**Drug Discovery and Development at NUS:** Utilization of fragment screening in the quest to discover novel medicines and how the NUS Drug Development Unit can support advanced therapeutic development.

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**Abstract**

Conception of a new medicine in small molecule pharmaceutical research usually starts from a disease hypothesis where an understanding of a mechanism or pathway shown to be critical to that disease can be targeted. Elucidation of specific molecular targets (often enzymes, receptors, ion channels) is highly desirable since targeted molecular approaches and structure-based design can then be employed as a highly effective strategy. Design of inhibitors which bind to the biological target with sufficient potency to exert a pharmacological effect at high enough concentrations at the site of action then becomes the central challenge of medicinal chemistry. Such a ‘quest’ involves multiple scientific disciplines. Increasingly the challenge is being taken up in the form of ‘Academic Drug Discovery’ for example in centers in the UK and USA. This presentation will aim to briefly summarise the state of drug discovery today and the role that universities can play in filling the gap in novel target research that is so badly required for the next generation of medicines. Using case studies of industry projects spanning large and small pharma, the modern technique of Fragment Based Screening (FBS) will be outlined. FBS is a technology that is particularly amenable to finding novel leads within an academic environment adding value to a project that is complementary to other screening approaches. In the final part, the role of the NUS Drug Development Unit (DDU: http://ddu.nus.edu.sg/) will be expounded as an exciting new enterprise to get the most out of cutting edge therapeutic biomedical research being done in NUS.

**Selected Publications**

