

**NUS Graduate School for Integrative Sciences and Engineering
Research Project Write-up**

Title of Project : **Membranes for chiral separation**

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The demands of the pharmaceutical industry require us to develop enantioselective membranes suitable for chiral separation because majority of the active pharmaceutical ingredients (API) are chiral in nature. Enantiomerically pure drug compounds will be one of the criteria for APIs to be accepted by the US Food and Drug Administration (FDA). Therefore, research on chiral separation has received worldwide attention. Traditional methods to isolate the desired enantiomer are asymmetric synthesis, preferential crystallization, chromatography, and capillary electrophoresis. New technologies are needed to lower the production costs, increase product purity, and overcome the limitation of batch process. We have found some bioactive and supported liquid membranes show effectiveness for chiral separation. These membrane technologies offer several unmatched advantages: 1) continuous operation mode; 2) adaptability for large-scale applications; and 3) easy scale-up for larger feed flow rates. Therefore, we aim to study the science and develop enantioselective membranes for chiral separation.