

[PDF] Larsen's Human Embryology, 5e (Schoenwolf, Larsen's Human Embryology)

Gary C. Schoenwolf PhD, Steven B. Bleyl MD PhD, Philip R. Brauer PhD, Philippa H. Francis-West PhD - pdf download free book

"Larsen's Human Embryology", 5th Edition, 9781455706846, 2014 Elsevier
Chapter 3 - Origins and Mechanisms of Morphogenesis and Organogenesis 123

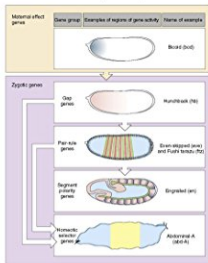


Figure 3.18. Gene activity through the embryo. The expression of Hox, Pax, Tbx, and other genes is regulated by Hox, Pax, Tbx, and other genes.

Homeotic selector genes play a role in the patterning of the mammalian embryo. During early embryonic development, the expression of molecular effect genes is regulated by a class of genes called **regulatory genes** (Fig. 3.18). These genes are called **regulatory genes** because they are expressed after fertilization and are both maternally and paternally inherited. In the embryo, there are two classes of regulatory genes which act in establishing the basic anterior-posterior body plan: **gap genes**, **pair-rule genes**, **segment polarity genes**, and **homeotic selector genes**. The homeotic selector genes regulate the expression of the regulatory genes, which in turn, regulate the expression of the segment polarity genes. The segment polarity genes regulate the expression of the homeotic selector genes, which provide the regional identity to the different segments. Although genes in each class regulate and regulate of other genes in each class, the homeotic selector genes regulate all classes of regulatory genes function.

During vertebrate gastrulation, the understanding of the molecular genetic basis of patterning in Drosophila has provided a major conceptual tool understanding the development of vertebrates, including humans. In general, vertebrate orthologs of Drosophila patterning genes regulate two types of molecular signaling factors that act as **transcription activators** and **transcription repressors**. Homeotic selector genes regulate the expression of the homeotic selector genes in the posterior, segment polarity, and homeotic selector genes of Drosophila have been identified in mammals and, as the case in Drosophila, some of these mammalian orthologs also play a role in vertebrate development. For example, the expression of the mammalian orthologs is controlled in Chapters 9, 10, and 12, the phenotypic action of the head and neck region (covered in Chapter 17), and the middle of the trunk (covered in Chapter 4) is regulated at least in part by these genes.

The segment and molecular group of mammalian orthologs of the homeotic selector genes of Drosophila

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Description:

2015 BMA Medical Book Awards Highly Commended in Basic and Clinical Sciences Category! **Larsen's Human Embryology** works as a well-organized, straightforward guide to this highly complex subject, placing an emphasis on the clinical application of embryology and presenting it in an easily digestible manner.

Ideal for visual students, this updated medical textbook includes a **superior art program, brand-new online animations**, and **high-quality images throughout**; clear descriptions and explanations of human embryonic development, based on all of the most up-to-date scientific discoveries and understanding, keep you abreast of the latest knowledge in the field.

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