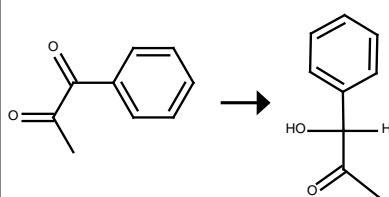


Query

	Query	Results	Date
1. Query	RX.PXRN=3196936	91 reactions in Reaxys	2019-02-24 16h:01m:36s (UTC)



Rx-ID: 817721 [View in Reaxys](#) 1/91

Yield	Conditions & References
97 %	With zinc, 1,1'-dipropyl-4,4'-bipyridinium dichloride in water, acetonitrile, Time= 24h, Ambient temperature Endo, Takeshi; Saotome, Yasushi; Okawara, Makoto; Tetrahedron Letters; vol. 26; nb. 37; (1985); p. 4525 - 4526 View in Reaxys
78 %	4.2.6. (R/S)-1-Hydroxy-1-phenylpropan-2-one (5f) Method A. To a vigorously stirred mixture of thiamine hydrochloride 2 (337 mg, 1.00 mmol), Et ₃ N (279 µL, 2.00 mmol), and PEG ₄₀₀ (4 mL) α-diketone 1f (293 µL, 2.00 mmol) was added in one portion. The mixture was stirred at room temperature for 3 h and then diluted with Et ₂ O (5 mL). The resulting mixture was vigorously stirred for 5 min, allowed to separate out and the ethereal solution was decanted. This process was repeated twice. The collected ethereal fractions were concentrated and the resulting residue was eluted from a column of silica gel with 4:1 cyclohexane/AcOEt to give 5frefPreviewPlaceHolder ²² (234 mg, 78percent) as a white amorphous solid. ESI MS (150.1): 173.7 (M+Na ⁺).CommentThe subsequent elution with AcOEt afforded a mixture of PEG-OBz and PEG-OAc. PEG-OBz: ¹ H NMR: δ=8.20-8.05, 7.60-7.50, and 7.48-7.40 (3m, Ph), 4.50-4.40 and 3.90-3.80 (2m, OCH ₂ CH ₂ OBz), 3.70-3.50 (m, OCH ₂ CH ₂ O-). PEG-OAc: ¹ H NMR: δ=4.30-4.20 and 3.60-3.50 (2m, OCH ₂ CH ₂ OAc), 3.70-3.50 (m, OCH ₂ CH ₂ O-), 2.08 (s, CH ₃). With Thiamine hydrochloride, triethylamine in PEG ₄₀₀ , Time= 3h, T= 20 °C Bortolini, Olga; Fantin, Giancarlo; Fogagnolo, Marco; Giovannini, Pier Paolo; Venturi, Valentina; Pacifico, Salvatore; Massi, Alessandro; Tetrahedron; vol. 67; nb. 42; (2011); p. 8110 - 8115 View in Reaxys
65 %	With acetic acid, zinc, Time= 12h, Ambient temperature Rani, B. Radha; Ubukata, Makoto; Osada, Hiroyuki; Bulletin of the Chemical Society of Japan; vol. 68; nb. 1; (1995); p. 282 - 284 View in Reaxys
60 %	With N-benzyl-N-ethylaniline, DPZ, Time= 24h, T= 0 °C , Schlenk technique, Inert atmosphere, Irradiation Lin, Lu; Bai, Xiangbin; Ye, Xinyi; Zhao, Xiaowei; Tan, Choon-Hong; Jiang, Zhiyong; Angewandte Chemie - International Edition; vol. 56; nb. 44; (2017); p. 13842 - 13846; Angew. Chem.; vol. 129; nb. 44; (2017); p. 14030 - 14034,5 View in Reaxys
	With sulfuric acid, zinc Temnikowa; Zhurnal Obshchey Khimii; vol. 10; (1940); p. 468,473; Chem. Zentralbl.; vol. 111; nb. II; (1940); p. 1860 View in Reaxys
	Time= 22h, T= 25 °C , electrochemical reduction on a mercury electrod; has been studied the effect of pH, droptime, temperature, and acetylbenzoyl concentration, Kinetics Rodriguez-Mellado, J. M.; Avila, J. L.; Ruiz, J. J.; Canadian Journal of Chemistry; vol. 63; (1985); p. 891 - 895 View in Reaxys
	(i) (irradiation), iPrOH, (ii) (pyrolysis), Multistep reaction Kelder,J.; Cerfontain,H.; Tetrahedron Letters; nb. 14; (1972); p. 1307 - 1310 View in Reaxys
	catalytic reduction

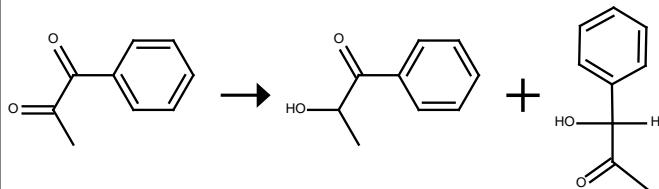
Kawase, Masami; Sakagami, Hiroshi; Kusama, Kaoru; Motohashi, Noboru; Saito, Setsuo; Bioorganic and Medicinal Chemistry Letters; **vol.** 9; nb. 21; (1999); p. 3113 - 3118
[View in Reaxys](#)

With hydrogen, Pt/Al₂O₃

Busygina, Igor; Nieminen, Ville; Taskinen, Antti; Sinkkonen, Jari; Toukonen, Esa; Sillanpää, Reijo; Murzin, Dmitry Yu.; Leino, Reko; Journal of Organic Chemistry; **vol.** 73; nb. 17; (2008); p. 6559 - 6569
[View in Reaxys](#)

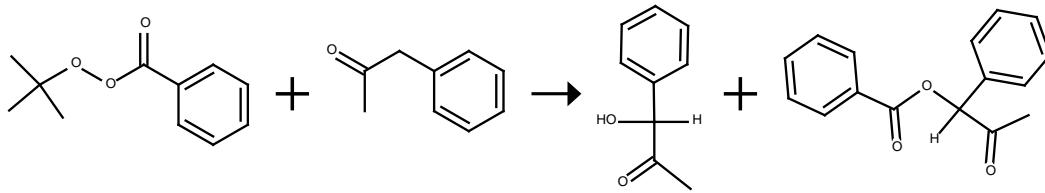
With sodium tetrahydroborate **in** methanol, T= 20 °C

Ciszek, Benjamin; Fleischer, Ivana; Chemistry - A European Journal; **vol.** 24; nb. 47; (2018); p. 12259 - 12263
[View in Reaxys](#)

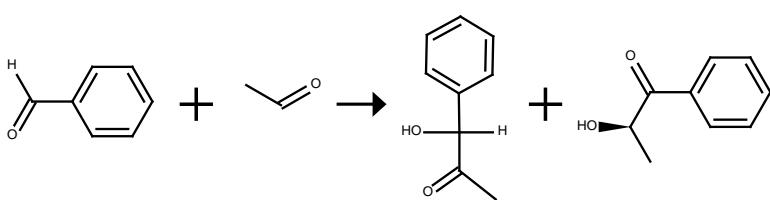


Rx-ID: 3840938 [View in Reaxys](#) 2/91

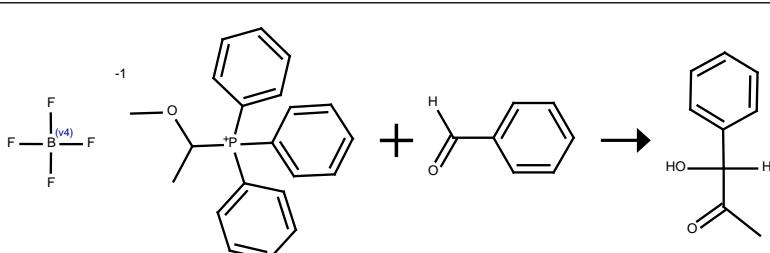
Yield	Conditions & References
17 %, 68 %	With sodium chloride, zinc in methanol, water, Heating, Zn, ZnCl ₂ , EtOH Toda, Fumio; Tanaka, Koichi; Tange, Hiroshi; Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999); (1989); p. 1555 - 1556 View in Reaxys
30 % Spectr., 63 % Spectr.	With titanium(III) chloride in acetone, Time= 1h, T= 0 °C Clerici, Angelo; Porta, Ombretta; Journal of Organic Chemistry; vol. 54; nb. 16; (1989); p. 3872 - 3878 View in Reaxys
54 % Spectr., 13 % Spectr.	With titanium(IV) iodide in acetonitrile, Time= 5.3h, T= 0 - 20 °C , Reduction Hayakawa; Sahara; Shimizu; Tetrahedron Letters; vol. 41; nb. 41; (2000); p. 7939 - 7942 View in Reaxys
55 % Spectr., 11 % Spectr.	With aluminum tri-bromide, water, triphenylphosphine in acetonitrile, Time= 24h, T= 20 °C , Title compound not separated from byproducts Kikuchi, Satoshi; Hashimoto, Yukihiko; Synlett; nb. 7; (2004); p. 1267 - 1269 View in Reaxys
15 % Spectr., 85 % Spectr.	With hydrogen, palladium in methanol, Time= 43h, T= 20 °C , p= 7600Torr Ikawa, Takashi; Sajiki, Hironao; Hirota, Kosaku; Tetrahedron; vol. 61; nb. 8; (2005); p. 2217 - 2231 View in Reaxys
	With trimethylphosphane in tetrahydrofuran, Time= 2h, T= 20 °C Zhang, Wen; Shi, Min; Chemical Communications; nb. 11; (2006); p. 1218 - 1220 View in Reaxys



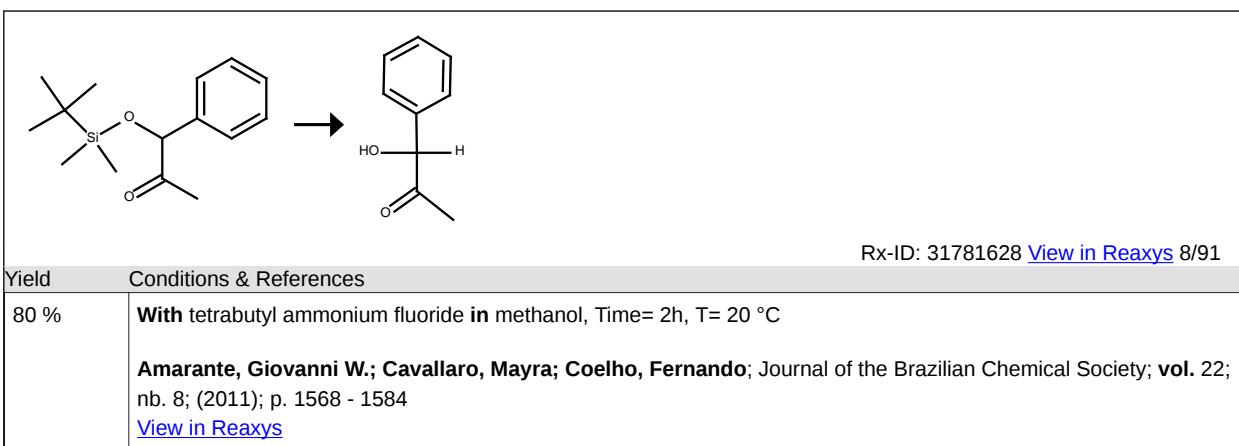
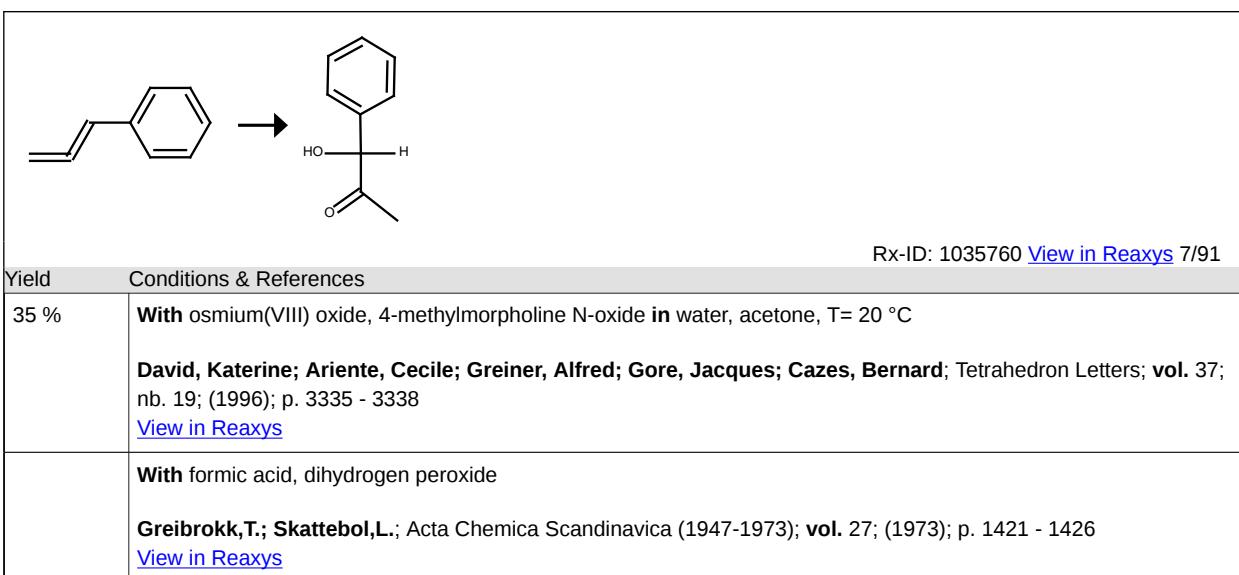
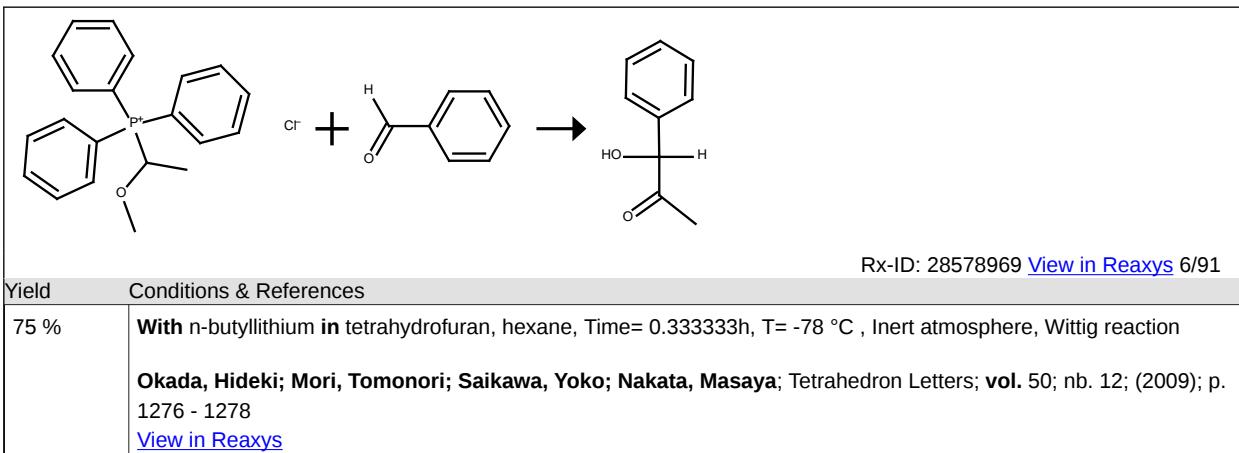
Yield	Conditions & References
	<p>4. General procedure for copper-catalyzed benzylic oxidation (substrate scope) General procedure: A solution of copper(II) trifluoromethanesulfonate (11.1 mg, 0.03 mmol) and ligand 10a (8.4 mg, 0.036 mmol) in dry acetone (5 mL) was stirred at room temperature for 1 h. Phenylhydrazine (3.9 mg, 0.036 mmol) was added to this dark brown solution, and the solution became purple immediately. After stirring for additional 5 min, the benzylic substrate (3 mmol) and the oxidant tert-butyl benzoate (117 mg, 0.6 mmol) were then introduced successively. The mixture was stirred at 30 °C for a certain time until the reaction was completed (determined by the disappearance of perester by TLC). After the solvent was evaporated in vacuum with a rotary evaporator, the residue was purified by silica gel chromatography using petrol ether/EtOAc as eluent to give the desired products.</p> <p>With N-(quinolin-2-ylmethylidene)aniline, copper(II) bis(trifluoromethanesulfonate), phenylhydrazine in acetone, Time= 10h, T= 30 °C , Inert atmosphere, Schlenk technique</p> <p>Zhang, Bo; Zhu, Shou-Fei; Zhou, Qi-Lin; Tetrahedron; vol. 69; nb. 8; (2013); p. 2033 - 2037 View in Reaxys</p>

