Silver hexafluoro antimonate
Solvents: 1,2-Dichloroethane; 2 h, 80 °C

C2/C4 Regioselective Heteroarylation of Indoles by Tuning C-H Metalation Modes

By: Chen, Shuyou; et al

ACS Catalysis (2019), 9(7), 6372-6379.

Scheme 219 (1 Reaction) Steps: **1** Yield: **35%**



Relative stereochemistry shown

Relative stereochemistry shown

31-116-CAS-16104378 Steps: **1** Yield: **35%**

1.1 **Reagents:** Water-d_2
Solvents: Acetonitrile; 2 h, rt

1.2 **Reagents:** Water-d_2
Catalysts: *N*,*N*-Dimethylbenzylamine, Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene]diiridium
Solvents: 1,2-Dichloroethane; 20 h, 80 °C

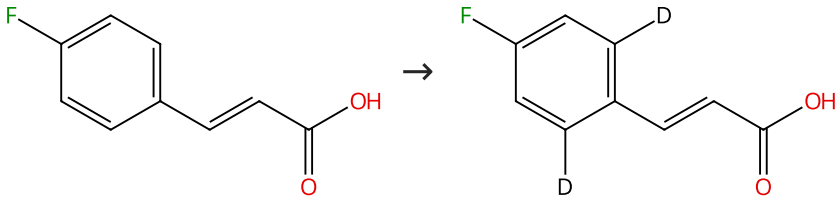
Experimental Protocols

Asymmetric Cyclization of N-Sulfonyl Alkenyl Amides Catalyzed by Iridium/Chiral Diene Complexes

By: Nagamoto, Midori; et al

Organic Letters (2016), 18(18), 4474-4477.

Scheme 220 (2 Reactions) Steps: **1** Yield: **26-30%**



Suppliers (83)

31-116-CAS-4081982 Steps: **1** Yield: **30%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-14355680 Steps: **1** Yield: **26%**

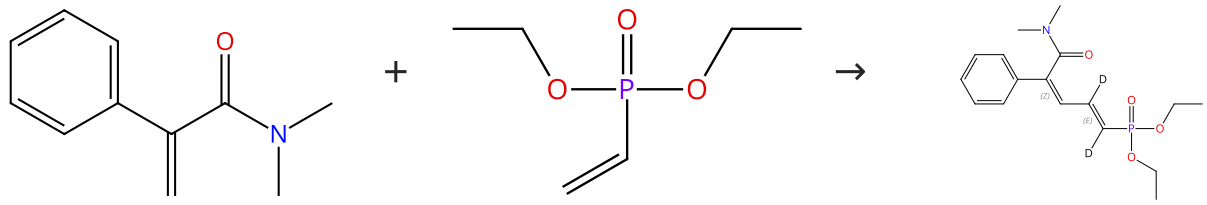
1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 221 (1 Reaction) Steps: **1** Yield: **24%**



Suppliers (8) Suppliers (75)

Double bond geometry shown

31-116-CAS-20720449 Steps: **1** Yield: **24%**

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-, Silver tetrafluoroborate
Solvents: Ethyl acetate; 0.5 h, rt → 100 °C

Experimental Protocols

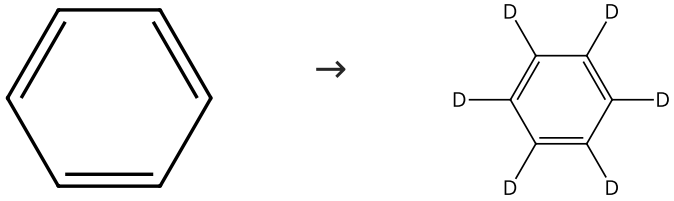
Iridium-Catalyzed Cross-Coupling Reactions of Alkenes by Hydrogen Transfer

By: Meng, Keke; et al

Organic Letters (2019), 21(20), 8219-8224.

Scheme 222 (3 Reactions)

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



Suppliers (179)

Suppliers (143)

31-116-CAS-12247537

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

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), trihydro[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl](trimethylphosphine)-, 1,1,1-trifluoromethanesulfonate (1:1); 24 h, 120 °C

Experimental Protocols

Synthesis and spectral analysis of benzene- d_6

By: Guo, Yangzhen; et al

Advanced Materials Research (Durnten-Zurich, Switzerland) (2015), 1061-1062, 301-306.

31-116-CAS-6784183

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [2-[Bis(1-methylethyl)phosphino-κ*P*]-*N*-[2-[bis(1-methylethyl)phosphino-κ*P*]-4-methylphenyl]-4-methylbenzenaminato-κ*N*]dihydroiridium
Solvents: Cyclohexane-d_{12}, Water-d_2; 72 h, 80 °C

Experimental Protocols

H/D Exchange Processes Catalyzed by an Iridium- Pincer Complex

By: Iluc, Vlad M.; et al

Organometallics (2012), 31(1), 39-41.

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

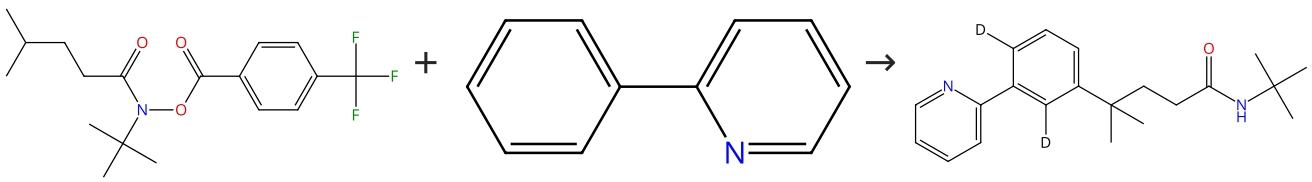
Effect of Ancillary Ligands and Solvents on H/D Exchange Reactions Catalyzed by Cp*Ir Complexes

By: Feng, Yuee; et al

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

Scheme 223 (1 Reaction)

Steps: **1** Yield: **19%**



Suppliers (94)

31-614-CAS-32015499

Steps: **1** Yield: **19%**

1.1 **Reagents:** Potassium carbonate, Water-d_2
Catalysts: 2,4,6-Trimethylbenzoic acid, Tris[4-(trifluoromethyl)phenyl]phosphine, Bis(dichloro(η^6-*p*-cymene)ruthenium), Tris[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]iridium
Solvents: 1,4-Dioxane; 10 min, rt; 6 h, 60 °C

Experimental Protocols

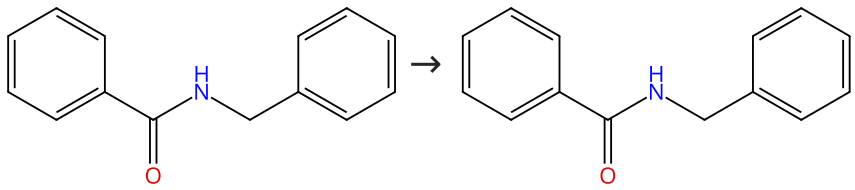
Site-selective coupling of remote C(sp^3)-H/meta-C(sp^2)-H bonds enabled by Ru/photoredox dual catalysis and mechanistic studies

By: Liu, Hong-Chao; et al

Chemical Science (2022), 13(18), 5382-5389.

Scheme 224 (2 Reactions)

Steps: **1** Yield: **7-15%**



Suppliers (84)

31-116-CAS-8997677

Steps: **1** Yield: **15%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-3427862

Steps: **1** Yield: **7%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

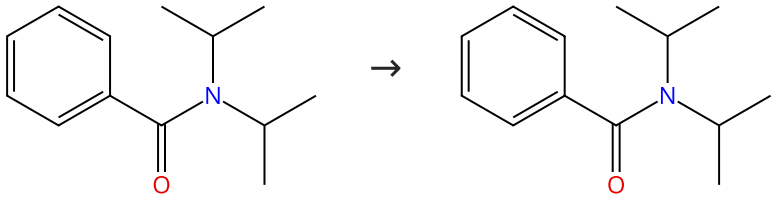
Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 225 (2 Reactions)

Steps: **1** Yield: **9-13%**



Suppliers (57)

31-116-CAS-6266359

Steps: **1** Yield: **13%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-9813789

Steps: **1** Yield: **9%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

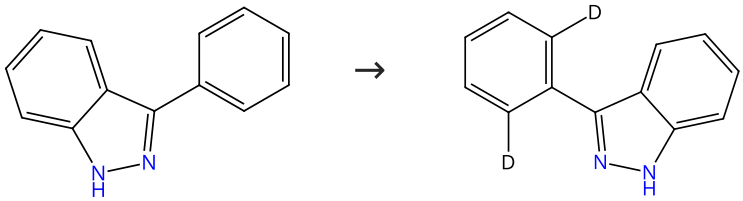
Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 226 (1 Reaction)

Steps: **1** Yield: **12%**



Suppliers (59)

31-614-CAS-42619799

Steps: **1** Yield: **12%**

1.1 **Reagents:** Acetic acid, Water-d_2, Zinc triflate
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; 4 h, 100 °C

1.2 **Reagents:** Water

Experimental Protocols

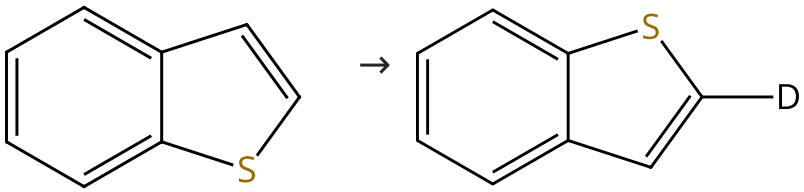
Divergent Synthesis of (CF_3)-Indazolo[3,2-a]Isoquinolines with Potent Photophysical Property and Anticancer Activity from 3-Aryl-1H-Indazoles and Sulfoxonium Ylides

By: Zhou, Qianting; et al

Advanced Synthesis & Catalysis (2024), 366(24), 5190-5196.

Scheme 227 (2 Reactions)

Steps: **1** Yield: **9%**



Suppliers (99)

Supplier (1)

31-116-CAS-20514088

Steps: **1** Yield: **9%**

1.1 **Reagents:** Pivalic acid, Water-d_2, Silver oxide (Ag_2O)
Catalysts: 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: 1,2-Dichloroethane; 2 h, 80 °C

C2/C4 Regioselective Heteroarylation of Indoles by Tuning C-H Metalation Modes

By: Chen, Shuyou; et al

ACS Catalysis (2019), 9(7), 6372-6379.

31-116-CAS-19234896

Steps: **1**

1.1 **Reagents:** Water-d_2, Silver oxide (Ag_2O)
Catalysts: Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di-
Solvents: 1,1,1,3,3,3-Hexafluoro-2-propanol; 1 h, 120 °C

Experimental Protocols

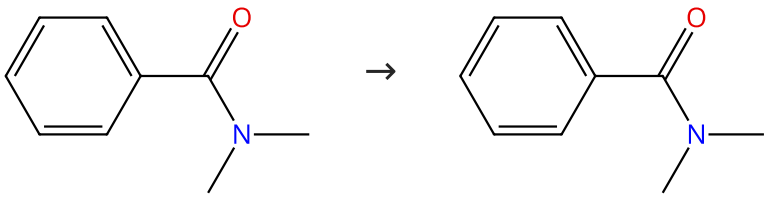
Iridium-catalyzed oxidative Ar-H/Ar-H cross-coupling of primary benzamides with thiophenes

By: Tan, Guangying; et al

Organic Chemistry Frontiers (2018), 5(20), 2930-2933.

Scheme 228 (1 Reaction)

Steps: **1** Yield: **4%**



Suppliers (75)

31-116-CAS-8674201 Steps: **1** Yield: **4%**

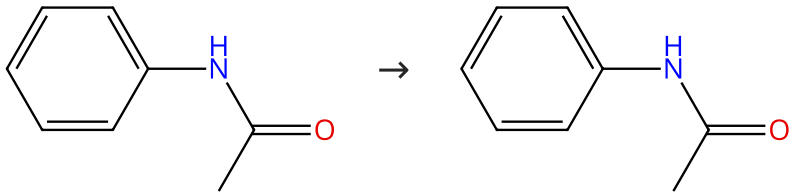
1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 229 (3 Reactions) Steps: **1** Yield: **3%**



Suppliers (108)

31-116-CAS-1478152 Steps: **1** Yield: **3%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-614-CAS-28995192 Steps: **1**

1.1 **Reagents:** Sodium acetate, 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-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*]silver
Solvents: 1,2-Dichloroethane; 10 h, 70 °C

Experimental Protocols

Synthesis of oxindole from acetanilide via Ir(III)-catalyzed C-H carbenoid functionalization

By: Patel, Pitambar; et al

Chemical Communications (Cambridge, United Kingdom) (2017), 53(2), 443-446.

31-614-CAS-28433112 Steps: **1**

1.1 **Reagents:** Acetic acid
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, Water-d_2; 6 h, 60 °C

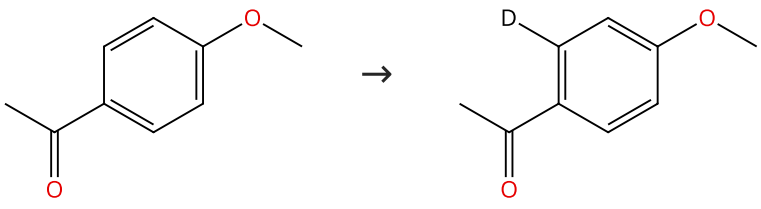
Experimental Protocols

Direct Access to Indoles by Ir^{III}-Catalyzed C-H Functionalization of Acetanilides with Diazo Compounds

By: Patel, Pitambar; et al

European Journal of Organic Chemistry (2017), 2017(16), 2272-2279.

Scheme 230 (1 Reaction) Steps: **1**



Suppliers (103)

31-116-CAS-5571399 Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 231 (1 Reaction) Steps: **1**

Suppliers (83)

31-116-CAS-1575137 Steps: **1**

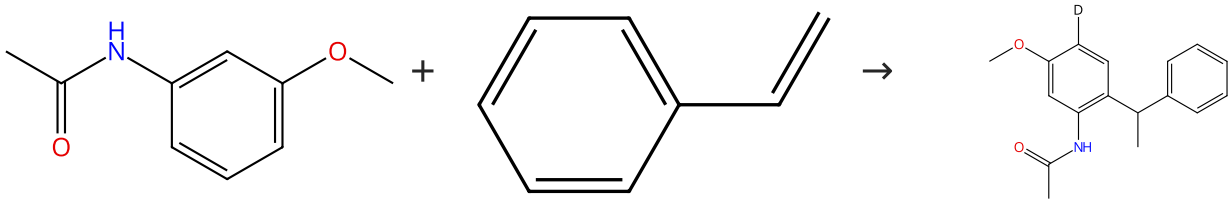
1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 232 (1 Reaction) Steps: **1**



Suppliers (66) Suppliers (122)

31-085-CAS-8782456 Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, 1,1,1-trifluoromethanesulfonate (1:1), 1820981-94-9
Solvents: 1,4-Dioxane; 48 h, 120 °C

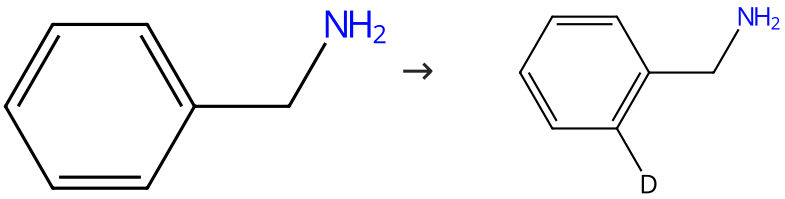
Experimental Protocols

Branch-selective alkene hydroarylation by cooperative destabilization: iridium-catalyzed ortho-alkylation of acetanilides

By: Crisenza, Giacomo E. M.; et al

Angewandte Chemie, International Edition (2015), 54(49), 14866-14870.

Scheme 233 (1 Reaction) Steps: **1**



Suppliers (87)

31-116-CAS-1410310 Steps: **1**

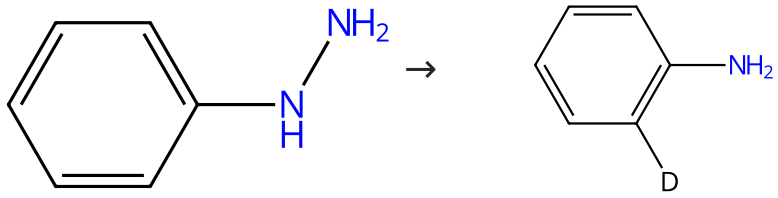
1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 234 (1 Reaction) Steps: **1**



Suppliers (70) Supplier (1)

31-116-CAS-217772 Steps: **1**

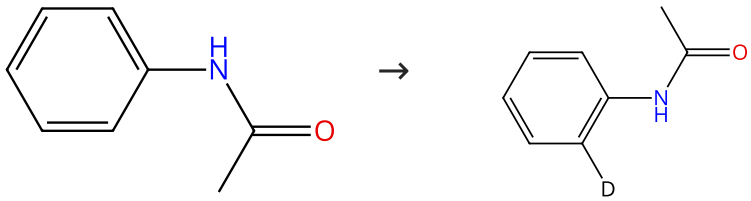
1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 235 (1 Reaction) Steps: **1**



Suppliers (108) Suppliers (2)

31-116-CAS-6981886 Steps: **1**

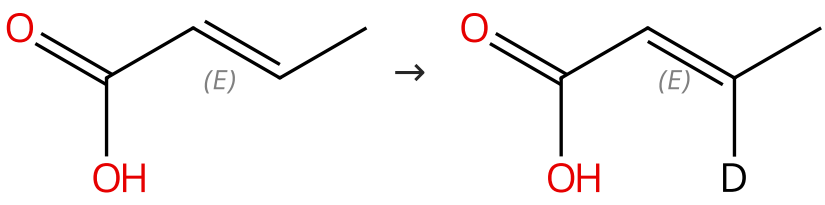
1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 236 (1 Reaction) Steps: **1**



Double bond geometry shown Double bond geometry shown

Suppliers (81)

31-116-CAS-10385618 Steps: **1**

Iridium-catalyzed H/D exchange

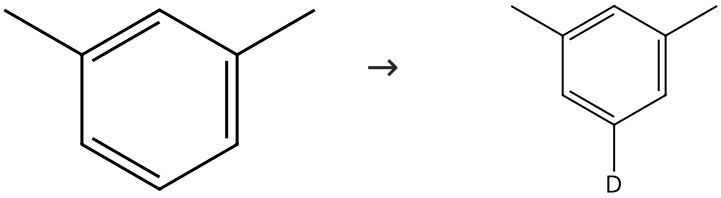
By: Krueger, Jens; et al

European Journal of Organic Chemistry (2005), (7), 1402-1408.

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 4 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Hydrochloric acid
Solvents: Water; acidified, rt

Scheme 237 (1 Reaction) Steps: **1**



Suppliers (104)

31-116-CAS-13175781 Steps: **1**

H/D Exchange Processes Catalyzed by an Iridium-Pincer Complex

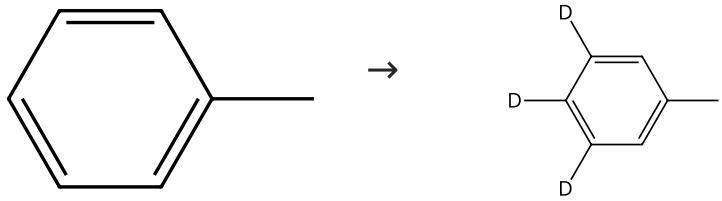
By: Iluc, Vlad M.; et al

Organometallics (2012), 31(1), 39-41.

1.1 **Reagents:** Water-d_2
Catalysts: [2-[Bis(1-methylethyl)phosphino-κ*P*]-*N*-[2-[bis(1-methylethyl)phosphino-κ*P*]-4-methylphenyl]-4-methylbenzenaminato-κ*N*]dihydroiridium
Solvents: Cyclohexane-d_{12}, Water-d_2; 72 h, 80 °C

Experimental Protocols

Scheme 238 (1 Reaction) Steps: **1**



Suppliers (301)

31-116-CAS-8910311 Steps: **1**

H/D Exchange Processes Catalyzed by an Iridium-Pincer Complex

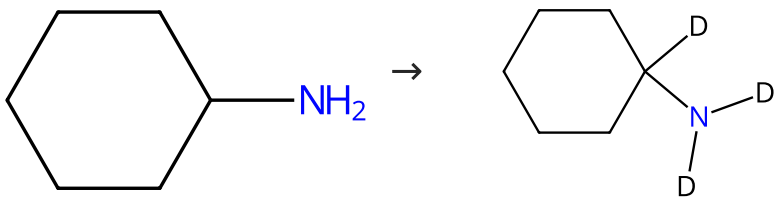
By: Iluc, Vlad M.; et al

Organometallics (2012), 31(1), 39-41.

