Representative GNET801/PATH801 Syllabus

Week 1, Aug 31
Lecture Course Directors: Intro to cell cycle

Week 2, Sept 7

Paper Presentations and Discussion:
1. CSF1 regulates novel cyclins during the G1 phase of the cell cycle. Cell 65, 710 (1991)
2. Overexpression of mouse D-type cyclins accelerates G1 phase in rodent fibroblasts. G&D 7, 1559 (1993)

Week 3, Sept 14

Paper Presentations and Discussion:
1. The Retinoblastoma protein is phosphorylated during specific phases of the cell cycle. Cell 58, 1097 (1989)
2. Physical interactions of the Rb protein with human D cyclins. Cell 73, 487 (1993)

Scientific Method and Discussion

Week 4, Sept 21

Paper Presentations and Discussion:
1. A cDNA encoding a pRB-binding protein with the properties of transcription factor E2F.
Cell 70, 337 (1992)
2. Expression of E2F induces quiescent cells to enter S-phase. Nature 365, 349 (1993)
3. Myc-Mediated Proliferation and Lymphomagenesis, but Not Apoptosis, Are Compromised by E2f1 Loss Molecular Cell 11, 905–914 (2003)

Scientific Method and Discussion

Week 5, Sept 28

Paper Presentations and Discussion:
1. Growth regulation of a cellular tumor antigen p53 in non-transformed cells. Nature 308, p199 (1984)
2. Microinjection of monoclonal antibody to p53 inhibits serum-induced DNA synthesis in 3T3 cells. PNAS 79, 6309 (1982)
3. WAF1, a potential mediator of p53 tumor suppression. Cell 75, 817-825 (1993)

Scientific Method and Discussion

Week 6, Oct 5

Paper Presentations and Discussion:
1. Oncogene-induced senescence is part of the tumorigenesis barrier imposed by DNA damage checkpoints. Nature Vol 444, p633 (2006)

2. Rb-Mediated Heterochromatin Formation and Silencing of E2F Target Genes during Cellular Senescence. Cell, Vol. 113, 703–716 (2013)

Scientific Method and Discussion

Week 7, Oct 12

Paper Presentations and Discussion:
1. p53 Functions in Endothelial Cells to Prevent Radiation-Induced Myocardial Injury in Mice. Science Signaling Vol 5 Issue 234 (2012).
2. Knockdown of Cyclin-dependent Kinase Inhibitors Induces Cardiomyocyte Re-entry in the Cell Cycle. JBC, Vol 286. NO 10, pp. 8644-8654 (2011)

Scientific Method and Discussion

Week 8, Oct 19

Paper Presentations and Discussion:
1. Rb and p130 control cell cycle gene silencing to maintain the postmitotic phenotype in cardiac myocytes. JBC, Vol. 194 No. 3 407–423 (2010)

Lecture Course Directors: Summary and Intro for remainder of course

Week 9, Nov 2

Paper Presentations and Discussion:
1. Mouse Development and Cell Proliferation in the Absence of D-Cyclins. Cell, Vol 118, 477-491 (2004)

Mini Grant-Writing Boot Camp and Discussion

Week 10, Nov 9

Paper Presentations and Discussion:
1. Genotoxic consequences of endogenous aldehydes on mouse haematopoietic stem cell function. Nature (2012)

Mini Grant-Writing Boot Camp and Discussion

Week 11, Nov 16

Paper Presentations and Discussion:
1. MAGE-RING Protein Complexes Comprise a Family of E3 Ubiquitin Ligases. Molecular Cell 39, 963–974 (2010)

2. Bone Marrow Failure in Fanconi Anemia Is Triggered by an Exacerbated p53/p21 DNA Damage Response that Impairs Hematopoietic Stem and Progenitor Cells. Cell Stem Cell 11, 1–14 (2012)

Mini Grant-Writing Boot Camp and Discussion

Week 12, Nov 23

Paper Presentations and Discussion:
1. Kinase-Independent Function of Cyclin E. Molecular Cell 25, 127–139, (2007)

Mini Grant-Writing Boot Camp and Discussion

Week 13, Nov 30

Paper Presentations and Discussion:
1. A viable allele of Mcm4 causes chromosome instability and mammary adenocarcinomas in mice. Nature Genetics, Vol 39, No 1 (2007)
2. Mutations in the pre-replication complex cause Meier-Gorlin syndrome. Nature Genetics 27;43(4):356-9 (2011)

Mini Grant-Writing Boot Camp and Discussion

Week 14, Dec 7

Paper Presentations and Discussion:
1. Mage-A Cancer/Testis Antigens Inhibit p53 Function by Blocking Its Interaction with Chromatin. Cancer Res; 70(24) (2010)

Lecture Course Directors: Summary of Course