CAS SciFinder

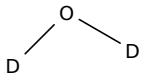
Task History

Initiating Search

February 24, 2025, 10:50 AM

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 (295) Filtered By: Substance Role: **Reagent, Solvent**	Reactions	View Results

Catalyst:	1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1), 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tricarbonylnitrosylferrate(1-) (1:1), 5,10,15,20-Tetrakis(pentafluorophenyl)porphyrinatoiron(III) chloride, Dichloro[2,6-dimethyl-*N*-[1-[9-(2,4,6-trimethylphenyl)-1,10-phenanthrolin-2-yl-κN^1,κN^{10}]ethylidene]benzenamine-κ*N*]iron, Difluoro-μ-nitridobis[2,9,16,23-tetrakis(1,1-dimethylethyl)-29*H*,31*H*-phthalocyaninato(2-)-κN^{29},κN^{30},κN^{31},κN^{32}]diiron, Diiron nonacarbonyl, Ferric chloride hexahydrate, Ferric nitrate, Ferric perchlorate, Ferric triflate, Ferrous ammonium sulfate, Ferrous bromide, Ferrous chloride, Ferrous sulfate, Iron(3+), hexaaqua-, (*OC*-6-11)-, ammonium hydrogen tetratriacontaaquatriacontakis(aquaferrate)dopentacontadictaoxopentacosakis[sulfato(2-)]doheptacontatungstate(32-), hydrate (2:20:6:1:200), Iron, Iron(1+), dichloro(4,11-dimethyl-1,4,8,11-tetraazabicyclo[6.6.2]hexadecane-κN^1,κN^4,κN^8,κN^{11})-, (*OC*-6-22)-, hexafluorophosphate(1-), Iron, [2,9-bis[2,2'',4,4'',6,6''-hexakis(1-methylethyl)[1,1':3',1''-terphenyl]-5'-yl]-1,10-phenanthroline-κN^1,κN^{10}]dichloro-, (*T*-4)-, Iron(2+), tris(1,10-phenanthroline-κN^1,κN^{10})-, (*OC*-6-11)-, tetrafluoroborate(1-) (1:2), Iron(8+), hexakis[μ-[(2*S*,2'*S*)-3,3'-[[2,5-bis[4-[[(2-pyridinyl-κ*N*)methylene]amino-κ*N*]phenyl]-1,4-phenylene]bis(oxy)]bis[1,2-propanediol]]]tetra-, stereoisomer, sulfate (1:4), Iron acetate, Iron alloy, nonbase, Fe,Ru, Iron chloride ($FeCl_3$), Iron(III) acetylacetonate, Iron nitrate ($Fe(NO_3)_3$) nonahydrate, Iron, nonacarbonyldi-μ_3-selenoxotri-, (2*Fe*-*Fe*), Iron oxide (Fe_2O_3), Iron pentacarbonyl, Iron tetraphenylporphyrin chloride, Methanaminium, *N*,*N*,*N*-trimethyl-, hexakis[μ-[4,4'-bis[[(2-pyridinyl-κ*N*)methylene]amino-κ*N*][1,1'-biphenyl]-2,2'-disulfonato(2-)]]tetraferrate(4-) (4:1), Methanesulfonic acid, 1,1,1-trifluoro-, iron(3+) salt (1:3), [*N*-[1-[9-[3,5-Bis(1,1-dimethylethyl)phenyl]-1,10-phenanthrolin-2-yl-κN^1,κN^{10}]ethylidene]-2,6-dimethylbenzenamine-κ*N*]dichloroiron, (*OC*-6-43)-[Octahydro-1,4-dimethyl-7-[(2-pyridinyl-κ*N*)methyl]-1*H*-1,4,7-triazonine-κN^1,κN^4,κN^7]bis(1,1,1-trifluoromethanesulfonato-κ*O*)iron, (*OC*-6-44)-(2,9-Dimethyl-1,10-phenanthroline-κN^1,κN^{10})[α-(oxo-κ*O*)benzeneacetato-κ*O*](α-oxobenzeneacetato-κ*O*,κ*O*')iron, (*T*-4)-Dichlorobis(1,3-diethyl-1,3-dihydro-4,5-dimethyl-2*H*-imidazol-2-ylidene)iron, (*TB*-5-24)-Dichloro[2,6-dimethyl-*N*-[1-(1,10-phenanthrolin-2-yl-κN^1,κN^{10})ethylidene]benzenamine-κ*N*]iron
Document Type:	Journal
Language:	English

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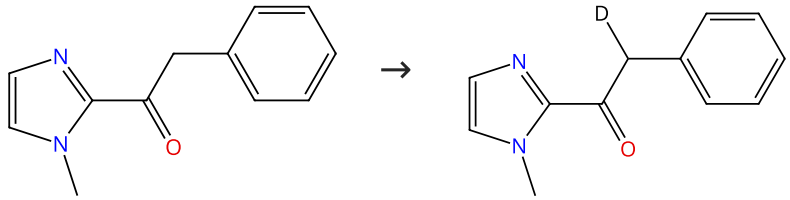
CAS SciFinder

Reactions (147)

View in CAS SciFinder

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



Suppliers (5)

31-116-CAS-16001909 Steps: **1** Yield: **100%**

1.1 **Catalysts:** 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tricarbonylnitrosylferrate(1-) (1:1)
Solvents: Acetonitrile; 0.5 h, 80 °C; 80 °C → rt

1.2 **Reagents:** Water-d_2; rt

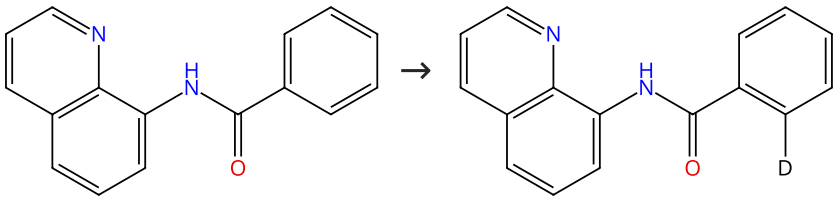
Experimental Protocols

Iron-Catalyzed Michael Addition of Ketones to Polar Olefins

By: Zhang, Di-Han; et al

Advanced Synthesis & Catalysis (2016), 358(15), 2469-2479.

Scheme 2 (2 Reactions) Steps: **1** Yield: **67-100%**



Suppliers (25)

31-116-CAS-9534656 Steps: **1** Yield: **100%**

1.1 **Reagents:** Dichloro(*N*,*N*,*N*′,*N*′-tetramethylethylenediamine)zinc, Bromo(2,2-dimethylpropyl)magnesium
Solvents: Tetrahydrofuran; rt; 5 min, rt

1.2 **Catalysts:** *cis*-1,2-Bis(diphenylphosphino)ethylene, Iron(III) acetylacetonate
Solvents: Tetrahydrofuran; rt; 30 min, 70 °C

1.3 **Reagents:** Water-d_2

Experimental Protocols

Iron-Catalyzed Ortho-Allylation of Aromatic Carboxamides with Allyl Ethers

By: Asako, Sobi; et al

Journal of the American Chemical Society (2013), 135(47), 17755-17757.

31-116-CAS-7926903 Steps: **1** Yield: **67%**

1.1 **Reagents:** Phenylmagnesium bromide
Catalysts: 1,2-Bis(diphenylphosphino)benzene, Iron(III) acetylacetonate
Solvents: Tetrahydrofuran; rt; 1 h, 65 °C

1.2 **Reagents:** Water-d_2; 5 min, rt

1.3 **Reagents:** Potassium sodium tartrate
Solvents: Water

Experimental Protocols

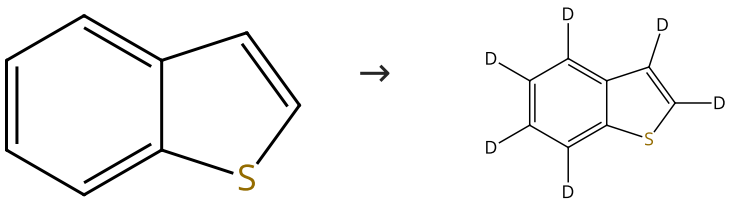
Synthesis of Anthranilic Acid Derivatives through Iron-Catalyzed Ortho Amination of Aromatic Carboxamides with N-Chloroamines

By: Matsubara, Tatsuaki; et al

Journal of the American Chemical Society (2014), 136(2), 646-649.

Scheme 3 (1 Reaction)

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



Suppliers (99)

Suppliers (16)

31-116-CAS-4148185

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

1.1 **Reagents:** Water-d_2
Catalysts: Iron chloride ($FeCl_3$); 36 h, rt → 250 °C

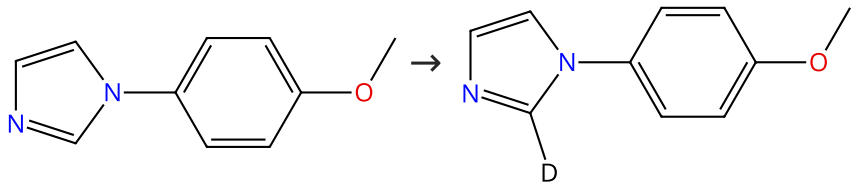
Neutron and X-ray Crystal Structures of a Perdeut erated Enzyme Inhibitor Complex Reveal the Catalytic Proton Network of the Toho-1 β-Lactamase for the Acylation Reaction

By: Tomanicek, Stephen J.; et al

Journal of Biological Chemistry (2013), 288(7), 4715-4722.

Scheme 4 (1 Reaction)

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



Suppliers (61)

31-614-CAS-35314839

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

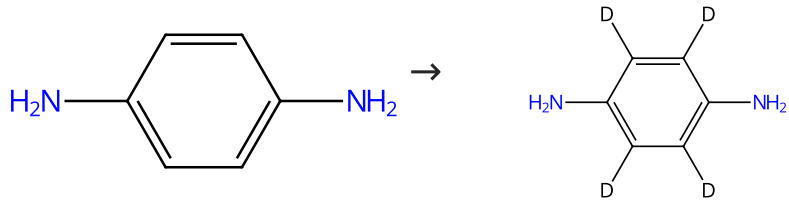
Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 5 (1 Reaction)

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



Suppliers (94)

Suppliers (34)

31-614-CAS-34869652

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

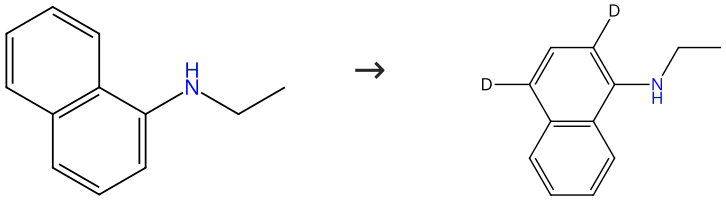
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 6 (1 Reaction)

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



Suppliers (39)

31-614-CAS-35314841

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

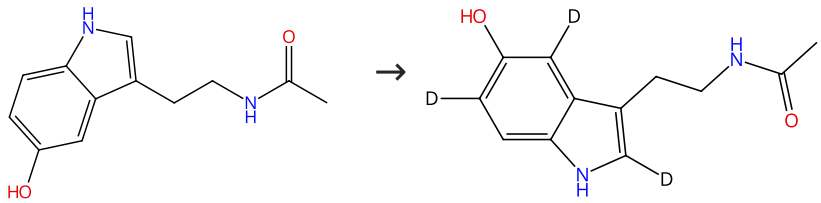
Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 7 (1 Reaction)

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



Suppliers (86)

31-614-CAS-34869686

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

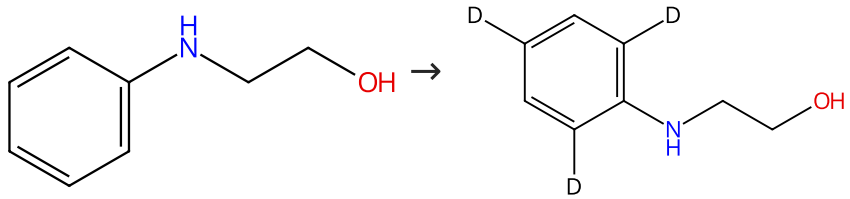
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 8 (1 Reaction)

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



Suppliers (68)

31-614-CAS-34869674

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

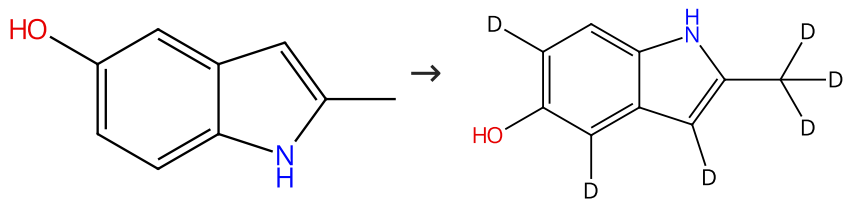
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 9 (1 Reaction)

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



Suppliers (68)

31-614-CAS-34869704

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

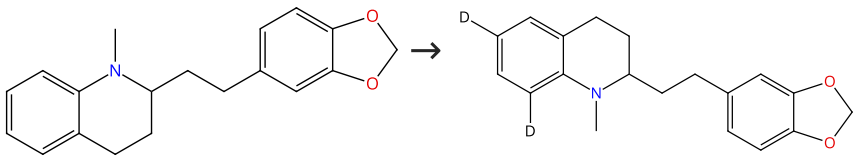
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 10 (1 Reaction)

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



Available stereochemistry shown

31-614-CAS-34869708

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

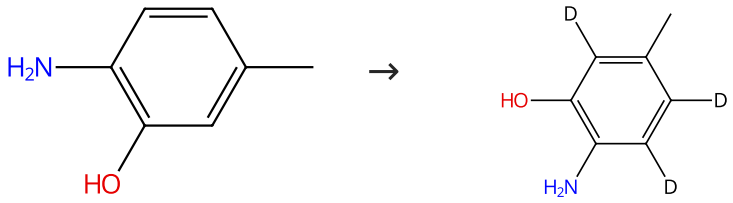
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 11 (1 Reaction)