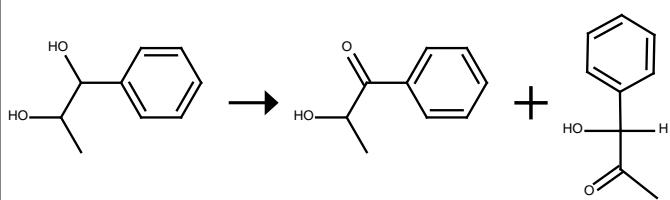


Yield	Conditions & References
70 %	<p>With E. coli resting cells with over-expressed <i>Pseudomonas fluorescens</i> biovar I benzaldehyde lyase in tert-butyl methyl ether, Time= 24h, T= 20 °C , pH= 8.0, aq. phosphate buffer, Enzymatic reaction, optical yield given as percent ee, enantioselective reaction</p> <p>De Maria, Pablo Dominguez; Stillger, Thomas; Pohl, Martina; Kiesel, Michael; Liese, Andreas; Groeger, Harald; Trauthwein, Harald; Advanced Synthesis and Catalysis; vol. 350; nb. 1; (2008); p. 165 - 173 View in Reaxys</p>



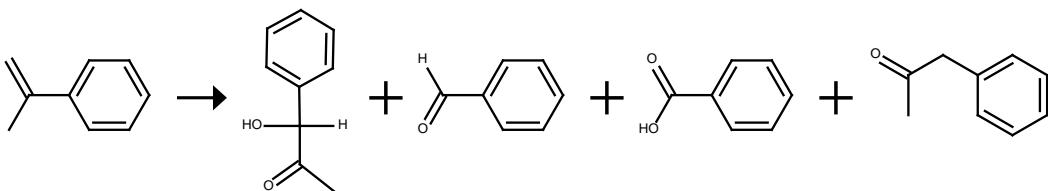
Yield	Conditions & References
89 %	<p>With n-butyllithium in tetrahydrofuran, hexane, Time= 0.333333h, T= -78 °C , Inert atmosphere, Wittig reaction</p> <p>Okada, Hideki; Mori, Tomonori; Saikawa, Yoko; Nakata, Masaya; Tetrahedron Letters; vol. 50; nb. 12; (2009); p. 1276 - 1278 View in Reaxys</p>





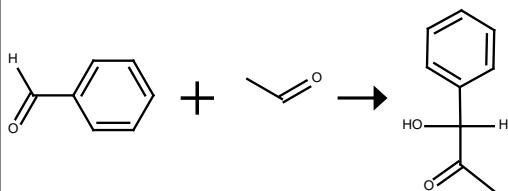
Rx-ID: 4161068 [View in Reaxys](#) 9/91

Yield	Conditions & References
85 %	With 3,3-dimethyldioxirane in acetone, Ambient temperature Bovicelli, Paolo; Tetrahedron Letters; vol. 36; nb. 17; (1995); p. 3031 - 3034 View in Reaxys
	With 3,3-dimethyldioxirane in acetone, Ambient temperature Bovicelli, Paolo; Tetrahedron Letters; vol. 36; nb. 17; (1995); p. 3031 - 3034 View in Reaxys



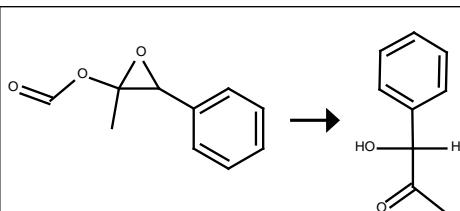
Rx-ID: 10074165 [View in Reaxys](#) 10/91

Yield	Conditions & References
85 %	With [bis(acetoxy)iodo]benzene, sulfuric acid in methanol, Time= 0.333333h, T= -20 °C Yusubov; Zhlobova; Filimonova; Chi, Ki-Whan; Russian Chemical Bulletin; vol. 53; nb. 8; (2004); p. 1735 - 1742 View in Reaxys



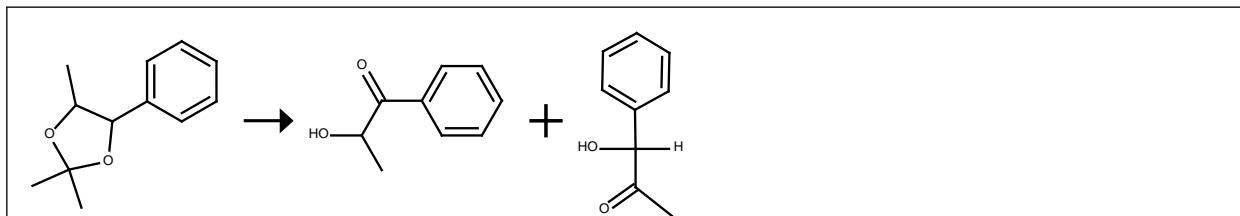
Rx-ID: 37981418 [View in Reaxys](#) 11/91

Yield	Conditions & References
73 %	With 2-(perfluorophenyl)-5,6,7,8-tetrahydro-[1,2,4]triazolo[4,3-a]pyridin-2-ium tetrafluoroborate, 1,1'-(1,2-ethanediyl)bisbenzene, N-ethyl-N,N-diisopropylamine in dichloromethane, Time= 1h, T= 70 °C , Inert atmosphere, Sealed tube, Benzoin Condensation, chemoselective reaction Langdon, Steven M.; Wilde, Myron M.D.; Thai, Karen; Gravel, Michel; Journal of the American Chemical Society; vol. 136; nb. 21; (2014); p. 7539 - 7542 View in Reaxys



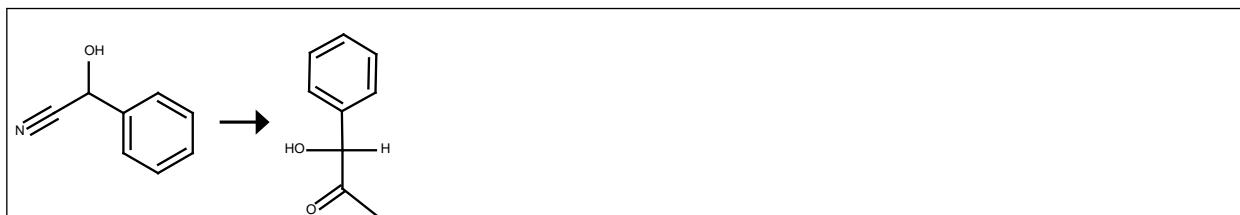
Rx-ID: 48176968 [View in Reaxys](#) 12/91

Yield	Conditions & References
100 %	With sodium hydrogencarbonate in tetrahydrofuran, water, Time= 48h Horn, Alexander; Kazmaier, Uli; European Journal of Organic Chemistry; vol. 2018; nb. 20; (2018); p. 2531 - 2536 View in Reaxys



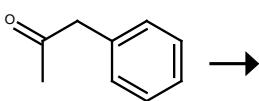
Rx-ID: 4529570 [View in Reaxys](#) 13/91

Yield	Conditions & References
76 %	With 3,3-dimethyldioxirane in acetone, Ambient temperature, Yield given. Title compound not separated from by-products Bovicelli, Paolo; Sanetti, Anna; Lupattelli, Paolo; Tetrahedron; vol. 52; nb. 33; (1996); p. 10969 - 10978 View in Reaxys
76 %	With 3,3-dimethyldioxirane in acetone, Ambient temperature, Yields of byproduct given Bovicelli, Paolo; Sanetti, Anna; Lupattelli, Paolo; Tetrahedron; vol. 52; nb. 33; (1996); p. 10969 - 10978 View in Reaxys



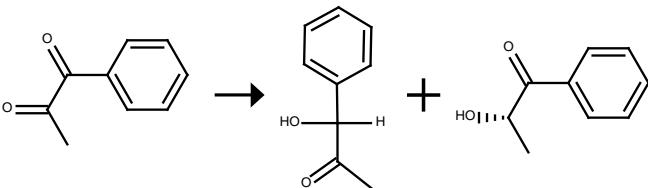
Rx-ID: 332822 [View in Reaxys](#) 14/91

Yield	Conditions & References
	With methyl magnesium iodide, diethyl ether, durch Zersetzung des Reaktionsprodukts mit Eis und verd.Schwefelsaeure Tiffeneau; Levy; Bulletin de la Societe Chimique de France; vol. <4> 33; (1923); p. 770,771; Comptes Rendus Hebdomadaires des Seances de l'Academie des Sciences; vol. 176; (1923); p. 313 View in Reaxys
	Reaction Steps: 2 1.1: imidazole / dimethylformamide / 1.45 h / 20 °C 2.1: diethyl ether / 6 h / Heating 2.2: aq. H ₂ SO ₄ / diethyl ether With 1H-imidazole in diethyl ether, N,N-dimethyl-formamide Toukoniitty, Esa; Maeki-Arvela, Paeivi; Kuzma, Marek; Villela, Alexandre; Kalantar Neyestanaki, Ahmad; Salimi, Tapio; Sjoeholm, Rainer; Leino, Reko; Laine, Ensio; Murzin, Dmitry Yu.; Journal of Catalysis; vol. 204; nb. 2; (2001); p. 281 - 291 View in Reaxys
	Reaction Steps: 2 1: 88 percent / imidazole, DMAP / diethyl ether 2: 2.) 2 M HCl / 1.) ether, reflux, 2 h With 1H-imidazole, hydrogenchloride, dmap in diethyl ether Jackson, W. Roy; Jacobs, Howard A.; Jayatilake, Gamin S.; Matthews, Barry R.; Watson, Keith G.; Australian Journal of Chemistry; vol. 43; nb. 12; (1990); p. 2045 - 2062 View in Reaxys



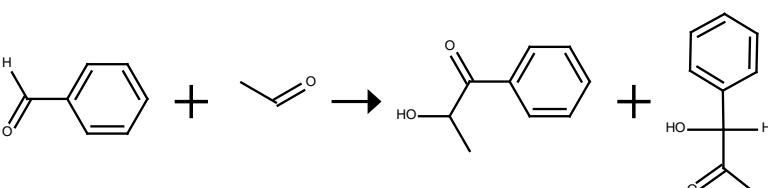
Rx-ID: 3756844 [View in Reaxys](#) 15/91

