

# A mathematical model of retinal neovascularization\*1

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## Abstract

A mathematical model based on diffusion equations is presented, which directly relates the production of Vascular Endothelial Growth Factor (VEGF) in the retina to oxygen concentration and consumption, the capillary density growth to VEGF production and concentration, and the oxygen concentration to the growth of capillary density. The effects of local neovascularization on local oxygenation, which in turn affects the vascularization process resulting in biological feedback, are examined.

**Author Keywords: Vascular endothelial growth factor (VEGF); Capillary growth; Retinal neovascularization**

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