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Title	Indium-catalyzed direct alkenylation of 2-methylquinolines with aldehydes via C-H functionalization

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## Summary

Abstract

C-H functionalization strategies is a burgeoning area of interest to organic chemists due to its versatility in synthesizing a large framework of organic molecules in the pharmaceutical, medical and chemical industries. Its application is extensive and it streamlines the synthetic routes to a myriad of organic transformation and the development of direct C-H functionalization methodologies leading to C-C bond formation is highly valued. Despite a significant progress being made in this field of study over the years, there are still a substantial amount of challenges that can be overcome.

Chapter 1 covers the overview on transition metal-catalyzed C-H functionalization. Various aspects for the development of direct C-H functionalization methodologies are being discussed. These methodologies covers mainly innate functionalization, guided functionalization and direct benzylic addition strategies to polar C=X (X = O, N, C). The importance of indium as a catalyst due to its stability and low heterophilicity is also expounded in this chapter.

The focus of subsequent chapters will be on the development of an Indiumcatalyzed direct alkenylation of various quinolines to aldehydes and heteroaromatic aldehydes. Various substituted quinolines and aldehydes were being explored based on the optimized conditions. Good to excellent yield was obtained and discussion of results is detailed in Chapter 3. Finally, general experimental procedures and characterization studies of isolated products are documented in Chapter 4 for credibility.