Yield	Conditions & References
5 %, 7 %, 38 %, 5 %	With triethylamine tris(hydrogen fluoride) in acetonitrile, T= 13 °C , anodic oxidation Laurent, Eliane; Marquet, Bernard; Tardivel, Robert; Tetrahedron; vol. 45; nb. 14; (1989); p. 4431 - 4444 View in Reaxys
5 %, 7 %, 38 %, 5 %	With triethylamine tris(hydrogen fluoride) in acetonitrile, T= 13 °C , anodic oxidation, Further byproducts given Laurent, Eliane; Marquet, Bernard; Tardivel, Robert; Tetrahedron; vol. 45; nb. 14; (1989); p. 4431 - 4444 View in Reaxys



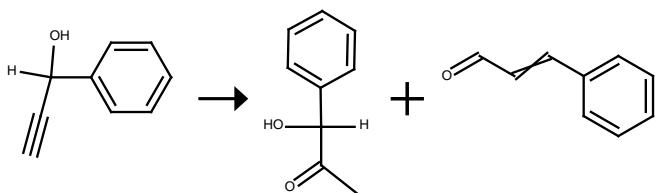
Rx-ID: 8734507 [View in Reaxys](#) 16/91

Yield	Conditions & References
	With formic acid, triethylamine, RuCl(p-cymene)[N-(p-tosyl)-(1R,2R)-diphenylethylenediamine], Time= 24h, T= 10 °C , Hydrogenation Koike, Takashi; Murata, Kunihiko; Ikariya, Takao; Organic Letters; vol. 2; nb. 24; (2000); p. 3833 - 3836 View in Reaxys

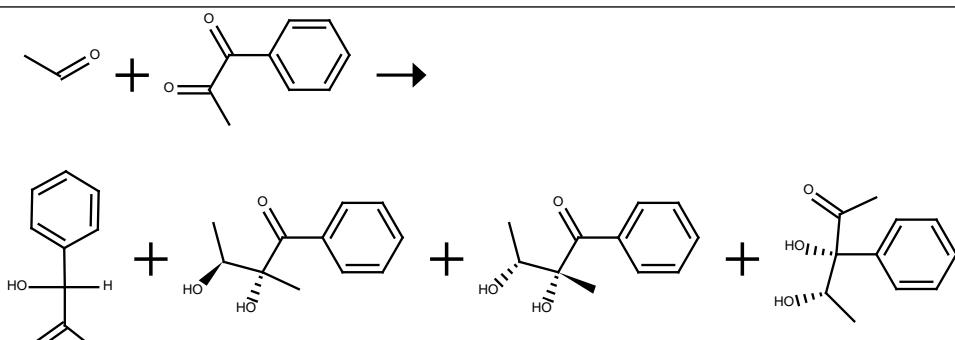


Rx-ID: 30558608 [View in Reaxys](#) 17/91

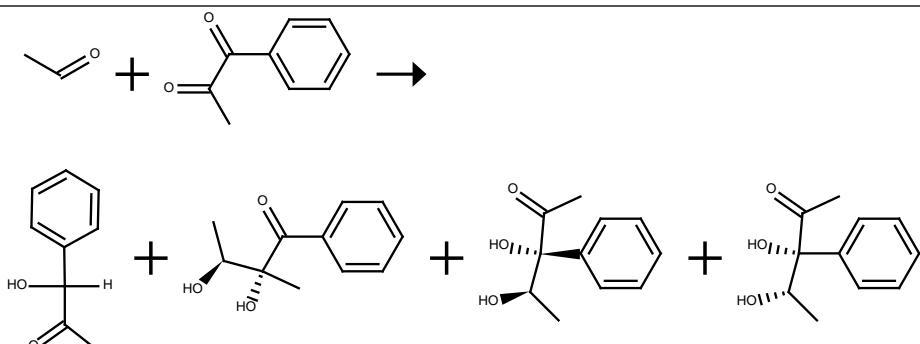
Yield	Conditions & References
93 %Spectr., 7 %Spectr.	With 3-ethyl-5-(2-hydroxyethyl)-4-methyl-1,3-thiazolium bromide, caesium carbonate in tetrahydrofuran, Time= 15h, T= 20 °C , Inert atmosphere, acyloin condensation, regioselective reaction Jin, Ming Yu; Kim, Sun Min; Han, Hogyu; Ryu, Do Hyun; Yang, Jung Woon; Organic Letters; vol. 13; nb. 5; (2011); p. 880 - 883 View in Reaxys
13 %Spectr., 87 %Spectr.	With 2-pentafluorophenyl-6,7-dihydro-5H-pyrrolo[2,1-c][1,2,4]triazol-2-ium tetrafluoroborate, caesium carbonate in m-xylene, Time= 15h, T= 20 °C , Inert atmosphere, acyloin condensation, regioselective reaction Jin, Ming Yu; Kim, Sun Min; Han, Hogyu; Ryu, Do Hyun; Yang, Jung Woon; Organic Letters; vol. 13; nb. 5; (2011); p. 880 - 883

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 Rx-ID: 44305336 [View in Reaxys](#) 18/91

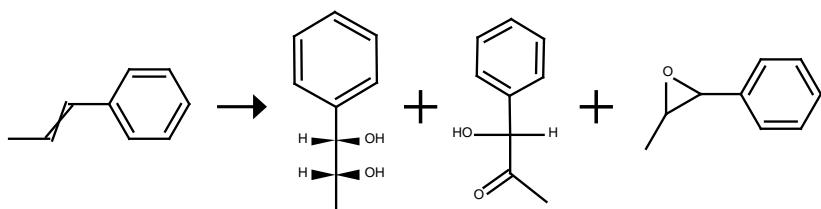
Yield	Conditions & References
44 %, 28 %	With C ₄₇ H ₄₁ AuBF ₁₅ N ₂ S in 1,4-dioxane, water, Time= 18h, T= 80 °C , Meyer-Schuster Rearrangement, Overall yield = 72 percent; regioselective reaction Weerasiri, Kushan C.; Chen, Danmin; Wozniak, Derek I.; Dobereiner, Graham E.; Advanced Synthesis and Catalysis; vol. 358; nb. 24; (2016); p. 4106 - 4113 View in Reaxys


 Rx-ID: 2870668 [View in Reaxys](#) 19/91

Yield	Conditions & References
23 %	With titanium(III) chloride in acetone, Time= 1h, T= 0 °C , Further byproducts given. Title compound not separated from byproducts Clerici, Angelo; Porta, Ombretta; Journal of Organic Chemistry; vol. 54; nb. 16; (1989); p. 3872 - 3878 View in Reaxys

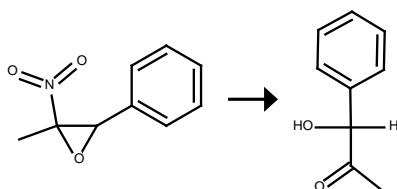

 Rx-ID: 2870669 [View in Reaxys](#) 20/91

Yield	Conditions & References
23 %	With titanium(III) chloride in acetone, Time= 1h, T= 0 °C , Further byproducts given. Title compound not separated from byproducts Clerici, Angelo; Porta, Ombretta; Journal of Organic Chemistry; vol. 54; nb. 16; (1989); p. 3872 - 3878 View in Reaxys



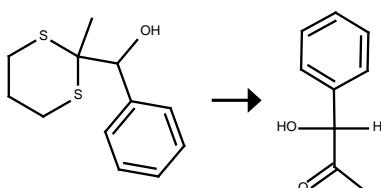
Rx-ID: 29891433 [View in Reaxys 21/91](#)

Yield	Conditions & References
44 %, 18 %Spectr., 19 %Chromat.	With Oxone, $C_{16}H_{22}Cl_2FeN_4^{(2+)}$, sodium hydrogencarbonate in water, acetonitrile, Time= 0.0833333h, T= 20 °C Chow, Toby Wai-Shan; Wong, Ella Lai-Ming; Guo, Zhen; Liu, Yungen; Huang, Jie-Sheng; Che, Chi-Ming; Journal of the American Chemical Society; vol. 132; nb. 38; (2010); p. 13229 - 13239 View in Reaxys



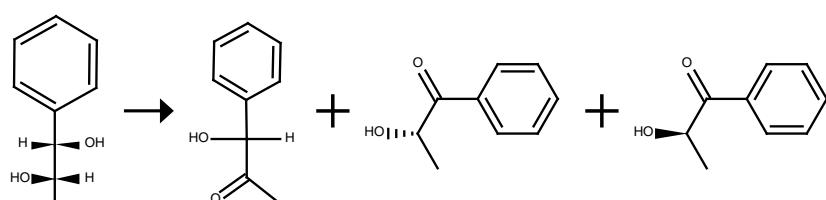
Rx-ID: 1363815 [View in Reaxys 22/91](#)

Yield	Conditions & References
83 %	With Dowex-50, water, Time= 0.666667h, Heating Chakraborty; Das; Ranu; Synthetic Communications; vol. 22; nb. 11; (1992); p. 1523 - 1528 View in Reaxys
	With sulfuric acid Newman,H.; Angier,R.B.; Tetrahedron; vol. 26; (1970); p. 825 - 836 View in Reaxys



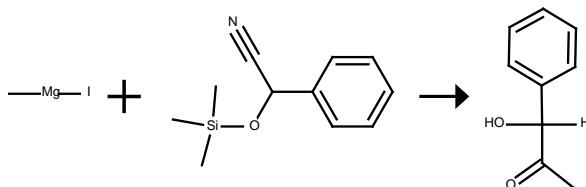
Rx-ID: 2295776 [View in Reaxys 23/91](#)

Yield	Conditions & References
85 %	in water, acetonitrile, electrolysis; Pt-electrode Martre, Anne-Marie; Mousset, Guy; Rhlid, Rachid Bel; Veschambre, Henri; Tetrahedron Letters; vol. 31; nb. 18; (1990); p. 2599 - 2602 View in Reaxys



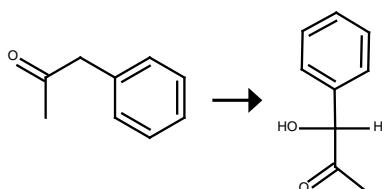
Rx-ID: 5270249 [View in Reaxys 24/91](#)

Yield	Conditions & References
	<p>With fructose-derived ketone, potassium carbonate in acetonitrile, Time= 2h, T= 0 °C , Oxidation, Title compound not separated from byproducts</p> <p>Adam, Waldemar; Saha-Moeller, Chantu R.; Zhao, Cong-Gui; Journal of Organic Chemistry; vol. 64; nb. 20; (1999); p. 7492 - 7497</p> <p>View in Reaxys</p>



Rx-ID: 1671100 [View in Reaxys](#) 25/91

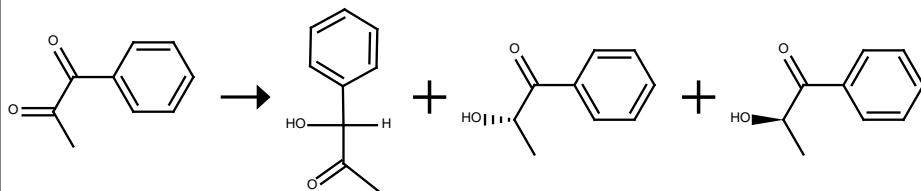
Yield	Conditions & References
70 %	<p>With diethyl ether, Time= 4h, Reflux</p> <p>Lee, Hyeon-Kyu; Kang, Soyeong; Choi, Eun Bok; Journal of Organic Chemistry; vol. 77; nb. 12; (2012); p. 5454 - 5460</p> <p>View in Reaxys</p>
	<p>With water, hydrogen cation</p> <p>Jackson, W. Roy; Jacobs, Howard A.; Matthews, Barry R.; Jayatilake, Gamini S.; Watson, Keith G.; Tetrahedron Letters; vol. 31; nb. 10; (1990); p. 1447 - 1450</p> <p>View in Reaxys</p>
	<p>With hydrogenchloride, 1.) ether, reflux, 2 h, Yield given. Multistep reaction</p> <p>Jackson, W. Roy; Jacobs, Howard A.; Jayatilake, Gamini S.; Matthews, Barry R.; Watson, Keith G.; Australian Journal of Chemistry; vol. 43; nb. 12; (1990); p. 2045 - 2062</p> <p>View in Reaxys</p>



Rx-ID: 3756843 [View in Reaxys](#) 26/91

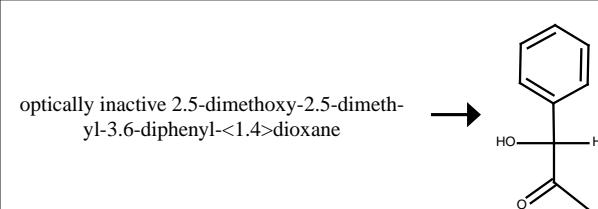
Yield	Conditions & References
	<p>With water, 4-methylmorpholine N-oxide, lithium diisopropyl amide, osmium(VIII) oxide, 1.) THF, 2.) aq. acetone, -5 to 25 deg C, 9 h, Yield given. Multistep reaction</p> <p>McCormick, J. P.; Tomaszik, Witold; Johnson, Mark W.; Tetrahedron Letters; vol. 22; (1981); p. 607 - 610</p> <p>View in Reaxys</p>
	<p>With sodium hexamethyldisilazane, 3,3-dimethyldioxirane, 1) THF, -10 deg C, 60 min, 2) THF, acetone, -78 deg C, 2 min, Yield given. Multistep reaction</p> <p>Adam, Waldemar; Prechtel, Frank; Chemische Berichte; vol. 124; nb. 10; (1991); p. 2369 - 2372</p> <p>View in Reaxys</p>
	<p>Reaction Steps: 2</p> <p>1: acetic acid; bromine</p> <p>2: potassium acetate; alcohol / man verseift das Acetat durch Kochen mit Wasser und BaCO_3</p> <p>With ethanol, bromine, potassium acetate, acetic acid</p>

