

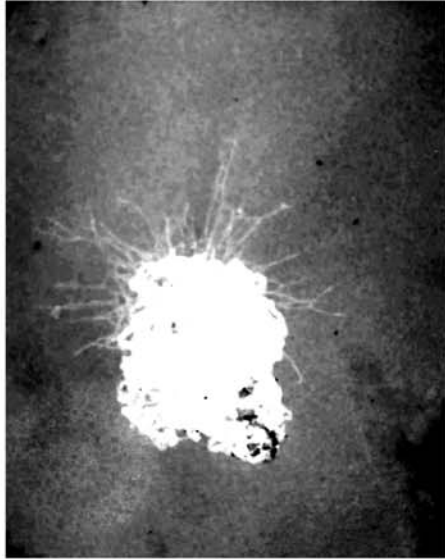
Abnormal Development of Retinal Vasculature and Retinal Neovascularization During Oxygen-Induced Ischemic Retinopathy in Endoglin Heterozygous Mice

Nader Sheibani, Ph.D.

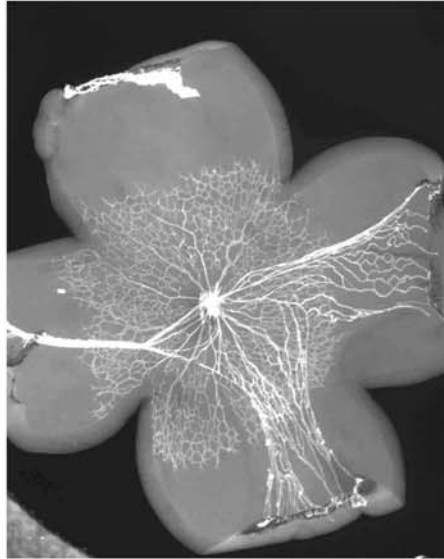
*University of Wisconsin
School of Medicine and Public Health
Departments of Ophthalmology and
Visual Sciences, and Pharmacology*

