CAS SciFinder

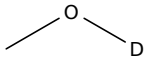
Task History

Initiating Search

February 24, 2025, 10:33 AM

Substances:

Filtered By:



Structure Match: **Substructure**

Search Tasks

Task	Search Type	View
Returned Substance Results + Filters (12,936)	Substances	View Results
Exported: Retrieved Related Reaction Results + Filters (187)	Reactions	View Results

Filtered By:

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

Catalyst: **1,1'-Bis[(11b*R*)-3,5-dihydro-4*H*-dinaphtho[2,1-*c*:1',2'-*e*]phosphepin-4-yl]ferrocene, 1,1'-Bis[(11b*S*)-3,5-dihydro-4*H*-dinaphtho[2,1-*c*:1',2'-*e*]phosphepin-4-yl]ferrocene, 1,1'-Bis[(1,1-dimethylethyl)-2-pyridinylphosphino]ferrocene, 1,1'-Bis(dicyclohexylphosphino)ferrocene, 1,1'-Bis(diisopropylphosphino)ferrocene, 1,1-Bis(diphenylphosphino)ferrocene, (1*R*)-1-[Bis(1,1-dimethylethyl)phosphino]-2-[(1*R*)-1-[bis(2-methylphenyl)phosphino]ethyl]ferrocene, (1*R*)-1-[Bis(4-methoxy-3,5-dimethylphenyl)phosphino]-2-[(1*R*)-1-(dicyclohexylphosphino)ethyl]ferrocene, (1*S*)-1-[(1*R*)-1-[Bis[3,5-bis(trifluoromethyl)phenyl]phosphino]ethyl]-2-[2-(diphenylphosphino)phenyl]ferrocene, (1*S*)-1-[Bis(1,1-dimethylethyl)phosphino]-2-[(1*R*)-1-(diphenylphosphino)ethyl]ferrocene, (2*R*)-1-[(1*R*)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(diphenylphosphino)ferrocene, (2*R*)-1-[(1*R*)-1-(Dicyclohexylphosphino)ethyl]-2-(diphenylphosphino)ferrocene, (2*R*)-1-[(1*S*)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(diphenylphosphino)ferrocene, (2*S*)-1-[(1*S*)-1-[[[[3,5-Bis(trifluoromethyl)phenyl]amino]thioxomethyl]amino]ethyl]-1',2-bis(diphenylphosphino)ferrocene, (2*S*)-1-[(1*S*)-1-[Bis(1,1-dimethylethyl)phosphino]ethyl]-2-(dicyclohexylphosphino)ferrocene, (2*S*)-1-[(4*S*)-4,5-Dihydro-4-**

(1-methylethyl)-2-oxazolyl]-2-(diphenylphosphino)ferrocene, 5,10,15,20-Tetrakis(pentafluorophenyl)porphyrinatoiron(III) chloride, (Acetonitrile)[(3a,4,6,6a-η)-4,6-bis[(1,1-dimethylethyl)dimethylsilyl]-2,3-dihydro-2-[(4-methylphenyl)sulfonyl]cyclopenta[*c*]pyrrol-5(1*H*)-one]dicarbonyliron, Bis[1,2,3,7,8,12,13,17,18,19-decadehydro-21,22-dihydro-5,10,15-tris(2,3,4,5,6-pentafluorophenyl)corrinato(3-)-κN^{21},κN^{22},κN^{23},κN^{24}]-μ-oxodiiron, Dicarbonyl[(4a,5,7,7a-η)-1,2,3,4-tetrahydro-1,4-dimethyl-5,7-diphenyl-6*H*-cyclopenta[*b*]pyrazin-6-one](triphenylphosphine)iron, Diiron nonacarbonyl, Ferric bromide, Ferric chloride hexahydrate, Ferric *p*-toluenesulfonate, Ferric sulfate, Ferrocene, 1,1'-bis(diphenylphosphino)-2-[(1*R*)-1-[methyl[2-(1-piperidinyl)ethyl]amino]ethyl]-, (2*R*)-, Ferrocene-*1,3-*d_2, 2-(2-pyridinyl)-, Ferrous acetate, Ferrous bromide, Ferrous chloride, Ferrous sulfate, Iron, Iron(1+), tricarbonyl[(4a,5,6,7,7a-η)-2,3,4,4a-tetrahydro-1,4-dimethyl-6-[(1-methylethyl)amino]-5,7-diphenyl-1*H*-cyclopenta[*b*]pyrazin-4a-yl]-, tetrafluoroborate(1-) (1:1), Iron chloride ($FeCl_3$), Iron, di-μ-carbonyldecacarbonyltri-, *triangulo*, Iron fluoride (FeF_2), Iron(III) acetylacetonate, Iron(II) phthalocyanine, Iron oxide (Fe_3O_4), Methanesulfonic acid, 1,1,1-trifluoro-, iron(2+) salt (2:1), (*OC*-6-11)-Tris(2,6-dimethyl-3,5-heptanedionato-κO^3,κO^5)iron, (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron, (*OC*-6-14)-[1,2,3,7,8,12,13,17,18,19-Decadehydro-21,22-dihydro-5,10,15-tris(2,3,4,5,6-pentafluorophenyl)corrinato(3-)-κN^{21},κN^{22},κN^{23},κN^{24}]bis[1,1'-oxybis[ethane]]iron, (*OC*-6-21)-Bis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]dihydroiron, (Perfluorophthalocyaninato)iron, (*SP*-4-4)-[3,4,8,9,13,14,18,19-Octakis[4-(1,1-dimethylethyl)phenyl]-6,11,16,20,21,22,23-heptaazapentacyclo[15.2.1.1^{2,5}.1^{7,10}.1^{12,15}]tricosa-2,4,6,8,10(22),11,13,15,17,19-decaenato(3-)-κN^{20},κN^{21},κN^{22},κN^{23}]iron, (*SP*-5-14)-Chloro[1,2,3,7,8,12,13,17,18,19-decadehydro-21,22-dihydro-5,10,15-tris(2,3,4,5,6-pentafluorophenyl)corrinato(3-)-κN^{21},κN^{22},κN^{23},κN^{24}]iron, Tricarbonyl[(1,3,3a,7a-η)-4,5,6,7-tetrahydro-1,3-bis(trimethylsilyl)-2*H*-inden-2-one]iron, Tricarbonyl[(4a,5,7,7a-η)-1,2,3,4-tetrahydro-1,4-dimethyl-5,7-diphenyl-6*H*-cyclopentapyrazin-6-one]iron, Tris(2,2,6,6-tetramethyl-3,5-heptanedionato)iron

