

Cellular and Animal Models in Human Genomics Research

Edited by

Katherina Walz and Juan I. Young

Ever advancing genomic sequencing technology has made it possible to identify genes and genetic variation that exhibit associations to specific phenotypes. For human geneticists and disease specialists, assigning correlative versus causative roles to these associations and understanding the physiological consequences of gene variations pose an ongoing challenge, and the vast majority of genetic variants remain functionally uncharacterized.

Cellular and Animal Models in Human Genomics Research is an indispensable resource for applying comparative genomics in the annotation of disease-gene associated variants identified by human genomic sequencing. Walz and Young, editors, have compiled a thorough overview and effective protocols for the use of cellular and animal modeling methods to turn lists of plausible genes into causative biomarkers by rigorous proof for their role in disease. With chapters written by international experts, this book first addresses fundamental aspects of using cellular and animal models in genetic and genomic studies, and moves on to present in-depth examples of specific models and their utility, including yeast, worms, flies, fish, and human cells. Protocols for properly conducting model studies, genomic technology, modeling candidate genes versus genetic variants, integrative modeling, and utilizing induced pluripotent stem cells and employing CRISPR-Cas9, are also discussed in depth.

Key Features

- Provides a thorough and accessible resource, helping researchers and students employ cellular and animal models in their own genetic and genomic studies
- Offers guidance on effectively interpreting the results, and significance of genetic and genomic model studies for human health
- Features chapters from international experts on the use of specific cellular and animal models, including yeast, worms, flies, fish, mice, and human cells



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