

August 26, 2023

TO WHOMSOEVER IT MAY CONCERN

It is my pleasure to give a letter of recommendation to Ms. Sarayu M in support of her nomination for Sun Pharma Research Scholar Awards 2023. She is currently enrolled as a PhD student under my guidance in the Department of Biotechnology, IIT Madras from July, 2016. Her PhD project focuses on developing metabolic engineering strategies for enhanced production of camptothecin, the third-most used anti-cancer drug in the world. With the ever-increasing market demand, increasing deforestation and climate change, developing techniques for large-scale sustainable production of CPT is the need of the hour.

This project aimed to predict plant behavior enabling selection of rational metabolic engineering strategies, saving time, cost and energy over traditional hit and trial methods of experimentation. The genome-scale model reconstruction is a novel attempt which incorporates both- the primary and secondary metabolism of the plant for enhanced camptothecin production. The contribution of the project to the scientific community is going to be immense, where this understanding can be implemented to similar plants for the production of important secondary metabolites and medicinally important drugs. Plant metabolic engineering itself is a challenging area and working on a tree-species like *Nothapodytes nimmoniana* to develop transformed cell-lines adds to the challenge. Despite these challenges, the student has been able to develop over-expressed celllines for the enhanced production of camptothecin, which can not only be used for whole plant regeneration with enhanced camptothecin production but also in the development of plant cell fermentation based bioprocess for large-scale *in vitro* production of camptothecin independent of nature. The fact that she has chosen to work in a non-trivial inter-disciplinary field like plant metabolic engineering where she is required to get specifically trained in computational biology, plant cell bioprocessing and genetic engineering of plant cells shows her strong motivation and zeal towards modern biotechnology.

I confirm that the work submitted to Sun Pharma Research Scholar Awards has been performed by her and strongly recommend her application. This award will further motivate and aid her in accomplishing her research objectives and provide a platform for contributing to scientific advances for sustainable development and socio-economic impact.

Please feel free to contact me if you need any clarifications.

Thank you,



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