Carapelle; Gazzetta Chimica Italiana; **vol.** 33 II; (1903); p. 262
[View in Reaxys](#)



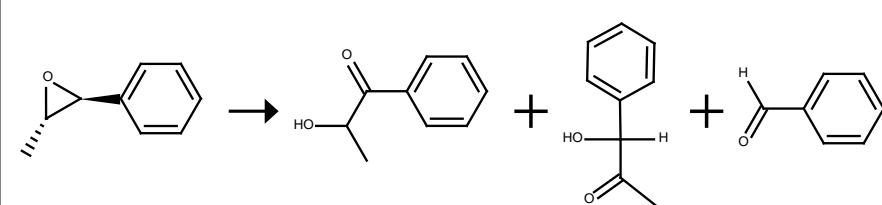
Rx-ID: 5180898 [View in Reaxys](#) 27/91

Yield	Conditions & References
	With D-glucose, D-glucose dehydrogenase, Yeast Keto Ester Reductase-I, β -hydroxy-4-morpholinepropanesulfonate, NADPH in water, Time= 12h, T= 30 °C , pH 7.0, Yield given, Yields of byproduct given. Title compound not separated from byproducts Kawai, Yasushi; Hida, Kouichi; Tsujimoto, Munekazu; Kondo, Shin-ichi; Kitano, Kazutada; Nakamura, Kaoru; Ohno, Atsuyoshi; Bulletin of the Chemical Society of Japan; vol. 72; nb. 1; (1999); p. 99 - 102 View in Reaxys



Rx-ID: 8095997 [View in Reaxys](#) 28/91

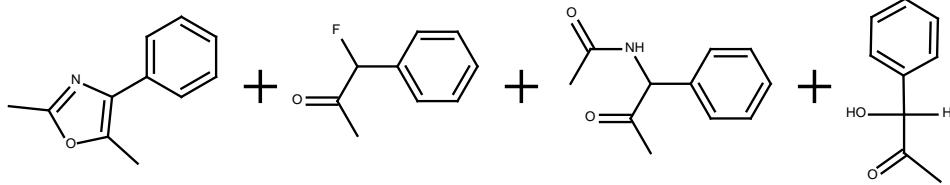
Yield	Conditions & References
	With hydrogenchloride, ethanol Hennion; Murray; Journal of the American Chemical Society; vol. 64; (1942); p. 1220 View in Reaxys



Rx-ID: 3821333 [View in Reaxys](#) 29/91

Yield	Conditions & References
60 % Spectr., 15 % Spectr., 13 %	With bis-[(trifluoroacetoxy)iodo]benzene in dichloromethane, Time= 24h, Ambient temperature, Title compound not separated from byproducts Spyroudis, S.; Varvoglou, A.; Journal of Organic Chemistry; vol. 46; (1981); p. 5231 - 5233 View in Reaxys





Rx-ID: 6676934 [View in Reaxys](#) 30/91

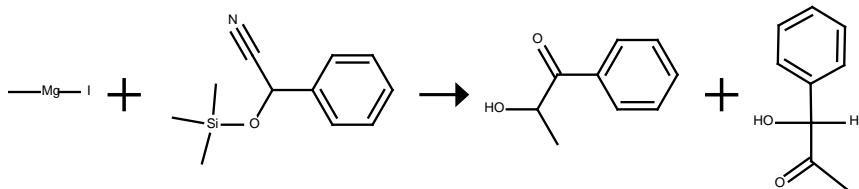
Yield

5 %, 7 %,
38 %, 5 %

Conditions & References

in acetonitrile, T= 13 °C , anodic oxidation

Laurent, Eliane; Marquet, Bernard; Tardivel, Robert; Tetrahedron; **vol.** 45; nb. 14; (1989); p. 4431 - 4444
[View in Reaxys](#)



Rx-ID: 8994719 [View in Reaxys](#) 31/91

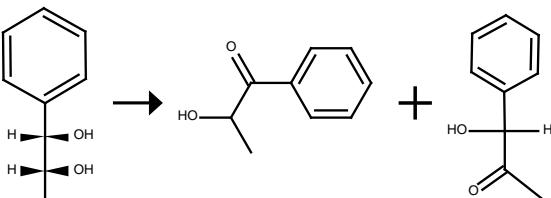
Yield

Conditions & References

Stage 1: **in** diethyl ether, Time= 6h, Heating
Stage 2: With sulfuric acid **in** diethyl ether

Toukoniitty, Esa; Maeki-Arvela, Paeivi; Kuzma, Marek; Villela, Alexandre; Kalantar Neyestanaki, Ahmad; Salmi, Tapio; Sjoeholm, Rainer; Leino, Reko; Laine, Ensio; Murzin, Dmitry Yu.; Journal of Catalysis; **vol.** 204; nb. 2; (2001); p. 281 - 291

[View in Reaxys](#)



Rx-ID: 37511051 [View in Reaxys](#) 32/91

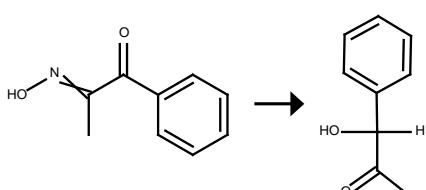
Yield

Conditions & References

With methylboronic acid, potassium carbonate, dibromoisocyanuric acid **in** water, Time= 5h, T= 20 °C , Darkness, Electrochemical reaction, Green chemistry, Reagent/catalyst

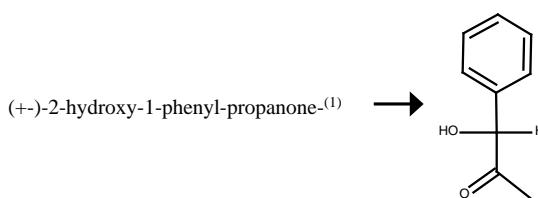
William, Julius M.; Kuriyama, Masami; Onomura, Osamu; Advanced Synthesis and Catalysis; **vol.** 356; nb. 5; (2014); p. 934 - 940

[View in Reaxys](#)



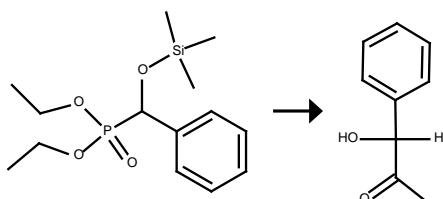
Rx-ID: 669768 [View in Reaxys](#) 33/91

Yield	Conditions & References
	<p>With aluminium-chloride-diisopropylate, aluminum isopropoxide, isopropyl alcohol, Reagens 4:Benzol; Behandeln des Reaktionsgemisches mit wss.H_2SO_4</p> <p>Gal et al.; Acta Chimica Academiae Scientiarum Hungaricae; vol. 16; (1958); p. 279,286 View in Reaxys</p>
	<p>Reaction Steps: 2</p> <p>1: 1.4 g / KBH_4 / ethanol; H_2O / 1) 3 min, 50 deg C 2) 2 h, r.t.</p> <p>2: levulinic acid / H_2O / 16 h / Ambient temperature</p> <p>With potassium borohydride, levulinic acid in ethanol, water</p> <p>Guthrie, J. Peter; Cossar, John; Canadian Journal of Chemistry; vol. 68; nb. 11; (1990); p. 2060 - 2069 View in Reaxys</p>



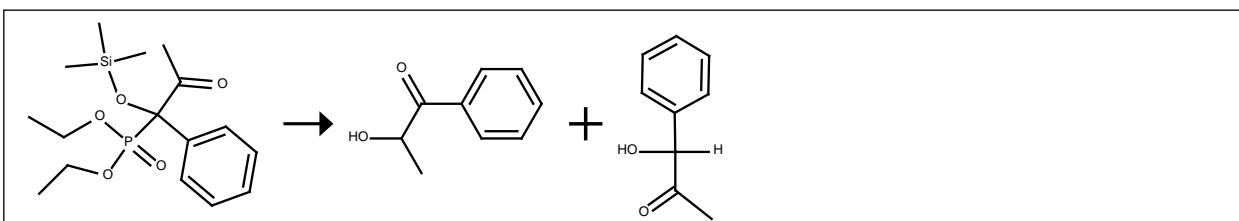
Rx-ID: 8095991 [View in Reaxys](#) 34/91

Yield	Conditions & References
	<p>With water, barium carbonate, auf Siedetemperatur</p> <p>Temnikowa; Zhurnal Obshchey Khimii; vol. 10; (1940); p. 468,473; Chem. Zentralbl.; vol. 111; nb. II; (1940); p. 1860 View in Reaxys</p> <p>v. Auwers; Ludewig; Mueller; Justus Liebigs Annalen der Chemie; vol. 526; (1936); p. 143,170 View in Reaxys</p>
	<p>With methanol, hydrogen bromide, T= 100 °C</p> <p>Temnikowa; Zhurnal Obshchey Khimii; vol. 10; (1940); p. 468,473; Chem. Zentralbl.; vol. 111; nb. II; (1940); p. 1860 View in Reaxys</p>



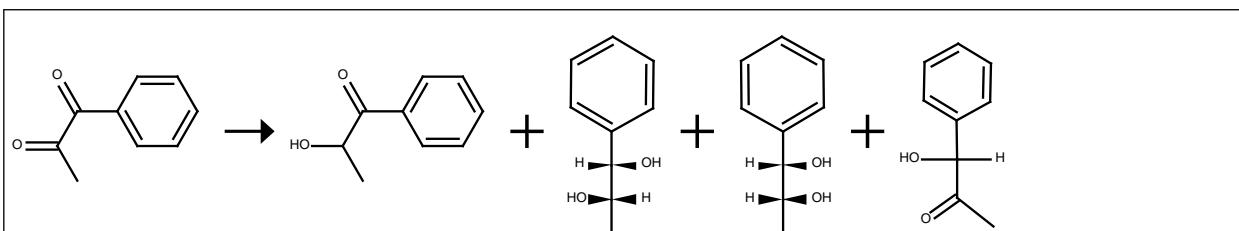
Rx-ID: 19026252 [View in Reaxys](#) 35/91

Yield	Conditions & References
	<p>Reaction Steps: 2</p> <p>1: 1.) LDA / 1.) THF, -78 deg C, 0.5 h, 2.) THF, 0.5 h</p> <p>2: 1M NaOH / ethanol / 0.08 h / Ambient temperature</p> <p>With sodium hydroxide, lithium diisopropyl amide in ethanol</p> <p>Sekine, Mitsuo; Nakajima, Masashi; Hata, Tsuiaki; Bulletin of the Chemical Society of Japan; vol. 55; nb. 1; (1982); p. 218 - 223 View in Reaxys</p>



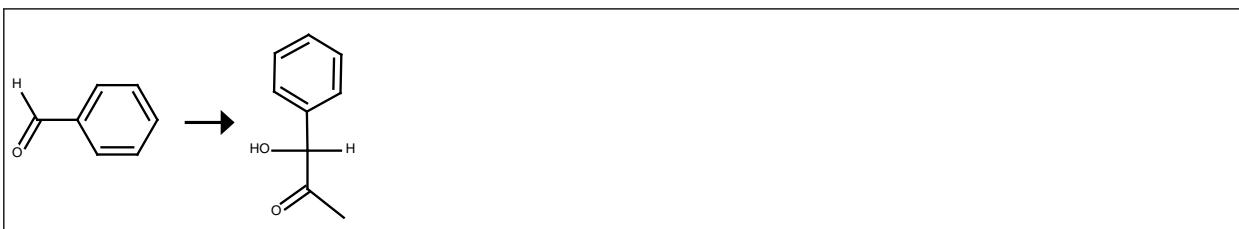
Rx-ID: 2097720 [View in Reaxys](#) 36/91

Yield	Conditions & References
	<p>With sodium hydroxide in ethanol, Time= 0.0833333h, Ambient temperature, Yield given. Yields of byproduct given</p> <p>Sekine, Mitsuo; Nakajima, Masashi; Hata, Tsujiaki; Bulletin of the Chemical Society of Japan; vol. 55; nb. 1; (1982); p. 218 - 223 View in Reaxys</p>



Rx-ID: 9213433 [View in Reaxys](#) 37/91

Yield	Conditions & References
	<p>With hydrogen, Cinchonidin, Pt/Al₂O₃ in ethyl acetate, Time= 0.166667h, T= 25 °C , p= 3750.3Torr , Kinetics, Further Variations: Reagents</p> <p>Lindholm, Anna; Maeki-Arvela, Paeivi; Toukoniitty, Esa; Pakkanen, Tapani A.; Hirvi, Janne T.; Salmi, Tapio; Murzin, Dmitry Yu.; Sjöholm, Rainer; Leino, Reko; Journal of the Chemical Society. Perkin Transactions 1; nb. 23; (2002); p. 2605 - 2612 View in Reaxys</p>



