MedicalXpress

Identifying the molecular causes of vision loss in demyelinating disease

January 2 2013

Demyelinating diseases, such as multiple sclerosis (MS), are frequently associated with the progressive loss of vision. The retinal nerve damage is thought to be caused by immune system-mediated inflammation; however, other demyelinating disorders, such as Pelizaeus-Merzbacher disease, do not involve the immune system, suggesting that there are other causes of retinal nerve damage.

Deimination is a protein modification that is altered in patients with MS and PMD. In this issue of the Journal of Clinical Investigation, researchers led by Sanjoy Bhattacharya at the University of Miami investigated the role of deimination in retinal nerve damage in a mouse model of demyelinating disease (ND4 mice).

They found that deimination was reduced in patients with demyelinating diseases and in ND4 mice that exhibited vision loss. Decreases in deamination could be detected in the mice prior to the onset of other symptoms.

Bhattacharya and colleagues found that they could improve visual function in ND4 mice by restoring deimination. These results demonstrate that loss of deimination underlies nerve damage in demyelinating diseases and may be a suitable target for therapeutic intervention.

More information: Deimination restores inner retinal visual function in murine demyelinating disease, *Journal of Clinical Investigation*,

doi:10.1172/JCI64811