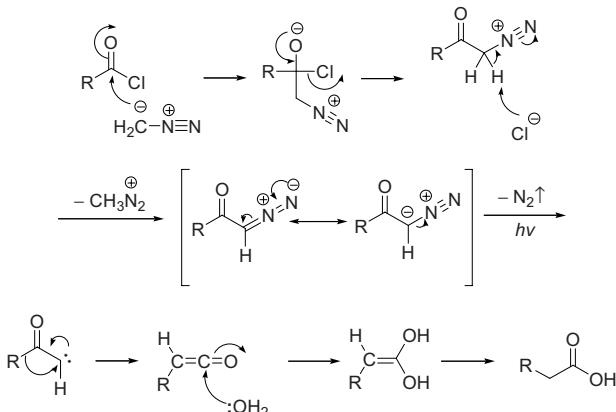
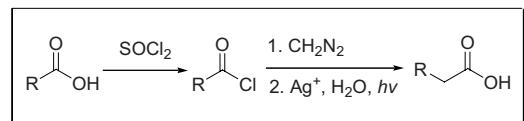


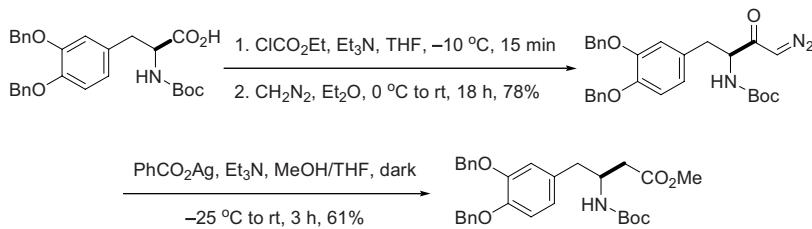
Arndt–Eistert homologation

One-carbon homologation of carboxylic acids using diazomethane.

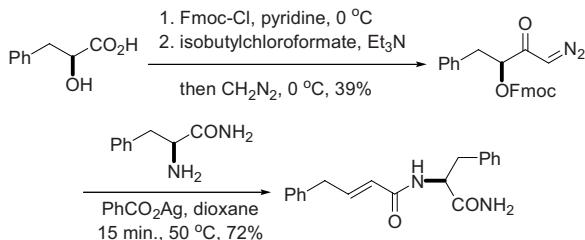


α -ketocarbene intermediate ketene intermediate

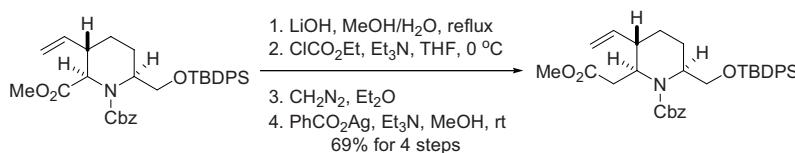
Example 1⁷



Example 2, An interesting variation⁹



Example 3¹⁰



References

- Arndt, F.; Eistert, B. *Ber.* **1935**, *68*, 200–208. Fritz Arndt (1885–1969) was born in Hamburg, Germany. He discovered the Arndt–Eistert homologation at the University of Breslau where he extensively investigated the synthesis of diazomethane and its reactions with aldehydes, ketones, and acid chlorides. Fritz Arndt's chain-smoking of cigars ensured that his presence in the laboratories was always well advertised. Bernd Eistert (1902–1978), born in Ohlau, Silesia, was Arndt's Ph.D. student. Eistert later joined I. G. Farbenindustrie, which became BASF after the Allies broke up the conglomerate after WWII.
- Podlech, J.; Seebach, D. *Angew. Chem., Int. Ed.* **1995**, *34*, 471–472.
- Matthews, J. L.; Braun, C.; Guibourdenche, C.; Overhand, M.; Seebach, D. In *Enantioselective Synthesis of β-Amino Acids* Juaristi, E. ed.; Wiley-VCH: New York, N. Y. **1997**, pp 105–126. (Review).
- Katritzky, A. R.; Zhang, S.; Fang, Y. *Org. Lett.* **2000**, *2*, 3789–3791.
- Vasanthakumar, G.-R.; Babu, V. V. S. *Synth. Commun.* **2002**, *32*, 651–657.
- Chakravarty, P. K.; Shih, T. L.; Colletti, S. L.; Ayer, M. B.; Snedden, C.; Kuo, H.; Tyagarajan, S.; Gregory, L.; Zakson-Aiken, M.; Shoop, W. L.; Schmatz, D. M.; Wyvratt, M. J.; Fisher, M. H.; Meinke, P. T. *Bioorg. Med. Chem. Lett.* **2003**, *13*, 147–150.
- Gaucher, A.; Dutot, L.; Barbeau, O.; Hamchaoui, W.; Wakselman, M.; Mazaleyrat, J.-P. *Tetrahedron: Asymmetry* **2005**, *16*, 857–864.
- Podlech, J. In *Enantioselective Synthesis of β-Amino Acids (2nd Edn.)* John Wiley & Sons: Hoboken, NJ, **2005**, pp 93–106. (Review).
- Spengler, J.; Ruiz-Rodriguez, J.; Burger, K.; Albericio, F. *Tetrahedron Lett.* **2006**, *47*, 4557–4560.
- Toyooka, N.; Kobayashi, S.; Zhou, D.; Tsuneki, H.; Wada, T.; Sakai, H.; Nemoto, H.; Sasaoka, T.; Garraffo, H. M.; Spande, T. F.; Daly, J. W. *Bioorg. Med. Chem. Lett.* **2007**, *17*, 5872–5875.
- Fuchter, M. J. *Arndt–Eistert Homologation*. In *Name Reactions for Homologations–Part I*; Li, J. J., Corey, E. J., Eds.; Wiley & Sons: Hoboken, NJ, **2009**, pp 336–349. (Review).