

SEMESTER II
LSM3235 EPIGENETICS IN HUMAN HEALTH AND DISEASES

Prerequisite: LSM2232

Workload: 24 lecture hours + 12 tutorial hours + 14 SDL/CA hours

Course description:

This module introduces the concept of epigenetics, the relationship between the genome and the epigenome, and the translational aspects of epigenetics in relation to human health and diseases. The topics that will be covered include epigenetic variation, genomic technologies to study epigenetics, epigenetics in development, epimedecine, epigenetics in human diseases and epigenetics in ageing.

S/N	Topics	Lecture hours
	Molecular basis of Epigenetics	
1.	Introduction to Epigenetics	2h (KM)
2.	DNA Methylation	2h (SJ)
3.	Writers, readers and erasers of epigenetic code	2h (ESC)
4.	Molecular machines involved in maintaining epigenetic code	2h (SJ)
	Translational Epigenetics	
5.	Epigenetics in development	2h (TWW)
6.	Epigenetics in Heart and Related Diseases	2h (TWW)
7.	Epigenetics in metabolic diseases	2 h (TWW)
8.	Epigenetics in Brain and Related Diseases	2h (KM)
9.	Epigenetics in ageing	2h (KM)
10.	Environmental influences on Epigenome	2h (TWW)
11.	Mitochondrial Epigenetics	2h (KM)
12.	Mitochondrial Epigenetics in disease	2h (KM)
		Total Lectures: 24
		Tutorials: 12
		SDL/CA: 14
		Total hours: 50

TEXT BOOK: The readings will mainly be based on key scientific papers & review articles. The module has three major themes. At the end of each major theme, the students will be given stellar publications related to the thematic area they learned in the class.

MODE OF ASSESSMENT: CA 50%; Final exam: 50%

MODULE CO-ORDINATOR:

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LECTURERS:

Dr. Karthik Mallilankaraman, Physiology (KM)
 Dr Tee Wee Wei, Physiology (TWW)
 Dr. Sudhakar Jha, Biochemistry (SJ)
 Dr Chen Ee Sin (ESC)