CAS SciFinder

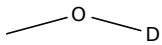
Task History

Initiating Search

February 23, 2025, 9:01 PM

Substances:

Filtered By:



Structure Match: **Substructure**

Search Tasks

Task	Search Type	View
Returned Substance Results + Filters (12,936)	**Substances**	View Results
Exported: Retrieved Related Reaction Results + Filters (170) Filtered By: Substance Role: **Reactant, Reagent, Solvent**	**Reactions**	View Results

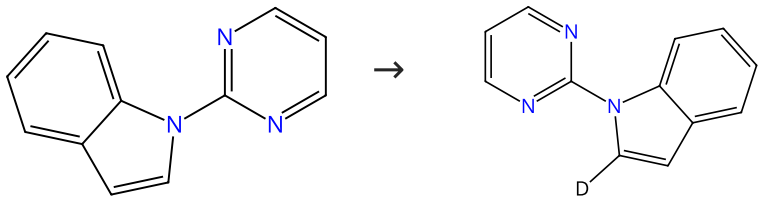
Catalyst:	Bromopentacarbonylmanganese, Di-μ-bromooctacarbonyldimanganese, Dimanganese decacarbonyl, Manganese(1+), [(1*R*)-1-[bis(4-methoxy-3,5-dimethylphenyl)phosphino-κ*P*]-2-[(1*R*)-1-[(2-pyridinylmethyl)amino-κ*N*]ethyl]ferrocene]tricarbonyl-, bromide (1:1), (*OC*-6-44)-, Manganese(1+), [(1*R*)-1-[bis(4-methoxy-3,5-dimethylphenyl)phosphino-κ*P*]-2-[(1*R*)-1-[[[4-(dimethylamino)-2-pyridinyl-κ*N*]methyl]amino-κ*N*]ethyl]ferrocene]tricarbonyl-, bromide (1:1), (*OC*-6-44)-, Manganese(1+), [(1*S*)-1-[bis(4-methoxy-3,5-dimethylphenyl)phosphino-κ*P*]-2-[(1*S*)-1-[[[4-(dimethylamino)-2-pyridinyl-κ*N*]methyl]amino-κ*N*]ethyl]ferrocene]tricarbonyl-, bromide (1:1), (*OC*-6-44)-, Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-, Manganese, ([2,2'-bipyridine]-6,6'-diol-κN^{1},$\kappa N^{1'}$)bromotricarbonyl-, (*OC*-6-33)-, Manganese chloride tetrahydrate, Manganese, [*N*-[bis(1,1-dimethylethyl)phosphino-κ*P*]-6-(1*H*-pyrazol-1-yl-κN^{2})-2-pyridinamine-κN^{1}]bromodicarbonyl-, (*OC*-6-43)-, Manganese, [*N*-[bis(1,1-dimethylethyl)phosphino-κ*P*]-6-(1*H*-pyrazol-1-yl-κN^{2})-2-pyridinamine-κN^{1}]bromodicarbonyl-, (*OC*-6-53)-, Manganese sodium oxide (Mn_8NaO_{16}), (*OC*-6-42)-[2-[Bis(1-methylethyl)phosphino-κ*P*]-*N*-[2-[bis(1-methylethyl)phosphino-κ*P*]ethyl]ethanamine-κ*N*]bromodicarbonylmanganese, (*OC*-6-42)-Bromodicarbonyl[2-(diphenylphosphino-κ*P*)-*N*-[2-(diphenylphosphino-κ*P*)ethyl]ethanamine-κ*N*]manganese, (*OC*-6-42)-Bromodicarbonyl[*N*,*N*'-[(6-methyl-1,3,5-triazine-2,4-diyl-κN^{3})diimino]bis[*P*,*P*-bis(1-methylethyl)phosphinous amide-κ*P*]]manganese, (*OC*-6-42)-Bromodicarbonyl[*N*,*N*'-(6-phenyl-1,3,5-triazine-2,4-diyl-κN^{3})bis[*P*,*P*-bis(1-methylethyl)phosphinous amide-κ*P*]]manganese
Document Type:	Journal
Language:	English

CAS SciFinder

Reactions (79)

View in CAS SciFinder

Scheme 1 (5 Reactions) Steps: **1** Yield: **88-97%**



Suppliers (59) Suppliers (3)

31-116-CAS-18899542 Steps: **1** Yield: **97%**

1.1 **Reagents:** Sodium acetate
Catalysts: Bromopentacarbonylmanganese
Solvents: Tetrahydrofuran, Methanol-d_4; 12 h, 50 °C

Experimental Protocols

Manganese Catalyzed Regioselective C-H Alkylation: Experiment and Computation

By: Wang, Chengming; et al

Organic Letters (2018), 20(10), 3105-3108.

31-116-CAS-17813052 Steps: **1** Yield: **95%**

1.1 **Catalysts:** Sodium acetate, Bromopentacarbonylmanganese
Solvents: 1,4-Dioxane, Methanol-d_4; 24 h, 100 °C

Experimental Protocols

Manganese(I)-Catalyzed Direct C-H Allylation of Arenes with Allenes

By: Chen, Shi-Yong; et al

Journal of Organic Chemistry (2017), 82(20), 11173-11181.

31-116-CAS-22007767 Steps: **1** Yield: **88%**

1.1 **Reagents:** Methanol-d_4
Catalysts: Bromopentacarbonylmanganese
Solvents: 1,4-Dioxane; 24 h, 100 °C

Experimental Protocols

Palladium-Catalyzed C-2 and C-3 Dual C-H Functionalization of Indoles: Synthesis of Fluorinated Isocryptolepine Analogues

By: Chen, Chen; et al

Organic Letters (2020), 22(11), 4097-4102.

31-116-CAS-19898743 Steps: **1**

1.1 **Reagents:** Sodium acetate, Methanol-d_4
Catalysts: Bromopentacarbonylmanganese
Solvents: 1,4-Dioxane; overnight, 90 °C

Manganese-catalyzed direct C2-allylation of indoles

By: Wu, Shang; et al

Organic Chemistry Frontiers (2018), 5(19), 2852-2855.

31-116-CAS-17320235 Steps: **1**

1.1 **Reagents:** Sodium acetate, Methanol-d_4
Catalysts: Bromopentacarbonylmanganese
Solvents: Toluene; 24 h, 50 °C

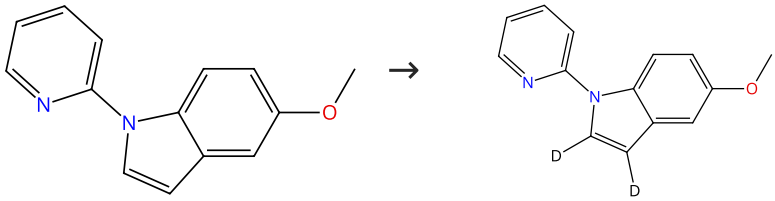
Manganese-Catalyzed C-H Functionalizations: Hydroarylations and Alkenylations Involving an Unexpected Heteroaryl Shift

By: Wang, Chengming; et al

Angewandte Chemie, International Edition (2017), 56(33), 9935-9938.

Scheme 2 (1 Reaction)

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



Suppliers (4)

31-116-CAS-16429719

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

1.1 **Reagents:** Methanol-d_4
Catalysts: Dicyclohexylamine, Zinc chloride, Bromopentacarbonylmanganese
Solvents: 1,4-Dioxane; 16 h, 100 °C

Experimental Protocols

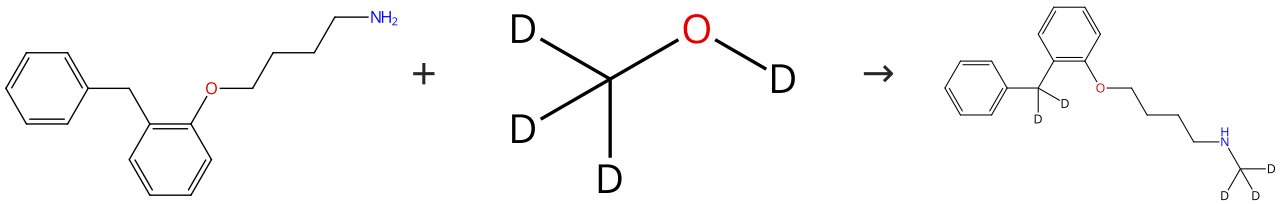
Synergistic Heterobimetallic Manifold for Expedient Manganese(I)-Catalyzed C-H Cyanation

By: Liu, Weiping; et al

Chemistry - A European Journal (2016), 22(50), 17958-17961.

Scheme 3 (1 Reaction)

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



Suppliers (3)

Suppliers (246)

31-614-CAS-39519275

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

1.1 **Reagents:** Cesium carbonate
Catalysts: (*OC*-6-42)-Bromodicarbonyl[2-(diphenylphosphino-κ*P*)-*N*-[2-(diphenylphosphino-κ*P*)ethyl]ethanamine-κ*N*]manganese
Solvents: Methanol-d_4; 24 h, 140 °C

1.2 **Reagents:** Triethylamine, Di-*tert*-butyl dicarbonate
Solvents: Dichloromethane; overnight, rt

1.3 **Reagents:** Trifluoroacetic acid
Solvents: Dichloromethane; 1 h, rt

Experimental Protocols

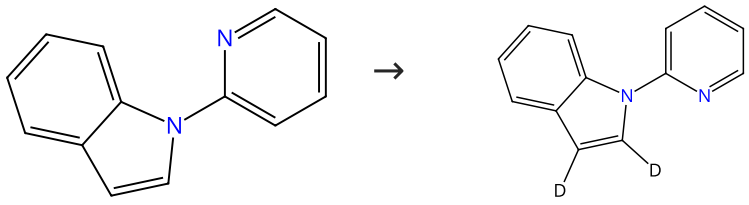
Manganese-Catalyzed Mono-N-Methylation of Aliphatic Primary Amines without the Requirement of External High-Hydrogen Pressure

By: Ji, Jiale; et al

Angewandte Chemie, International Edition (2024), 63(13), e202318763.

Scheme 4 (2 Reactions)

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



Suppliers (36)

31-116-CAS-18987532

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

1.1 **Reagents:** Methanol-d_4
Catalysts: Dimanganese decacarbonyl
Solvents: Butyl ether; 3 h, 100 °C

Experimental Protocols

Sustainable Manganese-Catalyzed C-H Activation/Hydroarylation of Imines

By: Liang, Yu-Feng; et al

ChemCatChem (2018), 10(13), 2768-2772.

31-116-CAS-17742561 Steps: 1

1.1 **Reagents:** Methanol-d_4
Catalysts: Bromopentacarbonylmanganese
Solvents: Diethyl ether; 4 h, 90 °C

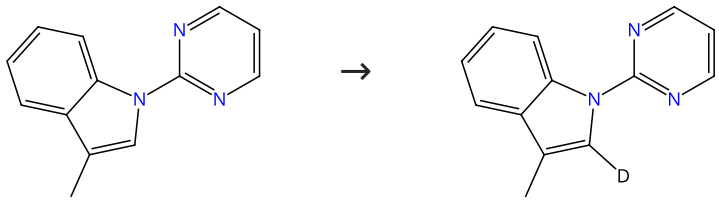
Experimental Protocols

Manganese-catalyzed allylation via sequential C-H and C-C/C-Het bond activation

By: Lu, Qingquan; et al

Chemical Science (2017), 8(5), 3379-3383.