Retinal Vascular Development

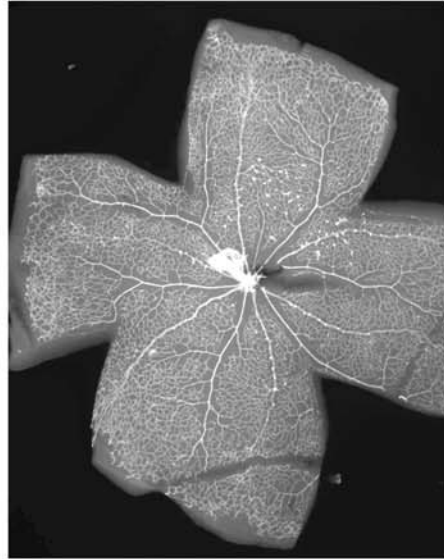
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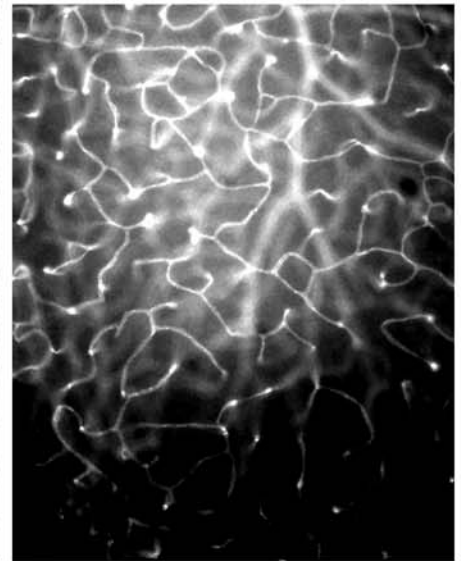
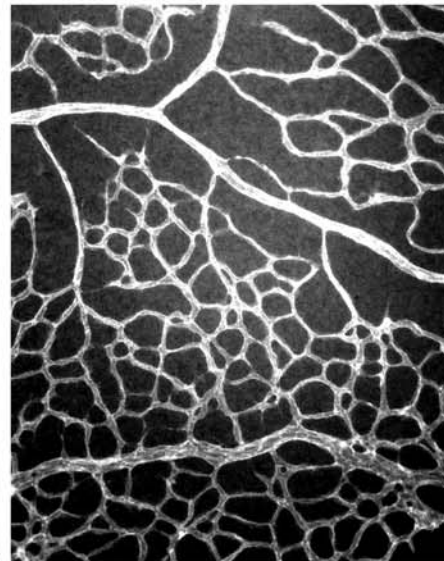
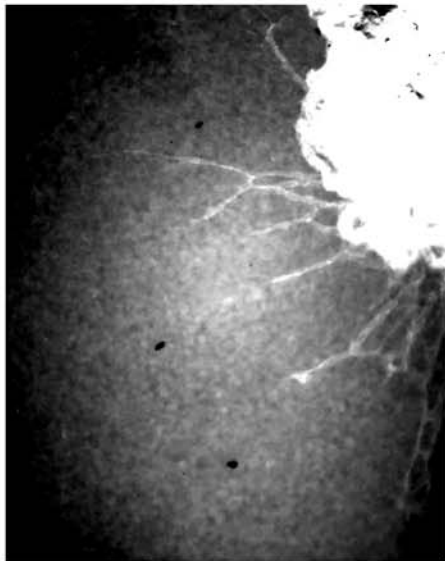