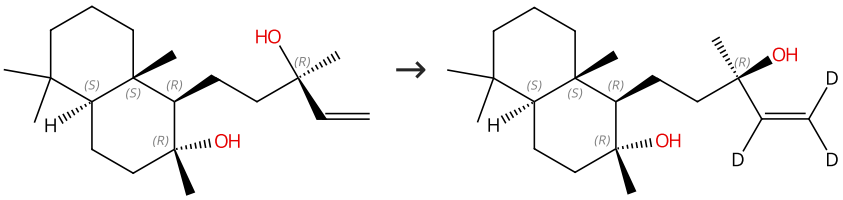
CAS SciFinder

Reactions (52)

View in CAS SciFinder

Scheme 1 (1 Reaction)

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



Absolute stereochemistry shown

Absolute stereochemistry shown, Rotation (+)

Suppliers (79)

31-614-CAS-34116063

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

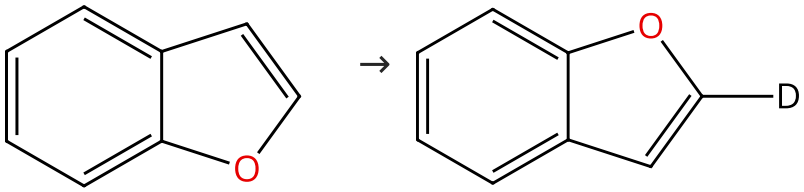
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 2 (1 Reaction)

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



Suppliers (81)

Supplier (1)

31-614-CAS-34116041

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

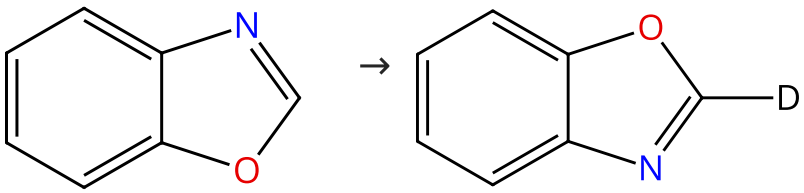
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 3 (1 Reaction)

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



Suppliers (81)

31-614-CAS-34116039

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

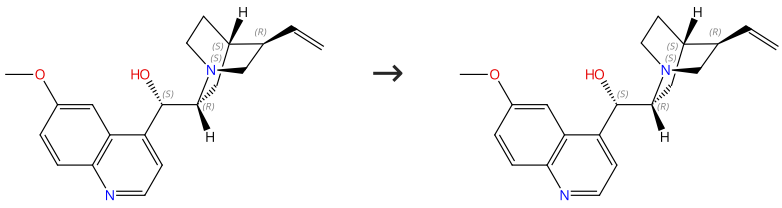
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 4 (1 Reaction)

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



Absolute stereochemistry shown, Rotation (+)

Absolute stereochemistry shown

Suppliers (133)

31-614-CAS-34116065

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

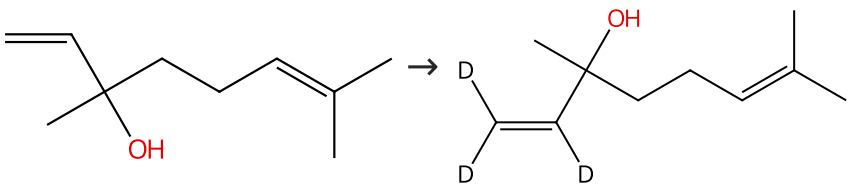
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 5 (1 Reaction)

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



Suppliers (119)

Suppliers (21)

31-614-CAS-34116067

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

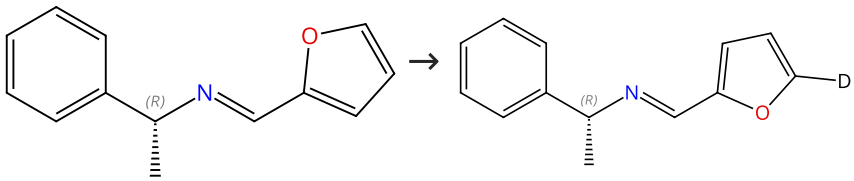
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 6 (1 Reaction)

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



Absolute stereochemistry shown
Double bond geometry unknown

Absolute stereochemistry shown
Double bond geometry unknown

Supplier (1)

31-614-CAS-34116046

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

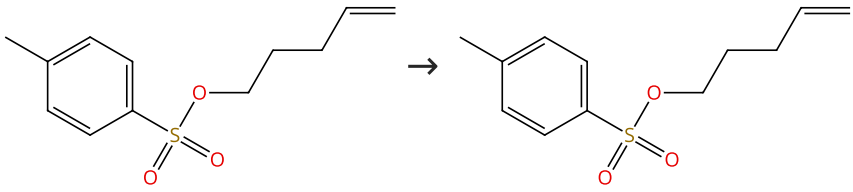
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 7 (1 Reaction)

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



Suppliers (14)

31-614-CAS-34116062

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

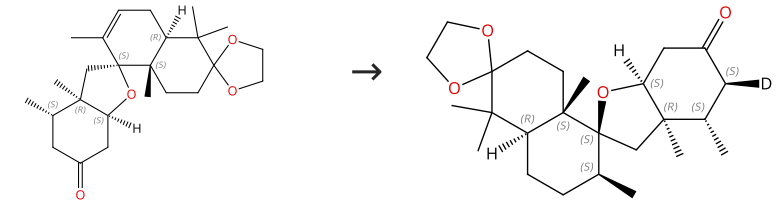
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 8 (1 Reaction)

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



Absolute stereochemistry shown, Rotation (-)

Absolute stereochemistry shown

31-614-CAS-34884199

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

1.1 **Reagents:** Ethanol-*d*
Catalysts: Iron(III) acetylacetonate; 5 min, rt

1.2 **Reagents:** Phenylsilane; 1.5 h, 60 °C

Experimental Protocols

Unified, Asymmetric Total Synthesis of the Asnovolins and Related Spiromeroterpenoids: A Fragment Coupling Approach

By: Yang, Feng; et al

Journal of the American Chemical Society (2022), 144(28), 12970-12978.