1.1 **Reagents:** Water-d_2
Catalysts: [2-[Bis(1-methylethyl)phosphino-κ*P*]-*N*-[2-[bis(1-methylethyl)phosphino-κ*P*]-4-methylphenyl]-4-methylbenzenaminato-κ*N*]dihydroiridium
Solvents: Cyclohexane-d_{12}, Water-d_2; 72 h, 80 °C

Experimental Protocols

Scheme 239 (1 Reaction) Steps: **1**



Suppliers (84)

31-614-CAS-32680407 Steps: **1**

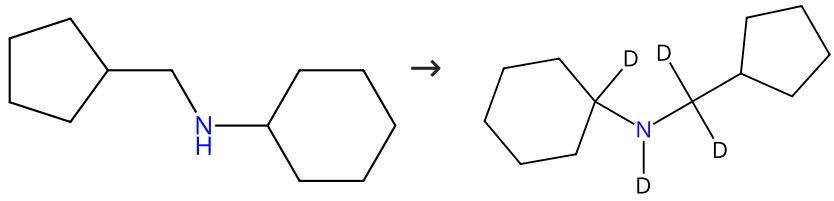
1.1 **Reagents:** Water-d_2
Catalysts: 2,4,6-Tris(1-methylethyl)benzenethiol, Iridium(1+), [4,4'-bis(trifluoromethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κN]phenyl-κC]-, hexafluorophosphate(1-) (1:1)
Solvents: Acetonitrile-d_3; 20 h, rt

Mechanistic Investigation and Optimization of Photoredox Anti-Markovnikov Hydroamination

By: Qin, Yangzhong; et al

Journal of the American Chemical Society (2021), 143(27), 10232-10242.

Scheme 240 (1 Reaction) Steps: **1**



Suppliers (4)

31-614-CAS-32680410 Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: 2,4,6-Tris(1-methylethyl)benzenethiol, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-(5-methyl-2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Acetonitrile-d_3; 20 h, rt

Mechanistic Investigation and Optimization of Photoredox Anti-Markovnikov Hydroamination

By: Qin, Yangzhong; et al

Journal of the American Chemical Society (2021), 143(27), 10232-10242.

Scheme 241 (1 Reaction) Steps: **1**

Suppliers (44) Suppliers (30)

31-116-CAS-1913740 Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [2-[Bis(1-methylethyl)phosphino-κP]-N-[2-[bis(1-methylethyl)phosphino-κP]-4-methylphenyl]-4-methylbenzenaminato-κN]dihydroiridium
Solvents: Cyclohexane-d_{12}, Water-d_2; 72 h, 80 °C

Experimental Protocols

H/D Exchange Processes Catalyzed by an Iridium- Pincer Complex

By: Iluc, Vlad M.; et al

Organometallics (2012), 31(1), 39-41.

Scheme 242 (1 Reaction) Steps: **1**

Suppliers (80) Suppliers (26)

31-116-CAS-4034828 Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [2-[Bis(1-methylethyl)phosphino-κ*P*]-*N*-[2-[bis(1-methylethyl)phosphino-κ*P*]-4-methylphenyl]-4-methylbenzenaminato-κ*N*]dihydroiridium
Solvents: Cyclohexane-d_{12}, Water-d_2; 72 h, 80 °C

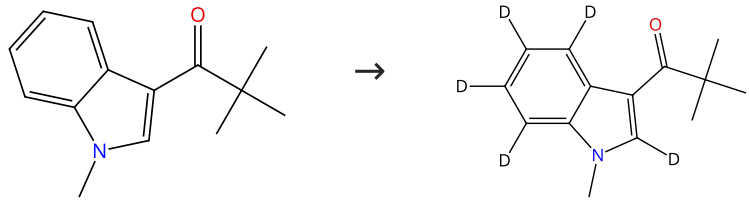
Experimental Protocols

H/D Exchange Processes Catalyzed by an Iridium-Pincer Complex

By: Iluc, Vlad M.; et al

Organometallics (2012), 31(1), 39-41.

Scheme 243 (1 Reaction) Steps: **1**



Suppliers (32)

31-614-CAS-36670259 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-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*]silver
Solvents: 1,2-Dichloroethane; 23 h, rt → 115 °C

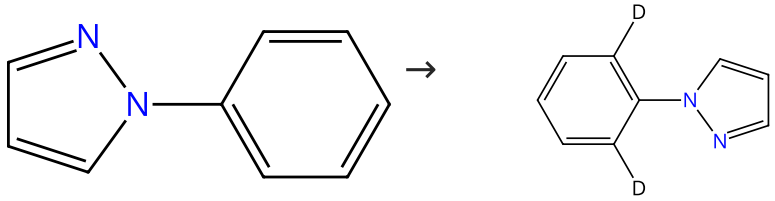
Experimental Protocols

Iridium catalyzed C2 site-selective methylation of indoles using a pivaloyl directing group through weak chelation-assistance

By: Kathiravan, Subban; et al

RSC Advances (2023), 13(17), 11291-11295.

Scheme 244 (1 Reaction) Steps: **1**



Suppliers (90)

31-116-CAS-6618357 Steps: **1**

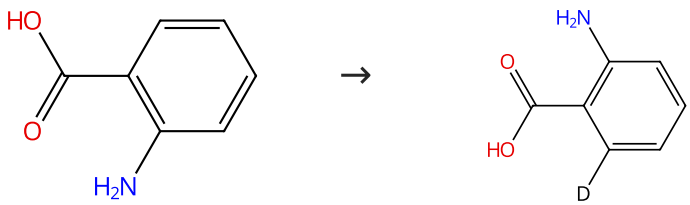
1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 245 (1 Reaction) Steps: **1**



Suppliers (48)

31-116-CAS-13186142 Steps: **1**

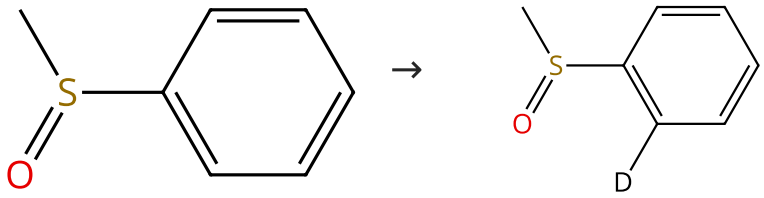
1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

Scheme 246 (1 Reaction) Steps: **1**



Suppliers (82)

31-116-CAS-10926610 Steps: **1**

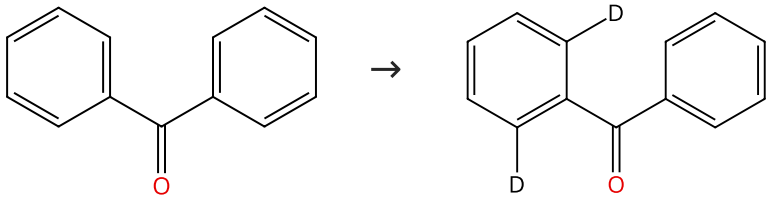
1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 247 (1 Reaction) Steps: **1**



Suppliers (142)

31-116-CAS-5846274 Steps: **1**

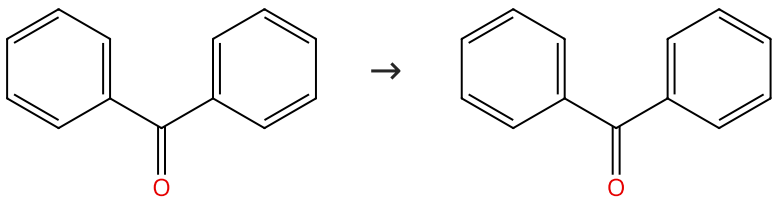
1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 248 (1 Reaction) Steps: **1**



Suppliers (142)

31-614-CAS-25954739 Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 h, 90 °C

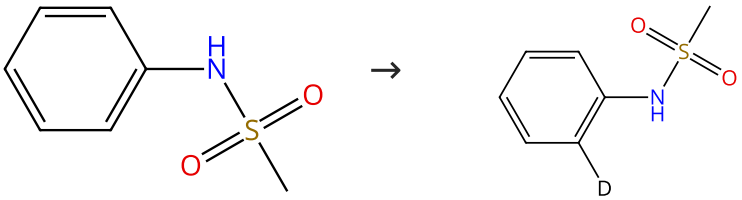
Iridium-catalyzed H/D exchange

By: Krueger, Jens; et al

European Journal of Organic Chemistry (2005), (7), 1402-1408.

Scheme 249 (1 Reaction)

Steps: **1**



Suppliers (75)

31-116-CAS-11529925

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)

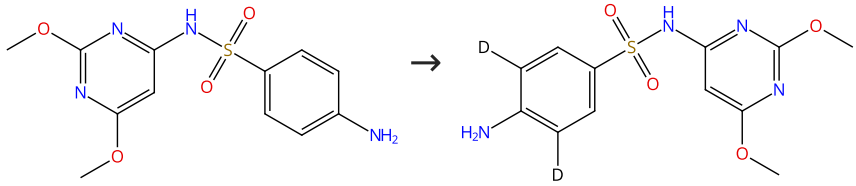
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 250 (1 Reaction)

Steps: **1**



Suppliers (95)

31-116-CAS-21649684

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

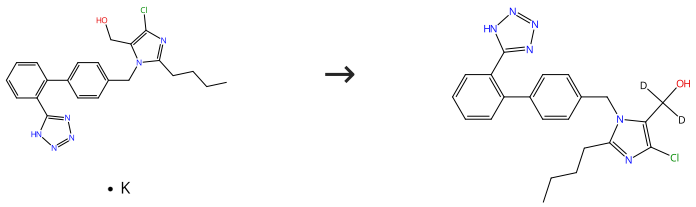
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 251 (1 Reaction)

Steps: **1**



Suppliers (120)

Suppliers (7)

31-614-CAS-33408376

Steps: **1**

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

Experimental Protocols

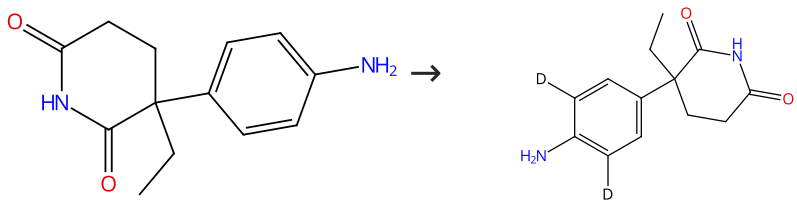
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 252 (1 Reaction)

Steps: **1**



Suppliers (73)

31-116-CAS-21649683

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

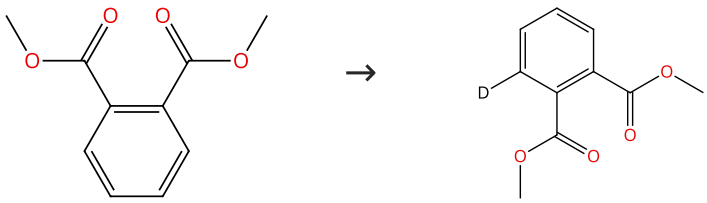
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 253 (1 Reaction)

Steps: **1**



Suppliers (124)

31-116-CAS-10262772

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

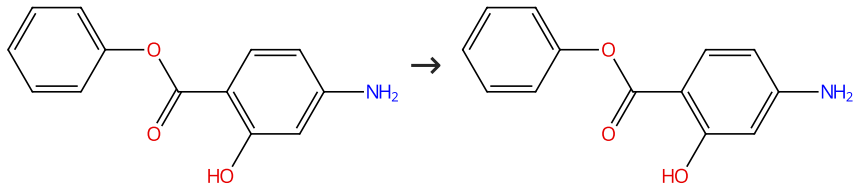
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 254 (1 Reaction)

Steps: **1**



Suppliers (48)

31-614-CAS-25649581

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

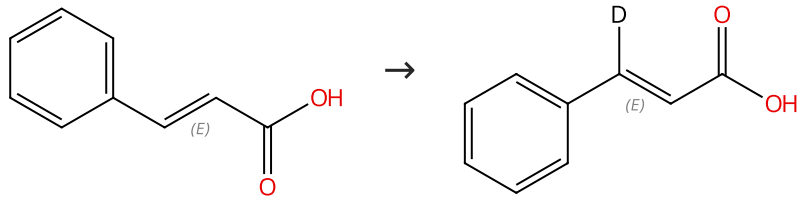
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 255 (1 Reaction)

Steps: **1**



Double bond geometry shown

Double bond geometry shown

Suppliers (164)

31-116-CAS-12517054

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Hydrochloric acid
Solvents: Water; acidified, rt

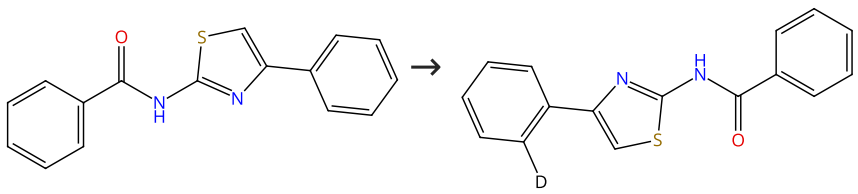
Iridium-catalyzed H/D exchange

By: Krueger, Jens; et al

European Journal of Organic Chemistry (2005), (7), 1402-1408.

Scheme 256 (1 Reaction)

Steps: **1**



Suppliers (15)

31-614-CAS-27554142

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

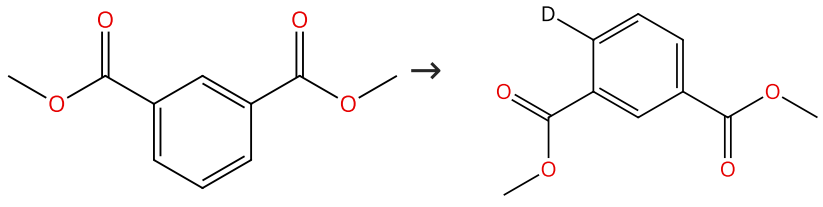
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 257 (1 Reaction)

Steps: **1**



Suppliers (87)

31-116-CAS-1142710

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: 1,1-Dichloroacetone

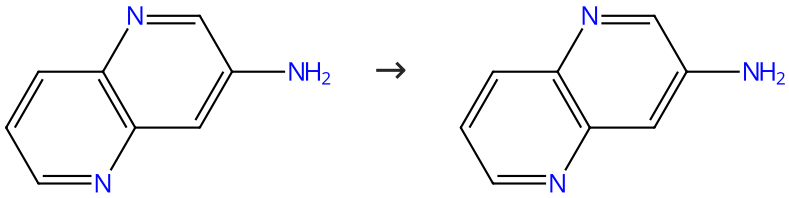
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 258 (1 Reaction)

Steps: **1**



Suppliers (69)

31-614-CAS-27488765

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

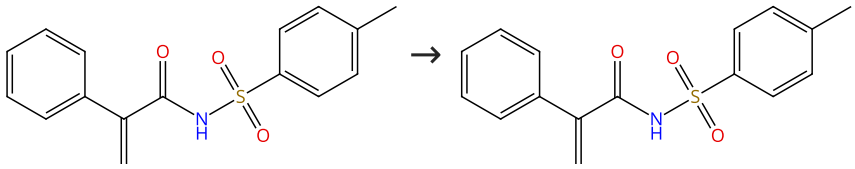
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 259 (1 Reaction)

Steps: **1**



31-614-CAS-26575627

Steps: **1**

1.1 **Catalysts:** Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-methoxydiiridium
Solvents: Water-d_2; 2 h, rt → 70 °C

Experimental Protocols

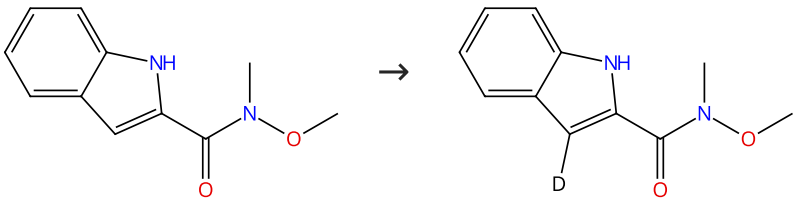
Stereoselective and Atom-Economic Alkenyl C-H Allylation/Alkenylation in Aqueous Media by Iridium Catalysis

By: Huang, Yinhua; et al

Journal of Organic Chemistry (2020), 85(11), 7225-7237.

Scheme 260 (1 Reaction)

Steps: **1**



Suppliers (53)

31-116-CAS-7653762

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

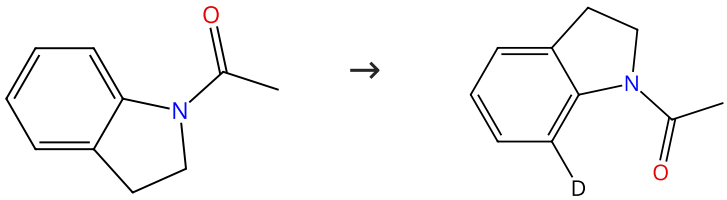
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 261 (1 Reaction)

Steps: **1**



Suppliers (79)

31-116-CAS-3544924

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-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*] silver
Solvents: 1,2-Dichloroethane; 8 h, 40 °C

Experimental Protocols

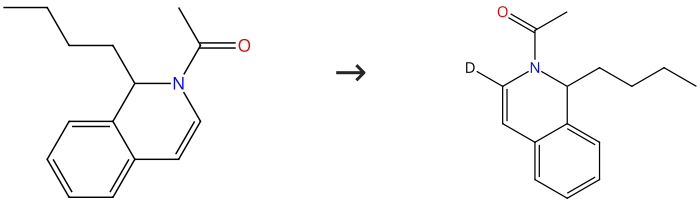
Ir^{III}-Catalyzed Direct C-7 Amidation of Indolines with Sulfonyl, Acyl, and Aryl Azides at Room Temperature

By: Hou, Wei; et al

European Journal of Organic Chemistry (2015), 2015(2), 395-400.

Scheme 262 (1 Reaction)

Steps: **1**



31-614-CAS-24691505

Steps: **1**

1.1 **Reagents:** Water-d_2, BOC-L-Proline
Catalysts: 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: 1,1,1,3,3,3-Hexafluoro-2-propanol; rt → 60 °C; 30 min, 60 °C

Experimental Protocols

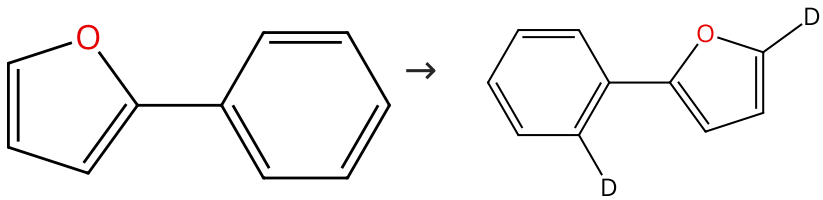
Iridium(III)-catalyzed C(3)-H Alkylation of Isoquinolines via Metal Carbene Migratory Insertion

By: Jha, Neha; et al

Organic Letters (2021), 23(22), 8694-8698.