Rx-ID: 22106776 [View in Reaxys](#) 38/91

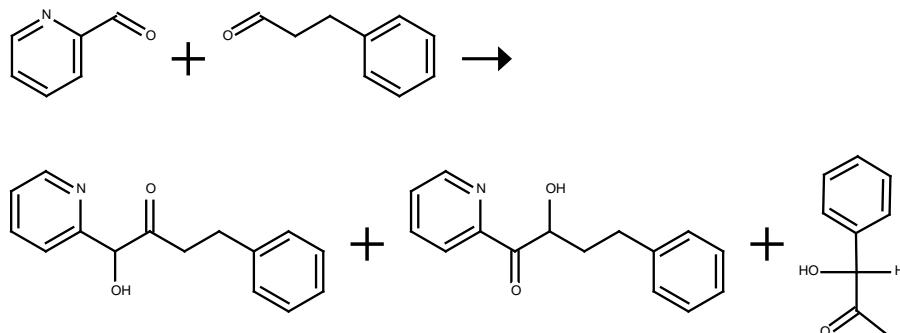
Yield	Conditions & References
	<p>Reaction Steps: 2 1: copper acetylenide 2: HgSO₄; aqueous methanol.H₂SO₄ With sulfuric acid, copper(I) monacetylde, mercury(II) sulfate</p> <p>Murahashi; Hagihara; Memoirs of the Institute of Scientific and Industrial Research, Osaka University; vol. 6; (1948); p. 96,98 View in Reaxys</p>
	<p>Reaction Steps: 8 1: 1,4-diaza-bicyclo[2.2.2]octane / 30 °C / Sonication 2: 1H-imidazole; dimethyl sulfoxide / 20 °C / Inert atmosphere 3: water; lithium hydroxide / acetonitrile / 4 h / 50 - 60 °C 4: triethylamine / acetone / 0.08 h / 0 °C 5: sodium azide / acetone / 2 h / 20 °C 6: toluene / 2 h / Reflux; Inert atmosphere 7: water / 2 h / Reflux</p>

8: tetrabutyl ammonium fluoride / methanol / 2 h / 20 °C

With 1,4-diaza-bicyclo[2.2.2]octane, 1H-imidazole, sodium azide, tetrabutyl ammonium fluoride, water, dimethyl sulfoxide, triethylamine, lithium hydroxide **in** methanol, acetone, toluene, acetonitrile, 1: Morita-Baylis-Hillman reaction / 6: Curtius rearrangement

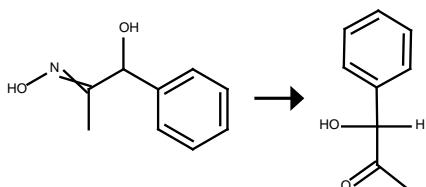
Amarante, Giovanni W.; Cavallaro, Mayra; Coelho, Fernando; Journal of the Brazilian Chemical Society; **vol. 22; nb. 8; (2011); p. 1568 - 1584**

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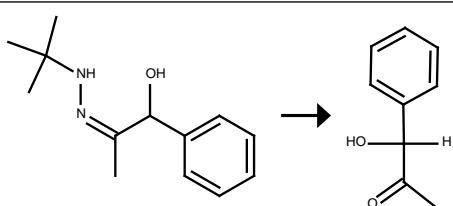
Rx-ID: 37981414 [View in Reaxys](#) 39/91

Yield	Conditions & References
	With 2-(perfluorophenyl)-5,6,7,8-tetrahydro-[1,2,4]triazolo[4,3-a]pyridin-2-ium tetrafluoroborate, 1,1'-(1,2-ethanediyl)bisbenzene, N-ethyl-N,N-diisopropylamine in dichloromethane, Time= 2h, T= 70 °C , Inert atmosphere, Sealed tube, Benzoin Condensation, chemoselective reaction Langdon, Steven M.; Wilde, Myron M.D.; Thai, Karen; Gravel, Michel; Journal of the American Chemical Society; vol. 136; nb. 21; (2014); p. 7539 - 7542 View in Reaxys



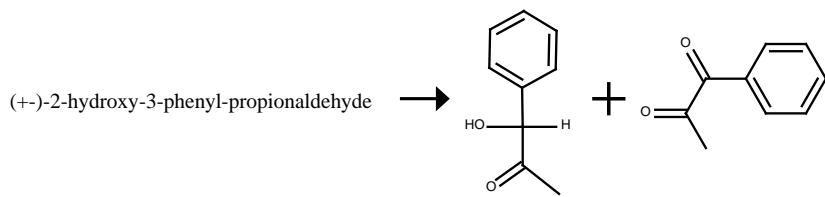
Rx-ID: 2070571 [View in Reaxys](#) 40/91

Yield	Conditions & References
	With levulinic acid in water, Time= 16h, Ambient temperature, Yield given Guthrie, J. Peter; Cossar, John; Canadian Journal of Chemistry; vol. 68; nb. 11; (1990); p. 2060 - 2069 View in Reaxys



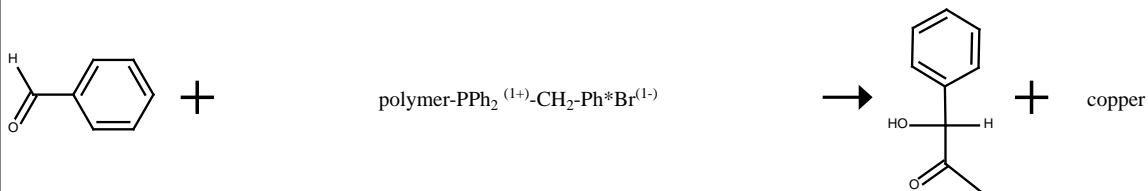
Rx-ID: 3695642 [View in Reaxys](#) 41/91

Yield	Conditions & References
	With oxalic acid in diethyl ether, water, Time= 6h, Yield given Adlington, Robert M.; Baldwin, Jack E.; Bottaro, Jeffrey C.; Perry, Matthew W. D.; Journal of the Chemical Society, Chemical Communications; nb. 18; (1983); p. 1040 - 1041

[View in Reaxys](#)


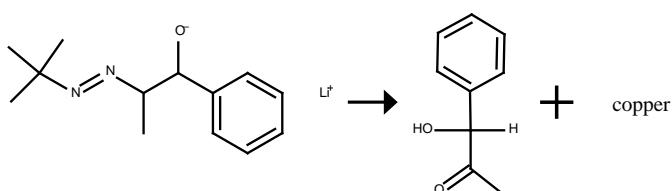
Rx-ID: 8263495 [View in Reaxys](#) 42/91

Yield	Conditions & References
	<p>With ethanol, sulfuric acid, T= 135 °C</p> <p>Danilow; Venus-Danilowa; Chemische Berichte; vol. 63; (1930); p. 2765,2774; Zhurnal Russkago Fiziko-Khimicheskago Obshchestva; vol. 62; (1930); p. 1697,1710</p> <p>View in Reaxys</p>



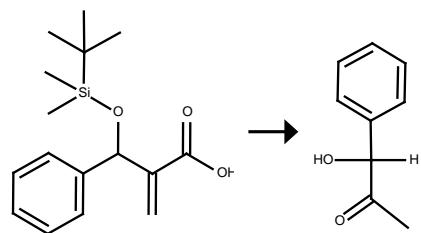
Rx-ID: 18525182 [View in Reaxys](#) 43/91

Yield	Conditions & References
	<p>Reaction Steps: 3</p> <p>1: 1.) n-BuLi / 1.) THF, 0 deg C, 15 min</p> <p>2: nBuLi / 1 h / 0 °C</p> <p>3: (CO₂H)₂ / H₂O; diethyl ether / 6 h</p> <p>With n-butyllithium, oxalic acid in diethyl ether, water</p> <p>Adlington, Robert M.; Baldwin, Jack E.; Bottaro, Jeffrey C.; Perry, Matthew W. D.; Journal of the Chemical Society, Chemical Communications; nb. 18; (1983); p. 1040 - 1041</p> <p>View in Reaxys</p>



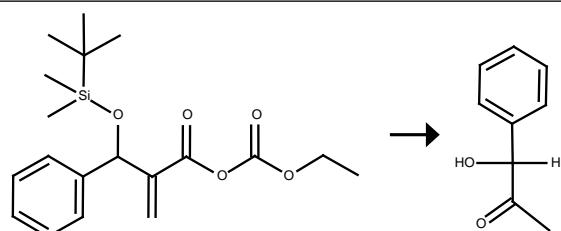
Rx-ID: 18547273 [View in Reaxys](#) 44/91

Yield	Conditions & References
	<p>Reaction Steps: 2</p> <p>1: nBuLi / 1 h / 0 °C</p> <p>2: (CO₂H)₂ / H₂O; diethyl ether / 6 h</p> <p>With n-butyllithium, oxalic acid in diethyl ether, water</p> <p>Adlington, Robert M.; Baldwin, Jack E.; Bottaro, Jeffrey C.; Perry, Matthew W. D.; Journal of the Chemical Society, Chemical Communications; nb. 18; (1983); p. 1040 - 1041</p> <p>View in Reaxys</p>



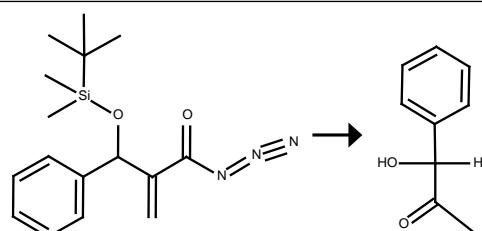
Rx-ID: 31781301 [View in Reaxys](#) 45/91

Yield	Conditions & References
	<p>Reaction Steps: 5</p> <p>1: triethylamine / acetone / 0.08 h / 0 °C 2: sodium azide / acetone / 2 h / 20 °C 3: toluene / 2 h / Reflux; Inert atmosphere 4: water / 2 h / Reflux 5: tetrabutyl ammonium fluoride / methanol / 2 h / 20 °C</p> <p>With sodium azide, tetrabutyl ammonium fluoride, water, triethylamine in methanol, acetone, toluene, 3: Curtius rearrangement</p> <p>Amarante, Giovanni W.; Cavallaro, Mayra; Coelho, Fernando; Journal of the Brazilian Chemical Society; vol. 22; nb. 8; (2011); p. 1568 - 1584</p> <p>View in Reaxys</p>



Rx-ID: 31781337 [View in Reaxys](#) 46/91

Yield	Conditions & References
	<p>Reaction Steps: 4</p> <p>1: sodium azide / acetone / 2 h / 20 °C 2: toluene / 2 h / Reflux; Inert atmosphere 3: water / 2 h / Reflux 4: tetrabutyl ammonium fluoride / methanol / 2 h / 20 °C</p> <p>With sodium azide, tetrabutyl ammonium fluoride, water in methanol, acetone, toluene, 2: Curtius rearrangement</p> <p>Amarante, Giovanni W.; Cavallaro, Mayra; Coelho, Fernando; Journal of the Brazilian Chemical Society; vol. 22; nb. 8; (2011); p. 1568 - 1584</p> <p>View in Reaxys</p>



Rx-ID: 31781360 [View in Reaxys](#) 47/91

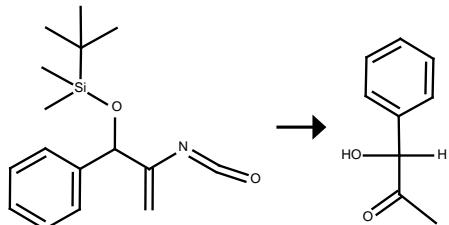
Yield	Conditions & References
	<p>Reaction Steps: 3</p> <p>1: toluene / 2 h / Reflux; Inert atmosphere 2: water / 2 h / Reflux</p>

3: tetrabutyl ammonium fluoride / methanol / 2 h / 20 °C

With tetrabutyl ammonium fluoride, water **in** methanol, toluene, 1: Curtius rearrangement

Amarante, Giovanni W.; Cavallaro, Mayra; Coelho, Fernando; Journal of the Brazilian Chemical Society; **vol. 22; nb. 8; (2011); p. 1568 - 1584**

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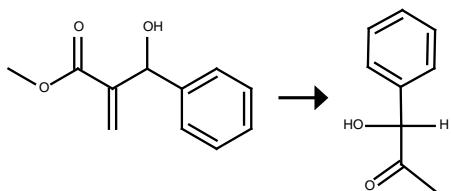
Rx-ID: 31781379 [View in Reaxys](#) 48/91

Yield Conditions & References

Reaction Steps: 2
1: water / 2 h / Reflux
2: tetrabutyl ammonium fluoride / methanol / 2 h / 20 °C
With tetrabutyl ammonium fluoride, water **in** methanol

Amarante, Giovanni W.; Cavallaro, Mayra; Coelho, Fernando; Journal of the Brazilian Chemical Society; **vol. 22; nb. 8; (2011); p. 1568 - 1584**

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Rx-ID: 31781558 [View in Reaxys](#) 49/91