Scheme 9 (1 Reaction)

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

Suppliers (224)

Suppliers (5)

31-614-CAS-34116050

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

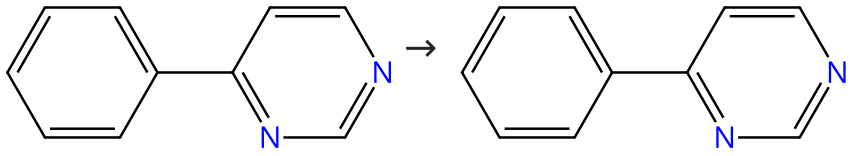
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 10 (1 Reaction)

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



Suppliers (61)

31-614-CAS-34116040

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

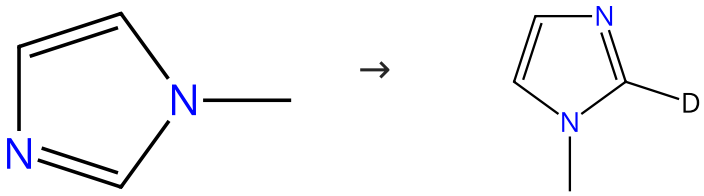
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 11 (1 Reaction)

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



Suppliers (122)

31-614-CAS-34116036

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

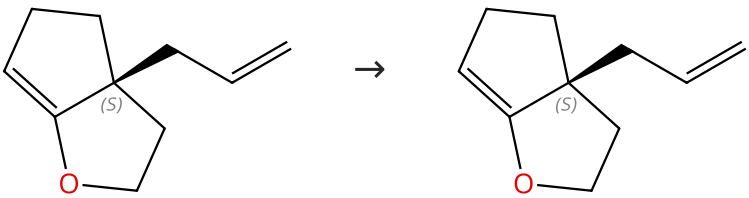
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 12 (1 Reaction)

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



Absolute stereochemistry shown

Absolute stereochemistry shown

Suppliers (44)

31-614-CAS-34116068

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

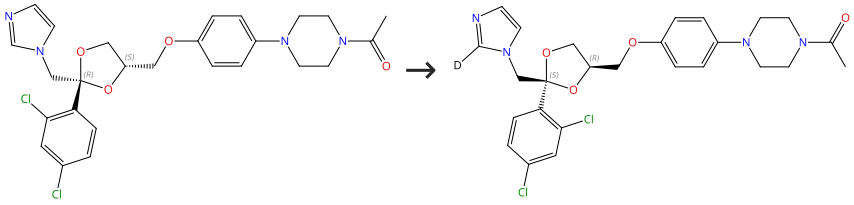
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 13 (1 Reaction)

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



Relative stereochemistry shown

Absolute stereochemistry shown

Suppliers (128)

31-614-CAS-34116048

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

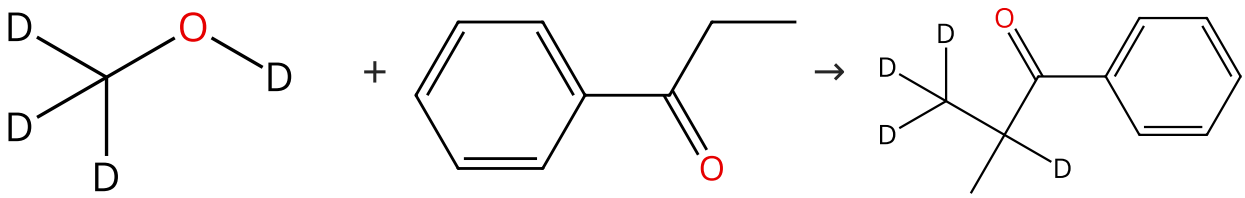
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 14 (1 Reaction)

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



Suppliers (246)

Suppliers (72)

31-614-CAS-33717757

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

1.1 **Reagents:** Potassium *tert*-butoxide
Catalysts: Tricarbonyl[(1,3,3a,7a-η)-4,5,6,7-tetrahydro-1,3-bis(trimethylsilyl)-2*H*-inden-2-one]iron
Solvents: Methanol-d_4; 24 h

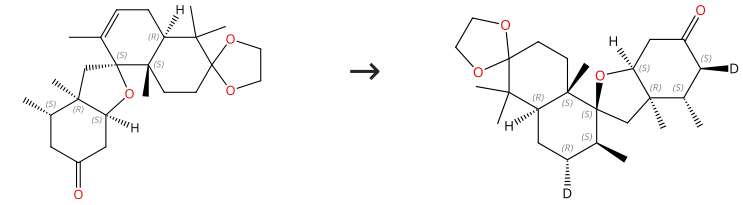
Iron-Catalyzed α-Methylation of Ketones Using Methanol as the C1 Source under Photoirradiation

By: Emayavaramban, Balakumar; et al

Organic Letters (2022), 24(33), 6219-6223.

Scheme 15 (1 Reaction)

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



Absolute stereochemistry shown, Rotation (-)

Absolute stereochemistry shown

31-614-CAS-34884200

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

1.1 **Reagents:** Ethanol-*d*
Catalysts: Iron(III) acetylacetonate; 5 min, rt

1.2 **Reagents:** Phenylsilane-d_3; 4 h, 60 °C

Experimental Protocols

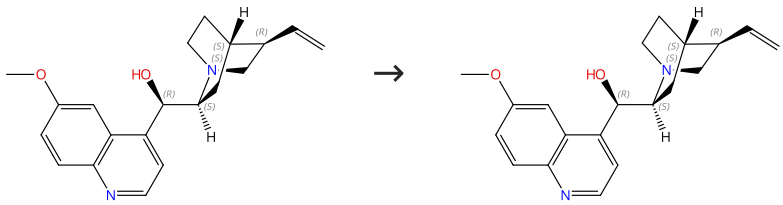
Unified, Asymmetric Total Synthesis of the Asnovolins and Related Spiromeroterpenoids: A Fragment Coupling Approach

By: Yang, Feng; et al

Journal of the American Chemical Society (2022), 144(28), 12970-12978.

