
**Developmental Genetics I**: Ch. 13 (“Genetic control of development”), pp. 552-559
**DG II**: pp. 559-568; Problems 13.1, 13.2
**DG III**: pp. 569-576, 578; “Problems 1 & 2” (p 586-7); Problems 13.4, 13.6, 13.12, 13.15
**DG IV**: Ch. 8 (“Human . . . chromosome behavior”), pp. 301-304, Problems 8.4, 8.8
**DG V**: Ch. 11 (“Molecular mechanisms of gene regulation”), pp. 478-481

Announcements

- Office hours: Rm. 401 Gould-Simpson (NE corner) or by appointment
  - THURSDAYS, 1-2:30 pm
- Study Guides, homework, quiz, Discussion sections, midterm (Apr 27), final (May 4!)

Development: fundamental concepts and introduction to genetic mechanisms

- developmental genetic programs, influenced by environment
  - importance of spatial and temporal patterns of gene expression
  - comment: fetal alcohol syndrome

- cell proliferation and migration

- specialization
  - cell identity
    - where am I?
    - what type of cell am I? (i.e., what biological task should I be doing?)
  - example of faulty segment identity: *Antennapedia*
    - note: differentiation is normal but inappropriate

    - (click on "wild-type-head.jpg" and "antp-head.jpg")

- differentiation
  - example of muscle

- developmental **potential vs. commitment**
  - stem cells: "totipotent" or "pluripotent"
  - terminal differentiation
  - mechanisms: cell autonomy vs. cell-cell or cell-environment interaction
  - positional information; induction
  - transplantation experiments
    - example: micromeres and stomach formation (sea urchin)

- Use of **model organisms** to study principles of developmental genetics
  - phylogenetic tree: [http://www.informatics.jax.org/silver/index.shtml](http://www.informatics.jax.org/silver/index.shtml) – go to Fig. 1.3
  - where are *C. elegans*, *D. melanogaster*, *Mus musculus* and *H. sapiens*?