

## Curriculum Vitae

Name: **Prof. Chitra Mandal**, PhD, FTWAS, FNA, FASc, FNASc, FNAMS, FAScT



**Address:** CSIR-Indian Institute of Chemical Biology,  
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**Position:** SERB-Distinguished Fellow

Ex Distinguished Biotechnology Research Professor (DBT)

Sir J.C. Bose Fellow

**Education: Ph.D:** Indian Institute of Science, Bangalore

**Post-Doctoral:** University of Pennsylvania, USA

**Publications:** 170

**Patents:** 15

**Technology transfer:**4

### Research Interest:

- Sialoglycobiology of cancer
- Role of Sialic acids modulating enzymes in ovarian and pancreatic cancers
- Futuristic therapy using herbal molecules to meet unmet needs in ovarian/cervical cancer
- Cancer cell signalling for target identification
- Perspective of cancer stem cells
- T-cell immunology in cancer

### Research Project related to Gynaecological cancer

Lead and target identification based on herbal molecules for the development of an affordable healthcare using non-toxic herbal molecule alone/or extract/or in-combination with existing-known drugs to manage ovarian cancer/cancer stem cells through signalling cross-talks and Systems Biology approaches [a total of 21 publications]

### Selected Publications in the field of Cancer

#### Ovarian cancer

1. Eswara Murali Satyavarapu, Shalini Nath and **Chitra Mandal (2021)** Desialylation of Atg5 by sialidase (Neu2) enhances autophagosome formation to induce anchorage-dependent cell death in ovarian cancer cells. *Cell Death and Discovery (in press)*
2. Eswara Murali Satyavarapu, Prasun Kumar Sinha and **Chitra Mandal (2020a)** Influence of Geographical and Seasonal Variations on Carbazole Alkaloids Distribution in *Murraya koenigii*: Deciding Factor of Its *In Vitro* and *In Vivo* Efficacies against Cancer Cells. *BioMed Research International*, 2020: 7821913. Published online 2020 Feb 11. doi: 10.1155/2020/7821913 <https://doi.org/10.1155/2020/7821913>

3. Eswara Murali Satyavarapu, Prasun Kumar Sinha and **Chitra Mandal (2020b)** Preclinical Development of Mahanine-Enriched Fraction from Indian Spice *Murraya koenigii* for the Management of Cancer: Efficacy, Temperature/pH stability, Pharmacokinetics, Acute and Chronic Toxicity (14-180 Days) Studies. *BioMed Research International*, Volume 2020, Article ID 4638132, 18 pages. <https://doi.org/10.1155/2020/7821913>
4. Autophagy-independent induction of LC3B through oxidative-stress reveals its non-canonical role in anoikis of cells. Satyavarapu, E. M.; Das, R.; Mandal, Chandan.; **Mukhopadhyay, A. Mandal, Chitra (2018)**. *Cell Death and Disease*. 9:934. doi: 10.1038/s41419-018-0989-8. Impact Factor 5.378\* 38/187 Cell Biology. Nature Publishing Group

#### Cervical cancer

5. Ranjita Das, Kaushik Bhattacharya, Suman K Samanta, Bikas C Pal and **Chitra Mandal (2014)** Improved chemosensitivity in cervical cancer to cisplatin: synergistic activity of mahanine through STAT3 inhibition. *Cancer Letters* May 14. pii: S0304-3835(14)00260-2. doi: 10.1016/j.canlet.2014.05.005 (5-Year Impact Factor: 4.544)
6. Ranjita Das, Kaushik Bhattacharya, Sayantani Sarkar, Suman K Samanta, Bikas C Pal and **Chitra Mandal (2014)** Mahanine synergistically enhances cytotoxicity of 5-fluorouracil through ROS-mediated activation of PTEN and p53/p73 in colon carcinoma' *Apoptosis* 19:149-164 DOI: 10.1007/s10495-013-0907-6 Impact factor 3.949
7. A structure-based kinase profiling to understand the polypharmacological behaviour of therapeutic molecules. Dutta, D.; Das, R.; Mandal, C.N.; Mandal, Chitra (2018). *J. Chemical Information and Modeling*. 58, 68 Impact factor: 3.76

#### Pancreatic cancer

8. Shalini Nath, Susmita Mondal, Ramesh Butt, Vinoth Prasanna Gunasekaran, Gopal C. Kundu, Uttara Chatterjee, Aniket Halder and **Chitra Mandal (2020)** Desialylation of Sonic-Hedgehog by Neu2 Inhibits Its Association With Patched1 Reducing Stemness-like Properties in Pancreatic Cancer Sphere-forming Cells. *Cells* 2020, 9(6), 1512. doi: [10.3390/cells9061512](https://doi.org/10.3390/cells9061512)
9. Mahanine drives pancreatic adenocarcinoma cells into endoplasmic reticular stress-mediated apoptosis through modulating sialylation process and Ca<sup>2+</sup>-signaling. Sarkar Bhattacharya, S., Mandal, C.N.; Albiez, R. S.; Samanta, S. K.; **Mandal, Chitra (2018)**. *Scientific Reports*. 8, 3911. 5-year impact factor: 5.525
10. Association of cytosolic sialidase Neu2 with plasma membrane enhances Fas-mediated apoptosis by impairing PI3K-Akt/mTOR-mediated pathway in pancreatic cancer cells. Nath, S.; Mandal, C. N.; Chatterjee, U.; **Mandal, Chitra (2018)** *Cell Death and Diseases*, 9, 210. Impact Factor 5.378\* 38/187 Cell Biology. Nature Publishing Group
11. Sayantani Sarkar, Chandan Mandal, Rajender Sangwan and **Chitra Mandal (2014)** Chk1/Chk2 couples with G2/M cell cycle arrest and perturbed canonical Wnt/ $\beta$ -catenin pathway to elicit apoptosis in pancreatic adenocarcinoma' *Endocrine Related Cancer*, 21, 113-125 Impact factor 5.3
12. S. Sarkar, D. Dutta, S.K Samanta, K. Bhattacharya, B.C Pal, J. Li, K. Datta, CN Mandal, and **Chitra Mandal (2013)** Redox sensitive inhibition of Hsp90 coupled with disruption of super-chaperone complex attenuate pancreatic adenocarcinoma in vitro and in vivo *Int. J. Cancer* 132:695-706. doi: 10.1002/ijc.27687. (Impact factor 6.2)

