

Title (en)  
OCULAR GENE THERAPY USING AVALANCHE-MEDIATED TRANSFECTION

Title (de)  
AUGEN-GENTHERAPIE AM AUGEN UNTER VERWENDUNG VON AVALANCHE-VERMITTELTER TRANSFEKTION

Title (fr)  
THÉRAPIE GÉNÉRIQUE OCULAIRE UTILISANT LA TRANSFECTION MÉDIÉE PAR AVALANCHE

Publication  
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Application  
**EP 06801803 A 20060815**

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Abstract (en)  
[origin: WO2007022403A2] The present invention provides a method of treating an ocular disease in a subject. In a first step, a nucleic acid is introduced into cells or a tissue. The nucleic acid is introduced by electron avalanche transfection. With this technique, a high electric field induces a vapor bubble and plasma discharge between an electrode and the surrounding medium. The formation of a vapor bubble generates mechanical stress. Plasma discharge through the ionized vapor in the bubble enables connectivity between the electrode and the surrounding medium, so that mechanical stress and electric field are applied simultaneously, which results in permeabilization of the cells or tissue. This permeabilization in turn allows the nucleic acid to enter the cell or tissue. Cells or tissue containing the nucleic acid are then transplanted into an ocular region of the subject.

IPC 8 full level  
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**A61P 27/02** (2017.12); **A61P 27/06** (2017.12); **C07K 14/811** (2013.01); **C12N 15/87** (2013.01)

Citation (search report)  
• [Y] CHALBERG T W ET AL: "Novel physical methods for nonviral DNA transfection of RPE", IOVS, vol. 46, no. Suppl. S, 2005, & ANNUAL MEETING OF THE ASSOCIATION-FOR-RESEARCH-IN-VISION-AND-OPHTHALMOLOGY; FT LAUDERDALE, FL, USA; MAY 01 -05, 2005, pages 4690, XP009130924, ISSN: 0146-0404  
• [Y] SEMKOVA IRINA ET AL: "Autologous transplantation of genetically modified iris pigment epithelial cells: a promising concept for the treatment of age-related macular degeneration and other disorders of the eye.", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA 1 OCT 2002 LNKD- PUBMED:12239351, vol. 99, no. 20, 1 October 2002 (2002-10-01), pages 13090 - 13095, XP002606109, ISSN: 0027-8424  
• [Y] TAMAI MAKOTO: "Progress in pathogenesis and therapeutic research in retinitis pigmentosa and age-related macular degeneration", NIPPON GANKA GAKKAI ZASSHI, vol. 108, no. 12, December 2004 (2004-12-01), pages 750 - 769, XP009140228, ISSN: 0029-0203  
• [Y] CHALBERG THOMAS W ET AL: "phiC31 integrase confers genomic integration and long-term transgene expression in rat retina.", INVESTIGATIVE OPHTHALMOLOGY & VISUAL SCIENCE JUN 2005 LNKD- PUBMED:15914635, vol. 46, no. 6, June 2005 (2005-06-01), pages 2140 - 2146, XP002606111, ISSN: 0146-0404  
• [Y] MILLER JASON M ET AL: "Precision and safety of the pulsed electron avalanche knife in vitreoretinal surgery.", ARCHIVES OF OPHTHALMOLOGY, vol. 121, no. 6, June 2003 (2003-06-01), pages 871 - 877, XP009130925, ISSN: 0003-9950  
• [A] BORRAS T: "RECENT DEVELOPMENTS IN OCULAR GENE THERAPY", EXPERIMENTAL EYE RESEARCH, ACADEMIC PRESS LTD, LONDON LNKD- DOI:10.1016/S0014-4835(03)00030-7, vol. 76, no. 6, 1 June 2003 (2003-06-01), pages 643 - 652, XP001155551, ISSN: 0014-4835  
• See references of WO 2007022403A2

Cited by  
US9351790B2; US9226790B2

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