Name of the Faculty: Dr. Alak Manna

Brief Resume

Dr. Alak Manna is an Assistant Professor at the Stem Cell Research Centre, Department of Hematology, SGPGIMS, Lucknow. His research program focuses on translational hematology, cancer immunology, cellular immunotherapy, and cancer metabolism, with particular emphasis on developing innovative therapeutic strategies for hematological malignancies.Prior to joining SGPGIMS, Dr. Manna conducted extensive research at **Mayo Clinic, USA**, where he worked at the interface of tumor immunology, cancer biology, and therapeutic development. His research has focused on CAR-T and CAR-NK cell therapies, T-cell biology, regulatory B cells (Breg cells), CD38–NAD^+ metabolism, immune regulation, and mechanisms of therapeutic resistance in leukemia and other cancers**.**

Dr. Manna received his Ph.D. in Biotechnology/Molecular Immuno-Pharmacology from the **University of Calcutta and IPGME&R, Kolkata**, where his doctoral research investigated molecular mechanisms of therapeutic resistance in leukemia. He has subsequently developed a broad translational research portfolio integrating flow cytometry, single-cell and multi-omics approaches, CRISPR-based functional genomics, cellular immunotherapy, metabolic profiling, and preclinical disease models**.**

His current research at SGPGIMS is focused on understanding therapy resistance and disease evolution in hematological malignancies, developing novel biomarkers and therapeutic strategies in B-cell acute lymphoblastic leukemia (B-ALL) and acute myeloid leukemia (AML)**,** andadvancing next-generationCAR-T/CAR-NK and other cellular immunotherapies. A major component of his research program is the investigation of regulatory immune-cell populations and tumor metabolic adaptations that contribute to immune evasion and treatment resistance. Dr. Manna has authored numerous peer-reviewed publications and has received research awards and competitive funding from national and international organizations. His long-term goal is to establish an integrated clinically driven translational research program at SGPGIMS that bridges hematological disease biology, biomarker discovery, and development of innovative cellular and precision therapies.

Professional Qualification

- Ph.D. in Biotechnology / Molecular Immuno-Pharmacology- University of Calcutta & IPGME&R, Kolkata, India
- ICMR Senior Research Fellowship (SRF)- Indian Council of Medical Research, India
- Postdoctoral Research Training on Hematology/oncology and Training in development of cancer Immuno-therapeutics/vaccines- Mayo Clinic, Jacksonville, Florida, USA

- Advanced Research Training in Cancer Immunology and Cellular Therapy- Mayo Clinic, USA
- Assistant Professor, Department of Cancer Biology- Mayo Clinic, USA
- Assistant Professor- Stem Cell Research Centre, Department of Hematology, SGPGIMS, Lucknow, India

Work Experience

- Assistant Professor, Stem Cell Research Centre, Department of Hematology, Sanjay Gandhi Postgraduate Institute of Medical Sciences (SGPGIMS), Lucknow, India- 2026–Present
- Assistant Professor, Department of Cancer Biology, Mayo Clinic, Jacksonville, Florida, USA- [Jan, 2026-Aug, 2026]
- Research Associate, Mayo Clinic, Department of Cancer Biology, Mayo Clinic, Jacksonville, Florida, USA- [2021–2025]
- Postdoctoral Research Fellow, Mayo Clinic, Department of Cancer Biology, Mayo Clinic, Jacksonville, Florida, USA- [2016–2021]
- Research/Doctoral Fellow, University of Calcutta / IPGME&R, Kolkata, India- [2010–2015]

Research focus: Cancer immunology, hematological malignancies, cellular immunotherapy, CAR-T/CAR-NK therapy, regulatory B cells, CD38–NAD^+ metabolism, cancer metabolism, and mechanisms of therapeutic resistance.