Scheme 5 (1 Reaction) Steps: **1** Yield: **95%**



Suppliers (5)

31-116-CAS-15441483 Steps: **1** Yield: **95%**

1.1 **Reagents:** Diisopropylethylamine
Catalysts: Benzoic acid, Bromopentacarbonylmanganese
Solvents: Diethyl ether, Methanol-*d*; 12 h, 80 °C

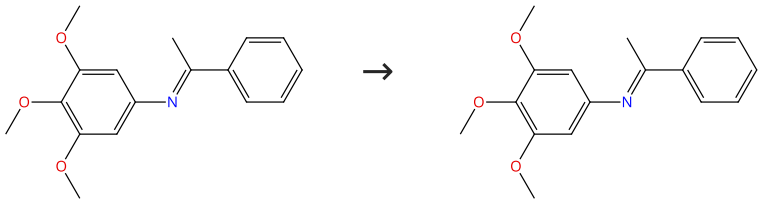
Experimental Protocols

Manganese catalyzed C-H functionalization of indoles with alkynes to synthesize bis/trisubstituted indolylalkenes and carbazoles: the acid is the key to control selectivity

By: Shi, Lijun; et al

Chemical Communications (Cambridge, United Kingdom) (2015), 51(33), 7136-7139.

Scheme 6 (1 Reaction) Steps: **1** Yield: **94%**



31-614-CAS-27430323 Steps: **1** Yield: **94%**

1.1 **Reagents:** Methanol-d_4
Catalysts: Sodium acetate, Bromopentacarbonylmanganese
Solvents: 1,4-Dioxane; 3 h, 80 °C

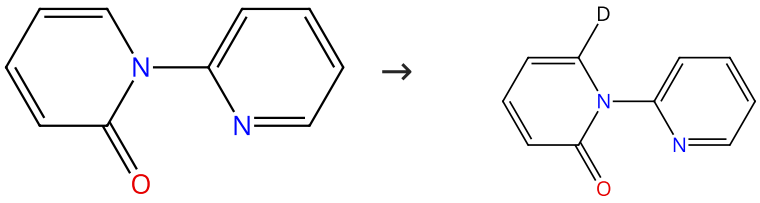
Experimental Protocols

Methylenecyclopropane Annulation by Manganese(I)-Catalyzed Stereoselective C-H/C-C Activation

By: Liang, Yu-Feng; et al

Angewandte Chemie, International Edition (2017), 56(32), 9415-9419.

Scheme 7 (3 Reactions) Steps: **1** Yield: **94%**



Suppliers (8)

31-116-CAS-23499778 Steps: **1** Yield: **94%**

1.1 **Reagents:** Methanol-d_4
Catalysts: Potassium acetate, Bromopentacarbonyl manganese
Solvents: *tert*-Butyl methyl ether; 15 h, 100 °C

Experimental Protocols

Manganese(I)-Catalyzed Site-Selective C6-Alkenylation of 2-Pyridones Using Alkynes via C-H Activation

By: Wan, Shanhong; et al

Advanced Synthesis & Catalysis (2021), 363(10), 2586-2593.

31-116-CAS-19930335 Steps: **1** Yield: **94%**

1.1 **Reagents:** Sodium acetate, Triphenylborane
Catalysts: Bromopentacarbonylmanganese
Solvents: 1,2-Dimethoxyethane, Methanol-d_4; 24 h, 100 °C

Experimental Protocols

Manganese(I)-Catalyzed C-H Activation/Diels-Alder/retro-Diels-Alder Domino Alkyne Annulation featuring Transformable Pyridines

By: Zhu, Cuiju; et al

Angewandte Chemie, International Edition (2019), 58(16), 5338-5342.

31-116-CAS-17192907 Steps: **1**

1.1 **Reagents:** Dicyclohexylamine, Methanol-d_4, Oxygen
Catalysts: Bromopentacarbonylmanganese
Solvents: 1,4-Dioxane; 22 h, 90 °C

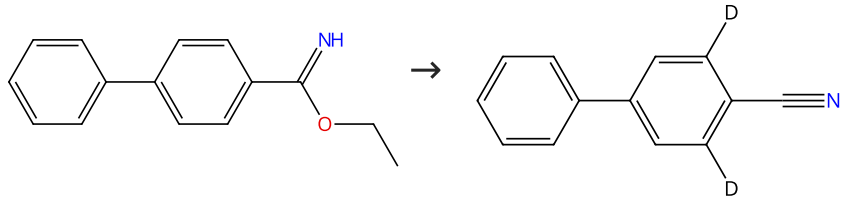
Experimental Protocols

Manganese(I)-Catalyzed C-H 3,3-Difluoroallylation of Pyridones and Indoles

By: Ni, Jiabin; et al

Organic Letters (2017), 19(12), 3159-3162.

Scheme 8 (1 Reaction) Steps: **1** Yield: **94%**



Suppliers (7)

31-614-CAS-42829641 Steps: **1** Yield: **94%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

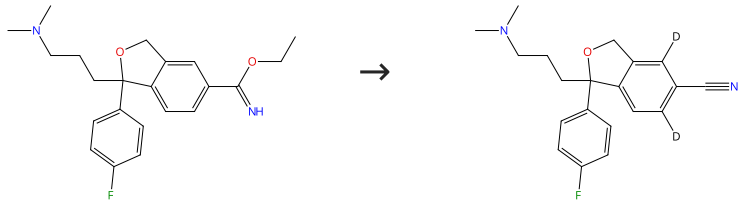
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 9 (1 Reaction) Steps: **1** Yield: **92%**



31-614-CAS-42829670 Steps: **1** Yield: **92%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 12 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

Experimental Protocols

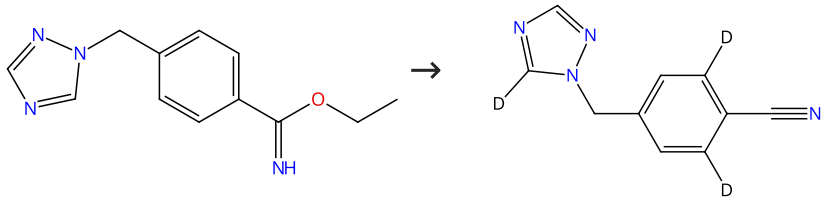
2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 10 (1 Reaction)

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



31-614-CAS-42829672

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

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 12 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

Experimental Protocols

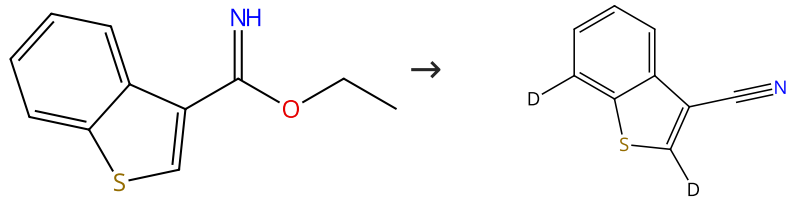
2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 11 (1 Reaction)

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



Suppliers (5)

31-614-CAS-42829663

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

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

Experimental Protocols

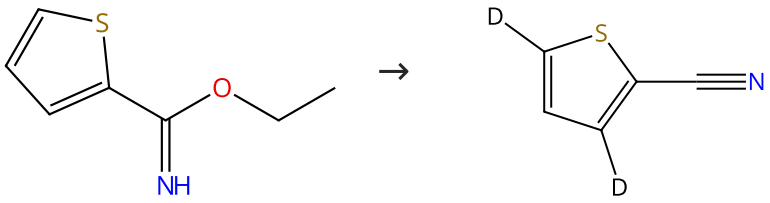
2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 12 (1 Reaction)

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



Suppliers (17)

31-614-CAS-42829668

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

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

Experimental Protocols

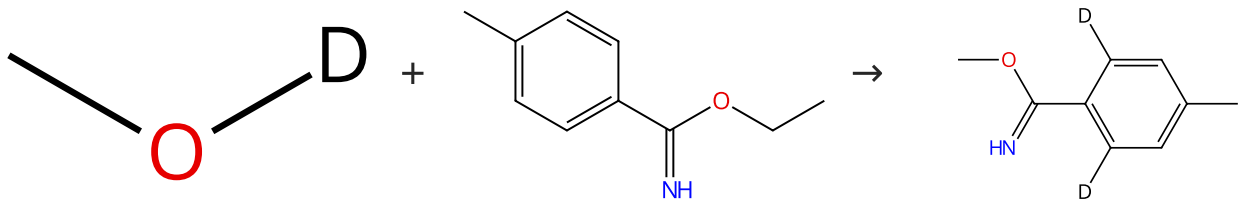
2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 13 (1 Reaction)

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



Suppliers (49)

Suppliers (16)

31-614-CAS-42829675

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

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1)
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C

Experimental Protocols

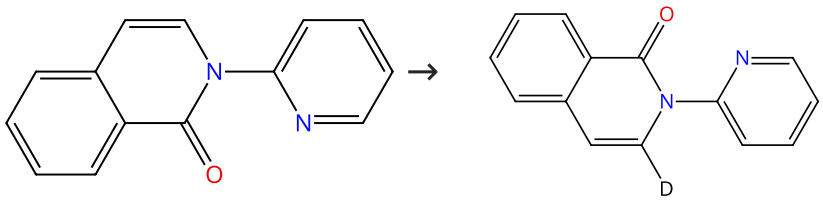
2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 14 (2 Reactions)

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



Supplier (1)

31-116-CAS-20333649

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

1.1 **Reagents:** Dicyclohexylamine, Methanol-d_4
Catalysts: Bromopentacarbonylmanganese
Solvents: 1,4-Dioxane; 24 h, 110 °C

Reaction of Isoquinolin-1(2H)-Ones with Methylenecyclop ropanes via Rhodium(III)-Catalyzed C-H Activation

By: Zhu, You-Quan; et al

Advanced Synthesis & Catalysis (2019), 361(12), 2897-2903.

31-614-CAS-41501024

Steps: **1**

1.1 **Reagents:** Formaldehyde
Catalysts: Sodium acetate, Bromopentacarbonylmanganese
Solvents: Methanol-d_4, *tert*-Butyl methyl ether; 12 h, 80 °C

Experimental Protocols

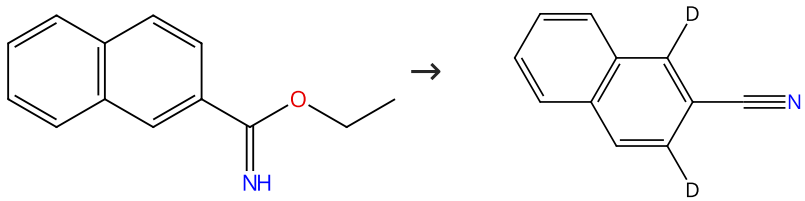
Manganese Catalyzed Site-Selective Hydroxymethylation to 2-Pyridones and Isoquinolones via C-H Activation

By: Rastogi, Anushka; et al

Advanced Synthesis & Catalysis (2024), 366(18), 3815-3821.

