Sexual Development
Genetics, Molecular Biology, Evolution, Endocrinology, Embryology and Pathology of Sex Determination and Differentiation
Three conditions are essential for evolution: variation, heredity and time. Most animal species transmit genetic information through sexual reproduction in order to meet the first two conditions. The consequence for sexual reproduction is the need for (at least) two sexes with different reproductive roles. Consequently, evolutionary issues arise, such as differences in morphological and behavioral attributes between the sexes, which are reflected in the plethora of animal sex-determining systems. Indeed, a transition to asexual development may occur, sometimes induced by microbial endosymbionts. All these aspects are represented in the insect sex-determining system, which is the focal topic of this issue of Sexual Development.

Sex Determination and Differentiation in Insects is recommended to scientists interested in the evolution of sex determination in particular and developmental pathways in general.

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Aims and Scope

Recent experimental and clinical research have led to impressive advances in our knowledge of the genetic and environmental mechanisms governing sex determination and differentiation, their evolution as well as the mutations or endocrine and metabolic abnormalities that interfere with normal gonadal development. The journal Sexual Development aspires to provide a unique forum for this rapidly expanding field. Its broad scope will cover all aspects of genetics, molecular biology, embryology, endocrinology, evolution and pathology of sex determination and differentiation in humans and animals. It will publish high-quality original research manuscripts, review articles, short reports, case reports and commentaries. Sexual Development is a modern journal managed by an internationally renowned and multidisciplinary editorial team of three Chief Editors and ten prominent scientists serving as Section Editors, supported by a distinguished panel of editorial board members. They are committed to ensuring fast and author-friendly editorial processing and peer reviewing. Contributions from the scientific community are invited to make Sexual Development the long-awaited and viable forum for basic and medical research on sex determination and differentiation.

Sexual Development

Publishes high-quality original reports and reviews covering all biological and clinical aspects of human and animal sexual determination and differentiation.

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The contribution of karyotype heterogeneity to human diseases is a crucial but overlooked issue. Recent genomic research has revealed high levels of genetic/epigenetic heterogeneity, in particular karyotypic heterogeneity and somatic mosaicism associated with many complex but common human diseases. These important findings challenge the current gene-based concept of many common diseases. To frame this new emerging field, this publication presents pertinent examples linking karyotype heterogeneity to diseases and identifying it in the general population. Specifically, a few key topics essential to understanding karyotypic heterogeneity are discussed, including genomic instability, non-clonal chromosome aberrations, previously unreported/ignored types of chromosome aberrations, cell death heterogeneity and somatic mosaicism. These subjects are discussed with an emphasis on determining the biological implications of genomic heterogeneity and synthesizing these implications into the frameworks of systems biology and genome theory.

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