

EMBRYONIC DEVELOPMENT OF THE BRAIN

60 HOUR CHICK EMBRYO

26 December 1993, rvsd 6 Jan 1994, 30 Dec 1994, 8 Jan '97, 7 Jan '98, 7 Jan 00, 4 Jan 01, 4 Jan 03, 26Dec09

Studying the early development of the brain reveals structural and functional relationships between the portions of the adult brain. Since the early development of most vertebrates is similar, the 60 hour chick embryo can serve as a study organism which is roughly equivalent to the 5 week human embryo. See Martini, 8th Ed, pp 463, & handout from Balinsky (next page in packet).

CAREFUL: Because this prepared slide is unusually thick, it is especially important to follow correct microscope protocol. (Do not ram the slide with the objective). Also, since the specimen mounting medium softens as it warms, remove the slide as soon as you are done, and allow it to cool flat on the surface of the desk before you return it to the slide case.

NOTE: When we have finished discussing and illustrating the embryonic brain, a brief, student-graded 10 question quiz will be given to see how well these features were learned.

Slide 7. **Chick, 60-70 hour**, whole mount, chicken

(H 2195)

Illustrate a 40x view to include the bolded features labeled:

primitive vesicles	intermediate vesicles	mature brain components	functions
prosencephalon	telencephalon	cerebrum lateral ventricles [rudimentary nose]	control skeletal muscles sensory perception language intelligence
	diencephalon	thalamus	sensory relay
		hypothalamus	regulation of autonomic activities
		epithalamus (pineal) [optic cup]	biological clock will become eye, vision
mesencephalon	mesencephalon	midbrain* corpora quadrigemina cerebral peduncles	visual reflexes auditory reflexes connection to cerebrum
rhombencephalon	metencephalon	cerebellum	plan & coordinate voluntary movement, maintain balance
		pons*	commisural nerve tracts
	myelencephalon	medulla oblongata *	regulates vital functions
		[otic vesicle]	hearing

* The midbrain, pons and medulla constitute the **brain stem**, which regulates consciousness and some autonomic reflexes: respiration, coughing, swallowing, cardiovascular control.