

**Mahitosh Mandal . Ph D, FRSB, FNA, FNSc, FNASc, FNAScT**  
**Arvind & Renu Jain Chair Professor and J C Bose National Fellow .**

1. Name: Mahitosh Mandal

2. Current Position and Address: Professor, School of Medical Science and Technology. Indian Institute of Technology, Kharagpur  
Kharagpur-721302, West Bengal, India..Contact: Telephone (Off), (Res), (Mobile): 032222-283578 (O), 032222-283578 (R), 9434896984(M) Fax: 032222-282221. Email:mahitosh@smst.iitkgp.ac.in, mahitoshm@gmail.com, DOB- 01-01-1963

Visiting Associate Professor - Human and Molecular Genetics  
Virginia Commonwealth University Medical Center, Richmond, USA

3. Educational Qualification :

| Sl No | Degree/Certificate      | Year of Passing | University/ Institute   | Subject  |
|-------|-------------------------|-----------------|---|--|
| 1     | Ph D                    | 1994            | Indian Institute of Chemical Biology, Jadavpur University, Kolkata, India | Science  |
| 2     | M Sc                    | 1985            | Calcutta University   | Human Physiology   |
| 3     | B Sc ( Hons)            | 1983            | Calcutta University   | Human Physiology ( Hons) Chem, Zoo ( Pass)                         |
| 4     | Higher Secondary (12+2) | 1979            | West Bengal Board of Higher Secondary Education                           | Eng, Beng, Phy, Chem, Biology, Math                                |
| 5.    | Secondary ( 10)         | 1977            | West Bengal Board of Secondary Education                                  | Eng, Beng, Sansk, Math, Phy Sc, Life Sc, Hist, Geo, Work Education |

4. Academic/ Research Experience/ Employment

| Sl No | From | To      | Name of Organization                     | Position held   |
|-------|------|---------|--|---|
| 1     | 2018 | Present | Indian Institute of Technology Kharagpur | Professor   |
| 2     | 2010 | 2018    | Indian Institute of Technology Kharagpur | Associate Professor<br><b>(Equivalent to Professor in West Bengal University)</b> |
| 3     | 2006 | 2010    | Indian Institute of Technology Kharagpur | Assistant Professor   |
| 4     | 2003 | 2006    | MD Anderson Cancer Center, USA           | Assistant Professor   |
| 5     | 1999 | 2003    | MD Anderson Cancer Center, USA           | Research Scientist  |
| 6     | 1998 | 1999    | MD Anderson Cancer Center, USA           | Research Associate  |
| 7     | 1995 | 1998    | MD Anderson Cancer Center, USA           | Post Doctoral Fellow  |

5. Areas of Specialization :

Cancer Biology.

Signal Transduction,

Drug discovery,

Targeted Drug Delivery.

Mechanism of Chemo and Radio resistance.

Reproductive Biology

6. Honors/ Awards/Recognitions received :

Associate Dean

Arvind & Renu Jain Chair Professor

Fellow of Royal Society, Biology ( FRSB)

JC Bose National Fellow:

Fellow: The Indian National Science Academy ( FNA),  
 Fellow: Indian Academy of Sciences ( FNSc),  
 Fellow: The National Academy of Sciences, India ( FNASc),  
 Fellow: West Bengal Science Academy . ( FNAScT)  
 Basanti Devi Amir Chand Award by ICMR, India 2018  
 Prof S S Katiyar Endowment Award by Indian Science Congress.  
 Subha Mukherjee Memorial Award by Physiological Society of India.  
 National Scholarship from Govt of West Bengal

## 7. Professional Affiliations :

**\*(a) List of Research Publication including popular articles.**

**Total Publication: 244. Total Citation - 18902 h Index- 78( as per Google Scholar)**

1. Ghosh A, Kumar S, Singh PP, Nandi S, **Mandal M**, Pradhan D, Khatua BB, Das RK. Dynamic Metal-Coordinated Adhesive and Self-Healable Antifreezing Hydrogels for Strain Sensing, Flexible Supercapacitors, and EMI Shielding Applications. **ACS Omega**. 2024 Jul 21;9(30):33204–33223. doi: 10.1021/acsomega.4c04851. **IF- 4.1**
2. Bharadwaj D, **Mandal M**. Tumor microenvironment: A playground for cells from multiple diverse origins. **Biochim Biophys Acta Rev Cancer**. 2024 Jul 18:189158. doi: 10.1016/j.bbcan.2024.189158. **IF- 9.7**
3. Shee M, Lal Banerjee S, Dey A, Das Jana I, Basak P, **Mandal M**, Mondal A, Kumar Das A, Chandra Das N. pH-induced fluorescent active sodium alginate-based ionically conjugated and REDOX responsive multi-functional microgels for the anticancer drug delivery. **Int J Pharm**. 2024 Jul 18:124490. doi: 10.1016/j.ijpharm.2024.124490, **IF- 5.3**
4. Majumder R, Banerjee S, Paul S, Mondal S, Mandal M, Ghosh P, Maity D, Anoop A, Singh NDP, **Mandal M**. Riboflavin-Induced DNA Damage and Anticancer Activity in Breast Cancer Cells under Visible Light: A TD-DFT and In Vitro Study. **J Chem Inf Model**. 2024 Jul 10. doi: 10.1021/acs.jcim.4c01104. **IF- 5.6**
5. Pal J, Kola P, Samanta P, **Mandal M**, Dhara D. Polymer Nanoparticles for Preferential Delivery of Drugs Only by Exploiting the Slightly Elevated Temperature of Cancer Cells and Real-Time Monitoring of Drug Release. **Biomacromolecules**. 2024 Jun 29. doi: 10.1021/acs.biomac.4c00572. **IF- 6.09**
6. Majumder R, Banerjee S, Mandal M, Patra S, Das S, **Mandal M**. A Virtual Drug Discovery Screening Illuminates Campesterol as a Potent Estrogen Receptor Alpha Inhibitor in Breast Cancer. **J Med Chem**. 2024 Jun 5. doi: 10.1021/acs.jmedchem.4c00766. **IF- 7.3**

7. Deepak K, Roy PK, Das CK, Mukherjee B, **Mandal M**. Mitophagy at the crossroads of cancer development: Exploring the role of mitophagy in tumor progression and therapy resistance. **Biochim Biophys Acta Mol Cell Res**. 2024 May 20;1871(6):119752. IF- 5.3
8. Patra S, Roy PK, Dey A, **Mandal M**. Impact of HMGB1 on cancer development and therapeutic insights focused on CNS malignancy. **Biochim Biophys Acta Rev Cancer**. 2024 May;1879(3):189105. IF- 11.2
9. Ojha M, Banerjee M, **Mandal M**, Singha T, Ray S, Datta PK, **Mandal M**, Anoop A, Singh NDP. Two-Photon-Responsive "TICT + AIE" Active Naphthyridine-BF<sub>2</sub> Photoremovable Protecting Group: Application for Specific Staining and Killing of Cancer Cells. **ACS Appl Mater Interfaces**. 2024 May 1;16(17):21486–21497. IF- 9.5
10. Nandi S, Bhaduri S, Das D, Ghosh P, **Mandal M**, Mitra P. Deciphering the Lexicon of Protein Targets: A Review on Multifaceted Drug Discovery in the Era of Artificial Intelligence. **Mol Pharm**. 2024 Mar 11. doi: 10.1021/acs.molpharmaceut.3c01161. IF- 5.36
11. Gangopadhyay S, Das G, Gupta S, Ghosh A, Bagale SS, Roy PK, **Mandal M**, Harikrishna S, Sinha S, Gore KR. 4'- C-Acetamidomethyl-2'- O-methoxyethyl Nucleic Acid Modifications Improve Thermal Stability, Nuclease Resistance, Potency, and hAgo2 Binding of Small Interfering RNAs. **J Org Chem**. 2024 Feb 23. doi: 10.1021/acs.joc.3c02506. IF- 3.6
12. Ghosh T, Nandi S, Girigoswami A, Bhattacharyya SK, Ghosh SK, **Mandal M**, Ghorai UK, Banerji P, Das NC. Carbon Dots for Multiuse Platform: Intracellular pH Sensing and Complementary Intensified T1-T2 Dual Imaging Contrast Nanoprobes. **ACS Biomater Sci Eng**. 2024 Jan 1. doi: 10.1021/acsbiomaterials.3c01389. IF- 4.74
13. Das P, Majumder R, Sen N, Nandi SK, Ghosh A, **Mandal M**, Basak P. A computational analysis to evaluate deleterious SNPs of GSK3 $\beta$ , a multifunctional and regulatory protein, for metabolism, wound healing, and migratory processes. **Int J Biol Macromol**. 2023 Nov 19:128262. doi: 10.1016/j.ijbiomac.2023.128262. IF- 8.025
14. Banerjee S, Majumder R, Mukherjee B, **Mandal M**. Selective ADA2 inhibition for enhancing anti-tumor immune response in glioma: Insights from computational screening of flavonoid compounds. **Int J Biol Macromol**. 2023 Oct 14:127453. doi: 10.1016/j.ijbiomac.2023.127453. IF- 8.025
15. Bhattacharya P, Kundu M, Das S, Verma Y, **Mandal M**, Neogi S. Acceleration of wound healing By PVA-PEG-MgO nanocomposite hydrogel with human epidermal growth factor. **Materials Today Communications** 37(2023)107051. IF- 3.66
16. Maity PP, Kapat K, Poddar P, Bora H, Das CK, Das P, Ganguly S, Das NC, Dhara D, **Mandal M**, Roy Chowdhury A, Mukherjee S, Dhara S. Capra cartilage-derived peptide delivery via carbon nano-dots for cartilage regeneration. **Front Bioeng Biotechnol** 2023 Aug 28;11:1213932. doi: 10.3389/fbioe.2023.1213932. IF- 6.06

17. Mondal S, Chatterjee A, Banerjee S, Singha T, Sikder A, Bhattacharyya TK, **Mandal M**, Datta PK, Maiti TK, Singh NDP. Temporal Release of Cell Cycle Regulator  $\alpha$ -Lipoic Acid: An NIR-Light (Two-Photon) Activatable Quinoxaline-Based Nano-Prodrug Delivery System. *ACS Appl Mater Interfaces*. 2023 Jun 29. doi: 10.1021/acsami.3c02744. **IF- 10.38**
18. Kundu M, Das S, Nandi S, Dhara D, **Mandal M**. Magnolol and Temozolomide exhibit a synergistic anti-glioma activity through MGMT inhibition. *Biochim Biophys Acta Mol Basis Dis*. 2023 Jun 5:166782. doi: 10.1016/j.bbadis.2023.166782. **IF- 6.63**
19. Dutta M, Banerjee S, **Mandal M**, Bhattacharjee M. A self-healable metallohydrogel for drug encapsulations and drug release. *RSC Adv*. 2023 May 22;13(23):15448–15456. doi: 10.1039/d3ra00930k. **IF- 4.03**
20. Roy PK, Majumder R, **Mandal M**. In-silico identification of novel DD12 inhibitor in glioblastoma via repurposing FDA approved drugs using molecular docking and MD simulation study *J Biomol Struct Dyn*. 2023 May 3:1–12. doi: 10.1080/07391102.2023.2204371. **IF- 5.23**
21. Das S, Kundu M, Hassan A, Parekh A, Jena BC, Mundre S, Banerjee I, Yetirajam R, Das CK, Pradhan AK, Das SK, Emdad L, Mitra P, Fisher PB, **Mandal M**. A novel computational predictive biological approach distinguishes Integrin  $\beta$ 1 as a salient biomarker for breast cancer chemoresistance. *Biochim Biophys Acta Mol Basis Dis*. 2023 Apr 10;1869(6):166702. **IF- 6.63**
22. Baidara P, Chowdhury T, Roy D, **Mandal M**, Mandal SM. Surfactin-like lipopeptides from *Bacillus clausii* efficiently bind to spike glycoprotein of SARS-CoV-2. *J Biomol Struct Dyn*. 2023 Apr 6:1–12. doi: 10.1080/07391102.2023.2196694. **IF- 5.23**
23. Kundu M, Das S, Das CK, Kulkarni G, Das S, Dhara D, **Mandal M**. Magnolol induces cytotoxic autophagy in glioma by inhibiting PI3K/AKT/mTOR signaling. *Exp Cell Res*. 2023 Feb 1;424(1):113488. **IF- 3.9**
24. Chaudhuri A, Singha T, Jena BC, Shee M, Datta PK, **Mandal M**, Singh NDP. A two-photon responsive hydroxyphenylquinazolinone (HPQ)-based fluorescent organic nanoprodrug for H<sub>2</sub>S release against oxidative stress. *Chem Commun (Camb)*. 2023 Jan 11. doi: 10.1039/d2cc05768a. **IF- 6.06**
25. Kola P, Nagesh PKB, Roy PK, Deepak K, Reis RL, Kundu SC, **Mandal M**. Innovative nanotheranostics: Smart nanoparticles based approach to overcome breast cancer stem cells mediated chemo- and radioresistances. *Wiley Interdiscip Rev Nanomed Nanobiotechnol*. 2023 Jan 4:e1876. doi: 10.1002/wnan.1876. **IF- 10.86**
26. Pradhan R, Paul S, Das B, Sinha S, Dash SR, **Mandal M**, Kundu CN. Resveratrol Nanoparticle attenuates metastasis and angiogenesis by deregulating inflammatory cytokines through inhibition of CAFs in oral cancer by CXCL-12/IL-6 dependent pathway. *J Nutr Biochem*. 2022 Dec 23:109257. doi: 10.1016/j.jnutbio.2022.109257. **IF- 6.11**

