

Cell Biology of Tissue Development and Function
Tuesdays and Thursdays, 8:00 – 9:15 AM

DATE	LECTURE	LECTURE OUTLINE
1/12/2010 Tuesday Spicer/Liaw spiced@mmc.org liawl@mmc.org	Overview - Life cycle of a cell	Overview of class Critiquing papers Gene expression – chromosomes, TX, RNA, protein Cell cycle Apoptosis
1/14/2010 Thursday Prudovsky prudoj@mmc.org	Cytoskeleton function Microscopy techniques	Overview of cytoskeleton function and general microscopy techniques
1/19/09 Tuesday Spicer/Liaw spiced@mmc.org liawl@mmc.org	Methods	
1/21/2010 Thursday Brooks brookpl@mmc.org	Signaling - ECM	Major classes of cell adhesion molecules Structure, function Regulation of cell adhesion Integrin structure, function, signaling, targets Mechanotransduction
1/26/2010 Tuesday Liaw/Ruth Leon	PAPER CRITIQUE 1	
1/28/2010 Thursday Wojchowski wojchd@mmc.org	RTKs and downstream effectors	Overview of receptor/ligand interaction, affinity RTK ligands RTK structure Downstream pathways
2/2/2010 Tuesday Pelsue pelsue@usm.maine.edu	Cytokine signaling	Cytokine overview NFkB pathway
2/4/2010 Thursday Vary varyc@mmc.org	TGFβ/BMP family and downstream effectors	TGFβ/BMP family ligand structure Receptor structure Downstream pathways
2/9/2010 Tuesday Liaw/Aleksandra Terzic	PAPER CRITIQUE 2	

2/11/2010 Thursday Yoon yoenje@mmc.org	Wnt, and hh pathways	Wnt, and hh ligands, receptors Downstream pathways
2/16/2010 Tuesday Wang wangz@mmc.org	Ephrin/notch Transmembrane signaling	Ligand structure Receptor structure Downstream pathways
2/18/2010 Thursday Wang wangz@mmc.org	Stem cells	Sources of stem cells Growth characteristics, conditions for culture Comparisons between stem cell types and species Concepts of potency and differentiation
2/23/2010 Tuesday Wu wuw@mmc.org	iPS cells	
2/25/2010 Thursday Yoon/Arvind Dev	PAPER CRITIQUE 3	
EXAM		
3/16/2010 Tuesday Oxburgh oxburl@mmc.org	Development overview	Overview of embryonic development with a focus on the development of the tissues and cell types discussed in the following lectures and the roles of the signaling pathways discussed above
3/18/2010 Thursday DJ McCrann mccrad@mmc.org	Hematopoeisis	Stem cell origins Differentiation, including transcriptional regulation Differentiated cell types
3/23/2010 Tuesday Friesel friesl@mmc.org	Vasculature-endothelium	Endothelial cell differentiation, including transcriptional regulation Tubulogenesis, Angiogenesis/lymphangiogenesis Stem cell origins
3/25/2010 Thursday Louise Brogan brogal@mmc.org	Smooth muscle Vasculature-maturation and remodeling	Cell types Smooth muscle cell differentiation, including transcriptional regulation Vessel maturation and remodeling
3/30/2010 Tuesday Lindner/DJ McCrann	PAPER CRITIQUE 4	

4/1/2010 Thursday Spicer spiced@mmc.org	Skeletal muscle	Skeletal muscle differentiation, including transcriptional regulation Mature cell structure and function Stem cell origins
4/6/2010 Tuesday Pinz pinzi@mmc.org	Cardiac muscle	Cardiac muscle differentiation, including transcriptional regulation Mature cell structure and function Stem cell origins
4/8/2010 Thursday Sumi Urs urss@mmc.org	Adipose	Adipocyte differentiation, including transcriptional regulation Mature cell structure and function Stem cell origins
4/13/2010 Tuesday Oxburgh/Sumi Urs	PAPER CRITIQUE 5	
4/15/2010 Thursday Rosen rofe@aol.com	Bone and cartilage	Endochondral and membranous bone formation Differentiation pathways, including transcriptional regulation Osteoclast, origin and differentiation Bone remodeling
4/20/2010 Tuesday Burgess robert.Burgess@jax.org	Neural tissues	Overview of nerve cell types and functions Focus on regulation of neural differentiation and axon guidance
4/22/2010 Thursday Ruth Leon leonr@mmc.org	Skin and connective tissue	Connective tissue cell types and function Overview of skin structure, glands, appendages Focus on skin development and stem cell maintenance
4/27/2010 Tuesday Verdi/Aleksandra Terzic	PAPER CRITIQUE 6	
4/29/2010 Thursday Pradeep sathyp@mmc.org	Cancer	Characteristics of transformed cells (versus immortalization), assays to detect cell transformation Mechanisms of tumor initiation, progression, and metastasis
EXAM		