DEVELOPMENTAL NEUROBIOLOGY - Bi466/566
TENTATIVE SYLLABUS
WINTER 2010

Introduction and origin of the nervous system
1)  1/5  U  Nervous system induction  JSE

Nervous system patterning and specification
2)  1/7  H  Establishing the anteroposterior axis  JSE
3)  1/12  U  Establishing the dorsoventral axis  JSE
4)  1/14  H  Establishing the left/right axis  class
5)  1/19  U  Specification of motoneurons  JSE
6)  1/21  H  Patterning insect neuroblasts  JSE
7)  1/26  U  Temporal patterning of insect neuroblast progeny  KT
8)  1/28  H  Temporal patterning of cortical progenitors  class
9)  2/2  U  Formation of glia: the other half of the brain  JSE

Axon guidance, synapse formation, and neuronal survival
10)  2/4  H  Synapse formation  PW
11)  2/9  U  Molecular mechanisms of axon guidance  JSE
12)  2/11  H  Discussion of axon pathfinding  class
13)  2/16  U  Growth and survival factors  JSE
14)  2/18  H  Discussion of axonal signaling and neurogenesis  class
15)  2/23  U  Activity-dependent synaptic remodeling  JSE

Neural stem cells
16)  2/25  H  Introduction to vertebrate neural stem cells  JSE
17)  3/2  U  Discussion of vertebrate neural stem cells  class
18)  3/4  H  Specification of neural crest cells  YH
19)  3/9  U  Discussion of brain cancer stem cells  class

Finale
20)  3/11  H  Finale  JSE

Personnel: JSE, Judith Eisen; PW, Phil Washbourne; KT, Khoa Tran; YH, Yasuko Honjo
DEVELOPMENTAL NEUROBIOLOGY - Bi466/566
WINTER 2010; UH 2-3:20; Volcanology 307

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346-4524

Office hours: By appointment

Readings: This course is taught almost entirely from original research papers and reviews. A reading list will be distributed and posted on Blackboard. Pdf files for all assigned readings will also be posted on Blackboard. To supplement these readings, several books are on reserve in the Science Library: 1) SF Gilbert (1997) Developmental Biology; an excellent reference to review animal development, 2) DH Sanes, TA Reh & WA Harris (2006) Development of the Nervous System; an excellent reference for some aspects of nervous system development.

Participation: The reading list has both assigned and supplemental readings, including some readings with medical relevance. Additional papers, not on the reading list, may be posted on Blackboard. You are expected to read the assigned papers BEFORE class and to participate in class discussions of those papers. To facilitate this, homework questions about the assigned readings will be distributed periodically. Written answers to these questions will be collected at the beginning of class. These questions will serve as the basis of class discussions, and the written answers will be graded. You are expected to hand in the homework questions, even if they cover a paper or papers you are presenting (see below).

Presentations: Each member of the class is expected to lead one or two class discussions of a set of original research papers.

Exams: The exam for this course will be a "term paper" in the form of a research proposal written in 2 parts: 1) MIDTERM: In this part, you will put forth an hypothesis concerning a topic of interest in Developmental Neurobiology. To support your hypothesis, you must provide a short literature review (no more than 5 double-spaced pages). More detailed information about formulating and supporting hypotheses will be provided during the term. You should plan to use the hypothesis you develop for your Midterm as the basis of the next part of your paper. You should also plan to meet briefly with the instructor between the midterm and final to discuss whether the hypothesis will be appropriate. 2) FINAL: In this part, you will propose experiments to address the hypothesis you put forth in your Midterm. Again, this part should be no longer than 5 double-spaced pages. More detailed information about the final will be available later in the term. The final will be due by 3 pm TUESDAY MARCH 16.

Grading: Homework questions: 20%
Class presentation: 20%
Midterm and Final: 60%

Etiquette: Please be sure to turn off your cell phone during class. You are encouraged to discuss your work with others, but all work you submit for a grade must be your own.