27. Ghosh T, Nandi S, Bhattacharyya SK, Ghosh SK, **Mandal M**, Banerji P, Das NC. Nitrogen and sulphur doped carbon dot: An excellent biocompatible candidate for in-vitro cancer cell imaging and beyond. **Environ Res.** 2022 Nov 23;217:114922. doi: 10.1016/j.envres.2022.114922. **IF- 7.64**
28. Bhattacharya K, Kundu M, Das S, Samanta S, Roy SS, **Mandal M**, Singha NK. Glycopolymer Decorated pH-Dependent Ratiometric Fluorescent Probe Based on Förster Resonance Energy Transfer for the Detection of Cancer Cells. **Macromol Rapid Commun.** 2022 Oct 27:e2200594. doi: 10.1002/marc.202200594. **IF- 5.73**
29. Mandal M, Banerjee I, **Mandal M**. Nanoparticle-mediated gene therapy as a novel strategy for the treatment of retinoblastoma. *Colloids Surf B Biointerfaces.* 2022 Oct 4;220:112899.  
**IF-5.26**
30. Deepak K, Roy PK, Kola P, Mukherjee B, **Mandal M**. An overview of kinin mediated events in cancer progression and therapeutic applications. **Biochim Biophys Acta Rev Cancer.** 2022 Sep 24;1877(6):188807. **IF- 10.68**
31. Choudhary NK, Mittapelli LL, Kumar Roy P, Das G, **Mandal M**, Gore KR. Vinyl substituted triphenylamine based turn-off fluorescent probe for selective and sensitive detection of mercury (II) in water and live cells. **Spectrochim Acta A Mol Biomol Spectrosc.** 2022 Sep 17;285:121887. **IF- 4.8**
32. Parekh A, Das S, Das CK, **Mandal M**. Progressing Towards a Human-Centric Approach in Cancer Research. **Front Oncol.** 2022 Jul 19;12:896633. doi: 10.3389/fonc.2022.896633
33. Biswas A, Rajesh Y, Das S, Banerjee I, Kapoor N, Mitra P, **Mandal M**. Therapeutic targeting of RBPJ, an upstream regulator of ETV6 gene, abrogates ETV6-NTRK3 fusion gene transformations in glioblastoma. **Cancer Lett.** 2022 Jul 3;544:215811. doi: 10.1016/j.canlet.2022.215811. **IF- 8.679**
34. Bhattacharya K, Das S, Kundu M, Singh S, Kalita U, **Mandal M**, Singha NK. Gold Nanoparticle Embedded Stimuli-Responsive Functional Glycopolymer: A Potential Material for Synergistic Chemo-Photodynamic Therapy of Cancer Cells. **Macromol Biosci.** 2022 Jul 7:e2200069. doi: 10.1002/mabi.202200069. **IF- 4.97**
35. Banik P, Majumder R, Mandal A, Dey S, **Mandal M**. A computational study to assess the polymorphic landscape of matrix metalloproteinase 3 promoter and its effects on transcriptional activity. **Comput Biol Med.** 2022 Jun;145:105404. doi: 10.1016/j.combiomed.2022.105404. **IF- 4.589**
36. Jena BC, Das CK, Banerjee I, Bharadwaj D, Majumder R, Das S, Biswas A, Kundu M, Roy PK, Kundu CN, **Mandal M**. TGF- $\beta$ 1 induced autophagy in cancer associated fibroblasts during hypoxia contributes EMT and glycolysis via MCT4 upregulation. **Exp Cell Res.** 2022 May 11;417(1):113195. doi: 10.1016/j.yexcr.2022.113195. **IF- 3.9**
37. Roy PK, Biswas A, K D, **Mandal M**. An insight into the ubiquitin-proteasomal axis and related therapeutic approaches towards central nervous system malignancies. **Biochim Biophys Acta Rev Cancer** 2022 Apr 28;1877(3):188734. **IF- 10.68**

38. Dey A, Kundu M, Das S, Jena BC, **Mandal M**. Understanding the function and regulation of Sox2 for its therapeutic potential in breast cancer. **Biochim Biophys Acta Rev Cancer** 2022 Mar;1877(2):188692. **IF- 10.68**
39. Biradha K, Saha S, Maity K, Roy PK, **Mandal M**. Comparative Study of Nitro and Azide Functionalized Zn(II) based Coordination Polymers as Fluorescent Turn-on Probes for Rapid and Selective Detection of H<sub>2</sub>S in Living Cells. **Chemistry**. 2021 Dec 22. doi: 10.1002/chem.202103830. **IF- 5.235**
40. Majumder R, Das CK, Banerjee I, Chandra Jena B, Mandal A, Das P, Pradhan AK, Das S, Basak P, Das SK, Emdad L, Fisher PB, **Mandal M**. Screening of the Prime bioactive compounds from Aloe vera as potential anti-proliferative agents targeting DNA. **Comput Biol Med**. 2021 Nov 19:105052. **IF- 4.589**
41. Chandra Jena B, Sarkar S, Rout L, **Mandal M**. The transformation of cancer-associated fibroblasts: Current perspectives on the role of TGF- $\beta$  in CAF mediated tumor progression and therapeutic resistance. **Cancer Lett**. 2021 Nov 1;520:222–232. **IF- 8.679**
42. Jena BC, Rout L, Dey A, **Mandal M**. Active autophagy in cancer-associated fibroblasts: Recent advances in understanding the novel mechanism of tumor progression and therapeutic response. **J Cell Physiol**. 2021 Nov;236(11):7887–7902. **IF- 6.38**
43. Das P, Majumder R, **Mandal M**, Basak P. In-Silico approach for identification of effective and stable inhibitors for COVID-19 main protease (M pro) from flavonoid based phytochemical constituents of *Calendula officinalis*. **J Biomol Struct Dyn**. 2021 Oct;39(16):6265–6280. **IF- 3.39**
44. Roy PK, Rajesh Y, **Mandal M**. Therapeutic targeting of membrane-associated proteins in central nervous system tumors. **Exp Cell Res**. 2021 Sep 15;406(2):112760. doi: 10.1016/j.yexcr.2021.112760. **IF- 3.9**
45. Pradhan R, Chatterjee S, Hembram KC, Sethy C, **Mandal M**, Kundu CN. Nano formulated Resveratrol inhibits metastasis and angiogenesis by reducing inflammatory cytokines in oral cancer cells by targeting tumor associated macrophages. **J Nutr Biochem**. 2021 Mar 8;108624. doi: 10.1016/j.jnutbio.2021.108624. **IF- 4.87**
46. Roy B, Roy S, Kundu M, Maji S, Pal B, **Mandal M**, Singh NDP. Ground-State Proton-Transfer (GSPT)-Assisted Enhanced Two-Photon Uncaging from a Binol-based AIE-Fluorogenic Phototrigger. **Org Lett**. 2021 Mar 9. doi: 10.1021/acs.orglett.1c00445. **IF- 6.5**
47. Sapru S, Das S, **Mandal M**, Ghosh AK, Kundu SC. Sericin-chitosan-glycosaminoglycans hydrogels incorporated with growth factors for in vitro and in vivo skin repair. **Carbohydr Polym**. 2021 Apr 15;258:117717. **IF- 7.18**
48. Chandra Jena B, Kanta Das C, Banerjee I, Das S, Bharadwaj D, Majumder R, **Mandal M**. Paracrine TGF- $\beta$ 1 from breast cancer contributes to chemoresistance in cancer associated fibroblasts via upregulation of the p44/42 MAPK signaling pathway. **Biochem Pharmacol**. 2021 Feb 16:114474. **IF- 5**

49. Kundu M, Majumder R, Das CK, **Mandal M**. Natural products based nanoformulations for cancer treatment: Current evolution in Indian research. **Biomed Mater**. 2021 Feb 23. doi: 10.1088/1748-605X/abe8f2. IF- 3.44
50. Biswas A, Rajesh Y, Mitra P, **Mandal M**. ETV6 gene aberrations in non-haematological malignancies: A review highlighting ETV6 associated fusion genes in solid tumors. **Biochim Biophys Acta Rev Cancer**. 2020 Jul 10:188389. doi: 10.1016/j.bbcan.2020.188389. IF- 10.68
51. Das P, Majumder R, **Mandal M**, Basak P. In-Silico approach for identification of effective and stable inhibitors for COVID-19 main protease (M pro) from flavonoid based phytochemical constituents of *Calendula officinalis*. **J Biomol Struct Dyn**. 2020 Jul 24:1-16. doi: 10.1080/07391102.2020.1796799. IF- 3.39
52. Rajesh Y, Biswas A, Kumar U, Banerjee I, Das S, Maji S, Das SK, Emdad L, Cavenee WK, **Mandal M**, Fisher PB. Lumefantrine, an antimalarial drug, reverses radiation and temozolomide resistance in glioblastoma. **Proc Natl Acad Sci U S A**. 2020 Jun 2;117(22):12324-12331. IF- 12.29
53. Rajesh Y, Biswas A, Banik P, Pal I, Das S, Borkar SA, Sardana H, Saha A, Das SK, Emdad L, Fisher PB, **Mandal M**. Transcriptional regulation of HSPB1 by Friend leukemia integration-1 factor modulates radiation and temozolomide resistance in glioblastoma. **Oncotarget**. 2020 Mar 31;11(13):1097-1108. IF- 3.3
54. Bharadwaj D, **Mandal M**. Senescence in polyploid giant cancer cells: A road that leads to chemoresistance. **Cytokine Growth Factor Rev**. 2020 Apr;52:68-75. IF- 7
55. Roy B, Kundu M, Singh AK, Singha T, Bhattacharya S, Datta PK, **Mandal M**, Singh NDP. Stepwise dual stimuli triggered dual drug release by a single naphthalene based two-photon chromophore to reverse MDR for alkylating agents with dual surveillance in uncaging steps. **Chem Commun (Camb)**. 2019 Oct 29;55(87):13140-13143. IF- 6.22
56. Majumder R, Das CK, **Mandal M**. Lead bioactive compounds of Aloe vera as potential anticancer agent. **Pharmacol Res**. 2019 Oct;148:104416. IF- 7.65
57. Chaudhuri A, Venkatesh Y, Jena BC, Behara KK, **Mandal M**, Singh NDP. Real-time monitoring of a photoactivated hydrogen persulfide donor for biological entities. **Org Biomol Chem**. 2019 Sep 27. doi: 10.1039/c9ob01982k. IF- 3.4
58. Biswas G, Jena BC, Sahoo S, Samanta P, **Mandal M**, Dhara D. Copper-Free Click Reaction for Synthesis of Redox3 Responsive Water-soluble Core Cross-Linked Nanoparticles for Drug Delivery in Cancer Therapy. **Green Chemistry ( In press)**. 2019. IF- 9. 4



59. Das CK and **Mandal M**. Pro-survival Autophagy: An Emerging Candidate of Tumor Progression through Maintaining Hallmarks of Cancer. **Semin Cancer Biol**. 2019 Aug 17. pii: S1044-579X(19)30020-3 . **IF-11.39**
60. Kundu M, Das S, Dhara D, Mandal M. Prospect of natural products in glioma: A novel avenue in glioma management. **Phytother Res**. 2019 Jul 29. doi: 10.1002/ptr.6426. . **IF-5.88**
61. Sapru S, Das S, **Mandal M**, Ghosh AK, Kundu SC. Nonmulberry silk protein sericin blend hydrogels for skin tissue regeneration - in vitro and in vivo. **Int J Biol Macromol**. 2019 Jun 17;137:545-553. . **IF-4.78**
62. Mandal SM, Sinha TK, Katiyar AK, Das S, **Mandal M**, Ghosh S. Existence of Carbon Nanodots in Human Blood. **J Nanosci Nanotechnol**. 2019 Nov 1;19(11):6961-6964. . **IF-1.35**
63. Rajesh Y, Banerjee A, Pal I, Biswas A, Das S, Dey KK, Kapoor N, Ghosh AK, Mitra P, **Mandal M**. Delineation of crosstalk between HSP27 and MMP-2/MMP-9: A synergistic therapeutic avenue for glioblastoma management. **Biochim Biophys Acta Gen Subj**. 2019 Jul;1863(7):1196-1209. **IF-3.67**
64. Sen K, Banerjee S, **Mandal M**. Dual drug loaded liposome bearing apigenin and 5-Fluorouracil for synergistic therapeutic efficacy in colorectal cancer. **Colloids Surf B Biointerfaces**. 2019 Aug 1;180:9-22. **IF-5.17**
65. Paul A, Biswas A, Sinha S, Shah SS, Bera M, **Mandal M**, Singh NDP. Push-Pull Stilbene: Visible Light Activated Photoremovable Protecting Group for Alcohols and Carboxylic Acids with Fluorescence Reporting Employed for Drug Delivery. **Org Lett**. 2019 May 3;21(9):2968-2972. **IF- 6.49**
66. Pal I, Rajesh Y, Banik P, Dey G, Dey KK, Bharti R, Naskar D, Chakraborty S, Ghosh SK, Das SK, Emdad L, Kundu SC, Fisher PB, **Mandal M**. Prevention of epithelial to mesenchymal transition in colorectal carcinoma by regulation of the E-cadherin- $\beta$ -catenin-vinculin axis. **Cancer Lett**. 2019 Jun 28;452:254-263. **IF- 8.679**
67. Rajesh Y, Biswas A, Kumar U, Das S, Banerjee I, Banik P, Bharti R, Nayak S, Ghosh SK, **Mandal M**. Targeting NFE2L2, a transcription factor upstream of MMP-2: A potential therapeutic strategy for temozolomide resistant glioblastoma. **Biochem Pharmacol**. 2019 Jun;164:1-16. . **IF- 5.85**
68. Das CK, Parekh A, Parida PK, Bhutia SK, **Mandal M**. Lactate dehydrogenase A regulates autophagy and tamoxifen resistance in breast cancer. **Biochim Biophys Acta Mol Cell Res**. 2019 Jun;1866(6):1004-1018. . **IF- 4.7**
69. Banerjee I, De M, Dey G, Bharti R, Chattopadhyay S, Ali N, Chakrabarti P, Reis RL, Kundu SC, **Mandal M** \*. A peptide-modified solid lipid nanoparticle formulation of paclitaxel modulates immunity and outperforms dacarbazine in a murine melanoma model. **Biomater Sci**. 2019 Feb 26;7(3):1161-1178. **IF- 6.84**
70. Das CK, Jena BC, Banerjee I, das S, Parekh A, Bhutia SK, **Mandal M** \*. Exosome as a Novel Shuttle for Delivery of Therapeutics across Biological Barriers.. **Mol Pharm**. 2018 Dec 4. doi: 10.1021. **IF- 4.9**