Scheme 15 (1 Reaction)

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



Suppliers (17)

31-614-CAS-42829664 Steps: **1** Yield: **90%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

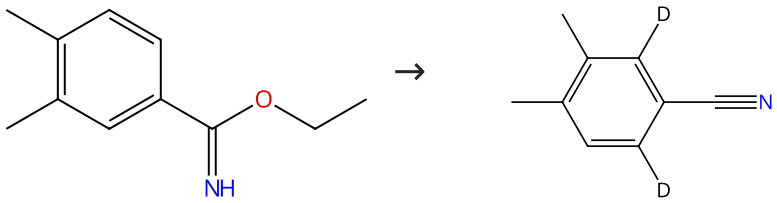
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 16 (1 Reaction) Steps: **1** Yield: **90%**



Suppliers (8)

31-614-CAS-42829655 Steps: **1** Yield: **90%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

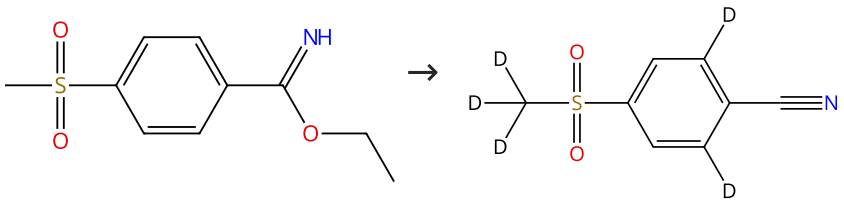
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 17 (1 Reaction) Steps: **1** Yield: **90%**



Suppliers (3)

31-614-CAS-42829667 Steps: **1** Yield: **90%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

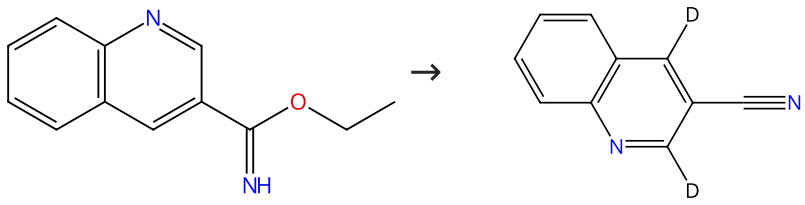
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 18 (1 Reaction) Steps: **1** Yield: **90%**



Suppliers (2)

31-614-CAS-42829661 Steps: **1** Yield: **90%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

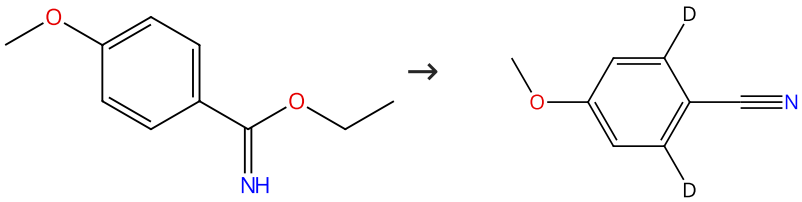
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 19 (1 Reaction) Steps: **1** Yield: **90%**



Suppliers (11)

31-614-CAS-42829644 Steps: **1** Yield: **90%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

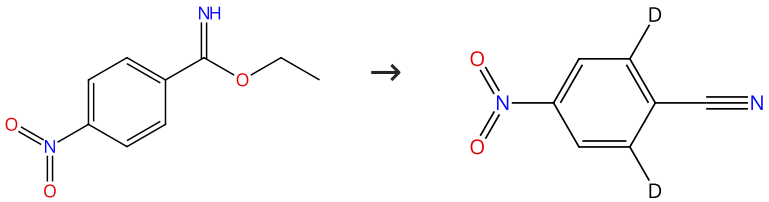
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 20 (1 Reaction) Steps: **1** Yield: **90%**



Suppliers (7)

31-614-CAS-42829651 Steps: **1** Yield: **90%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

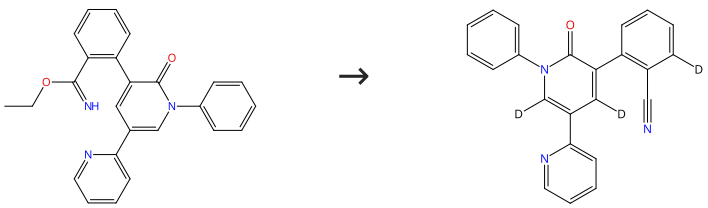
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 21 (1 Reaction) Steps: **1** Yield: **88%**



31-614-CAS-42829665 Steps: **1** Yield: **88%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 12 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

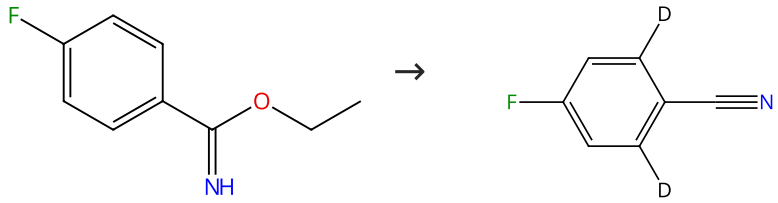
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 22 (1 Reaction) Steps: **1** Yield: **88%**



Suppliers (13)

31-614-CAS-42829648 Steps: **1** Yield: **88%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

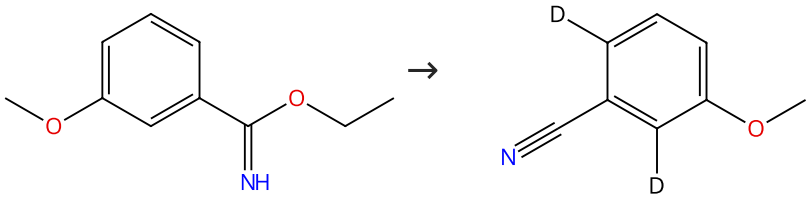
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 23 (1 Reaction) Steps: **1** Yield: **87%**



Suppliers (9)

31-614-CAS-42829654 Steps: **1** Yield: **87%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*, Tripotassium phosphate
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C

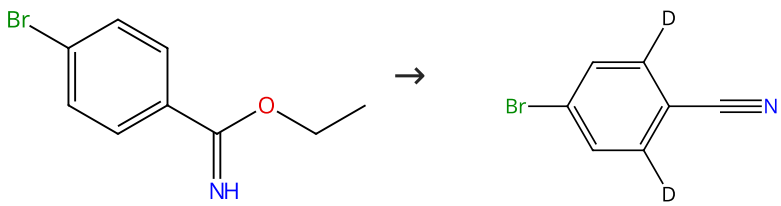
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 24 (1 Reaction) Steps: **1** Yield: **87%**



Suppliers (21)

31-614-CAS-42829642 Steps: **1** Yield: **87%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

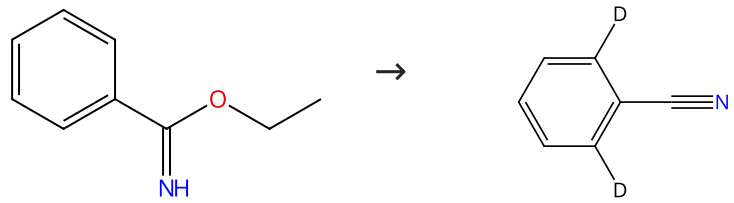
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 25 (1 Reaction) Steps: **1** Yield: **86%**



Suppliers (20)

31-614-CAS-42829643 Steps: **1** Yield: **86%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

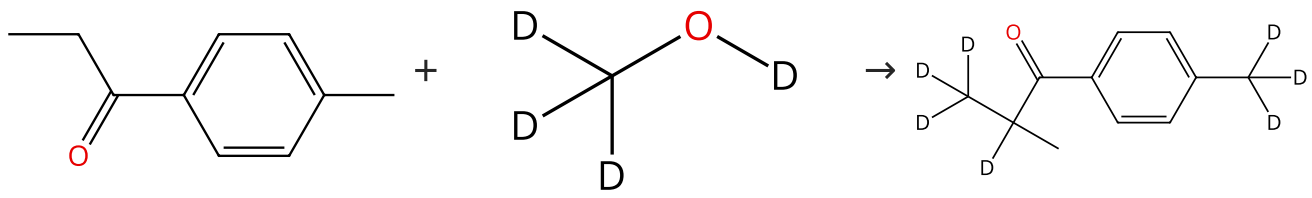
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 26 (1 Reaction) Steps: **1** Yield: **85%**



Suppliers (85)

Suppliers (246)

31-116-CAS-19638965 Steps: **1** Yield: **85%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*) methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

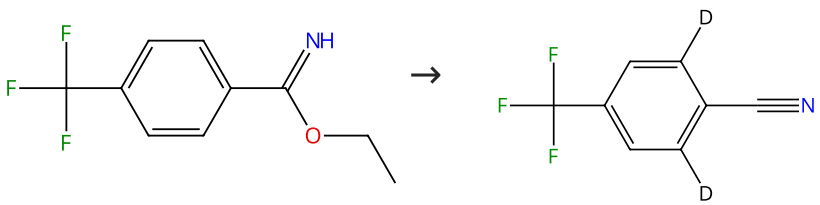
Experimental Protocols

Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 27 (1 Reaction) Steps: **1** Yield: **85%**



Suppliers (28)

31-614-CAS-42829649 Steps: **1** Yield: **85%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*, Tripotassium phosphate
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C

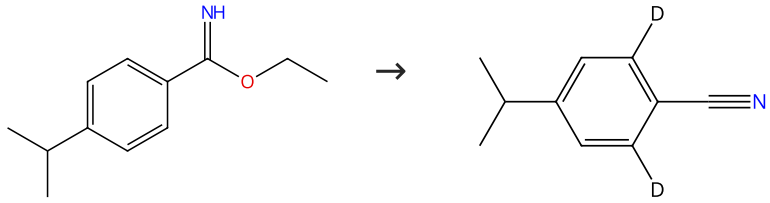
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 28 (1 Reaction) Steps: **1** Yield: **85%**



Suppliers (3)

31-614-CAS-42829652 Steps: **1** Yield: **85%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

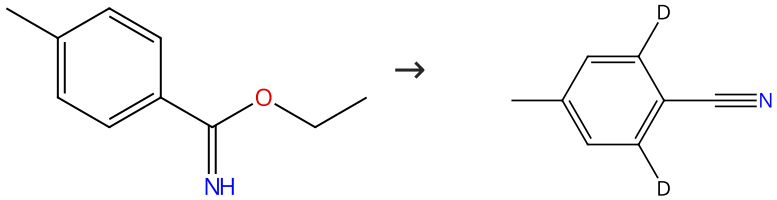
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 29 (1 Reaction) Steps: **1** Yield: **85%**