Scheme 263 (1 Reaction)

Steps: **1**



Suppliers (67)

31-116-CAS-6946480

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

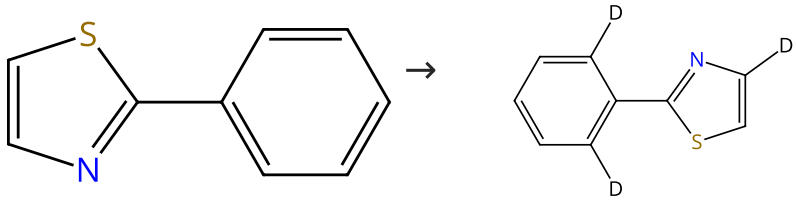
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 264 (1 Reaction)

Steps: **1**



Suppliers (79)

31-116-CAS-13333593

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

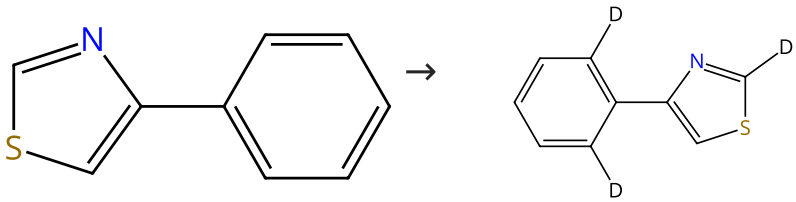
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 265 (1 Reaction)

Steps: **1**



Suppliers (62)

31-116-CAS-15464829

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

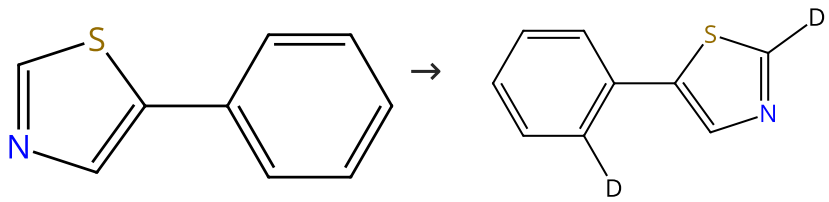
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 266 (1 Reaction)

Steps: **1**



Suppliers (62)

31-116-CAS-2072193

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

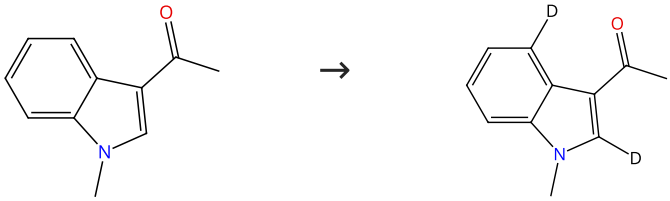
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 267 (1 Reaction)

Steps: **1**



Suppliers (58)

31-116-CAS-23535322

Steps: **1**

1.1 **Reagents:** Silver carbonate, 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-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*] silver
Solvents: 1,2-Dichloroethane; 120 °C

Experimental Protocols

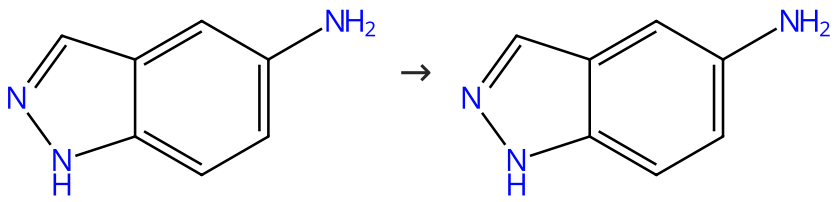
Tandem Iridium-Catalyzed Decarbonylative C-H Activation of Indole: Sacrificial Electron-Rich Ketone-Assisted Bis-arylsulfenylation

By: Kathiravan, Subban; et al

Organic Letters (2021), 23(9), 3331-3336.

Scheme 268 (1 Reaction)

Steps: **1**



Suppliers (96)

31-614-CAS-26697126

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

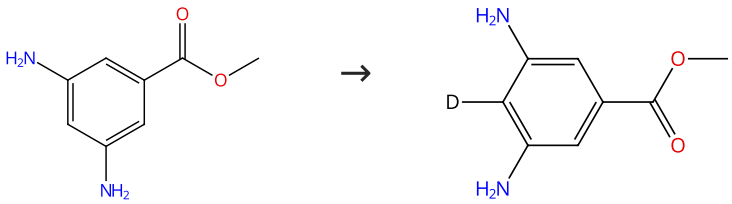
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 269 (1 Reaction)

Steps: **1**



Suppliers (55)

31-116-CAS-21649679

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

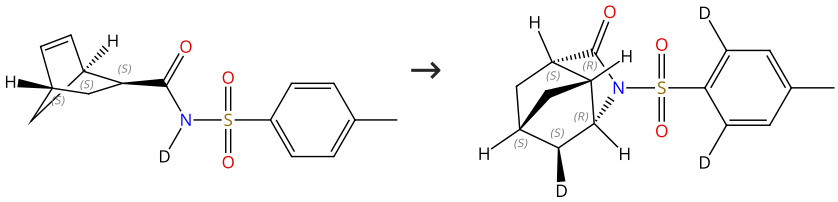
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 270 (1 Reaction)

Steps: **1**



Relative stereochemistry shown

Relative stereochemistry shown

31-116-CAS-16104377

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: *N*,*N*-Dimethylbenzylamine, Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene]diiridium
Solvents: 1,2-Dichloroethane; 20 h, 80 °C

Experimental Protocols

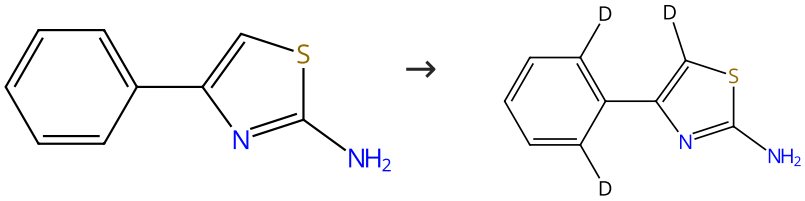
Asymmetric Cyclization of N-Sulfonyl Alkenyl Amides Catalyzed by Iridium/Chiral Diene Complexes

By: Nagamoto, Midori; et al

Organic Letters (2016), 18(18), 4474-4477.

Scheme 271 (1 Reaction)

Steps: **1**



Suppliers (106)

31-116-CAS-4278585

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

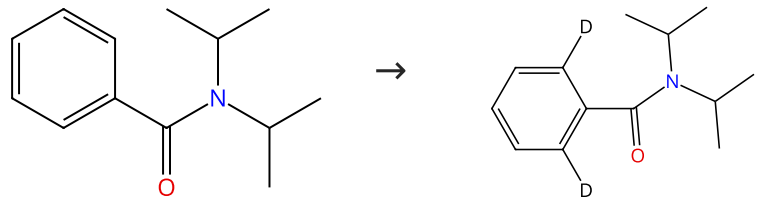
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 272 (1 Reaction)

Steps: **1**



Suppliers (57)

31-614-CAS-29109652

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

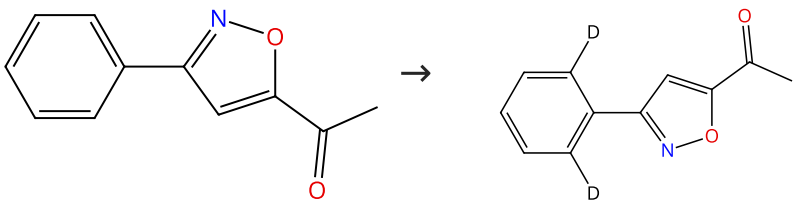
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 273 (1 Reaction)

Steps: **1**



Suppliers (53)

31-116-CAS-11191551

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

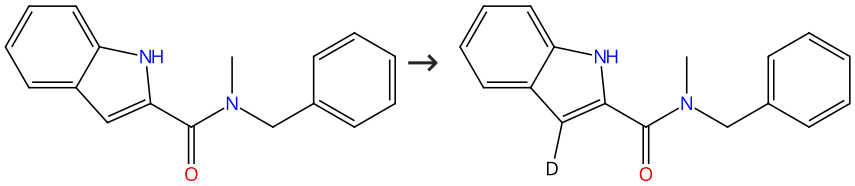
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 274 (1 Reaction)

Steps: **1**



Suppliers (6)

31-116-CAS-11918533

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

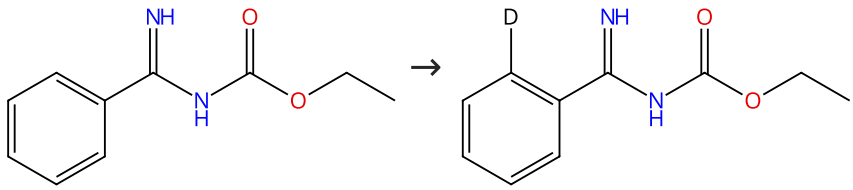
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 275 (1 Reaction)

Steps: **1**



Suppliers (6)

31-116-CAS-14654796

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

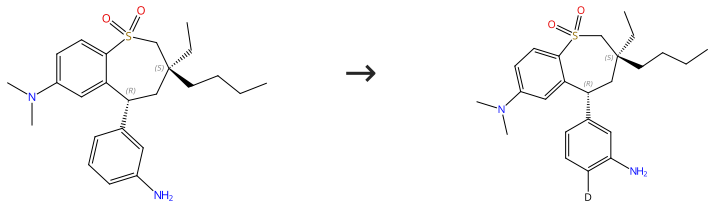
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 276 (1 Reaction)

Steps: **1**



Absolute stereochemistry shown

Absolute stereochemistry shown

31-116-CAS-21649688

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

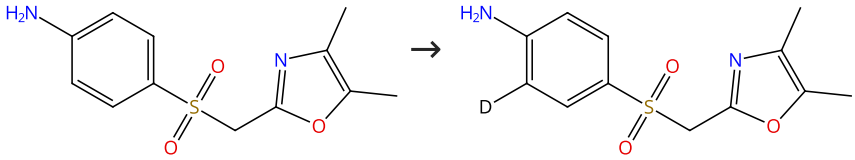
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 277 (1 Reaction)

Steps: **1**



31-116-CAS-21649685

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

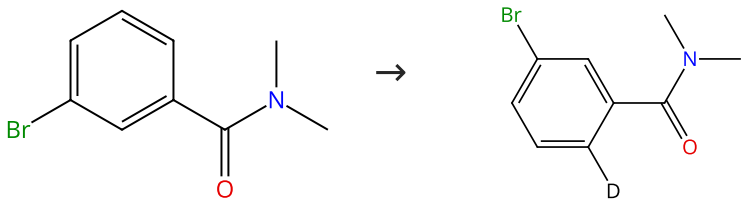
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 278 (1 Reaction)

Steps: **1**



Suppliers (67)

Supplier (1)

31-116-CAS-5899889

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

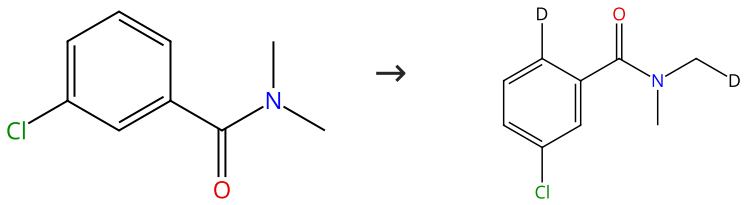
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 279 (1 Reaction)

Steps: **1**



Suppliers (49)

31-116-CAS-15033700

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

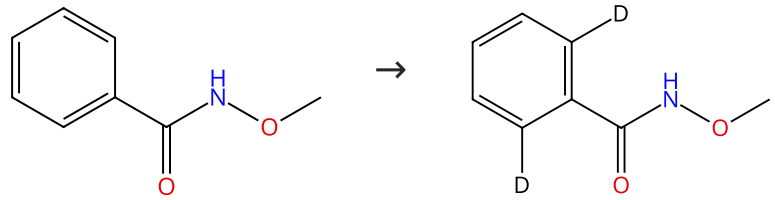
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 280 (1 Reaction)

Steps: **1**



Suppliers (49)

31-116-CAS-15865637

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-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*]silver
Solvents: 1,2-Dichloroethane; 12 h, 25 °C

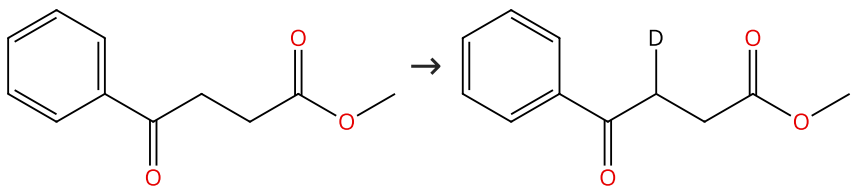
Ir(III)-Catalyzed Carbenoid Functionalization of Benzamides: Synthesis of N-Methoxyisoquinolinediones and N-Methoxyisoquinolinones

By: Phatake, Ravindra S.; et al

Organic Letters (2016), 18(12), 2828-2831.

Scheme 281 (1 Reaction)

Steps: **1**



Suppliers (81)

31-116-CAS-22273632

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Quinuclidine, Tetrabutylammonium dihydrogen phosphate, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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: Acetonitrile; 48 h, 40 °C

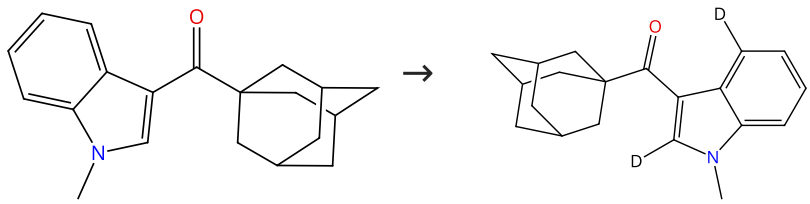
Photoredox-Catalyzed Isomerization of Highly Substituted Allylic Alcohols by C-H Bond Activation

By: Guo, Kai; et al

Angewandte Chemie, International Edition (2020), 59(28), 11660-11668.

Scheme 282 (1 Reaction)

Steps: **1**



31-116-CAS-23535577

Steps: **1**

1.1 **Reagents:** Silver carbonate, 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-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*] silver
Solvents: 1,2-Dichloroethane; 120 °C

Experimental Protocols

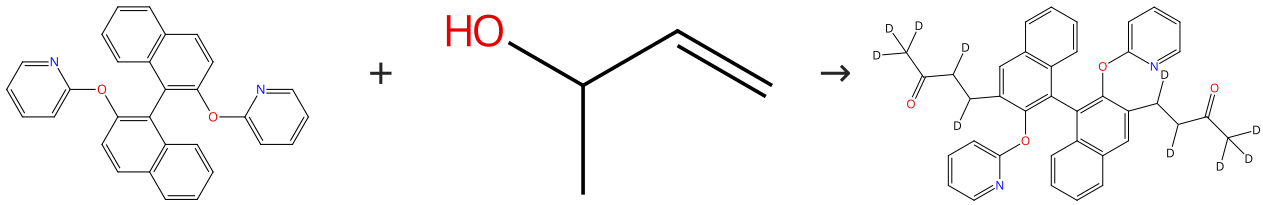
Tandem Iridium-Catalyzed Decarbonylative C-H Activation of Indole: Sacrificial Electron-Rich Ketone-Assisted Bis-arylsulfenylation

By: Kathiravan, Subban; et al

Organic Letters (2021), 23(9), 3331-3336.

Scheme 283 (1 Reaction)

Steps: **1**



Suppliers (70)

31-614-CAS-31118817

Steps: **1**

1.1 **Reagents:** Sodium acetate, Silver acetate, Silver triflate
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, Water-d_2; 10 h, 140 °C

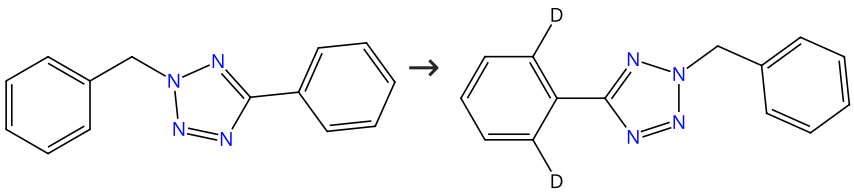
Iridium(III)-catalyzed two-fold C-H alkylation of BINOLs with allyl alcohols

By: Liu, Hao; et al

Organic Chemistry Frontiers (2022), 9(2), 471-475.

Scheme 284 (1 Reaction)

Steps: **1**



Suppliers (13)

31-116-CAS-6280859

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

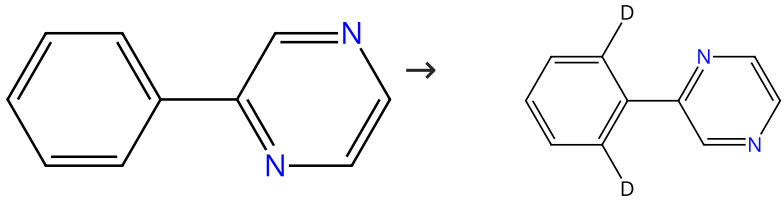
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 285 (1 Reaction)

Steps: **1**



Suppliers (34)

31-116-CAS-12670355

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

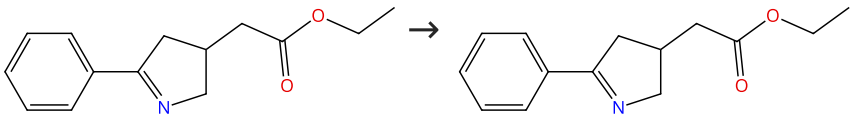
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 286 (1 Reaction)

Steps: **1**



31-614-CAS-39390569

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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; 48 h, rt

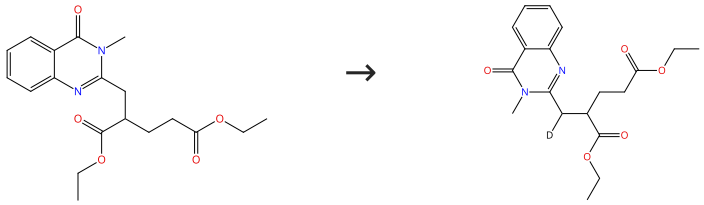
Radical-triggered base-free 1,3-C → C migrations: chemodivergent synthesis of cyclic imines from N- allyl enamines

By: Zheng, Baihui; et al

Organic Chemistry Frontiers (2024), 11(2), 500-507.

Scheme 287 (1 Reaction)

Steps: **1**



31-614-CAS-41631558

Steps: **1**

1.1 **Reagents:** Boron trifluoride etherate, Water-d_2
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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: Acetonitrile; 10 h, rt

Experimental Protocols

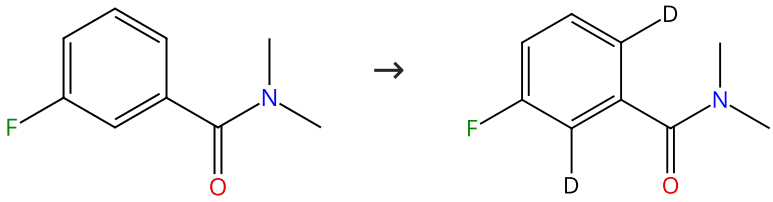
Chemoselective Hydroheteroarylation of Alkenes via Photoredox-Neutral Proton- and BF_3-Mediated Electron Transfer

By: Wan, Xiaoyuan; et al

Organic Letters (2024), 26(36), 7707-7712.

Scheme 288 (1 Reaction)

Steps: **1**



Suppliers (9)

31-116-CAS-14202444

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

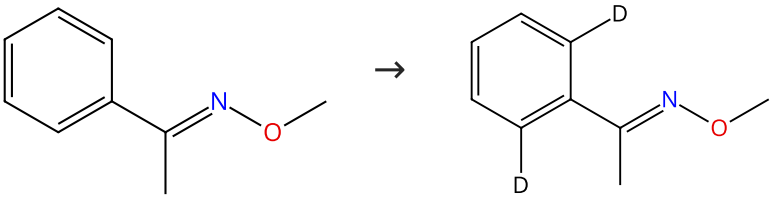
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 289 (1 Reaction)

Steps: **1**



Suppliers (4)

31-116-CAS-10116362

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

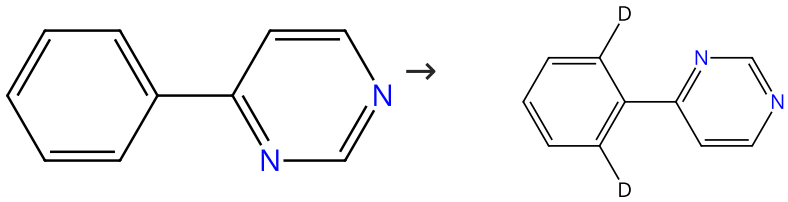
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 290 (1 Reaction)

Steps: **1**



Suppliers (61)

31-116-CAS-14806349

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

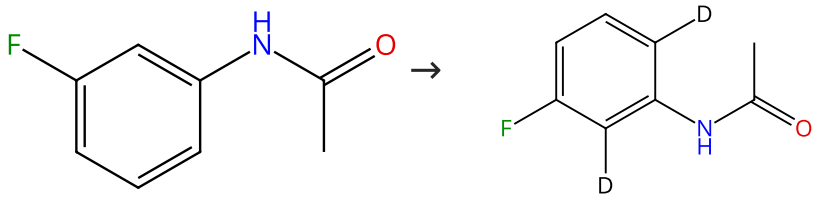
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 291 (1 Reaction)

Steps: **1**



Suppliers (71)

31-116-CAS-4522862

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, 1,1,1-trifluoromethanesulfonate (1:1), 1820981-94-9
Solvents: 1,4-Dioxane; 48 h, 120 °C

Experimental Protocols

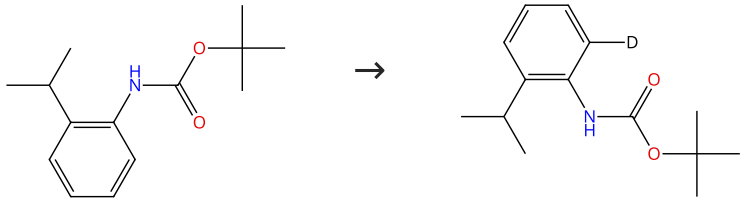
Branch-selective alkene hydroarylation by cooperative destabilization: iridium-catalyzed ortho-alkylation of acetanilides

By: Crisenza, Giacomo E. M.; et al

Angewandte Chemie, International Edition (2015), 54(49), 14866-14870.