71. Sapru S, Das S, **Mandal M**, Ghosh AK, Kundu SC. Prospects of nonmulberry silk protein sericin-based nanofibrous matrices for wound healing - in vitro and in vivo investigations. **Acta Biomater.** 2018 Jul 27. pii: S1742-7061(18)30450-1. **IF- 8.947**
72. Biswas G, Jena BC, Maiti S, Samanta P, **Mandal M**, Dhara D. Photoresponsive Block Copolymer Prodrug Nanoparticles as Delivery Vehicle for Single and Dual Anticancer Drugs. **ACS Omega.** 2017 Oct 31;2(10):6677-6690. **IF- 3.5**
73. Biswas S, Rajesh Y, Barman S, Bera M, Paul A, **M Das CK**, Parekh A, Parida PK, Bhutia SK, **Mandal M**, Pradeep Singh ND. A dual-analyte probe: hypoxia activated nitric oxide detection with phototriggered drug release ability. **Chem Commun (Camb).** 2018 Jul 12;54(57):7940-7943. **IF- 6.2**
74. Kumar BNP, Puvvada N, Rajput S, Sarkar S, Mahto MK, Yallapu MM, Pathak A, Emdad L, Das SK, Reis RL, Kundu SC, Fisher PB, **Mandal M\***. Targeting of EGFR, VEGFR2, and Akt by Engineered Dual Drug Encapsulated Mesoporous Silica-Gold Nanoclusters Sensitizes Tamoxifen-Resistant Breast Cancer. **Mol Pharm.** 2018 Jul 2;15(7):2698-2713. **IF- 4.9**
75. Parekh A , Das S,. Parida S, Das C , Dutta D, Mallick S , Dr. Wu HP, Kumar BNP , Bharti R , Dey G, Banerjee K , Rajput S, Bharadwaj D, Pal I, Dey KK, Rajesh Y, Jena B , Biswas A, Banik P, Pradhan AK , Das S, Das A, Dhara S, Fisher PB , Dr. Wirtz D , Mills G, **Mandal M\***. Multi-nucleated cells use ROS to induce breast cancer chemo-resistance in vitro and in vivo. **Oncogene** , 2018 . May 10. doi: 10.1038/s41388-018-0272-6. **IF- 9.867**
76. Bharti R, Dey G, Das A and **Mandal M\***, Differential Expression of IL-6/IL-6R and MAO-A Regulates Invasion/Angiogenesis in Breast Cancer . **British J of Cancer**, 2018 8(11):1442-1452 **IF- 7.64**
77. Das CK, Linder B, Bonn F, Rothweiler F, Dikic I, Michaelis M, Cinatl J, **Mandal M**, Kögel D. BAG3 Overexpression and Cytoprotective Autophagy Mediate Apoptosis Resistance in Chemoresistant Breast Cancer Cells. **Neoplasia.** 2018 Feb 17;20(3):263-279. **IF- 6.02**
78. Mandal D, Shaw TK, Dey G, Pal MM, Mukherjee B, Bandyopadhyay AK, **Mandal M**, Preferential hepatic uptake of paclitaxel-loaded poly-(d-l-lactide-co-glycolide) nanoparticles - A possibility for hepatic drug targeting: Pharmacokinetics and biodistribution. **Int J Biol Macromol.** 2018 Feb 5. pii: S0141-8130(17)33577-8. **IF- 6.78**
79. Maiti C, Parida S, Kayal S, Maiti S, **Mandal M**, Dhara D. Redox-Responsive Core-Cross-Linked Block Copolymer Micelles for Overcoming Multidrug Resistance in Cancer Cells. **ACS Appl Mater Interfaces.** 2018 Feb 14;10(6):5318-5330. **IF- 8.75**
80. Parekh A , Das D , Das S , Dhara S , Biswas K , **Mandal M\***, Das S<sup>a</sup> Bioimpedimetric analysis in conjunction with growth dynamics to differentiate aggressiveness of cancer cells. **Scientific Report**, 2018 Jan 15;8(1):783. **IF- 4.259**

81. Dey G, Bharti R, Das AK, Sen RK and **Mandal M\***. Resensitization of Akt Induced Docetaxel Resistance in Breast Cancer by 'Iturin A' a Lipopeptide Molecule from Marine Bacteria *Bacillus megaterium*. **Scientific Report**, 2017 Dec 11;7(1):17324. . **IF-4.259**
  
82. Mandal SM, Khan J, Mahata D, Saha S, Sengupta J, Silva ON, Das S, Mandal M, Franco OL. A self-assembled clavanin A-coated amniotic membrane scaffold for the prevention of biofilm formation by ocular surface fungal pathogens.**Biofouling**. 2017 Oct 19:1-11. doi: 10.1080/08927014.2017.1383400. **IF-3**
  
83. Rajesh Y, Biswas A, **Mandal M\***. Glioma progression through the prism of heat shock protein mediated extracellular matrix remodeling and epithelial to mesenchymal transition. **Exp Cell Res**. 2017 Aug 26. pii: S0014-4827(17)30453-6.. **IF- 3.9**
84. Behara KK, Rajesh Y, Venkatesh Y, Pinninti BR, **Mandal M**, Singh NDP. Cascade photocaging of diazeniumdiolate: a novel strategy for one and two photon triggered uncaging with real time reporting, **Chem. Commun**. 2017 Aug 22;53 (68):9470-9473. **IF-6.3**
85. Rajesh Y, Pal I, Banik P, Chakraborty S, Borkar SA, Dey G, Mukherjee A, **Mandal M**. Insights into molecular therapy of glioma: current challenges and next generation blueprint. **Acta Pharmacol Sin\*** 2017 May;38(5):591-613. **IF- 6.15**
86. Bajani D, Dey J, Rajesh Y, Bandyopadhyay S, **Mandal M**. Spontaneous vesicle formation by  $\gamma$ -aminobutyric acid derived steroidal surfactant: Curcumin loading, cytotoxicity and cellular uptake studies. **J Colloid Interface Sci**. 2017 Jul 29;507:1-10.. **IF-8.12**
87. Sarkar S, Konar S, Puvvada N, Rajput S, Kumar BP, Rao RR, Pathak A, Fisher PB, **Mandal M\*** . Micellar Gold nanoparticle as delivery vehicle for dual tyrosine kinase inhibitor ZD6474 for metastatic breast cancer treatment. **Langmuir**. 2017 Aug 8;33(31):7649-7659. **IF- 3.88**
88. Dey G, Bharti R, Ojha PK, Pal I, Rajesh Y, Banerjee I, Banik P, Parida S, Parekh A, Sen R, **Mandal M\***. Therapeutic implication of 'Iturin A' for targeting MD-2/TLR4 complex to overcome angiogenesis and invasion. **Cell Signal**. 2017 Jul;35:24-36. **IF- 4.3**
89. Behera S, Naskar D, Sapru S, Bhattacharjee P, Dey T, Ghosh AK, **Mandal M**, Kundu SC. Hydroxyapatite reinforced inherent RGD containing silk fibroin composite scaffolds: Promising platform for bone tissue engineering. **Nanomedicine**. 2017 Jul;13(5):1745-1759. **IF- 6.69**
90. Naskar D, Ghosh AK, **Mandal M**, Das P, Nandi SK, Kundu SC, Dual growth factor loaded nonmulberry silk fibroin/carbon nanofiber composite 3D scaffolds for *in vitro* and *in vivo* bone regeneration, **Biomaterials** (2017), doi: 10.1016/j. . **IF- 11.59**
  
91. Shaw TK, Mandal D, Dey G, Pal MM, Paul P, Chakraborty S, Ali KA, Mukherjee B, Bandyopadhyay AK, **Mandal M\***. Successful delivery of docetaxel to rat brain using experimentally developed nanoliposome: a treatment strategy for brain tumor. **Drug Deliv**. 2017 Nov;24(1):346-357. **IF- 6.4**

92. Bharati R, Dey G, Banerjee I, Dey KK, Parida S, PrasanthKumar BN, Das CK, Pal I, Mukherjee M, Mishra M, Pradhan AK, Emdad L, Das SK, Fisher PB. and **Mandal M\***. Somatostatin receptor targeted liposome with diacerin inhibit IL-6 for breast cancer therapy, **Cancer Letters** 2016 Dec 24;388:292-302, **IF- 8.679**
93. Banerjee K, Banerjee S, **Mandal M\***. Enhanced chemotherapeutic efficacy of apigenin liposomes in colorectal cancer based on flavone-membrane interactions. **Journal of Colloid & Interface Science**, 2017 Apr 1;491:98-110. **IF-7.87**
94. P Laskar, J Dey, P Banik, **M Mandal**, SK Ghosh. In Vitro Drug and Gene Delivery Using Random Cationic Copolymers Forming Stable and pH-Sensitive Polymersomes. **Macromolecular bioscience**. 2016. 10.1002/mabi.201600324. **IF- 4.97**
95. Bharti R., Gey G., **Mandal M\***. Cancer Development, Chemoresistance, Epithelial to Mesenchymal Transition and Stem Cells: A Snapshot of IL-6 Mediated Involvement. **Cancer Letters** . 2016, 375 (1), 51-61. **IF- 8.679**
96. S Panja, G Dey, R Bharti, P Mandal, **M Mandal**, S Chattopadhyay. Metal Ion Ornamented Ultra-fast Light-sensitive Nanogel for Potential in vivo Cancer Therapy. **Chemistry of Materials**, 2016. 28 (23), pp 8598–8610. **IF- 9.8**
97. Parida S, Maiti C, Rajesh Y, Dey KK, Pal I, Parekh A, Patra R, Dhara D, Dutta PK, **Mandal M**. Gold nanorod embedded reduction responsive block copolymer micelle-triggered drug delivery combined with photothermal ablation for targeted cancer therapy, **Biochim Biophys Acta**. 2016 Oct 6. pii: S0304-4165(16)30378-6. **IF- 3.77**
98. Venkatesh Y, Rajesh Y, Karthik S, Anabur C C, **Mandal M**, Jana A, Singh ND. Photocaging of Single and Dual (similar or different) Carboxylic and Amino Acids by Acetyl Carbazole and its Application as Dual Drug Delivery in Cancer Therapy. **J Org Chem**. 2016 Oct 18. **IF- 4.35**
99. Singh P, Venkatesh Y, Karthik S, Rajesh Y, **Mandal M**, Jana A. Three Arm, Biotin-tagged Carbazole-Dicyanovinyl-Chlorambucil Conjugate: Simultaneous Tumor Targeting, Sensing and Photoresponsive Anticancer Drug Delivery. **Chem Asian J**. 2016 Oct 5. doi: 10.1002/asia.201601264. **IF- 4.58**
100. Dey KK, Bharti R, Dey G, Pal I, Rajesh Y, Chavan S, Das S, Das CK, Jena BC, Halder P, Ray JG, Kulavi I, **Mandal M**. S100A7 plays an oncogenic role in Oral Squamous Cell Carcinoma (OSCC) by activating p38/MAPK and RAB2A signaling pathway. **Cancer Gene Therapy**, 2016; **IF-5.987**
101. Naskar D, Bhattacharjee P, Ghosh AK, **Mandal M**, Kundu SC. Carbon Nanofiber Reinforced Nonmulberry Silk Protein Fibroin Nanobiocomposite for Tissue Engineering Applications. **ACS Appl Mater Interfaces**. 2016 Aug 15. **IF- 8.75**
102. Dey G, Bharti R, Banerjee I, Das AK, Das CK, Das S, Jena BC, Misra S, Sen R and **Mandal M\***, Pre-clinical Risk Assessment and therapeutic potential of Antitumor Lipopeptide 'Iturin A' in in vivo and in vitro Model. **RSC Advances**. **IF- 3.28**
103. Banerjee I, De K, Mukherjee D, Dey G, Chattopadhyay S, Mukherjee M, **Mandal M**, Bandyopadhyay AK, Gupta A, Ganguly S, Misra M. Paclitaxel-loaded solid lipid nanoparticles modified with Tyr-3-octreotide for enhanced anti-angiogenic and anti-glioma therapy. **Acta Biomater**. 2016 Jul 1;38:69-81. **IF- 8.947**

104. Subramanian AP, Jaganathan SK, **Mandal M**, Supriyanto E, Muhamad II. Gallic acid induced apoptotic events in HCT-15 colon cancer cells. **World J Gastroenterol**. 2016 Apr 21;22(15):3952-61. **IF- 5.74**
  
105. Panja S, Dey G, Bharti R, Kumari K, Maiti TK, **Mandal M**, Chattopadhyay S. Tailor-Made Temperature-Sensitive Micelle for Targeted and On-Demand Release of Anticancer Drugs. **ACS Appl Mater Interfaces**. 2016 May 18;8(19):12063-74. **IF- 8.75**
  
106. Basak K, Dey G, Mahadevappa M, **Mandal M**, Sheet D, Dutta PK. Learning of speckle statistics for in vivo and noninvasive characterization of cutaneous wound regions using laser speckle contrast imaging. **Microvasc Res**. 2016 Sep;107:6-16. doi: 10.1016/j.mvr.2016.04.008. **IF- 3.32**
  
107. Bharti R., Gey G., **Mandal M\***. Cancer Development, Chemoresistance, Epithelial to Mesenchymal Transition and Stem Cells: A Snapshot of IL-6 Mediated Involvement. **Cancer Letters** . 2016, 375 (1), 51-61. **IF- 8.679**
  
108. Parida S., Pal I., Parekh A., Thakur B. Bharti R., Das S and **Mandal M\***. GW627368X inhibits proliferation and induces apoptosis in cervical cancer by interfering with EP4/EGFR interactive signalling. **Cell Death and Disease** 2016 Mar 24;7:e2154.. **IF-8.79**
  
109. Bhutia SK, Behera B, Das DN, Mukhopadhyay S, Sinha N, Panda PK, Naik PP, Patra SK, **Mandal M**, Sarkar S, Menezes ME, Talukdar S, Maiti TK, Das SK, Sarkar D, Fisher PB. Abrus agglutinin is a potent anti-proliferative and anti-angiogenic agent in human breast cancer. **Int J Cancer**. 2016 Feb 23. doi: 10.1002/ijc.30055. **IF-7.39**
  
110. Sharma S, Bano S, Ghosh AS, Mandal M, Kim HW, Dey T, Kundu SC. Polymer grafted magnetic nanoparticles for delivery of anticancer drug at lower pH and elevated temperature.. **Nanomedicine**. 2016 Jan 7. pii: S1549-9634(16). **IF-5.3**
  
111. Basak K, Dey G, Sheet D, Mahadevappa M, Mandal M, Dutta PK. Probabilistic graphical modeling of speckle statistics in laser speckle contrast imaging for noninvasive and label-free retinal angiography. **Conf Proc IEEE Eng Med Biol Soc**. 2015 Aug;2015:6244-7.
  