Suppliers (16)

Supplier (1)

31-614-CAS-42829645 Steps: **1** Yield: **85%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

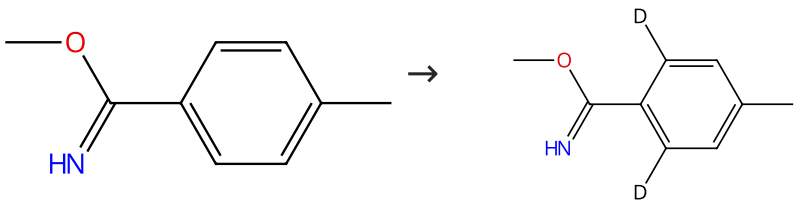
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 30 (1 Reaction) Steps: **1** Yield: **83%**



Suppliers (7)

31-614-CAS-42829669 Steps: **1** Yield: **83%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C

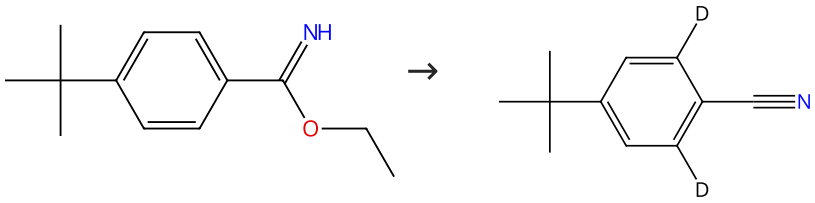
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 31 (1 Reaction) Steps: **1** Yield: **83%**



Suppliers (11)

31-614-CAS-42829650 Steps: **1** Yield: **83%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

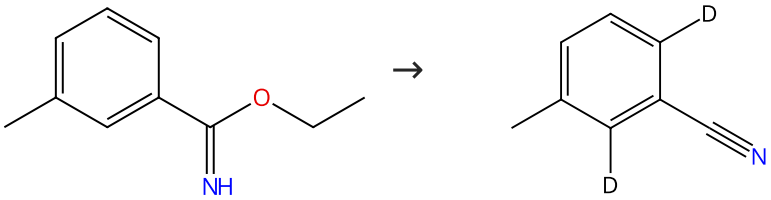
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

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



Suppliers (18)

31-614-CAS-42829653 Steps: **1** Yield: **83%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

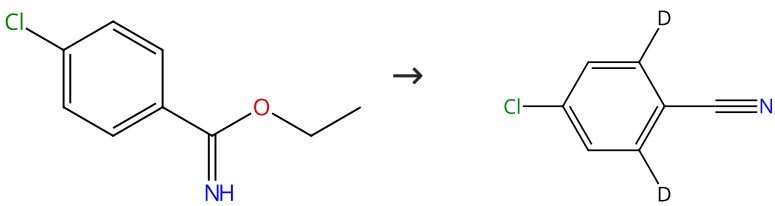
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

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



Suppliers (29)

31-614-CAS-42829646 Steps: **1** Yield: **83%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

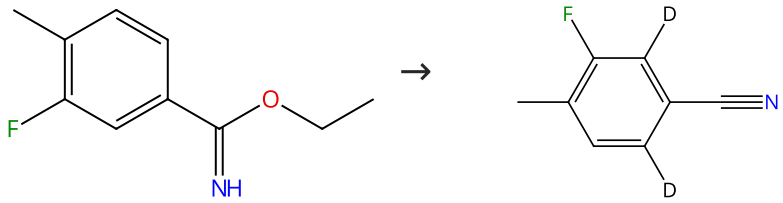
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 34 (1 Reaction) Steps: **1** Yield: **83%**



Suppliers (4)

31-614-CAS-42829657 Steps: **1** Yield: **83%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

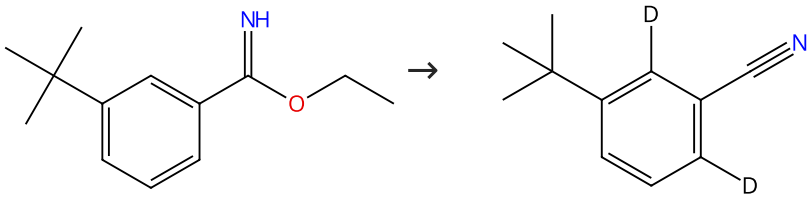
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 35 (1 Reaction) Steps: **1** Yield: **82%**



31-614-CAS-42829658 Steps: **1** Yield: **82%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

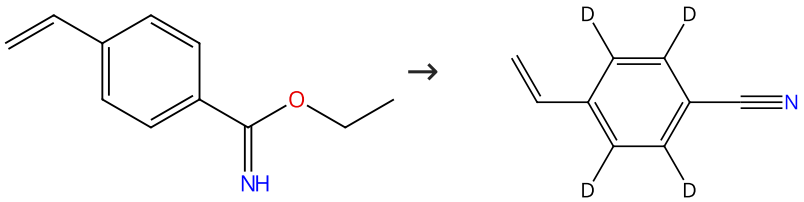
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 36 (1 Reaction) Steps: **1** Yield: **82%**



31-614-CAS-42829666 Steps: **1** Yield: **82%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

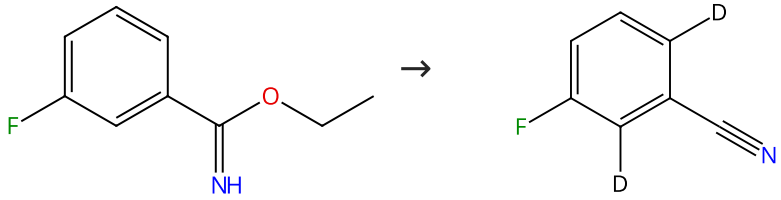
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 37 (1 Reaction) Steps: **1** Yield: **81%**



Suppliers (18)

31-614-CAS-42829660 Steps: **1** Yield: **81%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

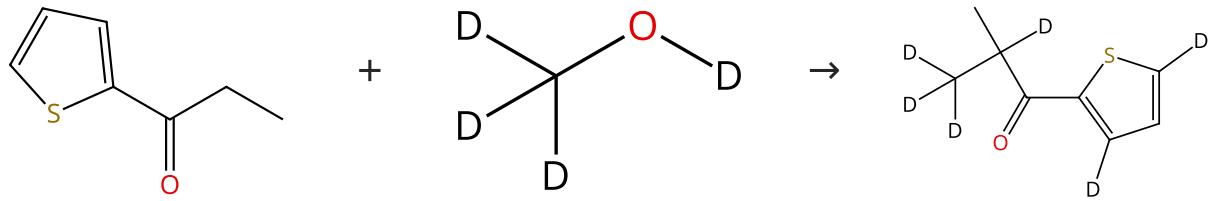
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

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



Suppliers (74) Suppliers (246)

31-116-CAS-19638978 Steps: **1** Yield: **77%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*) methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

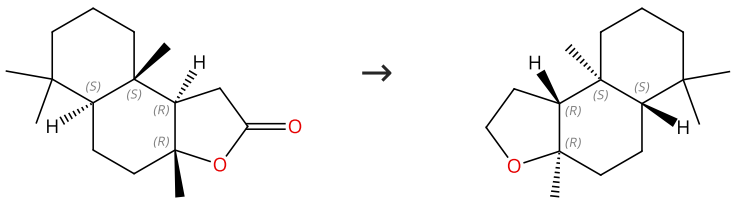
Experimental Protocols

Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 39 (1 Reaction) Steps: **1** Yield: **77%**



Absolute stereochemistry shown, Rotation (+)

Absolute stereochemistry shown, Rotation (-)

Suppliers (69) Suppliers (61)

31-614-CAS-24771077 Steps: **1** Yield: **77%**

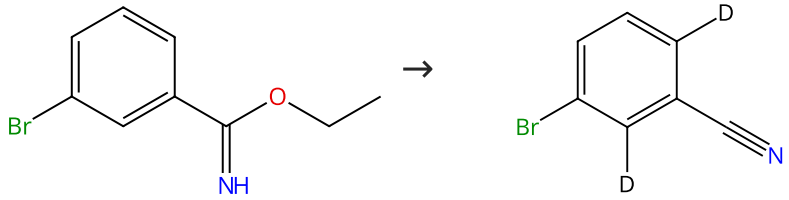
1.1 **Reagents:** Potassium carbonate, Hydrogen
Catalysts: Manganese(1+), [(1*R*)-1-[bis(4-methoxy-3,5-dimethylphenyl)phosphino-κ*P*]-2-[(1*R*)-1-[(2-pyridinylmethyl)amino-κ*N*]ethyl]ferrocene]tricarbonyl-, bromide (1:1), (*OC*-6-44)-
Solvents: Ethanol-*d*; 16 h, 50 bar, 90 °C

Design of improved catalysts for manganese catalysed hydrogenation towards practical earth abundant reduction catalysis

By: Widegren, Magnus B.; et al

Catalysis Science & Technology (2019), 9(21), 6047-6058.

Scheme 40 (1 Reaction) Steps: **1** Yield: **76%**



Suppliers (13)

31-614-CAS-42829659 Steps: **1** Yield: **76%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

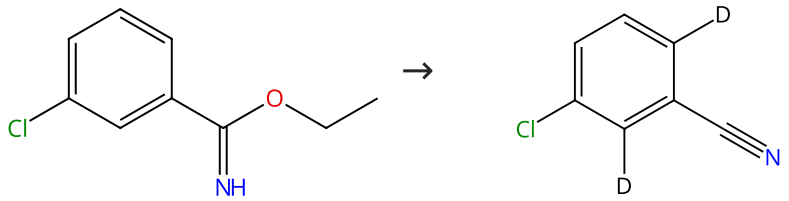
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 41 (1 Reaction) Steps: **1** Yield: **76%**



Suppliers (30)

31-614-CAS-42829656 Steps: **1** Yield: **76%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

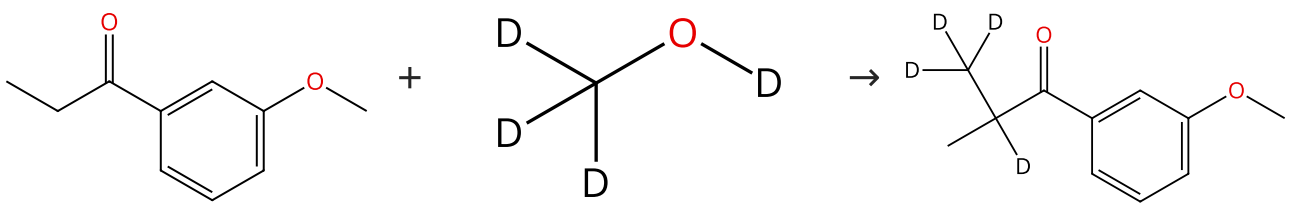
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 42 (1 Reaction) Steps: **1** Yield: **75%**



