Diaph1 conditional knockout transgenic mice (Columbia)

These conditional knockout transgenic mice are useful for studying Diaphanous-1 (DIAPH1) and its role in tissue ischemia since DIAPH1 regulates actin dynamics, signal transduction, and metabolic functions.

Based on bioinformatics analysis of the mouse Diaph1 cDNA sequence (NM_007858) and the exon / intron organization of the gene, the floxed mouse line that was developed is suitable for the generation of a conditional deletion model for the Diaph1 gene. The targeting strategy consists of insertion of a loxP site together with an FRT-flanked neomycin selection cassette within the intron 7 and a single distal loxP within the intron 3 of Diaph1. This was followed by homologous recombination in embryonic stem (ES) cells, blastocyst injection, generation and identification of chimeras, identification of chimeric mice, and breeding with Flp deleter mice to remove the neomycin cassette. DIAPH1 silencing fosters MFN-2 dependent and MFN2-independent mechanisms by whcih it attenuates mitochondria stress and protects from I/R and H/R injury.

References

1. Yepuri et al. , https://pubmed.ncbi.nlm.nih.gov/37903764/

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