

# BCH561– Fall 2018

## *RNA Structure and Function*

Special Topic for the semester is:

*Alternative splicing and alternative roles for small nuclear/nucleolar RNAs*

### **Syllabus**

Instructor: Dr. Stephen Lodmell

Office: CHCB202, Phone: 243-6393

**Meeting time:** 4-5pm Mondays

**Meeting place:** CHCB 202

This class is designed to give students an opportunity to present both primary research and research materials from the current literature concerning the structure, function, and biochemistry of RNAs as they exert regulatory roles in the cell. These RNAs may be small RNAs or motifs of larger RNAs. Specific topics this semester will include, but are not limited to, the roles played by non-coding RNAs, especially small nucleolar RNAs in cellular functions *other* than as rRNA methylase components. For example, snoRNAs have been implicated in affecting splicing/alternative splicing of mRNAs, processing of mRNAs, and regulating mRNA activity like miRNAs. Here are a couple of recent representative papers that discuss non-canonical functions of small non-coding RNAs.

Rimer et al. 2018. Long-range function of secreted small nucleolar RNAs that direct 2'-O-methylation. *J Biol Chem.* 2018 Aug 24;293(34):13284-13296.

Stepanov GA, et al. 2015. Regulatory role of small nucleolar RNAs in human diseases. *Biomed Res Int.*;2015:206849.

Chai W, et al. 2018. Lnc-ISG20 Inhibits Influenza A Virus Replication by Enhancing ISG20 Expression. *J Virol.* 2018 Jul 31;92(16).

## Learning Outcomes

Upon completion of this class, the student will have:

1. Gained experience in reading current primary biomedical/ biochemical scientific literature pertaining to the special topic described for the semester.
2. Gained a deeper understanding of the details of the state of the current research on the special topic.
3. Gained experience in preparing and presenting scientific data to an audience that is moderately conversant in the area of study.

The format of the class is as follows: Each hour class period will be devoted to an individual presentation with group discussion of either original research or a review of a paper from the current literature. Each student will present twice during the semester.

When a student is presenting his/her original research, we will discuss results, problems, interpretations, and future directions of this research in an open forum format. Broad student participation in these discussions is essential.

When the presentation is centered around a current research article, the student will provide each member of the class with a copy of the paper he/she will present several days in advance so that all class members will be familiar with the material for the presentation. The presentation is designed to be a critique of the paper, and the presenter should offer his/her view about experimental design, results, and interpretations. Papers may be on any topic, as long as it is related to RNA, retroviruses, or translation.

### Grading/assessment:

This is a one credit course. Grading is on a Credit/ No credit basis. Students will be evaluated on the quality of his/her presentations as well as participation in discussions during class. Students are expected to have prepared for the class by reading the chosen literature article(s) prior to class time to promote informed discussion on the research at hand. Consistent failure to adequately prepare for presentations or discussions will result in a grade of NC.

### Accessibility, disabilities, and special accommodations:

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with DSS, please contact DSS in Lommasson 154. I will work with you and DSS to provide an appropriate accommodation.

Presentation schedule:

		<u>Presenter</u>	<u>Snacks</u>
September	3	Labor day	- - -
	10	Katie	Steve
	17:	Jake	Katie
	24:	Miyuki	Jake
October	1:	Jessie	Miyuki
	8:	Chris	Jessie
	15	(Joanna K)	
	22:	Luke	Chris
	29:	Jean-Marc	Luke
November	5:	Jake	Jean-Marc
	12:	Veteran's Day	- - -
	19:	Miyuki	Jake
	26:	Jessie	Miyuki
December	3:	Chris	Jessie