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



Suppliers (93)

31-614-CAS-34869650

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

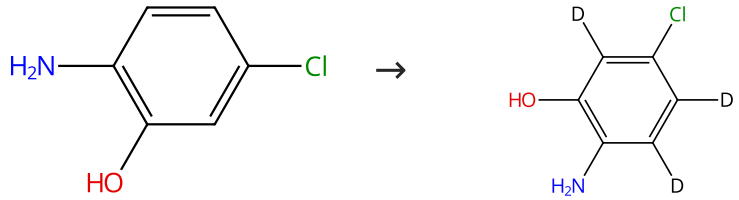
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 12 (1 Reaction)

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



Suppliers (80)

Suppliers (4)

31-614-CAS-34869642

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

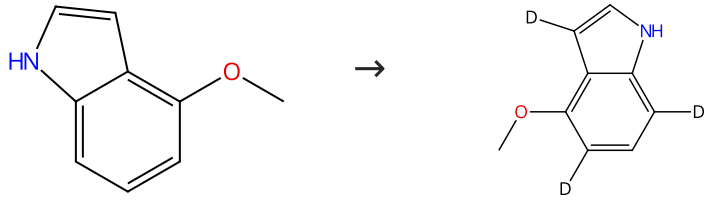
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 13 (1 Reaction)

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



Suppliers (98)

31-614-CAS-35314826

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

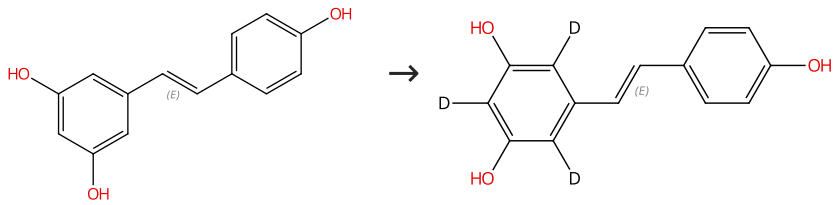
Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 14 (1 Reaction)

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



Double bond geometry shown

Double bond geometry shown

Suppliers (156)

31-614-CAS-35314856

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

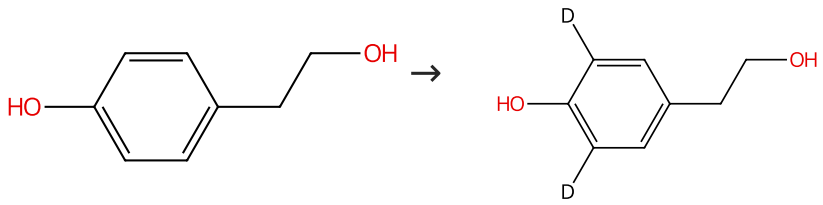
Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 15 (1 Reaction)

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



Suppliers (130)

31-614-CAS-34869705

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

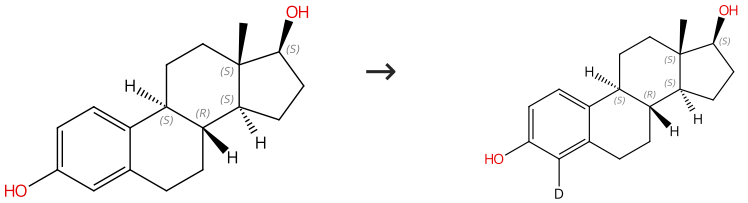
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 16 (1 Reaction)

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



Absolute stereochemistry shown

Absolute stereochemistry shown

Suppliers (142)

Supplier (1)

31-614-CAS-34869716

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

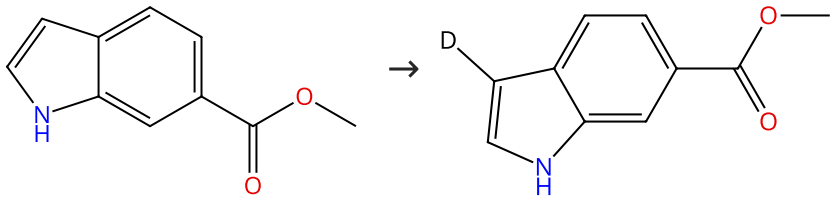
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 17 (1 Reaction)

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



Suppliers (104)

31-614-CAS-35314829

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

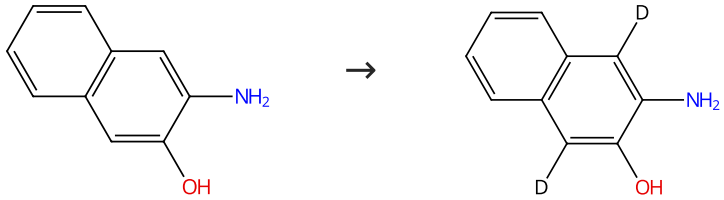
Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 18 (1 Reaction)

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



Suppliers (93)

31-614-CAS-34869655

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

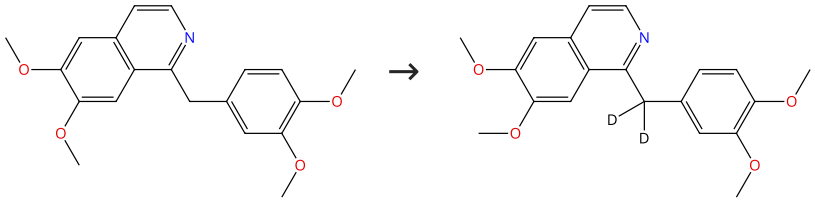
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 19 (1 Reaction)

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



Suppliers (33)

31-614-CAS-35314854

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

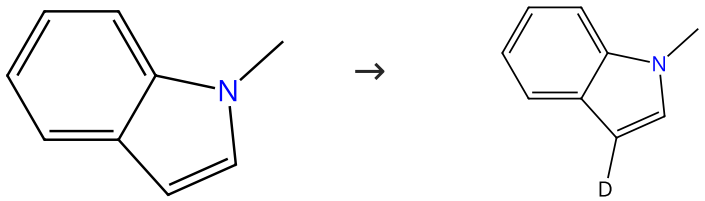
Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 20 (1 Reaction)

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



Suppliers (106)

Suppliers (2)

31-614-CAS-35314828

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 21 (2 Reactions)

Steps: **1** Yield: **80-99%**

Suppliers (109)

Suppliers (2)

31-614-CAS-35314857

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

31-614-CAS-40268988

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

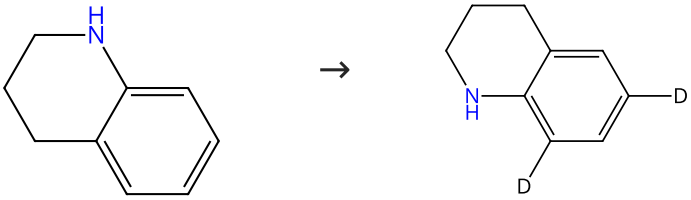
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 22 (2 Reactions)

Steps: **1** Yield: **94-99%**



Suppliers (98)

Suppliers (2)

31-614-CAS-35314825

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

31-614-CAS-34869680

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 23 (1 Reaction)

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

Absolute stereochemistry shown

Absolute stereochemistry shown

Suppliers (186)

31-614-CAS-34869723

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

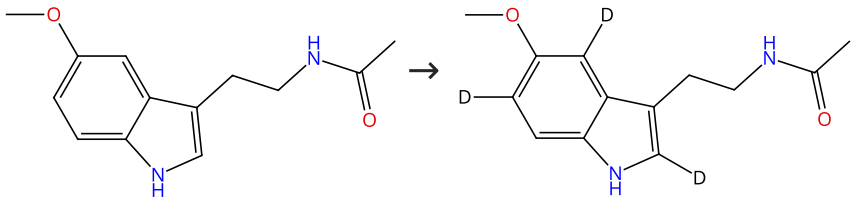
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 24 (2 Reactions)

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



Suppliers (139)

31-614-CAS-35314855

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

31-614-CAS-34869682

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

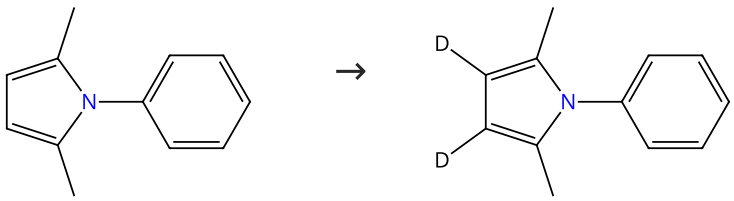
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 25 (1 Reaction)

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



Suppliers (62)

31-614-CAS-35314842 Steps: **1** Yield: **99%**

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 26 (1 Reaction) Steps: **1** Yield: **99%**

Suppliers (116)

31-614-CAS-34869689 Steps: **1** Yield: **99%**

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

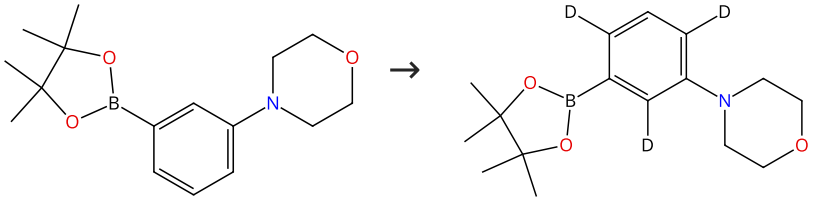
Experimental Protocols

Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 27 (1 Reaction) Steps: **1** Yield: **99%**



Suppliers (83)

31-614-CAS-34869671 Steps: **1** Yield: **99%**

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

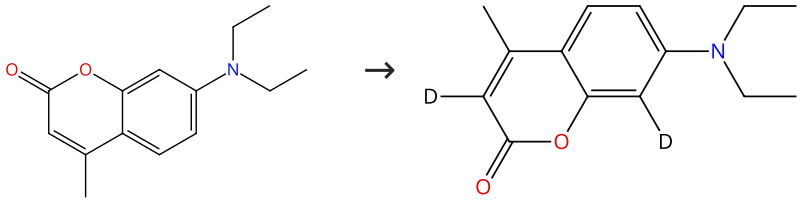
Experimental Protocols

Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 28 (1 Reaction) Steps: **1** Yield: **99%**



Suppliers (112)

31-614-CAS-35314864 Steps: **1** Yield: **99%**

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

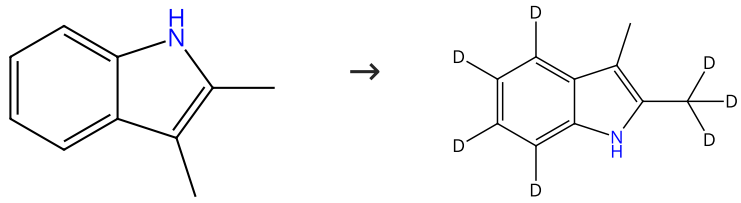
1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 29 (1 Reaction) Steps: **1** Yield: **99%**



Suppliers (77)

31-614-CAS-34869701 Steps: **1** Yield: **99%**

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

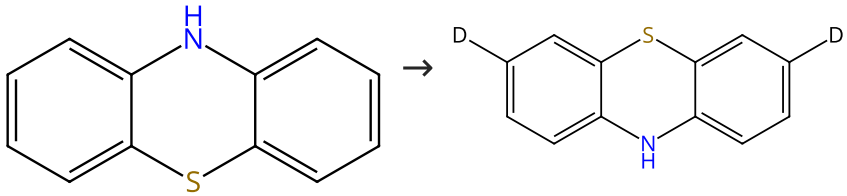
Experimental Protocols

Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 30 (1 Reaction) Steps: **1** Yield: **99%**



Suppliers (117)

31-614-CAS-34869698 Steps: **1** Yield: **99%**

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

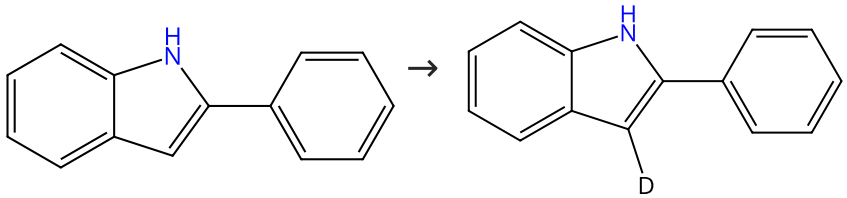
Experimental Protocols

Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 31 (1 Reaction) Steps: **1** Yield: **99%**



Suppliers (88)

31-614-CAS-34869691 Steps: **1** Yield: **99%**

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

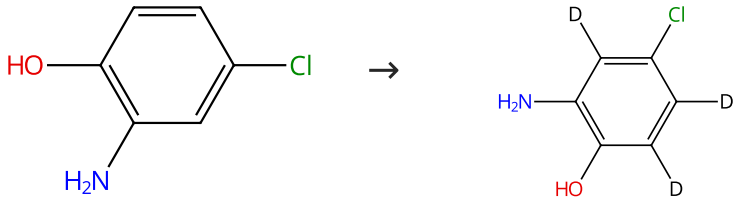
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 32 (1 Reaction)

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



Suppliers (75)

31-614-CAS-34869647

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

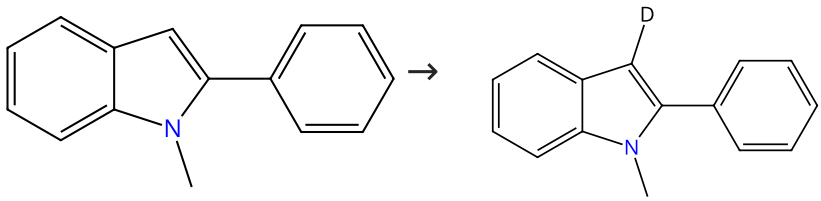
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 33 (1 Reaction)

