2020 Fall Semester Schedule

GMS6647 **Transcriptional and Translational Control of Cell Growth and Proliferation**

Course Director: Dr. Daiqing Liao (dliao@ufl.edu)

Online via zoom, Tuesdays and Thursdays 1PM - 2:30PM

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| **Date** | **Lecturer and lecture title** | **Student Presenter** | **Paper for presentation/further reading** |
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| Tuesday Sept 29 | Dr. Daiqing Liao (Histone acetylation in gene regulation) |  | Gryder BE et al. Chemical genomics reveals histone deacetylases are required for core regulatory transcription. Nat Commun. 2019 Jul 8;10(1):3004. doi: 10.1038/s41467-019-11046-7. <https://www.nature.com/articles/s41467-019-11046-7> |
| Thursday Oct. 1 | Dr. Satya Narayan  (Tumor suppressor p53 in the control of cell proliferation) |  | |  | | --- | | [Essential role for centromeric factors following p53 loss and oncogenic transformation.](http://www.ncbi.nlm.nih.gov/pubmed/28356341) | | Filipescu D, Naughtin M, Podsypanina K, Lejour V, Wilson L, Gurard-Levin ZA, Orsi GA, Simeonova I, Toufektchan E, Attardi LD, Toledo F, Almouzni G. | | Genes Dev. 2017 Mar 1;31(5):463-480. doi: 10.1101/gad.290924.116. Epub 2017 Mar 29. | |
| Tuesday Oct 6 | Dr. Nadja Makki (title TBA) |  | TBA |
| Thursday Oct. 8 | Dr. Weizhou Zhang (Wnt/-Catenin signaling pathway in cancer) |  | Kaur AI et al. sFRP2 in the aged microenvironment drives melanoma metastasis and therapy resistance. Nature. 2016 Apr 14;532(7598):250-4. doi: 10.1038/nature17392. Epub 2016 Apr 4. <https://www.nature.com/articles/nature17392> |
| Tuesday Oct 13 | Dr. Jianrong Lu (Epigenetic regulation of EMT) |  | |  | | --- | | McFaline-Figueroa JL et al. A pooled single-cell genetic screen identifies regulatory checkpoints in the continuum of the epithelial-to-mesenchymal transition Nat Genetics 51:1389–1398, 2019 <https://www.nature.com/articles/s41588-019-0489-5.pdf> | |
| Thursday Oct. 15 | Dr. Rene Opavsky (DNA methylation in cancer) |  | |  | | --- | | [Dnmt3a regulates T-cell development and suppresses T-ALL transformation.](http://www.ncbi.nlm.nih.gov/pubmed/28321121) | | Kramer AC, Kothari A, Wilson WC, Celik H, Nikitas J, Mallaney C, Ostrander EL, Eultgen E, Martens A, Valentine MC, Young AL, Druley TE, Figueroa ME, Zhang B, Challen GA. | | Leukemia. 2017 Apr 11. doi: 10.1038/leu.2017.89. [Epub ahead of print] | |
| Tuesday Oct 20 | Dr. Zhijian Qian (Cell cycle control in hematopoietic stem cells) |  | Hou Y, et al. The transcription factor Foxm1 is essential for the quiescence and maintenance of hematopoietic stem cells. Nat Immunol. 2015 Aug;16(8):810-8. doi: 10.1038/ni.3204. Epub 2015 Jun 29. <https://www.nature.com/articles/ni.3204> |
| Thursday Oct. 22 | Dr. Shuang Huang (role of miRNA in cell proliferation and survival) |  | |  | | --- | | [Normal and cancerous mammary stem cells evade interferon-induced constraint through the miR-199a-LCOR axis.](http://www.ncbi.nlm.nih.gov/pubmed/28530657) | | Celià-Terrassa T, Liu DD, Choudhury A, Hang X, Wei Y, Zamalloa J, Alfaro-Aco R, Chakrabarti R, Jiang YZ, Koh BI, Smith HA, DeCoste C, Li JJ, Shao ZM, Kang Y. | | Nat Cell Biol. 2017 Jun;19(6):711-723. doi: 10.1038/ncb3533. Epub 2017 May 22. | |
| Tuesday Oct 27 | Dr. Lingtao Jin (Metabolic Signaling in Cancer) |  | A metabolite-derived protein modification integrates glycolysis with KEAP1-NRF2 signalling. (Nature. 2018 Oct;562(7728):600-604) <https://www.nature.com/articles/s41586-018-0622-0> |
| Thursday Oct. 29 | Dr. Daiqing Liao (Translational control and Cancer) |  | Chio II et al, NRF2 Promotes Tumor Maintenance by Modulating mRNA Translation in Pancreatic Cancer. [Cell. 2016 Aug 11; 166(4): 963–976.](https://www.ncbi.nlm.nih.gov/entrez/eutils/elink.fcgi?dbfrom=pubmed&retmode=ref&cmd=prlinks&id=27477511) |
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**Summary**: The course covers latest development in our understanding of the mechanisms that regulate gene expression at the transcriptional and translational levels. Phenotypic impact of gene regulation at the molecular and epigenetic levels on cell growth especially in relation to cancer and other diseases is emphasized. Each lecture consists of a lecture (30 to 45 min) by an instructor, followed by a presentation and/or group discussion of a specific publication assigned by the instructor (45 to 60 min).

**Grading scale**: letter grade

Grades will be based on attendance and paper discussion --A selected published paper will be discussed in the class. Paper discussion will cover background and rationale for the study, the data that support the author's point of view and the major conclusions of the paper. Discussions may also include weaknesses and points for improvement for the publication. Students are expected to attend all lectures and participate in paper discussion.

**Textbook**: No specific textbook is assigned. Journal articles or handouts will be distributed.

**Select past student comments**: This course was very useful to me. Most of the papers were appropriate and the course was set up in a way where we could easily discuss things as a group.