112. Dutta S; Parida S; Maiti C; **Mandal M** and Dhara D; Polymer Grafted Magnetic Nanoparticles for Delivery of Anticancer Drug at Lower pH and Elevated Temperature; **Journal of Colloid and Interface Science**; 2016 ( In Press). **IF- 8.12**
  
113. Bharati R, Dey G, Ojha P, Rajput S, Jaganathan S, Sen R and **Mandal M\***. Diacerein mediated inhibition of IL-6/IL-6R signaling induces apoptotic effects on breast cancer. **Oncogene**, 2015 Nov 30. doi: 10.1038/onc.. **IF- 9.867**

114. Rajput S, Puvvada N, Kumar BN, Sarkar S, Konar S, Bharti R, Dey G, Mazumdar A, Pathak A, Fisher PB, **Mandal M\***. Overcoming Akt induced therapeutic resistance in breast cancer through siRNA and thymoquinone encapsulated multilamellar gold niosomes. **Mol Pharm.** 2015 Dec 7;12(12):4214-25. **IF- 4.93**
  
115. G Sathishkumar, R Bharti, PK Jha, M Selvakumar, G Dey, R Jha. M Jeyaraj, **Mandal M**, S Sivaramakrishnan Dietary flavone chrysin (5, 7-dihydroxyflavone ChR) functionalized highly-stable metal nanoformulations for improved anticancer applications; **RSC Adv.** 5 (109), 89869-89878; **IF- 3.84**
  
116. Das, D., Shiladitya, K., Biswas, K., Parekh A, Mandal, M., Das, S. Wavelet-based multiscale analysis of bioimpedance data measured by electric cell-substrate impedance sensing for classification of cancerous and normal cells. **Physical Review E**; 2015: 92 (6), 062702: **IF- 2.5**
  
117. R Banerjee, S Parida, C Maiti, **M Mandal**, D Dhara. pH-degradable and thermoresponsive water-soluble core cross-linked polymeric nanoparticles as potential drug delivery vehicle for doxorubicin.**RSC Advances**: 5 (102) 2015, 83565-83575: **IF- 3.84**
  
118. Kalita H, Prashanth Kumar BN, Konar S, Tantubay S, Kr Mahto M, **Mandal M**, Pathak A. Sonochemically synthesized biocompatible zirconium phosphate nanoparticles for pH sensitive drug delivery application. **Mater Sci Eng C** ; 2016 Mar 1;60:84-91. **IF-7.238**
  
119. Pal I, Dey KK, Chaurasia M, Parida S, Das S, Rajesh Y, Sharma K, Chowdhury T, **Mandal M\***. Cooperative effect of BI-69A11 and celecoxib enhances radiosensitization by modulating DNA damage repair in colon carcinoma. **Tumour Biol.** 2015 Dec 2. **IF-3.6**
  
120. Das P, Sarkar S, Mandal M and Sen R, Green surfactant of marine origin exerting a cytotoxic effect on cancer cell lines . **RSC Advance**, Volume 5, Issue 65, 2015, Pages 53086-53094 . **IF- 3.84**
121. Prashanth Kumar BN, Rajput S, Bharti R, Parida S, Mandal M\*. BI2536 - A PLK inhibitor augments paclitaxel efficacy in suppressing tamoxifen induced senescence and resistance in breast cancer cells. **Biomed Pharmacother.** 2015 Aug;74:124-32. **IF-6.5**
  
122. Pal I, Parida S, Prashanth Kumar BN, Banik P, Kumar Dey K, Chakraborty S, Bhutia SK, **Mandal M\***. Blockade of autophagy enhances proapoptotic potential of BI-69A11, a novel Akt inhibitor, in colon carcinoma. **Eur J Pharmacol.** 2015 Aug 22;765:217-227. **IF-4.96**
  
123. Dey KK, Sarkar S, Pal I, Das S, Dey G, Bharti R, Banik P, Roy J, Maity S, Kulavi I, **Mandal M\***. Mechanistic attributes of S100A7 (psoriasin) in resistance of anoikis resulting tumor progression in squamous cell carcinoma of the oral cavity. **Cancer Cell Int.** 2015 Jul 29;15:74. **IF-3.86**

124. Dey KK, Pal I, Bharti R, Dey G, Kumar BN, Rajput S, Parekh A, Parida S, Halder P, Kulavi I, **Mandal M\***. Identification of RAB2A and PRDX1 as the potential biomarkers for oral squamous cell carcinoma using mass spectrometry-based comparative proteomic approach. **Tumour Biol.** 2015 Jul 11. **IF-3.6**
  
125. Puvvada N, Rajput S, Kumar BN, Sarkar S, Konar S, Brunt KR, Rao RR, Mazumdar A, Das SK, Basu R, Fisher PB, **Mandal M\***, Pathak A\*. Novel ZnO hollow-nanocarriers containing paclitaxel targeting folate-receptors in a malignant pH-microenvironment for effective monitoring and promoting breast tumor regression. **Sci Rep.** 2015 Jul 6;5:11760. **IF-5.57** :
  
126. Dey G, Bharti R, Dhanarajan G, Das S, Dey KK, Kumar BN, Sen R, **Mandal M\*** Marine lipopeptide Iturin A inhibits Akt mediated GSK3 $\beta$  and FoxO3a signaling and triggers apoptosis in breast cancer. **Sci Rep.** 2015 May 14;5:10316. **IF-5.57**,
  
127. Banerjee K, Banerjee S, Das S, **Mandal M\***. Probing the potential of apigenin liposomes in enhancing bacterial membrane perturbation and integrity loss. **J Colloid Interface Sci.** 2015 Sep 1;453:48-59. **IF-8.12**
  
128. Banerjee K, **Mandal M\***. Oxidative stress triggered by naturally occurring flavone apigenin results in senescence and chemotherapeutic effect in human colorectal cancer cells. **Redox Biol.** 2015 Apr 30;5:153-162. **IF-11.799**
  
129. Parida S, Parekh A, Dey G, Ghosh SC, **Mandal M\***. Molecular inhibition of prostaglandin E2 with GW627368X: Therapeutic potential and preclinical safety assessment in mouse sarcoma model. **Cancer Biol Ther.** 2015;16(6):922-32. **IF-4.74**
  
130. S Karthik, BN Prashanth Kumar, Moumita Gangopadhyay, Mahitosh Mandal, ND Pradeep Singh.. A targeted, image-guided and dually locked photoresponsive drug delivery system. **Journal of Materials Chemistry B**, 2015.3 (5) 728-732. **IF- 6.5**:
  
131. Kumar BN, Puvvada N, Rajput S, Sarkar S, Venkatesan P, Pal I, Dey G, Konar S, Mazumdar A, Kundu SC, Pathak A, Fisher PB, and **Mandal M\***. Sequential release of tamoxifen and diosgenin from hollow manganese ferrate nanocarriers for breast cancer treatment. **Journal of Materials Chemistry B**, 2015. 3 (1) 90-101, **IF- 6.5**
  
132. Dey G, Bharti R, Sen R and **Mandal M\***. Microbial amphiphiles: A class of promising new generation anticancer agents. **Drug Discovery Today**. 2015, 20 (1) 136-146. **IF-7.85**
  
133. Rajput S, Kumar BN, Banik P, Parida S, **Mandal M\***. Thymoquinone restores radiation induced TGF- $\beta$  expression and abrogates EMT in chemoradiotherapy of breast cancer cells. **J Cell Physiol**, 2015, 230 (3) 620-629, **IF-6.38**
  
134. Mandal SM, Mahata D, Migliolo L, Parekh A, Addy PS, **Mandal M** and Basak A. Glucose Directly Promotes Antifungal resistance in the Fungal Pathogen, Candida spp. **J Biol Chem**, 2014. 289 (37) 25468-73, **IF- 5.157**
  
135. Parida S, **Mandal M**. Inflammation induced by human papillomavirus in cervical cancer and its implication in prevention. **Eur J Cancer Prev.** 2014 , 23 (5) 432-48. **IF- 2.497**
  
136. Mahata D, Mandal SM, Bharti R, Gupta VK, **Mandal M**, Nag A, Nando GB. Self-assembled cardanol azo derivatives as antifungal agent with chitin-binding ability. **Int J Biol Macromol.** 2014 Aug;69:5-11. **IF- 6.78**

137. Basak, K. , Dey, G., Mahadevappa, M., Mandal, M., Dutta, P.K. In vivo laser speckle imaging by adaptive contrast computation for microvasculature assessment. **Optics and Lasers in Engineering**. Volume 62, November 2014, Pages 87-94. **IF- 4.836**
138. Pradhan, R. Mandal, M. Mitra, A. and Das, S. . Assessing cytotoxic effect of ZD6474 on mda-mb-468 cells using cell-based sensor. **IEEE Sensors Journal** Volume 14, Issue 5, May 2014, Article number 6697818, Pages 1476-1481 . **IF- 3.3**
139. Pal I, Sarkar S, Rajput S, Dey K, Chakraborty S, Dash R, Das S, Sarkar D, Elisa Barile, Surya De, Pellecchia M, Fisher PB, and **Mandal M.** BI-69A11 enhances susceptibility of colon cancer cells to mda-7/IL-24-induced growth inhibition by targeting Akt; **British J Cancer; Br J Cancer**. 2014 Jul 1;111(1):101-11. **IF7.64**
140. Mandal SM, Bharti R, Porto WF, Gauri SS, **Mandal M**, Franco OL, Ghosh AK. Identification of multifunctional peptides from human milk. **Peptides**. 2014 Apr 2;56C:84-93. **IF-3.38**
141. Pradhan, R. , **Mandal, M.**, Mitra, A., Das.S. Monitoring cellular activities of cancer cells using impedance sensing devices. **Sensors and Actuators, B: Chemical**. 2014; 193: 478- 483. . **IF- 7.34**
142. Dhanarajan, G., **Mandal, M.**, Sen, R. A combined artificial neural network modeling-particle swarm optimization strategy for improved production of marine bacterial lipopeptide from food waste. **Biochemical Engineering Journal**. 2014; 84, 59-65. . **IF-3.97**
143. Pradhan, R. , Rajput, S., **Mandal, M.**, Mitra, A., Das. Electric cell-substrate impedance sensing technique to monitor cellular behaviours of cancer cells. **RSC Advances** 2014; 4(19) 9432-38. . **IF-3.24**
144. Pradhan R, Rajput S, **Mandal M**, Mitra A, Das S. Frequency dependent impedimetric cytotoxic evaluation of anticancer drug on breast cancer cell. **Biosens Bioelectron**. 2014 May 15;55:44-50. . **IF-10.61**
145. Jaganathan SK, Supriyanto E, **Mandal M**. Events associated with apoptotic effect of p-Coumaric acid in HCT-15 colon cancer cells. **World J Gastroenterol**. 2013 Nov 21;19(43):7726-34. . **IF-5.74**
146. Choudhury H, Gorain B, Karmakar S, Biswas E, Dey G, Barik R, **Mandal M**, Pal TK. Improvement of cellular uptake, in vitro antitumor activity and sustained release profile with increased bioavailability from a nanoemulsion platform. **Int J Pharm**. 2014 Jan 2;460(1-2):131-43. . **IF-6.27**
147. Bhutia SK, Mukhopadhyay S, Sinha N, Das DN, Panda PK, Patra SK, Maiti TK, **Mandal M**, Dent P, Wang XY, Das SK, Sarkar D, Fisher PB. Autophagy: cancer's friend or foe? **Adv Cancer Res**. 2013;118:61-95. . **IF-5.53**
148. Sarkar S, Rajput S, Tripathi AK, **Mandal M\***. Targeted therapy against EGFR and VEGFR using ZD6474 enhances the therapeutic potential of UV-B phototherapy in breast cancer cells. **Mol Cancer**. 2013 Oct 20;12(1):122. . **IF -25.55**
149. Rajput S, Kumar BN, Dey KK, Pal I, Parekh A, **Mandal M\***. Molecular targeting of Akt by thymoquinone promotes G(1) arrest through translation inhibition of cyclin D1 and induces apoptosis in breast cancer cells. **Life Sci**. 2013 Nov 13;93(21):783-90. . **IF-5.03**
150. Kumar BN, Rajput S, Dey KK, Parekh A, Das S, Mazumdar A, **Mandal M\***. Celecoxib alleviates tamoxifen-instigated angiogenic effects by ROS-dependent VEGF/VEGFR2 autocrine signaling. **BMC Cancer**. 2013 Jun 3;13:273. . **IF-4.4**
151. K Sen , **Mandal M\***. Second Generation Liposomal Cancer Therapeutics: Transition from laboratory to clinic. International Journal of Pharmaceutics, 2013, **Int J Pharm**. 2013 448(1) 28-43. **IF- 6.27**



152. Karthik S, Puvvada N, Kumar BN, Rajput S, Pathak A, **Mandal M**, Singh ND. Photoresponsive coumarin-tethered multifunctional magnetic nanoparticles for release of anticancer drug. **ACS Appl Mater Interfaces**. 2013 Jun 12;5(11):5232-8. . **IF-9.22**
153. Kumar BD, Krishnakumar K, Jaganathan SK, **Mandal M**. Effect of Mangiferin and Mahanimbine on Glucose Utilization in 3T3-L1 cells. **Pharmacogn Mag**. 2013 Jan;9(33):72-5. . **IF-2.13** ,
154. Rajput S, Kumar BNP, Sarkar D, Das S, Azab B, Santhekadur PK, Das SK, Emdad L , Sarkar D, Fisher PB, **Mandal M\*** ,Targeted apoptotic effects of thymoquinone and tamoxifen on XIAP mediated Akt regulation in breast cancer. (2013) **PLoS ONE** ; 8 (4) art. no. e 61342. **IF- 3.54**:
155. Puvvada, N., Rajput, S., Kumar, B.N.P., **Mandal, M.**, Pathak, A. Exploring the fluorescence switching phenomenon of curcumin encapsulated niosomes: In vitro real time monitoring of curcumin release to cancer cells. **RSC Advances**, 2013, Vol 3, Issue 8, , 2553-2557. **IF- 3.289**
156. Rangarajan, V., Dhanarajan, G., Kumar, R., Sen, R. , **Mandal, M**. Time-dependent dosing of Fe<sup>2+</sup> for improved lipopeptide production by marine *Bacillus megaterium*. **Journal of Chemical Technology and Biotechnology**. 2012; 87 (12) 1661-69. **IF- 3.17**
157. Puvvada, N., Kumar, B.N.P., Konar, S., Kalita, H., **Mandal, M.**, Pathak, A. Synthesis of biocompatible multicolor luminescent carbon dots for bioimaging applications. 2012, **Science and Technology of Advanced Materials**, Vol 13, Issue 4, Article number045008, **IF-5.79**
158. Das S, Dey K K, Bharti R , MaitiChoudhury S, Maiti S and **Mandal M\***. PKI 166 induced redox signalling and apoptosis through activation of p53, MAP Kinase and caspase pathway in epidermoid carcinoma. **Journal of Experimental Therapeutics and Oncology**,2012, Volume 10, 139-153, **IF-3**
159. Venkatesan P, Bhutia SK, Singh AK, Das SK, Dash R, Chaudhury K, Sarkar D, Fisher PB, **Mandal M\***. AEE788 potentiates celecoxib-induced growth inhibition and apoptosis in human colon cancer cells. **Life Sci**. 2012, Vol 91, 789-799 . **IF-5.03**
160. Das S, Kaushik Dey K , Dey G, Pal I, Majumder A, MaitiChoudhury S , Kundu SC, and **Mandal M\***: Antineoplastic and apoptotic potential of traditional medicines thymoquinone and diosgenin in squamous cell carcinoma; 2012, **PLoS ONE** 7,(10) Art. No-e46641 , **IF-3.5**
161. Pal I and **Mandal M\***. PI-3K and Akt as molecular targets for cancertherapy: current clinical outcomes; **Acta Pharmacologica Sinica** , 2012 Vol 33, Pages 1441-1458, **IF-6.15**
162. Rangarajan, V., Dhanarajan, G., Kumar, R., Sen, R., Mandal, M. ( 2012). Time-dependent dosing of Fe 2+ for improved lipopeptide production by marine Bacillus megaterium ; Journal of Chemical Technology and Biotechnology Vol 87, Issue 12, 1661-1669, IF-3,17
163. Rajput, S., Mandal, M\*. Antitumor promoting potential of selected phytochemicals derived from spices: A review. **European Journal of Cancer Prevention**. (2012) 21(2): 205-215. **IF-3.03** ,
164. Maiti S, Mallick SK, Bhutia SK, Behera B, Mandal M, Maiti TK. (2012) Antitumor effect of culinary-medicinal oyster mushroom, pleurotus ostreatus (Jacq.: Fr.) P. Kumm., derived protein fraction on tumor-bearing mice models. Int J Med Mushrooms. 2011;13(5):427-40. IF- 0.639
165. Mandal SM, Migliolo L, Das S, **Mandal M**, Franco OL, Hazra TK.( 2012) Identification and characterization of a bactericidal and proapoptotic peptide from *Cycas revoluta* seeds with DNA binding properties. **J Cell Biochem**. Jan;113(1):184-93. **IF- 4.429**