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



Suppliers (77)

31-614-CAS-35314831

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

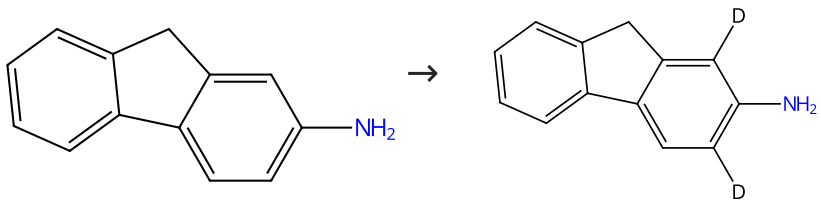
Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 34 (1 Reaction)

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



Suppliers (82)

31-614-CAS-34869659

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

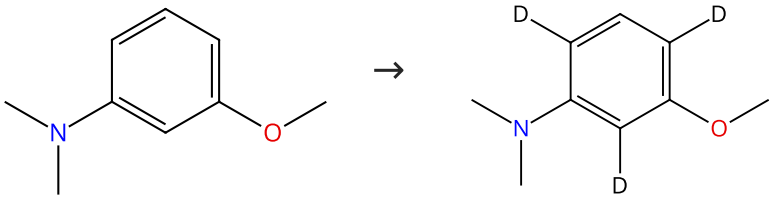
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 35 (1 Reaction)

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



Suppliers (71)

31-614-CAS-35314843

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

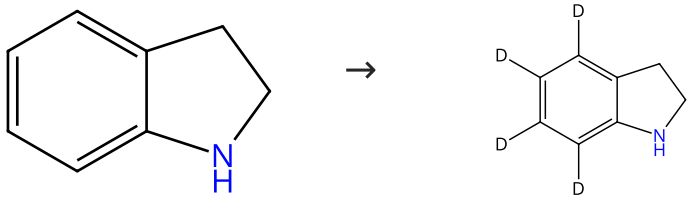
Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 36 (1 Reaction)

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



Suppliers (100)

31-614-CAS-34869663

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

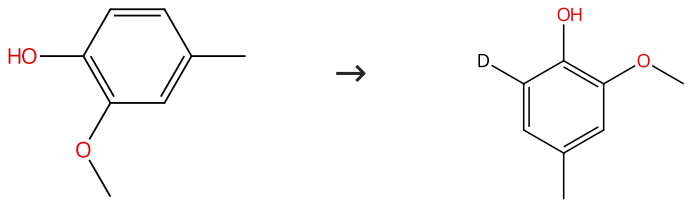
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 37 (1 Reaction)

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



Suppliers (107)

31-614-CAS-34869657

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

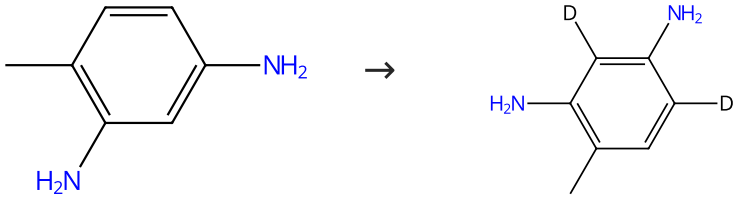
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 38 (2 Reactions)

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



Suppliers (72)

31-614-CAS-35314850

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

31-614-CAS-34869646

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

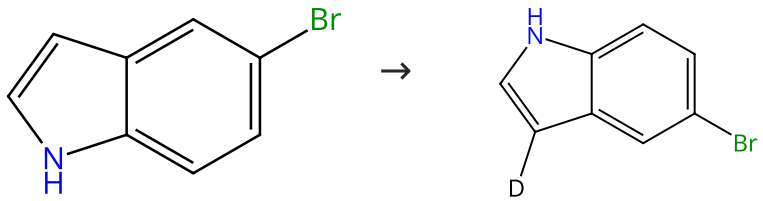
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 39 (1 Reaction)

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



Suppliers (109)

31-614-CAS-34869692

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

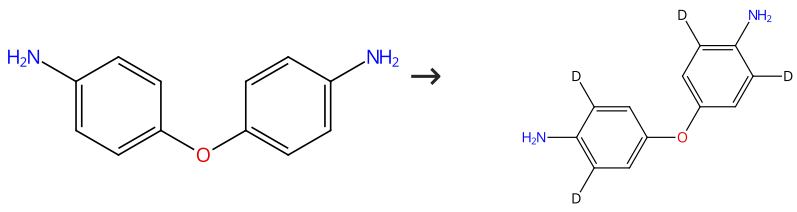
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 40 (1 Reaction)

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



Suppliers (96)

31-614-CAS-34869651

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

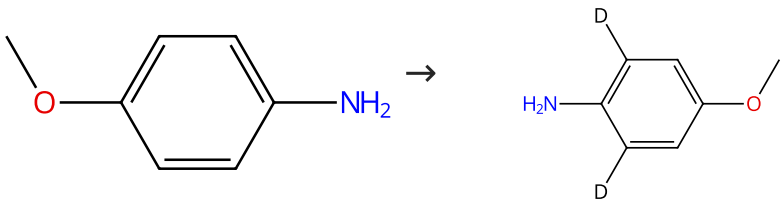
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 41 (1 Reaction)

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



Suppliers (88)

31-614-CAS-34869632

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

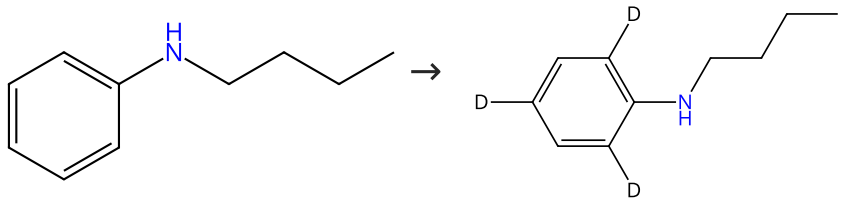
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 42 (1 Reaction)

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



Suppliers (49)

31-614-CAS-34869669

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

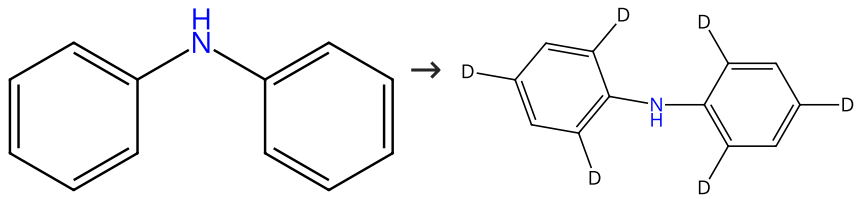
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 43 (1 Reaction)

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



Suppliers (113)

Suppliers (22)

31-614-CAS-34869656

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

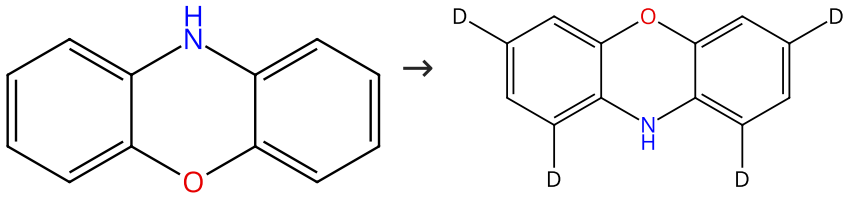
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 44 (1 Reaction)

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



Suppliers (95)

31-614-CAS-34869702

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

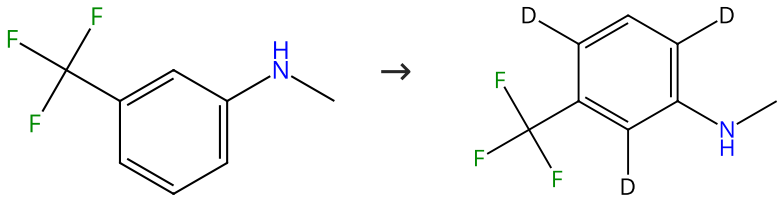
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 45 (1 Reaction)

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



Suppliers (69)

31-614-CAS-34869660

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

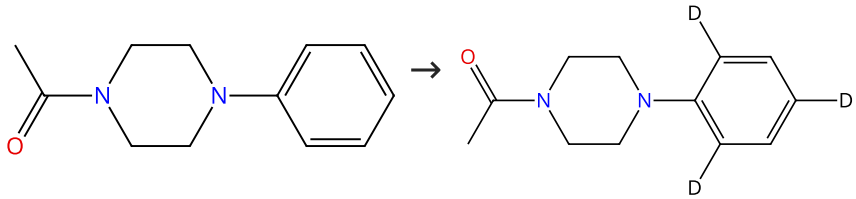
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 46 (1 Reaction)

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



Suppliers (37)

31-614-CAS-34869667

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

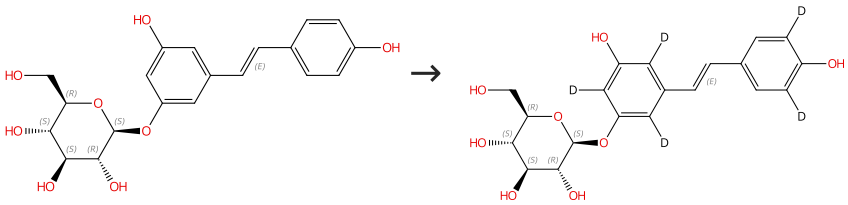
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 47 (1 Reaction)

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



Absolute stereochemistry shown, Rotation (-)
Double bond geometry shown

Absolute stereochemistry shown
Double bond geometry shown

Suppliers (88)

31-614-CAS-34869718

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

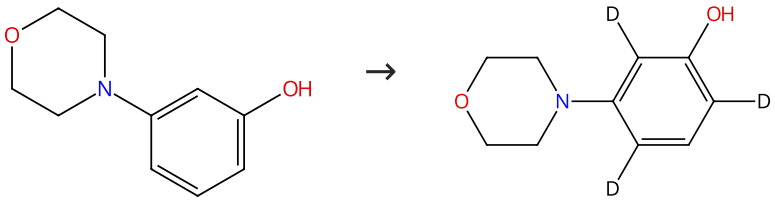
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 48 (1 Reaction)

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



Suppliers (63)

31-614-CAS-34869673

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

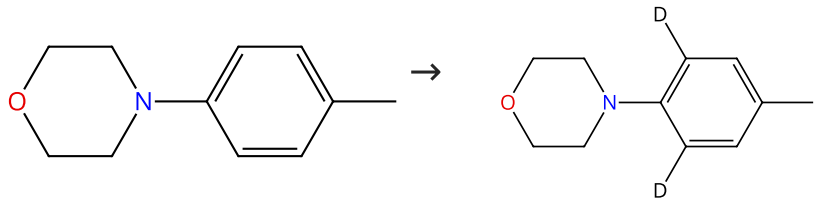
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 49 (1 Reaction)

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



Suppliers (58)

31-614-CAS-34869665

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

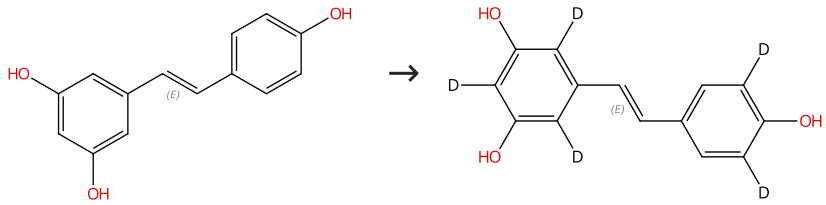
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 50 (1 Reaction)

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



Double bond geometry shown

Double bond geometry shown

Suppliers (156)

31-614-CAS-34869721

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

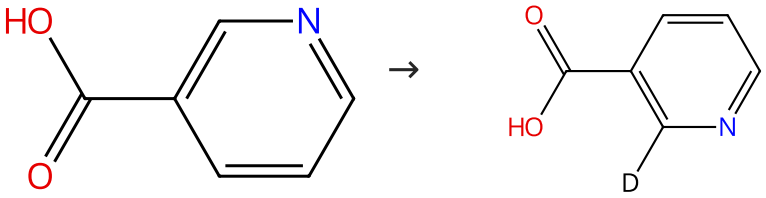
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 51 (1 Reaction)

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



Suppliers (182)

31-614-CAS-34869715

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

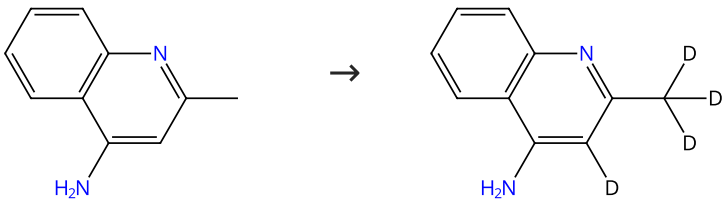
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 52 (1 Reaction)

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



Suppliers (97)

31-614-CAS-34869683

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 140 °C; 24 h, 140 °C

Experimental Protocols

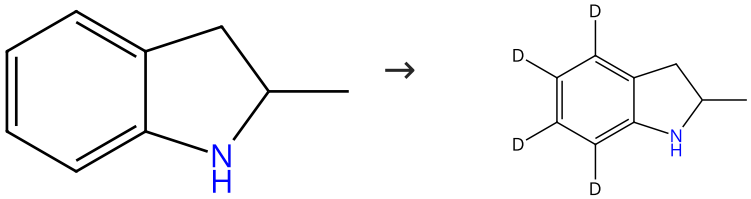
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 53 (1 Reaction)

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



Suppliers (86)