Scheme 16 (1 Reaction)

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



Absolute stereochemistry shown

Absolute stereochemistry shown

Suppliers (138)

31-614-CAS-34116069

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 48 h, 60 °C

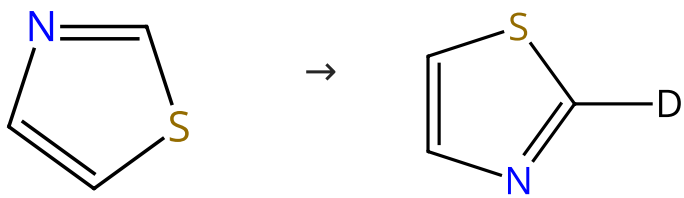
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 17 (1 Reaction)

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



Suppliers (84)

Suppliers (5)

31-614-CAS-34116037

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

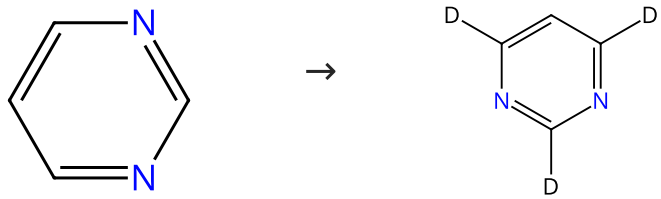
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 18 (1 Reaction)

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



Suppliers (66)

Suppliers (5)

31-614-CAS-34116042

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

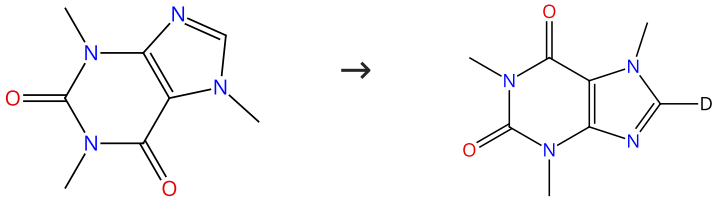
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 19 (1 Reaction)

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



Suppliers (136)

Suppliers (3)

31-614-CAS-34116047

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

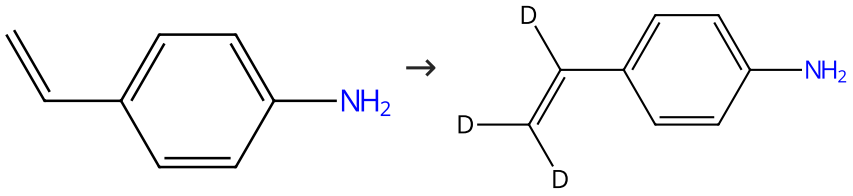
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 20 (1 Reaction)

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



Suppliers (78)

31-614-CAS-34116059

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 21 (1 Reaction)

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

Suppliers (82)

31-614-CAS-34116053

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

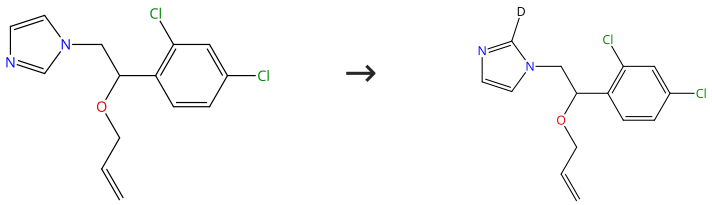
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 22 (1 Reaction)

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



Suppliers (79)

31-614-CAS-34116051

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

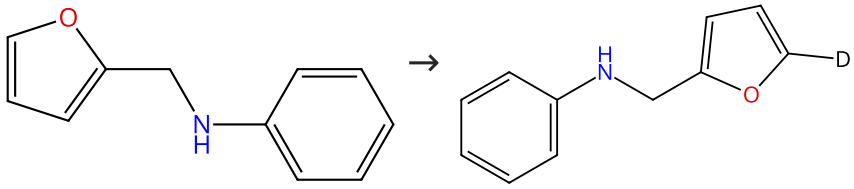
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 23 (1 Reaction)

Steps: **1** Yield: **87%**



Suppliers (42)

31-614-CAS-34116034

Steps: **1** Yield: **87%**

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

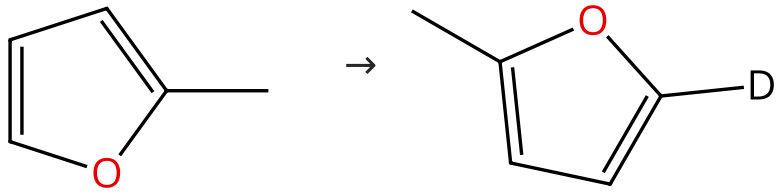
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 24 (2 Reactions)

Steps: **1** Yield: **87%**



Suppliers (62)

Supplier (1)

31-614-CAS-34116030

Steps: **1** Yield: **87%**

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

31-614-CAS-34116029

Steps: **1**

1.1 **Reagents:** Methanol-d_4
Catalysts: (*OC*-6-21)-Bis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]dihydroiron
Solvents: Tetrahydrofuran; 120 min, 60 °C

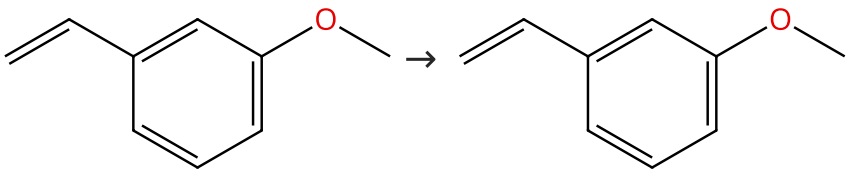
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 25 (1 Reaction)

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



Suppliers (51)