166. Sethi K, Sarkar S, Das S, Rajput S, Mazumder A, Roy B, Patra S, Mohanty B, El-Naggar AK, **Mandal M\***. Expressions of CK-19, NF-kappaB, E-cadherin, beta-catenin and EGFR as diagnostic and prognostic markers by immunohistochemical analysis in thyroid carcinoma. **J Exp Ther Oncol.** 2011; 9(3):187-99. **IF-3.58,**
167. Venkatesan P & Banerjee S, Das S & Sen RK & **Mandal M\***. Effect of liposomal celecoxib on proliferation of colon cancer cell and inhibition of DMBA-induced tumor in rat model. **Cancer Nano.** (2011) 2 (1-6), 67-79. **IF-1.83,**
168. Sankar R and **Mandal M\***, Screening of Pseudomonas aeruginosa strain for enhanced synthesis of azurin induced by copper sulphate and potassium nitrate and its characterization. **IEEE Xplore** ( 2011)
169. Sarkar S, Mazumdar A, Dash R, Sarkar D, Fisher PB, **Mandal M\***. ZD6474 enhances paclitaxel antiproliferative and apoptotic effects in breast carcinoma cells. **J Cell Physiol.** 2011 Feb; 226(2):375-84. **IF-6.38**
170. Venkatesan P, Puvvada N, Dash R, Kumar BNP, Sarkar D, Azab B, Pathak A, Kundu SC, Fisher PB, **Mandal M\***. (2011) The potential of celecoxib-loaded hydroxyapatite-chitosan nanocomposite for the treatment of colon cancer **Biomaterials** 32(15): 3794-3806. **IF 11.59**
171. Ramachandran S, **Mandal M\***; Induction of apoptosis of azurin synthesized from P. aeruginosa MTCC 2453 against Dalton's lymphoma ascites model: **Biomedicine & Pharmacotherapy** 2011 Oct; 65(7):461-66. **IF-6.59**
172. Dutta P, Dey J, Perumal V, **Mandal M\***. Amino acid based amphiphilic copolymer micelles as carriers of non-steroidal anti-inflammatory drugs: solubilization, in vitro release and biological evaluation. **Int J Pharm.** 2011 Apr 4;407(1-2):207-16 , **IF- 5.87**
173. Talukdar S, **Mandal M.**, Huttmacher DW, Russell P, Soekmadji C, Kundu SC. (2011) Engineered silk fibroin protein 3-D matrices for in vitro tumor model. **Biomaterials** 32, 2149-2159. **IF 11.799**
174. Sivapathasekaran C, Das P, Mukherjee S, Saravanakumar J, **Mandal M** & Sen R. Marine Bacterium Derived Lipopeptides: Characterization and Cytotoxic Activity Against Cancer Cell Lines. **International Journal of Peptide Research and Therapeutics.** 2010 16; 215-222, **IF-1.7**
175. Sankar R, Sarkar S, Mazumdar A and **Mandal M\***. Azurin synthesis from Pseudomonas aeruginosa MTCC 2453, properties, induction of reactive oxygen species, and p53 stimulated apoptosis in breast carcinoma cells. **Journal of Cancer Science & Therapy.** 2011, 3(5): 104-111, **IF – 5.09,**
176. Jaganathan SK, Mazumder A, Mondhe D, **Mandal M\***. Apoptotic effect of eugenol in human colon cancer cell lines. **Cell Biology International.** 2011 Jun 1; 35(6):607-15. **IF- 3.23**
177. Jaganathan SK, Mandal SM, Jana SK, Das S, **Mandal M\***. Studies on the phenolic profiling, anti-oxidant and cytotoxic activity of Indian honey: in vitro evaluation. **Nat Prod Res.** 2010 Sep;24(14):1295-306. **IF- 2.06**
178. Mandal SM, Dey S, **Mandal M**, Maria-Neto S, Franco OL. Comparative analyses of different surfactants on matrix-assisted laser desorption/ionization mass spectrometry peptide analysis. **Eur J Mass Spectrom** ,2010;16(5):567-75. **IF- 1.1,**
179. Sureshkumar A, Sankar R, **Mandal M**, Neogi S. Effective bacterial inactivation using low temperature radio frequency plasma. **Int J Pharm.** 2010 Aug 30;396(1-2):17-22. **IF-6.27**
180. Jaganathan SK, Mondhe D, Wani ZA, Pal HC, **Mandal M\***. Effect of honey and eugenol on Ehrlich ascites and solid carcinoma. **J Biomed Biotechnol.** 2010;2010:989163 , **IF-1.225,**
181. Sarkar S, Majumder A, Dash R, Sarkar D, Fisher PB , **Mandal M\***. ZD6474, a dual kinase inhibitor of Epidermal growth factor receptor and Vascular endothelial growth factor receptor-2, inhibits MAPK/ERK and AKT/P13-K and induces apoptosis in breast cancer. **Cancer Biol Ther.** 2010 Apr 4;9(8). **IF- 4.74**

182. Sethi K, Sarkar S, Das S, Mohanty B, **Mandal M\***. Biomarkers for the Diagnosis of Thyroid Cancer. **J Exp Ther Oncol.** 2010;8(4):341-52 , **Impact Factor- 3.58**,
183. Venkatesan P, Das S, Krishnan MM, Chakraborty C, Chaudhury K, **Mandal M\***. Effect of AEE788 and/or Celecoxib on colon cancer cell morphology using advanced microscopic techniques , **Micron.** 2010 Apr;41(3):247-56. **IF – 2.39**
184. Kupferman ME, Jayakumar A, Zhou G, Xie T, Dakak-Yazici Y, Zhao M, Ju J, **Mandal M**, Jasser S, Madden T, Myers JN, Priebe W. Therapeutic suppression of constitutive and inducible JAK\STAT activation in head and neck squamous cell carcinoma. **J Exp Ther Oncol.** 2009;8(2):117-27, **IF- 1.034**,
185. Jaganathan SK, **Mandal M\***, Involvement of non-protein thiols, mitochondrial dysfunction, reactive oxygen species and p53 in the honey-induced apoptosis. **Investigational New Drugs**, 2010 Oct;28(5):624-33, **IF-3.27**
186. **Mandal SM**, **Mandal M**, Pati BR, Das AK, Ghosh AK. Proteomics view of a Rhizobium isolate response to arsenite [As(III)] stress. **Acta Microbiol Immunol Hung.** 2009 Jun;56(2):157-67, **IF – 1.8**
187. Jaganathan SK and **Mandal M\***. Antiproliferative Effects of Honey and of Its Polyphenols: **Journal of Biomedicine and Biotechnology**, 2009, Vol-209, 8306-16. **IF- 2.43**.,
188. Sarkar S and **Mandal M\***. Growth Factor Receptors and Apoptosis Regulators: Signaling Pathways, Prognosis, Chemosensitivity and Treatment Outcomes of Breast Cancer. **Breast Cancer: Basic and Clinical Research** 2009 :3 47-60. **IF- 6.83**,
189. Jaganathan SK and **Mandal M\***. Rheology and thermal properties of marketed Indian honey. **Nutrition & Food Science** 2009 ,39 (2):111-117. **IF- 1.5**
190. Mandal SM, **Mandal M**, Ghosh AK, Dey S. Rapid determination of vitamin B2 and B12 in human urine by isocratic liquid chromatography. **Anal Chim Acta.** 2009 Apr 27;640(1-2):110-3. **IF6.558**
191. Mandal S, **Mandal M**, Das A, Pati B, Ghosh A. Stimulation of indoleacetic acid production in a Rhizobium isolate of Vigna mungo by root nodule phenolic acids. **Arch Microbiol.** 2009 Apr;191(4):389-93, **IF- 2.55**
192. Mandal SM, Ghosh AK, **Mandal M\***. Iron oxide nanoparticle assisted purification and mass spectrometry based proteolytic mapping of intact CD4+ T cells from human blood. **Prep Biochem Biotechnol.** 2009;39(1):20-31, **IF- 2.9**
193. Mandal SM, Dey S, **Mandal M\***, Maria-Neto S, Franco OL. Identification and structural insights of three novel antimicrobial peptides isolated from green coconut water. **Peptides.** 2009 Apr;30(4):633-7, **IF- 3.38**
194. Jaganathan SK and **Mandal M\***. Honey constituents and their apoptotic effect in colon cancer cells by Saravana Kumar Jaganathan and Mahitosh Mandal **Journal of ApiProduct and ApiMedical Science**, 1(2): 29 - 36 (2009), **IF- 0.6**.
195. P.Venkatesan P. **Mandal M\***. Role of S100 Proteins in Cancer. **International Journal of Medical Sciences and Technology**, 1(1) 22-47 (2008)
196. **Mandal M**, Myers JN, Lippman SM, Johnson FM, Williams MD, Rayala S, Ohshiro K, Rosenthal DI, Weber RS, Gallick GE, El-Naggar AK. Epithelial to mesenchymal transition in head and neck squamous carcinoma: association of Src activation with E-cadherin down-regulation, vimentin expression, and aggressive tumor features. **Cancer.** 2008 May 1;112(9):2088-100. **IF- 6.86**
197. Dash R, **Mandal M**, Ghosh SK, Kundu SC. Silk sericin protein of tropical tasar silkworm inhibits UVB-induced apoptosis in human skin keratinocytes. **Mol Cell Biochem.** 2008 Apr;311(1-2):111-9. **IF- 3.39**

198. Prichard CN, Kim S, Yazici YD, Doan DD, Jasser SA, Mandal M, Myers JN. Concurrent cetuximab and bevacizumab therapy in a murine orthotopic model of anaplastic thyroid carcinoma (2007). Laryngoscope. 2007;117(4):674-9. **IF-3.23**
199. Kupferman ME, Patel V, Sriuranpong V, Amornphimoltham P, Jasser SA, Mandal M and et al. Molecular analysis of anoikis resistance in oral cavity squamous cell carcinoma.(2007) **Oral Oncol.** 43(5):440-54, **IF-5.33**
200. **Mandal M, Saha S, Ghosh AK, Majumder GC .** Identification and characterization of a sperm motility promoting glycoprotein from buffalo blood serum(2006) **J. of Cellular Physiology , 209( 2 )**; 353 – 362. **IF-6.38**
201. **Mandal M, Younes MN, Jasser SA, El-Naggar AK, Mills GB, Myers JN.** The Akt inhibitor KP3721 inhibits proliferation and induces apoptosis and anoikis in squamous cell carcinoma of the head and neck.( 2006), **Oral Oncology , 42(4)**; 430-9. **IF- 5.33**
202. Kim S, Yazici YD, Barber SE, Jasser SA, Mandal M, Bekele BN, . Myers JN .Growth inhibition of orthotopic anaplastic thyroid carcinoma xenografts in nude mice by PTK787/ZK222584 and CPT-11.**Head Neck.** 2006. , **IF- 3.89**
203. Younes MN, Kim S, Yigitbasi OG, Mandal M, Jasser SA, Dakak Yazici Y, Schiff BA, El-Naggar A, Bekele BN, Mills GB, Myers JN. Integrin-linked kinase is a potential therapeutic target for anaplastic thyroid cancer (2005) **Mol Cancer Ther.** Aug;4(8):1146-56, **IF- 6.26**
204. Younes MN, Yigitbasi OG, Park YW, Kim SJ, Jasser SA, Hawthorne VS, Yazici YD, Mandal M, Bekele BN, Bucana CD, Fidler IJ, Myers JN. Antivascular therapy of human follicular thyroid cancer experimental bone metastasis by blockade of epidermal growth factor receptor and vascular growth factor receptor phosphorylation.(2005) **Cancer Res** 65(11):4716-27. **IF-12.7**
205. **Mandal M, Kim S, Younes MN, Jasser SA, El-Naggar AK, Mills GB, Myers JN.** The Akt inhibitor KP3721 Suppresses Akt Activity and Cell Proliferation and Induces Apoptosis in Thyroid Cancer cells.( 2005), **British Journal of Cancer**,23;92(10):1899-905. **IF- 7.64**
206. Kim S, Schiff BA, Yigitbas OG, Doan D, Jasser SA, Bekele BN, Mandal M, Myers JN: Targeted molecular therapy of anaplastic thyroid carcinoma with AEE788 – a dual specific inhibitor of epidermal growth factor receptor and vascular endothelial growth factor receptor tyrosine kinases (2005) **Molecular Cancer Therapeutics**,4(4): 632-40, **IF-6.26**
207. Kim S, Park YW, Schiff BA, Doan D, Yicizi Y, Jasser SA, Younes MN, Mandal M, Bekele BN, Myers JN: An Orthotopic Model of Anaplastic Thyroid Carcinoma in Athymic Nude Mice; **Clinical Cancer Research** (2005)1;11(5):1713-21. **IF- 12.53**
208. Schiff BA, McMurphy AB, Jasser SA, Younes MN, Doan D, Yigitbasi OG, Kim S, Zhou G, Mandal M, Bekele BN, Holsinger FC, Sherman SI, Yeung SC, El-Naggar AK, Myers JN. Epidermal growth factor receptor (EGFR) is overexpressed in anaplastic thyroid cancer, and the EGFR inhibitor gefitinib inhibits the growth of anaplastic thyroid cancer. **Clin Cancer Res.** 2004 Dec 15;10(24):8594-602. **IF-12.53**
209. Barnes CJ, Bagheri-Yarmand R, Mandal M, Yang Z, Clayman GL, Hong WK, Kumar R. Suppression of Epidermal Growth Factor Receptor, Mitogen-activated protein kinase, and Pak-1 pathways and invasiveness of human cutaneous squamous cancer cells by the tyrosine kinase inhibitor ZD1839 (Iressa) **Mol Cancer Ther** 2003 Apr;2(4):345-51, **IF-6.26**
210. Talukder AH, Mishra SK, Mandal M, Balasenthil S, Mehta S, Sahin AA, Barnes CJ, Kumar R. MTA1 Interacts with MAT1, a Cyclin-dependent Kinase-activating Kinase Complex Ring Finger Factor, and Regulates Estrogen Receptor Transactivation functions, **J Biol Chem.** 2003 Mar 28;278(13):11676-85. **IF- 5.17**
211. Li F, Mandal M, Mishra S, Barnes CJ, Kumar R. Heregulin promotes expression and subcellular redistribution of ADP-ribosylation factor 3. **FEBS Letters** 524(1-3):49-53, 2002. **IF4.12**

