

**Study material.**

This study guide covers material for the third exam:

Transcription, post-transcriptional gene expression, gene mapping, positional cloning, LOD scores, complex traits and types of allele.

This material was given in lectures Oct. 24 through Nov. 9. See the syllabus for readings.

**Be able to define, discuss, and explain the following concepts:**

promoter	enhancer	core promoter
transcription factor	maternal effect genes	gap genes
epigenetics	nucleosomes	DNase sensitivity
DNase hypersensitivity	locus control region	core histones
mediator	DNA hemimethylase	<i>de novo</i> methylation
heterochromatin	euchromatin	position effect variegation
dosage compensation	X-inactivation	Barr bodies
Xist RNA	roX RNA	imprinting
macronucleus	micronucleus	RNA polymerase IV
polyadenylation signal	polyadenylation site	spliceosome
U1 snRNP	U2 snRNP	RNA editing
pan editing	Ran GTPase	importins
exportins	IRES	eIF2
eIF4	aminoacyl tRNA	peptidyl tRNA
NMD	exosome	EJC
RNAi	dicer	RISC
miRNA	siRNA	ubiquitin
FISH	STS	radiation hybrid mapping
informative meioses	LOD scores	autozygosity
haplotype	allelic association	linkage disequilibrium
complex traits	phenocopy	penetrance
QTL mapping	transmission disequilibrium test	sib pair analysis
null	amorph	haploinsufficient
allelic series	hypomorph	hypermorph
antimorph	neomorph	

Know features associated with active and inactive chromatin.

Be able to explain what is wrong with Figure 8.16 of your text.

Be familiar with sex determination in *Drosophila melanogaster*.

Be able to explain the A, P and E sites of the ribosome.

Be able to summarize the key differences between prokaryotic and eukaryotic translation.

Be able to distinguish linkage maps, physical maps and cytological maps and know methods that allow each type of map to be correlated with the others.

Be able to look at a pedigree and identify recombinants and nonrecombinants, alleles identical by descent and informative vs. uninformative meioses.