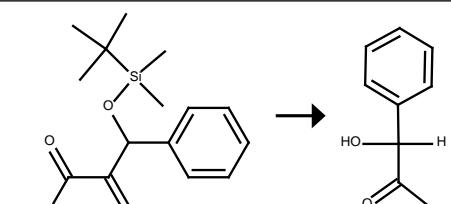
Yield Conditions & References

Reaction Steps: 7
1: 1H-imidazole; dimethyl sulfoxide / 20 °C / Inert atmosphere
2: water; lithium hydroxide / acetonitrile / 4 h / 50 - 60 °C
3: triethylamine / acetone / 0.08 h / 0 °C
4: sodium azide / acetone / 2 h / 20 °C
5: toluene / 2 h / Reflux; Inert atmosphere
6: water / 2 h / Reflux
7: tetrabutyl ammonium fluoride / methanol / 2 h / 20 °C

With 1H-imidazole, sodium azide, tetrabutyl ammonium fluoride, water, dimethyl sulfoxide, triethylamine, lithium hydroxide **in** methanol, acetone, toluene, acetonitrile, 5: Curtius rearrangement

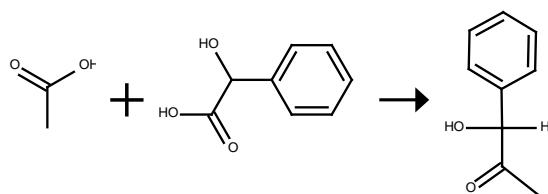
Amarante, Giovanni W.; Cavallaro, Mayra; Coelho, Fernando; Journal of the Brazilian Chemical Society; **vol. 22; nb. 8; (2011); p. 1568 - 1584**

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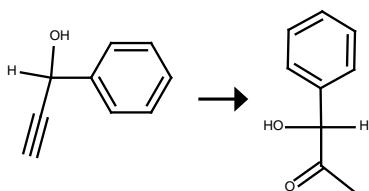
Rx-ID: 31781638 [View in Reaxys](#) 50/91

Yield	Conditions & References
	<p>Reaction Steps: 6</p> <ol style="list-style-type: none"> 1: water; lithium hydroxide / acetonitrile / 4 h / 50 - 60 °C 2: triethylamine / acetone / 0.08 h / 0 °C 3: sodium azide / acetone / 2 h / 20 °C 4: toluene / 2 h / Reflux; Inert atmosphere 5: water / 2 h / Reflux 6: tetrabutyl ammonium fluoride / methanol / 2 h / 20 °C <p>With sodium azide, tetrabutyl ammonium fluoride, water, triethylamine, lithium hydroxide in methanol, acetone, toluene, acetonitrile, 4: Curtius rearrangement</p> <p>Amarante, Giovanni W.; Cavallaro, Mayra; Coelho, Fernando; Journal of the Brazilian Chemical Society; vol. 22; nb. 8; (2011); p. 1568 - 1584</p> <p>View in Reaxys</p>



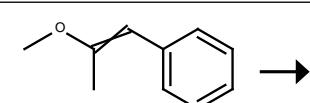
Rx-ID: 642078 [View in Reaxys](#) 51/91

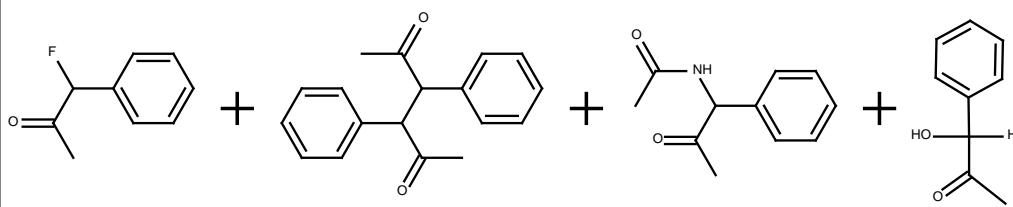
Yield	Conditions & References
	<p>With iron(III) oxide, T= 470 - 480 °C</p> <p>Mailhe; Bulletin de la Societe Chimique de France; vol. <4>15; (1914); p. 328</p> <p>View in Reaxys</p>



Rx-ID: 782368 [View in Reaxys](#) 52/91

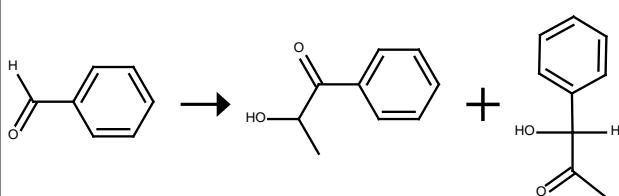
Yield	Conditions & References
	<p>With sulfuric acid, mercury(II) sulfate</p> <p>Murahashi; Hagihara; Memoirs of the Institute of Scientific and Industrial Research, Osaka University; vol. 6; (1948); p. 96,98</p> <p>View in Reaxys</p>
	<p>With sulfuric acid, mercury(II) sulfate</p> <p>Schoellkopf,U.; Haenssle,P; Justus Liebigs Annalen der Chemie; vol. 763; (1972); p. 208 - 210</p> <p>View in Reaxys</p>
	<p>Weichert,J. et al.; Collection of Czechoslovak Chemical Communications; vol. 26; (1961); p. 2040 - 2044</p> <p>View in Reaxys</p>





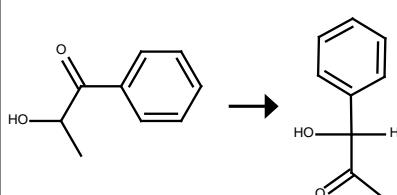
Rx-ID: 2059906 [View in Reaxys](#) 53/91

Yield	Conditions & References
10 %, 7 %, 14 %, 8 %	With hydrogen fluoride, triethylamine in acetonitrile, anodic oxidation on graphite, potentiostatic, $U = +1.3$ V vs. Ag/ Ag(+), charge: 1.8 F/mol Laurent, E.; Marquet, B; Tardivel, R.; Thiebault, H. ; Bulletin de la Societe Chimique de France; nb. 6; (1986); p. 955 - 964 View in Reaxys



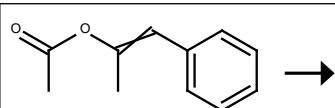
Rx-ID: 2690760 [View in Reaxys](#) 54/91

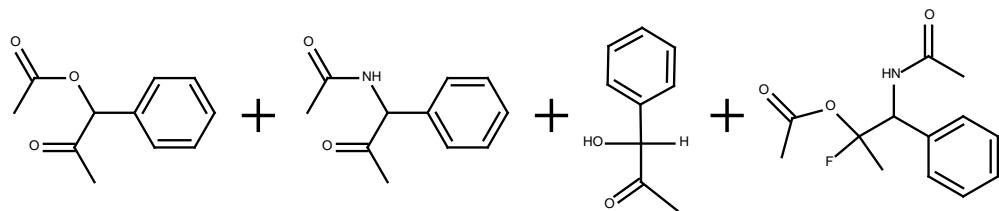
Yield	Conditions & References
	With thiamine pyrophosphate, sodium pyruvate, 3-(trimethylsilyl)-1-propanesulfonic acid,sodium salt, magnesium sulfate, $T= 25$ °C , pyruvate decarboxylase, phosphate buffer, pH 5.9 Crout, David H. G.; Dalton, Howard; Hutchinson, David W.; Miyagoshi, Masanori; Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999); nb. 5; (1991); p. 1329 - 1334 View in Reaxys



Rx-ID: 305518 [View in Reaxys](#) 55/91

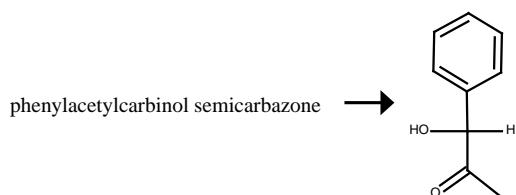
Yield	Conditions & References
	$T= 242 - 246$ °C , bei der Destillation unter Normaldruck v. Auwers; Ludewig; Mueller; Justus Liebigs Annalen der Chemie; vol. 526; (1936); p. 143,170 View in Reaxys
	With aluminum tri-tert-butoxide in toluene, $T= 80$ °C , Equilibrium constant Elphimoff-Felkin,I.; Verrier,M. ; Bulletin de la Societe Chimique de France; (1967); p. 1052 - 1057 View in Reaxys





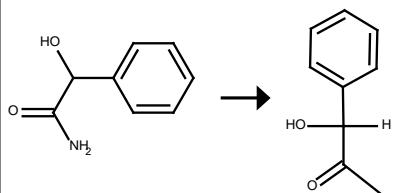
Rx-ID: 2065075 [View in Reaxys](#) 56/91

Yield	Conditions & References
	With hydrogen fluoride, triethylamine in acetonitrile, anodic oxidation on graphite, potentiostatic, U = +1.9 V vs. Ag/Ag(+), charge: 2.6 F/mol, Yield given. Yields of byproduct given Laurent, E.; Marquet, B; Tardivel, R.; Thiebault, H. ; Bulletin de la Societe Chimique de France; nb. 6; (1986); p. 955 - 964 View in Reaxys



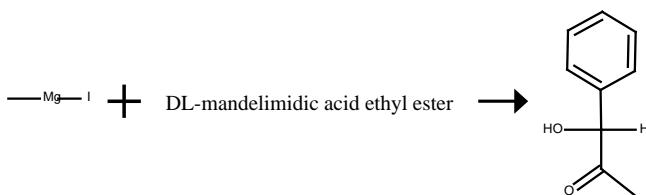
Rx-ID: 8095998 [View in Reaxys](#) 57/91

Yield	Conditions & References
	With nitric acid v. Auwers; Mauss ; Biochemische Zeitschrift; vol. 192 ; (1928); p. 222 View in Reaxys v. Auwers; Ludewig; Mueller ; Justus Liebigs Annalen der Chemie; vol. 526 ; (1936); p. 143,170 View in Reaxys



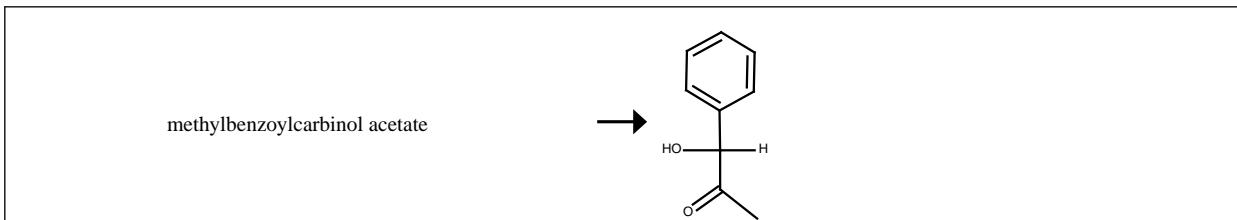
Rx-ID: 333814 [View in Reaxys](#) 58/91

Yield	Conditions & References
	With methyl magnesium iodide v. Auwers; Mauss ; Biochemische Zeitschrift; vol. 192 ; (1928); p. 222 View in Reaxys v. Auwers; Ludewig; Mueller ; Justus Liebigs Annalen der Chemie; vol. 526 ; (1936); p. 143,170 View in Reaxys

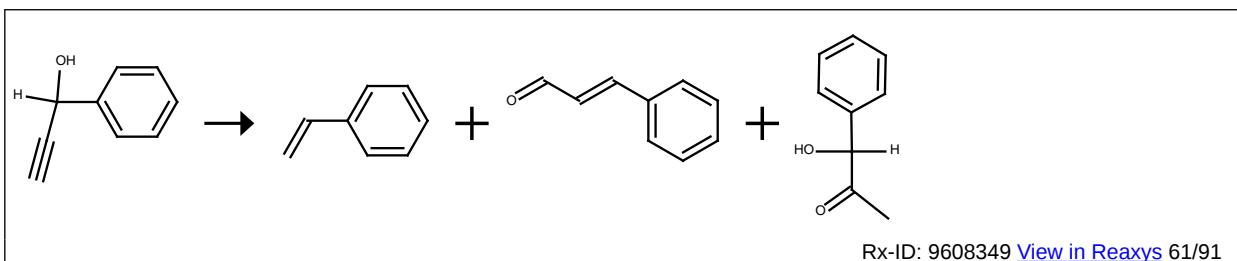


Rx-ID: 8095994 [View in Reaxys](#) 59/91

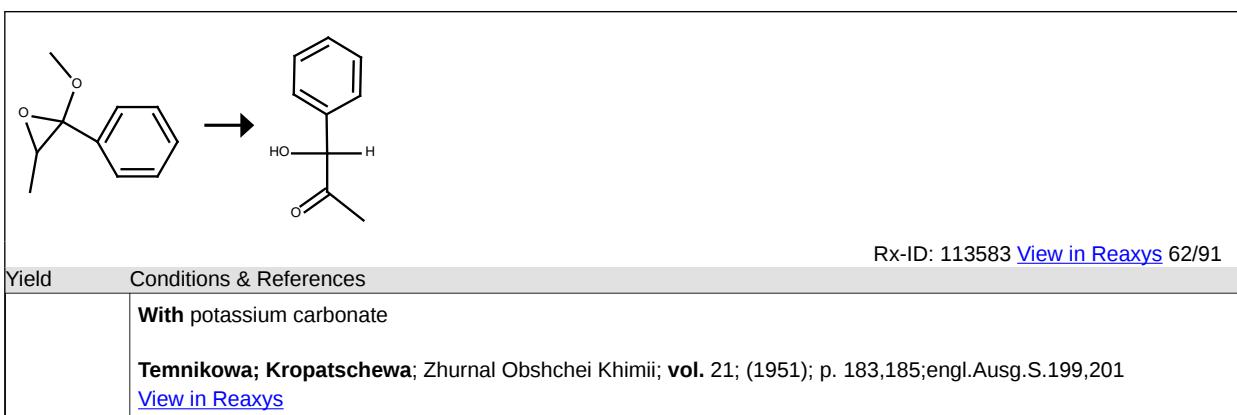
Yield	Conditions & References
	<p>With diethyl ether, benzene</p> <p>Kaji; Yakugaku Zasshi; vol. 77; (1957); p. 851,853; ; (1958); p. 1949 View in Reaxys</p> <p>Kaji; Nagashima; Yakugaku Zasshi; vol. 76; (1956); p. 1250,1253; ; (1957); p. 4309 View in Reaxys</p>