212. Li F, Adam L, Vadlamudi R, Zhou H, Sen S, Chernoff J, **Mandal M**, Kumar R. p21-activated kinase 1 interacts and phosphorylates histone H3 in breast cancer cells. *EMBO Report* 3(8):767-773, 2002, **IF- 8.8**
213. Kumar R, Wang RA, Mazumdar A, Talukder AH, **Mandal M**, Yang Z, Bagheri-Yarmand R, Sahin A, Hortobagyi G, Adam L, Barnes CJ, Vadlamudi RK. A naturally occurring MTA1 variant sequesters oestrogen receptor- $\alpha$  in the cytoplasm. *Nature* 418(6898):654-657, 2002, **IF- 49.96**
214. **Mandal M**, Feng L, Kumar R. Heregulin Upregulates Heat Shock Protein-70 Expression in Breast Cancer Cells. *Anti Cancer Research* 2002;22(4):1965-9. **IF- 2.48**
215. Barnes CJ, Li F, **Mandal M**, Yang Z, Sahin A, Kumar R. Heregulin induces expression, ATPase activity, and nuclear localization of G3BP, a Ras signaling component, in human breast tumors. *Cancer Res* 62(5):1251-1255, 2002. **IF-12.7**
216. Feng L, **Mandal M**, Li F, Barnes CJ, Vadlamudi RK, Kumar R. Growth factor regulation of the molecular chaperone calnexin. *Biochem Biophys Res Commun* 289(3):725-732, 2001.(First two author are in equal contribution). **IF- 3.57**
217. Mishra SK, **Mandal M**, Mazumdar A, Kumar R. Dynamic chromatin remodeling on the HER2 promoter in human breast cancer cells. *FEBS Lett* 507(1):88-94, 2001, **IF- 4.12**
218. Bagheri-Yarmand R, **Mandal M**, Talukder AH, Wang RA, Vadlamudi RK, Kung HJ, Kumar R. Etk/Bmx tyrosine kinase activates Pak1 and regulates tumorigenicity of breast cancer cells. *J Biol Chem* 276(31):29403-29409, 2001, **IF-5.15**
219. Mazumdar A, Wang RA, Mishra SK, Adam L, Bagheri-Yarmand R, **Mandal M**, Vadlamudi RK, Kumar R. Transcriptional repression of oestrogen receptor by metastasis-associated protein 1 corepressor. *Nat Cell Biol* 3(1):30-37, 2001. **IF- 28.82**
220. **Mandal M**, Vadlamudi R, Nguyen D, Wang R-A, Costa L, Bagheri-Yarmand R, Mendelsohn J, Kumar R. Growth factors regulate heterogeneous nuclear ribonucleoprotein K expression. *J Biol Chem* 276(13):9699-9704, 2001. **IF-5.15**
221. Talukder A, Jorgensen HF, **Mandal M**, Mishra SK, Vadlamudi R, Clark BFC, Mendelsohn J, Kumar R. Regulation of elongation factor-1  $\alpha$  expression by growth factors and anti-receptor blocking antibodies. *J Biol. Chem* 276(8):5636-5642, 2001, **IF-5.15**
222. **Mandal M**, Olson DJ, Sharma T, Vadlamudi RK, Kumar R. Butyric acid induces apoptosis by up-regulating Bax expression via stimulation of the c-Jun N-terminal kinase/activation protein-1 pathway in human colon cancer cells. *Gastroenterology* 120(1):71-82, 2001, **IF-22.68**
223. Vadlamudi R, Adam L, Wang RA, **Mandal M**, Nguyen D, Sahin A, Chernoff J, Hung M-C, Kumar R. Regulatable expression of p21-activated kinase-1 promotes anchorage-independent growth and abnormal organization of mitotic spindles in human epithelial breast cancer cells. *J Biol Chem* 275(46):36238-36244, 2000. **IF-5.15**
224. Adam L, Vadlamudi R, **Mandal M**, Chernoff J, Kumar R. Regulation of microfilament reorganization and invasiveness of breast cancer cells by kinase dead p21-activated kinase-1. *J Biol Chem* 275(16):12041-1205, 2000. **IF-5.15**
225. Majumder G.C. and **Mandal M.**: Characterization of a novel sperm motility promoting glycoprotein from buffalo blood serum. *Indian Dairyman* 52, 63-67 (2000).
226. Talukder AH, Vadlamudi R, **Mandal M**, Kumar R. Heregulin induces expression, DNA binding activity, and transactivating functions of basic leucine zipper activating transcription factor 4. *Cancer Res* 60(2):276-281, 2000. **IF-12.7**

227. Kumar R, **Mahitosh M**, Vadlamudi R. New in-sights in anti-HER2 receptor mAb research. *Semin Oncol* 27(6 Suppl 11):84-91; discussion 92-100, Review 2000. **IF-4.21**
228. Witters L, Kumar R, **Mandal M**, Bennett FC, Miraglia L, Lipton A. Antisense oligonucleotides to the epidermal growth factor receptor. *Breast Cancer Res Treat* 53(1):41-50, 1999. **IF- 4.86 , .**
229. **Mandal M**, Vadlamudi R Adam L, Steinbach G, Mendelsohn J, Kumar R. Regulation of cyclooxygenase-2 pathway by HER2 receptor. *Oncogene* 18(2):305-14, 1999.( First two authors are in equal contribution). **IF9.867**
230. **Mandal M**, Adam L, Kumar R. Redistribution of activated caspase-3 to the nucleus during butyric acid induce apoptosis. *Biochem Biophys Res Commun* 260(3):775-780, 1999, **IF- 3.57**
231. **Mandal M**, Adam L, Mendelsohn J, Kumar R. Nuclear targeting of Bax during apoptosis in colorectal cancer cells, *Oncogene* 17(8):999-1007, 1998. **IF-9.867**
232. **Mandal M**, Bandyopadhyay D, Adam L, Mendelsohn J, Kumar R. Physical interaction between epidermal growth factor receptor and DNA-protein kinase in mammalian cells. *J Biol Chem* 273(3):1568-1573, 1998.(First two authors are in equal contribution), **IF- 5.15**
233. **Mandal M**, Bandyopadhyay D, Goepfert TM, Kumar R. Interferon-induces expression of cyclin-dependent kinase-inhibitors p21<sup>WAF1</sup> and p27<sup>Kip1</sup> that prevent activation of cyclin-dependent kinase by CDK-activating kinase. *Oncogene* 16(2):217-225, 1998, **IF- 9.867**
234. **Mandal M**, Wu X, Kumar R. Bcl-2 deregulation leads to inhibition of sodium butyrate-induced apoptosis in human colorectal carcinoma cells. *Carcinogenesis* 18(1): 229-232, 1997, **IF- 4.94**
235. **Mandal M**, Kumar R. Bcl-2 modulates telomerase activity. *J Biol Chem* 272(22):14183-14187, 1997, **IF- 5.15**
236. **Mandal M**, Maggirwar SB, Sharma N, Kaufmann SH, Sun S-C, Kumar R. Bcl-2 prevents CD95 (Fas/APO-1)-induced degradation of lamin B and poly(ADP-ribose) polymerase, and restores the NF- $\kappa$  B signaling pathway. *J Biol Chem* 271(48):30354-30359, 1996. **IF- 5.15**
237. Kumar R, **Mandal M**, Lipton A, Harvey H, Thompson CB. Overexpression of HER2 modulates bcl-2, bcl-XL, and tamoxifen induced apoptosis in human MCF-7 breast cancer cells. *Clin Cancer Res* 2(7):1215-1219, 1996. **IF-12.53**
238. Zhu X, Kumar R, **Mandal M**, Sharma NHW, Dingra U, Sokoloski JA, Hsiao R, Narayanan R. Cell cycle-dependent modulation of telomerase activity in tumor cells. *Proc Natl Acad Sci USA* 93(12):6091-6095, 1996. **IF- 10.3,**
239. Kumar R, **Mandal M**, Ratzkin BJ, Liu N, Lipton A. NDF induces expression of a novel 46 kD protein in estrogen receptor positive breast cancer cells. *J Cell Biochem* 62(1):102-112, 1998, **IF- 4.42**
240. **Mandal M**, Kumar R. Bcl-2 overexpression regulates butyrate induced apoptosis in human MCF-7 breast cancer cells. *Cell Growth Differ* 7(3):311-318, 1996. **IF- 4.87,**
241. Majumder GC, **Mandal M**. Blood serum sperm motility regulators. *Mol Androl* 3:99-114, 1992, **IF-0.8,**
242. **Mandal M**, Majumder GC. A glycoprotein factor in buffalo seminal plasma that inhibits sperm forward motility. *Mol Androl* 3:161-175, 1991. **IF- 0.8,**
243. Banerjee S, **Mandal M**, Majumder GC. Antisticking protein factors in buffalo blood serum. *Arch Androl* 25(2):131-136, 1990.

244. **Mandal M**, Banerjee S, Majumder GC. Stimulation of forward motility of goat cauda epididymal spermatozoa by a serum glycoprotein factor. *Biol Reprod* 41(6):981-989, 1989. **IF- 4.28**

## List Of Extramural Projects:

### Ongoing:

1. HAEMOSTATIC MICROCAPSULES. 08-08-2022- 07-08-2024 DAE, India 30.35 lacks. Role- Co PI

2 J C Bose Fellowship from SERB from Oct 2019- Oct 2024: 95lacks

3. LIGHT INDUCED GASOTRANSMITTER DONORS FOR SPATIO-TEMPORAL COMBINATORIAL RELEASE OF GASEOUS MOLECULES FOR BACTERIAL BIOFILM ERADICATION. 9-01-23-8-0126. SERB, New Delhi. 57.46 Lacks. Role - CO- PI

4. TUMOR MICROENVIRONMENT RESPONSIVE SIZE-TUNABLE MULTI-THERAPEUTIC NANOSYSTEMS WITH MULTIMODAL IMAGING CAPABILITY FOR IMPROVED DIAGNOSIS. 15-02-24- 14-2-27. Apex Committee of SPARC,MoE, New Delhi, 47.03 lacks. Role- CO PI

5. TUMOR MICROENVIRONMENT RESPONSIVE SIZE-TUNABLE MULTI-THERAPEUTIC NANOSYSTEMS WITH MULTIMODAL IMAGING CAPABILITY FOR IMPROVED DIAGNOSIS. SERB, New Delhi. 15-02-24- 14-02-27. 45.32 lacks. Role - CO- PI

6. EXPLORING THE COMPLEX INFLUENCE OF TGF BETA-1 ON EMT TRANSITION, ANGIOGENESIS, THERAPY RESISTANCE AND MICROENVIRONMENT IN CERVICAL CANCER. ICMR, New Delhi. 7-02-24- 6-2-27. %^ lacks. Role PI.

7. AI-BASED PERSONALIZED DRUG REPURPOSING USING SINGLE-CELL MULTI-OMICS DATA. IIT KHARAGPUR AI4ICPS I HUB FOUNDATION,IIT KHARAGPUR. 20-02-2024 upto 19-02-2026. 34.43 lacks. Role - CO PI

8. DESIGNING A REVERSE VACINOLOGY APPROACH IN THE CONSTRUCTION OF A MULTI-EPITOPE VACCINE CANDIDATE AGAINST THE BACTERIUM NEISSERIA MENINGITIDES-MEDIATED GLIOBLASTOMA West Bengal, DBT 1-3-24- 28-02-27. 23 lacks. Rople CO PI

9. ARTIFICIAL INTELLIGENCE-ASSISTED GLYCOPOLYMER-BASED MUCOADHESIVE NANOGEL FOR TARGETING CERVICAL TUMOR MICROENVIRONMENT. Apex Committee of SPARC,MoE, New Delhi, 59 lacks. Role- PI

## Completed:

10 DECIPHERING THE ROLE OF HMGB1 IN MODULATING THERAPY-RESISTANCE IN GLIOBLASTOMA VIA METABOLIC ALTERATION , ICMR, New Delhi, India. 2021- 2024. 51.10 lacks , Role PI

11 DESIGN OF A HIGH-THROUGHPUT PREDRUG SCREENING TECHNIQUE FROM DETRIMENTAL PROTEIN INTERACTION NETWORKS AND EXPERIMENTAL VALIDATION ON GLIOBLASTOMA. ICMR, New Delhi, India. 2021- 2024. 20.31 lacks , Role Co-PI

12. ENGINEERED NANO HYDROGEL FOR TARGET SPECIFIC DELIVERY IN SQUAMOUS CELL CARCINOMA. APEX COMMITTEE OF SPARC(,MHRD, NEW DELHI). 2019- 2021. 48.88 lacks , Role PI

13 Design and therapeutic elucidation Of Novel Small Molecule Inhibitor Targeting ETV6-NTRK3 associated gene fusion in glioblastoma. Indian Council of India , New Delhi 2019-2022.: 51.24 lacks Role - PI.

14. Evaluation of Resveratrol loaded nanoparticle on apoptosis in oral cancer stem cells by crosstalking through Hedgehog-Gli and WNT-TCF cascade. Indian Council of India , New Delhi 2019-2022. 27 lacks Role – PI

15 Nano-platform Based Carboplatin Delivery in Retinoblastoma by Modulating Blood-Retinal Barrier. CSIR, India 18.9 lacks 1-9-2019 - 30-5-2022. Role PI .

16. CUSTOMIZED BIOACTIVE POROUS TITANIUM IMPLANTS WITH IMPROVED TISSUE-INTEGRATION AND ATTENUATED ASEPTIC LOOSENING FOR ORTHOPAEDIC APPLICATIONS. DRDO, India. 65.41 lacks. 24-04-2019- 23-04-2022. Role CO PI

17. PHOTORESPONSIVE NANOCONJUGATES FOR EFFICIENT COMBINATION CHEMOTHERAPY : SEQUENTIAL AND COCKTAIL APPROACHES. SERB, India. 46.2 lacks. 12-10-2018- 11-10- 2021 . Role Co- PI

19. SYNTHESIS, SOLUTION PROPERTIES AND IN VITRO EVALUATION OF STIMULI-RESPONSIVE POLYMER-BASED PRODRUG SYSTEM. SERB. ,India.38.99 lacks. 15-03-2018- 14-03-2021. Role- Co PI.

