

## **NG2 proteoglycan expression is functionally involved in microvascular remodeling**

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Recently, we have shown that NG2 proteoglycan expression is transiently upregulated along venules during capillary sprouting, implicating NG2 as a putative regulator of angiogenesis. The objective of this work was to quantify the effect of inhibiting NG2 function via in vivo delivery of NG2 antibody on microvascular remodeling in rat mesenteric tissue stimulated by 20-minute exteriorization and in chicken embryonic tissue stimulated by exogenous application of bFGF. In the mesentery model, osmotic mini-pumps pre-loaded with rabbit polyclonal NG2 antibody or control rabbit IgG (RIgG) were implanted in 250 g, female, Sprague-Dawley rats during the 20-minute stimulation period. 1, 3, and 5 days post surgery mesenteric tissues were immunolabeled for CD31. In the chicken model, circular paper disks were pre-loaded with bFGF, bFGF plus NG2 antibody, bFGF plus RIgG or PBS and placed onto the chorioallantoic membrane (CAM), which was harvested 4 days later. While in vivo delivery of NG2 antibody during microvascular remodeling in rat mesenteric tissue did not have an effect on vascular area, vascular density, or the number of capillary sprouts, antibody administration caused up to a 64% reduction in the percentage of spoke-wheel pattern positive angiogenic responses in the CAM assay (bFGF = 53%, 10/19 CAMs; bFGF+RIgG = 50%, 10/20; bFGF+NG2 Ab = 19%, 4/21; PBS = 29%, 6/21). The results suggest that NG2 plays a functional role in active microvascular remodeling, yet its regulatory effect might be redundant during microvascular growth associated with certain modes of stimulation. Supported by NIH HL65958.