31-614-CAS-34869662

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

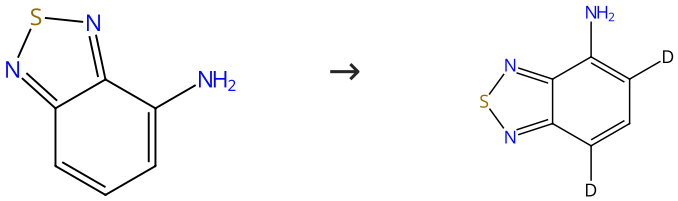
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 54 (1 Reaction)

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



Suppliers (86)

31-614-CAS-34869666

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

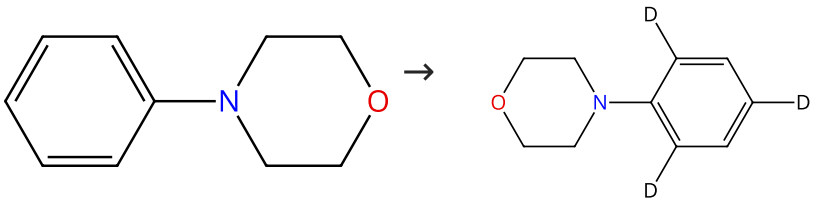
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 55 (1 Reaction)

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



Suppliers (81)

31-614-CAS-34869633

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

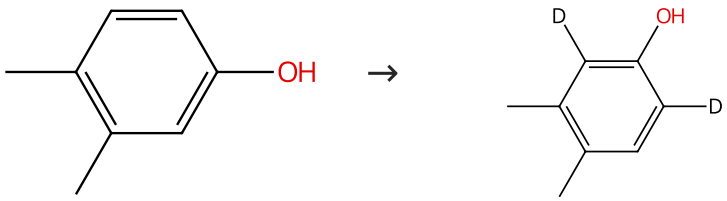
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 56 (1 Reaction)

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



Suppliers (69)

31-614-CAS-34869681

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

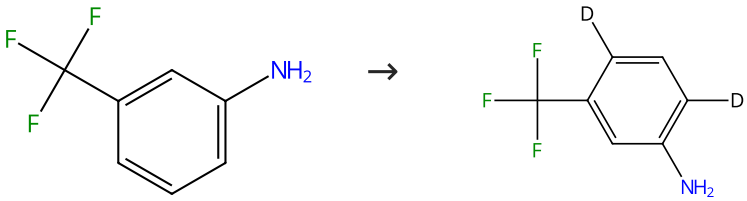
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 57 (1 Reaction)

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



Suppliers (72)

31-614-CAS-34869638

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

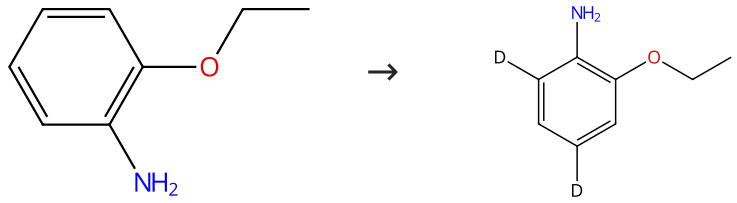
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 58 (1 Reaction)

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



Suppliers (61)

31-614-CAS-34869645

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

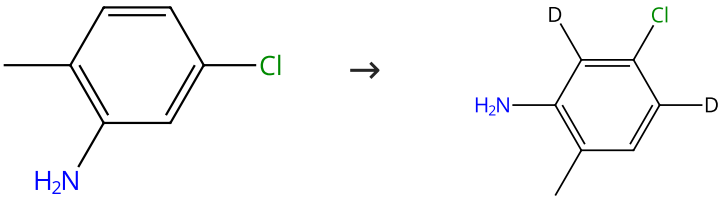
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 59 (1 Reaction)

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



Suppliers (72)

31-614-CAS-34869640

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

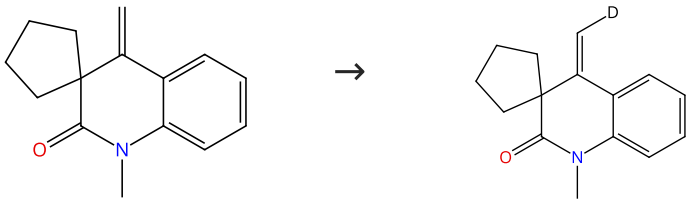
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 60 (1 Reaction)

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



Supplier (1)

31-116-CAS-4840903

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

1.1 **Reagents:** Water-d_2
Catalysts: Iron chloride ($FeCl_3$)
Solvents: Acetonitrile; 6.5 h, 60 °C

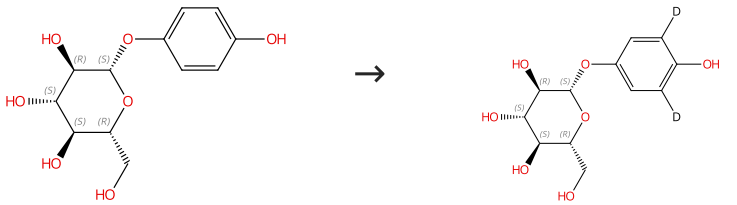
Catalytic intramolecular aromatic C-H alkenylation of arenes with non-activated ketones: synthesis of 4-alkylene quinolin-2-ones

By: Wang, Yeming; et al

Chemical Communications (Cambridge, United Kingdom) (2010), 46(36), 6843-6845.

Scheme 61 (1 Reaction)

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



Absolute stereochemistry shown, Rotation (-)

Absolute stereochemistry shown

Suppliers (108)

31-614-CAS-34869687

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

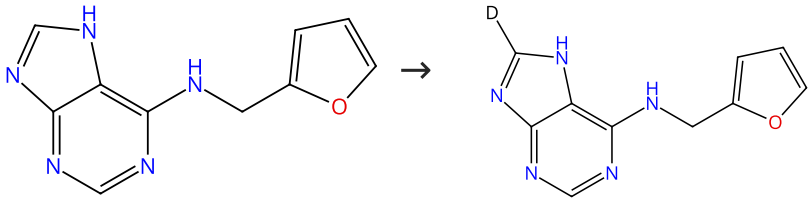
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 62 (1 Reaction)

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



Suppliers (117)

31-614-CAS-34869700

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

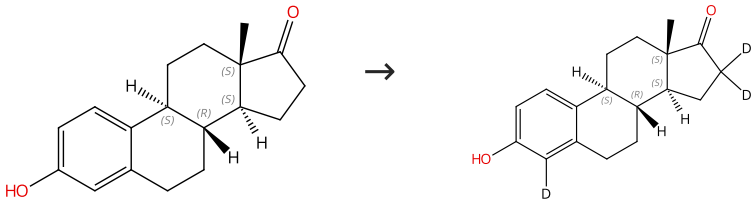
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 63 (1 Reaction)

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



Absolute stereochemistry shown, Rotation (+)

Absolute stereochemistry shown

Suppliers (115)

Supplier (1)

31-614-CAS-34869694

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

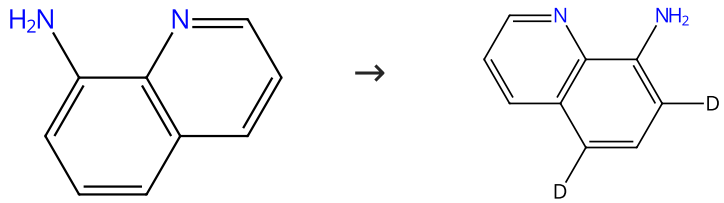
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 64 (1 Reaction)

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



Suppliers (97)

Supplier (1)

31-614-CAS-34869684

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 140 °C; 24 h, 140 °C

Experimental Protocols

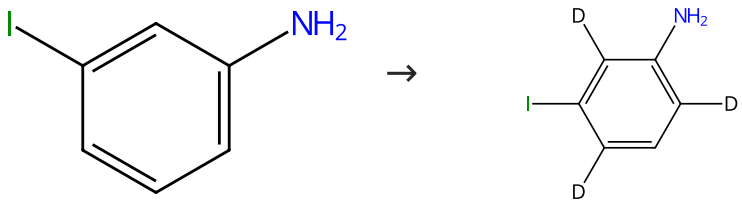
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 65 (1 Reaction)

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



Suppliers (82)

31-614-CAS-34869653

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

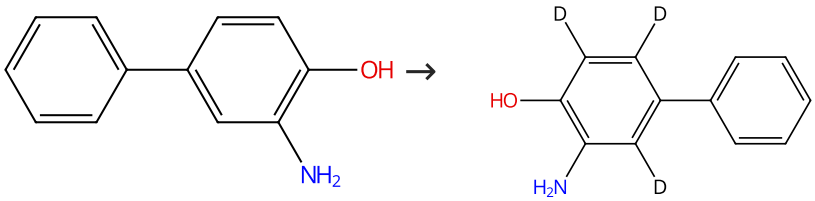
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 66 (1 Reaction)

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



Suppliers (80)

31-614-CAS-34869644

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 67 (1 Reaction)

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

Suppliers (104)

31-614-CAS-34869675

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

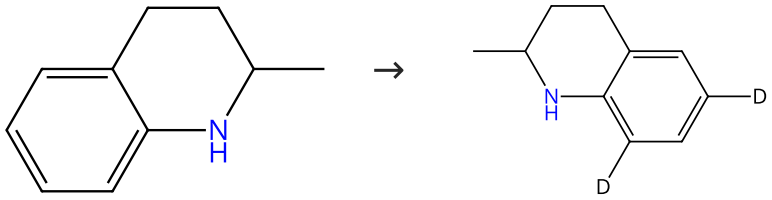
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 68 (1 Reaction)

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

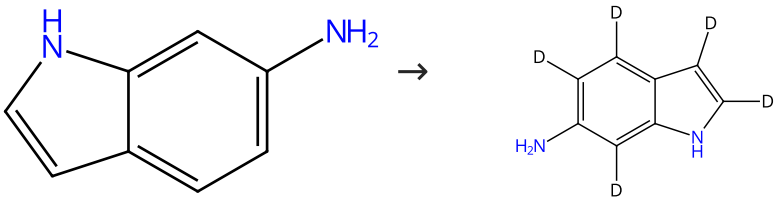


Suppliers (75)

31-614-CAS-34869677	Steps: **1** Yield: **92%**	**Scalable and selective deuteration of (hetero)arenes**
1.1 **Reagents:** Hydrogen, Water-d_2 **Catalysts:** Iron (graphene cover) **Solvents:** Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C		By: Li, Wu; et al Nature Chemistry (2022), 14(3), 334-341.
Experimental Protocols		

Scheme 69 (1 Reaction)

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



Suppliers (80)

31-614-CAS-34869688	Steps: **1** Yield: **92%**	**Scalable and selective deuteration of (hetero)arenes**
1.1 **Reagents:** Hydrogen, Water-d_2 **Catalysts:** Iron (graphene cover) **Solvents:** Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C		By: Li, Wu; et al Nature Chemistry (2022), 14(3), 334-341.
Experimental Protocols		

Scheme 70 (1 Reaction)

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

Absolute stereochemistry shown, Rotation (-)

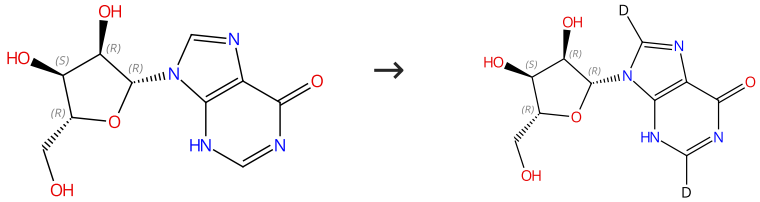
Absolute stereochemistry shown

Suppliers (47)

31-614-CAS-34869693	Steps: **1** Yield: **92%**	**Scalable and selective deuteration of (hetero)arenes**
1.1 **Reagents:** Hydrogen, Water-d_2 **Catalysts:** Iron (graphene cover) **Solvents:** Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C		By: Li, Wu; et al Nature Chemistry (2022), 14(3), 334-341.
Experimental Protocols		

Scheme 71 (1 Reaction)

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



Absolute stereochemistry shown

Absolute stereochemistry shown, Rotation (-)

Suppliers (147)

Suppliers (10)

31-614-CAS-34869685

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

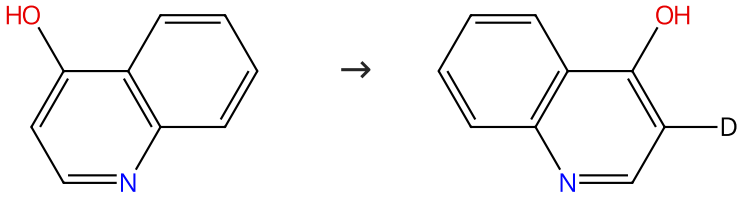
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 72 (1 Reaction)

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



Suppliers (107)

31-614-CAS-34869703

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 140 °C; 24 h, 140 °C

Experimental Protocols

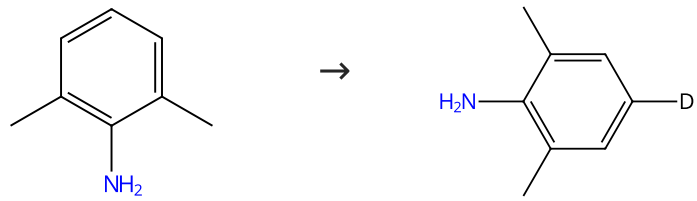
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 73 (1 Reaction)

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



Suppliers (90)

Supplier (1)

31-614-CAS-34869664

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

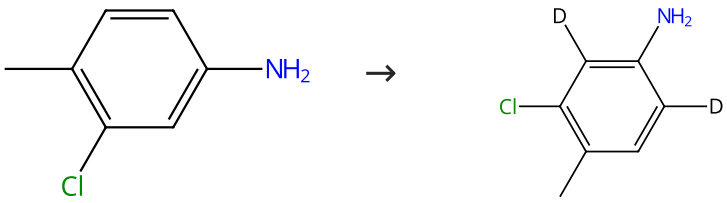
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 74 (1 Reaction)

