Therapeutics & Vaccines

DESIGN AND APPLICATION OF NOVEL PHOTORECEPTOR-SPECIFIC PROMOTERS FOR RETINAL GENE THERAPY APPLICATIONS

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Inventors: David Gamm, Yashdeep Phanse

The Invention

UW-Madison researchers have developed a novel photoreceptor specific promoter-enhancer construct that they call “IMPG2 PE1”, which is based on two distinct regulatory sequences of the human Interphotoreceptor matrix proteoglycan 2 gene (IMPG2). The inventors performed a bioinformatics analysis, initially looking for genes that are expressed in rods & cones but not in other retinal cells, and which are well conserved across species. They narrowed in on IMPG1 and IMPG2 for further study, and ultimately found that IMPG1 sequences didn’t work well. However, IMPG2 provided strong specific expression, and they found a promoter and two enhancer sequences (PE1 upstream of the promoter, and PE2 downstream of the gene) that influenced IMPG2 gene expression. Their testing revealed that a combination of the IMPG2 promoter and PE1 (upstream) enhancer sequence provided the best activity (high specific expression), and that they could place the enhancer immediately next to or with its native spacing ~4500bp upstream.

Additional Information

For More Information About the Inventors

- David Gamm

Tech Fields

- Research Tools : DNA & RNA tools
- Research Tools : Synthesis & purification
- Therapeutics & Vaccines : Genetic disorders
- Therapeutics & Vaccines : Genetic disorders

For current licensing status, please contact Andy DeTienne at adetienne@warf.org or 608-960-9857