31-614-CAS-34116064

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

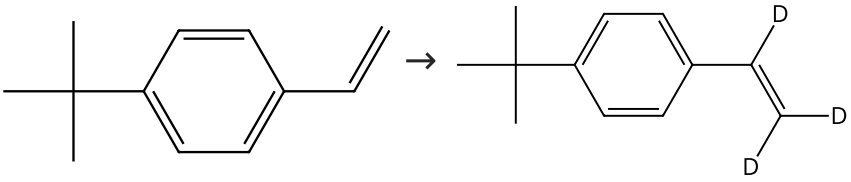
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 26 (2 Reactions)

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



Suppliers (60)

31-614-CAS-34116055

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

31-614-CAS-34116026

Steps: **1**

1.1 **Reagents:** Methanol-d_4
Catalysts: (*OC*-6-21)-Bis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]dihydroiron
Solvents: Tetrahydrofuran; 120 min, 60 °C

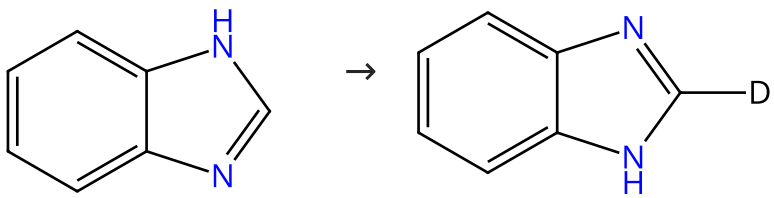
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 27 (1 Reaction)

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



Suppliers (100)

Suppliers (4)

31-614-CAS-34116057

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

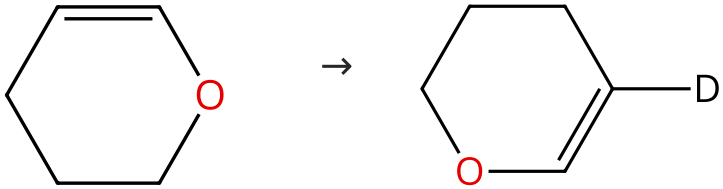
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 28 (1 Reaction)

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



Suppliers (84)

31-614-CAS-34116060

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

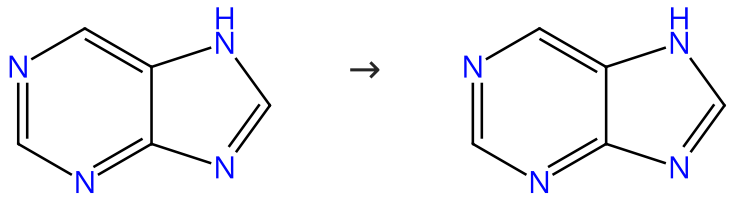
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 29 (1 Reaction)

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



Suppliers (87)

31-614-CAS-34116044

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

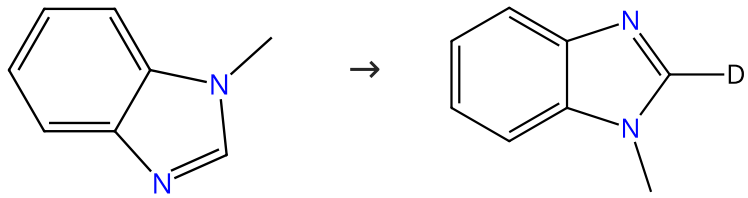
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 30 (1 Reaction)

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



Suppliers (87)

Suppliers (2)

31-614-CAS-34116052

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

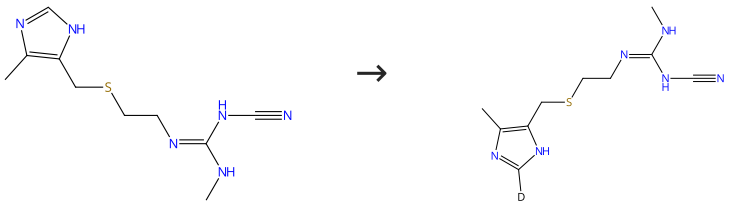
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 31 (1 Reaction)

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



Suppliers (115)

31-614-CAS-34116049

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

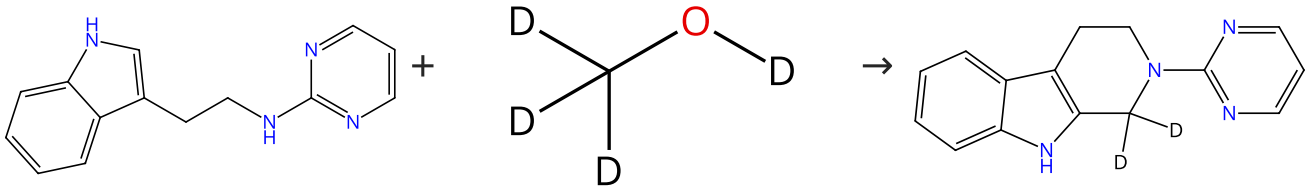
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 32 (1 Reaction)

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



Suppliers (4)

Suppliers (246)

31-614-CAS-42518379

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

1.1 **Reagents:** *tert*-Butyl hydroperoxide
Catalysts: 5-Nitro-1,10-phenanthroline, Ferrous chloride
Solvents: Water; 15 min, 120 °C

Experimental Protocols

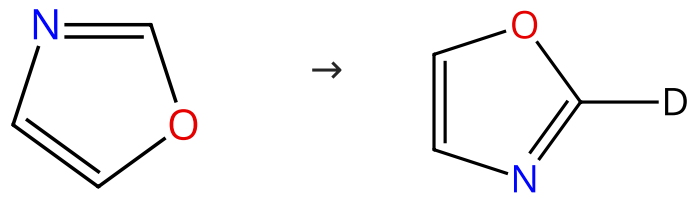
Microwave-Assisted One-Pot Synthesis of Tetrahydro-β-Carbolines by Fe(II)-Catalyst: Utilizing Methanol as Methylene Synthon

By: Khan, Mursalim A.; et al

Asian Journal of Organic Chemistry (2024), 13(12), e202400404.