19. COMBINING METFORMIN AND METRONOMIC LIPOSOMAL CHEMOTHERAPEUTIC FORMULATION FOR EFFECTIVE MANAGEMENT OF MULTIPLE CANCERS. SERB. India. 19.2 lacks. 18-04-2017- 17-04-2018. Role PI

20. PILOT SCALE STUDY ON LOCAL INHABITANTS REDUCTION OF FEAR TO AAI PROGRAMME AS PER DEMAND OF LOCAL ADMINISTRATION. Airport Authority of India. 39.98 lacks . 12-08-2016- 11-08-2019. Role PI



21. DEALING WITH THE CANCER OF CERVIX: ENHANCING THE EFFICACY OF IONIZING RADIATION WITH GOLD NANOPARTICLE: Department of Atomic Energy, Bombay, India. 33.14 lacks . 15-7-2015 - 31-03-2019. Role PI
  
- 22 ENGINEERED SILK MATRICES FOR OPTIMIZATION OF IN VITRO 3 D TUMOUR MODEL: Indian Council of Medical Research, New Delhi, India. 49.31 lacks. Ongoing 1-1-2014- to 30-6-2018 , Role PI
  
23. Unraveling Cancer Transformation and Progression through Biological, Electro-Mechanical and Computational Techniques: MHRD, New Delhi, India, 38 lacks.15-4-2014 to 14-4-2017. **Role - PI**
  
- 24..Natural Silk Protein Based Modification Of Orthopedic Implant To Improve Osteogenesis And Osseointegration; Dept of Biotechnology, New Delhi, India. 49.38 lacks. 18-12-2014 to 17-12-2017, **Role PI**
  
25. Delivery of Drugs and cells to the cornea using silk protein A novel therapeutic approach.Dept of Biotechnology, New Delhi, India, 21.74 lacks, 29-12-2014-28-12-2017. **Role : PI**
  
26. EVALUATION OF S100A7 (PSORIASIN) AS AN EARLY DETECTION MARKER OF CELL CARCINOMA. Department of Science and Technology, New Delhi, India. 34.82 lacks. 1-11-2009 to 30-04-2012
  
27. ENHANCED PRODUCTION, PURIFICATION AND CHARACTERIZATION OF MARINE BACTERIAL LIPOPEPTIDE AS POTENTIAL BROAD-SPECTRUM ANTIMICROBIAL AND ANTICANCER AGENT FOR BREAST CANCER THERAPY. Ministry of Earth Science, New Delhi, India 10036800.00.lacks. 9-8-2010 to 31-12-2013.
  
28. SEQUENCE DEPENDENT MOLECULAR ACTION OF ZD6474 WITH PACLITAXEL AND RADIATION IN PROGRESSION AND TREATMENT OF BREAST CANCER. Department of Biotechnology, New Delhi, India.31.5 lacks. 28-03-2011 to 31-12-2014
  
29. DETERMINING THE MECHANISMS OF S100A7 (PSORIASIN) IN MEDIATING ANOIKIS RESISTANCE AND TUMOR PROGRESSION IN SQUAMOUS CELL CARCINOMA OF THE ORAL CAVITY. MDRD, New Delhi, India. 27-04-2007 to 30-04-2007
  
30. STUDY OF EXTRACELLULAR FIBRILLAR BIOPOLYMERS NATURAL SILK FIBRES SILK PROTEIN SCAFFOLDS AND PROTEOGLYCAN FIBRIL OF BOTH MUCUS AND EXTRACELLULAR MATRIX TISSUE. DST, New Delhi, India. 15.25 lacks 1-08-2009 to 31-08-2011. Role CO PI
  
31. INDIAN ORIGIN SILK BASED BIOMIMETIC SCAFFOLDS FOR ENGINEERING OF LOAD BEARING TISSUE. DBT, New Delhi, India.34.13 lacks. 1-04-2011 to 16-09-2014. Role CO- PI

32. DEVELOPMENT OF DENSE AND POROUS TITANIUM COMPONENTS VIA POWDER METALLURGY ROUTE FOR BIOMEDICAL APPLICATIONS. DRDO, India. 19-03-2012 to 18-03-2015. 67.23 lacks. Role CO PI

33. INVOLVEMENT OF FUNCTIONAL SINGLE NUCLEOTIDE POLYMORPHISMS (SNP) OF MATRIX METALLOPROTEINASE (MMP) GENE PROMOTERS IN THE CELL TYPE SPECIFIC REGULATION OF HUMAN MMPS: INTRINSIC GENETIC CHARACTERISTICS IN CANCER CELL PROGRESSION. DBT, New Delhi, India. 05-03-2013 to 06-09-2016. 52.57 lacks. Role PI

**Teaching:**

Medical Biotechnology,

Human Physiology and Anatomy,

Cancer Biology,

Immuno technology,

Biology of Living System

**Awards:**

JC Bose Fellow:

Fellow: The Indian National Science Academy ( FNA),

Fellow: Indian Academy of Sciences ( FNSc),

Fellow: The National Academy of Sciences, India ( FNASc),

Fellow: West Bengal Science Academy . ( FNAScT)

Basanti Devi Amir Chand Award by ICMR, New Delhi 2018

Prof S S Katiyar Endowment Award by Indian Science Congress.

Subha Mukherjee Memorial Award by Physiological Society of India.

National Scholarship from Govt of West Bengal

### **Service rendered to Other Institutions and Organizations.**

1. Visiting Faculty, VCU (Virginia Commonwealth University), Richmond, USA
2. EC Member of Indian Association of Cancer Research.
3. Member of Board of Studies : Vidyasagar University, Barasat University, Jhargram University, Physiology Department, Midnapore College.
4. Member of NAAC (National Assessment and Accreditation Council)
5. Sectional Committee Member of West Bengal Science Academy ( WAST)
6. Life Member Indian Physiological Society of India.
7. Associate Member of American Cancer Society, USA.
8. Member Indian Science Congress.
9. Editorial Board Member - Scientific Report.
10. Editorial Board Member of Journal of Biological Engineering.
11. Reviewer of so many journals like: Oncogene, Cancer Letters, BBRC, BBA, Molecular Cancer Therapy, Cancer Research, Nanomedicine, etc.
12. Ph D Thesis evaluation of Different Institute like IIT Delhi, IIT Madras, Delhi University, KIIT, etc
13. Grant evaluations: SERB, DST, DBT, ICMR, etc

### **Institute Administrative Activities**

- 1 Associate Dean, BTBS from August 2023
2. Examination-in-Charge Departmental Examination time Table Incharge 01-03-2010 31-12-2020 10 years 10 mons
- 3.Others Departmental Time Table Incharge 01-03-2010 31-12-2020 10 years 10 mons
- 4.Others Course Co-Ordinator of Molecular Medical Microbiology ( M Sc Course with Tata Medical Center) 01-05-2018 03-05-2021 3 years 3 days
5. Others MEMBER, PURCHASE COMMITTEE, School of Medical Science and Technology 08-09-2016 13-09-2019 3 years 6 days
- 5 Others MEMBER, DEPARTMENTAL ACADEMIC COMMITTEE(PG & R), School of Medical Science and Technology 08-09-2016 13-09-2019 3 years 6 days

7 Others MEMBER, DEPARTMENTAL ADMINISTRATIVE COMMITTEE, School of Medical Science and Technology 08-09-2016 13-09-2019 3 years 6 days

8.Others LABORATORY INCHARGE(CANCER BIOLOGY), School of Medical Science and Technology 27-04-2006 31-12-2027 21 years 8 mons 4 days

9. Others PG TABULATOR, School of Medical Science and Technology 27-07-2016 30-04-2022 5 years 9 mons 5 days

**(c) Highlights of contributions to the area of specialization**

Cancer is leading cause of mortality worldwide and we are yet to find a cure for the malady. Goal of our lab is to exploit strategic weakness of signalling networks in cancer and identify novel therapeutic targets. We have been engaged in extensive research focusing various aspect of cancer biology, both basic and applied, and are ever expanding our horizons, the main areas of interest being cancer therapeutics, drug delivery, therapeutic resistance and diagnostics. The team is a heterogeneous group working in concert with members having knowledge in cell and molecular biology, microbiology, bioinformatics, pharmacy, biochemistry, biotechnology and chemoinformatics; constantly exploring new chemotherapeutic agents from both natural and synthetic sources and of late has diversified to promising adjuvant therapies like cancer immunotherapy, photothermal therapy etc. In the field of Drug delivery systems, we developed several targeted delivery systems like liposomes, exosomes and a variety of nanoparticels. In an attempt to redesign these nano-carriers for homing at cancer targets, we are evaluating several possible biomarkers and their efficacy in targeted therapy. Despite rapid advancement in strategies, therapeutic resistance is the major hindrance in cancer treatment. We are trying to decipher the molecular mechanisms promoting radio and chemo resistance in cancer. In this regard, we are exploring novel avenues like cancer stem cells, autophagy and epigenetics to disrupt the regulatory mechanisms promoting resistance. To fulfil the objectives of our research those are the few projects we will focus in our laboratory for next five years.

**a) The anti-cancer potentiality of Different Natural bioactive compounds in cancers (project funded by DBT, DST, Govt of India):** Honey has been used since long time both in medical and domestic needs, but only recently the antioxidant property of it came to limelight. Honey possesses anti-inflammatory, antioxidant and antitumor properties and we have shown that honey as a potential chemotherapeutic agent against colon cancer (Invest New Drugs. 2010 ,J Biomed Biotechnol. 2009;). Coadministration of thymoquinone ( TQ) and TAM resulting in a substantial increase in breast cancer cell apoptosis and marked inhibition of cell growth both in vitro and in vivo. Anti-angiogenic and anti-invasive potential of TQ and TAM was assessed through in vitro studies. This novel combinatorial regimen leads to regulation of multiple cell signaling targets including inactivation of Akt and XIAP degradation (PLoS One. 2013). Effect of Akt inhibition by TQ is proven by translational repression through deregulated phosphorylation of 4E-BP1, eIF4E, S6R and p70S6K. Our observations for the first time may provide a new insight for the development of novel therapies for Akt overexpressed breast cancer by TQ (Life Sci. 2013). Therapeutic implication of 'Iturin A' for targeting MD-2/TLR4 complex to overcome angiogenesis and invasion, Oxidative stress triggered by naturally occurring flavone apigenin results in senescence and chemotherapeutic effect in human colorectal cancer cells ( Redox Biology 2015). Developing new classes of anticancer molecules has always been a major scientific challenge owing to multidrug resistance of cancer cells to conventional chemotherapeutic agents. Microbial amphiphiles, particularly lipopeptides and

glycolipids, have recently emerged as potential new-generation anticancer agents, owing to low toxicity, high efficacy and easy biodegradability. Marine lipopeptide Iturin A inhibits Akt mediated GSK3 $\beta$  and FoxO3a signaling and triggers apoptosis in breast cancer.( Drug Discovery Today 2015, Scientific Report 2015, Cell Signaling 2017).

**b) Study the anti-cancer potentiality of Different synthetic compounds and existing drugs in different cancers (project funded by DBT, DST, BRNS Govt of India)** ZD6474 a dual kinase inhibitor has potential for the targeted therapy of breast cancer. Collectively, our studies indicate that incorporating an anti-EGFR plus VEGFR strategy (ZD6474) with chemotherapy (paclitaxel), where clinical studies of dose-intensive paclitaxel therapy are currently in progress, may be more effective in treating patients with locally advanced or metastatic breast cancer than either approach alone. our studies also indicate that incorporating an anti-EGFR plus VEGFR strategy (ZD6474) with phototherapy (UV-B), an alternative approach to the ongoing conventional radiotherapy for the treatment of infiltrating metastatic breast cancer cells in the skin and for locally recurrence breast cancer than either approach alone (Mol Cancer. 2013, J Cell Physiol. 2011, Cancer Biol Ther. 2010) . BI-69A11 a novel AKT inhibitor enhances the antitumour efficacy of Ad.5/3-mda-7 on Colorectal Cancer (CRC) overexpressing K-RAS by inducing apoptosis and regulating Akt activity thereby warranting further evaluation in treating CRC ( BJC-2014). We also generated a novel combination therapy by pretreatment with CQ that inhibited the autophagy and accelerated the apoptotic potential of BI-69A11. In summary; our findings suggest that induction of autophagy lead to the resistance of colon cancer towards BI-69A11 mediated apoptosis Eur J Pharmacol. 2015). This present study demonstrates GW627368X, a highly selective competitive EP4 antagonist, which hinders cervical cancer progression by inhibiting EP4/epithelial growth factor receptor (EGFR) interactive signaling. GW627368X reduced protein kinase A (PKA) phosphorylation which in turn leads to decreased cAMP response element-binding protein (CREB) activation. Decreased PKA phosphorylation also directly enhanced Bax activity and in part reduced glycogen synthase kinase 3 (GSK3) $\beta$  phosphorylation( Cell Death and Diseases- 2016)

**c) Preparation of different types of drug conjugated nanoparticle for targeted drug delivery and study its anti-cancer activity as well as anti-angiogenesis potentiality (project funded by DBT, DST, BRNS Govt of India).** The effects of celecoxib-loaded nanoparticles on colon cancer cell proliferation, morphology, cytoskeleton, cellular uptake and apoptosis were analysed in vitro. Additional in vivo studies demonstrated significantly greater inhibition of tumor growth following treatment with this modified nanoparticle system. The present study indicates a promising, effective and safe means of using celecoxib, and potentially other therapeutic agents for colon cancer therapy (Biomaterials. 2011). 3D in vitro model systems that are able to mimic the in vivo microenvironment are now highly sought after in cancer research. Fibroin scaffold can provide an easily manipulated microenvironment system to investigate individual factors such as growth factors and signaling peptides, as well as evaluation of anticancer drugs (Biomaterials. 2011 ). Tamoxifen administration enhanced overall disease-free survival and diminished mortality rates in cancer patients. However, patients with breast cancer often fail to respond for tamoxifen therapy due to the development of a drug-resistant phenotype. In this study, we fabricate a mesoporous silica gold cluster nanodrug delivery system that displays exceptional tumor-targeting capability, thus promoting accretion of drug indices at the tumor site..Overall, results with these silica gold nanoclusters suggest that they may be a potent nanoformulation against chemoresistant cancers (Mol Pharm. 2018). The promising safety, targeting, and therapeutic results of systemic delivery of ZD6474 by AuNM provide an attractive alternative method for treating patients with metastatic breast cancer which we published in Langmuir. 2017. Reduction responsive nanorod embedded micelle containing folic acid and lipoic acid when treated on cervical cancer cells or tumour bearing mice, aggregate in and around cancer cells. Due to high glutathione concentration, micelles degrade releasing drug which binds surface receptors inducing

apoptosis. When incident with 808nm cwNIR lasers, gold nanorods bring about photothermal effect leading to hyperthermic cell death by necroptosis. Combination of the two modalities enhances therapeutic efficacy by inducing both forms of cell death. Our proposed treatment strategy achieves photothermal therapy and targeted drug delivery simultaneously. It can prove useful in overcoming general toxicities associated with chemotherapeutics and intrinsic/acquired resistance to chemo and radiotherapy ( BBA 2017).

