

Micro 726: Gene Regulation in Prokaryotes

Class meetings: Tu/Th 9:30 - 10:45

Class meeting	topic
1	Introduction
2, 3	Background material - transcription, translation, methodologies
	Student Guided Discussion
	Transcription Initiation (and further introduction to methods)
4	Sigma-DNA interactions
5	Sigma-core interactions
6, 7	Transition from initiation to elongation
8	Elongation/Stalling
9, 10	Anti-sigma Factors
	Global approaches to studying gene regulation
11	promoter identification (classic, ROMA)
12	Transcription Start Site identification (microarray)
13	protein-DNA interactions (ChIP-chip)
14	Transcription Start Site identification (sequencing)
	Post Transcription Initiation and Regulation
15, 16, 17	Riboswitches (attenuation, sensing, ribozyme examples)
18, 19	Small RNAs and integration into regulatory networks
20	Other RNAs - discovery and unknown functions
	Networks, signaling, cellular outcomes
21	Toxin/Antitoxins
22	Complex signaling interactions and outcomes (starvation)
23	Proteolysis as regulatory mechanism (DNA damage)
24	Feedback loops (in Quorum sensing)
25	Gene position as regulatory mechanism
26	Control of phenotypic penetrance
27	Stress induced mutagenesis/adaptation?
28, 29	CRISPR - mechanisms of cellular protection