



Sonia Kapoor, Ph.D

Associate Professor

Specialization: Cancer Biology, Tumor Microenvironment, Tumor associated macrophages, Drug resistance and Metastasis, Biomaterials, Drug Delivery, Targeting tumor microenvironment through nanotherapeutics

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Dr. Sonia Kapoor obtained her M. Tech from IIT Kharagpur and PhD in Biotechnology from IIT Bombay. During PhD, her research focused on the role of spatio-temporal regulation of microtubule cytoskeleton dynamics in polarization and migration of tumor cells. Dr Kapoor has worked as Scientific Assistant at UGC center of Excellence in Applications of Nanomaterials, Nanoparticles & Nanocomposites at Panjab University Chandigarh. She was appointed as Assistant Professor at Panjab University, Chandigarh. Dr Kapoor joined Amity institute of Molecular Medicine and Stem Cell Research in 2017. Her recent interest lies in understanding the cell autonomous and Tumor microenvironment-driven non-cell-autonomous mechanisms that contribute to metastasis and drug resistance. Her work is focused towards identifying how cross-talk between secretome of Tumor associated macrophages and cancer cells contribute to pro-tumorous outcome. The lab is also interested in developing new approaches to restrict tumor progression. Her work takes an interdisciplinary approach combining modern cell biology tools with cell and animal models, biomaterials and nanotechnology. She has co-authored one textbook and edited one book as an associate editor. She has completed three research projects funded by UGC, DST and DBT, Govt of India and has supervised several M.Sc., and M. Tech Thesis. Dr Kapoor is involved in teaching various courses including Basic and Applied immunology, Cytology, Animal Cell Culture, Tools and Techniques in Biochemistry, OMICS in Biomedical Research, and Genome Engineering and Editing.

Research Projects:

1. SERB, ANRF Funded research Project “**Role of HDAC6 in regulating plasticity and function of M2 Tumor-associated macrophages: A Potential therapeutic approach to modulate chemoresistance in breast cancer**” 2023-2026
2. SERB, DST funded research project entitled “**Probing Microtubule Remodeling in Tumor Associated Macrophages and its implication for Microtubule-targeted Chemotherapy**” 2017-2020
3. DBT funded research project entitled “**Unveiling the Role of HDAC6: A Multipronged Approach to Restrict Breast Cancer Metastasis**” 2018-2022

Awards and Affiliations

1. Life Member, Indian Society for Cell Biology
2. Life Member, Indian Science Congress Association
3. Life Member, Indian Association for Cancer Research
4. Best Research Publication award, 2016-2017, UIET, Panjab University, (2017).
5. Young Scientist Award, New Biology 2015-16, Indian Science Congress Association, India (2016).
6. International Travel Award by American Society for Cell Biology (2012), CSIR and by DST (2010).
7. Silver Medal and Best student Award, IIT Kharagpur. Department Rank 1 in M. Tech (2008).
8. MHRD fellowship for M.Tech (2006-2008)
9. All India Rank 3; 99.9 Percentile in GATE (2006).

Selected publications:

1. Kirtonia A, Pandya G, Singh A, Kumari R, Singh B, **Kapoor S**, Khattar E, Pandey AK, Garg M. Anticancer and therapeutic efficacy of XPO1 inhibition in pancreatic ductal adenocarcinoma through

- DNA damage and modulation of miR-193b/KRAS/LAMC2/ERK/AKT signaling cascade. *Life Sci.* 2025;362:123364 (**Impact Factor 5.2**).
2. Deswal B, Bagchi U, Santra MK, Garg M, **Kapoor S***. Inhibition of STAT3 by 2-Methoxyestradiol suppresses M2 polarization and protumoral functions of macrophages in breast cancer. *BMC Cancer.* 2024;24:1129. (**Impact Factor 3.5**)
 3. Deswal B, Bagchi U, **Kapoor S***. Curcumin Suppresses M2 Macrophage-derived Paclitaxel Chemoresistance through Inhibition of PI3K-AKT/STAT3 Signaling. *Anticancer Agents Med Chem.* 2024;24:146-156. (**Impact Factor 2.8**)
 4. Pandya G, Kirtonia A, Singh A, Goel A, Mohan CD, Rangappa KS, Pandey AK, Kapoor S, et al., comprehensive review of the multifaceted role of the microbiota in human pancreatic carcinoma. 2021 **Seminars in Cancer Biology (2021)** S1044-579X(21)00157-7. (**Impact Factor 15.7**)
 5. Nadella V, Garg M, **Kapoor S**, Barwal TS, Jain A, Prakash H. Emerging neo adjuvants for harnessing therapeutic potential of M1 tumor associated macrophages (TAM) against solid tumors: Enusage of plasticity. **Annals of Translational Medicine (2020)** | <http://dx.doi.org/10.21037/atm-20-695> (**Impact Factor: 3.9**)
 6. Jain A, Singh SK, Arya SK, Kundu SC, **Kapoor S***. Protein Nanoparticles: Promising Platforms for Drug Delivery Applications. **ACS Biomaterials Science and Engineering (2018)**, 4,12,3939-3961 (***Corresponding author, Impact Factor: 4.7**)
 7. **Kapoor S**, Srivastava S, Panda D. Indibulin dampens microtubule dynamics and produces synergistic antiproliferative effect with vinblastine in MCF-7 cells: Implications in cancer chemotherapy. **Scientific Reports** 2018; Nature Publishing group; 8:12363. (**Impact Factor: 4.6**)
 8. Rai A, **Kapoor S**, Naaz A, Kumar Santra M, Panda D. Enhanced stability of microtubules contributes in the development of colchicine resistance in MCF-7 cells. **Biochemical Pharmacology (2017)**; 132:38-47 (**Impact Factor: 5.8**)
 9. **Kapoor S**, Kundu SC. Silk protein-based hydrogels: Promising advanced materials for biomedical applications. **Acta Biomaterials (2016)**; 31:17-32 (**Impact Factor: 8.9**)
 10. Rai A, **Kapoor S**, Singh S, Chatterji BP, Panda D. Transcription factor NF- κ B associates with microtubules and stimulates apoptosis in response to suppression of microtubule dynamics in MCF-7 cells. **Biochemical Pharmacology (2015)**; 93:277-89 (**Impact Factor: 5.8**)
 11. Asthana J, **Kapoor S**, Mohan R, Panda D. Inhibition of HDAC6 Deacetylase Activity Increases Its Binding with Microtubules and Suppresses Microtubule Dynamic Instability in MCF-7 Cells. **Journal of Biological Chemistry, (2013)**;288:22516-26. (**Impact factor: 5.1**).
 12. **Kapoor S**, Panda D. Kinetic stabilization of microtubule dynamics by indanocine perturbs EB1 localization, induces defects in cell polarity and inhibits migration of MDA-MB-231 cells. **Biochemical Pharmacology, (2012)**; 83:1495-1506 (**Impact factor: 5.8**).
 13. Mandal BB*, **Kapoor S***, Kundu SC. Silk fibroin/polyacrylamide semi-interpenetrating network hydrogels for controlled drug release. **Biomaterials, (2009)**;30:2826-36. (***Equal authors**) (**Impact factor: 12.48**).