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



Suppliers (83)

31-614-CAS-34869649

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

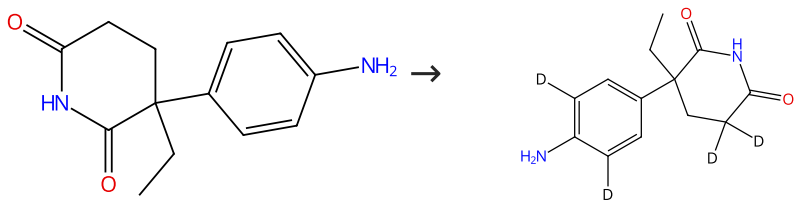
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 75 (1 Reaction)

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



Suppliers (71)

31-614-CAS-34869717

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

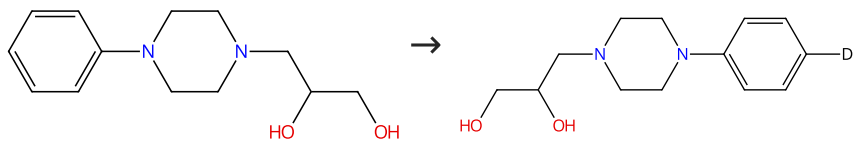
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 76 (1 Reaction)

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



Suppliers (69)

31-614-CAS-34869711

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

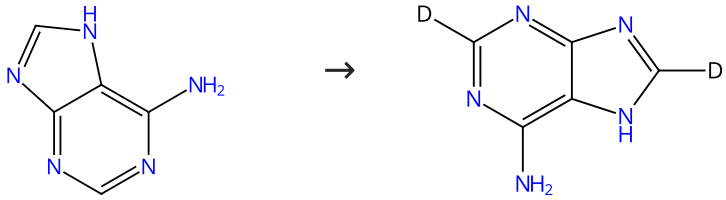
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 77 (1 Reaction)

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



Suppliers (155)

Supplier (1)

31-614-CAS-34869706

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

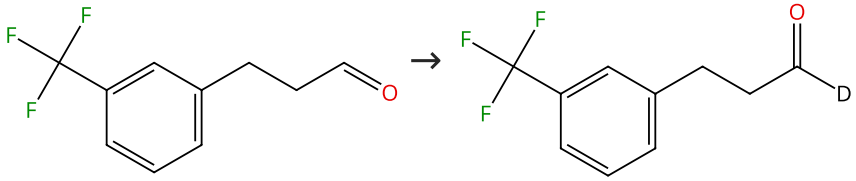
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 78 (1 Reaction)

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



Suppliers (68)

31-614-CAS-40268983

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

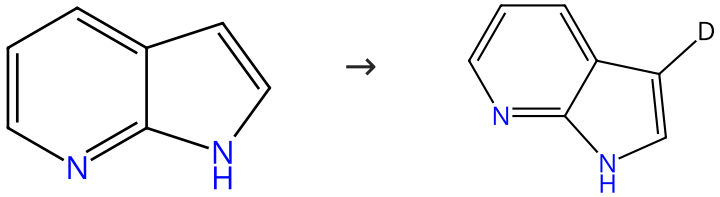
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 79 (1 Reaction)

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



Suppliers (123)

31-614-CAS-34869699

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 80 (1 Reaction)

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

Suppliers (86)

31-614-CAS-34869648

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

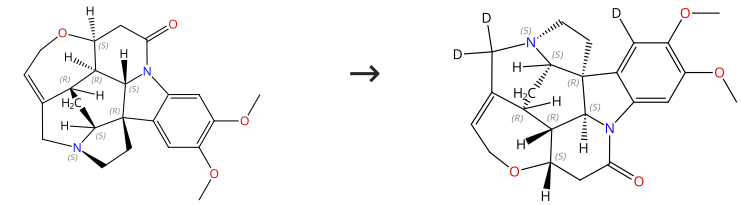
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 81 (1 Reaction)

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



Absolute stereochemistry shown

Absolute stereochemistry shown

Suppliers (55)

31-614-CAS-34869696

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

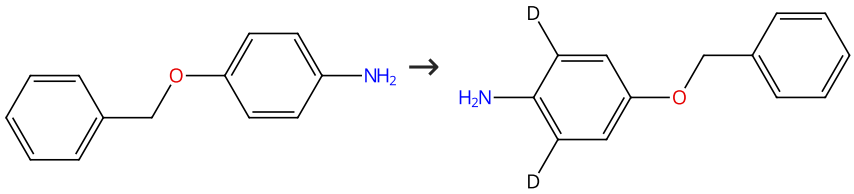
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 82 (1 Reaction)

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



Suppliers (82)

31-614-CAS-34869641

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

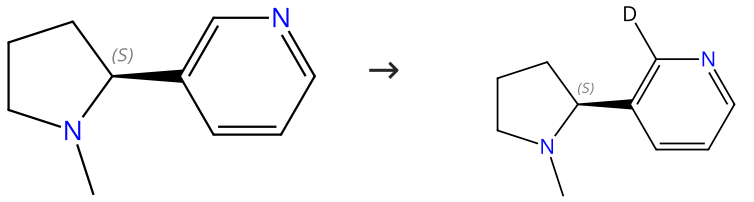
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 83 (1 Reaction)

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



Absolute stereochemistry shown, Rotation (-)

Absolute stereochemistry shown

Suppliers (95)

31-614-CAS-34869670

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 140 °C; 24 h, 140 °C

Experimental Protocols

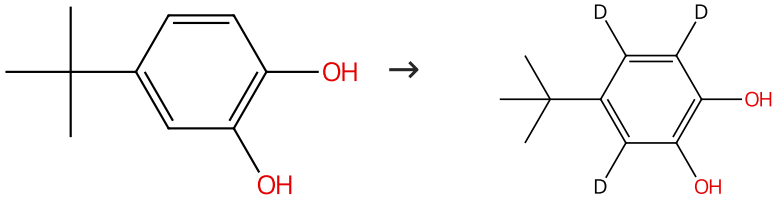
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 84 (1 Reaction)

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



Suppliers (93)

31-614-CAS-34869676

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

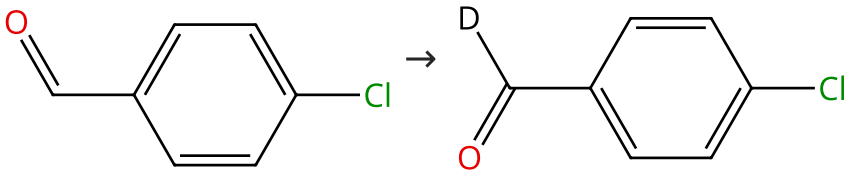
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 85 (1 Reaction)

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



Suppliers (107)

Supplier (1)

31-614-CAS-40268968

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

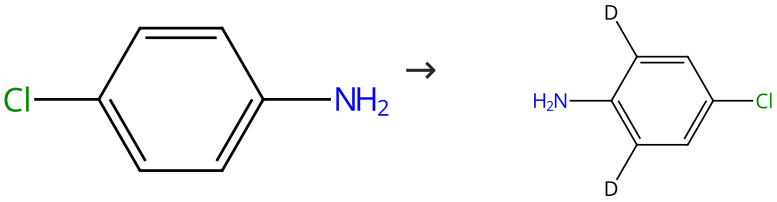
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 86 (1 Reaction)

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



Suppliers (104)

Suppliers (22)

31-614-CAS-34869639

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

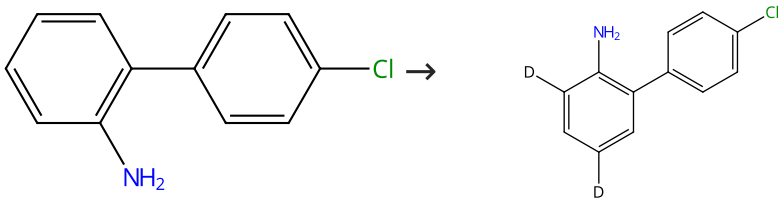
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 87 (1 Reaction)

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



Suppliers (80)

31-614-CAS-34869643

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

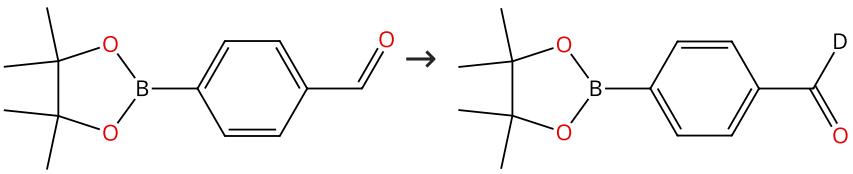
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 88 (1 Reaction)

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



Suppliers (89)

31-614-CAS-40268979

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

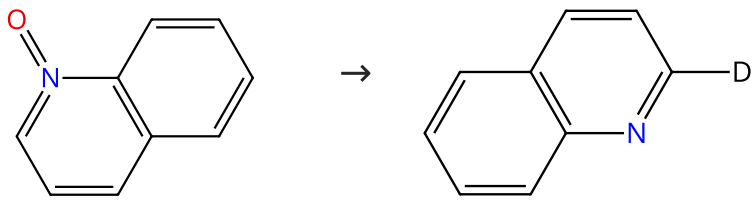
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 89 (1 Reaction)

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



Suppliers (56)

Suppliers (14)

31-116-CAS-22974034

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferrous sulfate; 5 h, 100 °C

Experimental Protocols

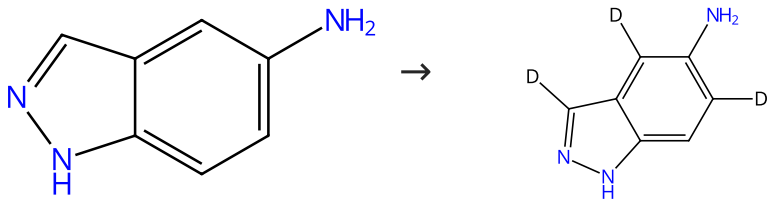
Waste-minimized synthesis of C2 functionalized quinolines exploiting iron-catalysed C-H activation

By: Ferlin, Francesco; et al

Green Chemistry (2021), 23(1), 490-495.

Scheme 90 (1 Reaction)

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



Suppliers (96)

31-614-CAS-34869661

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

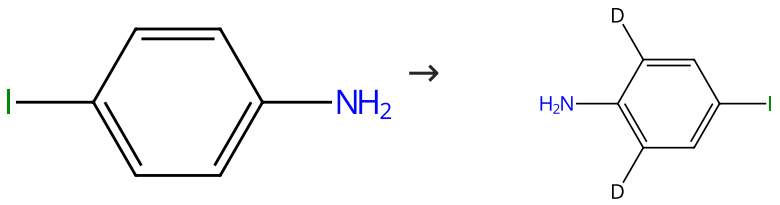
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 91 (1 Reaction)

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



Suppliers (107)

31-614-CAS-34869635

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 92 (1 Reaction)

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

Suppliers (110)

31-614-CAS-34869637

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

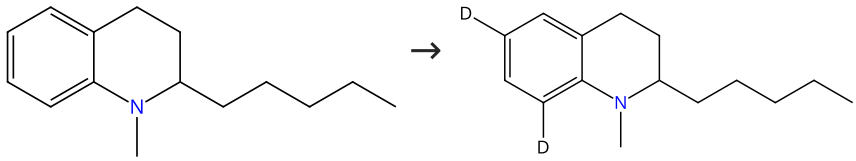
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 93 (1 Reaction)

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



Supplier (1)

31-614-CAS-34869714

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

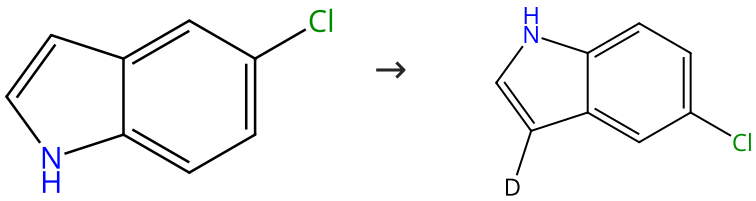
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 94 (1 Reaction)

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



Suppliers (97)

31-614-CAS-40268987

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

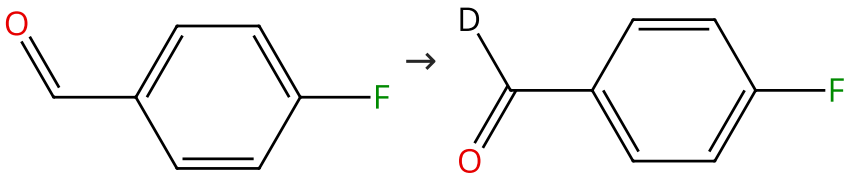
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 95 (1 Reaction)

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



Suppliers (103)

31-614-CAS-40268967

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

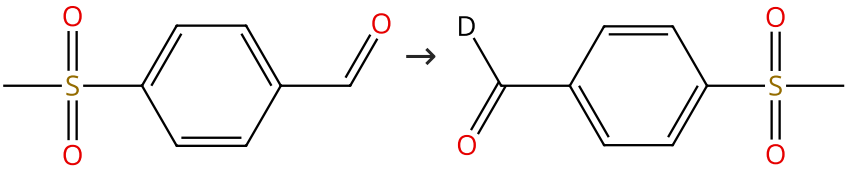
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 96 (1 Reaction)

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



Suppliers (86)

31-614-CAS-40268975

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

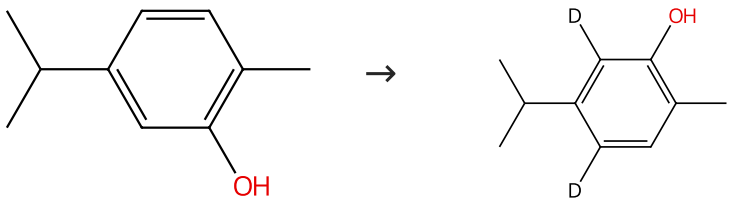
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 97 (1 Reaction)