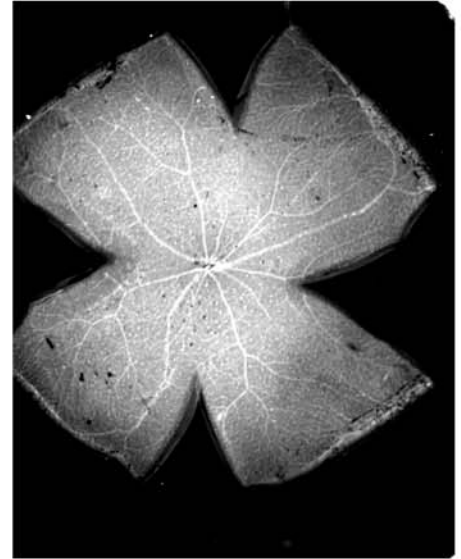
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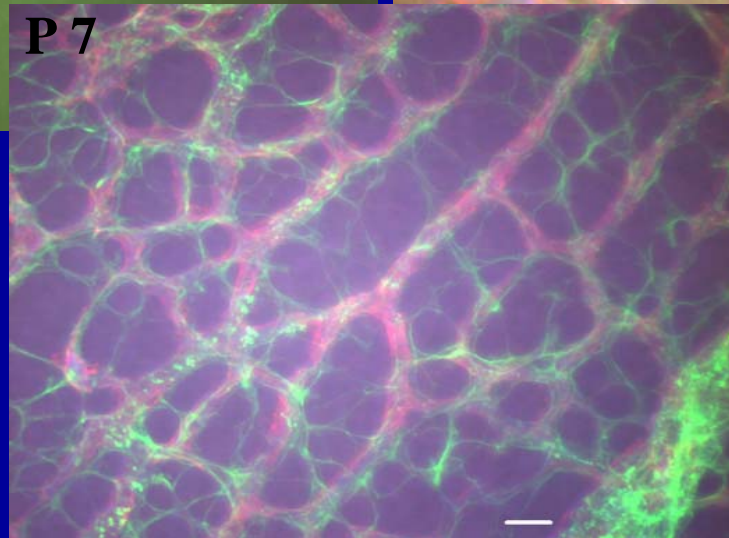
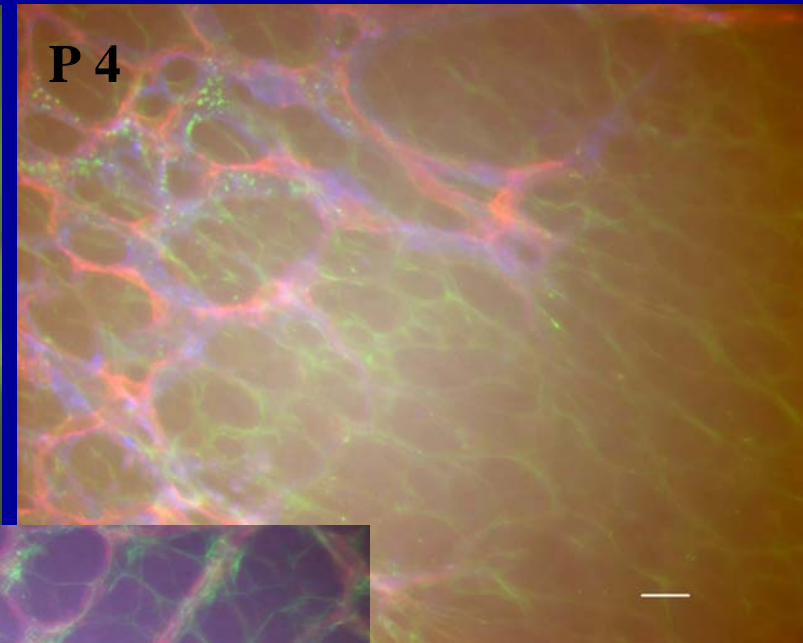
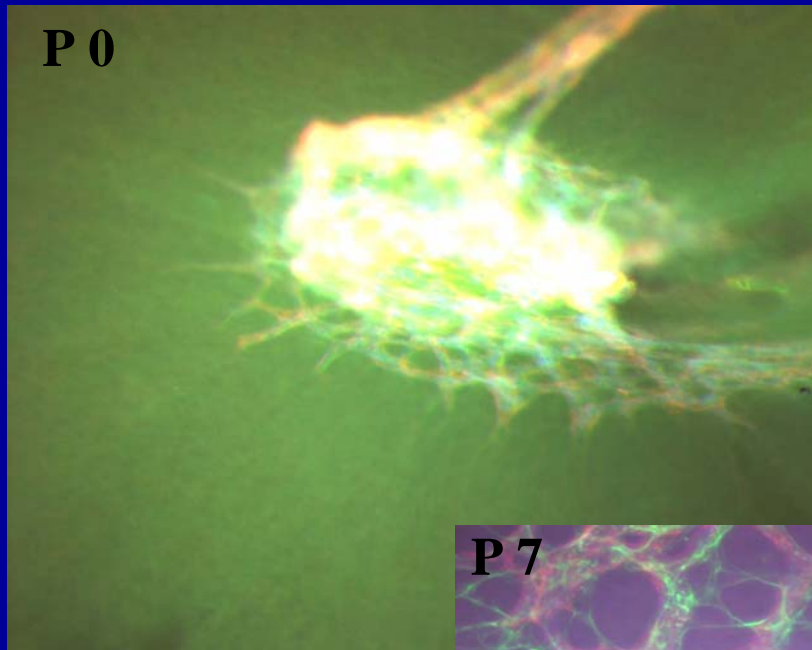
P7