Scheme 292 (1 Reaction)

Steps: **1**



Suppliers (30)

31-116-CAS-13381149

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

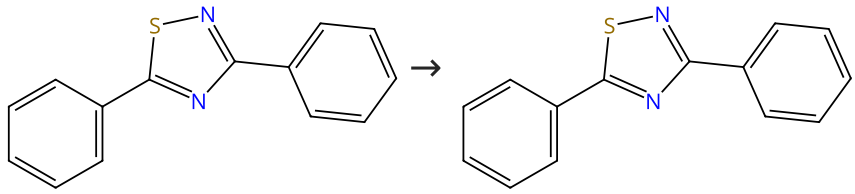
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 293 (1 Reaction)

Steps: **1**



Suppliers (3)

31-614-CAS-30294684

Steps: **1**

1.1 **Reagents:** Acetic acid, Water-d_2
Catalysts: Cupric 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; 3 h, 120 °C

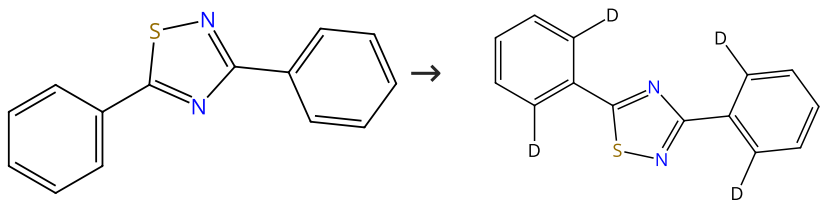
Regioselective C-C cross-coupling of 1,2,4-thiadiazoles with maleimides through iridium-catalyzed C-H activation

By: Tian, Ting; et al

Organic & Biomolecular Chemistry (2019), 17(33), 7664-7668.

Scheme 294 (1 Reaction)

Steps: **1**



Suppliers (3)

31-116-CAS-23730184

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Pentafluorobenzoic acid, Iridium, di-μ-chlorodic hlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopen tadien-1-yl]di-, Silver hexafluoroantimonate; 3 h, 90 °C

Experimental Protocols

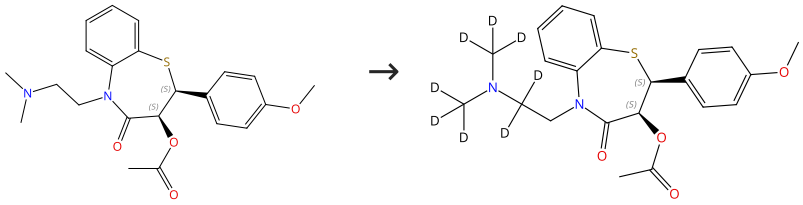
Iridium-catalyzed regioselective C-H sulfonamidation of 1,2,4-thiadiazoles with sulfonyl azides in water

By: Cao, Xian-Ting; et al

RSC Advances (2021), 11(36), 22000-22004.

Scheme 295 (1 Reaction)

Steps: **1**



Absolute stereochemistry shown, Rotation (+)

Absolute stereochemistry shown

Suppliers (44)

31-614-CAS-24525050

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: 1,1,1-Triphenylsilanethiol, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN) phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Toluene; 6 h, 28 °C

Experimental Protocols

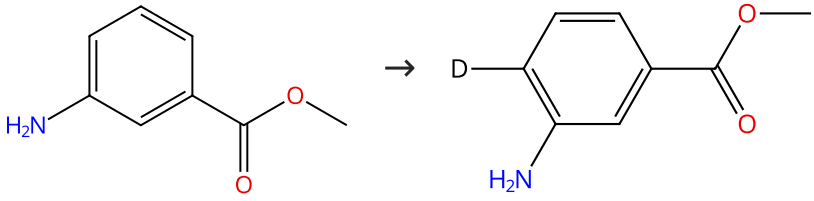
Site-selective α-C-H Functionalization of Trialkylamines via Reversible HAT-Catalysis

By: Shen, Yangyang; et al

Journal of the American Chemical Society (2021), 143(45), 18952-18959.

Scheme 296 (1 Reaction)

Steps: **1**



Suppliers (101)

31-116-CAS-21649676

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

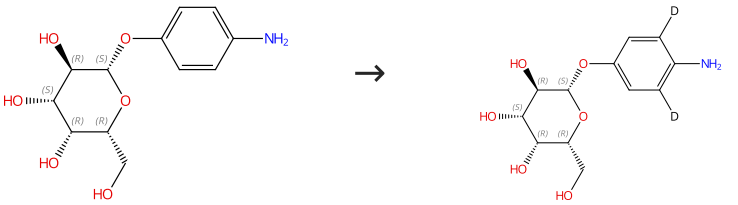
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 297 (1 Reaction)

Steps: **1**



Absolute stereochemistry shown

Absolute stereochemistry shown

Suppliers (62)

31-116-CAS-21649687

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

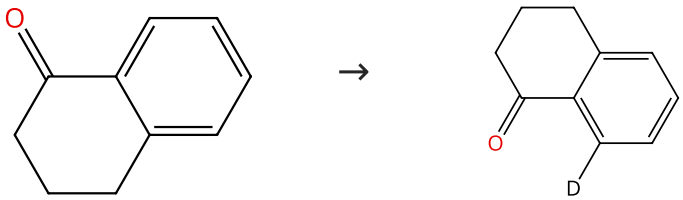
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 298 (1 Reaction)

Steps: **1**



Suppliers (101)

31-116-CAS-3048868

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

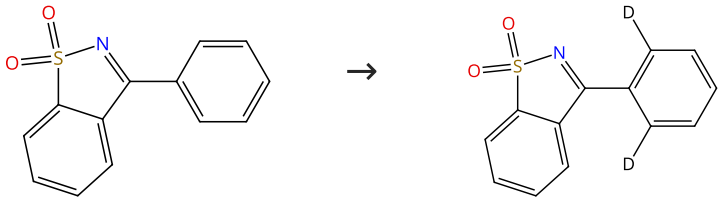
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 299 (1 Reaction)

Steps: **1**



Suppliers (30)

31-116-CAS-24356613

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: 2-Pyridone, Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene]diiridium, Sodium tetrakis[3,5-bis(trifluoromethyl)phenyl]borate
Solvents: Toluene; 3 h, 80 °C

Experimental Protocols

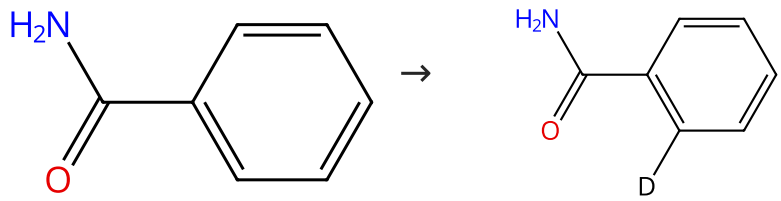
Iridium-Catalyzed Direct C-H Allylation of Ketimines

By: Yabe, Ryota; et al

Synthesis (2021), 53(17), 3051-3056.

Scheme 300 (1 Reaction)

Steps: **1**



Suppliers (115)

31-116-CAS-12672701

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

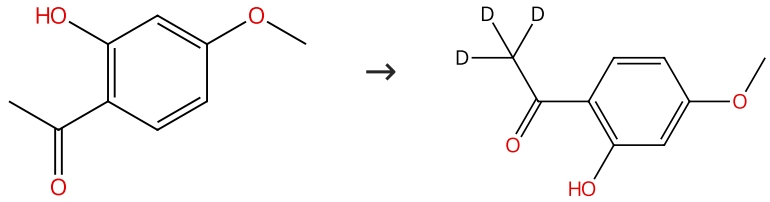
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 301 (1 Reaction)

Steps: **1**



Suppliers (108)

Supplier (1)

31-116-CAS-4134321

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 h, 90 °C

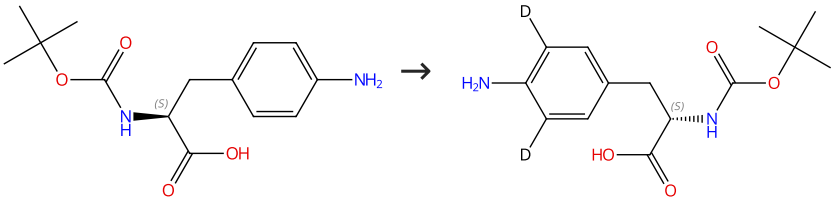
Iridium-catalyzed H/D exchange

By: Krueger, Jens; et al

European Journal of Organic Chemistry (2005), (7), 1402-1408.

Scheme 302 (1 Reaction)

Steps: **1**



Absolute stereochemistry shown, Rotation (+)

Absolute stereochemistry shown

Suppliers (90)

31-116-CAS-21649680

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

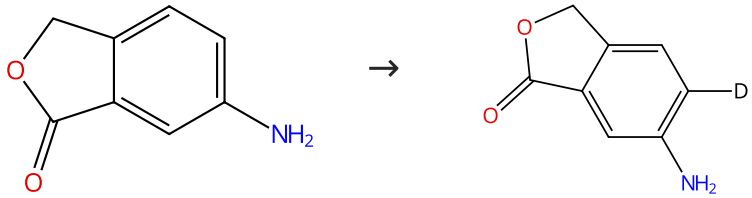
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 303 (1 Reaction)

Steps: **1**



Suppliers (85)

31-116-CAS-21649682

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

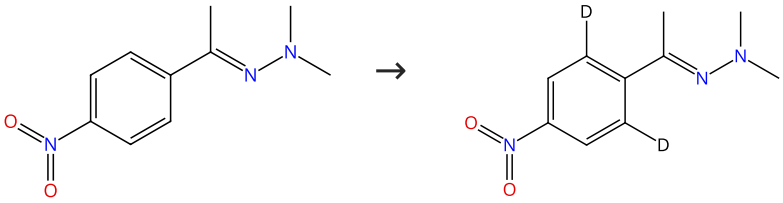
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 304 (1 Reaction)

Steps: **1**



Suppliers (3)

31-614-CAS-30587257

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

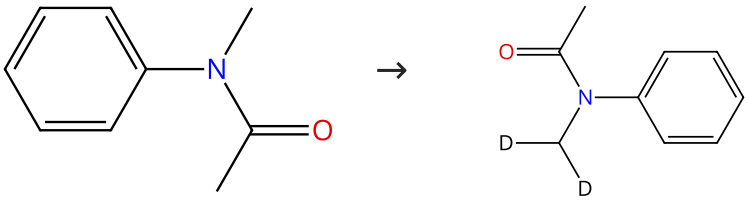
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 305 (1 Reaction)

Steps: **1**



Suppliers (58)

31-116-CAS-10902680

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, 1,1,1-trifluoromethanesulfonate (1:1), 1820981-94-9
Solvents: 1,4-Dioxane; 48 h, 120 °C

Experimental Protocols

Branch-selective alkene hydroarylation by cooperative destabilization: iridium-catalyzed ortho-alkylation of acetanilides

By: Crisenza, Giacomo E. M.; et al

Angewandte Chemie, International Edition (2015), 54(49), 14866-14870.

Scheme 306 (1 Reaction)

Steps: **1**

Suppliers (108)

31-116-CAS-9036340

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Hydrochloric acid
Solvents: Water; acidified, rt

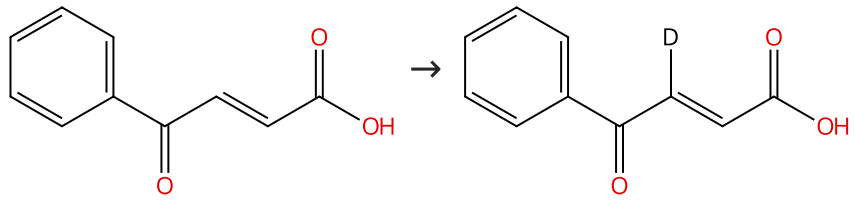
Iridium-catalyzed H/D exchange

By: Krueger, Jens; et al

European Journal of Organic Chemistry (2005), (7), 1402-1408.

Scheme 307 (1 Reaction)

Steps: **1**



Suppliers (61)

31-116-CAS-3380352

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Hydrochloric acid
Solvents: Water; acidified, rt

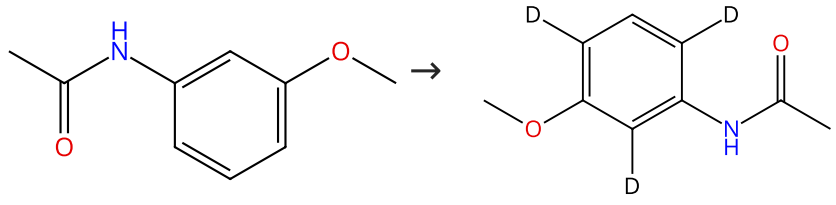
Iridium-catalyzed H/D exchange

By: Krueger, Jens; et al

European Journal of Organic Chemistry (2005), (7), 1402-1408.

Scheme 308 (1 Reaction)

Steps: **1**



Suppliers (66)

31-116-CAS-6655725

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, 1,1,1-trifluoromethanesulfonate (1:1), 1820981-94-9
Solvents: 1,4-Dioxane; 48 h, 120 °C

Experimental Protocols

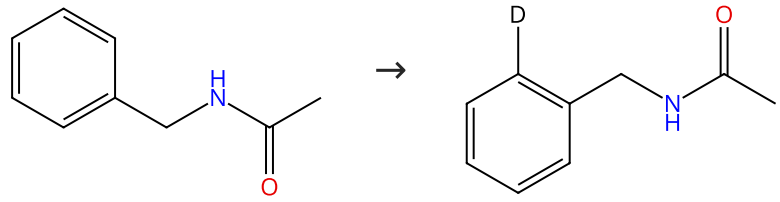
Branch-selective alkene hydroarylation by cooperative destabilization: iridium-catalyzed ortho-alkylation of acetanilides

By: Crisenza, Giacomo E. M.; et al

Angewandte Chemie, International Edition (2015), 54(49), 14866-14870.

Scheme 309 (1 Reaction)

Steps: **1**



Suppliers (80)

31-116-CAS-11352096

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

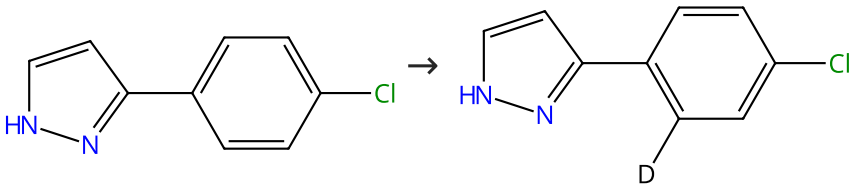
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 310 (1 Reaction)

Steps: **1**



Suppliers (65)

31-116-CAS-10869528

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

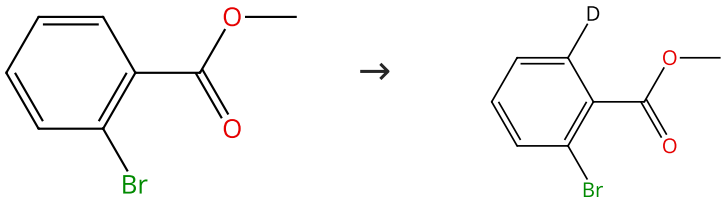
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 311 (1 Reaction)

Steps: **1**



Suppliers (92)

Supplier (1)

31-116-CAS-6002270

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

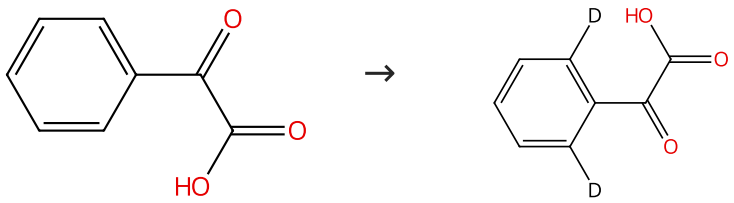
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 312 (1 Reaction)

Steps: **1**



Suppliers (112)

31-116-CAS-18789146

Steps: **1**

1.1 **Reagents:** 1-Adamantanecarboxylic acid, 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-, [1,1,1-Trifluoro-*N*-[(trifluoromethyl)sulfonyl-κ*O*]methanesulfonamidato-κ*O*] silver
Solvents: 1,1,1,3,3,3-Hexafluoro-2-propanol; 3.5 h, 90 °C

Experimental Protocols

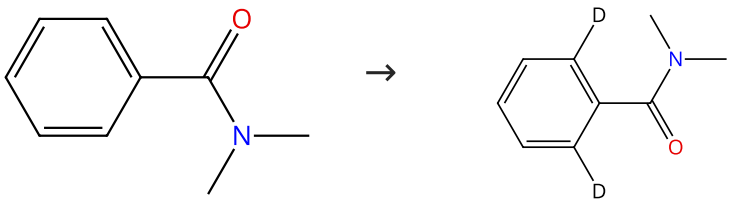
Ir(III)-Catalyzed Oxidative Annulation of Phenylglyoxylic Acids with Benzo[b]thiophenes

By: Wang, Zhigang; et al

Organic Letters (2018), 20(10), 3001-3005.

Scheme 313 (1 Reaction)

Steps: **1**



Suppliers (75)

31-116-CAS-1413191

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

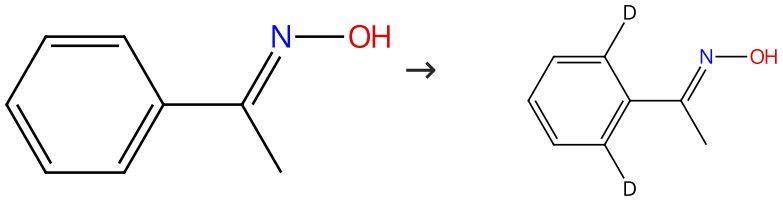
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 314 (1 Reaction)

Steps: **1**



Suppliers (59)

31-116-CAS-6295601

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 3 h, 90 °C

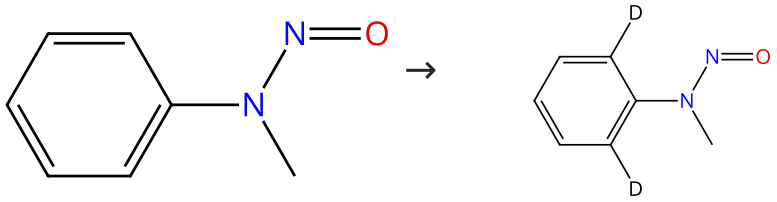
Iridium-catalyzed H/D exchange

By: Krueger, Jens; et al

European Journal of Organic Chemistry (2005), (7), 1402-1408.

Scheme 315 (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

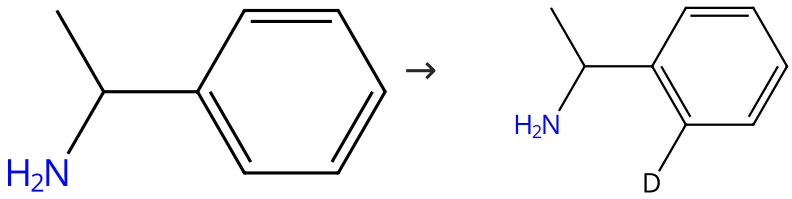
Rh(III)-Catalyzed Olefination and Alkylation of Arenes with Maleimides: A Tunable Strategy for C (sp^2)-H Functionalization

By: Zhang, Wenjie; et al

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

Scheme 316 (1 Reaction)

Steps: **1**



Suppliers (87)

31-116-CAS-3548858

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

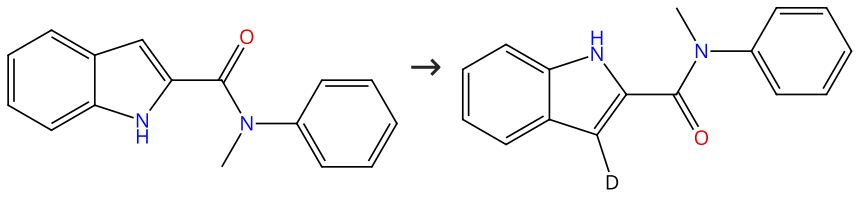
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 317 (1 Reaction)

Steps: **1**



Suppliers (10)

31-116-CAS-3399147

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

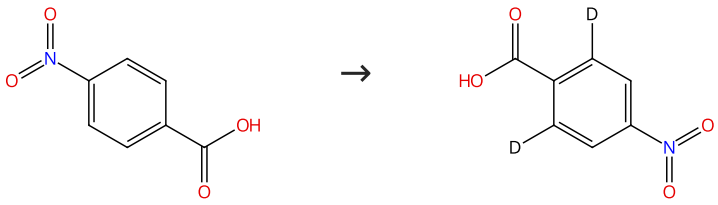
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 318 (1 Reaction)

Steps: **1**



Suppliers (112)

Suppliers (19)

31-116-CAS-13293849

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Hydrochloric acid
Solvents: Water; acidified, rt

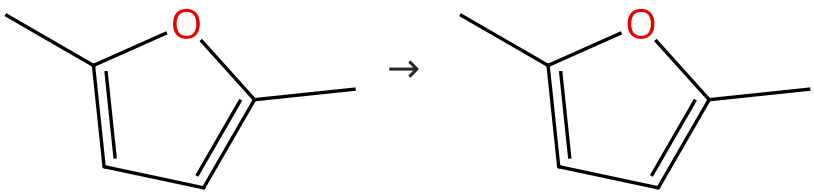
Iridium-catalyzed H/D exchange

By: Krueger, Jens; et al

European Journal of Organic Chemistry (2005), (7), 1402-1408.

