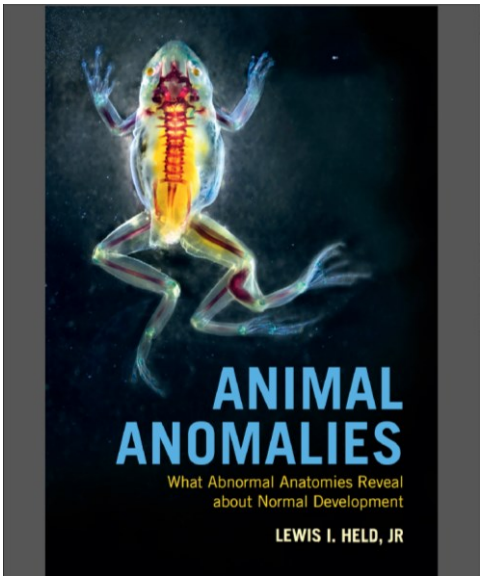
New Book Announcement



Animal Anomalies: What Abnormal Anatomies Reveal about Normal Development

Held, Lewis I., Jr. 2021. Cambridge University Press. ISBN 978-1-108-83470-4 Hardback; ISBN 978-1-108-81974-9 Paperback

Geneticists should be familiar with the approach of learning about normal gene function by studying mutations. We deduce normal function by studying the consequences of things going wrong. But it is easy to forget the power of insight that comes from that simple perspective. In this wonderful exploration of development, Lewis Held uses both familiar and less-well-known examples of frogs, flies, dogs, and cats to delve deeply into the underlying biological principles their traits can illustrate.

Let's look at an example or two. Rather than overwhelming the reader with a lot of technical terminology, the primary light is directed on key principles. But scientific precision is not traded for ease of accessibility. The focus is the connections that are made. For example, the four wings in flies carrying *bithorax* led to discovery of the Hox gene complex that defines anterior-posterior body axis throughout the animal kingdom. It is hard to predict where an interesting anomaly might lead. Held also describes the genetic basis of traits that pet-owners find endearing. Short legs of the Dachshund, the bulldog's underbite, a Dalmatian's spots, and the loss of hair in Mexican hairless dogs show the power of selective breeding, a process that differs from natural selection primarily due to the intentions, or perhaps sometimes the sense of humor, of the breeder. In addition to this fascinating exploration of genetic mechanisms and their outcomes is another idea that I have always valued in Lewis Held's work: the respect for pioneering insights and discoveries by earlier researchers like Curt Stern, Walter Gehring, Ernst Hadorn, and others. I remember hearing a faculty advisor once criticize a new graduate student for planning to cite a research article that was more than a couple years old as being irrelevant to "modern research". Thankfully, writers like Held remind us that the story of discovery is a long one, and critical insights can come from anywhere.

Jim Thompson, Editor, DIS