Indian Association for the Cultivation of Science

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Sub: Justification of Nomination of Dr. Rajib Kumar Goswami for Sun Pharma Research Award 2023.

I am happy to write this letter in support of the candidature of Professor Rajib Kumar Goswami of the School of Chemical Sciences, IACS, Kolkata for Sun Pharma Research Award 2023 in Pharmaceutical Sciences.

Natural products remain the main fray for new drug discovery providing scope of generating new therapeutic agents/leads and practicing their chemistry offered the society valuable returns from fundamental to applied fields and make chemical synthesis of natural product a state of the art in chemical/pharmaceutical research. Prof. Goswami has contributed excellently towards this direction through development of synthetic routes for Total Synthesis of Natural Products of Pharmaceutical Importance (*Org. Lett.* **2020**, *22,* 1188-1192; *Org. Lett.* **2022**, *39,* 7113-7117; *Chem. Sci.,* **2022**, *13,* 13403-13408 and more) and developed efficient asymmetric synthetic routes of biologically potent and structurally challenging 38 natural products belonging to macrolides, cyclodepsipeptides sesquiterpenes, polyketide that have tremendous impact in pharmaceutical research.

The validation of structure of natural product holds the key for exploring therapeutic potential and Prof. Goswami's endeavor resulted correct assignments of alveolaride C, mycalol, penicitide A, sunshinamide, baulamycin A, debilisone A and many more. His work on baulamycin A resulted a follow up work in Nature whereas the art of synthesis of alveolaride C highlighted as literature coverage and an invited perspective entitled "Total synthesis: the structural confirmation of natural products" to a reputed peer reviewed journal.

Prof. Goswami reinvented the utility of Heck reaction while exploring the synthesis of a large number of bio-active macrocyclic natural products and successfully implemented the total synthesis of anticancer natural products biselyngbyolides A, B & C, pestalotioprolides G & H, and created a stepping stone for synthesis of extremely complex polyenic antifungal marine natural products strevertene A and macrotermycin C. His approach for synthesis of sensitive skipped olefins following Red-Al mediated *trans*-hydroalumination/allylation protocol is quite impressive.

Prof. Goswami also has focus on biomedicinal applications of natural products and their analogues. The analogs of cananginone E, synthesized in enantiomeric pure form, have been found to inhibit hedgehog signaling pathway associated with several types of cancers propagation. The SAR of anticancer natural products biselyngbyolide B, pestalotioprolide E, beauveamide A, bacilotetrin C and sunshinamide resulted new simplified potent analogues.

Prof. Goswami's research endeavor opened up important avenues for chemical synthesis of natural products and their analogues and their biomedicinal applications and I firmly believe that he deserves the prestigious Sun Pharma Science Foundation Research Awards 2023 in Pharmaceutical Sciences.

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