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Physiology Journal Club Syllabus – Spring 2019
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This is a weekly seminar course in which students will read, present, and discuss recent, high-impact original research articles from the biomedical literature. The emphasis will be on articles in the area of cardiovascular physiology, metabolism, aging physiology, and neuroscience with some flexibility to venture into other areas of physiology/medicine that are of particular interest to students.

Credit hours: 1

Maximum enrollment: 12

Terms: Fall and Spring

Attributes: Instructor Permission

<u>Content</u>:

In addition to reading and discussing an article at each meeting, the instructor will provide guidance on:

1) How to use the PubMed biomedical database
2) How to identify high-quality scientific articles, types of articles, and impact of articles
3) How to evaluate the content and data presented in an article

<u>To receive an "A" grade</u>:

1) Attend and participate in **<u>all journal club meetings</u>**. If you miss a meeting, then submit a written analysis of the paper (3-5 pages). You can **<u>only make-up 2 missed meetings</u>** with a written analysis and still earn an A.

2) Pick a paper (with instructor's help) and lead the discussion at least once. You may be asked to lead twice if there are a small number of students enrolled.

3) Your presentation will include a Powerpoint with:

   a) Sufficient background to explain the rationale for the study. Include figures or diagrams of system/cell pathways studied in the paper.

   b) Explanation of study design and any new methods used in the study. If the method is complicated, find a picture or diagram to present.

   c) Include all figures from the article (not including supplemental figures) in your presentation at sufficient size for the audience to see. Each student in the group will present a figure or part of a figure.

d) Provide a summary of the key points of the study. If a new pathway is discovered, provide a diagram or new model (often supplied by the paper in the visual abstract). Explain the overall significance of the paper.

4) Present a figure (assigned by the leader that week) at each meeting.

Examples of the Types of Papers Discussed:

1) Lui, et al. Lhx6-positive GABA-releasing neurons of the zona incerta promote sleep. Nature 548:582-87, 2017.

2) Xiong, et al. Long-acting MIC-1/GDF15 molecules to treat obesity: Evidence from mice to monkeys. Science Translational Medicine 9:412, 2017.

3) Sagiv-Barfi, et al. Eradication of spontaneous malignancy by local immunotherapy. Science Translational Medicine 10:426, 2018.

4) Vlachogiannis, et al. Patient-derived organoids model treatment response of metastatic gastrointestinal cancers. Science 359:920-26, 2018.

5) Korem, et al. Bread Affects Clinical Parameters and Induces Gut Microbiome-Associated Personal Glycemic Responses. Cell Metabolism 25, 1243–1253, 2017.

6) Chassagnon, et al. Potent neuroprotection after stroke afforded by a double-knot spider-venom peptide that inhibits acid-sensing ion channel 1a. Proceedings of the National Academy of Sciences 114: 3750–3755, 2017.

7) Bassat, et al. The extracellular matrix protein agrin promotes heart regeneration in mice. Nature 547:179-184, 2017.

8) Mateo, et al. Entrainment of Arteriole Vasomotor Fluctuations by Neural Activity Is a Basis of Blood-Oxygenation-Level-Dependent ''Resting-State'' Connectivity. Neuron 96, 936–948, 2017.

9) Riera, et al. The Sense of Smell Impacts Metabolic Health and Obesity. Cell Metabolism 26, 198–211, 2017.

10) Yu, et al. Nrl knockdown by AAV-delivered CRISPR/Cas9 prevents retinal degeneration in mice. Nature Communications 8:14716, 2017.