

## Progranulin deficiency on macrophages exacerbates choroidal neovascularization *via* inflammation

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Chronic inflammation of the retina involves in the etiology of choroidal neovascularization (CNV), but the mechanisms are still not fully understood in detail. Progranulin is a growth factor secreted from myeloid cells and the deficiency of that results in aberrant inflammation in the central nerve system. The purpose of this study was to investigate the role of progranulin in the pathology of CNV.

By using grn knockout ( $Grn^{-/-}$ ) and wild-type ( $Grn^{+/+}$ ) mice with laser-induced CNV model, we evaluated the area of CNV and the accumulation of macrophages around CNV. To evaluate inflammation of macrophages, we constructed macrophage cell lines (RAW264.7) in which the expression of progranulin was knocked-down by RNA interference. Expression level of VEGF-A, IL-1 $\beta$  and C3 were evaluated by Western blotting.

At 14 days after laser injury, average of CNV area and number of Iba-1<sup>+</sup> cells around CNV in the  $Grn^{-/-}$  mice significantly increased compared with those in  $Grn^{+/+}$ . When progranulin was knocked down, the expression level of VEGF-A, IL-1 $\beta$  and C3 were increased in RAW264.7 cells.

These findings indicate that progranulin deficiency might promote the progression of CNV *via* aberrant activation of macrophages and microglial cells.