Suppliers (67)

Suppliers (246)

31-116-CAS-19638966 Steps: **1** Yield: **75%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

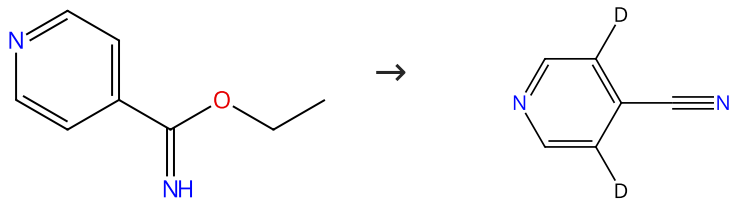
Experimental Protocols

Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 43 (1 Reaction) Steps: **1** Yield: **75%**



Suppliers (45)

31-614-CAS-42829662 Steps: **1** Yield: **75%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

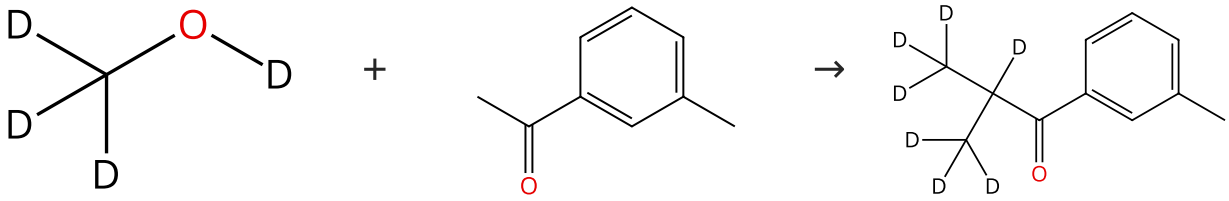
Experimental Protocols

2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 44 (1 Reaction) Steps: **1** Yield: **74%**



Suppliers (246) Suppliers (86)

31-116-CAS-19638984 Steps: **1** Yield: **74%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

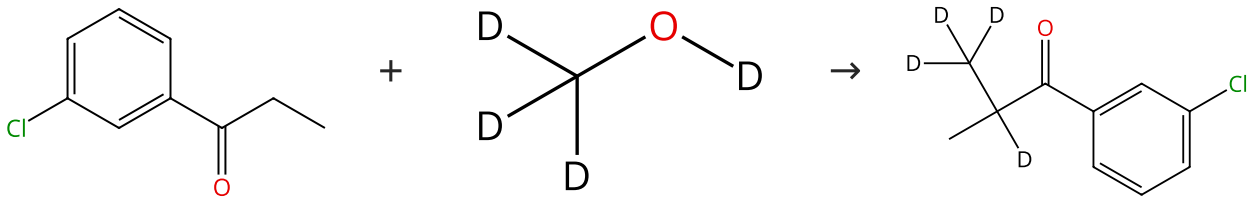
Experimental Protocols

Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 45 (1 Reaction) Steps: **1** Yield: **72%**



Suppliers (97) Suppliers (246)

31-116-CAS-19638969 Steps: **1** Yield: **72%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

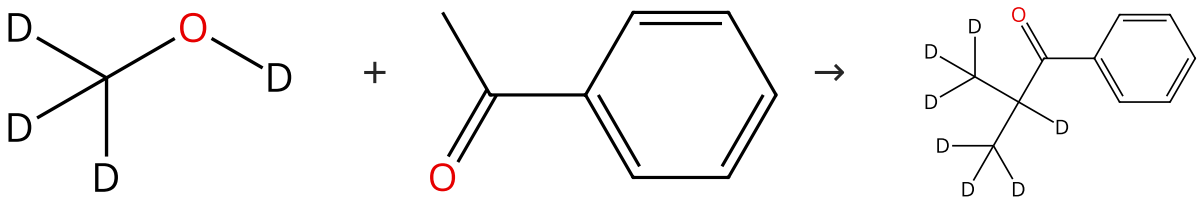
Experimental Protocols

Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 46 (1 Reaction) Steps: **1** Yield: **70%**



Suppliers (246) Suppliers (109)

31-116-CAS-19638982 Steps: **1** Yield: **70%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 48 h, 105 °C

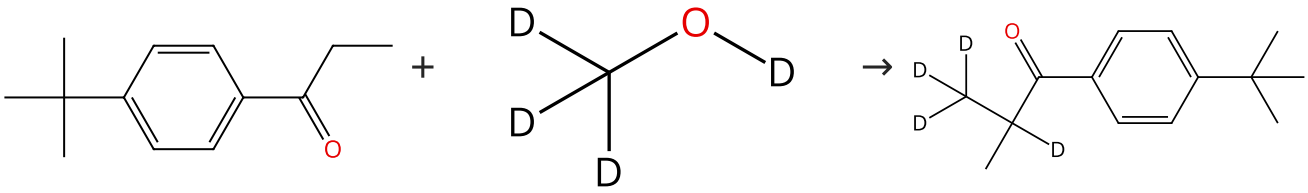
Experimental Protocols

Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 47 (1 Reaction) Steps: **1** Yield: **69%**



Suppliers (50) Suppliers (246)

31-116-CAS-19638963 Steps: **1** Yield: **69%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

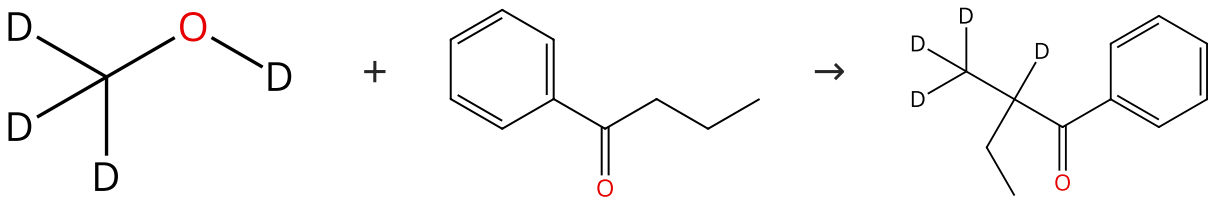
Experimental Protocols

Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 48 (1 Reaction) Steps: **1** Yield: **68%**



Suppliers (246) Suppliers (90)

31-116-CAS-19638973 Steps: **1** Yield: **68%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

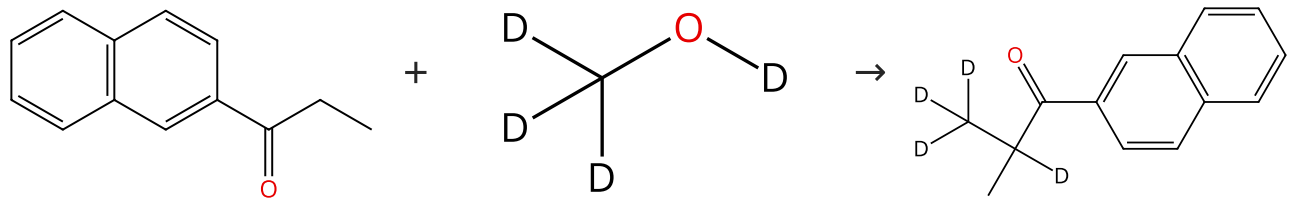
Experimental Protocols

Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 49 (1 Reaction) Steps: **1** Yield: **67%**



Suppliers (54) Suppliers (246)

31-116-CAS-19638972 Steps: **1** Yield: **67%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

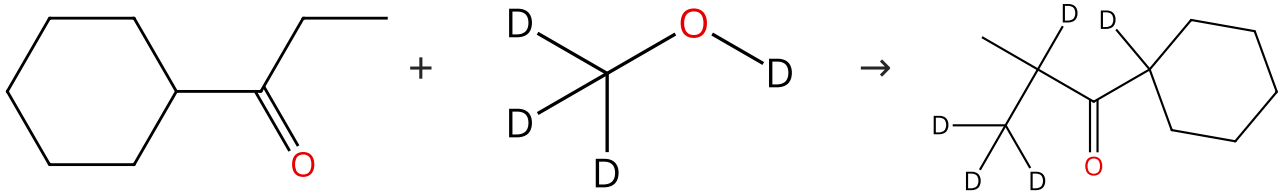
Experimental Protocols

Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 50 (1 Reaction) Steps: **1** Yield: **66%**



Suppliers (60) Suppliers (246)

31-116-CAS-19638979 Steps: **1** Yield: **66%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

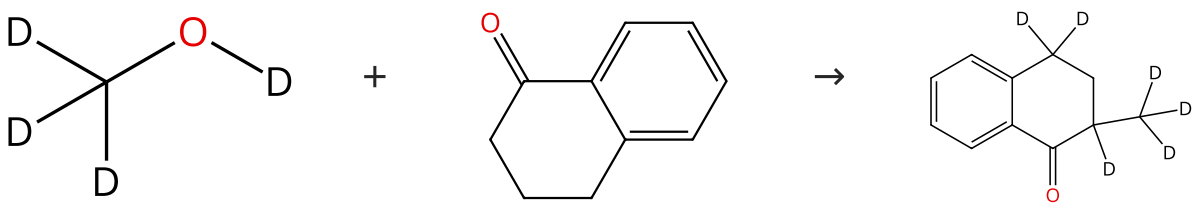
Experimental Protocols

Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 51 (1 Reaction) Steps: **1** Yield: **65%**



Suppliers (246) Suppliers (101)

31-116-CAS-19638976 Steps: **1** Yield: **65%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

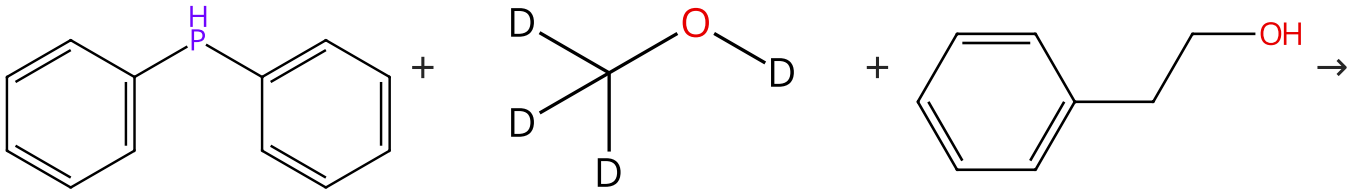
Experimental Protocols

Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

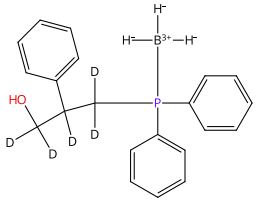
By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 52 (1 Reaction) Steps: **1** Yield: **65%**



Suppliers (41) Suppliers (246) Suppliers (119)



31-614-CAS-40330612 Steps: **1** Yield: **65%**

1.1 **Reagents:** Potassium *tert*-butoxide
Catalysts: (*OC*-6-42)-Bromodicarbonyl[2-(diphenylphosphino-κ*P*)-*N*-[2-(diphenylphosphino-κ*P*)ethyl]ethanamine-κ*N*]manganese
Solvents: 1,2-Dimethoxyethane; 5 min, rt

1.2 15 h, 120 °C

1.3 **Reagents:** (*T*-4)-Trihydro(tetrahydrofuran)boron
Solvents: Tetrahydrofuran; 1 h, rt

1.4 **Reagents:** Water; rt

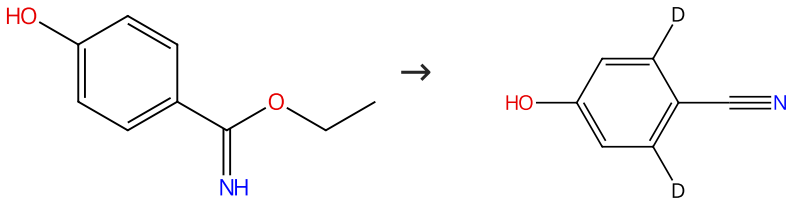
Experimental Protocols

Borrowing Hydrogen β-Phosphinomethylation of Alcohols Using Methanol as C1 Source by Pincer Manganese Complex

By: Sun, Feixiang; et al

Journal of the American Chemical Society (2023), 145(47), 25545-25552.