**e) Pro-survival autophagy and cancer cell resistance to therapy<sup>9</sup> project funded by DBT, DST, BRNS Govt of India):** Resistance to therapy is one of the prime causes for treatment failure in cancer and recurrent disease. In recent years, autophagy has emerged as an important cell survival mechanism in response to different stress conditions that are associated with cancer treatment and aging. A better understanding of the interplay of cancer therapy and autophagy may allow to unveil new targets and avenues for an improved treatment of therapy-resistant tumors in the foreseeable future (Cancer Metastasis Rev. 2018 ). Target-specific treatment modalities are currently not available for triple-negative breast cancer (TNBC), and acquired chemotherapy resistance is a primary obstacle for the treatment of these tumors. BAG3 Overexpression and Cytoprotective Autophagy Mediate Apoptosis Resistance in Chemoresistant Breast Cancer Cells (Neoplasia. 2018). Although there is a strong correlation between multinucleated cells (MNCs) and cancer chemo-resistance in variety of cancers, our understanding of how multinucleated cells modulate the tumor micro-environment is limited. We captured multinucleated cells from triple-negative chemo-resistant breast cancers cells in a time frame, where they do not proliferate but rather significantly regulate their micro-environment. We show that oxidatively stressed MNCs induce chemo-resistance in vitro and in vivo by secreting VEGF and MIF. These factors act through the RAS/MAPK pathway to induce chemo-resistance by upregulating anti-apoptotic proteins. In MNCs, elevated reactive oxygen species (ROS) stabilizes HIF-1 $\alpha$  contributing to increase production of VEGF and MIF. Together the data indicate, that the ROS-HIF-1 $\alpha$  signaling axis is very crucial in regulation of chemo-resistance by MNCs. Targeting ROS-HIF-1 $\alpha$  in future may help to abrogate drug resistance in breast cancer (Oncogene. 2018). We also hypothesize that analysis of growth rate, death resistance and cellular energy, through bioimpedance based analysis can be used to determine and compare aggressiveness of multiple cancer cell lines. This further opens avenues for extrapolation of present work to human tumor tissue samples (Sci Rep. 2018).

**f) A snapshot of IL-6 mediated involvement in cancer Development (project funded by DBT, DST, BRNS Govt of India):** Interleukin-6 (IL-6) is a cytokine present in tumor microenvironment. Elevated level of IL-6 is associated with cancer cell proliferation, angiogenesis and metastasis through fueling STAT3, MAPK and Akt signaling( Cancer Letters 2016). Selective targeting to the tumor niche remains a major challenge in successful cancer therapy. Somatostatin receptor 2 (SSTR2) is overexpressed in breast cancer cells thus making this receptor an attractive target for selective guidance of ligand-conjugated drug liposomes to the tumor site. In this study, a synthetic somatostatin analogue (SST) was used as SSTR2 targeting agent and Diacerein was employed as therapeutic molecule. In vivo pharmacokinetic studies in rats showed enhanced circulation time in the DNL or SST-DNL treated groups as compared to free DN. Considering all of these findings, we conclude that SST-DNL provides a novel strategy with better efficacy for breast cancer therapy ( Cancer Letters 2017). Interleukin-6 (IL-6) signaling network has been implicated in oncogenic transformations making it attractive target for the discovery of novel cancer therapeutics. We have investigated the potent antiproliferative and apoptotic effect of diacerein against breast cancer. The in vivo antitumor effect was correlated with decreased proliferation (Ki-67), increased apoptosis (TUNEL) and inhibition of IL-6/IL-6R-mediated STAT3, MAPK and Akt pathway in tumor remnants. Taken together, diacerein offered a novel blueprint for cancer therapy by hampering IL-6/IL-6R/STAT3/MAPK/Akt network ( Oncogene 2016). Selective targeting to the tumor niche remains a major challenge in successful cancer therapy. Somatostatin receptor 2 (SSTR2) is overexpressed in breast cancer

cells thus making this receptor an attractive target for selective guidance of ligand-conjugated drug liposomes to the tumor site. In this study, a synthetic somatostatin analogue (SST) was used as SSTR2 targeting agent and Diacerein was employed as therapeutic molecule. Diacerein loaded liposomes (DNL) were prepared and they were further decorated with the synthetic and stable analogue of somatostatin (SST-DNL). In vivo pharmacokinetic studies in rats showed enhanced circulation time in the DNL or SST-DNL treated groups as compared to free DN. Considering all of these findings, we conclude that SST-DNL provides a novel strategy with better efficacy for breast cancer therapy (Cancer Letters- 2017). Monoamine oxidases (MAO) are mitochondrial enzymes functioning in oxidative metabolism of monoamines. The action of MAO-A has been typically described in neuro-pharmacological domains. Here, we have established a co-relation between IL-6/IL-6R and MAO-A and their regulation in hypoxia induced invasion/angiogenesis. ( BJC 2018).

#### 10. \* **Number of Books authored/edited:**

1. Chandan Kanta Das, Ranabir Majumder, Pritam Roy, and **Mahitosh Mandal**. The Intricacy of ROS in Cancer Therapy Resistance. Page 1220-1235. Springer Nature Singapore . 2022

2 Y.Rajesh, Utkarsh Kumar and Mahitosh Mandal. Therapeutic aspects of heat shock proteins in glioma: Cementing the crevasses between bench and bedside. Springer Nature Heat Shock Proteins in Neuroscience, (2019).

3. Y Rajesh, M Mandal. Regulation of extracellular matrix remodeling and epithelial-mesenchymal transition by matrix metalloproteinases: decisive candidates in tumor progression.( 2017) Proteases in Physiology and Pathology, 159-194. Springer, Singapore

4. K. Banerjee K , Banerjee S, **Mandal M**. Book entitled: Biological and Pharmaceutical Applications of Nanomaterials. Liposomes as a drug delivery system. Edited by P. Prokopovich. CRC Press. 2015

5 Parida S and **Mandal M**. Anti-Angiogenesis Drug Discovery and Development Mechanism of Controlling Blood Vessel Growth and Development and Identification of Therapeutics Against Pathological Angiogenesis, Vol-2 page 3-62, 2014. Bentham Science Publishers

6. Kumar S and **Mandal M**, Anti cancer Activity of Honey and its Phenolic components, 2011. Published by Nova Science Publishers Inc, New York, USA

7. Sarkar S and **Mandal M**, Breast Cancer: Classification Based on Molecular Etiology Influencing Prognosis and Prediction Page-69-84, 2011 "Breast Cancer - Focusing Tumor Microenvironment, Stem cells and Metastasis, ISBN 978-953-307-766-6, edited by Mehmet Gunduz and Esra Gunduz & published by InTech publishers.

8 .Majumder GC, ....., **Mandal M and et al** , Biochemical role of cell surface molecules in the regulation of sperm flagellar movement. Endocrinology and Male Reproductive Biology to be published by PHI Learning Private Limited, Connaught Circus, New Delhi, 2010.

9 Majumder G.C., **Mandal M**. and Banerjee S.: A Novel Sperm Motility-promoting Protein from Blood Serum and Its Applied Potential. In *Recent Advances in Animal Science Research* (Eds. SK Ghosal & D Ray), Orion Press International, Chandernagore, West Bengal, Vol. I, pp. 61-67

(2001).

10. Majumder GC, Roy N, **Mandal M**, Banerjee S. Anti-sticking factors and regulators of sperm motility. Proceedings of the International Conference on "Frontiers in Reproductive Physiology", Wiley Publishers, 193-210, 1992.

11. \* **Number of Patents/ Copy rights/Trade Mark/IPR granted/applied for & highlights of translation research contributions: Annexure V**

In India

a) A process for the purification of a new motility-promoting protein from buffalo serum: A slaughter house waste by G.C. Majumder, M. Mandal and S. Banerjee. Patent No 185383; Issue Date: August 3, 2001; Filing Date: March 17, 1997.

b) Anti Bacterial Hydrogel Composition and Application Thereof : Filed (Ref : 708/KOL/2013 )

c) System for cyto-reduction of circulating cancer cells from blood and a method thereof: P. Chhatrala, S Paridha and M Mandal, 686/KOL/2015

In USA

A process for the purification of a new motility-promoting protein from buffalo serum: A slaughterhouse waste by G.C. Majumder, M. Mandal and S. Banerjee. US Patent No 6613737; Issue Date: September 2, 2003; Filing Date: March 10, 1998.

In Japan

A process for the purification of a new motility-promoting protein from buffalo serum: A slaughterhouse waste by G.C. Majumder, M. Mandal and S. Banerjee. Japan Patent No 3251545; Issue Date: November 16, 2001; Filing Date: March 6, 1998.

12. **Dissertations supervised:**

**(a) List of PhD Students ( Completed )**

1.. Saravana Kumar Jaganathan: Title of Thesis Characterization of Indian honey and its anticancer activity against colon cancer. Roll No 06MM9402. Year Awarded : 2010

2. Siddik Sarkar: Title : The Molecular Effect of ZD6474, a Dual Tyrosine Kinase Inhibitor of Epidermal Growth Factor Receptor and Vascular Endothelial Growth Factor Receptor on Breast Cancer Progression and Treatment: Roll No- 07MM9701. Year Awarded : August 2011



3. Joydip kundu: Title: Silk fibroin and sericin protein based matrices for tissue engineering and drug delivery. Roll No- 06BT9710 Year Awarded : 2011
4. Venkatesan perumal: Title of Thesis: Nanocarrier (Liposome/Nanoparticle) Mediated Drug (Celecoxib ) Delivery in Colon Cancer. Roll No: 07MM9401. Year Awarded: 2011
5. Sankar ramachandran: Purification and characterization of azurin from *Pseudomonas aeruginosa* MTCC 2453 and its effects in breast carcinoma . Roll No- 07MM9602. Year Awarded : 2011
6. Swatilekha Maity. Title: A bioactive reactive protein fraction from Edible Mushroom *Pleurotus Ostreatus* ( Jacq.) P. Kumr. and its efficacy in cancer Therapy. Roll No- 08MM9701 Year Awarded: 2011
7. Shashi Rajput. Title: Elucidating the Molecular Mechanism of Thymoquinone, a dietary Phytochemicals, for Breast Cancer Treatment. Roll No: 09MM9704; Year Awarded : 2014
8. Bhusetty Nagesh Prashanth Kumar. Title: Targeting Vascular Endothelial Growth Factor Signaling Augments tamoxifen Therapy and Overcomes Its Resistance in Breast cancer. Roll No- 10MM9704; Year Awarded 2015
9. Ipsita Pal. Title: BI-69A11, A Novel Akt Inhibitor, Exerts Anti-tumor Effects In Colon Carcinoma By Modulating Akt and Its Downstream Signaling To Potentiate Current Therapeutic Efficacy Roll No- 10MM90F02. Year Awarded 2015
10. Kacoli Banerjee. Title: APIGENIN AND ITS NANO-LIPOSOMAL FORMULATION FOR COLORECTAL CANCER AND BACTERIAL CHEMOTHERAPY . Roll No- 10MM90F03 Year Awarded 2015
11. Kaushik Kumar Dey. Title : Proteomics Based Identification of Early Detection Biomarker and Oncogenic Role of S 100A7 in Oral Cancer. Roll No- 10MM90P01 Year Awarded 2016
12. Sheetal Parida Title: Combining EP4 Prostanoid Receptor Inhibition with Photothermal Therapy for Effective Treatment of Cervical cancer. Roll No- 11MM91F01. Year Awarded 2017
13. Goutam Dey: Title: Therapeutic Potential and Pre-clinical Risk Assessment of Bacterial Lipopeptide 'Iturin A' in Breast Cancer. Roll No- 10MM90P04. Year Awarded 2017
14. Deboki Naskar. Title: Non- Mulberry Silk Fibroin Based Biomaterials for Load Bearing Tissue Regeneration. Roll No- 12BT91P01. Year Awarded 2018
15. Rashmi Bharti: Title: Therapeutic Implication of IL-6/ IL-6 Receptor Targeting Agents Diacerin in Breast carcinoma. Roll No- 11MM92F04. Year Awarded 2018
16. Aditya Parekh. Title: Deciphering the role of Multinucleated cells in Breast cancer Chemo-resistance Roll No- 11MM92P02. Year Awarded 2018
17. Y Rajesh . Title: Molecular Targeting of Heat Shock Proteins and Matrix Metalloproteinases For Glioblastoma Therapeutics. Roll No- 13MM91F01. Year Awarded 2019

18. Chandan Kanta Das . Title: pro-survival autophagy regulates breast cancer chemoresistance". Roll No- 13MM91F02. Year Awarded 2019

19. Payel Banik: Title of thesis: MATRIX METALLOPROTEINASE 3 MODULATES ACQUIRED RADIORESISTANCE IN BREAST CANCER. Roll No- 13MM91P04. Year of Award 2022.

20. Subhayan Das . Title: Deciphering the Molecular Mechanisms of Chemoresistance in Breast Cancer. Roll No- 14MM91 R09. Year of Award -2022

21. Bikash Chandra Jean. Title- Modulation of Tumor Microenvironment during Chemoresistance for Breast Cancer Progression. Roll No- 14MM92F01. Year of Award 2022

22. Angana Biswas. Title - Elucidation of RBPJ kappa transcription factor mediated regulation of ETV6 gene: ETV6-NTRK3 fusion gene modeling and Inhibition in glioblastoma. Roll No- 15MM91R03. Year of Award 2022

23. Deblina Bharadwaj . Title-Role of polyploid giant cells in the modulation of tumor microenvironment in breast cancer. Roll No-15MM91R02. Year of Award 2022

24. Moumita Kundu . Title-Revealing the Potential of Magnolol in glioma: a natural anti glioma agent from Magnolia.. Roll No-16MM92R03. Year of Award 2022

25. Ranabir Majumder. Title\_ Anti Cancer Activity of Alovera Leaves Extract against human breast cancer: A computational and Experimental Approach. Roll No- 17MM91R07. Year of Award -2024

**On Going Ph Student ( 10).**1 .Pritam Roy. 2. Sherya Banerjee 3. Madhurima Mandal 4 Ankita Dey 5. P Kola 6.Suvendu Nandi. 7.. Sucharita Patra 8 . Deepak K .9.. Priya Ghosh. 10. Debojit Maity 11. Asmita Das

**(b) Post-Graduation: Master Students Supervision: total No- 20 completed**