

## **SEMESTER II**

### **LSM4244 ONCOGENES AND SIGNAL TRANSDUCTION**

**Prerequisite: LSM2103**

**Workload: 14 lecture hours + 19 tutorial hours**

Oncogenes are key drivers of cancer development. They do so by deregulating signalling cascades that control biochemical events such as transcription, protein turnover, metabolism, and cellular activities such as cell cycle, cell adhesion, movement and invasion through extracellular matrix. The module will primarily focus on basic concepts and central dogmas associated with each major signalling pathway. Moreover, the implications of these signaling pathways in cancer biology, detection and therapeutics would be illuminated. Many oncogenes have been discovered in the past few decades and new ones continue to be unearthed. In addition to well-established oncogenes, the module will cover scientific knowledge on newer oncogenes and associated signalling pathways.

S/N	Topics	Lecture hours
1	Overview of Signal Transduction	2 (LYP)
2	Tyrosine kinases and phosphorylation	2 LYP)
3	RAS/RAF/MAPK pathway	2 (LYC)
4	PI3K/AKT pathway	2 (LYC)
5	JAK/STAT pathway	2 (LYP)
6	Hippo Signaling	2 MS)
7	Wnt signaling	2 (DV)
<b>Total Lectures: 14h</b>		
<b>Tutorials: 19h</b>		
<b>Total hours:</b>		<b>33h</b>

**TEXT BOOK** (Recommended text): NA

**MODE OF ASSESSMENT:** Mid-Term Exam (40%), Final Exam (40%) and Journal Club (20%). More information on Journal Club will be available in IVLE and during the 1<sup>st</sup> lecture.

**MODULE CO-ORDINATOR:**

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