Scheme 33 (1 Reaction)

Steps: **1** Yield: **79%**



Suppliers (82)

31-614-CAS-34116043

Steps: **1** Yield: **79%**

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 34 (1 Reaction)

Steps: **1** Yield: **77%**

Suppliers (67)

31-614-CAS-34116066

Steps: **1** Yield: **77%**

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

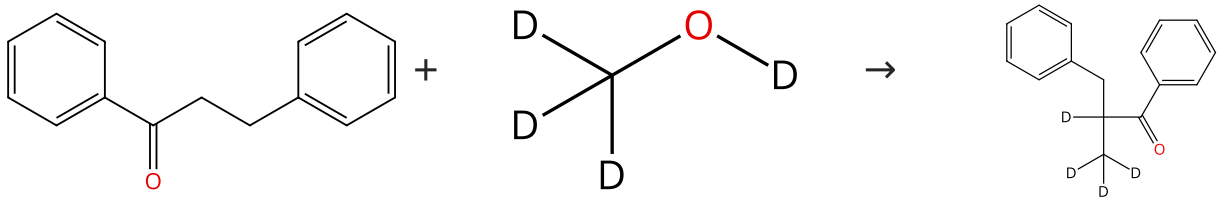
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 35 (1 Reaction)

Steps: **1** Yield: **76%**



Suppliers (76)

Suppliers (246)

31-116-CAS-20020364

Steps: **1** Yield: **76%**

1.1 **Reagents:** Tripotassium phosphate
Catalysts: Potassium hydroxide, Tricarbonyl[(4a,5,7,7a-η)-1,2,3,4-tetrahydro-1,4-dimethyl-5,7-diphenyl-6*H*-cyclopentapyrazin-6-one]iron; 2 min, rt; > 24 h, 90 °C

Experimental Protocols

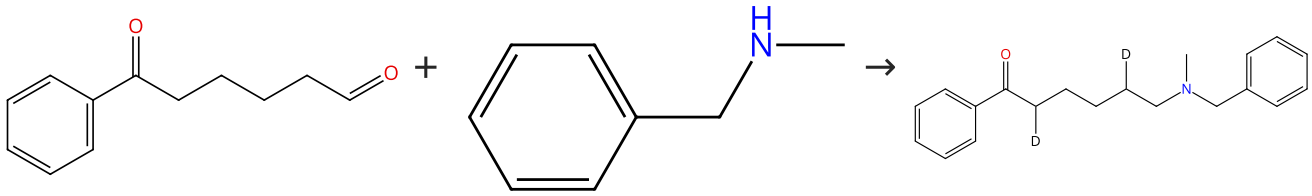
Iron-Catalyzed Tandem Three-Component Alkylation: Access to α-Methylated Substituted Ketones

By: Bettoni, Leo; et al

Organic Letters (2019), 21(9), 3057-3061.

Scheme 36 (1 Reaction)

Steps: **1** Yield: **75%**



Suppliers (8)

Suppliers (92)

31-116-CAS-20193079

Steps: **1** Yield: **75%**

1.1 **Reagents:** Hydrogen
Catalysts: Trimethylamine oxide, Iron(1+), tricarbonyl[(4a,5,6,7,7a-η)-2,3,4,4a-tetrahydro-1,4-dimethyl-6-[(1-methylethyl)amino]-5,7-diphenyl-1*H*-cyclopenta[*b*]pyrazin-4a-yl]-, tetrafluoroborate(1-) (1:1)
Solvents: Methanol-d_4; 16 h, 5 bar, rt

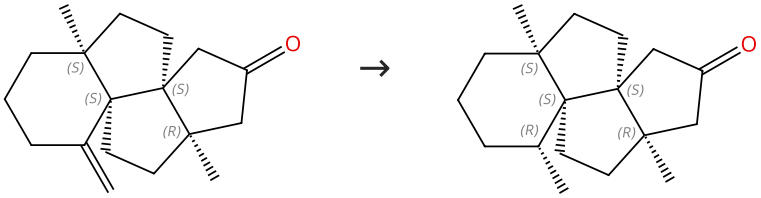
Room-Temperature Chemoselective Reductive Alkylation of Amines Catalyzed by a Well-Defined Iron(II) Complex Using Hydrogen

By: Lator, Alexis; et al

Journal of Organic Chemistry (2019), 84(11), 6813-6829.

Scheme 37 (1 Reaction)

Steps: **1** Yield: **75%**



Absolute stereochemistry shown, Rotation (-)

Absolute stereochemistry shown

31-614-CAS-28370325

Steps: **1** Yield: **75%**

1.1 **Catalysts:** Iron(III) acetylacetonate
Solvents: Ethanol-d_6; 5 min, rt

1.2 **Reagents:** Phenylsilane; rt; 1 h, 60 °C; 60 °C → rt

1.3 **Reagents:** Sodium chloride
Solvents: Water; rt

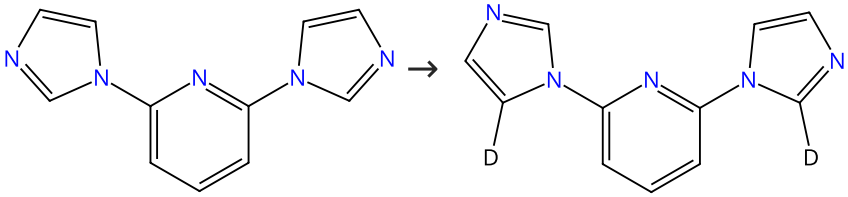
Asymmetric Total Synthesis of (+)-Waihoensene

By: Qu, Yongzheng; et al

Journal of the American Chemical Society (2020), 142(14), 6511-6515.

