Popular Model Organisms

Model organisms are instrumental to the study of gene functions. Gene editing technology has always played a crucial role in the research on gene functions, diseases and drug discovery, through its application in genetic engineering of model organisms, mimicking of human diseases, as well as observation of physiological or pathological changes. In particular, the CRISPR/Cas9 technology has achieved remarkable breakthroughs in recent years, significantly improving the efficiency of genetic engineering in model organisms, and facilitating more extensive and in-depth applications of animal models in various research fields.

We shall never cease to explore life. The completion of the Human Genome Project and the coming of post-genome research era have expedited the exploration into human gene functions as well as human physiology and pathology. Considering the evolutionary conservation of biology, the development of numerous model organisms has contributed significantly to the exploration of life.

Currently, commonly used model organisms include the mouse (mammal), zebrafish (fish), Drosophila (insect), Caenorhabditis elegans (nematode), yeast (fungi), Escherichia coli (prokaryote) and Arabidopsis thaliana (plant).

The mouse model is the most widely-used model in the field of biomedical research. Mice can be genetically-engineered to mimic human diseases or conditions, hence playing a crucial role in drug discovery. In addition, genetic uniformity of inbred mosue strains ensures the accuracy and reproducibility of research and therefore they can serve as a highly economical and efficient research tool. Another widely-used model in biomedical research on human diseases is the zebrafish. This is due to its short generation time and its highly-conserved cell signaling pathway with humans. With its clear developmental lineage and simple structure, the nematode model also serves as a popular model organism in biomedical research.

Shanghai Model Organisms offers customization and services for a variety of model organisms to meet different research purposes.

- Mouse models
- Zebrafish models
- Nematode models