

# Nogo-A inactivation improves visual plasticity and recovery after retinal injury

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Myelin-associated proteins such as Nogo-A are major inhibitors of neuronal plasticity that contribute to permanent neurological impairments in the injured CNS. In the present study, we investigated the influence of Nogo-A on visual recovery after retinal injuries in mice. Different doses of N-methyl-D-aspartate (NMDA) were injected in the vitreous of the left eye to induce retinal neuron death. The visual function was monitored using the optokinetic response (OKR) as a behavior test, and electroretinogram (ERG) and local field potential (LFP) recordings allowed to assess changes in retinal and cortical neuron activity, respectively.

Longitudinal OKR follow-ups revealed reversible visual deficits after injection of NMDA 1 nmole in the left eye and

Moreover, OKR improvement was associated with shorter latency of the N2 wave of Nogo-A KO LFPs relative to WT animals. Strikingly, intravitreal injection of anti-Nogo-A antibody (11C7) in the injured eye exerted positive effects on cortical LFPs. This study presents the intrinsic ability of the visual system to recover from NMDA-induced retinal injury and its limitations. Nogo-A neutralization may promote visual recovery in retinal diseases such as glaucoma.

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