Scheme 38 (1 Reaction)

Steps: **1** Yield: **72%**



Suppliers (45)

31-614-CAS-34116045

Steps: **1** Yield: **72%**

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

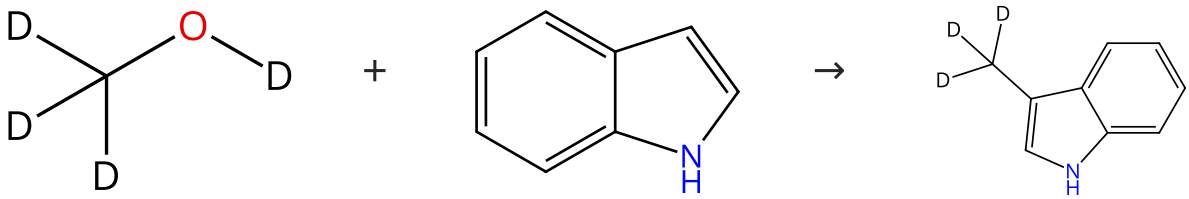
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 39 (1 Reaction)

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



Suppliers (246)

Suppliers (116)

Suppliers (32)

31-085-CAS-19206680

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

1.1 **Reagents:** Potassium carbonate
Catalysts: Trimethylamine oxide, Tricarbonyl[(1,3,3a,7a-η)-4,5,6,7-tetrahydro-1,3-bis(trimethylsilyl)-2*H*-inden-2-one]iron
Solvents: Methanol-d_4; 24 h, 110 °C

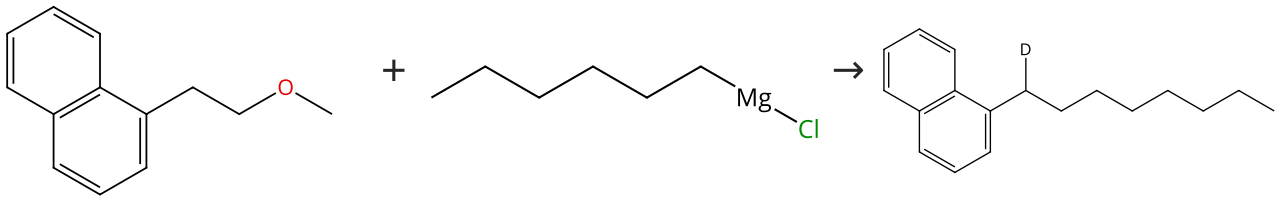
Iron-Catalyzed Methylation Using the Borrowing Hydrogen Approach

By: Polidano, Kurt; et al

ACS Catalysis (2018), 8(7), 6440-6445.

Scheme 40 (1 Reaction)

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



Suppliers (3)

Suppliers (24)

31-116-CAS-11123310

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

1.1 **Catalysts:** Tricyclohexylphosphine, Iron fluoride (FeF_2)
Solvents: Tetrahydrofuran; 5 min, rt

1.2 **Solvents:** Tetrahydrofuran; rt

1.3 **Solvents:** *o*-Xylene; 24 h, 120 °C; 120 °C → rt

1.4 **Reagents:** Methanol-d_4; rt

Experimental Protocols

Fe-promoted cross coupling of homobenzylic methyl ethers with Grignard reagents via sp^3 C-O bond cleavage

By: Luo, Shuang; et al

Chemical Communications (Cambridge, United Kingdom) (2013), 49(71), 7794-7796.

Scheme 41 (1 Reaction)

Steps: **1** Yield: **62%**

Suppliers (63)

31-614-CAS-34116022

Steps: **1** Yield: **62%**

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 16 h, 60 °C

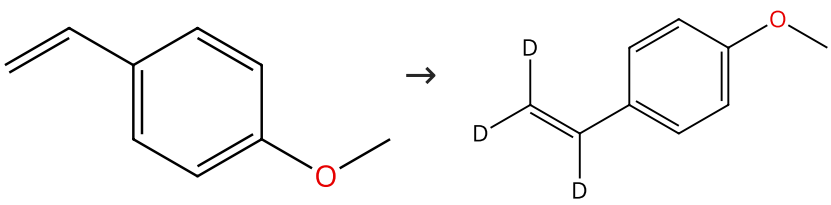
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 42 (1 Reaction)

Steps: **1** Yield: **62%**



Suppliers (88)

31-614-CAS-34116054

Steps: **1** Yield: **62%**

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

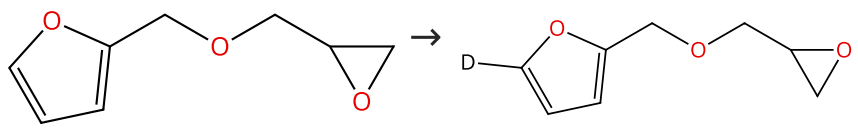
Iron-catalysed alkene and heteroarene H/D exchange by reversible protonation of iron-hydride intermediates

By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 43 (1 Reaction)

Steps: **1** Yield: **61%**



Suppliers (70)

31-614-CAS-34116038

Steps: **1** Yield: **61%**

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

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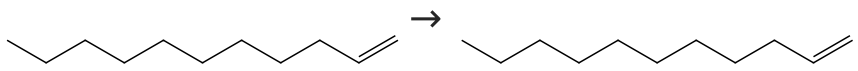
Scheme 44 (1 Reaction)

Steps: **1** Yield: **61%**



Suppliers (86)

31-614-CAS-34116061

Steps: **1** Yield: **61%**

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

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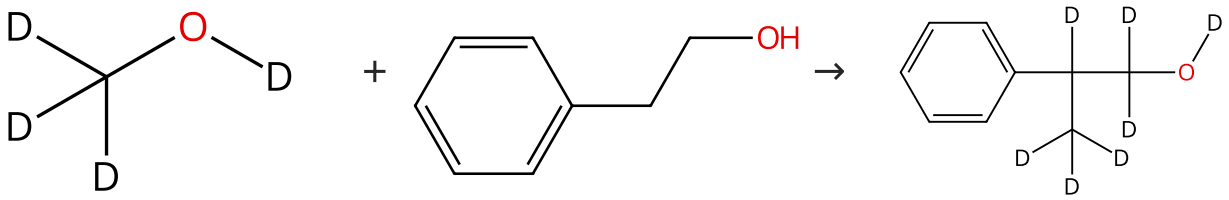
Scheme 45 (1 Reaction)

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



Suppliers (246)

Suppliers (119)

31-116-CAS-20809720

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

1.1 **Reagents:** Trimethylamine oxide, Sodium hydroxide
Catalysts: Tricarbonyl[(4a,5,7,7a-η)-1,2,3,4-tetrahydro-1,4-dimethyl-5,7-diphenyl-6*H*-cyclopentapyrazin-6-one]iron
Solvents: Methanol-d_4; 24 h, 130 °C

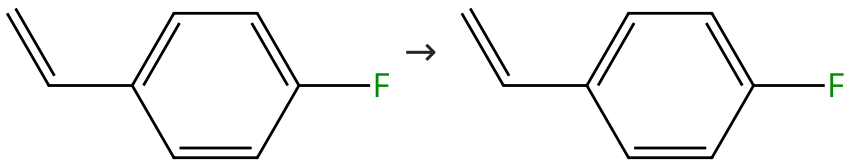
Iron-Catalyzed Borrowing Hydrogen β-C(sp^3)-Methylation of Alcohols

By: Polidano, Kurt; et al

ACS Catalysis (2019), 9(9), 8575-8580.

