Tumor Biology Laboratory
Dr. Mandal’s Research Group
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Cancer and Bone Metastasis

- Osteoclastogenic factors like TRAP are inhibited in presence of cholesterol lowering drug.
- Osteolytic markers TRAP, Cathepsin K, sPAC1 are inhibited in presence of cholesterol lowering drug.
- Inhibition of these osteoclastogenic factors inhibits the progression breast cancer mediated bone metastasis under the effect of cholesterol lowering drug.

**Objective:** Finding the underlying molecular mechanism for cholesterol-induced cancer growth and Metastasis

**Relevant Publications**


Cancer and Calcification

- Alizarin Red staining reveals microlcalification in malignant breast tumor samples.
- DHA inhibits microlcalcification in breast cancer cells.

**Objective:** Investigating the molecular mechanism involved in breast cancer microlcalcification and its prevention strategy

**Relevant Publications**

Sharma T, Sharma A, Mahendrani R, Pacchioni G and Mandal CC, Docosahexaenoic acid inhibits elevated osteocalcin potential of metastatic breast cancer cells responsible for microlcalcification; (Sharma T et al., 2016, Nutrition and Cancer).

Cold Environment and Cancer

**Objective:**
Our study indicates that there is a tie between cold environment, cholesterol and cancer death.
Cold environment may promote cancer mortality and/or incidence, presumably by increasing cellular cholesterol level.

**Relevant Publications**


Sharma A, Wurth HK, Ioshif S, Pandey RS, and Mandal CC, A link between cold environment and cancer (2015), Tumor Biology, 16:88:5953-64

DNA Methylation and Mutation Prone Zone

**Objective:**
Amino acids which have CG nucleotides in their codons are the most mutable residues. Presence of a consensus motif "(T/D)/CGG/TG" along with CG might be a signature in the mutation prone zones.
Cancer genome becomes nitrogen deficient after mutations, presumably due to less nitrogen supply to proliferative cells.

**Relevant Publications**

Natural Extracts and Cancer

**Coloniy Formation**

**Objective:**
Identification of bioactive secondary metabolite (S) responsible for prevention of cancer metastasis

**Relevant Publications**

**Spermed Formation**

**Objective:**
Relationship between Cancer, Bone and adipocyte cells

**Adipocyte**

**Bone cells**

**Cancer cells**

Research group