P22



Normal Retinal Vascularization Occurs Along the Network of Astrocytes

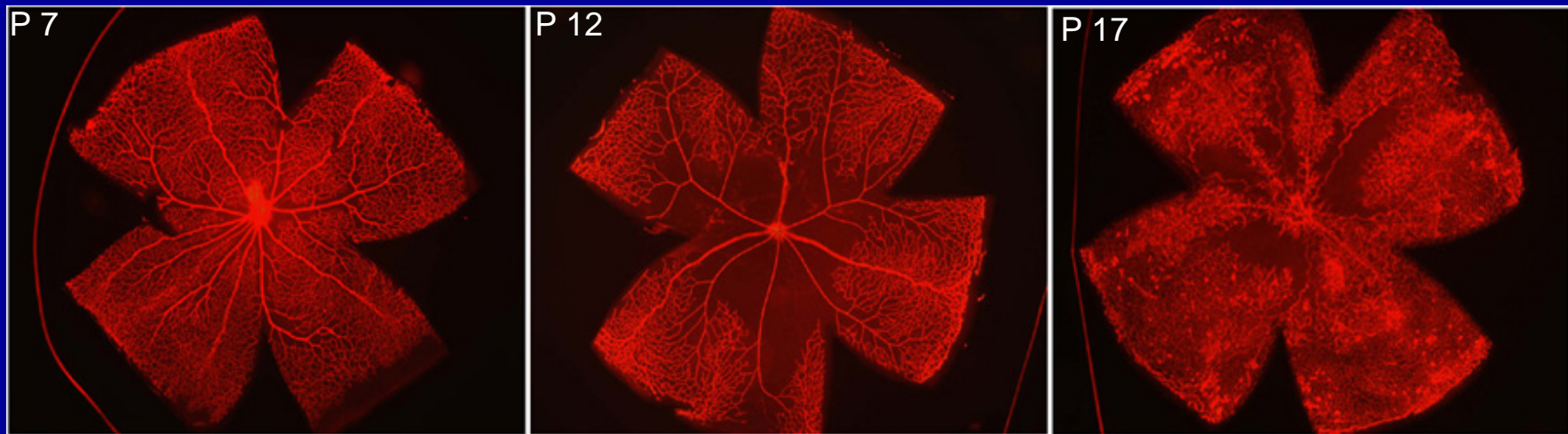
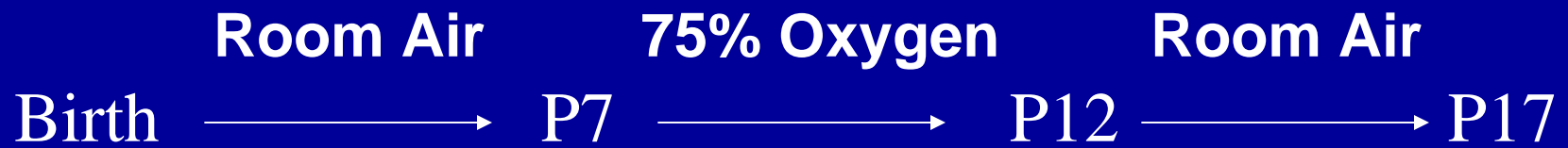