Scheme 53 (1 Reaction) Steps: **1** Yield: **63%**



Suppliers (15)

31-614-CAS-42829647 Steps: **1** Yield: **63%**

1.1 **Reagents:** Propanoic acid, 2,2-dimethyl-, sodium salt (1:1), Methanol-*d*
Catalysts: 2-Hydroxy-5-methylpyridine, Bromopenta carbonylmanganese; 2 h, 100 °C; 100 °C → rt

1.2 **Reagents:** Tripotassium phosphate; overnight, 100 °C

Experimental Protocols

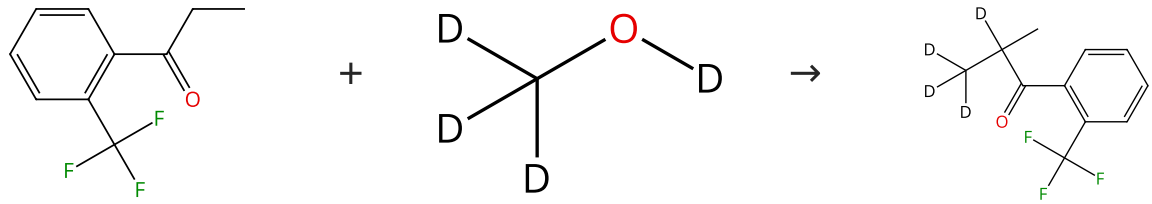
2-Pyridone-Enhanced Mn-Catalysis for the Synthesis of ortho-Deuterated Aromatic Nitriles

By: Liu, Yanran; et al

Organic Letters (2024), 26(47), 10170-10175.

Scheme 54 (1 Reaction)

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



Suppliers (69)

Suppliers (246)

31-116-CAS-19638971

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

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

Experimental Protocols

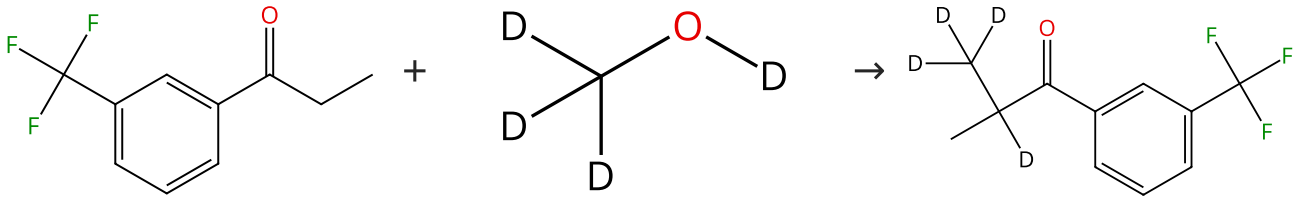
Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 55 (1 Reaction)

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



Suppliers (72)

Suppliers (246)

31-116-CAS-19638970

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

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

Experimental Protocols

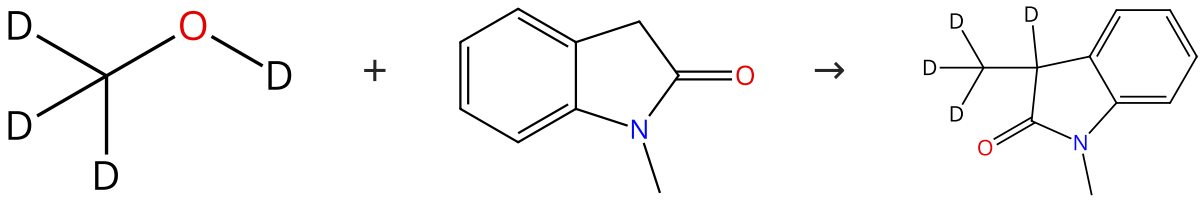
Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 56 (1 Reaction)

Steps: **1** Yield: **51%**



Suppliers (246)

Suppliers (73)

31-116-CAS-19638980

Steps: **1** Yield: **51%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: 1,4-Dioxane; 24 h, 135 °C

Experimental Protocols

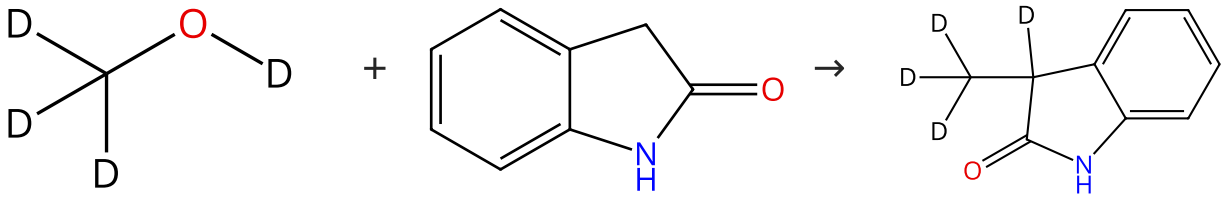
Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 57 (1 Reaction)

Steps: **1** Yield: **45%**



Suppliers (246)

Suppliers (121)

31-116-CAS-19638981

Steps: **1** Yield: **45%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: 1,4-Dioxane; 24 h, 135 °C

Experimental Protocols

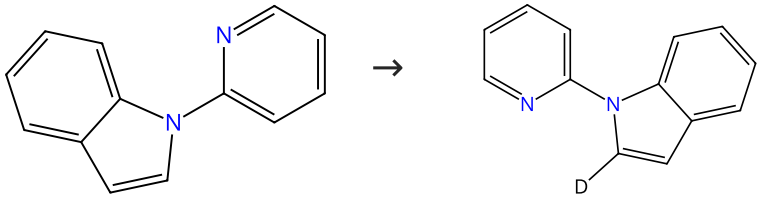
Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 58 (2 Reactions)

Steps: **1** Yield: **19%**



Suppliers (36)

31-116-CAS-19023633

Steps: **1** Yield: **19%**

1.1 **Catalysts:** Sodium acetate, Bromopentacarbonylmanganese
Solvents: 1,2-Dimethoxyethane, Methanol-d_4; 45 °C

Experimental Protocols

Mn^I/Ag^I Relay Catalysis: Traceless Diazo-Assisted C(sp^2)-H/C(sp^3)-H Coupling to β-(Hetero)Aryl/Alkenyl Ketones

By: Lu, Qingquan; et al

Angewandte Chemie, International Edition (2018), 57(33), 10732-10736.

31-116-CAS-18440671

Steps: **1**

1.1 **Reagents:** Methanol-d_4
Catalysts: Sodium acetate, Bromopentacarbonylmanganese
Solvents: 1,2-Dimethoxyethane; 1 h, 80 °C

Experimental Protocols

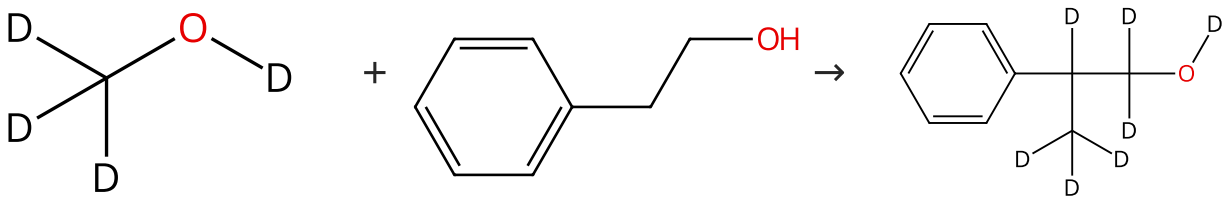
Manganese(I)-Catalyzed C-H (2-Indolyl)methylation: Expedient Access to Diheteroarylmethanes

By: Lu, Qingquan; et al

Angewandte Chemie, International Edition (2018), 57(5), 1399-1403.

Scheme 59 (1 Reaction)

Steps: **1**



Suppliers (246)

Suppliers (119)

31-116-CAS-21006244 Steps: **1**

1.1 **Reagents:** Sodium *tert*-butoxide
Catalysts: (*OC*-6-42)-[2-[Bis(1-methylethyl)phosphino-κ*P*]-*N*-[2-[bis(1-methylethyl)phosphino-κ*P*]ethyl]ethanamine-κ*N*]bromodicarbonylmanganese; rt; 24 h, rt → 150 °C

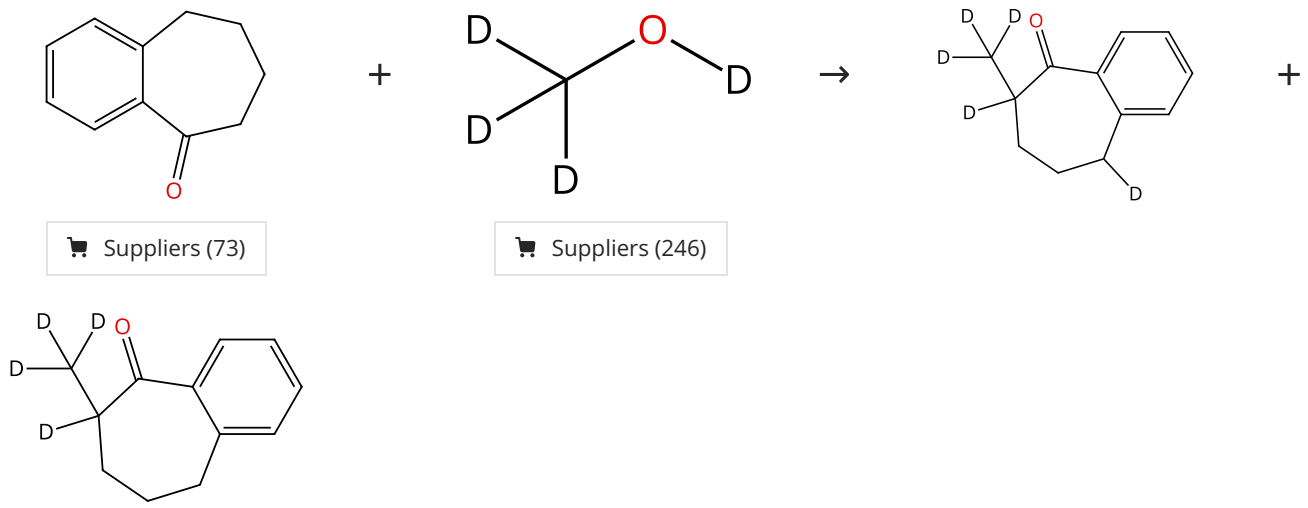
Experimental Protocols

Manganese(I)-Catalyzed β-Methylation of Alcohols using Methanol as C_1 Source

By: Kaithal, Akash; et al

Angewandte Chemie, International Edition (2020), 59(1), 215-220.

