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TO WHOM IT MAY CONCERN

In our opinion Prof. Surajit Ghosh working at IIT Jodhpur strongly deserves for Sun Pharma Research Award 2021 in Pharmaceutical Sciences. Justification for the same is in the following:

Microtubules are key cytoskeleton filaments and established anticancer targets. However, targeting microtubules for the development of neurotherapeutics are relatively unexplored. His area of research focuses on elucidation of roles of microtubule in neurodegeneration and cancer and possible intervention through carefully chosen routes for the development of anticancer and neuroprotective therapeutic leads. Some of his important contributions in the above-mentioned areas are summarized below:

- Microtubules perform a large number of functions in neurons and plays crucial role in neurodegenerative diseases. In Alzheimer's disease, microtubule lattice is disrupted due to microtubule-associated tau hyperphosphorylation, which compromises the neuronal architecture. He has elucidated the importance of microtubule stabilization in neurodegenerative disorders by studying molecular interactions between novel engineered ligands with microtubule lattice. Towards this venture he has developed various neuroprotective therapeutic leads and those are filed for patent (ACS Chem. Neurosci. 2015, 2018, 2018, 2018, 2018, 2018, 2019, 2019, 2019, 2019, 2020). He has developed blood-brain barrier permeability model to study the interaction of ligands with neuronal microtubules and neurosphere-based organoid model generated from primary cortical and hippocampal neurons for drug screening platform. These neurospheres possess a heterogeneous population of glial cells, neurons, neural stem and progenitor cells (ACS Chem. Neurosci. 2018). He has significantly contributed in repairing of traumatic brain injury through development of engineered neuroprotective hydrogel using cryogenic injury mice model (ACS Appl Mater Interfaces 2017, ACS Chem. Neurosci. 2018), which can be useful for neuronal transplantation (ACS Chem Neuroscience, 2018, ACS Biomaterials Science Engineering 2020).
- Low transfection efficiency and poor reproducibility with exiting transfection agents led to the exploration of efficient non-viral transfection agents. Recently, he has discovered a short tetrapeptide, which revealed the role of the spatial position of tryptophan in regulating cell entry and a new route for new transfection agents for gene/drug delivery (J Am Chem Soc. 2018, JACS Young Investigator Virtual Issue by Prof. Peter J Stang).
- His group has provided significant insights into microtubule dynamics of cancer cells through ligand-assisted perturbation. This has resulted in efficient anti-cancer activity in cell and mice models, with an emphasis on detailed mechanistic pathways of action. In this area, he has developed few therapeutic leads and delivery vehicles (Mol. Pharmaceutics 2019, Langmuir 2018, Adv Healthcare Mater. 2017, ACS Appl Mater Interfaces, 2016, 2017). His outstanding contributions are internationally appreciated in terms of novelty and deep questions of translational interest.
- He is leading a multi-institutional research team for developing therapeutics of Duchenne Muscular Dystrophy (DMD), is a genetic disordered disease that inhibits the expression of Dystrophin protein leads to the progressive severe muscle degeneration. He has established a Centre at IIT Jodhpur and this is the first Government of India Sponsored Research Centre at India, which is focused for serving the patients of DMD at the state of Rajasthan as well as India. He is also recipient of the BioNEST grant from BIRAC, DBT for establishing Bio incubators at IIT Jodhpur.

Overall, I am extremely pleased to see Prof. Ghosh's fundamental high-quality research work in the area of Pharmaceutical Science along with multiple promising leads (one US Patent granted and seven filed) in the area of anti-cancer drug as well as neuroprotective drug development. To the best of my knowledge Prof. Ghosh's contribution in the drug or therapeutic leads development in his short span of academic career is rare. Therefore, I strongly recommend Prof. Ghosh's nomination for this prestigious Sun Pharma Research Award 2021 for Excellence in Pharmaceutical Sciences.

Kind regards,

Santanu Chaudhury