



MC 210/RD 206 Jan 2.0

Molecular Oncology

Instructor

Dr. Kumar Somasundaram/Dr. Annapoorni Rangarajan

Email: skumar1@iisc.ac.in; anu@iisc.ac.in

Teaching Assistant

Preeti Yadav

Email: preeti90@mbl.iisc.ernet.in

Department: Microbiology and Cell Biology; Molecular Reproduction, Development and Genetics

Course Time: 2.30 to 3.30 pm

Lecture venue: Lecture Hall, MRDG

Detailed Course Page: <http://mbl.iisc.ac.in/KumarS/OncologyCourse.html>

Announcements

The first meeting with an introductory class of this course will be held on 8th January 2018 at 2.30 pm in the First floor MRDG lecture hall of New Biology building.

Brief description of the course

This is a concise course covering various aspects of Cancer Biology.

Prerequisites

Basic understanding of various biological process and exposure to genetics, cell biology, immunology and molecular biology

Syllabus

The syllabus of the course is as follows:

Immortalization, transformation, metastasis; Genetic instability: mutation, deletion, insertion, aneuploidy, chromosome translocation and Gene amplification; Cell cycle and cancer: cell cycle checkpoints, G1/S checkpoint, G2/M checkpoint, cyclins and cyclin dependent kinases, CDK inhibitors - p16, p21 and p27; Oncogenes: growth factors, growth factor receptors, G protein/signal transduction, tyrosine and serine/ - threonine kinases and transcription factors; Tumor suppressor genes: p53, RB, BRCA1, BRCA2, APC and WT1; Mismatch repair, Telomerase, DNA methylation, Protein phosphorylation/dephosphorylation and

degradation events; Transformation by RNA and DNA tumor viruses: Adenovirus, Simian Virus 40 and Human papilloma virus, Oncogene-tumor suppressor interactions; Apoptosis and cancer, Cancer gene therapy.

Course outcomes

The student will have a better understanding of mechanism behind cancer development and progression, cancer diagnosis and treatment, genetic and epigenetic basis of cancer development

Grading policy

50%- mid term examination

50%- final examination

Assignments

None

Resources

there is prescribed book. we encourage students to read many recent review and specific published articles.