Optional Course

LS 564— MOLECULAR CANCER BIOLOGY [2 credits]

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S No	Topic	Faculty	Contact Hours
1.	Cancer incidence and mortality; origin of neoplastic cells; cancer as cellular disease; tumor cell growth kinetics	ABT, NM	3
2.	Oncogenes and tumor suppressor genes	RPS, NM	4
3.	Environmental carcinogens; carcinogen metabolism	ABT	2
4.	Chemical carcinogenesis; initiation, promotion and progression	ABT	3
5.	Mechanism of ultraviolet radiation carcinogenesis (melanoma and non-melanoma skin cancer)	RPS	2
6.	Animal models of cancer research; athymic nude mice model; syngeneic mouse model, transgenic mouse model etc.	RPS, ABT	3
7.	Heredity and cancer; genetic basis of carcinogenesis (e.g. APC mutation and colon cancer)	NM	2
8.	Viral carcinogenesis mechanism	NM	2
9.	Immunological aspects of cancer; leukemia	RPS, ABT	2
10.	Deregulated cell cycle progression in cancer	RPS, NM	3
11.	Aberrant cell signaling in cancer	NM	3
12.	Antiapoptotic mechanisms for the survival of cancer cells	RPS, NM, ABT	3
13.	Tumor angiogenesis and its molecular mechanisms	RPS	2
14.	Mechanisms of cancer invasion and metastasis	RPS, NM	3
15.	Cancer therapeutics: surgery, radiation and chemotherapy	RPS, ABT	3
16.	Chemoprevention of cancer	RPS, ABT	2

Suggested reading:

1. Molecular Biology of Cancer by F. Macdonald, C.H.J. Ford, and A.G. Casson; Garland Science / Bios Scientific Publishers
2. Molecular Biology of Human Cancers by Wolfgang Arthur Schulz Springer