पंजाब केन्द्रीय विश्वविद्यालय, बठिंडा
Central University of Punjab, Bathinda

(संसद के अधिनियम संख्याक 25(2009) के द्वारा स्थापित)/(Established vide an Act No. 25(2009) of Parliament)

Prof. Raghavendra P. Tiwari/ आचार्य राघवेन्द्र प्र. तिवारी
Vice-Chancellor/ कुलपति

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TO WHOMSOEVER IT MAY CONCERN

It is my great pleasure to nominate **Professor (Dr.) Raj Kumar**, Department of Pharmaceutical Sciences and Natural Products, Central University of Punjab, Bathinda for **Sun Pharma Science Foundation Research Awards 2021** in the area of ***Pharmaceutical Sciences***. I know Prof. Kumar very well as a decorated peer with exceptional domain expertise in the field of Pharmaceutical Sciences. Dr. Kumar has an excellent publication track record and published 90 International and 2 National articles with a total Impact factor > 300 (approx.), filed 6 patents, and having an *h*-index of 33 (Scopus). His research is funded by UMBC, Maryland, USA, Central University of Punjab, DST-SERB, Ranbaxy Research Foundation, UGC, and Bristol Myers Squib, USA. Briefly, his research contributes in the following areas touching Pharmaceutical Sciences. Some highlights are discussed below:

A. Medicinal Chemistry and Drug Discovery: Under this area, Dr. Kumar group has developed New Chemical Entities for the treatment of cancer by developing EGFR inhibitors, DNA repair inhibitors, topoisomerase inhibitors, PKM2 Inhibitors and mitochondrial death pathway stimulator, anti-gout agents via Xanthine Oxidase inhibitors, COX-2 enzyme inhibitors and PDE-4 inhibitors.

B. Development of Diagnostic agents: Pd-catalyzed cascade reaction for the synthesis of fluorescent indazolo [2,3-c] quinazolines with high quantum yield, and excellent photostability was developed by Dr. Kumar's group. Its application is explored in live cell imaging, which exhibited cytoplasmic and mitochondrial specific staining with no toxicity (J. Org. Chem. 2019, 84, 3817−3825; Patent No. 201811028230).

C. Development of New Synthetic Methodologies and Novel Concepts: Recently a "carbene mediated-Pictet Spengler reaction" for the first time for the synthesis of imidazo[1,2-a] quinoxaline compounds (Org. Chem. Front., 2018, 5, 3526-3533., Indian Patent No. 201611014161) is revealed under Microwave conditions. Novel methodologies were established by using re-usable heterogeneous catalysts such as $HClO_4$ adsorbed on SiO_2, HBF_4 adsorbed on K-10/KSF clays or Lewis acid catalysts such as $Cu(BF_4)_2{\cdot}xH_2O$ and $Zn(ClO_4)_2{\cdot}6H_2O$ with their electrophilic activation potential or water or SDS-water having dual-activation power. Microwave-assisted catalyst-free synthesis of 2-substituted benzoxazoles and 4-aminoquinoline derivatives and pyrazolo(1,5-c) quinazoline were also developed.

Prof. Kumar has received the highly competitive Central University awards five times including Roll of Honor. His impressive publication record in well-respected international peer reviewed journals and several patents is testimony to the high quality, impact and application of his work. He is also consultant to Transasia BioMedicals Pvt. Ltd. for developing Diagnostic agents. His anticancer molecule RK 33 developed as DDX-3 inhibitor for the treatment of Non-Small Cell Lung Cancer (NSCLC) is in advance stages of drug discovery. Prof. Kumar has also been involved in teaching and training programs for students and functioned as course coordinators at various levels.

In recent years, Prof. Kumar has tackled important issues in Pharmaceutical Chemistry. His work has opened up new vistas in the area of new/improved drug discovery. His versatility is demonstrated by his use of a range of methods from a variety of disciplines for addressing and solving specific scientific problems. He has been trained in among the best pharmacy schools of India (including NIPER, Mohali) and abroad. He is well recognized and respected among his peers for his domain expertise, teaching style and research output. Prof. Kumar is a teacher whom his students love and a researcher whom his mentees respect a lot. Recently, Prof. Kumar got featured in the list of top 2% international scientists "Updated Science-wide Database of Stanford Citation Indicators" released by Stanford University, USA and published by Elsevier BV on 19th October, 2021.

Without hesitation, I strongly recommend the candidature for your favorable consideration as Prof. Raj Kumar is genuinely deserving and equally promising researcher.

29/10/2021

(Raghavendra P. Tiwari)

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