

9.14 Class #21: Retinotectal system 1: optic tract and its terminations; developmental plasticity.

Readings:

Purves & Lichtman, "Chapter 11, The molecular basis of neuronal recognition", pp. 251-270.

[This reading should be done after the lecture, as further preparation for understanding the readings for the next session, and the class discussion.]

Questions:

1. What is the basic layout of the pathway from retina to midbrain in vertebrates: the course of the axons, and their topographic organization?
2. (In class:) How is this basic layout different in the embryo when the axons are growing?
3. (In class:) Describe the various terminations of the main optic tract, and their topography with respect to the retina and the tract.
4. (In class:) What is the accessory optic tract? What additional terminations of the retinofugal axons have been discovered by recent studies with sensitive tracers like cholera toxin subunit B ?
5. (In class:) What is the consequence of partial lesions of retina or of tectum inflicted early in development?
6. What other techniques have been used to investigate the mechanisms underlying the development of orderly connections of the optic tract?