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Titel des Beitrags:
A new Fgf10 mutation in the mouse leads to atrophy of the harderian gland and slit-eye phenotype in heterozygotes: a novel model for dry-eye disease?

Abstract:
PURPOSE: The purpose of the present study was to characterize a new slit-eye phenotype in the mouse. METHODS: Genomewide linkage analysis was performed, and a candidate gene was sequenced. Eyes of the mutants were described morphologically, histologically, and by in situ hybridization. To allow morphologic and functional studies of the retina, mutants were outcrossed to C57BL/6. RESULTS: Within an ongoing ethyl-nitrosourea mutagenesis screen with C3HeB/FeJ mice, the authors identified a new mutant (referred to as Aey17) showing a slit-eye phenotype in heterozygotes; homozygous mutants are not viable because of major developmental defects. This mutation was mapped to the distal end of mouse chromosome 13, suggesting Fgf10 (encoding the fibroblast growth factor 10) as a candidate gene. An A-->G transition in the penultimate base of the first intron of Fgf10 leading to aberrant splicing with an additional 49 bp in exon 2 and to a frameshift with a premature stop codon after 54 new amino acids was identified. Histologic analysis of the major ocular tissues (cornea, lens, retina) did not reveal major alterations compared with the wild type, but the size of the Harderian gland was remarkably reduced in heterozygotes. Although Fgf10 was expressed in the developing retina, neither
electroretinography nor the virtual drum indicated any abnormalities in heterozygous mutants; overall eye size was identical in wild types and heterozygotes. CONCLUSIONS: The mutation in the Fgf10 gene leads to a dominant slit-eye phenotype caused by atrophy of the Harderian gland.