Membership of Professional Bodies

- The Cytometry Society of India (TCS-INDIA)
- The American Society of Hematology (ASH)
- The American Association of Immunologists (AAI)
- Society for Immunotherapy of Cancer (SITC)
- American Association for Cancer Research (AACR)

Editorial Board/Reviewer of reputed/indexed journals

Served/serving as editorial board member

1. Serving as Guest Editor “Frontiers in Immunology”
2. Serving as Associate Editor “BMC Cancer”
3. Served as Associate Editor “Bio-Protocol”

Serving as reviewer

1. Phytomedicine
2. Molecular cancer therapeutics-AACR
3. Cancer Research-AACR
4. Journal for ImmunoTherapy of Cancer (JITC)
5. Frontiers in Immunology
6. Biomedicine
7. IJMS-MDPI
8. Immuno-MDPI
9. JCM-MDPI
10. STAR-Protocol- Cell Press
11. BMC-Cancer

Awards & Honours

2010: Awarded “Best Student Presentation award” at 3rd Annual Meeting of The Cytometry Society-India, National Centre for Biological Sciences, Bangalore, India.

2011: Awarded “Distinguished Student Poster Presentation Award” at 4th Annual Meeting of The Cytometry Society, Punjab University, Chandigarh, India. Awarded by Prof. Awatar Krishan, University of Miami, USA.

2011: Awarded as “Senior Research Fellow” and received fellowship from Indian Council of Medical Research (ICMR), Govt. of India.

2012: Awarded “Best Student Presentation Award”, at International Congress "Natural Anti-cancer Drugs" (NAD 2012) at Olomouc, Czech Republic.

2012: Awarded “Travel Fellowship” Department of Science and Technology, Govt. of India, India.

2012: Awarded “Travel Fellowship” from Centre for International Co-operation in Science (CICS), India.

2018: Awarded “Young investigator Travel Fellowship Award” from American Association of Immunologist (AAI), USA and selected for “Block Symposia presentation” in IMMUNOLOGY 2018.

2018: Awarded “Young Investigator award” at the 2018 International Workshop on Waldenstrom's Macroglobulinemia (IWWM 2018), New York City, New York, USA, 2018.

2018: Awarded “Young Investigator award” at the 2018 Society for Immunotherapy of Cancer (SITC 2018), Washington, D.C., USA, 2018.

2019: Awarded “Young investigator Travel Fellowship Award” from American Association of Immunologist (AAI), USA and selected for “Block Symposia presentation” in IMMUNOLOGY 2019.

Publications

1. Hamaidi I*, Cheng P*, Jun S, **Manna A**, Wang MH, Zhang MG, Taylor OO, Fang B, Perez B, Creelan BC, Marusyk A, Shin D, Hwang TW, Berglund AE, Shapiro VS, Ji HM, Kim S. Sirt2-Mediated Deacetylation of Lck Governs the Magnitude of T Cell Receptor Signaling. ***Nature Immunology, 2026 Feb; 27(2): 213-224.*** (***Equal contribution**); **IF: 27.8**

2. **Manna A**, Huang C-G, Chatterjee M, Huang C-T and Dutta A (2025) Editorial: Community series in the regulation of the host immune activation in respiratory virus infections, volume II. ***Front. Immunol.,*** Volume 16-2025; https://doi.org/10.3389/fimmu.2025.1695366; **IF: 5.9**

3. Dutta N, Halder N, Chini E, Kim S, **Manna A***. Regulating the regulators via targeting CD38 in the tumor microenvironment. ***Front Immunol. 2026 Feb 3; 17: 1745988. (corresponding author).***

4. **Manna A**, Aulakh S, Jani P, Ahmed S, Akhtar S, Coignet M, Heckman M, Meghji Z, Bhatia K, Sharma A, Sher T, Alegria V, Malavasi F, Chini EN, Chanan-Khan A, Ailawadhi S, Paulus A. Targeting CD38 enhances the antileukemic activity of ibrutinib in chronic lymphocytic leukemia. ***Clin Cancer Res***. 2019; 1;25(13):3974-3985. **IF: 13.801**

