Cell Physiology 2010

PBSB Program: 15 weeks X 3 hours per week

Location: Tuesdays & Thursdays: 4:15 pm – 5:30 pm
1300 York Avenue, LC 5th Floor Conference Room, LC-504

Fridays: 1:30 pm – 2:30 pm
1305 York Avenue, ICB 13th Floor Conference Room, Y.13.01

Course Director: Crina Nimigean – (212) 746-5947, crn2002@med.cornell.edu

Course TA: Romulo Hurtado (Junior), roh2002@med.cornell.edu

Course Objectives: To familiarize first and second year students with common topics in cell physiology and to provide exposure to research areas relevant to PBSB faculty.

The Friday sessions consist of presentation of a journal article selected by the faculty giving the lectures that week. The presentations are given by students and moderated by the faculty/TA.

Course Textbooks: Cellular Physiology by Mordecai P. Blaustein, Mordecai P. Blaustein, Donald R. Matteson, Joseph P. Y. Kao

Recommended: Ion Channels of Excitable Membranes by Bertil Hille
Molecular Biology of the Cell by Bruce Alberts, Julian Lewis, Alexander Johnson

<table>
<thead>
<tr>
<th>General area</th>
<th>Lecture topic</th>
<th>Lecturer</th>
<th>Date</th>
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<tbody>
<tr>
<td>Cell membranes and biophysics</td>
<td><strong>Course introduction</strong></td>
<td>Crina Nimigean</td>
<td>9/2</td>
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<td>of the cell</td>
<td>Cell membranes and phospholipids</td>
<td>Olaf Andersen</td>
<td>9/7</td>
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<td>Compartments, electrolytes, osmosis</td>
<td>Olaf Andersen</td>
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<td><strong>Journal article presentation</strong></td>
<td>Student</td>
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<tr>
<td>Genes, proteins</td>
<td>Membrane potential and action potentials</td>
<td>David Christini</td>
<td>9/14</td>
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<td></td>
<td>Transcription</td>
<td>Lucy Skrabanek</td>
<td>9/16</td>
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<td></td>
<td><strong>Journal article presentation</strong></td>
<td>Student</td>
<td>9/17</td>
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<td>Translation</td>
<td>Scott Blanchard</td>
<td>9/21</td>
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<td><strong>Quiz 1</strong></td>
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<td>Proteins in the cell</td>
<td><strong>Journal article presentation</strong></td>
<td>Student</td>
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<td>Protein structure/function and modification</td>
<td>Olga Boudker</td>
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<td>Enzyme kinetics and energetics</td>
<td>Crina Nimigean</td>
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<td><strong>Survey</strong></td>
<td>Student</td>
<td>9/30</td>
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<td>Ion channels and transporters</td>
<td>Larry Palmer</td>
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<td>Trimeric G-proteins and GPCRs</td>
<td>Harel Weinstein</td>
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<td><strong>Journal article presentation</strong></td>
<td>Student</td>
<td>10/7</td>
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<td>Kinases, phosphatases and other effectors</td>
<td>Xin-Yun Huang</td>
<td>10/12</td>
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<td>Signaling in the cell</td>
<td><strong>Quiz 2</strong></td>
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<td>Transcription</td>
<td>Yutaka Nibu</td>
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<td>Renin-Angiotensin signaling</td>
<td>Jacqueline Brazin</td>
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<td>10/21</td>
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<td>Adrenergic signaling, PKA, PKC, cAMP</td>
<td>Mark Rosenblatt</td>
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<td>MAP kinase pathways</td>
<td>Gregoire Altan-Bonnet</td>
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<td>Ca2+ - a ubiquitous signaling molecule</td>
<td>Geoff Abbott</td>
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<td><strong>Quiz 3</strong></td>
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AJR – Revised 08/26/2010
<table>
<thead>
<tr>
<th>Journal article presentation</th>
<th>Student</th>
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<tr>
<td>The neuron as a cell system</td>
<td>Emre Aksay</td>
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<td>Neuronal communication</td>
<td>Emre Aksay</td>
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**Neuroscience Meeting**

| Neuronal plasticity         | Jeremy Dittman | 11/16 |

**Quiz 4** *(NOTE: In ICB 13th Floor Conference Room)*

| Thanksgiving Break          | NO CLASSES     | 11/19 |

| Retinal phototransduction and neural circuitry | Sheila Nirenberg | 11/30 |
| Apoptosis and cell death | Hao Wu | 12/2 |
| Journal article presentation | Student | 12/3 |
| The cancer cell as a complex system | Zeynep Gumus | 12/7 |
| The cardiac myocyte as a complex system | Cathy Hatcher | 12/9 |
| Journal article presentation | Student | 12/10 |

**Quiz 5**