Scheme 319 (1 Reaction)

Steps: **1**



Suppliers (72)

31-614-CAS-27493785

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [2-[Bis(1-methylethyl)phosphino-κ*P*]-*N*-[2-[bis(1-methylethyl)phosphino-κ*P*]-4-methylphenyl]-4-methylbenzenaminato-κ*N*]dihydroiridium
Solvents: Cyclohexane-d_{12}, Water-d_2; 72 h, 80 °C

Experimental Protocols

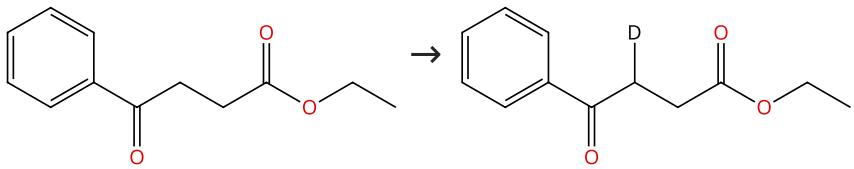
H/D Exchange Processes Catalyzed by an Iridium-Pincer Complex

By: Iluc, Vlad M.; et al

Organometallics (2012), 31(1), 39-41.

Scheme 320 (1 Reaction)

Steps: **1**



Suppliers (54)

31-614-CAS-32737281

Steps: **1**

1.1 **Reagents:** *tert*-Butyl hydroperoxide, Dabco, Water-d_2
Catalysts: Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^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: Acetonitrile; 15 h, rt

Experimental Protocols

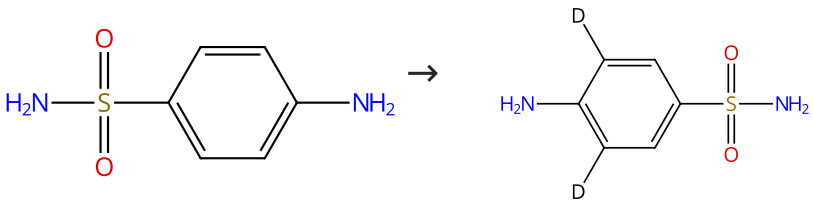
Photocatalytic 1,2-oxo-alkylation reaction of styrenes with diazoacetates

By: Li, Fang; et al

Chemical Communications (Cambridge, United Kingdom) (2022), 58(54), 7526-7529.

Scheme 321 (1 Reaction)

Steps: **1**



Suppliers (159)

31-116-CAS-21649675

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

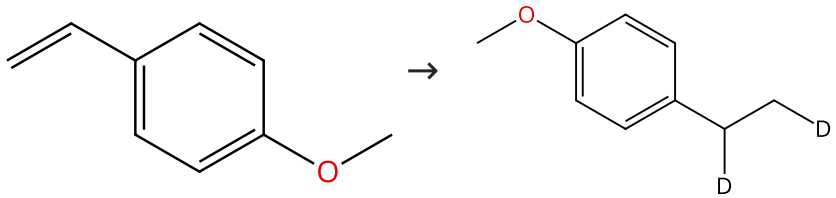
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 322 (1 Reaction)

Steps: **1**



Suppliers (88)

31-614-CAS-37081760

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Triphenylphosphine, 2,4,6-Tris(1-methylethyl) benzenethiol, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-[5-(trifluoromethyl)-2-pyridinyl-κN]phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Acetonitrile; 72 h, 20 °C

Experimental Protocols

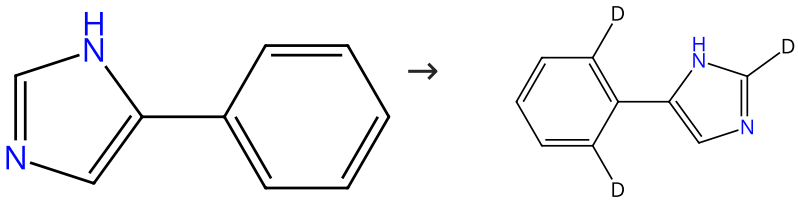
Photocatalytic phosphine-mediated water activation for radical hydrogenation

By: Zhang, Jingjing; et al

Nature (London, United Kingdom) (2023), 619(7970), 506-513.

Scheme 323 (1 Reaction)

Steps: **1**



Suppliers (96)

31-116-CAS-2359756

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine) (tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

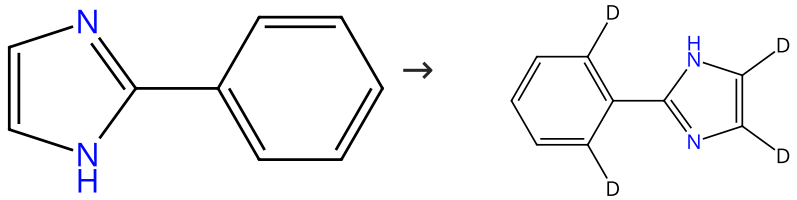
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 324 (1 Reaction)

Steps: **1**



Suppliers (94)

31-116-CAS-11723813

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

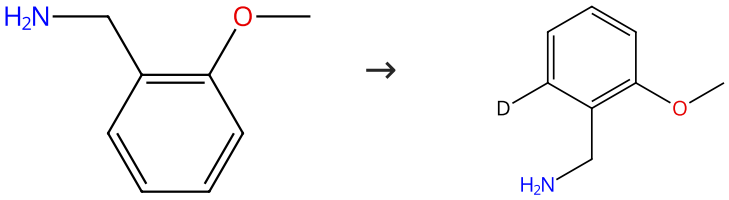
Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

Scheme 325 (1 Reaction)

Steps: **1**



Suppliers (94)

31-116-CAS-8435081

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Ammonia
Solvents: Water; rt

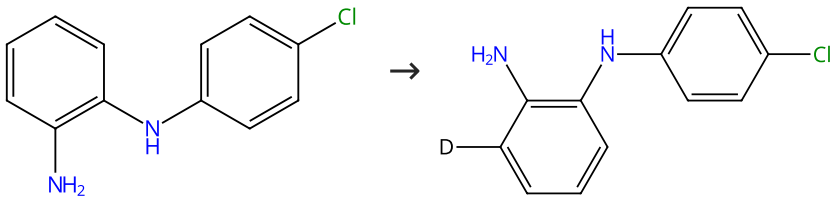
Iridium-catalyzed H/D exchange

By: Krueger, Jens; et al

European Journal of Organic Chemistry (2005), (7), 1402-1408.

Scheme 326 (1 Reaction)

Steps: **1**



Suppliers (61)

31-116-CAS-21649674

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

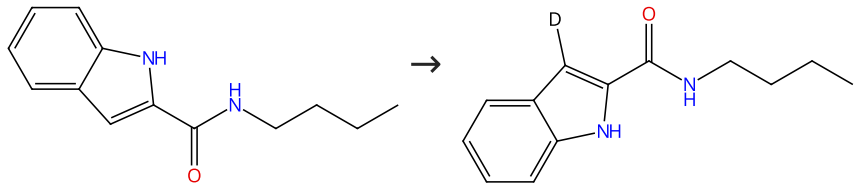
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 327 (1 Reaction)

Steps: **1**



Suppliers (6)

31-116-CAS-14048420

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

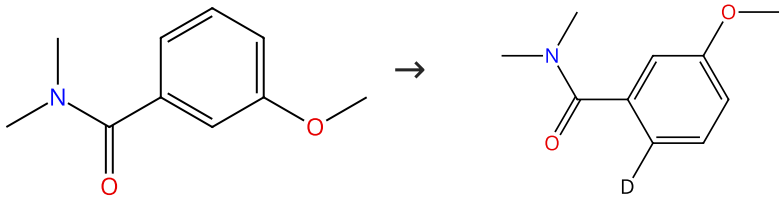
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 328 (1 Reaction)

Steps: **1**



Suppliers (14)

31-614-CAS-28429581

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

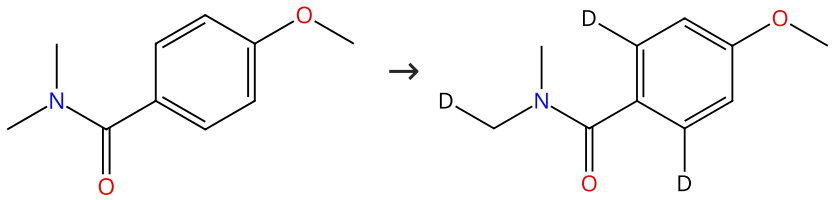
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 329 (1 Reaction)

Steps: **1**



Suppliers (24)

31-116-CAS-5701820

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

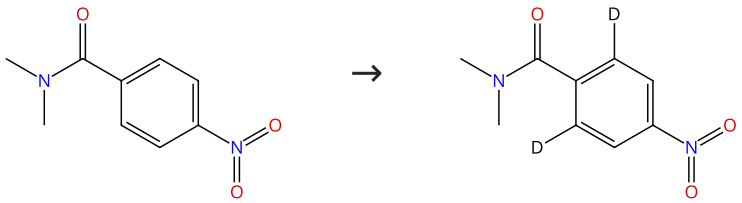
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 330 (1 Reaction)

Steps: **1**



Suppliers (42)

31-116-CAS-9939654

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

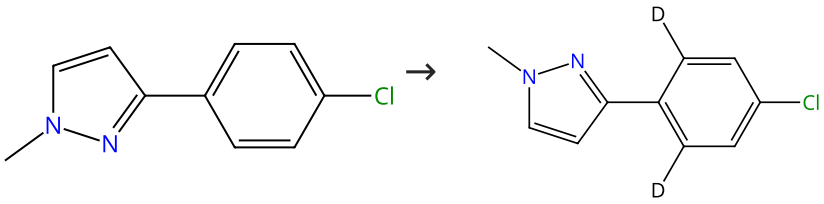
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 331 (1 Reaction)

Steps: **1**



Suppliers (3)

31-116-CAS-15130321

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)

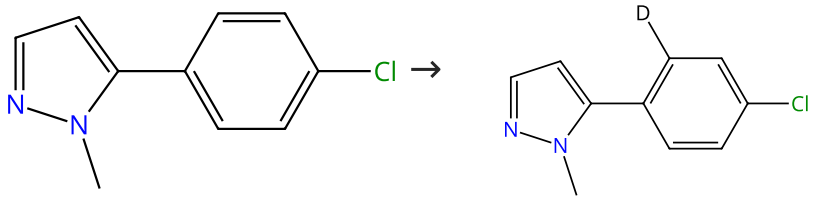
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 332 (1 Reaction)

Steps: **1**



Suppliers (9)

31-116-CAS-3861506

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

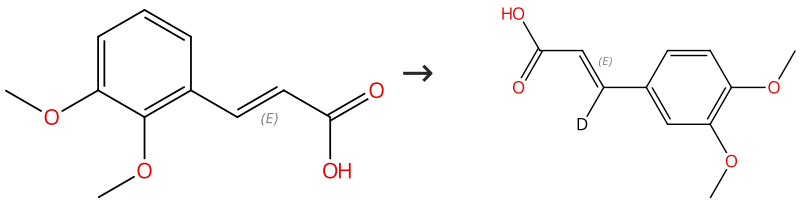
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 333 (1 Reaction)

Steps: **1**



Double bond geometry shown

Double bond geometry shown

Suppliers (72)

31-116-CAS-14653884

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Hydrochloric acid
Solvents: Water; acidified, rt

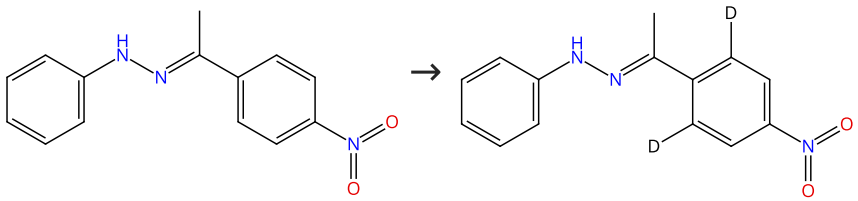
Iridium-catalyzed H/D exchange

By: Krueger, Jens; et al

European Journal of Organic Chemistry (2005), (7), 1402-1408.

Scheme 334 (1 Reaction)

Steps: **1**



Suppliers (20)

31-614-CAS-26358028

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

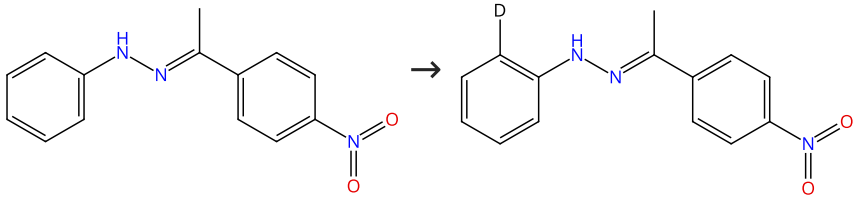
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 335 (1 Reaction)

Steps: **1**



Suppliers (20)

31-116-CAS-6659960

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

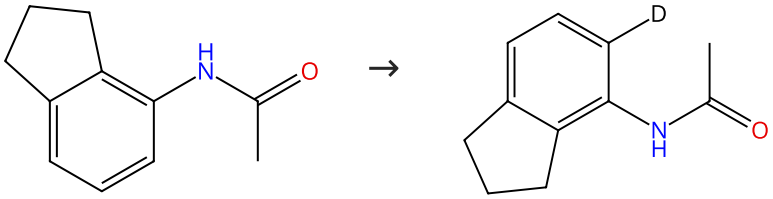
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 336 (1 Reaction)

Steps: **1**



Suppliers (27)

31-116-CAS-19083079

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrafluoroborate(1-) (1:1), 2241328-74-3
Solvents: Toluene; 18 h, rt → 120 °C

Experimental Protocols

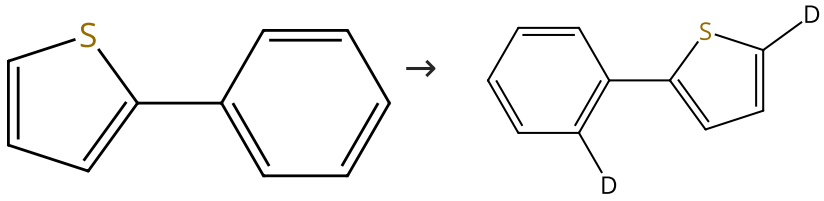
Branch-Selective and Enantioselective Iridium-Catalyzed Alkene Hydroarylation via Anilide-Directed C-H Oxidative Addition

By: Grelaud, Simon; et al

Journal of the American Chemical Society (2018), 140(30), 9351-9356.

Scheme 337 (1 Reaction)

Steps: **1**



Suppliers (78)

31-116-CAS-9068126

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

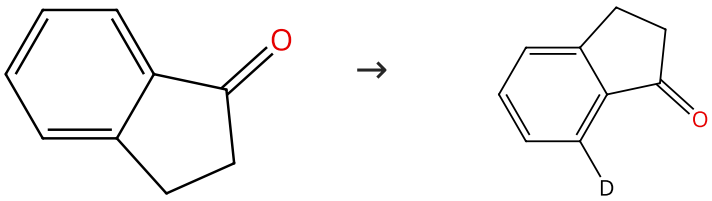
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 338 (1 Reaction)

Steps: **1**



Suppliers (117)

31-116-CAS-12187364

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

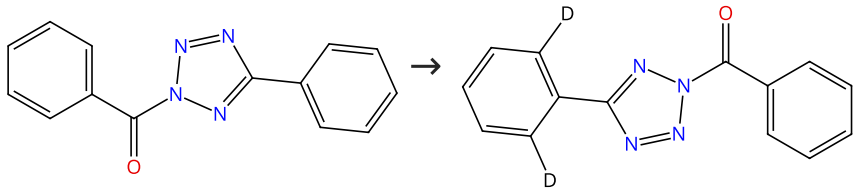
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 339 (1 Reaction)

Steps: **1**



Suppliers (4)

31-614-CAS-30992514

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 340 (1 Reaction)

Steps: **1**

31-116-CAS-13698037

Steps: **1**

1.1 **Catalysts:** Di-μ-chlorotetrakis[(1,2-η)-cyclooctene]diiridium, Sodium tetrakis[3,5-bis(trifluoromethyl)phenyl]borate, (1*S*,4*R*,8*R*)-8-Methoxy-1,8-dimethyl-2-(4-methylphenyl)bicyclo[2.2.2]octa-2,5-diene
Solvents: Dichloromethane; 1 h, rt

1.2 **Reagents:** Water-d_2
Solvents: Toluene; 7 h, 110 °C

Experimental Protocols

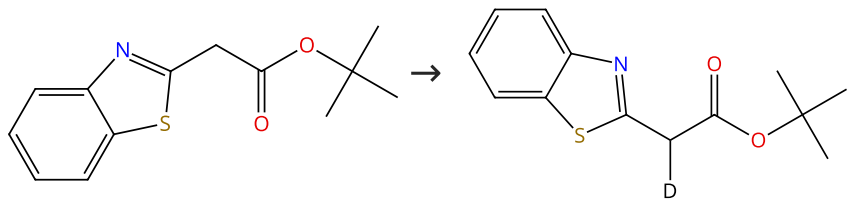
Iridium-Catalyzed Enantioselective C-H Alkylation of Ferrocenes with Alkenes Using Chiral Diene Ligands

By: Shibata, Takanori; et al

Angewandte Chemie, International Edition (2014), 53(21), 5410-5413.

Scheme 341 (1 Reaction)

Steps: **1**



Suppliers (6)

31-614-CAS-38220292

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: BINAP, Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate(1-) (1:1)
Solvents: Toluene; 48 h, 70 °C

Experimental Protocols

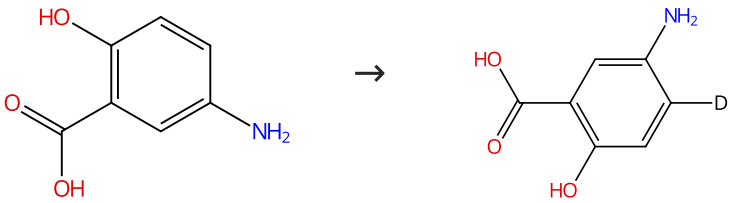
Iridium-Catalyzed Enantioselective Alkene Hydroalkylation via a Heteroaryl-Directed Enolization-Decarboxylation Sequence

By: Jing, Changcheng; et al

Journal of the American Chemical Society (2023), 145(44), 23918-23924.

Scheme 342 (1 Reaction)

Steps: **1**



Suppliers (134)

31-116-CAS-21649678

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 343 (1 Reaction)

Steps: **1**

Suppliers (102)

31-116-CAS-20076674

Steps: **1**

1.1 **Reagents:** Acetic acid-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-; 2 h, 80 °C

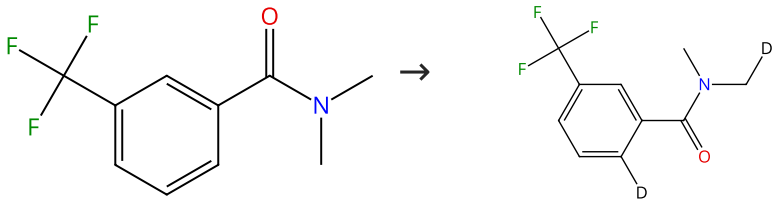
On-Water Cp*Ir(III)-Catalyzed C-H Functionalization for the Synthesis of Chromones through Annulation of Salicyla ldehydes with Diazo-Ketones

By: Debbarma, Suvankar; et al

Journal of Organic Chemistry (2019), 84(10), 6207-6216.

