

Partial Genetic Humanization

Strategy Examples

Point mutations, single exon replacement

Advantages

- Gene retains mouse's wild-type expression pattern

Drawbacks

- Limited design does not model all aspects of homologous human gene

Humanization by Transgenic Knockin

Insertion of human genomic or coding sequence into mouse genome

- Random insertion is typically the lowest-cost option

- Proper gene regulation may not be maintained

- May require knockout of mouse gene and tracking of 2 separate alleles

TruHumanization™ Complete Gene Replacement

Entire mouse gene replaced including introns and potentially promoter and UTRs

- Gene controlled by human regulatory elements
- Most faithful model for study of human gene

- Requires high degree of technical skill to create