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**राजस्थान केन्द्रीय विश्वविद्यालय**  
**Central University of Rajasthan**  
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## LETTER OF JUSTIFICATION/NOMINATION

### To Whomsoever It May Concern

It is my great pleasure to bear testimony pertaining to the scientific abilities and merits of Mr. Rakesh Kumar Sahoo who is applying for the Sun Pharma Science Scholar Awards-2023. Rakesh is a doctoral student in the Department of Pharmacy, Central University of Rajasthan working under my direct supervision. He got registered for the doctoral studies program (Ph.D.) on August 07<sup>th</sup>, 2019 with registration no. 2019PHDPHARM004 at Central University of Rajasthan. His topic of Ph.D. work is "*Peptide Modified Dendrimer-based Drug Delivery Formulations for the Effective Management of Brain Tumor*". He has gained practical as well as theoretical knowledge in this field. His research work involves drug targeting *via* peptide anchored dendrimer-based nano-formulations. His research approach amalgamates pharmaceuticals, conjugation chemistry, and biology at interface which provides an extra dimension. He has in total 14 publications including research and review articles in reputed journals of high impact and 6 book chapters to his name with 75 citations (*h-index* of 5 as per Google Scholar). Recently, his research work got recognition at international platform by receiving the best poster award at 11<sup>th</sup> International Conference on Materials for Advanced Technologies (ICMAT-2023) organized by Material Research Society of Singapore (MRS-S) at Suntec, Singapore. This attests to his hard work and dedication towards research.

Rakesh has qualified graduate pharmacy aptitude test (GPAT) conducted by AICTE in the year 2017. He has been awarded with Gold Medal for securing 1<sup>st</sup> position in M. Pharm. (Pharmaceutics, 2017-19) at Central University of Rajasthan. Also, he has been awarded with Senior Research Fellowship (SRF) by Indian Council of Medical Research (ICMR), Govt. of India in the year 2021. He has also received best poster awards at International Brain Research Organization (IBRO) sponsored International Conference on Nanopharmaceuticals and Neurological Disorders (ICNAND2023) and National Conference on Nanomedicine for Cancer Theranostics.

He has scientific expertise in implementing pharmaceuticals approach which includes synthesis, characterization, and biological evaluation of novel drug delivery systems for enhancing different pharmacokinetic parameters and biological activity. His research findings during his Ph.D. have been published in reputed international journals, such as ACS Biomaterial Science & Engineering, International Journal of Pharmaceutics, Molecular Pharmaceutics, Bioconjugate Chemistry, Biomedicine & Pharmacotherapy, International Journal of Biological Macromolecules, etc. He successfully demonstrated delivery of temozolomide through peptide grafted PAMAM dendrimer-based nano-formulation for better therapeutic effect and patient compliance. These research articles show his enthusiastic interest and understanding in research related to dendrimer-based drug delivery. He is very hard-working and has executed bench work sincerely. He has an excellent academic record with good communication skills and good moral character.

Apart from his skills in pharmaceutical formulation development, he has good understanding of different analytical equipments such as FT-IR, HPLC, NMR, UV-Visible Spectroscopy, microplate reader, fluorescence microscope, gel electrophoresis, automated cell counter, ultra-sonicator, etc. He has good expertise in cell culture-based studies involving glioblastoma cells (U87MG and LN229), breast cancer cells (MCF-7 and MDA-MB-231), lung cancer cells (A549), hepatocellular carcinoma cells (HepG2), and neuroblastoma cells (SHSY-5Y). Also, he has good expertise in *in-vivo* protocols like pharmacokinetics and organ distribution studies in animal models. In addition to the laboratory skills, he has an up-to-date knowledge of the scientific literature especially in all the areas of pharmaceutical sciences. He has gained practical as well as theoretical knowledge to explore more techniques in research field. It will enhance his outlook, that in turn will provide new vistas for his career.

His inquisitive and vibrant attitude coupled with keen observance towards change in ambience and his clarity of thought coupled with academic excellence drives me to strongly recommend his candidature for the Sun Pharma Science Scholar Awards-2023. This award will add wings to his field of interest and carry the word of excellence to the next level. If any further information is needed, feel free to contact me.

With thanks and regards

**Umesh Gupta**