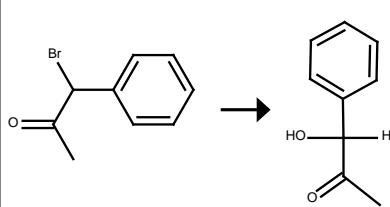


Yield	Conditions & References
	<p>With water, barium carbonate, durch laengeres Kochen</p> <p>v. Auwers; Ludewig; Mueller; Justus Liebigs Annalen der Chemie; vol. 526; (1936); p. 143,170 View in Reaxys</p>



Yield	Conditions & References
20 %, 5 %, 2 %	<p>With water, ruthenium hydroxyapatite, Time= 24h, T= 80 °C , anti-Markovnikov hydration, Product distribution, Further Variations: Catalysts</p> <p>D'Alessandro, Nicola; Di Deo, Milena; Bonetti, Monica; Tonucci, Lucia; Morvillo, Antonino; Bressan, Mario; European Journal of Inorganic Chemistry; nb. 4; (2004); p. 810 - 817 View in Reaxys</p>





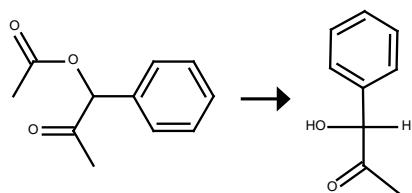
Rx-ID: 281817 [View in Reaxys](#) 63/91

Yield **Conditions & References**

With ethanol, potassium acetate, man verseift das Acetat durch Kochen mit Wasser und BaCO₃

Carapelle; Gazzetta Chimica Italiana; **vol.** 33 II; (1903); p. 262

[View in Reaxys](#)



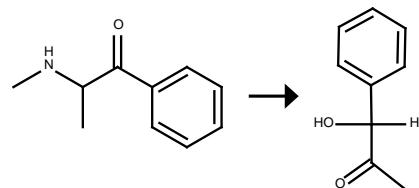
Rx-ID: 292182 [View in Reaxys](#) 64/91

Yield **Conditions & References**

With potassium carbonate

Iwao et al.; Yakugaku Zasshi; **vol.** 74; (1954); p. 551,553; ; (1955); p. 8175

[View in Reaxys](#)



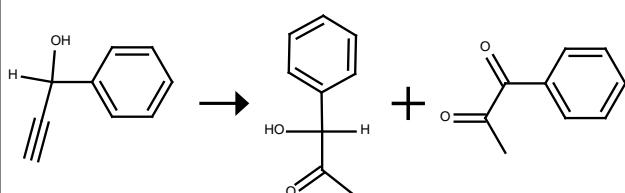
Rx-ID: 393869 [View in Reaxys](#) 65/91

Yield **Conditions & References**

With sodium acetate

Takamatsu; Yakugaku Zasshi; **vol.** 76; (1956); p. 1241; ; (1957); p. 4306

[View in Reaxys](#)



Rx-ID: 782371 [View in Reaxys](#) 66/91

Yield **Conditions & References**

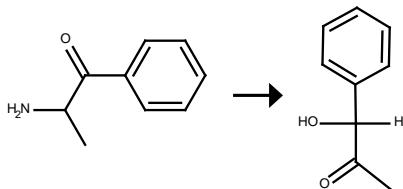
With water, mercury(II) sulfate

Faworskii; Temnikowa; Zhurnal Obshchey Khimii; **vol.** 4; (1934); p. 745,753; Bulletin de la Societe Chimique de France; **vol.** <5> 2; (1935); p. 253,262

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With water, mercury(II) sulfate, zuletzt unter Erwaermen

Faworskii; Temnikowa; Zhurnal Obshchey Khimii; vol. 4; (1934); p. 745,753; Bulletin de la Societe Chimique de France; vol. <5> 2; (1935); p. 253,262
[View in Reaxys](#)

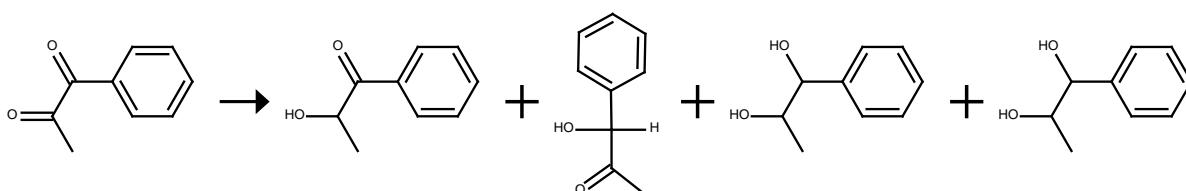


Rx-ID: 854320 [View in Reaxys](#) 67/91

Yield Conditions & References

With sodium acetate

Takamatsu; Yakugaku Zasshi; vol. 76; (1956); p. 1241; ; (1957); p. 4306
[View in Reaxys](#)

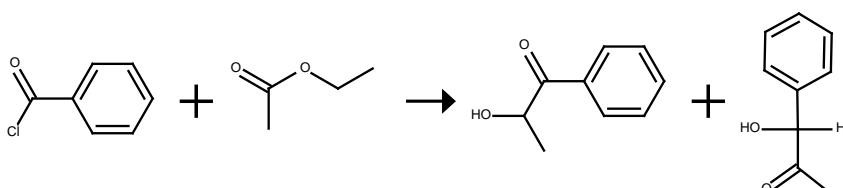


Rx-ID: 3840939 [View in Reaxys](#) 68/91

Yield Conditions & References

With nicotinamide adenine dinucleotide, rat liver homogenate supernatant, T= 37 °C , other catalysts, Product distribution

Prelusky; Coutts; Pasutto; Journal of Pharmaceutical Sciences; vol. 71; nb. 12; (1982); p. 1390 - 1393
[View in Reaxys](#)

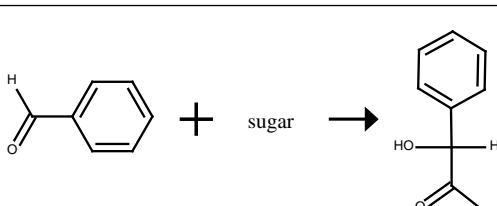


Rx-ID: 4881899 [View in Reaxys](#) 69/91

Yield Conditions & References

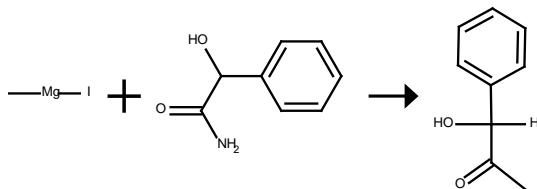
With nickel(II) iodide, hydrogenchloride, samarium diiodide, water, 1.) THF, 0 deg C, 5 min; 2.) THF, 3 h, Yield given. Multistep reaction. Yields of byproduct given

Machrouhi, Fouzia; Namy, Jean-Louis; Kagan, Henri B.; Tetrahedron Letters; vol. 38; nb. 41; (1997); p. 7183 - 7186
[View in Reaxys](#)



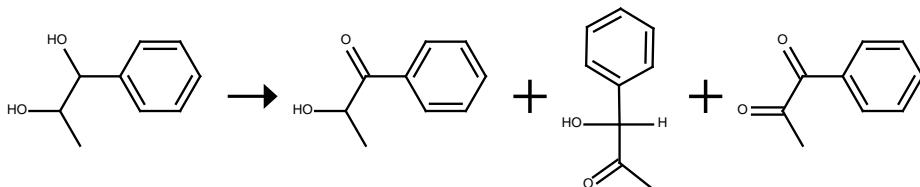
Rx-ID: 36491910 [View in Reaxys](#) 70/91

Yield	Conditions & References
	With pyruvate decarboxylase, Enzymatic reaction Salouros, Helen; Sutton, Gordon J.; Howes, Joanna; Hibbert, D. Brynn; Collins, Michael; Analytical Chemistry; vol. 85; nb. 19; (2013); p. 9400 - 9408 View in Reaxys



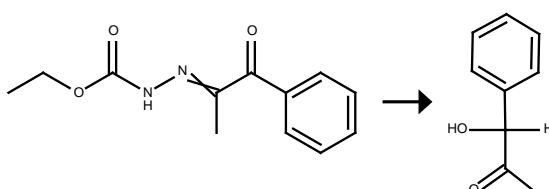
Rx-ID: 94359 [View in Reaxys](#) 71/91

Yield	Conditions & References
	With diethyl ether Wren; Journal of the Chemical Society; vol. 95; (1909); p. 1597 View in Reaxys



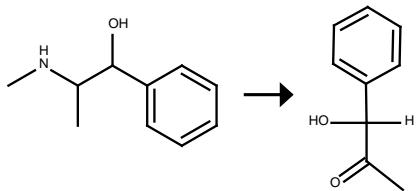
Rx-ID: 4517751 [View in Reaxys](#) 72/91

Yield	Conditions & References
25 mg	With 3,3-dimethyldioxirane in acetone, Ambient temperature, Yield given. Title compound not separated from by-products Bovicelli, Paolo; Sanetti, Anna; Lupattelli, Paolo; Tetrahedron; vol. 52; nb. 33; (1996); p. 10969 - 10978 View in Reaxys
25 mg	With 3,3-dimethyldioxirane in acetone, Ambient temperature, Yields of byproduct given Bovicelli, Paolo; Sanetti, Anna; Lupattelli, Paolo; Tetrahedron; vol. 52; nb. 33; (1996); p. 10969 - 10978 View in Reaxys
25 mg	With 3,3-dimethyldioxirane in dichloromethane, Time= 12h, Ambient temperature, other sec,sec 1,2-diols, Product distribution Bovicelli, Paolo; Sanetti, Anna; Lupattelli, Paolo; Tetrahedron; vol. 52; nb. 33; (1996); p. 10969 - 10978 View in Reaxys



Rx-ID: 1114069 [View in Reaxys](#) 73/91

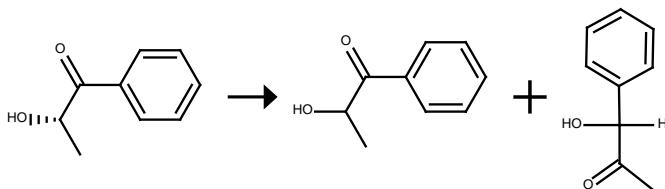
Yield	Conditions & References
	(i) $NaBH_4$, MeOH, (ii) aq. HCl , $AcOH$, Multistep reaction Takeda,T. et al.; Chemistry Letters; (1977); p. 245 - 248

[View in Reaxys](#)

 Rx-ID: 1447529 [View in Reaxys](#) 74/91

Yield	Conditions & References
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(anodic oxidation)

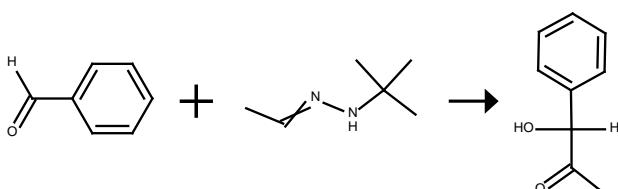
Masui,M.; Ozaki,S.; Chemical and Pharmaceutical Bulletin; **vol. 26**; (1978); p. 2153 - 2159
[View in Reaxys](#)


 Rx-ID: 2317021 [View in Reaxys](#) 75/91

Yield	Conditions & References
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With lithium diisopropyl amide, Time= 0.25h, T= -78 - 0 °C , variation of solvent, Product distribution

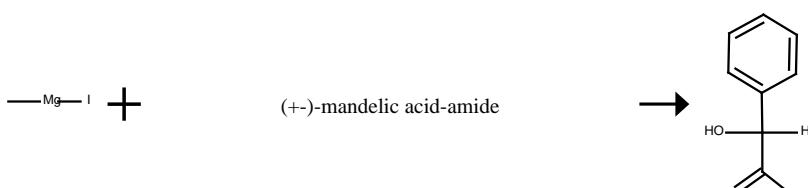
Davis, Franklin A.; Sheppard, Aurelia C.; Lal, G. Sankar; Tetrahedron Letters; **vol. 30**; nb. 7; (1989); p. 779 - 782
[View in Reaxys](#)


 Rx-ID: 2685429 [View in Reaxys](#) 76/91

Yield	Conditions & References
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Yield given. Multistep reaction

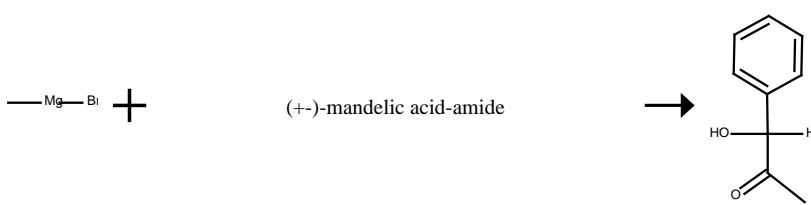
Baldwin, Jack E.; Adlington, Robert M.; Bottaro, Jeffrey C.; Kolhe, Jayant N.; Perry, Matthew W. D.; Jain, Ashok U.; Tetrahedron; **vol. 42**; nb. 15; (1986); p. 4223 - 4234
[View in Reaxys](#)


