

Citation Summary: Prof. Ritu Gupta

Sun Pharma Science Foundation Research Award Medical Sciences - Clinical Research

Prof Ritu Gupta has made substantial contributions to the understanding of pathogenesis, biomarker discovery and risk prediction models in Multiple Myeloma (MM).

Her research work shows the role of regulatory binding sites, branching pattern of clonal evolution and co-occurring oncogenic mutations in pathogenesis of MM and identified chromothripsis and miR-16-2-3p and 30d-2-3p as biomarkers influencing survival outcomes in MM (PMID: 34873486; 35777247; 35530275; 30576858; 34040057).

Dr. Gupta's team established ethnicity specific AI-based risk stratification models for myeloma patients of Indian origin applicable to patients in whom genomic data is available as well as those in whom information on genomic features is not available (PMID: 34858811; 34247136; 36113255) and released publicly available online calculator for risk stratification (http://sbiilab.iiitd.edu.in/pub_files/CRRScalculator_edit.html). This work is a value addition as it establishes novel and robust risk-staging models that are specific to Indian cohorts and can be widely employed in India with its existing disparity in the health care infrastructure.

Dr. Gupta's team defined Next Generation Flow cytometry (NGF) based cut-offs of measurable residual disease (MRD) for dynamic risk monitoring in MM and introduced a novel statistic of neoplastic plasma cell index (NPCI) to overcome the caveat of hemodilution in NGF testing (PMID: 36317501). Her group also described the pattern-based recognition for identification of neoplastic plasma cells and immunomodulation after chemotherapy that impacts MRD assessment in MM (PMID: 35212134; 35389550; 19846814). This work has enhanced the disease monitoring in the clinical stem cell transplantation program at AIIMS.

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