

**LS644 CELL SIGNALING**  
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S. No.	Topics	Contact hours
1.	Concepts in cell signaling :- Conserved components and basic principles involved in signal transduction pathways; Studying cell surface receptors; Methods to study signal transduction; Identification of unknown interacting partners; Knockout mouse generation	4
2.	GPCR signaling : Properties and structure of G proteins, Downstream signaling like adenylyl cyclase and phospholipase C, RTK signaling  GPCR and RTK integration	3
3.	Cell adhesion molecules and cell signaling	1
4.	Interferon signaling and antiviral response	2
5.	Cell signaling pathways controlling gene activity:- TGF signaling, Cytokine signaling, JAK-STAT signaling, Receptor tyrosine kinases  Ras and MAP Kinase pathways, Phosphoinositides and PI3Kinases	6
6.	Wnt signal transduction pathway	2
7.	Hedgehog signaling	1
8.	Notch signaling	1
9.	Integration of signaling pathways for mesoderm induction	2
10.	Integration of signaling pathways for organogenesis:- Tetrapod limb development, Vulval development in <i>C. elegans</i>	3
11.	mTOR and nutrient signaling	2
12.	Second messenger signaling : Involvement of cAMP signaling in the development of <i>Dictyostelium discoideum</i> , Calcium signal transduction pathway, cGMP signaling	4
13.	TLRs-its signaling and diseases	1
14.	RNA transport and cell signaling	1

**Suggested Reading :**

1. Molecular Biology of the Cell : Bruce Alberts et. al.
2. Molecular Cell biology - Lodish et. al.
3. Signal Transduction - Gomperts, Tatham, Kramer.
4. Protein Protein Interactions - Golemis E. edted.
5. Research papers.