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



Suppliers (112)

31-614-CAS-34869709

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

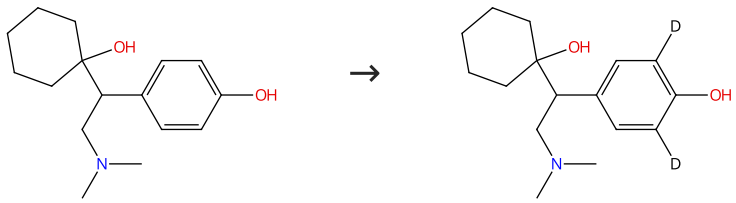
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 98 (1 Reaction)

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



Suppliers (95)

Supplier (1)

31-614-CAS-34869712

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

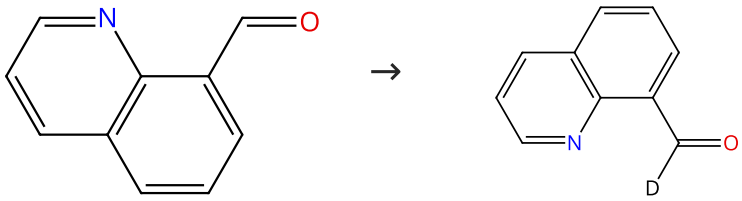
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 99 (1 Reaction)

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



Suppliers (95)

Supplier (1)

31-614-CAS-40268984

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

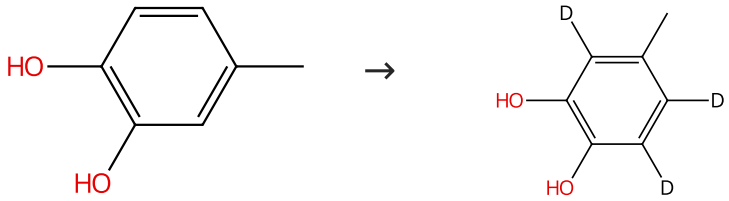
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 100 (1 Reaction)

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



Suppliers (92)

Suppliers (5)

31-614-CAS-34869679

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

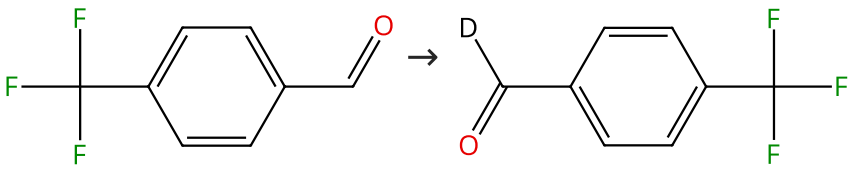
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 101 (1 Reaction)

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



Suppliers (92)

31-614-CAS-40268973

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

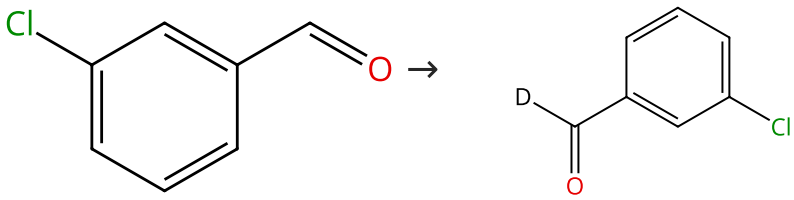
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 102 (1 Reaction)

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



Suppliers (97)

31-614-CAS-40268971

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

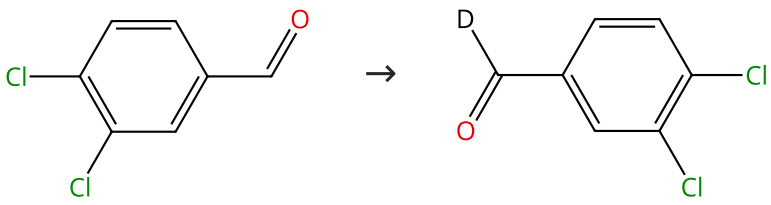
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 103 (1 Reaction)

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



Suppliers (85)

31-614-CAS-40268980

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

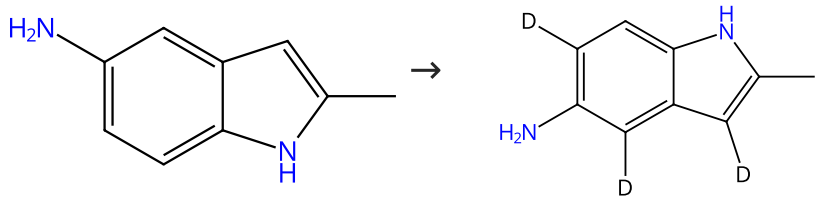
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 104 (1 Reaction)

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



Suppliers (75)

31-614-CAS-35314834

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 105 (1 Reaction)

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

Suppliers (101)

31-614-CAS-40268974

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

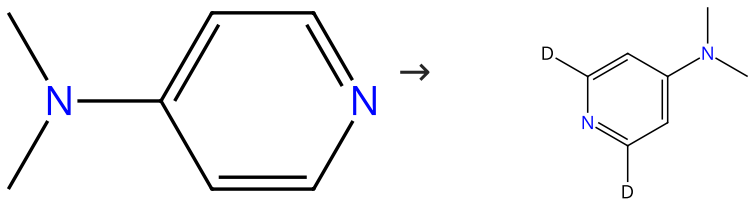
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 106 (1 Reaction)

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



Suppliers (153)

Supplier (1)

31-614-CAS-34869695

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

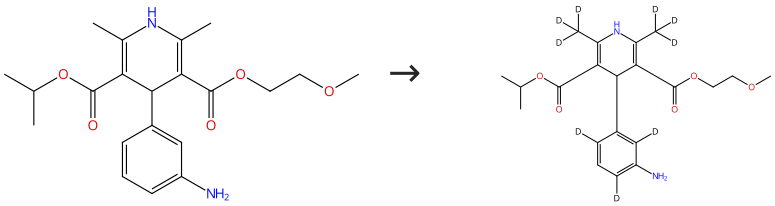
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 107 (1 Reaction)

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



Suppliers (44)

31-614-CAS-34869722

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

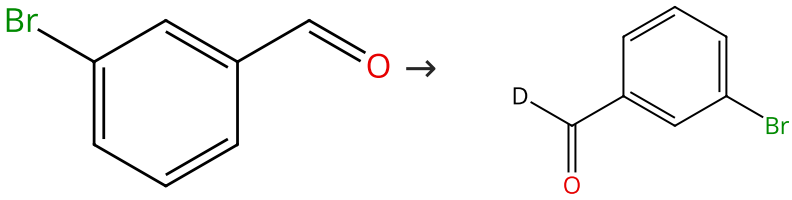
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 108 (1 Reaction)

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



Suppliers (102)

31-614-CAS-40268969

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

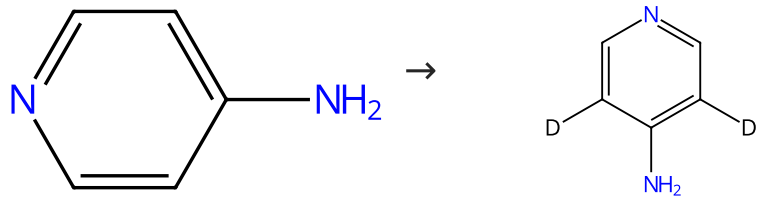
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 109 (1 Reaction)

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



Suppliers (101)

31-614-CAS-34869678

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 140 °C; 24 h, 140 °C

Experimental Protocols

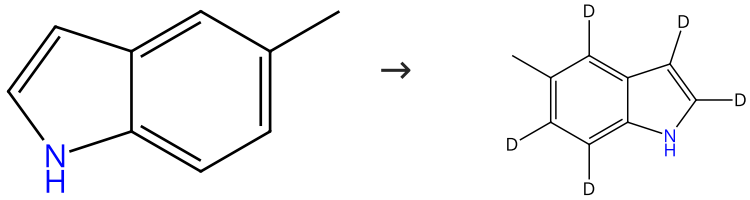
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 110 (1 Reaction)

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



Suppliers (93)

31-614-CAS-34869697

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

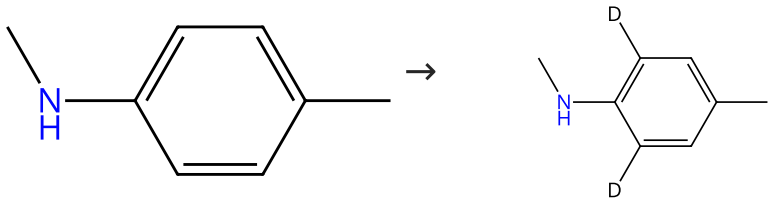
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 111 (1 Reaction)

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



Suppliers (62)

31-614-CAS-34869672

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

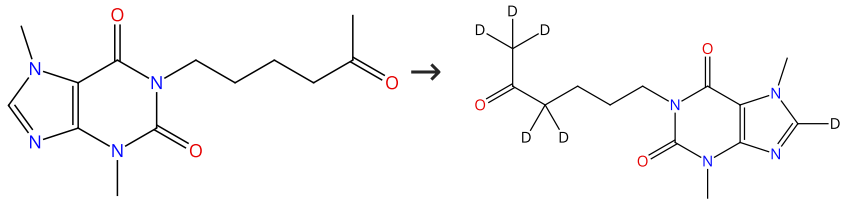
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 112 (1 Reaction)

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



Suppliers (85)

Suppliers (3)

31-614-CAS-34869707

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

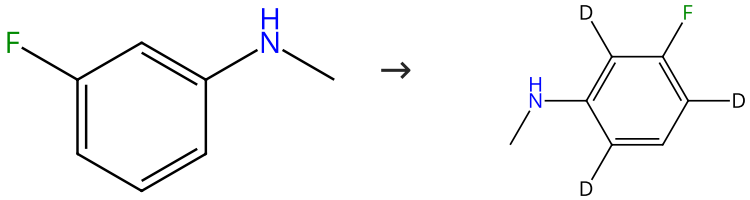
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 113 (1 Reaction)

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



Suppliers (63)

31-614-CAS-34869654

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

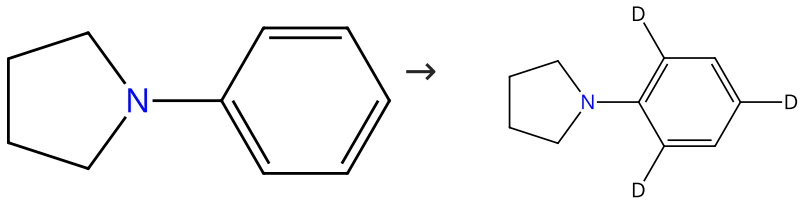
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 114 (1 Reaction)

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



Suppliers (70)

Supplier (1)

31-614-CAS-34869668

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

Experimental Protocols

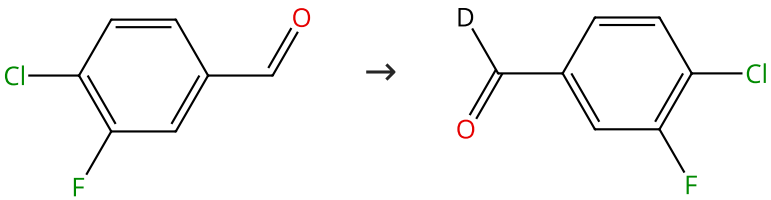
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 115 (1 Reaction)

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



Suppliers (107)

31-614-CAS-40268981

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

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

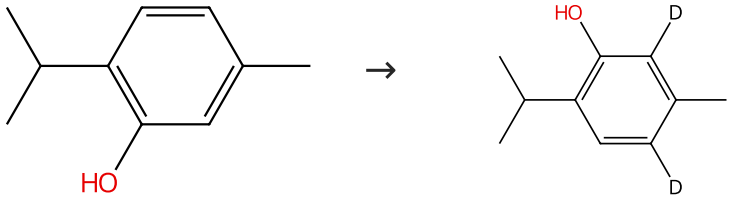
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 116 (2 Reactions)

Steps: **1** Yield: **81-82%**



Suppliers (135)

31-614-CAS-35314846

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

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

31-614-CAS-34869710

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

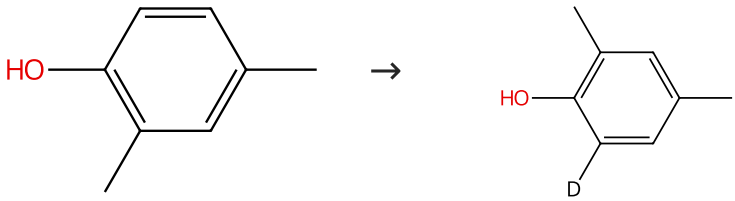
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 117 (1 Reaction)

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



Suppliers (80)

31-614-CAS-34869658

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

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

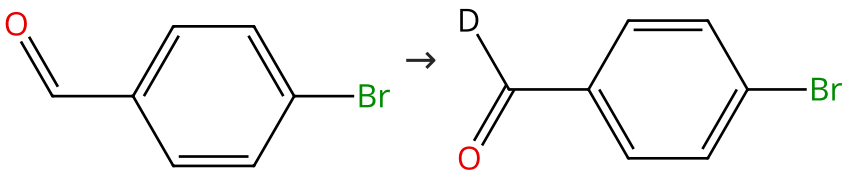
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 118 (1 Reaction)

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



Suppliers (98)

