BT 634 Animal Models in Biomedical Research

Pre-requisites: Nil

Course Contents:

Animal models in biomedical research-a brief history; Brief idea of laboratory animals including mice, rats, guinea pigs, rabbits and drosophila; Anatomy and histology of laboratory mouse; Different strains of laboratory animals and their characteristics; Handling and housing laboratory animals; Animal ethics guidelines; Animal surgery; Production of transgenic and chimeric mouse; Production of gene knockout, gene knock-in and conditional knockout animal models; Animal models for different diseases of humans: homologous, isomorphic and predictive animal models; Animal models for inflammatory diseases, infectious diseases and other chronic diseases in humans.

Texts:

- 1. Min T, Chang K. Animal models of human disease , Academic Press, 2011.
- 2. Hau J, Van Hoosier GL. Handbook of Laboratory Animal Science, Second Edition: Animal Models, CRC Press, 2004.
- 3. Pierce K. H. Chow, Robert T. H. Ng, Bryan E. Ogden. Using Animal Models in Biomedical Research: A Primer for the Investigator, World Scientific; 2008.
- 4. Nagy A, Gertsenstein M, Vintersten K, Behringer R. Manipulating the mouse embryo: A laboratory manual, Cold Spring Harbor, 2003.
- 5. Gross DR. Animal Models in Cardiovascular Research, 3rd Edition, Springer, 2009.
- 6. Shafrir E. Animal Models of Diabetes, 2nd Edition: Frontiers in Research, CRC Press, 2007.
- 7. Kunnumakkara et al., Manipulation of mouse genome and its applications in biomedical research , Amala Research Bulltein, 2005; 24:225-249.