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## Human cord blood cells can differentiate into retinal nerve cells

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**Abstract.** Retinal degeneration and dystrophy are the major causes of blindness in the developed world. It has been reported that human cord blood cells (HCBCs) can differentiate into neuron-like cells *in vitro*. We have recently demonstrated that bone marrow cells (BMCs) of both mice and rats can differentiate into retinal nerve cells (RNCs). In the present study, we show the differentiation capacity of HCBCs into RNCs *in vivo*. We transplanted lineage-negative HCBCs into the subretinal space of severe combined immunodeficiency (SCID) mice. Two weeks after the transplantation, some of the transplanted cells expressed human nestin, human MAP2, human neuron specific enolase (NSE),  $\beta$ -III tubulin and also rhodopsin. These results indicate that HCBCs can differentiate into RNCs and suggest that our new strategy could be used for the regeneration of retinal nerve cells in degenerative or dystrophic diseases.

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