Scheme 60 (1 Reaction) Steps: **1** Yield: **80%**



Suppliers (73) Suppliers (246)

31-116-CAS-19638977 Steps: **1** Yield: **80%**

1.1 **Reagents:** Cesium carbonate
Catalysts: Manganese(1+), [2,6-bis[(diphenylphosphino-κ*P*)methyl]pyridine-κ*N*]tricarbonyl-, bromide (1:1), (*OC*-6-13)-
Solvents: Methanol-d_4; 24 h, 105 °C

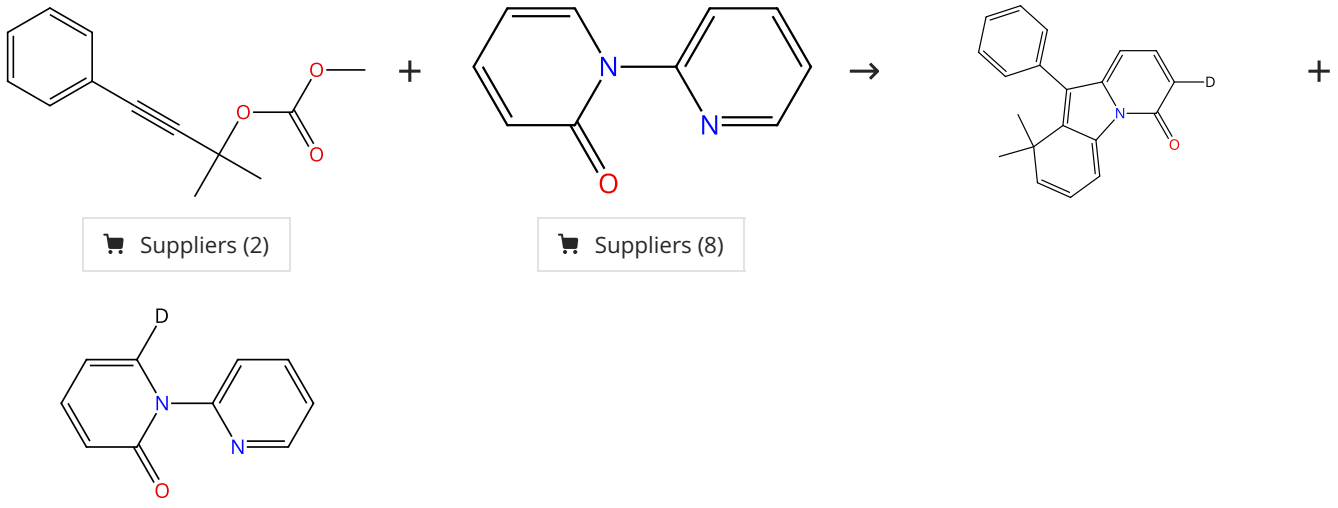
Experimental Protocols

Catalytic C_1 Alkylation with Methanol and Isotope-Labeled Methanol

By: Sklyaruk, Jan; et al

Angewandte Chemie, International Edition (2019), 58(3), 775-779.

Scheme 61 (1 Reaction) Steps: **1** Yield: **78%**



Suppliers (2) Suppliers (8)

31-116-CAS-19930336 Steps: **1** Yield: **78%**

1.1 **Reagents:** Sodium acetate, Triphenylborane
Catalysts: Bromopentacarbonylmanganese
Solvents: 1,2-Dimethoxyethane, Methanol-d_4; 3 h, 100 °C

Experimental Protocols

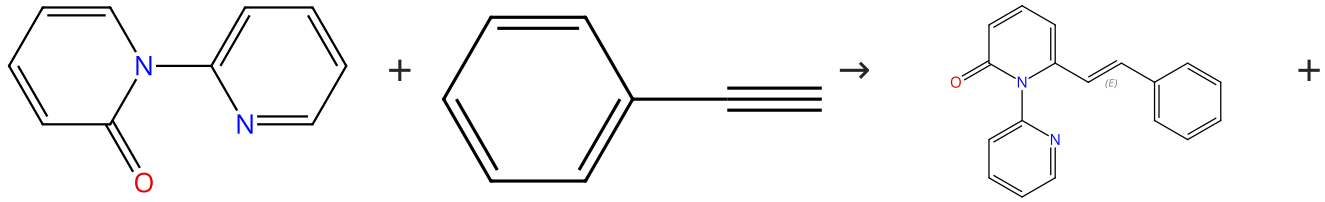
Manganese(I)-Catalyzed C-H Activation/Diels-Alder/retro-Diels-Alder Domino Alkyne Annulation featuring Transformable Pyridines

By: Zhu, Cuiju; et al

Angewandte Chemie, International Edition (2019), 58(16), 5338-5342.

Scheme 62 (1 Reaction)

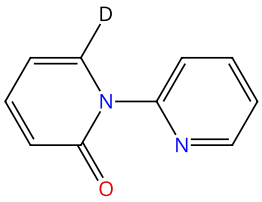
Steps: **1** Yield: **71%**



Suppliers (8)

Suppliers (72)

Double bond geometry shown



31-614-CAS-30444673

Steps: **1** Yield: **71%**

1.1 **Reagents:** Methanol-d_4
Catalysts: Potassium acetate, Bromopentacarbonyl manganese
Solvents: *tert*-Butyl methyl ether; 15 h, 100 °C

Experimental Protocols

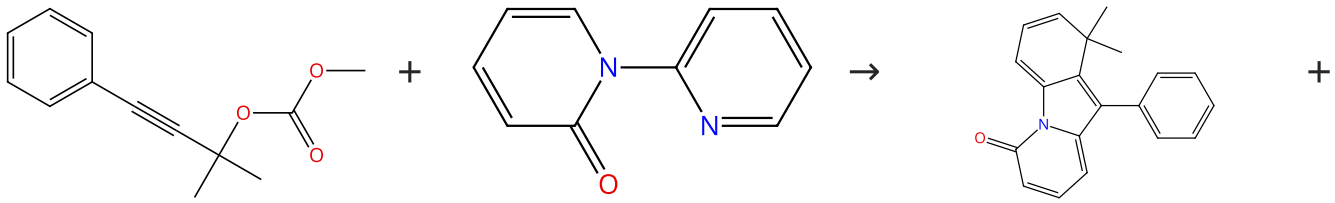
Manganese(I)-Catalyzed Site-Selective C6-Alkenylation of 2-Pyridones Using Alkynes via C-H Activation

By: Wan, Shanhong; et al

Advanced Synthesis & Catalysis (2021), 363(10), 2586-2593.

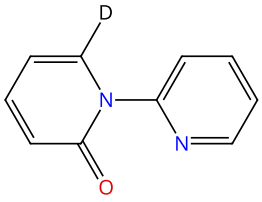
Scheme 63 (1 Reaction)

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



Suppliers (2)

Suppliers (8)



31-116-CAS-19877579

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

1.1 **Reagents:** Dicyclohexylamine, Sodium acetate, Methanol-d_4
Catalysts: Bromopentacarbonylmanganese
Solvents: *tert*-Butyl methyl ether; 48 h, 100 °C

Experimental Protocols

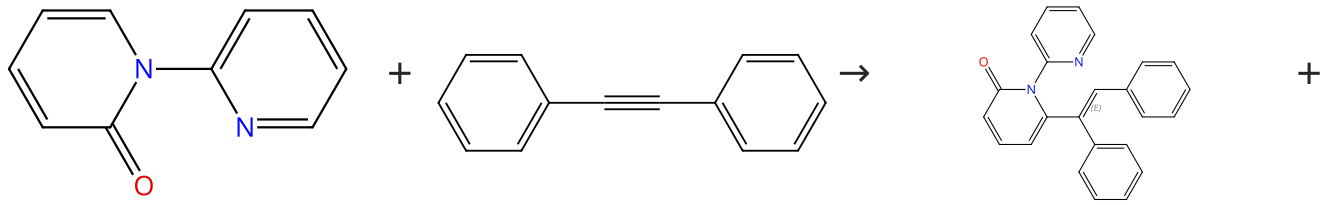
Mn-Catalyzed Dehydrocyanative Transannulation of Heteroarenes and Propargyl Carbonates through C-H Activation: Beyond the Permanent Directing Effects of Pyridines/Pyrimidines

By: Zheng, Guangfan; et al

Angewandte Chemie, International Edition (2019), 58(15), 5090-5094.

Scheme 64 (1 Reaction)

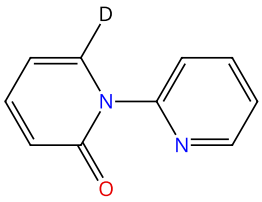
Steps: **1** Yield: **67%**



Suppliers (8)

Suppliers (88)

Double bond geometry shown



31-116-CAS-23497295

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

1.1 **Reagents:** Methanol-d_4
Catalysts: Potassium acetate, Bromopentacarbonyl manganese
Solvents: Dichloromethane; 12 h, 120 °C

Experimental Protocols

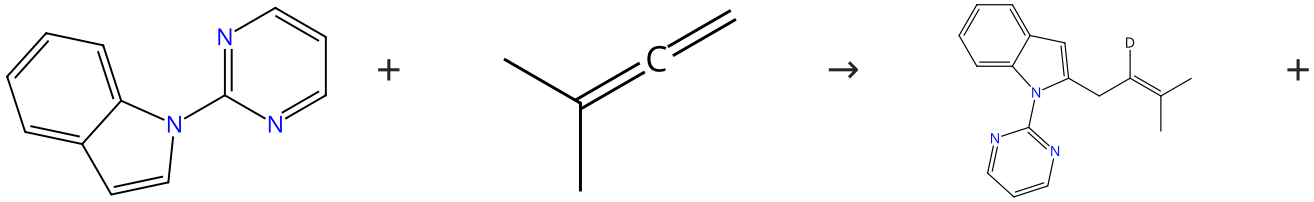
Manganese(I)-Catalyzed Site-Selective C6-Alkenylation of 2-Pyridones Using Alkynes via C-H Activation

By: Wan, Shanhong; et al

Advanced Synthesis & Catalysis (2021), 363(10), 2586-2593.

