Sex Determination and Differentiation in Reptiles

Reptiles are a fascinating group for the study of sexual development because they exhibit a wide range of sex-determining mechanisms, from strict genetic sex determination (GSD) to strict thermal sex determination (TSD) and intermediate systems of GSD that are to various degrees overridden by environmental effects.

This thematic issue presents the latest data on different aspects of sex determination in reptiles. Following an evolutionary perspective on why reptiles might be predisposed to evolve TSD, the papers in this issue explore in detail the different genetic and molecular mechanisms of sex determination and differentiation. They consider recent findings such as the discovery of new genes differentially expressed at male and female sex-determining temperatures, a new model of the role of aromatase, and the contribution of heat-shock proteins to TSD in the American alligator. Further studies examine the role played by sex allocation, the advantage of viviparity, and the effects of anthropogenic climate change on the sex ratio in TSD reptile populations.

Providing a valuable overview for both students and researchers, this publication is essential reading for developmental and reproductive biologists, herpetologists, comparative endocrinologists, evolutionary biologists and geneticists.

Cover illustration: **Left figure:** Geckos possess diverse sex determining mechanisms making them excellent candidates as a model clade for the study of vertebrate sex determination (provided by Tony Gamble). **Right figure:** Localization of the Dmrt1 gene to microchromosomes of the snake *Natrix natrix* by fluorescence in situ hybridization (provided by Teresa Capriglione).

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