Scheme 46 (1 Reaction)

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



Suppliers (85)

31-614-CAS-34116056

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

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

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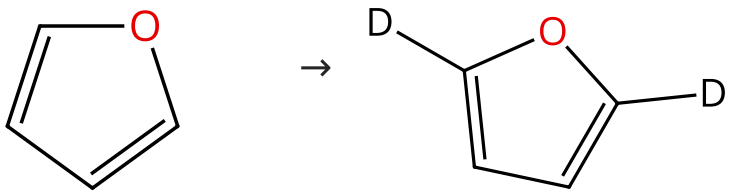
Chemical Science (2022), 13(35), 10291-10298.

Scheme 47 (1 Reaction)

Steps: **1** Yield: **54%**



Suppliers (44)

31-614-CAS-34116031

Steps: **1** Yield: **54%**

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 15 h, 60 °C

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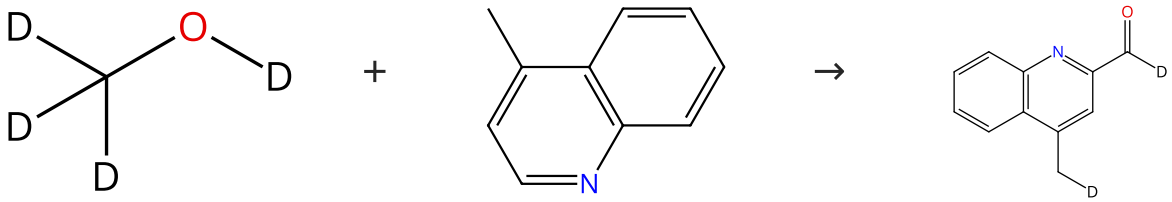
By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.

Scheme 48 (1 Reaction)

Steps: **1** Yield: **30%**



Suppliers (246)

Suppliers (73)

31-614-CAS-24524323

Steps: **1** Yield: **30%**

1.1 **Reagents:** *tert*-Butyl hydroperoxide
Catalysts: Acetic acid, Iron(III) acetylacetonate
Solvents: Methanol-d_4; 9 h, 110 °C

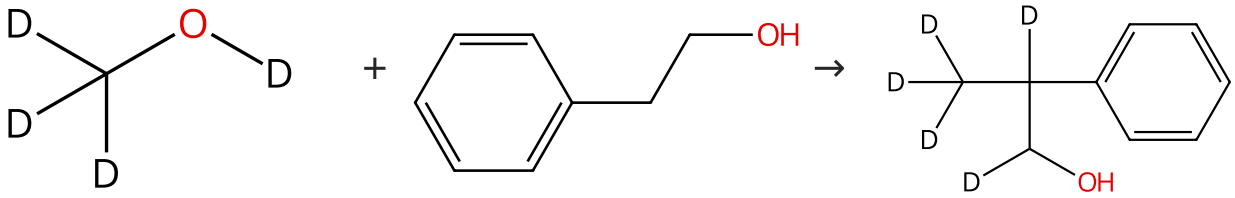
Experimental Protocols

Methanol as a formylating agent in nitrogen heterocycles

By: Xu, Zhengbao; et al

Organic & Biomolecular Chemistry (2021), 19(43), 9476-9482.

Scheme 49 (1 Reaction) Steps: **1**



Suppliers (246) Suppliers (119)

31-116-CAS-20714247 Steps: **1**

1.1 **Reagents:** Sodium *tert*-butoxide
Catalysts: Sodium hydroxide, Tricarbonyl[(4a,5,7,7a-η)-1,2,3,4-tetrahydro-1,4-dimethyl-5,7-diphenyl-6*H*-cyclopentapyrazin-6-one]iron
Solvents: *tert*-Butanol; 2 min, rt; 40 h, 110 °C

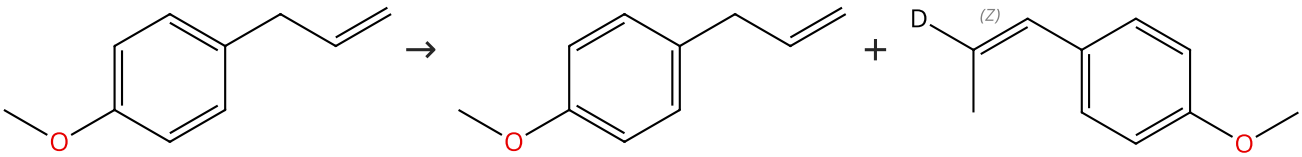
Experimental Protocols

Iron-Catalyzed β-Alkylation of Alcohols

By: Bettoni, Leo; et al

Organic Letters (2019), 21(20), 8404-8408.

Scheme 50 (1 Reaction) Steps: **1** Yield: **7%**



Suppliers (94)

Double bond geometry shown

31-614-CAS-34116024 Steps: **1** Yield: **7%**

1.1 **Reagents:** Methanol-d_4, Sodium *tert*-butoxide, Pinacolborane
Catalysts: (*OC*-6-12)-Dichlorobis[1,1'-(1,2-ethanediyl)bis[1,1-dimethylphosphine-κ*P*]]iron
Solvents: Tetrahydrofuran; 16 h, 60 °C

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By: Britton, Luke; et al

Chemical Science (2022), 13(35), 10291-10298.