Blue: PECAM

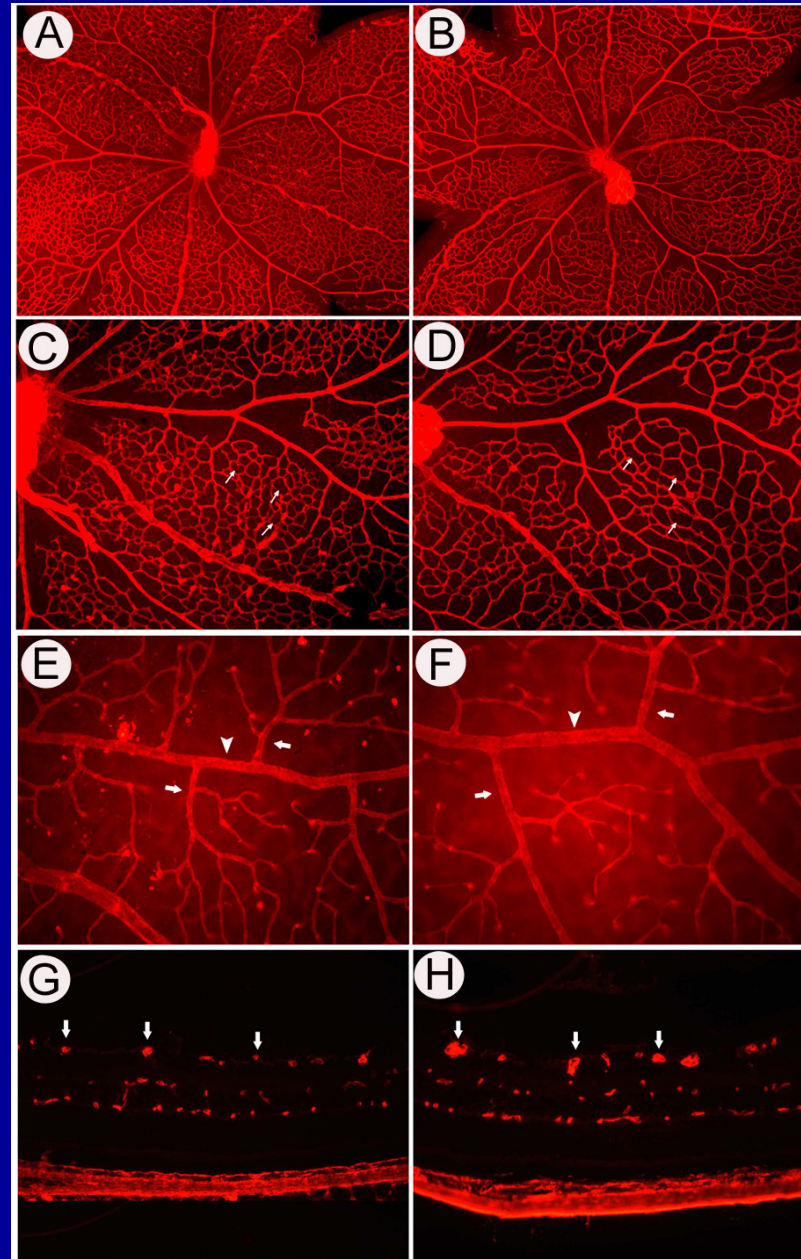
Red: NG2

Green: GFAP

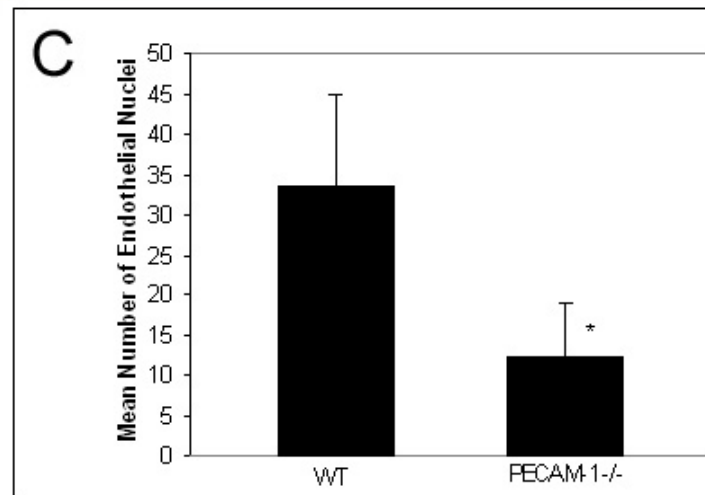
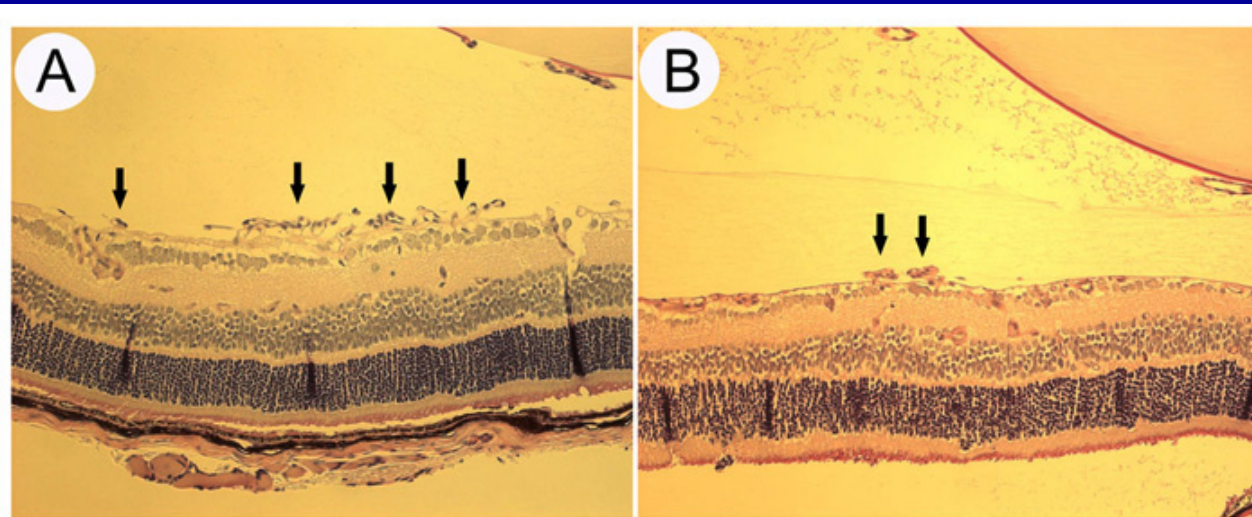
Oxygen-Induced Ischemic Retinopathy