5. Deng J*, Paulus A*, Fang DD*, **Manna A,** Wang G, Wang H, Zhu S, Chen J, Min P, Yin Y, Dutta N, Halder N, Ciccio G, Copland JA, Miller J, Han B, Bai L, Liu L, Wang M, McEachern D, Przybranowski S, Yang CY, Stuckey JA, Wu D, Li C, Ryan J, Letai A, Ailawadhi S, Yang D, Wang S, Chanan-Khan A, Zhai Y. Lisaftoclax (APG-2575) Is a Novel BCL-2 Inhibitor with Robust Antitumor Activity in Preclinical Models of Hematologic Malignancy. ***Clin Cancer Res***. 2022 Dec 15;28(24):5455-5468. (***Equal contribution**);**IF: 13.801**

6. **Manna A**, Kellett T, Aulakh S, Lewis-Tuffin LJ, Dutta N, Knutson K, Chini E, Pinilla-Ibarz J, Lamanna N, Manochakian R, Malavasi F, Sher T, Chanan-Khan A, Ailawadhi S and Paulus A. Targeting CD38 is lethal to Breg-like chronic lymphocytic leukemia cells and Tregs but restores CD8+ T-cell responses. ***Blood Advances*.** 2020; 4(10): 2143-2157. **IF: 7.5**

7. Paulus A*, **Manna A***, Akhtar S, Paulus SM, Sharma M, Coignet MV, Jiang L, Roy V, Witzig TE, Ansell SM, Allan J, Furman R, Aulakh S, Manochakian R, Ailawadhi S, Chanan-Khan AA, Sher T. Targeting CD38 with daratumumab is lethal to Waldenströmmacroglobulinaemia cells. ***Br J Haematol.*** 2018; 183(2):196-211. (***Equal contribution**). **IF: 8.615**

8. **Manna A**, Saha P, Sarkar A, Mukhopadhyay D, Bauri AK, Kumar D, Das P, Chattopadhyay S, Chatterjee M. Malabaricone-A induces a redox imbalance that mediates apoptosis in U937 cell line. ***PLoS One*.** 2012; 7(5):e36938. **IF: 3.7**

9. **Manna A**, De Sarkar S, De S, Bauri AK, Chattopadhyay S, Chatterjee M. The variable chemotherapeutic response of Malabaricone-A in leukemic and solid tumor cell lines depends on the degree of redox imbalance. ***Phytomedicine.*** 2015; 22(7-8):713-23. **IF: 6.656**

10. **Manna A**, Bauri AK, Chattopadhyay S, Chatterjee M. Generation of redox imbalance mediates the cytotoxic effect of Malabaricone-A in a multidrug resistant cell line. ***Anticancer Agents in Medicinal Chemistry***. 2015; 15(9):1156-63. **IF: 2.8**

11. **Manna A**, De Sarkar S, De S, Bauri AK, Chattopadhyay S, Chatterjee M. Impact of MAPK and PI3K/AKT signaling pathways on Malabaricone-A induced cytotoxicity in U937, a histiocytic lymphoma cell line. ***Int Immunopharmacol***. 2016; 39: 34-40. **IF: 5.6**

12. Paulus A, Akhtar S, Yousaf H, **Manna A**, Paulus SM, Bashir Y, Caulfield TR, Kuranz-Blake M, Chitta K, Wang X, Asmann Y, Hudec R, Springer W, Ailawadhi S, Chanan-Khan A. Waldenstrom macroglobulinemia cells devoid of BTK(C481S) or CXCR4(WHIM-like) mutations acquire resistance to ibrutinib through upregulation of Bcl-2 and AKT resulting in vulnerability towards venetoclax or MK2206 treatment. ***Blood Cancer J***. 2017; 7(5): e565. **IF: 12.8**