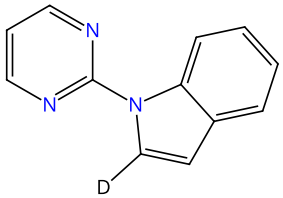
Scheme 65 (1 Reaction)

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



Suppliers (59)

Suppliers (29)



Suppliers (3)

31-085-CAS-17813053

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

1.1 **Catalysts:** Sodium acetate, Bromopentacarbonylmanganese
Solvents: 1,4-Dioxane, Methanol-d_4; 3 h, 100 °C

Experimental Protocols

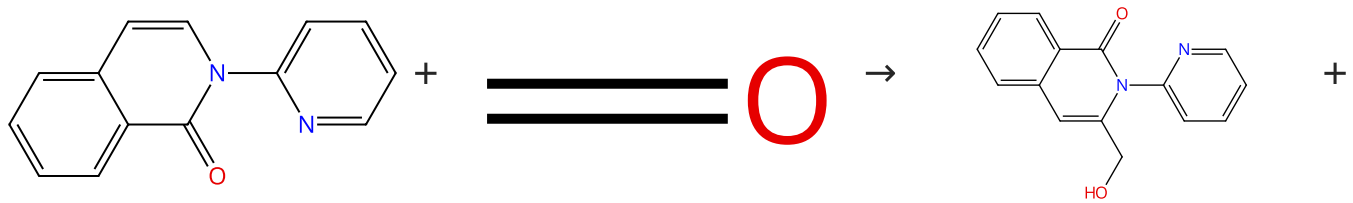
Manganese(I)-Catalyzed Direct C-H Allylation of Arenes with Allenes

By: Chen, Shi-Yong; et al

Journal of Organic Chemistry (2017), 82(20), 11173-11181.

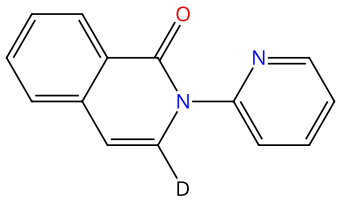
Scheme 66 (1 Reaction)

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



Supplier (1)

Suppliers (206)



31-614-CAS-41501033

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

1.1 **Catalysts:** Sodium acetate, Bromopentacarbonylmanganese
Solvents: Methanol-d_4, *tert*-Butyl methyl ether; 12 h, 80 °C

Experimental Protocols

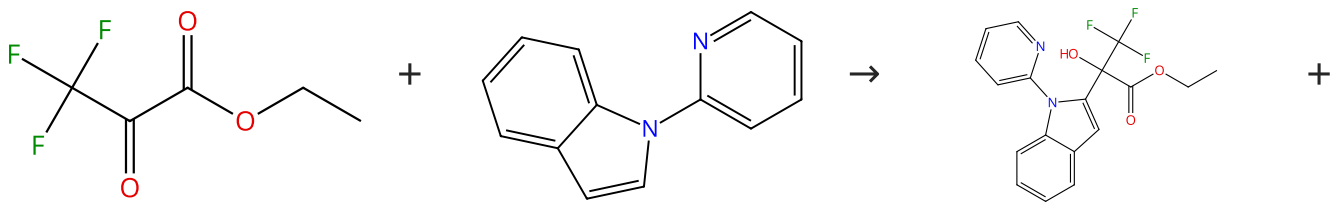
Manganese Catalyzed Site-Selective Hydroxymethylation to 2-Pyridones and Isoquinolones via C-H Activation

By: Rastogi, Anushka; et al

Advanced Synthesis & Catalysis (2024), 366(18), 3815-3821.

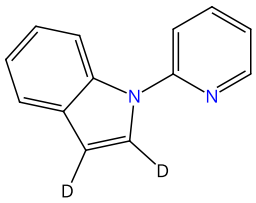
Scheme 67 (1 Reaction)

Steps: **1** Yield: **50%**



Suppliers (95)

Suppliers (36)



31-086-CAS-16262934

Steps: **1** Yield: **50%**

1.1 **Reagents:** Methanol-d_4
Catalysts: Dimanganese decacarbonyl
Solvents: 1,4-Dioxane; 2 h, 100 °C

Experimental Protocols

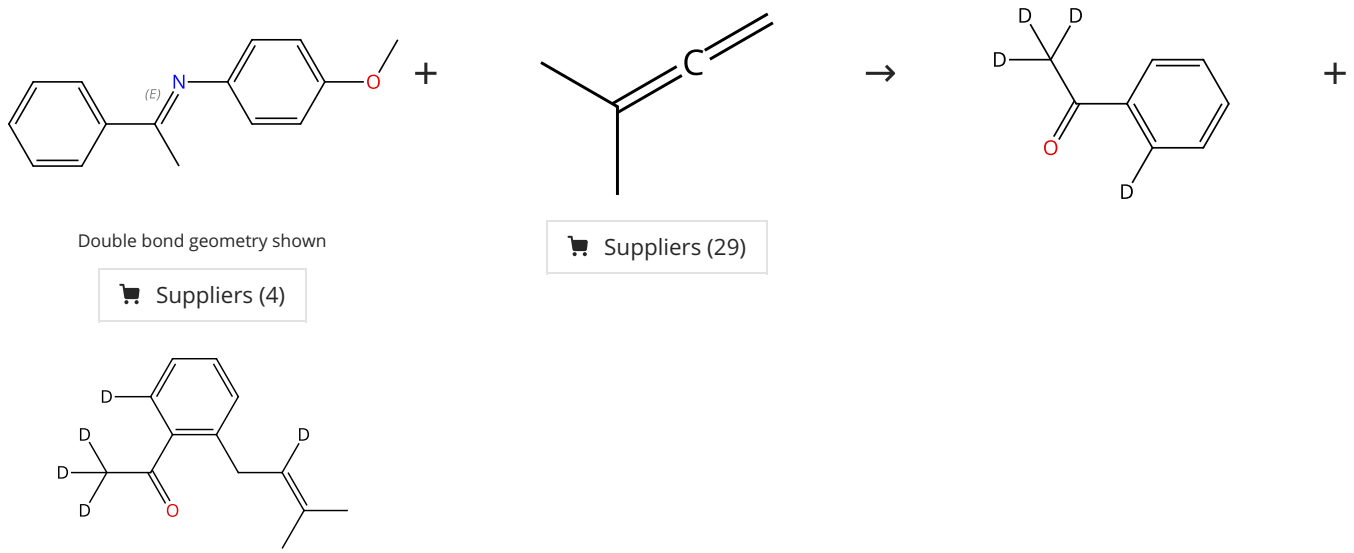
Catalyst-Guided C=Het Hydroarylations via Manganese-Catalyzed Additive-Free C-H Activation

By: Liang, Yu-Feng; et al

Chemistry - A European Journal (2016), 22(42), 14856-14859.

Scheme 68 (1 Reaction)

Steps: **1** Yield: **40%**



Double bond geometry shown

Suppliers (4)

Suppliers (29)

31-085-CAS-17260735

Steps: **1** Yield: **40%**

1.1 **Reagents:** Methanol-d_4
Catalysts: Sodium acetate, Bromopentacarbonylmanganese
Solvents: 1,4-Dioxane; 30 min, 100 °C

1.2 **Reagents:** Hydrochloric acid
Solvents: Ethyl acetate, Water; 20 min, rt

Experimental Protocols

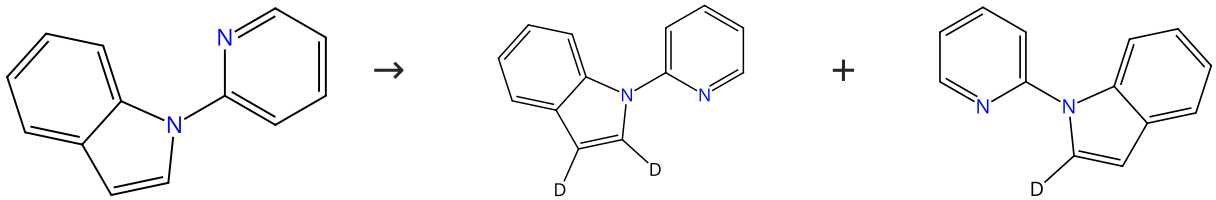
Polycyclization Enabled by Relay Catalysis: One- Pot Manganese-Catalyzed C-H Allylation and Silver-Catalyzed Povarov Reaction

By: Chen, Shi-Yong; et al

ChemSusChem (2017), 10(11), 2360-2364.

Scheme 69 (1 Reaction)

Steps: **1**



Suppliers (36)

31-116-CAS-17742560

Steps: **1**

1.1 **Reagents:** Methanol-d_4
Catalysts: Sodium acetate, Bromopentacarbonylmanganese
Solvents: Diethyl ether; 4 h, 90 °C

Experimental Protocols

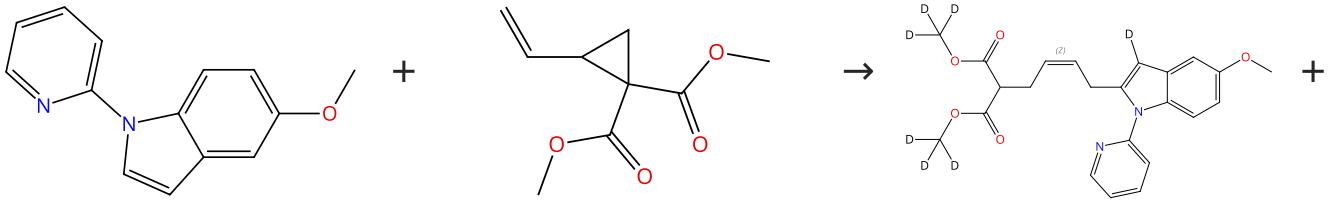
Manganese-catalyzed allylation via sequential C-H and C-C/C-Het bond activation

By: Lu, Qingquan; et al

Chemical Science (2017), 8(5), 3379-3383.

Scheme 70 (1 Reaction)

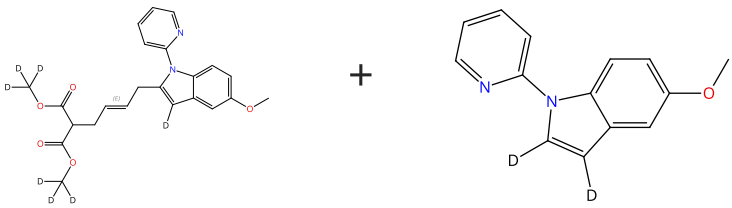
Steps: **1** Yield: **81%**



Suppliers (4)

Suppliers (48)

Double bond geometry shown



Double bond geometry shown

31-116-CAS-17105955

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

1.1 **Reagents:** Dicyclohexylamine
Catalysts: Bromopentacarbonylmanganese
Solvents: 1,4-Dioxane, Methanol-d_4; 20 h, 120 °C

Manganese(I)-Catalyzed Dispersion-Enabled C-H/C-C Activation

By: Meyer, Tjark H.; et al

Chemistry - A European Journal (2017), 23(23), 5443-5447.