31-614-CAS-40268972 Steps: **1** Yield: **80%**

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

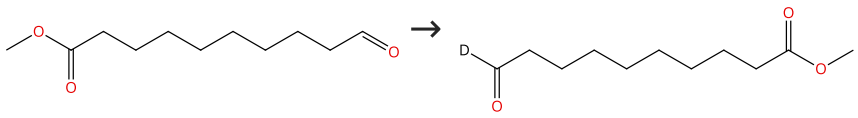
Experimental Protocols

Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 119 (1 Reaction) Steps: **1** Yield: **80%**



Suppliers (47)

31-614-CAS-40268985 Steps: **1** Yield: **80%**

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 48 h, 30 - 35 °C

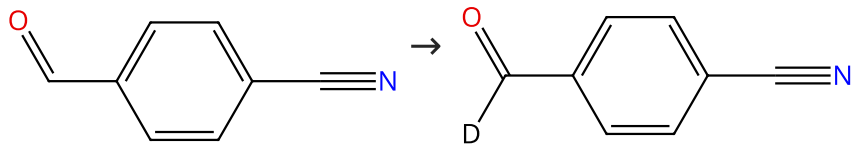
Experimental Protocols

Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 120 (1 Reaction) Steps: **1** Yield: **78%**



Suppliers (99)

Supplier (1)

31-614-CAS-40268977 Steps: **1** Yield: **78%**

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

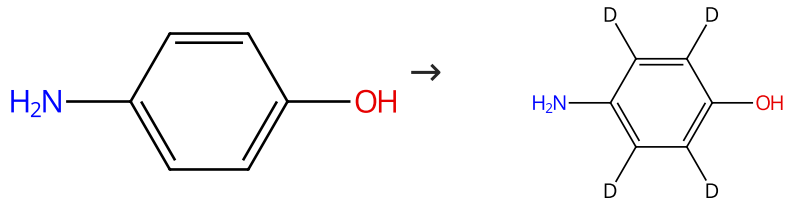
Experimental Protocols

Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 121 (1 Reaction) Steps: **1** Yield: **77%**



Suppliers (105)

Suppliers (14)

31-614-CAS-34869636 Steps: **1** Yield: **77%**

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 24 h, 120 °C

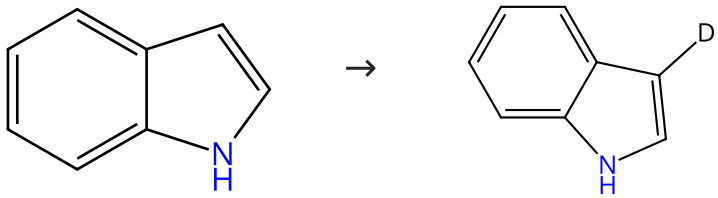
Experimental Protocols

Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 122 (1 Reaction) Steps: **1** Yield: **75%**



Suppliers (116) Suppliers (10)

31-614-CAS-40268989 Steps: **1** Yield: **75%**

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

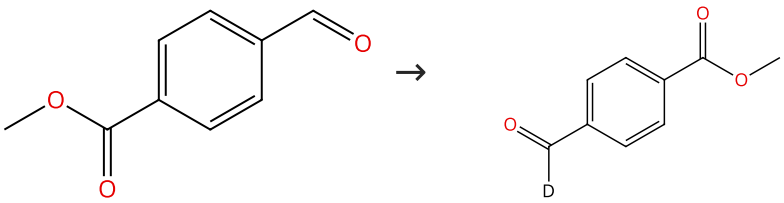
Experimental Protocols

Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 123 (1 Reaction) Steps: **1** Yield: **75%**



Suppliers (107)

31-614-CAS-40268976 Steps: **1** Yield: **75%**

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

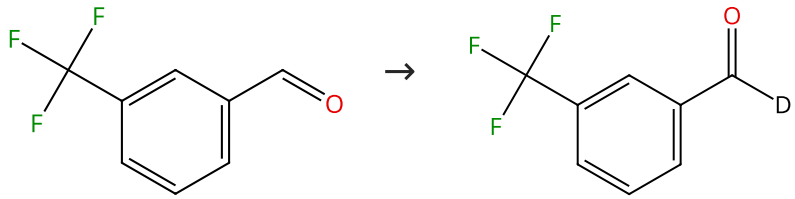
Experimental Protocols

Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 124 (1 Reaction) Steps: **1** Yield: **75%**



Suppliers (109)

31-614-CAS-40268970 Steps: **1** Yield: **75%**

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

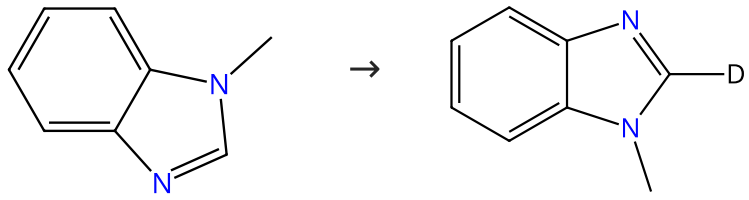
Experimental Protocols

Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 125 (1 Reaction) Steps: **1** Yield: **74%**



Suppliers (87) Suppliers (2)

31-614-CAS-35314844 Steps: **1** Yield: **74%**

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: Acetonitrile; 18 h, 90 °C; 90 °C → rt

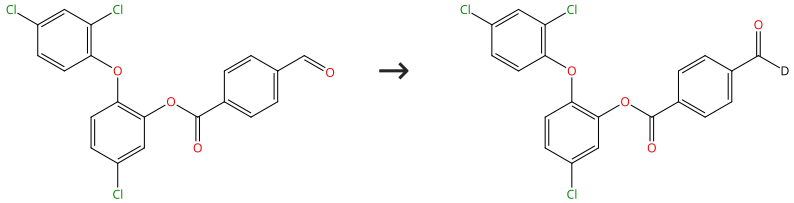
1.2 **Reagents:** Sodium bicarbonate
Solvents: Ethyl acetate, Water; rt

Homogenous Iron-Catalysed Deuteration of Electron-Rich Arenes and Heteroarenes

By: Bourriquen, Florian; et al

Synlett (2023), 34(4), 332-336.

Scheme 126 (1 Reaction) Steps: **1** Yield: **72%**



31-614-CAS-40268986 Steps: **1** Yield: **72%**

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

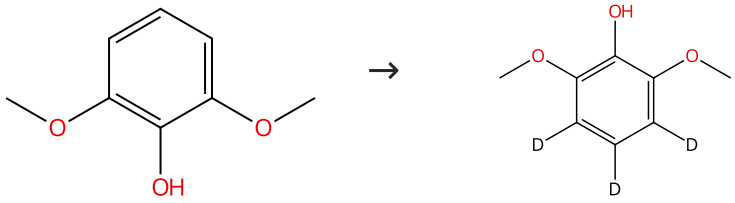
Experimental Protocols

Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 127 (1 Reaction) Steps: **1** Yield: **71%**



Suppliers (108) Suppliers (11)

31-614-CAS-34869690 Steps: **1** Yield: **71%**

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, rt → 120 °C; 72 h, 120 °C

Experimental Protocols

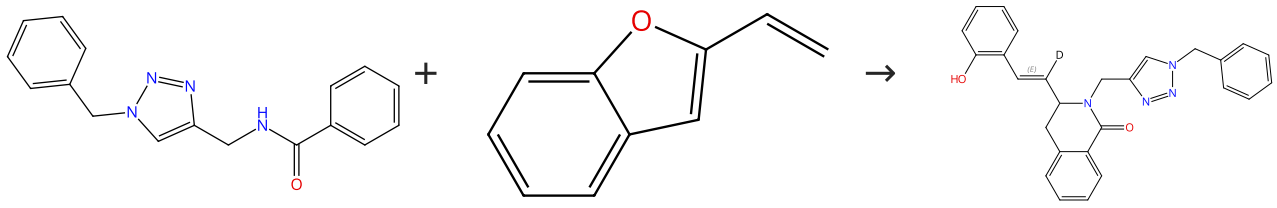
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 128 (1 Reaction)

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



Supplier (1)

Suppliers (15)

Double bond geometry shown

31-614-CAS-40980979

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

1.1 **Reagents:** Phenylmagnesium bromide, Zinc chloride
Catalysts: 1,2-Bis(diphenylphosphino)benzene, Iron(III) acetylacetonate
Solvents: Tetrahydrofuran; 16 h, 65 °C; 65 °C → rt

1.2 **Reagents:** Deuterium chloride
Solvents: Water-d_2; 2 min, rt

Experimental Protocols

Iron-Catalyzed C-H Alkylation/Ring Opening with Vinylbenzofurans Enabled by Triazoles

By: Cattani, Silvia; et al

Angewandte Chemie, International Edition (2024), 63(32), e202404319.

Scheme 129 (1 Reaction)

Steps: **1** Yield: **65%**

Suppliers (86)

31-614-CAS-40268978

Steps: **1** Yield: **65%**

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

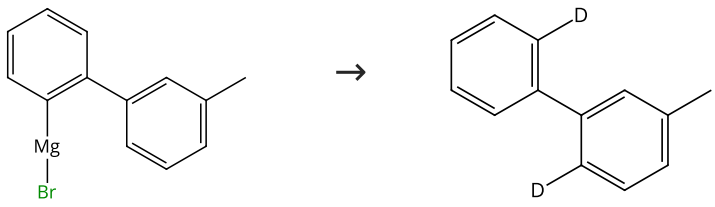
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 130 (1 Reaction)

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



Supplier (1)

31-115-CAS-6841612

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

1.1 **Catalysts:** Iron(III) acetylacetonate, 4,4'-Bis(1,1-dimethylethyl)-2,2'-bipyridine
Solvents: Diethyl ether, Tetrahydrofuran; rt; 1 h, rt

1.2 **Reagents:** Water-d_2

Experimental Protocols

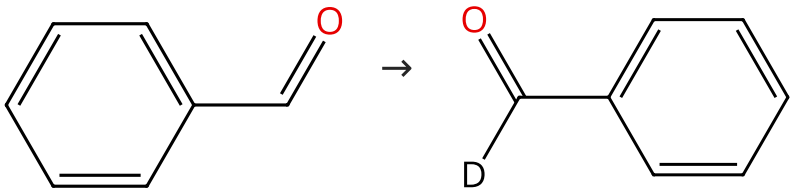
Phenanthrene Synthesis by Iron-Catalyzed [4 + 2] Benzannulation between Alkyne and Biaryl or 2-Alkenylphenyl Grignard Reagent

By: Matsumoto, Arimasa; et al

Journal of the American Chemical Society (2011), 133(17), 6557-6559.

Scheme 131 (1 Reaction)

Steps: **1** Yield: **56%**



Suppliers (80)

Suppliers (27)

31-614-CAS-40268966

Steps: **1** Yield: **56%**

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

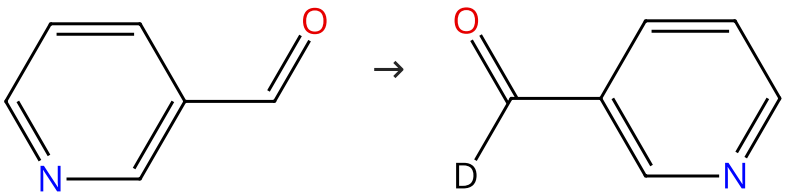
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 132 (1 Reaction)

Steps: **1** Yield: **55%**



Suppliers (91)

31-614-CAS-40268982

Steps: **1** Yield: **55%**

1.1 **Reagents:** Water-d_2
Catalysts: 1-Butanaminium, *N*,*N*,*N*-tributyl-, (*T*-4)-tetrachloroferrate(1-) (1:1)
Solvents: Acetonitrile; 12 h, 30 - 35 °C

Experimental Protocols

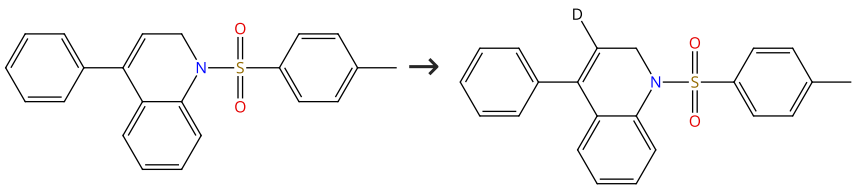
Photosynthesis of C-1-Deuterated Aldehydes via Chlorine Radical-Mediated Selective Deuteration of the Formyl C-H Bond

By: Xu, Qingzhu; et al

Organic Letters (2024), 26(19), 4098-4103.

Scheme 133 (1 Reaction)

Steps: **1** Yield: **47%**



31-116-CAS-14174908

Steps: **1** Yield: **47%**

1.1 **Reagents:** Water-d_2
Catalysts: Ferric triflate
Solvents: 1,2-Dichloroethane; 20 h, 80 °C

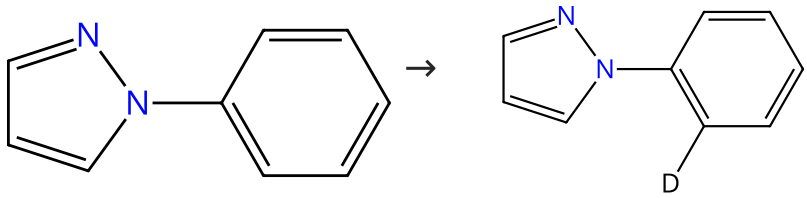
Cationic iron-catalyzed intramolecular alkyne-hydroarylation with electron-deficient arenes

By: Komeyama, Kimihiro; et al

Chemical Communications (Cambridge, United Kingdom) (2010), 46(10), 1748-1750.

