

Transplantation of human embryonic stem cell-derived photoreceptors restores some visual function in *crx*-deficient mice.

[Lamba DA](#), [Gust J](#), [Reh TA](#).

Department of Biological Structure, University of Washington, Seattle, WA 98195, USA.

Some of the most common causes of blindness involve the degeneration of photoreceptors in the neural retina; photoreceptor replacement therapy might restore some vision in these individuals. Embryonic stem cells (ESCs) could, in principle, provide a source of photoreceptors to repair the retina. We have previously shown that retinal progenitors can be efficiently derived from human ESCs. We now show that retinal cells derived from human ESCs will migrate into mouse retinas following intraocular injection, settle into the appropriate layers, and express markers for differentiated cells, including both rod and cone photoreceptor cells. After transplantation of the cells into the subretinal space of adult *Crx*(-/-) mice (a model of Leber's Congenital Amaurosis), the hESC-derived retinal cells differentiate into functional photoreceptors and restore light responses to the animals. These results demonstrate that hESCs can, in principle, be used for photoreceptor replacement therapies.

PMID: 19128794 [PubMed - in process]