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National Centre For Cell Science
जैवप्रौद्योगिकी विभाग, भारत सरकार का स्वायत्त संस्थान
(An Autonomous Institution of the Department of Biotechnology, Government of India)

मनोज कुमार भट, पीएच डी
निदेशक
Manoj Kumar Bhat, PhD
Director

Citation (summary) on the outstanding research work on which award is claimed (250 words) signed by the nominator

Dr. Sharmila Bapat's pioneering research in understanding the contribution of **Epithelial to Mesenchymal Transition (EMT) in cancer** has generated new knowledge and opportunities through dissecting out of mechanistic and regulatory implications in varying cellular contexts, and towards applications in personalized cancer therapy. She was the first in India to initiate research on high-grade serous ovarian cancer (HGSC), recognized as an aggressive, challenging disease for basic and clinical research. Her research is marked by excellent and novel observations that have been developed further through rigorous assessment of the hypothesis and substantiated by experimental detailing of its various components.

Dr. Bapat's identification of association of the EMT transcriptional factors Snail and Slug with aggressiveness of HGSC metastases and elucidation of their non-canonical roles in enrichment of cancer stem cells after chemotherapy besides being highly cited, are also considered as landmarks in the field. She further resolved a discrete molecular sub-type in HGSC and other cancers that rely on the defining feature of Slug-driven EMT, which has been validated in clinical samples. A deeper molecular understanding of the auto- *vs.* TCF21-mediated regulation of Slug expression led to mapping of a gradient of cellular phenotypes regulated by these transcription factors in HGSC positing as phenotypic plasticity that correlate with different modes of cell migration captured through real-time live cell imaging. A final feather in her cap is the development of a cytotoxic monoclonal antibody indicated for the EMT tumor subtype of HGSC. These studies outline a paradigm shift towards personalized cancer therapy.

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Manoj Kumar Bhat

मनोज कुमार भट, पीएच डी
निदेशक, एनसीसीएस, पुणे
Manoj Kumar Bhat, PhD
Director, NCCS, Pune

राष्ट्रीय कोशिका विज्ञान केन्द्र पुणे

एनसीसीएस कॉम्प्लेक्स, पो. बॅ. नं. ४०, गणेशखिंड पी. ओ., पुणे ४११ ००७. महाराष्ट्र, भारत
NCCS Complex, P.B. No. 40, Ganeshkhind P. O., Pune - 411 007. Maharashtra, India
दूरभाष / Tel.: +91 (020) 25708121 / 25708125 फैक्स / Fax : +91 (020) 25692259 / 25697756
ई-मेल / E- Mail : director@nccs.res.in
वेबसाईट / Website : https://www.nccs.res.in