Scheme 344 (1 Reaction)

Steps: **1**



Suppliers (37)

31-116-CAS-6180044

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 345 (1 Reaction)

Steps: **1**

Suppliers (137)

31-614-CAS-30950654

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [2-[Bis(1-methylethyl)phosphino-κ*P*]-*N*-[2-[bis(1-methylethyl)phosphino-κ*P*]-4-methylphenyl]-4-methylbenzenaminato-κ*N*]dihydroiridium
Solvents: Cyclohexane-d_{12}, Water-d_2; 72 h, 80 °C

Experimental Protocols

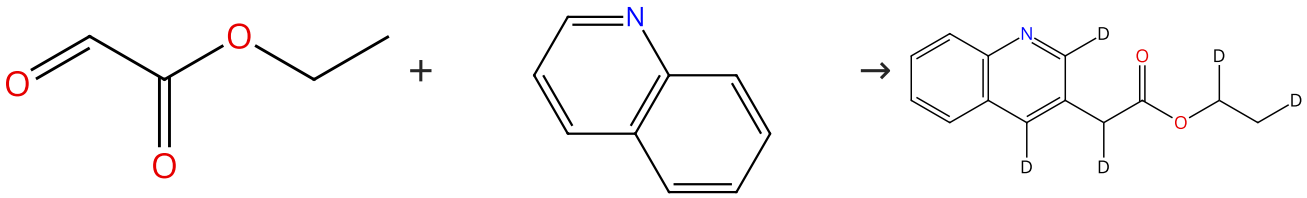
H/D Exchange Processes Catalyzed by an Iridium-Pincer Complex

By: Iluc, Vlad M.; et al

Organometallics (2012), 31(1), 39-41.

Scheme 346 (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

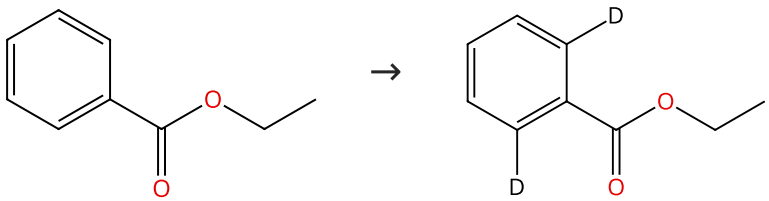
Reductive Coupling of N-Heteroarenes and 1,2-Dicarbonyls for Direct Access to γ-Amino Acids, Esters, and Ketones Using a Heterogeneous Single-Atom Iridium Catalyst

By: Jia, Huanhuan; et al

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

Scheme 347 (1 Reaction)

Steps: **1**



Suppliers (94)

31-116-CAS-2074064

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

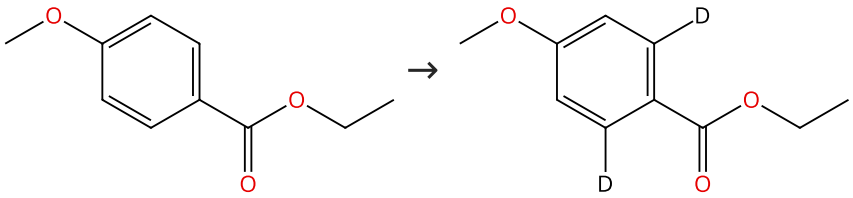
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 348 (1 Reaction)

Steps: **1**



Suppliers (66)

31-116-CAS-8463850

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 349 (1 Reaction)

Steps: **1**

Suppliers (119)

31-116-CAS-11042460

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [2-[Bis(1-methylethyl)phosphino-κ*P*]-*N*-[2-[bis(1-methylethyl)phosphino-κ*P*]-4-methylphenyl]-4-methylbenzenaminato-κ*N*]dihydroiridium
Solvents: Cyclohexane-d_{12}, Water-d_2; 72 h, 80 °C

Experimental Protocols

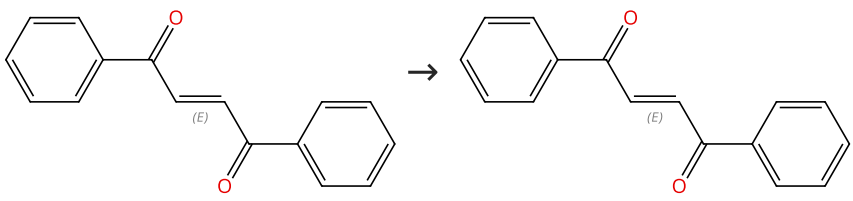
H/D Exchange Processes Catalyzed by an Iridium- Pincer Complex

By: Iluc, Vlad M.; et al

Organometallics (2012), 31(1), 39-41.

Scheme 350 (1 Reaction)

Steps: **1**



Double bond geometry shown

Double bond geometry shown

Suppliers (69)

31-614-CAS-25639125

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 h, 90 °C

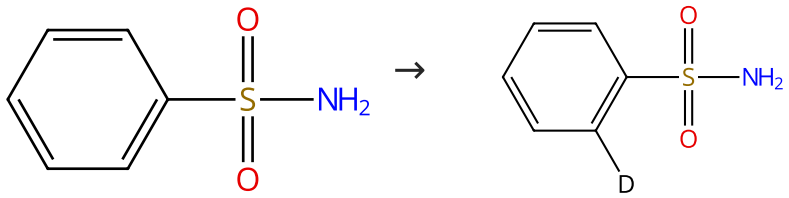
Iridium-catalyzed H/D exchange

By: Krueger, Jens; et al

European Journal of Organic Chemistry (2005), (7), 1402-1408.

Scheme 351 (1 Reaction)

Steps: **1**



Suppliers (89)

31-116-CAS-4810888

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

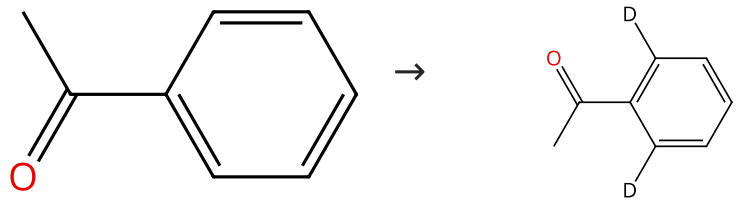
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 352 (1 Reaction)

Steps: **1**



Suppliers (109)

Supplier (1)

31-116-CAS-1310281

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

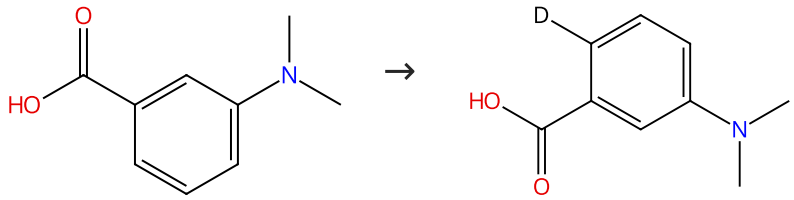
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 353 (1 Reaction)

Steps: **1**



Suppliers (97)

31-116-CAS-15431455

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 h, 90 °C

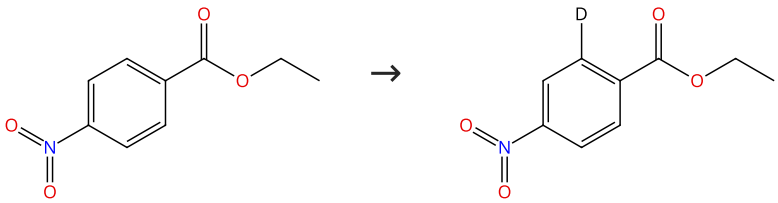
Iridium-catalyzed H/D exchange

By: Krueger, Jens; et al

European Journal of Organic Chemistry (2005), (7), 1402-1408.

Scheme 354 (1 Reaction)

Steps: **1**



Suppliers (92)

31-116-CAS-14861424

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

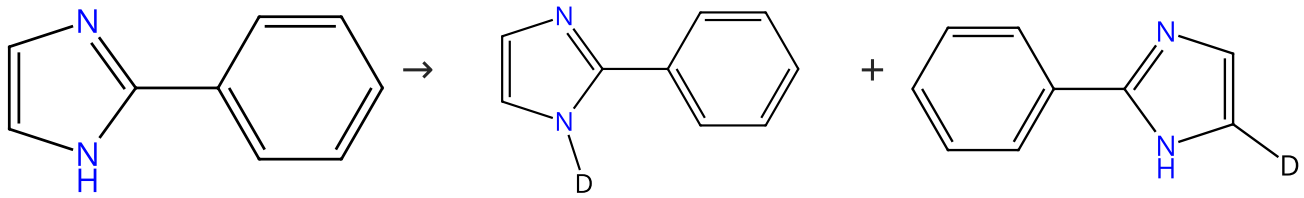
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 355 (3 Reactions)

Steps: **1** Yield: **68-100%**



Suppliers (94)

31-116-CAS-11613813

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

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-3481117

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

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

31-116-CAS-3099674

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

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](3-methyl-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2.25 h, 90 °C

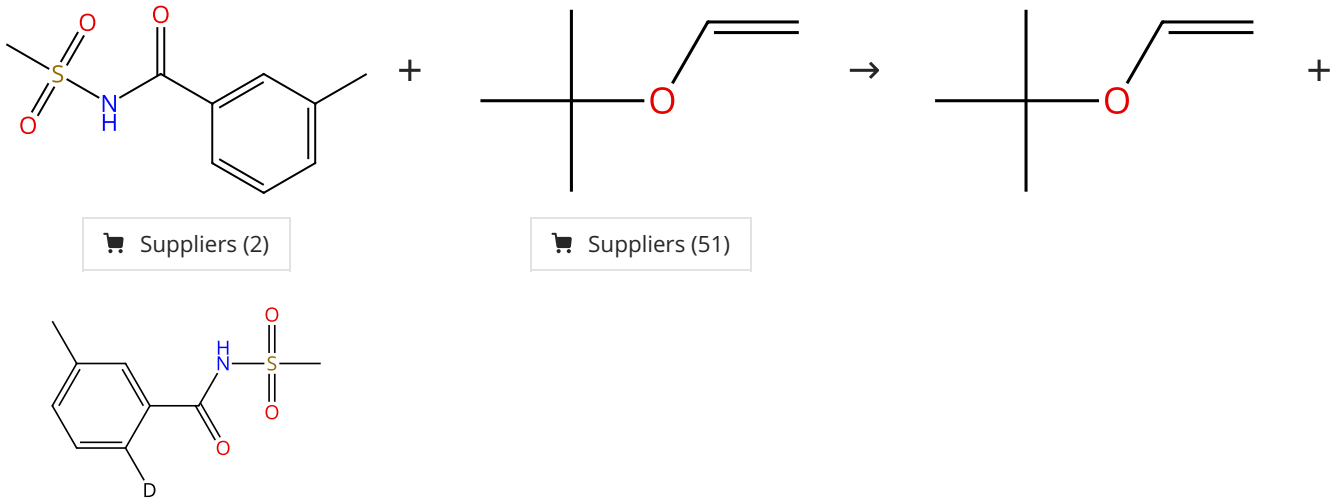
Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 356 (1 Reaction)

Steps: **1** Yield: **95%**



Suppliers (2)

Suppliers (51)

31-614-CAS-30917583

Steps: **1** Yield: **95%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Benzene-d_6; 0.5 h, 70 °C

Experimental Protocols

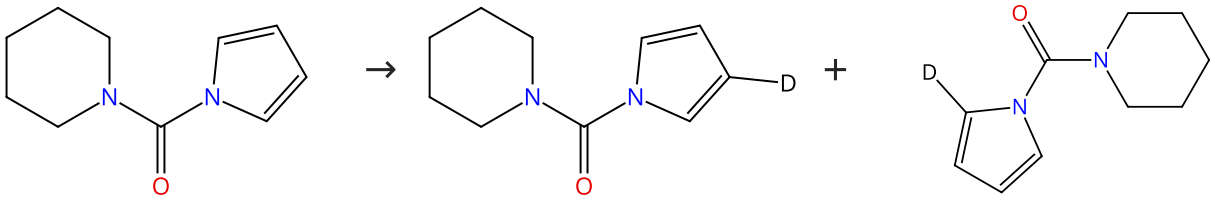
Asymmetric Alkylation of N-Sulfonylbenzamides with Vinyl Ethers via C-H Bond Activation Catalyzed by Hydroxo iridium /Chiral Diene Complexes

By: Hatano, Miyuki; et al

Journal of the American Chemical Society (2016), 138(12), 4010-4013.

Scheme 357 (1 Reaction)

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



31-614-CAS-24681686

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

1.1 **Reagents:** Water-d_2
Catalysts: Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene]diiridium, *R*-Xyl-BINAP
Solvents: 1,4-Dioxane; 1 h, 100 °C

Experimental Protocols

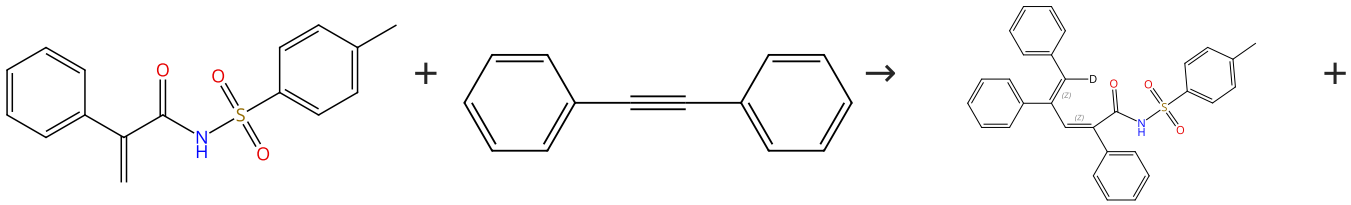
Ir-Catalyzed Enantioselective Formal C-H Conjugate Addition of Pyrrole and Indoles to α,β-Unsaturated Carbonyl Compounds

By: Shibata, Takanori; et al

Organic Letters (2021), 23(23), 9078-9082.

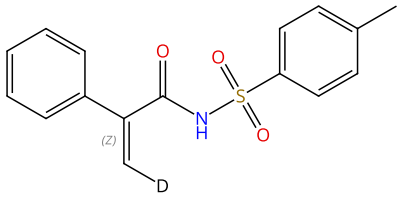
Scheme 358 (1 Reaction)

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



Suppliers (88)

Double bond geometry shown



Double bond geometry shown

31-116-CAS-21976402

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

1.1 **Catalysts:** Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-methoxydiiridium
Solvents: Water-d_2; 15 min, 70 °C

Experimental Protocols

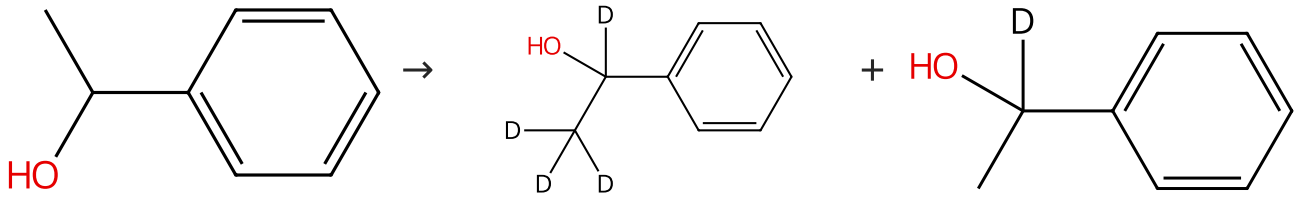
Stereoselective and Atom-Economic Alkenyl C-H Allylation/Alkenylation in Aqueous Media by Iridium Catalysis

By: Huang, Yinhua; et al

Journal of Organic Chemistry (2020), 85(11), 7225-7237.

Scheme 359 (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-)-κN^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

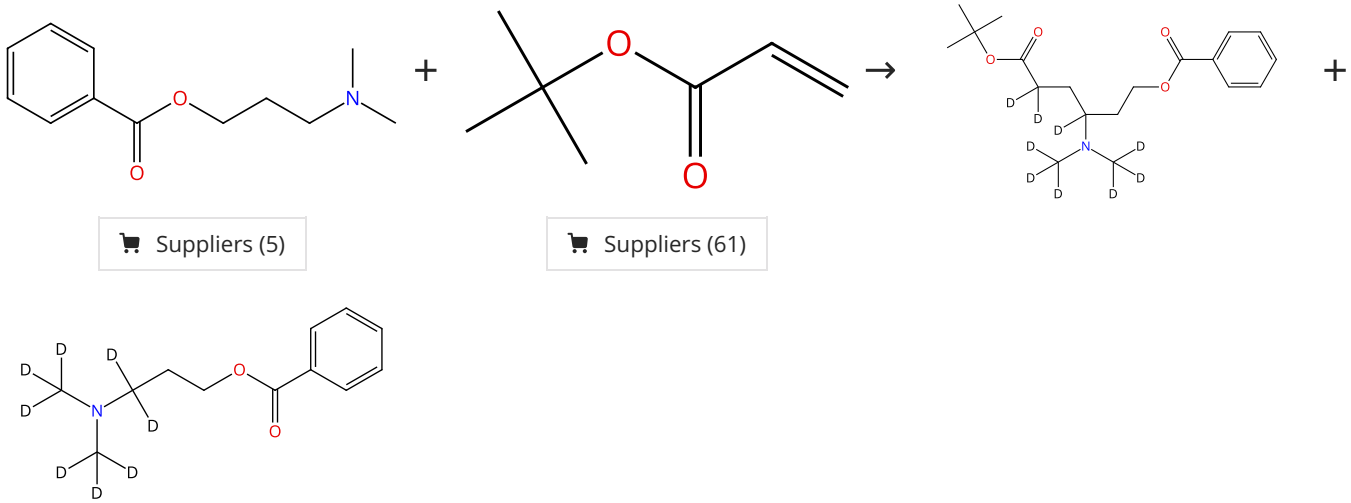
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 360 (1 Reaction)

Steps: **1** Yield: **83%**



Suppliers (5)

Suppliers (61)

31-614-CAS-24525042

Steps: **1** Yield: **83%**

1.1 **Reagents:** Water-d_2
Catalysts: 1,1,1-Triphenylsilanethiol, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Toluene; 4 h, 28 °C

Experimental Protocols

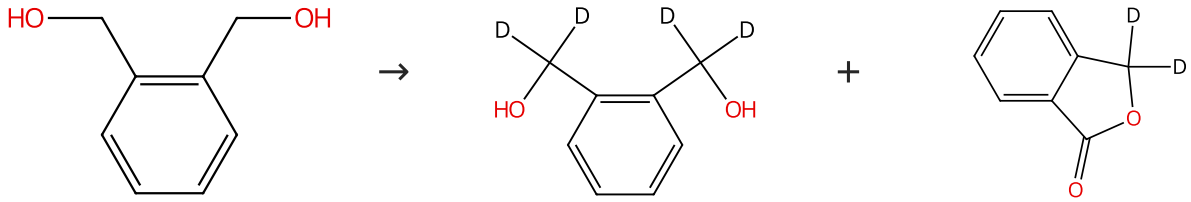
Site-selective α-C-H Functionalization of Trialkylamines via Reversible HAT-Catalysis

By: Shen, Yangyang; et al

Journal of the American Chemical Society (2021), 143(45), 18952-18959.

Scheme 361 (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-)-κN^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

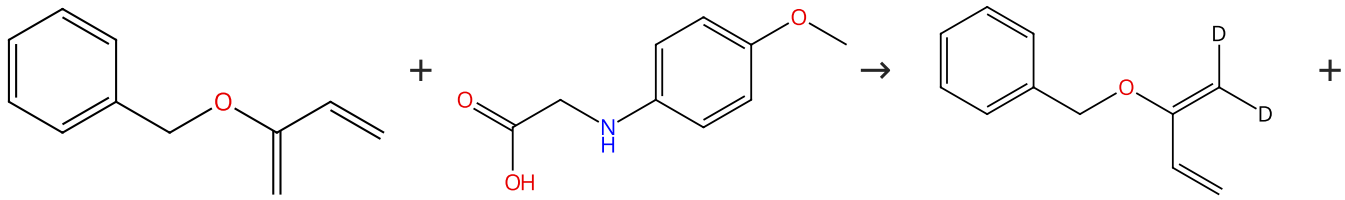
Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

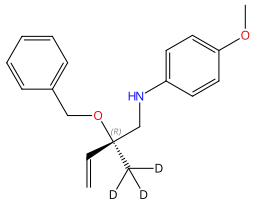
Chemical Science (2022), 13(30), 8744-8751.