13. Ailawadhi S, Parrondo RD, Dutta N, Han B, Ciccio G, Cherukuri Y, Alegria VR, LaPlant BR, Roy V, Sher T, Edwards B, Lanier S, **Manna A**, Heslop K, Caulfield T, Maldosevic E, Storz P, Manochakian R, Asmann Y, Chanan-Khan AA, Paulus A. AT-101 Enhances the Antitumor Activity of Lenalidomide in Patients with Multiple Myeloma. ***Cancers.*** 2023; 15(2):477. **IF: 5.2**

14. Dasgupta D, Ghosh S, Dey I, Majumdar S, Chowdhury S, Das S, Banerjee S, Saha M, Ghosh A, Roy N, **Manna A**, Ray S, Agarwal S, Bhaumik P, Datta S, Chowdhury A, Banerjee S. Influence of polymorphisms in TNF-α and IL1β on susceptibility to alcohol induced liver diseases and therapeutic potential of miR-124-3p impeding TNF-α/IL1β mediated multi-cellular signaling in liver microenvironment. ***Front Immunol.*** 2023; 14:1241755. **IF: 8.7**

15. Luo Y, Qie Y, Gadd ME, **Manna A**, Rivera-Valentin R, To T, Li S, Yassine F, Murthy HS, Dronca R, Kharfan-Dabaja MA, Qin H. Translational development of a novel BAFF-R CAR-T therapy targeting B-cell lymphoid malignancies. ***Cancer Immunol Immunother***. 2023 Dec;72(12):4031-4047. **IF: 5.8**

16. Madamsetty VS, Paulus A, Akhtar S, **Manna A**, Rachamalla HR, Banerjee R, Mukhopadhyay D, Chanan-Khan A. Novel tumor-targeted liposomes comprised of an MDM2 antagonist plus proteasome inhibitor display anti-tumor activity in a xenograft model of bortezomib-resistant Waldenstrom macroglobulinemia. Leuk Lymphoma**.** 2020; 1-10. **IF: 2.891**

17. De S, **Manna A**, Kundu S, De Sarkar S, Chatterjee U, Sen T, Chattopadhyay S, Chatterjee M. Allylpyrocatechol Attenuates Collagen-Induced Arthritis via Attenuation of Oxidative Stress Secondary to Modulation of the MAPK, JAK/STAT, and Nrf2/HO-1 Pathways. ***J Pharmacol Exp Ther***. 2017; 360(2):249-259. **IF: 4.402**

18. Badar T, **Manna A**, Gadd ME, Kharfan-Dabaja MA, Qin H. Prospect of CAR T-cell therapy in acute myeloid leukemia, ***Expert Opinion on Investigational Drugs.*** *2022*, DOI: 10.1080/13543784.2022.2032642. **IF: 6.4**

19. Saha P, Bhattacharjee S, Sarkar A, **Manna A**, Majumder S, Chatterjee M. Berberine chloride mediates its anti-leishmanial activity via differential regulation of the mitogen activated protein kinase pathway in macrophages. ***PLoS One***. 2011; 6(4): e18467. **IF: 3.7**

20. Mukhopadhyay D, Das NK, De Sarkar S, **Manna A**, Ganguly DN, Barbhuiya JN, Maitra AK, Hazra A, Chatterjee M. Evaluation of serological markers to monitor the disease status of Indian post kala-azar dermal leishmaniasis. ***Trans R Soc Trop Med Hyg***. 2012; 106(11): 668-76. **IF: 2.2**

21. Chatterjee S, Das S, Chakraborty P, **Manna A**, Chatterjee M, Choudhuri SK. Myeloid derived suppressor cells (MDSCs) can induce the generation of Th17 response from naïve CD4+ T cells. ***Immunobiology***. 2013; 218(5): 718-24. **IF: 2.8**

22. Sarkar D, Kundu S, De S, Hariharan C, Saha P, **Manna A**, Chattopadhyay S, Chatterjee M. The antioxidant activity of allylpyrocatechol is mediated via decreased generation of free radicals along with escalation of antioxidant mechanisms. ***Phytother Res***. 2013; 27(3): 324-9. **IF: 6.3**