 Rx-ID: 8095992 [View in Reaxys](#) 77/91

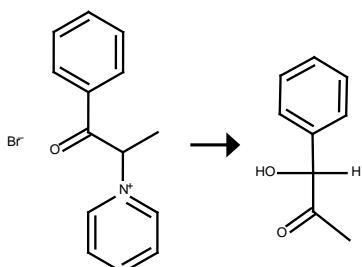
Yield	Conditions & References
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Faworski; Temnikowa; Zhurnal Obschchei Khimii; **vol. 4**; (1934); p. 745,753; Bulletin de la Societe Chimique de France; **vol. <5> 2**; (1935); p. 253,262
[View in Reaxys](#)

Hey; Journal of the Chemical Society; (1930); p. 1232
[View in Reaxys](#)

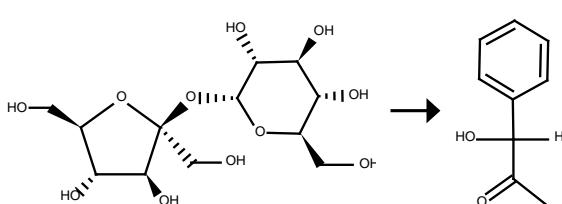


Rx-ID: 8095993 [View in Reaxys](#) 78/91



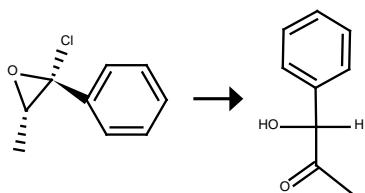
Rx-ID: 22578676 [View in Reaxys](#) 79/91

Yield	Conditions & References
	Reaction Steps: 2 1: (i) K_2CO_3 , MeCN, (ii) aq. NaOH 2: (i) $NaBH_4$, MeOH, (ii) aq. HCl, AcOH Takeda,T. et al. ; Chemistry Letters; (1977); p. 245 - 248 View in Reaxys



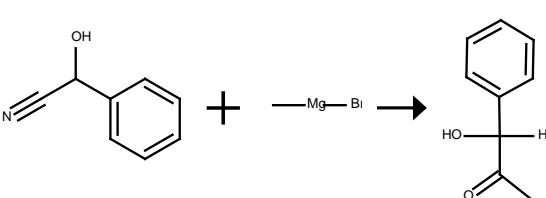
Rx-ID: 828763 [View in Reaxys](#) 80/91

Yield	Conditions & References
	bei der Vergärung durch Hefemacerationssaft in Gegenwart von Benzaldehyd Neuberg; Hirsch; Biochemische Zeitschrift; vol. 115; (1921); p. 304 View in Reaxys



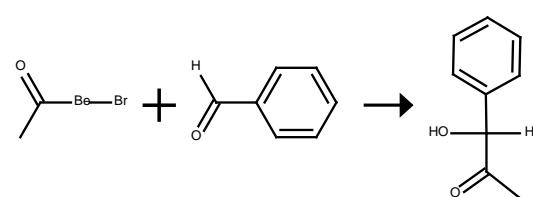
Rx-ID: 1261691 [View in Reaxys](#) 81/91

Yield	Conditions & References
	(i) H ₂ O, Et ₂ O, (ii) Ac ₂ O, (iii) aq. KOH, acetone, Multistep reaction Kirrmann,A.; Nouri-Bimorghi,R.; Bulletin de la Societe Chimique de France; (1968); p. 3213 - 3220 View in Reaxys



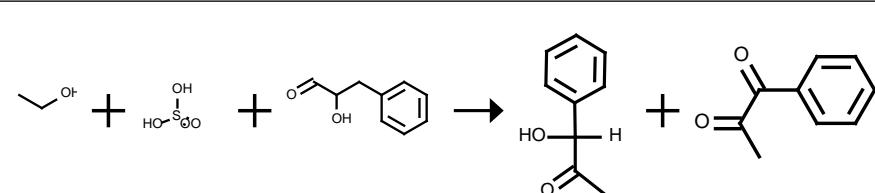
Rx-ID: 1089385 [View in Reaxys](#) 82/91

Yield	Conditions & References
	(i) 3,4-dihydro-2H-pyran, (ii) /BRN= 3587200/, (iii) aq. HCl, Multistep reaction Elphimoff-Felkin,I.; Verrier,M.; Bulletin de la Societe Chimique de France; (1967); p. 1047 - 1052 View in Reaxys



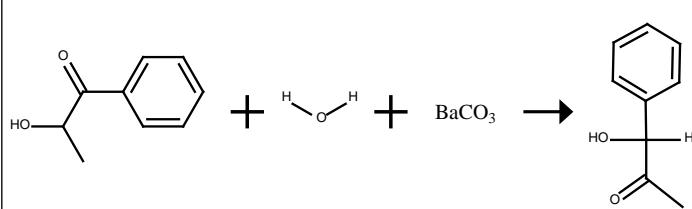
Rx-ID: 1199803 [View in Reaxys](#) 83/91

Yield	Conditions & References
	(i) , (ii) aq. KOH, Multistep reaction Lapkin,I.I.; Povarnitsyna,T.N.; J. Gen. Chem. USSR (Engl. Transl.); vol. 38; nb. 1; (1968); p. 96 - 99; Zhurnal Obshchei Khimii; vol. 38; nb. 1; (1968); p. 99 - 102 View in Reaxys



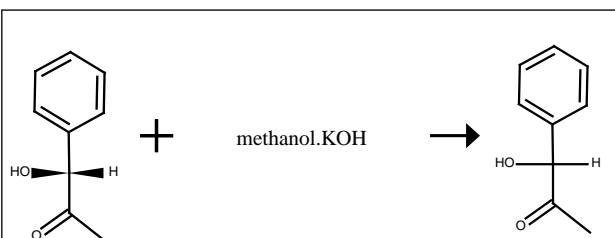
Rx-ID: 8263494 [View in Reaxys](#) 84/91

Yield	Conditions & References
	T= 135 °C Danilow; Venus-Danilowa; Chemische Berichte; vol. 63; (1930); p. 2765,2774; Zhurnal Russkago Fiziko-Khimicheskago Obshchestva; vol. 62; (1930); p. 1697,1710 View in Reaxys



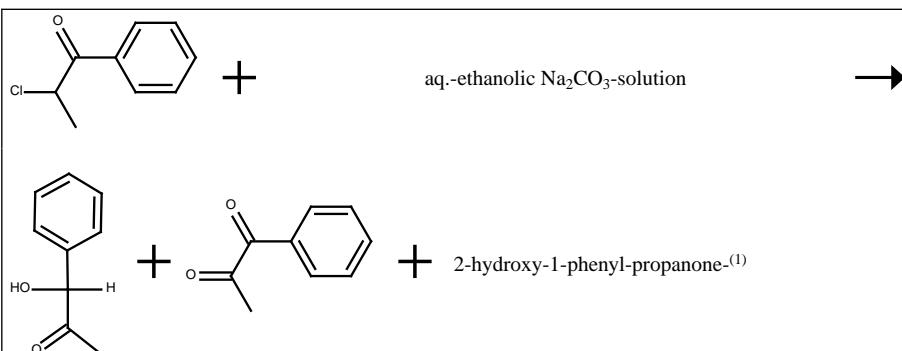
Rx-ID: 7154494 [View in Reaxys](#) 85/91

Yield	Conditions & References
	bei 20-stdg. Erhitzen Temnikowa; Zhurnal Obshchey Khimii; vol. 10; (1940); p. 468,473; Chem. Zentralbl.; vol. 111; nb. II; (1940); p. 1860 View in Reaxys v. Auwers; Ludewig; Mueller; Justus Liebigs Annalen der Chemie; vol. 526; (1936); p. 143,170 View in Reaxys



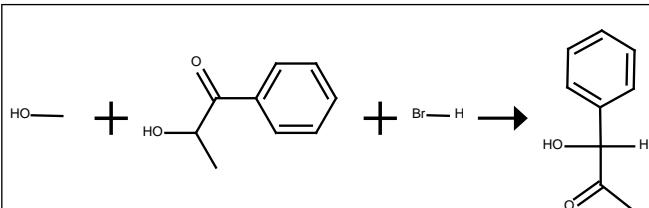
Rx-ID: 8095995 [View in Reaxys](#) 86/91

Yield	Conditions & References
	Rate constant Bayer et al.; Chemicke Zvesti; vol. 12; (1958); p. 687; ; (1959); p. 11289 View in Reaxys



Rx-ID: 7065627 [View in Reaxys](#) 87/91

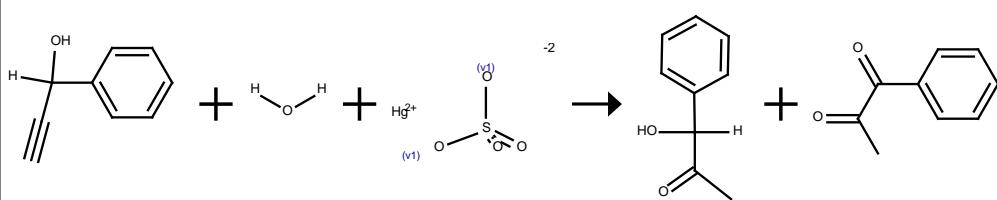
Yield	Conditions & References
	Richard; Comptes Rendus Hebdomadaires des Séances de l'Academie des Sciences; vol. 214; (1942); p. 673 View in Reaxys



Rx-ID: 7154493 [View in Reaxys](#) 88/91

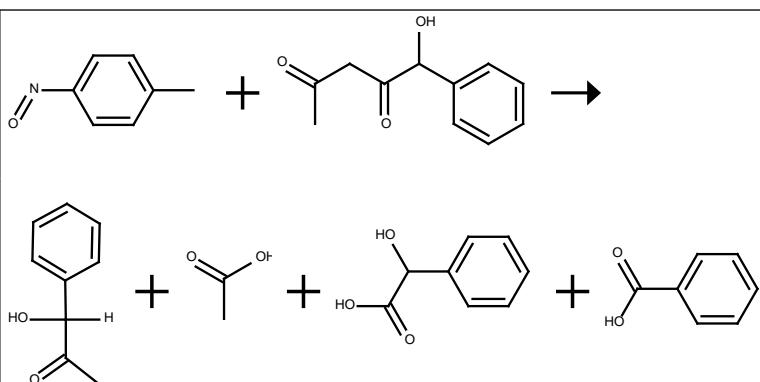
Yield	Conditions & References
	bei 20-stdg. Erhitzen auf Siedetemperatur

Temnikowa; Zhurnal Obshchey Khimii; vol. 10; (1940); p. 468,473; Chem. Zentralbl.; vol. 111; nb. II; (1940); p. 1860
[View in Reaxys](#)



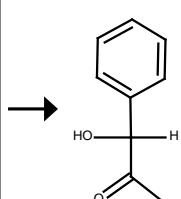
Rx-ID: 6163032 [View in Reaxys](#) 89/91

Yield	Conditions & References
	zuletzt unter Erwärmen auf dem Dampfbad Faworskii; Temnikowa; Zhurnal Obshchey Khimii; vol. 4; (1934); p. 745,753; Bulletin de la Societe Chimique de France; vol. <5> 2; (1935); p. 253,262 View in Reaxys



Rx-ID: 266867 [View in Reaxys](#) 90/91

Yield	Conditions & References
	Produkt ₅ : Aceton Henze; Hoppe-Seyler's Zeitschrift fuer Physiologische Chemie; vol. 232; (1935); p. 117,121 View in Reaxys



Rx-ID: 6331503 [View in Reaxys](#) 91/91

Yield	Conditions & References
	Heilmann; Baret; Comptes Rendus des Seances de l'Academie des Sciences, Serie D: Sciences Naturelles; vol. 267; nb. 8; (1968); p. 579 View in Reaxys Person; Foucaud; Bulletin de la Societe Chimique de France; (1976); p. 1119 View in Reaxys Klemmensen et al.; Arkiv foer Kemi; vol. 28; (1967); p. 405,411 View in Reaxys Asano et al.; Chemistry Letters; (1974); p. 1149 View in Reaxys Ohgo et al.; Chemistry Letters; (1974); p. 709,710 View in Reaxys

Bowlus; Katzenellenbogen; Journal of Organic Chemistry; **vol.** 39; (1974); p. 3309,3310,3313

[View in Reaxys](#)

Beckett et al.; Journal of Pharmacy and Pharmacology; **vol.** 26; (1974); p. 945,946

[View in Reaxys](#)

Ohnishi; Kagami; Tetrahedron Letters; (1975); p. 2437

[View in Reaxys](#)

Kaji et al.; Gifu Yakka Daigaku Kiyo; **vol.** 16; (1966); p. 45,46-61; ; **vol.** 70; nb. 11290r; (1969)

[View in Reaxys](#)

Temnikova; Dneprovskij; Journal of Organic Chemistry USSR (English Translation); **vol.** 4; (1968); p. 1858; Zhurnal Organicheskoi Khimii; **vol.** 4; (1968); p. 1923

[View in Reaxys](#)

Bordwell et al.; Journal of the American Chemical Society; **vol.** 91; (1969); p. 2087

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