PREFACE

The special issue of Indian Journal of Biochemistry and Biophysics, named "Electron Microscopy in Biomedical Sciences", aims to showcase the research contributions of Indian scientists of commendable talent in their chosen scientific field. Electron microscopy has been traditionally used to unravel many mysteries of Biology and Medicine, and using this technology, Indian scientists have also elucidated several key unknown facts about biological processes, tissue organization and pathological alterations in tissues, and such research findings are compiled here as invited papers. We thank the authors for their contributions towards making this special issue a success.

This special issue contains 02 reviews and 07 original research papers encompassing various fields of Anatomy, Epidemiology, Toxicology, Green synthesis of nanoparticles, Biochemistry and Molecular Biology. Dr Ritu Kulshrestha and her team from VP Chest Institute (University of Delhi) reviewed the present status of the surface modifications of biodegradable polymeric nanoparticles (widely used in nanocarrier preparations for applications in cancer treatment, disease diagnosis and vaccination) and their characterization by advanced electron microscopy techniques. Dr Surajit Sarkar and his team from University of Delhi (South Campus) reviewed the potential application of electron microscopy in *Drosophila* neurobiology research to understand many underlying mechanisms of the neurodegenerative diseases in human.

Among the original research articles, Dr Basant K Patel and his group from IIT, Hyderabad reported that pharmaceutical acetylation of human serum albumin (HSA) can attenuate the amyloid-like aggregation of the protein. By TEM, they showed that the acetylated HSA forms relatively less number of aggregates which are also smaller in sizes.

Dr. Venkatesh Chaturvedi and his team from Banaras Hindu University evaluated the green synthesis of silver oxide nanoparticles by the autolysate of *Pseudomonas mendocina* PM1, which shows potent anti-microbial/ anti-biofilm activity against common pathogenic/non-pathogenic bacteria.

Dr Jay Kant Yadav and his team from Central University of Rajasthan examined the stability of the crystallin aggregates, isolated from human cataract lens against an anionic detergent sodium dodecyl sulphate, emphasizing that hydrophobic interaction plays a crucial role in the formation and stabilizing the protein aggregates during cataract formation.

Prof. JK Bhardwaj and Priyanka Saraf from Kurukshetra University investigated the apoptotic effects of methoxychlor on granulosa cells of goat antral follicles, which can be reversed by treating with N-acetyl-l-cysteine (a potent antioxidant and precursor of glutathione).

Shilpa Gorla *et al*. from AIIMS, New Delhi report the data of an experimental study with chick retina, wherein massive damage was shown to cone outer segments by scanning electron microscopy, when the animals were exposed to intense continuous light for 24 hours.

Dr Das *et al*. from Taki Govt College, North 24 PGS, West Bengal, described using scanning electron microscopy the various features of body surfaces in a catfish living in torrential water, which are emphasized to play a role in adhesion to their substratum.

Dr TC Nag reports the novel occurrence of αβ-spectrin in human retinal cones (presumably involved in membrane stabilization by interacting with other membrane skeletal proteins) and traced their down-regulation with advanced aging, which can impact the survival of aged cones.

Facts and data provided in individual contributed papers are exclusively of the authors own research output and the guest editors nor the publisher are responsible for any erroneous statement crept in any article, if at all, which was inadvertent.

Last but not the least, we take the honour of appreciating the Publisher for conceiving the idea of having a special issue on highlighting research activity by Indian scientists in the field of Electron microscopy and allied sciences. Various distinguished scientists and academicians have rendered a lot of support and motivation to bring out this special issue. We are grateful to all the authors and reviewers for their support. Further, we extend our gratitude to Dr Ranjana Aggarwal, Director, CSIR-NIScPR, New Delhi and Shri RS Jayasomu, Editor, IJEB for encouragement towards this publication. We also appreciate the support and extensive work done by the Editor Dr NK Prasanna Kumari and team of the Indian Journal of Biochemistry and Biophysics, in bringing out this excellent special issue.

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