#### Glioblastoma multiforme

13. Arup Bag, Sapan Mandloi, Chhabinath Mandal, Peter Walden, Saikat Chakrabarti, **Chitra Mandal (2019)** Connecting signalling and metabolic pathways in EGF receptor-mediated oncogenesis of Glioblastoma. *PLOS Computational Biology* 15(8) e1007090. doi: [10.1371/journal.pcbi.1007090](https://doi.org/10.1371/journal.pcbi.1007090)
14. Mondal, S.; Bhattacharya, K.; **Mandal, Chitra (2018)**. Nutritional-stress reprograms dedifferentiation in glioblastoma multiforme driven by PTEN/Wnt/Hedgehog axis: a stochastic model of cancer stem cells. *Cell death and Discovery*, 4:110 Nature Publishing Group
15. Samarpan Maiti, Susmita Mondal, Eswara Murali Satyavarapu and **Chitra Mandal (2017)** mTORC2 regulates hedgehog pathway activity by promoting stability to Gli2 protein and its nuclear translocation Cell death and

Disease, 8(7):e2926. doi: 10.1038/cddis.2017.296 Impact Factor 5.965, Rank 38/187 Cell Biology. Nature Publishing Group

16. K Bhattacharya, S Maiti and **Chitra Mandal (2016)** PTEN negatively regulates mTORC2 formation and signalling in grade IV glioma via Rictor hyperphosphorylation at Thr1135 and direct the mode of action of an mTORC1/2 inhibitor. *Oncogenesis*, 5, e227; doi:10.1038/oncsis.2016.34 Impact factor 5.021
17. Bhattacharya K, Bag AK, Tripathi R, Samanta SK, Pal BC, Shaha C, **Mandal Chitra (2014)** Mahanine, a novel mitochondrial complex-III inhibitor induces G0/G1 arrest through redox alteration-mediated DNA damage response and regresses glioblastoma multiforme. *Am J Cancer Res*. Nov 19 4(6):629-47. *Impact factor 3.99*
18. Suman K. Samanta, Devawati Dutta, Sarita Roy, Kaushik Bhattacharya, Sayantani Sarkar, Bikas C. Pal, Chhabinath Mandal, Anjan K. Dasgupta and **Chitra Mandal (2013)** Mahanine, a DNA minor groove binding agent exerts cellular cytotoxicity with involvement of C-7-OH and -NH functional groups. *Journal of Medicinal Chemistry*, 56(14):5709-21. doi: 10.1021/jm400290q. *Impact factor 5.3*
19. S. Mondal, S. Bandyopadhyay, M. K Ghosh, S. Mukhopadhyay, S. Roy and **Chitra Mandal (2012)**. Natural products: **Promising resources for cancer drug discovery**. *Anti Cancer Agents in Medicinal Chemistry*, 12, 49-75

#### Acute lymphoblastic leukemia

20. K. Bhattacharya, S.K. Samanta, R. Tripathi, A. Mallick, S. Chandra, BC. Pal, C. Shaha and **Chitra Mandal (2010)** Apoptotic effects of mahanine on human leukemic cells are mediated through cross talking between Apo-1/Fas signaling with Bid protein and via mitochondrial pathways. *Biochemical Pharmacology* **79**: 361-72. *Impact factor 4.9*
21. Chandan Mandal, A. Dutta, A. Mallick, S. Chandra, L. Misra, R. Sangwan and **Chitra Mandal (2008)** Withaferin A induces apoptosis by activating p38 mitogen-activated protein kinase signaling cascade in leukemic cells of lymphoid and myeloid origin in a transcription-dependent manner through mitochondrial death cascade. *Apoptosis*. **13**, 1450-1464 (*Impact factor 4.8*)
22. S. Ghosh, S. Bandyopadhyay, S. Pal, B. Das, D.K. Bhattacharya and **Chitra Mandal (2005)** Increased interferon gamma production by peripheral blood mononuclear cells in response to stimulation of over expressed disease-specific 9-O-acetylated sialoglycoconjugates in children suffering from acute lymphoblastic leukemia. *British J Hematol* **128**: 35-41 (*Impact factor 5.518*)
23. **Mandal Chitra**, Chatterjee M, Sinha, D. (2000) Investigation of 9-O-Acetylated sialoglycoconjugates in childhood acute lymphoblastic leukaemia. An invited Review *British J. Hematol.* **110**, 801-812 (*Impact factor 5.518*)
24. Sinha D, \***Mandal Chitra** and Bhattacharya DK. (1999). Identification of 9-O acetyl sialoglycoconjugates (9-OAcSGs) as biomarkers in childhood acute lymphoblastic leukemia using a lectin, AchatininH, as a probe. *Leukemia*, **13**; 119-125. (*Impact factor 9.561*)
25. Sinha D, \***Mandal Chitra** and Bhattacharya DK. (1999). A novel method for prognostic evaluation of childhood acute lymphoblastic leukemia. *Leukemia*, **13**, 309-312. (*Impact factor 9.561*)