23. Kumar D, Das B, Sen R, Kundu P, **Manna A**, Sarkar A, Chowdhury C, Chatterjee M, Das P. Andrographolide Analogue Induces Apoptosis and Autophagy Mediated CellDeath in U937 Cells by Inhibition of PI3K/Akt/mTOR Pathway. ***PLoS One***. 2015; 10(10): e0139657. **IF: 3.7**

24. Mitra S, Pati AK, **Manna A**, Ghosh A, Sen S, Chatterjee S, Chatterjee M. A study of the free radical scavenging effects of Piper betle leaf extract in patients with vitiligo. ***Indian J Dermatol VenereolLeprol***. 2017; 83(1):40-46. **IF: 2.2**

25. Datta S, Dasgupta D, Ghosh A, Ghosh S, **Manna A**, Datta S, Chatterjee M, Chowdhury A, Banerjee S. Oncogenic potential of hepatitis B virus subgenotype D1 surpasses D3: significance in the development of hepatocellular carcinoma. ***Carcinogenesis.*** 2018; 39(2):283-292. **IF: 4.741**

26. Laali KL, Greves W, Correa-Smits SJ, Zwarycz AT, Bunge SD, Borosky GL, **Manna A**, Paulus A, Chanan-Khan A. Novel Fluorinated Curcuminoids and their Pyrazole and Isoxazole Derivatives: Synthesis, Structural Studies, Computational/Docking and in-vitro Bioassay. ***Journal of Fluorine Chemistry.*** 2018; 206; 82-98. **IF: 2.2**

27. Laali KK, Greves WJ, Zwarycz AT, Correa Smits SJ, Troendle FJ, Borosky GL, Akhtar S, **Manna A**, Paulus A, Chanan-Khan A, Nukaya M, Kennedy GD. Synthesis, Computational Docking Study, and Biological Evaluation of a Library of Heterocyclic Curcuminoids with Remarkable Antitumor Activity. ***ChemMedChem.*** 2018; 13(18):1895-1908. **IF: 3.540**

28. Aulakh S, DeDeo MR, Free J, Rosenfeld SS, Quinones-Hinojosa A, Paulus A, **Manna, A**, Manochakian R, Chanan-Khan AA, Ailawadhi S. Survival trends in glioblastoma and association with treating facility volume. ***J Clin Neurosci.*** 2019; 68:271-274. **IF: 2.116**

29. Yasmin N, **Manna A**, Sarkar SD, Bandyopadhyay C, Bauri AK, Chattopadhyay S and Chatterjee M. Effectiveness of malabaricone-A in P-glycoprotein over-expressing cancer cell lines. ***International Journal Of Basic & Clinical Pharmacology***. 2019; 8 (5); 1051-1058. **IF: 2.3**

30. Bandyopadhyay C, **Manna A**, De S, Yasmin N, Bauri AK, Chattopadhyay S and Chatterjee M. Anti-tumor effect of fruit rind of Myristica malabarica in an Ehrlich ascites carcinoma model. ***International Journal Of Basic & Clinical Pharmacology***. 2019; 8 (3); 383-387. **IF: 2.3**

Research Projects

A) Extramural

S. No.	Title of the Project	Funding Agency	Sanctioned Budget	Duration (Year-Year)
1	Development of novel PD-L1 only targeting CAR T cells by redirecting inhibitory receptor signalling towards activation	Regenerative Medicine Initiative (CCaTS)	$300,000 (USD)	3 Years (2023-2026)

B) Intramural

S. No.	Title of the Project	Sanctioned Budget	Duration (Year-Year)
1	Therapeutic targeting of CD38 to increase the anti-tumour activity of Bcl-2 inhibitors in Waldenstrom's Macroglobulinemia	$100,000 (USD)	1 Year (2020-2021)