



जीव विज्ञान संस्थान INSTITUTE OF LIFE SCIENCES

(An Autonomous Institute of the Department of Biotechnology, Govt. of India)

TO WHOMSOEVER CONCERNED

This is to endorse the candidature of Ms. Sasmita Samal, 5th Year, PhD student at DBT-Institute of Life Sciences for the Sun Pharma Science Scholar award. Ms. Samal is working on the research work entitled **“Mineralizing cell-derived exosomes integrated with polymeric scaffolds in bone tissue regeneration”**. The reported work in her application is part of her doctoral thesis. The central theme of the thesis is to develop a cell-free method along with a bone graft substitute at the bone defect region to promote the bone regeneration process. In this perspective, she has been working towards exploring the cargo content of mineralizing bone cell-derived exosomes. Exosomes are the nanovesicles secreted by most of the eukaryotic cells and carry important cellular messages. They are known as the key regulators in maintaining bone homeostasis. Stem cell-derived exosomes are studied for their bone mineralization properties, however, the exosomes secreted by the pre-osteoblast cells during their mineralization stages is reported by Sasmita in her work. She has isolated and characterized the exosomes from pre-mineralized bone cells and successfully integrated these into the polymeric scaffold matrix to support bone regeneration in calvarial bone defects in rats. Her study has clearly advanced the previously reported work in terms of regenerating bone using a cell-free approach in a bioresorbable template, unlike the already reported metal scaffolds. Her research work has also been patented under the Indian Patent Act.

Sasmita has always demonstrated appreciable knack for learning the latest technological advancements in the field of science. She is energetic and willing to take up new responsibilities and deliver back with deadlines. She is helpful and sincere as a person.

I personally feel the Sun Pharma Award will be a very appropriate motivation to her at this stage of her career. She will get the right impetus for a bright future ahead in research.

On the basis of the above justification, I recommend Ms. Sasmita Samal for the Sun Pharma Science Scholar Award 2023.

Mamoni Dash

Dr Mamoni Dash

Scientist- C, DBT-ILS

Bhubaneswar

डॉ. मामोनी दाश

Dr. Mamoni Dash

वैज्ञानिक/Scientist-C

जीव विज्ञान संस्थान/INSTITUTE OF LIFE SCIENCES

(डि.वि.टि., भारत सरकार)/(Department of Biotechnology, Govt. of India)

भुवनेश्वर/Bhubaneswar-751 023, भारत / INDIA