

Thanya Rukkijakan 2012: Indole Ring Formation using a Sequential Sonogashira Coupling and Cacchi Reactions: Synthetic Studies toward Fluvastatin Precursors. Master of Science (Chemistry), Major Field: Chemistry, Department of Chemistry. Thesis Advisor: Mr. Pitak Chuawong, Ph.D. 79 pages.

Fluvastatin, a member of the drug class of statins, is a medically important molecule used in the treatment of hypercholesterolemia and cardiovascular disease. Here, we report the study toward the construction of the indole unit of fluvastatin using a one-pot, sequential Sonogashira and Cacchi reactions. The substituents on the aryl moiety as well as the nitrogen atom were varied in order to assess the effects of these groups toward the yield of the reaction. It was found that the reactions provide low to moderate yield of the desired indole product. Moreover, two by products formed during this multi-step process were identified to be the arylalkyne and the cyclized product with no substituent on the 3 position of indole ring. The results support the nature of palladium-catalyzed reaction, which is highly sensitive to solvent, base, and also the nature of the substrate.

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Thesis Advisor's signature

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