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State-of-the-art technologies for the generation of animal models of human disease

Animal models play a critical role in the exploration and characterization of disease pathophysiology, target identification and in the *in vivo* evaluation of novel therapeutic agents and treatments. The "better" the animal model, the higher the chances that clinical trials will be successful and drugs will enter the market at lower costs, in shorter time. Genome engineering technologies have soared in recent years: Chemical mutagenesis, RNA interference, gene targeting in ES-cells, humanized genes and most recently nucleases, such as ZFNs, TALENs and CRISPR/Cas9. New technologies provide new avenues not only to mimic multi factor based disease such as cancer but also to extend model generation on higher species and even human or patient derived cells and tissue. New inducible switches are underway which will allow altering gene expression of not just one but multiple genes and even entire signal transduction pathways within the same cell and tissue, e.g., during disease progression at will in a temporospatial control way. Technologies presented will be of tremendous value for future generations of cellular or animal models and when carefully selected, designed and conducted will play an important part of any translational drug development strategy.

Biography

Stefan Selbert has achieved his PhD at the Max-Planck-Institute of Biochemistry in Martinsried and holds a certificate in Business Administration. He also functions as an Evaluator in Brussels for EU-FP7-PEOPLE and EUREKA Eurostar programs.

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