Scheme 362 (1 Reaction)

Steps: **1** Yield: **65%**



Suppliers (43)



Absolute stereochemistry shown

31-614-CAS-31760295

Steps: **1** Yield: **65%**

1.1 **Catalysts:** stereoisomer of (η^5-2,4-Cyclopentadien-1-yl)[(1,2,3-η)-1-phenyl-2-propen-1-yl]palladium, (11b*R*)-8,9,10,11,12,13,14,15-Octahydro-*N*,*N*-bis[(1*S*)-1-phenylethyl]dinaphtho[2,1-*d*:1',2'-*f*][1,3,2]dioxaphosphepin-4-amine
Solvents: Dimethylformamide; 30 min, rt

1.2 **Reagents:** Water-d_2
Catalysts: 3,5-Bis(trifluoromethyl)benzoic acid, 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: *N*,*N*-Dimethylformamide-d_7; 16 h, rt

Experimental Protocols

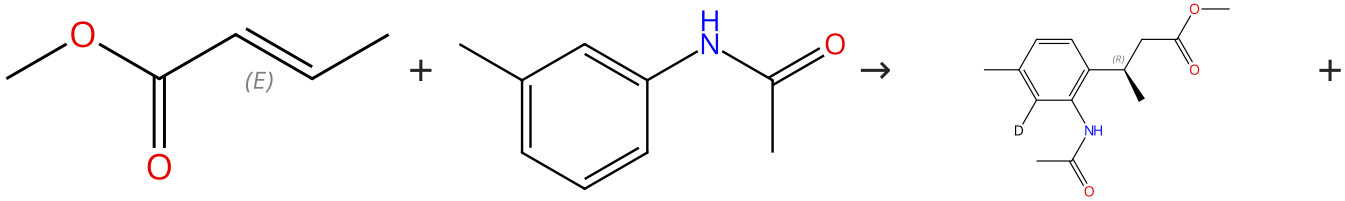
Regio-, Diastereo-, and Enantioselective Decarboxylative Hydro-aminoalkylation of Dienol Ethers Enabled by Dual Palladium/Photoredox Catalysis

By: Zheng, Jun; et al

Angewandte Chemie, International Edition (2022), 61(20), e202200105.

Scheme 363 (1 Reaction)

Steps: **1** Yield: **65%**

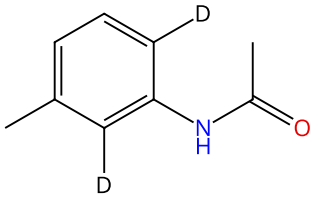


Double bond geometry shown

Suppliers (60)

Suppliers (68)

Absolute stereochemistry shown



31-614-CAS-29147635

Steps: **1** Yield: **65%**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene][(1,2-dimethyl-1,2-ethanediyl)bis[diphenylphosphine]-*P*,*P*']-, [*S*-(*R**,*R**)]-, salt with trifluoromethanesulfonic acid (1:1)
Solvents: 1,4-Dioxane; 72 h, 120 °C

Enantioselective Formal C-H Conjugate Addition of Acetanilides to β-Substituted Acrylates by Chiral Iridium Catalysts

By: Shibata, Takanori; et al

Chemistry - A European Journal (2017), 23(1), 88-91.

Scheme 364 (1 Reaction)

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

31-085-CAS-6720277

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

1.1 **Catalysts:** Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate(1-) (1:1), 1820606-28-7
Solvents: 1,2-Dichloroethane; 30 min, rt

1.2 **Reagents:** Water-d_2; 0.25 h, 135 °C

Experimental Protocols

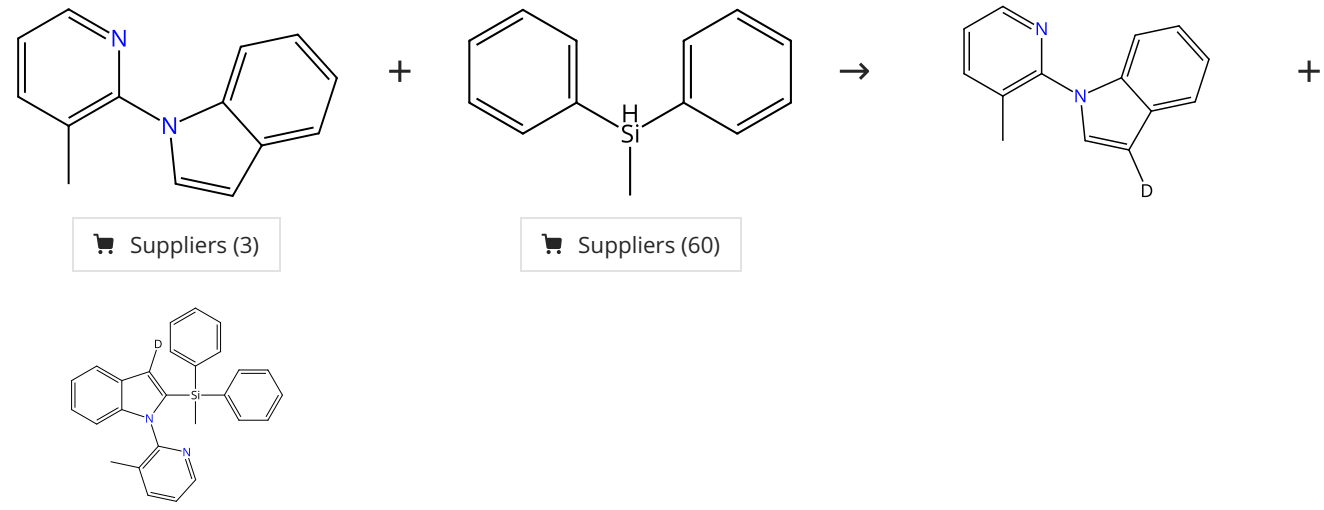
Cationic Iridium/S-Me-BIPAM-Catalyzed Direct Asymmetric Intermolecular Hydroarylation of Bicycloalkenes

By: Shirai, Tomohiko; et al

Angewandte Chemie, International Edition (2015), 54(34), 9894-9897.

Scheme 365 (1 Reaction)

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



31-614-CAS-34491697

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

1.1 **Reagents:** Norbornene, Water-d_2
Catalysts: Di-μ-chlorobis[(1,2,5,6-η)-1,5-cyclooctadiene] diiridium
Solvents: Toluene; 4 h, 80 °C

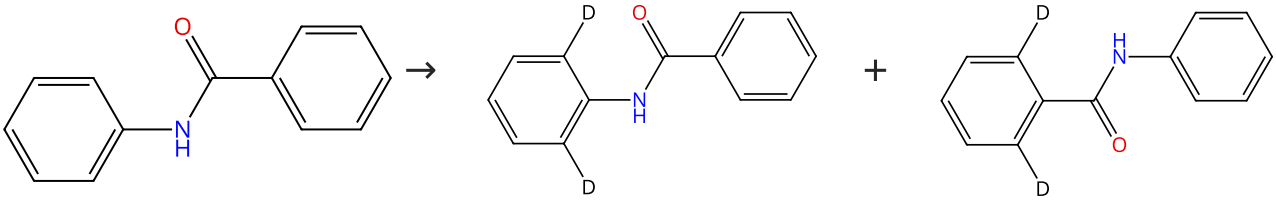
3-Alkyl-2-pyridyl Directing Group-Enabled C2 Selective C-H Silylation of Indoles and Pyrroles via an Iridium Catalyst

By: Sun, Hui; et al

Journal of Organic Chemistry (2022), 87(19), 13346-13351.

Scheme 366 (1 Reaction)

Steps: **1** Yield: **55%**



Suppliers (89)

31-116-CAS-10632806

Steps: **1** Yield: **55%**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

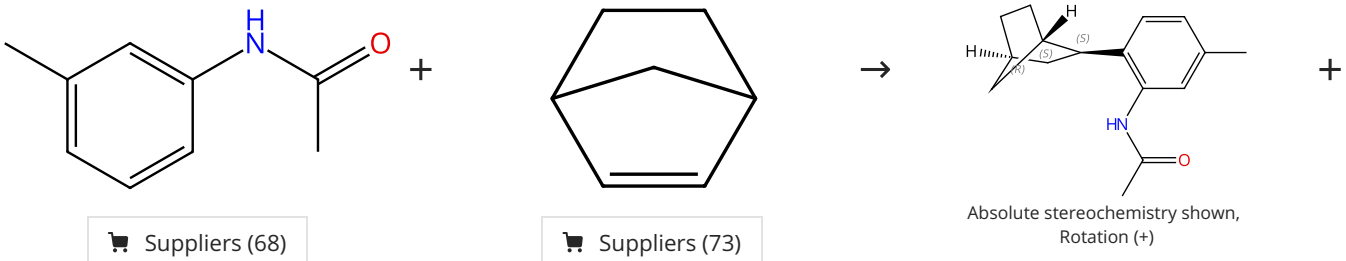
Convenient and efficient deuteration of functionalized aromatics with deuterium oxide: Catalysis by cycloocta-1,5-dienyliridium(I) 1,3-dionates

By: McAuley, B.; et al

Journal of Labelled Compounds & Radiopharmaceuticals (2003), 46(13), 1191-1204.

Scheme 367 (1 Reaction)

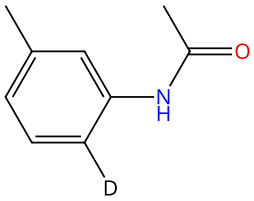
Steps: **1** Yield: **54%**



Absolute stereochemistry shown, Rotation (+)

Suppliers (68)

Suppliers (73)



31-085-CAS-19141242

Steps: **1** Yield: **54%**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), bis[(1,2,5,6-η)-1,5-cyclooctadiene]-, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate(1-) (1:1), 1820606-28-7
Solvents: 1,4-Dioxane; 30 min, rt

1.2 1.5 h, 135 °C

Experimental Protocols

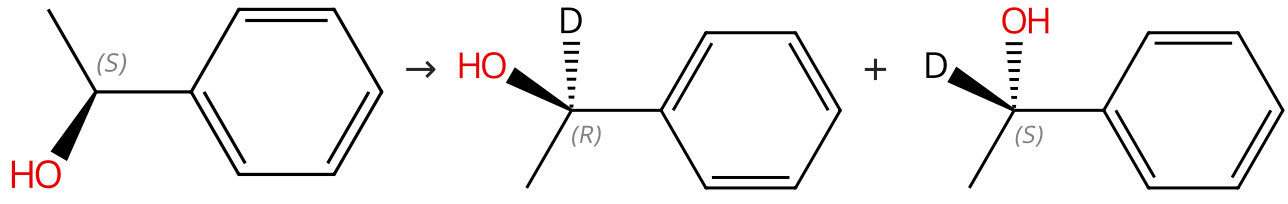
Iridium-Catalyzed Direct Asymmetric Alkylation of Aniline Derivatives using 2-Norbornene

By: Shirai, Tomohiko; et al

Asian Journal of Organic Chemistry (2018), 7(6), 1054-1056.

Scheme 368 (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-)-κN^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

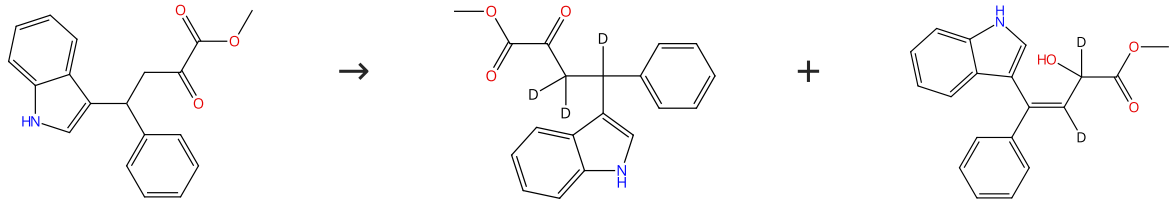
Experimental Protocols

Iridium-catalyzed α-selective deuteration of alcohols

By: Itoga, Moeko; et al

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

Scheme 369 (1 Reaction) Steps: **1** Yield: **38%**



31-614-CAS-31490323 Steps: **1** Yield: **38%**

1.1 **Reagents:** Water-d_2
Catalysts: Dabco, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[3,5-difluoro-2-(5-methyl-2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Tetrahydrofuran; 4 h, rt

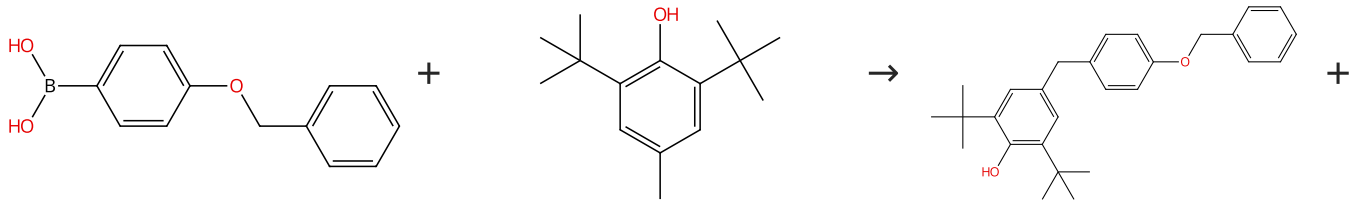
Experimental Protocols

Photocatalytic redox-neutral reaction of γ-indolyl α-keto esters

By: Wang, Man; et al

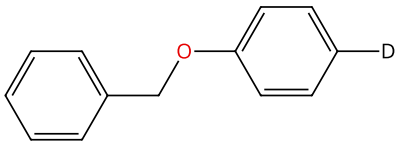
Organic Chemistry Frontiers (2022), 9(7), 1875-1883.

Scheme 370 (1 Reaction) Steps: **1** Yield: **29%**



Suppliers (98)

Suppliers (154)



Suppliers (3)

31-614-CAS-31585842 Steps: **1** Yield: **29%**

1.1 **Reagents:** Water-d_2
Catalysts: *tert*-Butyl mercaptan, (±)-3-Quinuclidinol, Iridium (1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κ*N*)phenyl-κ*C*]-, (*OC*-6-33)-, hexafluorophosphate (1-) (1:1)
Solvents: Chloroform-*d*; 24 h, rt

Experimental Protocols

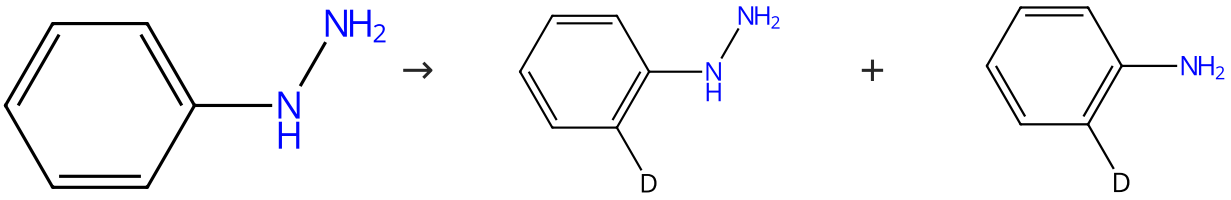
Arylboronic Acid Deborylation Deuteration via Synergistic Thiol, Lewis Base and Photoredox Catalysis

By: Dong, Jianyang; et al

Organic Letters (2022), 24(10), 2064-2068.

Scheme 371 (1 Reaction)

Steps: **1**



Suppliers (70)

Supplier (1)

31-116-CAS-13984139

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

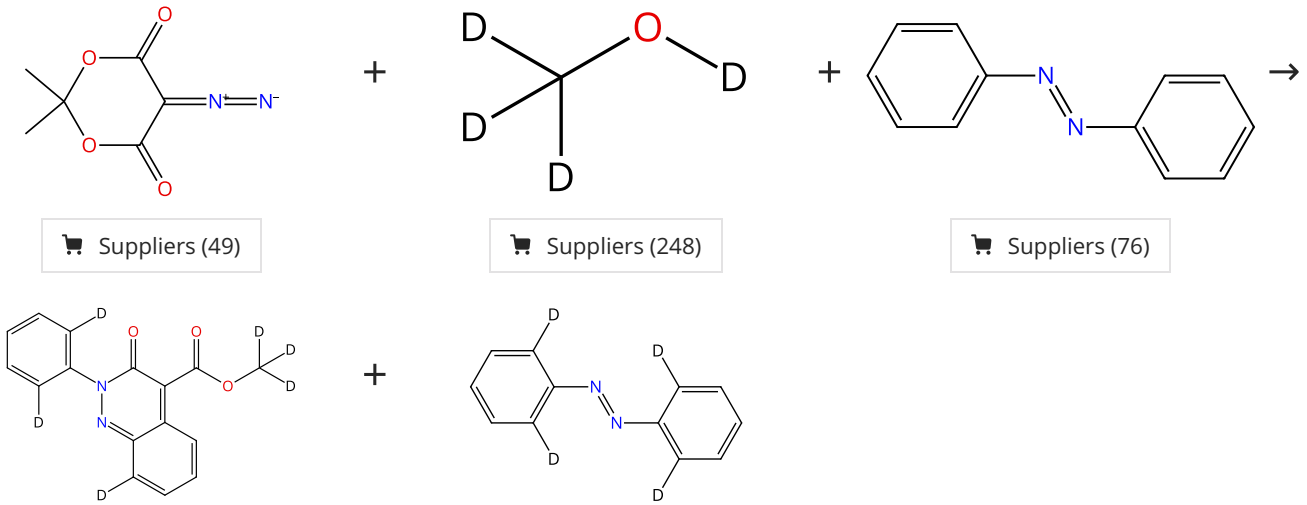
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 372 (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

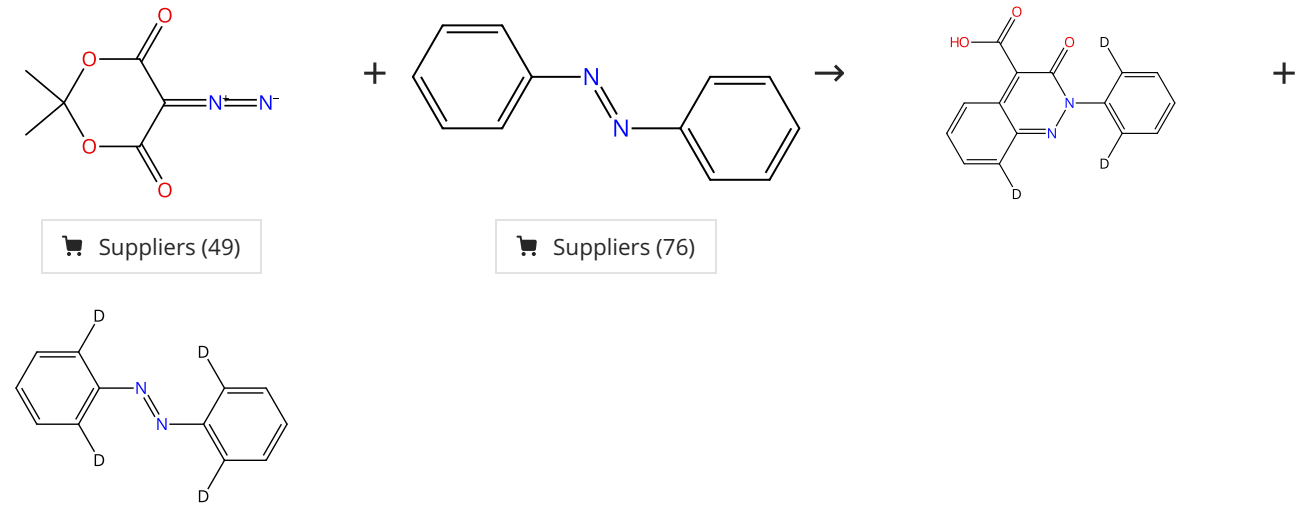
Ir(III)-Catalyzed [4 + 2] cycliz ation of azobenzene and diazotized Meldrum's acid for the synthesis of cinnolin-3(2H)-one

By: Borah, Gongutri; et al

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

Scheme 373 (1 Reaction)

Steps: **1**



Suppliers (49)

Suppliers (76)

31-116-CAS-19850306 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
Solvents: 1,2-Dichloroethane; 6 h, 80 °C

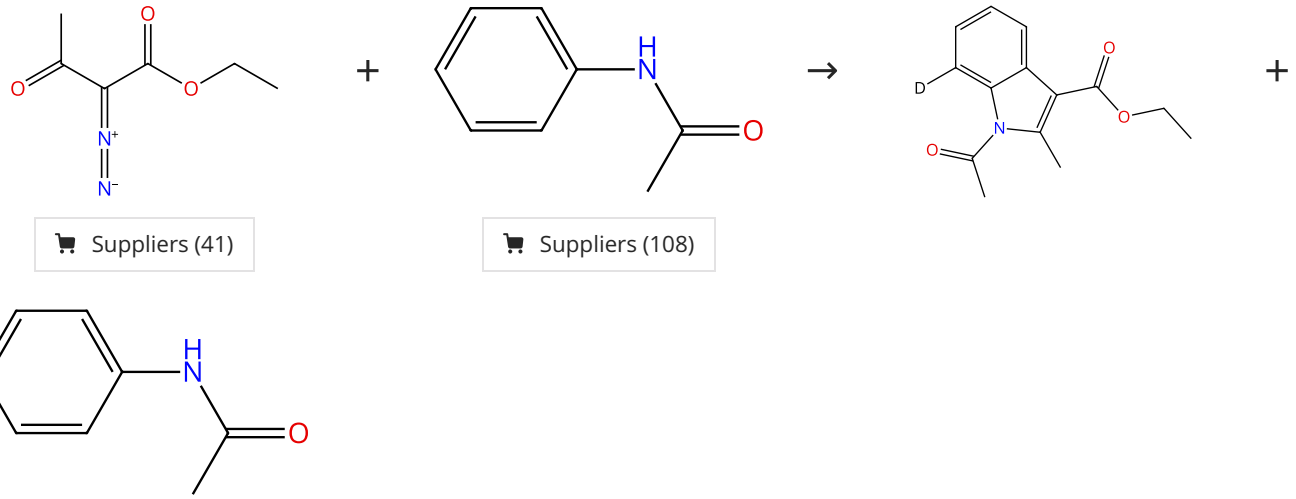
Experimental Protocols

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 374 (1 Reaction) Steps: **1**



Suppliers (41)

Suppliers (108)

31-614-CAS-29235309 Steps: **1**

1.1 **Reagents:** Acetic acid
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, Water-d_2; 3 h, 60 °C

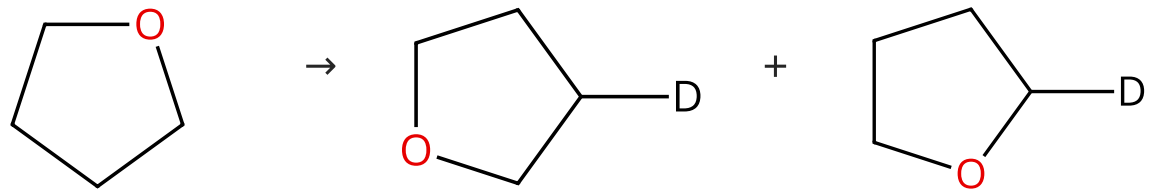
Experimental Protocols

Direct Access to Indoles by Ir ^{III}-Catalyzed C-H Functiona lization of Acetanilides with Diazo Compounds

By: Patel, Pitambar; et al

European Journal of Organic Chemistry (2017), 2017(16), 2272-2279.