Scheme 134 (1 Reaction)

Steps: **1** Yield: **23%**



Suppliers (90)

31-116-CAS-5946632

Steps: **1** Yield: **23%**

1.1 **Reagents:** Phenylmagnesium bromide
Catalysts: Iron(III) acetylacetonate, 4,4'-Bis(1,1-dimethylethyl)-2,2'-bipyridine
Solvents: Tetrahydrofuran; 0 °C; 30 min, 0 °C

1.2 **Reagents:** Water-d_2

Experimental Protocols

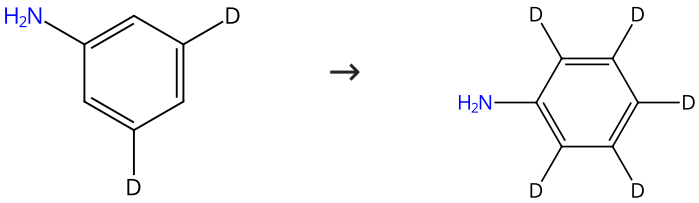
ortho-Allylation of 1-Arylpyrazoles with Allyl Phenyl Ether via Iron-Catalyzed C-H Bond Activation under Mild Conditions

By: Asako, Sobi; et al

Advanced Synthesis & Catalysis (2014), 356(7), 1481-1485.

Scheme 135 (1 Reaction)

Steps: **1**



Suppliers (7)

Suppliers (67)

31-614-CAS-34869630

Steps: **1**

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, 120 °C

Experimental Protocols

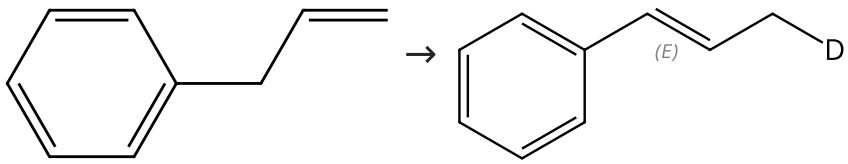
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 136 (1 Reaction)

Steps: **1**



Suppliers (72)

Double bond geometry shown

31-116-CAS-2956386

Steps: **1**

1.1 **Reagents:** Phenylmagnesium bromide
Catalysts: Iron(III) acetylacetonate
Solvents: Tetrahydrofuran

1.2 **Reagents:** Water-d_2

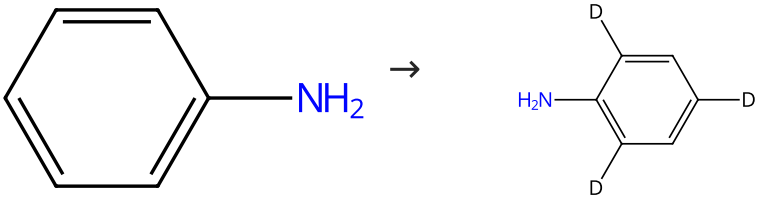
Iron-Catalyzed Isomerizations of Olefins

By: Mayer, Matthias; et al

ChemCatChem (2011), 3(10), 1567-1571.

Scheme 137 (1 Reaction)

Steps: **1**



Suppliers (121)

Suppliers (4)

31-614-CAS-34869634

Steps: **1**

1.1 **Reagents:** Hydrogen, Water-d_2
Catalysts: Iron (graphene cover)
Solvents: Water-d_2; 20 bar, 120 °C

Experimental Protocols

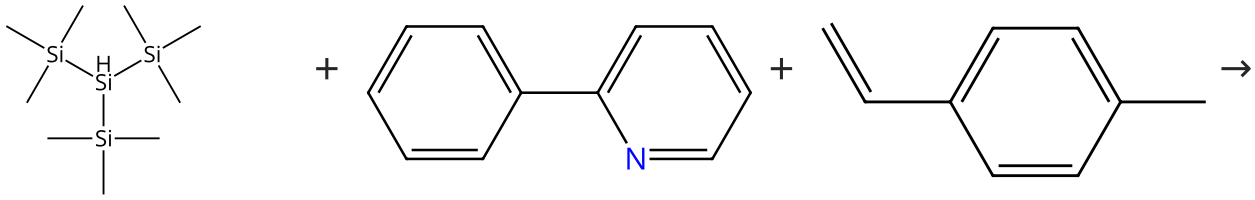
Scalable and selective deuteration of (hetero)arenes

By: Li, Wu; et al

Nature Chemistry (2022), 14(3), 334-341.

Scheme 138 (1 Reaction)

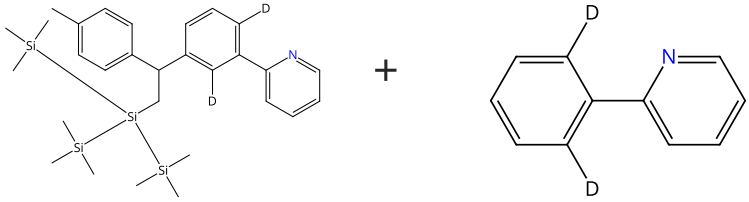
Steps: **1** Yield: **70%**



Suppliers (72)

Suppliers (93)

Suppliers (69)



Supplier (1)

31-614-CAS-39657549

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

1.1 **Reagents:** *tert*-Butyl peroxide, 2,4,6-Trimethylbenzoic acid, Potassium carbonate, Water-d_2
Catalysts: Ferrous chloride, Tris[4-(trifluoromethyl)phenyl] phosphine, Bis(dichloro(η^6-*p*-cymene)ruthenium)
Solvents: (Trifluoromethyl)benzene; 6 h, 100 °C

Experimental Protocols

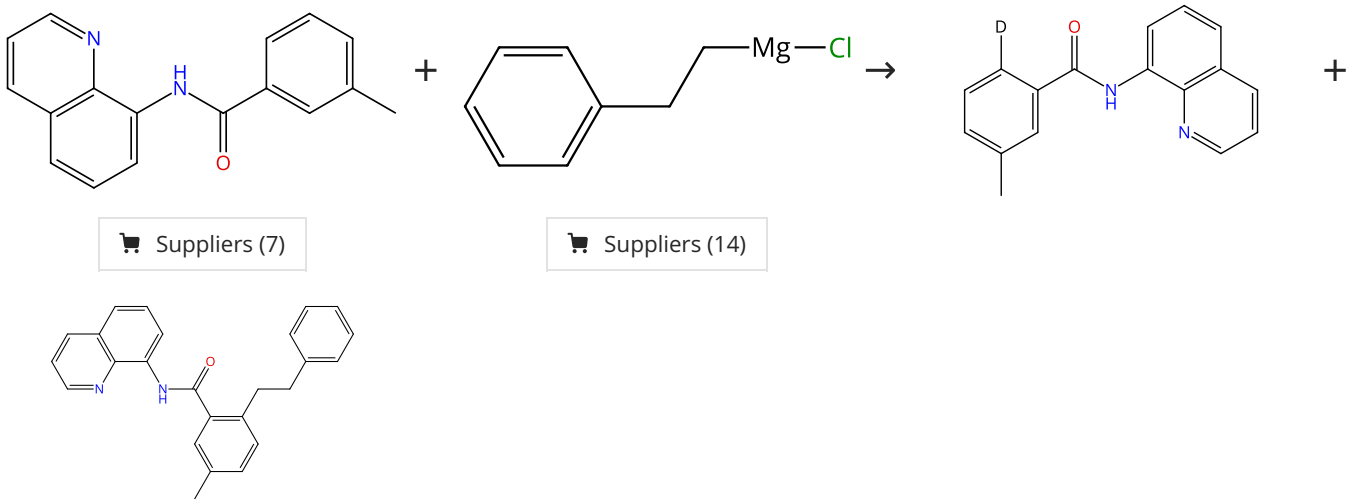
Silylarylation of Alkenes via meta-Selective C-H Activation of Arenes under Ruthenium/Iron Cooperative Catalysis: Mechanistic Insights from Combined Experimental and Computational Studies

By: Neogi, Sukanya; et al

ACS Catalysis (2024), 14(7), 4510-4522.

Scheme 139 (1 Reaction)

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



Suppliers (7)

Suppliers (14)

31-116-CAS-5986289

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

1.1 **Reagents:** Dichloro(*N*,*N*,*N*′,*N*′-tetramethylethylenediamine) zinc
Catalysts: *cis*-1,2-Bis(diphenylphosphino)ethylene, Iron(III) acetylacetonate
Solvents: Tetrahydrofuran; 1.5 h, 70 °C

1.2 **Reagents:** Water-d_2; 1 h, rt

Experimental Protocols

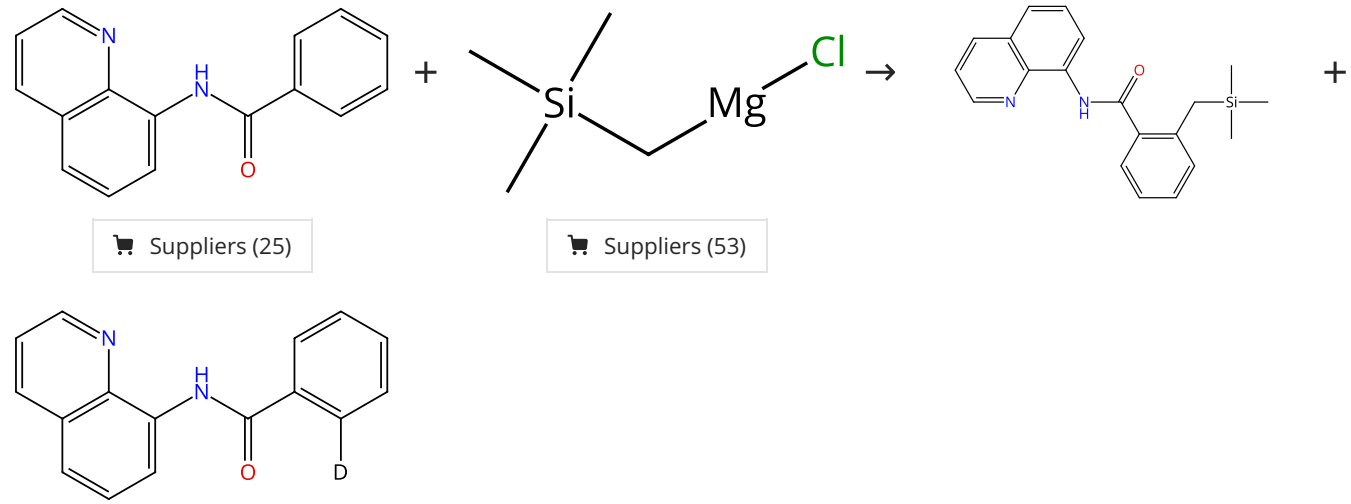
Iron-Catalyzed Directed Alkylation of Alkenes and Arenes with Alkylzinc Halides

By: Ilies, Laurean; et al

Advanced Synthesis & Catalysis (2015), 357(10), 2175-2179.

Scheme 140 (1 Reaction)

Steps: **1** Yield: **5%**



Suppliers (25)

Suppliers (53)

31-116-CAS-20436793

Steps: **1** Yield: **5%**

1.1 **Reagents:** Zinc chloride
Solvents: Tetrahydrofuran; rt; 10 min, rt

1.2 **Reagents:** 1,2-Dichloropropane
Catalysts: *cis*-1,2-Bis(diphenylphosphino)ethylene, Iron(III) acetylacetonate
Solvents: Tetrahydrofuran; 30 min, 70 °C

1.3 **Reagents:** Water-d_2; 10 min

1.4 **Reagents:** Potassium sodium tartrate
Solvents: Water

1.5 **Reagents:** Ammonium chloride
Solvents: Water

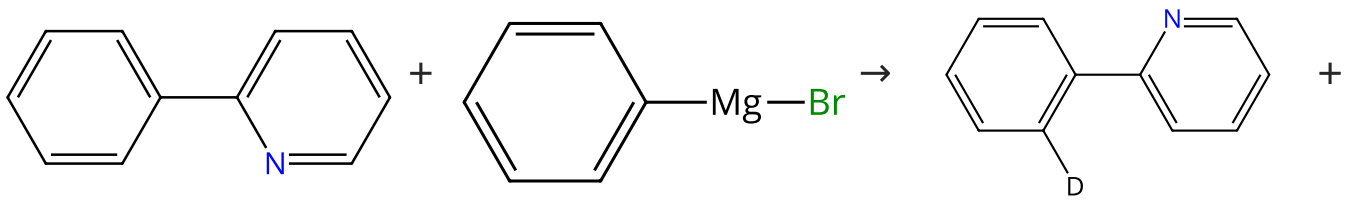
Homocoupling-free iron-catalyzed twofold C-H activatio n/cross-couplings of aromatics via transient connection of reactants

By: Doba, Takahiro; et al

Nature Catalysis (2019), 2(5), 400-406.

Scheme 141 (1 Reaction)

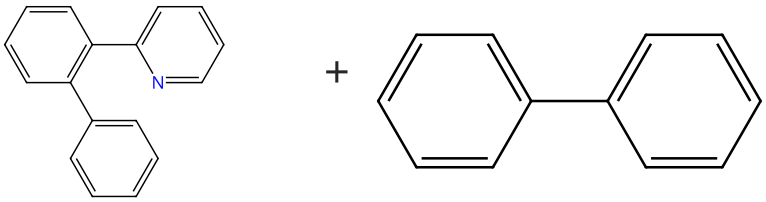
Steps: **1** Yield: **100%**



Suppliers (93)

Suppliers (60)

Suppliers (6)



Suppliers (5)

Suppliers (118)

31-090-CAS-1799659

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

1.1 **Catalysts:** Iron(III) acetylacetonate, 4,4'-Bis(1,1-dimethylethyl)-2,2'-bipyridine
Solvents: Chlorobenzene; 0 °C

1.2 **Reagents:** 1,2-Dichloro-2-methylpropane
Solvents: Tetrahydrofuran; 3 min, 0 °C; 10 s, 0 °C; 30 s, 0 °C

1.3 **Reagents:** Potassium sodium tartrate, Water-d_2
Solvents: Water

Iron-Catalyzed C-H Bond Activation for the ortho-Arylation of Aryl Pyridines and Imines with Grignard Reagents

By: Yoshikai, Naohiko; et al

Chemistry - An Asian Journal (2011), 6(11), 3059-3065.

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