

SEMESTER II
LSM3224 – MOLECULAR BASIS OF HUMAN DISEASES

Prerequisite: Pass in LSM 2101, LSM2103, LSM3212 and LSM3223.

Workload: 26 lecture hours + 6 tutorial hours + 18 laboratory hours

This module aims to provide students with in-depth knowledge of the basic mechanisms of common human diseases, such as cancer, atherosclerosis, obesity, diabetes, muscle wasting conditions and to prepare them for future translational research. This module focuses on the current molecular mechanisms underlying the pathogenesis of each disease. There will be extensive discussion on results from current cutting-edge research. Prospective students should have basic knowledge of molecular and cell biology, genetics and general human physiology before registering for this module.

S/N	Topics	Lecture hours
1	COURSE INTRODUCTION Mechanisms and Pathogenesis Animal Models	Sharma M Wong BS 2 hours
2	CANCER: Carcinogens & carcinogenesis Review of regulation of cell cycle & mitogenic signaling pathways Proto-oncogenes and oncogenes Tumour suppressors	Teo TS 8 hours
3	SKELETAL MUSCLE WASTING AND REGENERATION Muscle development and process of muscle regeneration Cancer Cachexia, Sarcopenia and Atrophy Muscular Dystrophy	Sharma M 8 hours
4	ATHEROSCLEROSIS Role of Inflammation Lipids and lipoprotein metabolism	Wong BS 3 hours
5	OBESITY Role of Leptin and other hormones Understanding the Fat equation	Wong BS 2 hours
6	DIABETES Glucose metabolism and Insulin signalling	Wong BS 3 hours
Total Lectures: 26h		
Tutorials: 6h		
Practicals: 3X6=18h		
Total hours:		50h

TEXT BOOK (Reference books):

Tomlinson, Heagerty & Weetman (1997) Mechanism of disease: an introduction to clinical science (Cambridge University Press).

MODE OF ASSESSMENT:

Laboratories: 20% (There will be three 6-hour laboratory sessions)
Mid-term: 30%
Final Examinations: 50%

MODULE CO-ORDINATOR:

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LECTURERS:

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