Scheme 375 (1 Reaction) Steps: **1**



Suppliers (410)

31-116-CAS-7123169 Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(2+), diaquabis[4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[μ-(4-methylbenzenesulfonato-κ*O*:κ*O*')]bis(2-methyl-2-phenylpropyl)di-, stereoisomer, tetrakis[3,5-bis(trifluoromethyl)phenyl]borate(1-) (1:2)
Solvents: Tetrahydrofuran; 40 h, 135 °C

Experimental Protocols

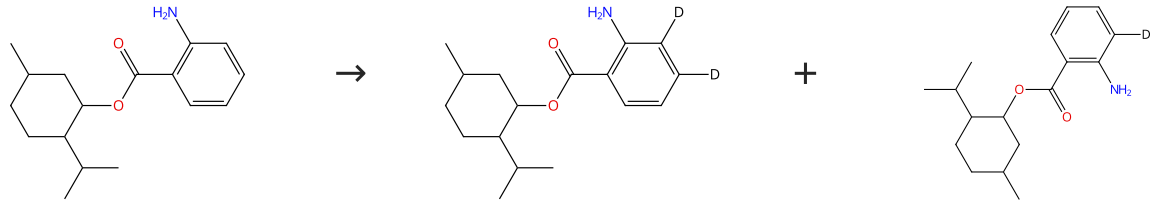
C-H Activation with iridium(III) and rhodium(III) alkyl complexes containing a 2,2'-bipyridyl ligand

By: Yi, Xiao-Yi; et al

European Journal of Inorganic Chemistry (2010), (16), 2369-2375.

Scheme 376 (1 Reaction)

Steps: **1**



Suppliers (32)

31-116-CAS-21649686

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

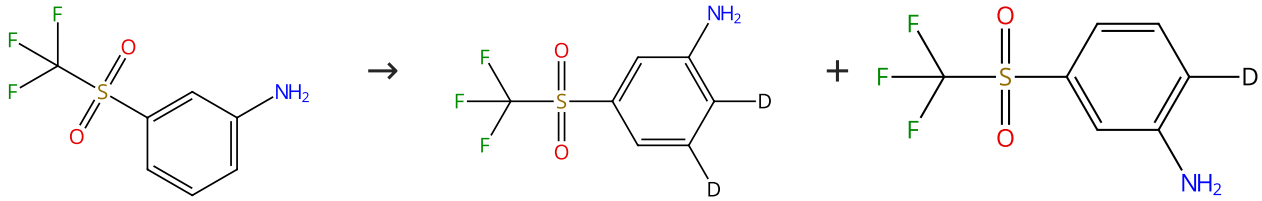
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 377 (1 Reaction)

Steps: **1**



Suppliers (57)

31-116-CAS-21649677

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

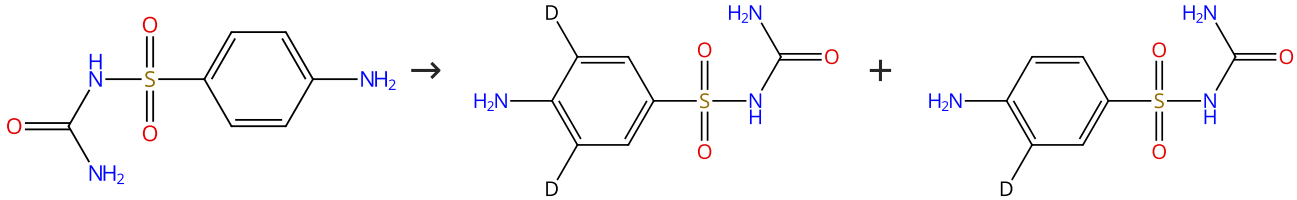
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 378 (1 Reaction)

Steps: **1**



Suppliers (60)

31-116-CAS-21649681

Steps: **1**

1.1 **Reagents:** Deuterium
Catalysts: Iridium (nanoparticles, N-heterocyclic carbene-stabilized)
Solvents: Tetrahydrofuran, Water-d_2; 3 h, 80 °C

Experimental Protocols

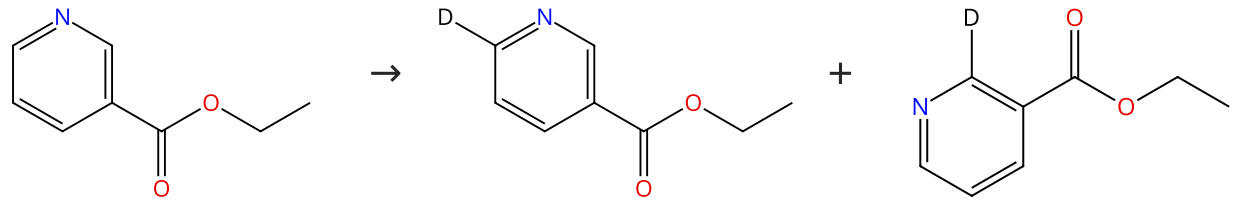
NHC-Stabilized Iridium Nanoparticles as Catalysts in Hydrogen Isotope Exchange Reactions of Anilines

By: Valero, Megane; et al

Angewandte Chemie, International Edition (2020), 59(9), 3517-3522.

Scheme 379 (1 Reaction)

Steps: **1**



Suppliers (109)

31-116-CAS-13000608

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: Iridium(1+), [(1,2,5,6-η)-1,5-cyclooctadiene](pyridine)(tricyclohexylphosphine)-, hexafluorophosphate(1-) (1:1)
Solvents: Dichloromethane

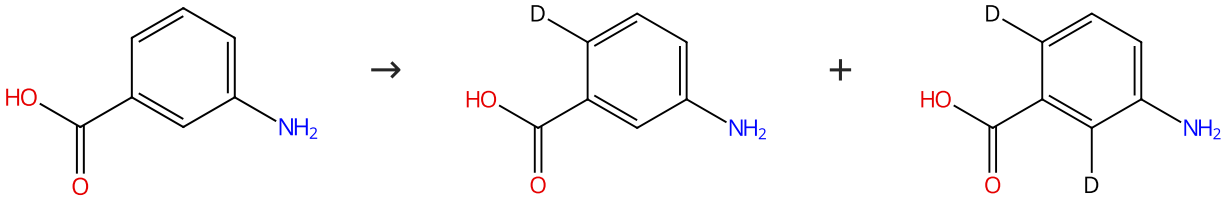
The scope and limitations of deuteration mediated by Crabtree's catalyst

By: Ellames, George J.; et al

Tetrahedron (2001), 57(46), 9487-9497.

Scheme 380 (1 Reaction)

Steps: **1**



Suppliers (105)

31-116-CAS-11056990

Steps: **1**

1.1 **Reagents:** Water-d_2
Catalysts: [(1,2,5,6-η)-1,5-Cyclooctadiene](1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO^2,κO^4)iridium
Solvents: Dimethylacetamide; 2 min, 130 °C

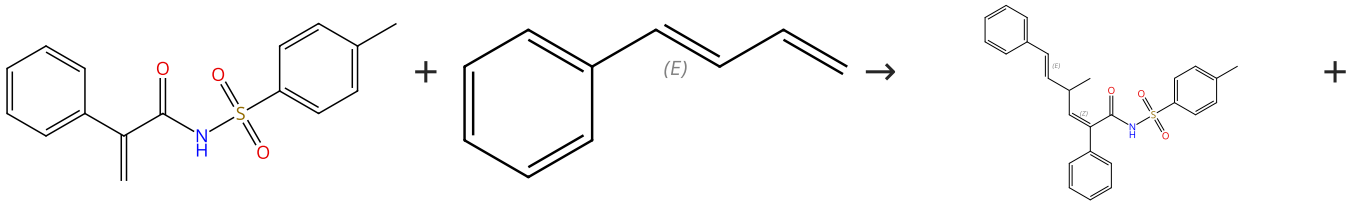
Hydrogen isotope labelling using iridium(I) dionates

By: Lockley, W. J. S.

Journal of Labelled Compounds and Radiopharmaceuticals (2010), 53(11-12), 668-673.

Scheme 381 (1 Reaction)

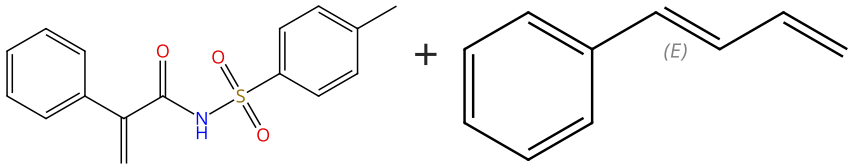
Steps: **1** Yield: **88%**



Double bond geometry shown

Double bond geometry shown

Suppliers (57)



Double bond geometry shown

31-614-CAS-27364548 Steps: **1** Yield: **88%**

1.1 **Catalysts:** Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-methoxydiiridium
Solvents: Water-d_2; 10 min, 70 °C

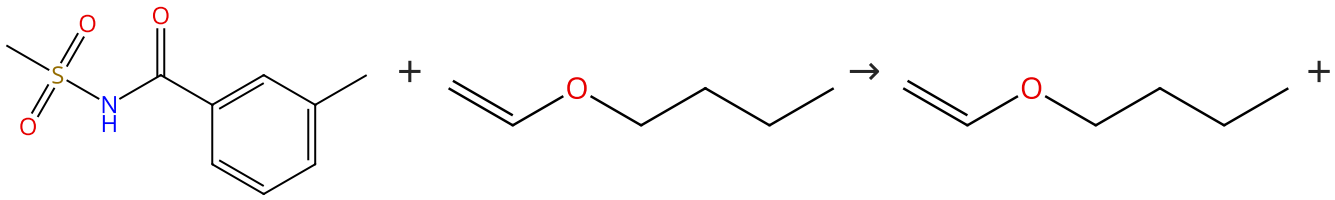
Experimental Protocols

Stereoselective and Atom-Economic Alkenyl C-H Allylation/Alkenylation in Aqueous Media by Iridium Catalysis

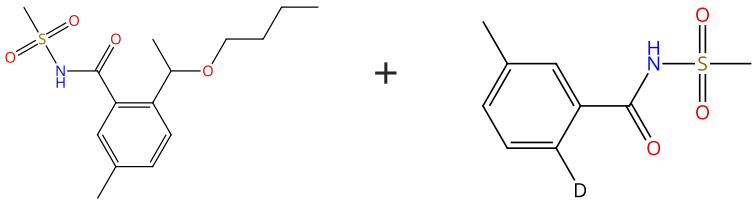
By: Huang, Yinhua; et al

Journal of Organic Chemistry (2020), 85(11), 7225-7237.

Scheme 382 (1 Reaction) Steps: **1** Yield: **67%**



Suppliers (2) Suppliers (57)



31-614-CAS-30110144 Steps: **1** Yield: **67%**

1.1 **Reagents:** Water-d_2
Catalysts: Bis[(1,2,5,6-η)-1,5-cyclooctadiene]di-μ-hydroxydiiridium
Solvents: Benzene-d_6; 0.5 h, 70 °C

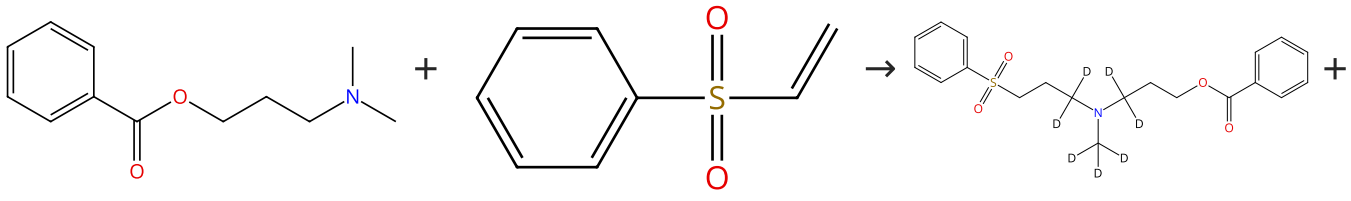
Experimental Protocols

Asymmetric Alkylation of N-Sulfonylbenzamides with Vinyl Ethers via C-H Bond Activation Catalyzed by Hydroxo iridium /Chiral Diene Complexes

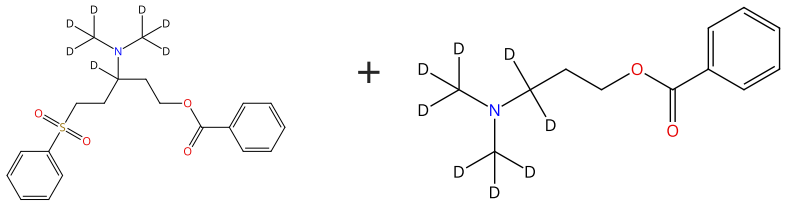
By: Hatano, Miyuki; et al

Journal of the American Chemical Society (2016), 138(12), 4010-4013.

Scheme 383 (1 Reaction) Steps: **1** Yield: **56%**



Suppliers (5) Suppliers (94)



31-614-CAS-24525037 Steps: **1** Yield: **56%**

1.1 **Reagents:** Water-d_2
Catalysts: 1,1,1-Triphenylsilanethiol, Iridium(1+), [4,4'-bis(1,1-dimethylethyl)-2,2'-bipyridine-κN^1,κ$N^{1'}$]bis[2-(2-pyridinyl-κN)phenyl-κC]-, (*OC*-6-33)-, hexafluorophosphate(1-) (1:1)
Solvents: Toluene; 10 min, 28 °C

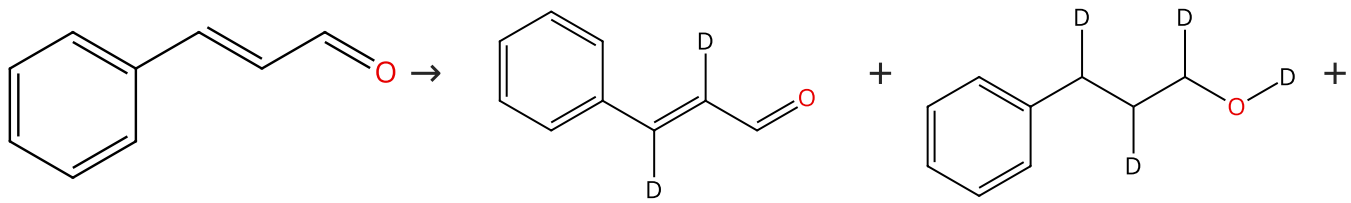
Experimental Protocols

Site-selective α-C-H Functionalization of Trialkylamines via Reversible HAT-Catalysis

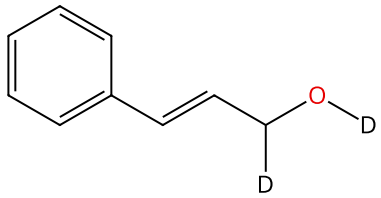
By: Shen, Yangyang; et al

Journal of the American Chemical Society (2021), 143(45), 18952-18959.

Scheme 384 (1 Reaction) Steps: **1**



Suppliers (63)



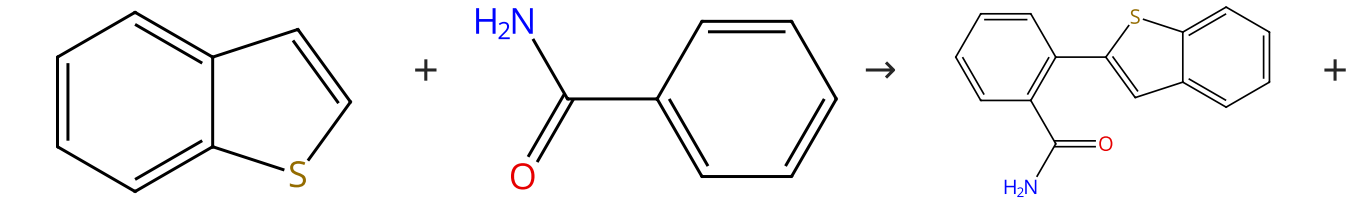
31-614-CAS-39507452	Steps: **1**
1.1 **Reagents:** Hydrogen, Water-d_2 **Catalysts:** Tungsten oxide (WO_3), Iridium (supported on tungsten trioxide nanorods); 1 MPa, rt → 60 °C	
Experimental Protocols	

Highly selective hydrogenation of unsaturated aldehydes in aqueous phase

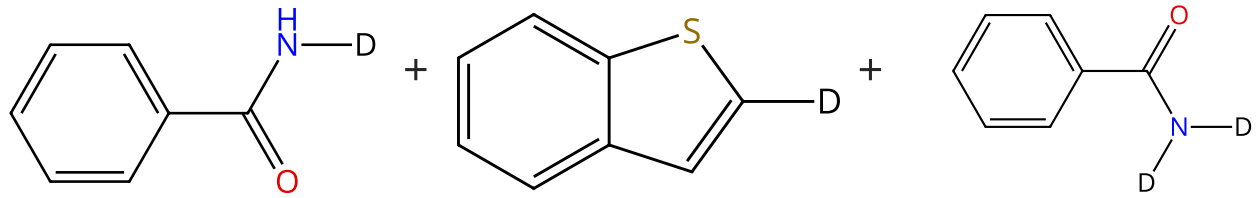
By: Zhou, Shijie; et al

ACS Applied Materials & Interfaces (2024), 16(11), 13685-13696.

Scheme 385 (1 Reaction) Steps: **1** Yield: **34%**



Suppliers (99) Suppliers (115) Supplier (1)



Supplier (1)

31-116-CAS-19234897	Steps: **1** Yield: **34%**
1.1 **Reagents:** Water-d_2, Silver oxide (Ag_2O) **Catalysts:** Iridium, di-μ-chlorodichlorobis[(1,2,3,4,5-η)-1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl]di- **Solvents:** 1,1,1,3,3,3-Hexafluoro-2-propanol; 1 h, 120 °C	
Experimental Protocols	

Iridium-catalyzed oxidative Ar-H/Ar-H cross-coupling of primary benzamides with thiophenes

By: Tan, Guangying; et al

Organic Chemistry Frontiers (2018), 5(20), 2930-2933.