

Mesoderm Encyclopedia Article

Mesoderm

The following sections of this BookRags Literature Study Guide is offprint from Gale's For Students Series: Presenting Analysis, Context, and Criticism on Commonly Studied Works: Introduction, Author Biography, Plot Summary, Characters, Themes, Style, Historical Context, Critical Overview, Criticism and Critical Essays, Media Adaptations, Topics for Further Study, Compare & Contrast, What Do I Read Next?, For Further Study, and Sources.

(c)1998-2002; (c)2002 by Gale. Gale is an imprint of The Gale Group, Inc., a division of Thomson Learning, Inc. Gale and Design and Thomson Learning are trademarks used herein under license.

The following sections, if they exist, are offprint from Beacham's Encyclopedia of Popular Fiction: "Social Concerns", "Thematic Overview", "Techniques", "Literary Precedents", "Key Questions", "Related Titles", "Adaptations", "Related Web Sites". (c)1994-2005, by Walton Beacham.

The following sections, if they exist, are offprint from Beacham's Guide to Literature for Young Adults: "About the Author", "Overview", "Setting", "Literary Qualities", "Social Sensitivity", "Topics for Discussion", "Ideas for Reports and Papers". (c)1994-2005, by Walton Beacham.

All other sections in this Literature Study Guide are owned and copyrighted by BookRags, Inc.

Contents

Mesoderm Encyclopedia Article.....	1
Contents.....	2
Mesoderm.....	3

Mesoderm

Mesoderm is one of the three primary germ layers of a vertebrate embryo. A zygote is formed after fertilization which develops by cell division into a blastula. This is followed by gastrulation which is the process of cell movements and translocations that results in the formation of a three layered embryo. The superficial layer is known as ectoderm, the interior layer is endoderm, and the middle germ layer is known as mesoderm. Through the process of differentiation, mesoderm gives rise to all the organs between the ectoderm and endoderm. These include striated (voluntary) skeletal muscle, heart muscle, blood, spleen, adrenal cortex, kidneys, and the various kinds of connective tissue, *e.g.*, cartilage, bone, smooth muscle (this includes the involuntary muscle of the uterus, the muscular layers of the gut, and urinary bladder), the connective tissue layers of the skin, and endothelial lining of blood vessels.

A fish is quite different from a frog, a lizard, a mouse or a human. Yet, the mesoderm gives rise to the same organs in each of these diverse forms. The kidneys of a frog (mesonephros) and the kidneys of a human (metanephros) are both derived from mesoderm as is the kidney of all vertebrates. The germ layer origin of differentiated tissues is strictly conserved which is why students of embryology still learn about the primary germ layers.

Clearly, the most of the mass of the adult body is of mesodermal origin. Malignancies of mesodermal origin are referred to as sarcomas. Prefixes to that term give a more precise definition of that which is malignant. For example, chondrosarcoma is a malignancy of cartilage and fibrosarcoma is a malignancy of fibrous connective tissue. While mesoderm is the dominant tissue of the body, it is vulnerable to fewer malignancies than epithelial cells.