Citation (summary) on the outstanding research work

Dr. Raji Reddy has made outstanding contributions in the field of pharmaceutical chemistry for human health care through the development novel processes for Active Pharmaceutical Ingredients to support the pharmaceutical companies' for commercialization. In addition, contributions in the synthesis of New Chemical Entities (NCE) by the development of novel synthetic methods including natural product analogues as potential therapeutic agents towards drug discovery are noteworthy. His work resulted in discovering NCEs as leads for the treatment of cancer. The work is well justified by well justified by his **140** publications and **10** patents and **2** book chapters having **2,856** citations.

- Developed a novel and efficient scalable process for the synthesis of TLR 7/8 agonist molecule (IMDG), used as an adjuvant in COVAXIN® (COVID-19 vaccine) and transferred to Bharat Biotech Int. Ltd. and other three companies, wherein it is being produced in kilograms scale. BBIL has launched the vaccine, in COVAXIN® in the market and supplying to several countries. [TECHNOLOGY COMMERCIALIZED]

- Developed a novel process for Favipiravir in 20-days' time and transferred the process to Cipla Ltd. They launched the product in the market using the technology developed as CIPLENZA for the treatment of COVID-19, having CSIR-IICT logo printed on the marketing pack. [TECHNOLOGY COMMERCIALIZED]

- Similarly, processes for **2-Deoxy Ribose** (transferred to 6-companies), **Remdesivir** (transferred to 4-companies), **(*S*)-pregabalin** *(*IN202011006475-patent filed), **key fragment of Eribulin mesylate** (Patent Filed: No. 0019NF2019, transferred to Cipla Ltd. and the product is under process for commercialization), Nicergoline and EV-077-3201 (transferred to Evolva Biotech) have also been developed.

- Developed numerous efficient methodologies from novel MBH-adduct and propargylic alcohols are handy precursors, which generated more than 1875 New Chemical Entities *(unrevealed skeletons in literature)*, particularly heterocycles. *From these, three molecules have been found as lead molecules: Oxindole derivative – leukemic and breast cancer (US 2018/0127365 A1, 2018), and indole sulphonamide–Selective HDAC Inhibitor (WO 2019/102488 A1)* ***which are also found be useful for Idiopathic pulmonary fibrosis.*** *(Patent Application number as:* ***202011038497).*** *The generation of further data towards IND filing is in progress (potential for out-licensing).*

-Accomplished the synthesis of architecturally and stereochemically challenging natural products with extraordinary ease. His group has achieved the total synthesis of 51-Natural Products, which is certainly an admirable achievement. Among these, the synthesis towards complex macrolides such as (-)-exiguolide and iriomoteolide 3a are remarkable. The total synthesis of Seimatopolide A & B is a classical instance, wherein revision of the absolute configuration is achieved and in the case of Ieodoglucomides and Pangandolide 1a, his strategies proved the ambiguity in stereochemistry.

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