

EUKARYOTIC GENE EXPRESSION II (LS638)

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S.No	Topics	Faculty	Contact hours
1.	Overview of Eukaryotic Gene Expression and Control	KN	1
2.	Eukaryotic gene structure; core promoters, enhancers	RM	2
3.	Nucleosome structure and genomic organization of chromatin	RM	2
4.	Covalent modification of chromatin structure and regulation of gene expression	RM	2
5.	Remodeling of chromatin structure and regulation of gene expression	RM	2
6.	Epigenome and epigenetic control of transcription	RM	2
7.	Transcriptional activation and repression by transcriptional regulators	KN	2
8.	Control of gene expression by non-coding RNA	KN	1
9.	Co-transcriptional events in gene expression	KN	2
10.	Translational control of gene expression	KN	1
11.	RNA Processing & Post-transcriptional control	KN	1
12.	Post-translational regulatory mechanisms <ul style="list-style-type: none">• Ubiquitylation and SUMOylation control of gene expression• Nuclear-cytoplasmic shuttling	KN	1
13.	Studying global gene expression control <ul style="list-style-type: none">• Transcriptome analyses: Microarray analysis, RNA-Seq and NET-Seq• ChIP-Seq and ATAC-Seq	KN	2
14.	Studying gene expression control-II <ul style="list-style-type: none">• Basics of mass spectrometry analysis to identify protein expression and function	KN	2

Suggested Reading:

1. Principles of Genome Analysis and Genomics: SB Primrose and RMTwyman
2. Molecular Biology of the Cell: Alberts et al. 5th Ed.
3. Genes X by Lewin
4. Reviews/research articles.