

Genetics, Biology 304
Outline of Topics/Terminology – Exam 5

The following is a list of topics and terms/concepts that have been covered during lecture and that you will be responsible for on the exams. This list is intended to help your study for the exam. However, it is NOT a complete list of everything discussed; you are responsible for everything discussed in lectures, including subjects not on this list.

Methods in molecular genetics	BLAST
Restriction endonucleases	Transcriptome
Type I and II	Microarrays (Dot blot hybridizations)
Restriction fragments	Proteome
Palindromes	Green fluorescent protein
DNA ligase	Extranuclear inheritance
Recombinant DNA	Cytoplasmic inheritance
Cloning	Mitochondrial inheritance
Cloning vectors, properties of	H strand
Plasmid vectors	L strand
Bacteriophage vectors	Homoplasmy vs heteroplasmy
Cosmid vectors	Origins of mitochondria and plastids
Shuttle vectors	Inheritance of micro-organisms
Yeast artificial chromosomes	<i>Wolbachia</i>
Bacterial artificial chromosomes	Sex-ratio distortion
Polycloning sites	Prion
DNA amplification	Viroid
Polymerase chain reaction	Maternal effect
<i>Taq</i> polymerase	Maternal genetic effect
Genomic libraries	Maternal environmental effect
cDNA	Genomic/Genetic imprinting
Southern blots	Epigenetics
Northern blots	Constitutive genes
Western blots	Housekeeping genes
DNA sequencing	Effector molecules
Maxim and Gilbert procedure	Inducer
Sanger sequencing procedure	Co-repressor
2'3'-Deoxyribonucleoside triphosphates	Derepression
Genomics	Positive and negative control mechanisms
Structural genomics	Regulator binding site (RBS)
Cytological maps	Activators and repressors
Genetic maps	Operons
Physical maps	Operon model
Comparative genomics	Inducible operon
Functional genomics	Repressible operator
Bioinformatics	The Lac operon
Open reading frames	Catabolite repression
GenBank	

Allolactose
 Cyclic AMP receptor protein (CRP)
 Cyclic AMP (cAMP)
 The tryptophan operon
 Attenuation
 Leader sequence → leader polypeptide
 Regulation of gene expression in the bacteriophage lambda
 cI repressor
 Cro repressor
 N regulatory protein is a transcriptional antiterminator
 Antitermination sites
 Q regulatory protein
 Regulation in Eukaryotes
 Promoters and enhancers
 Transcription factors
 Regulation of GAL genes
 Hormones
 Steroid hormones
 Hormone response elements
 Peptide hormones
 Membrane-bound receptor proteins
 Signal transduction
 Alternative promoters
 Alternative splicing
 Sex determination in *Drosophila*
 RNA editing
 Editosome
 Gene amplification
 Gene dosage
 DNA methylation
 Imprinting
 RNA interference
 Dicer protein
 siRNA
 miRNA
 RISC
 Programmed DNA rearrangements
 Control of flagellin gene expression in *Salmonella*
 Trypanosome antigenic responses
 Antibody Diversity
 Antigen
 Antibodies

Clonal expansion
 Origin of variation in light and heavy chains