Abnormal Development of Retinal Vasculature in PECAM-1^{-/-} Mice



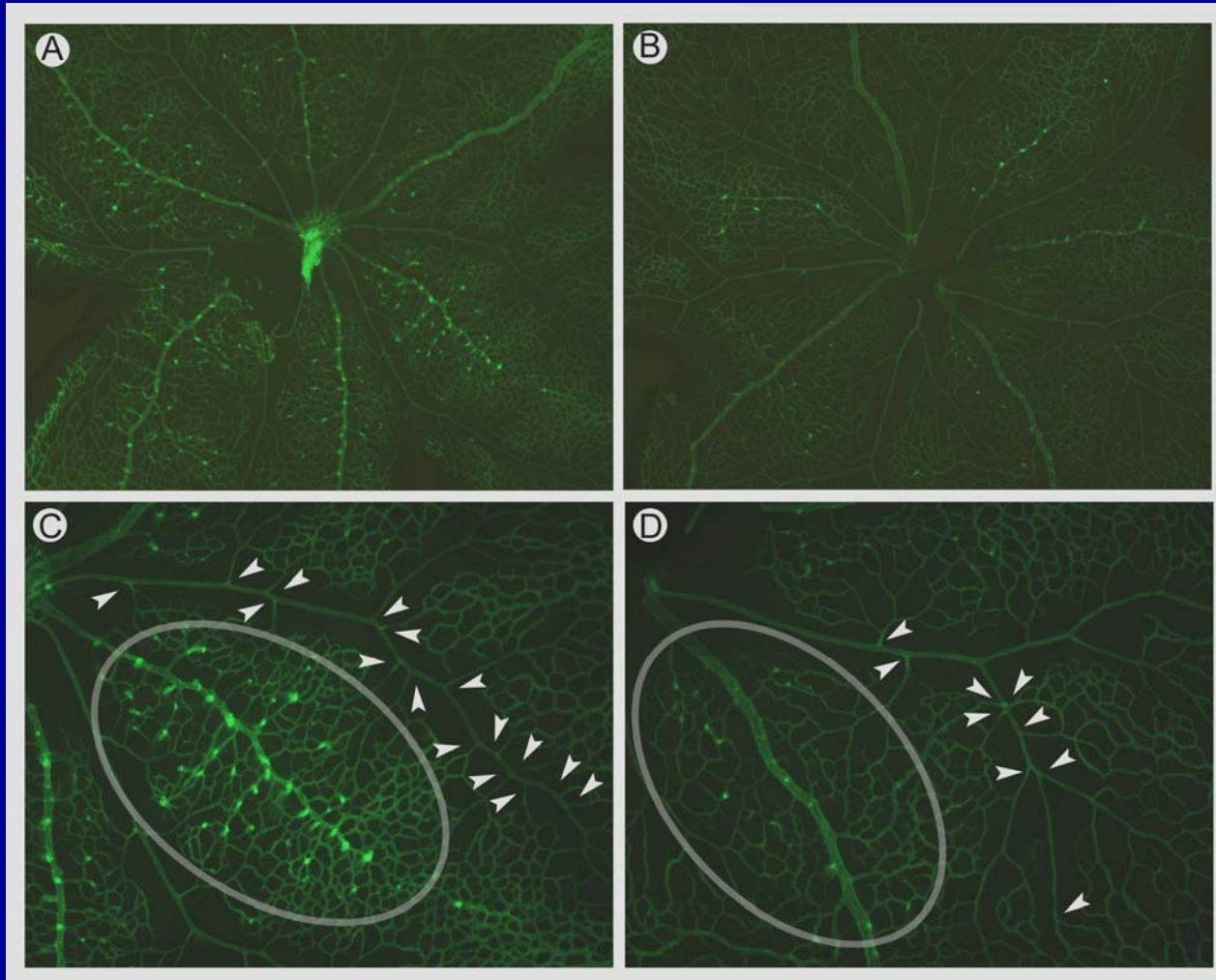
Attenuation of Retinal Neovascularization in PECAM-1^{-/-} Mice



Wholemout Staining of Retinal Vessels

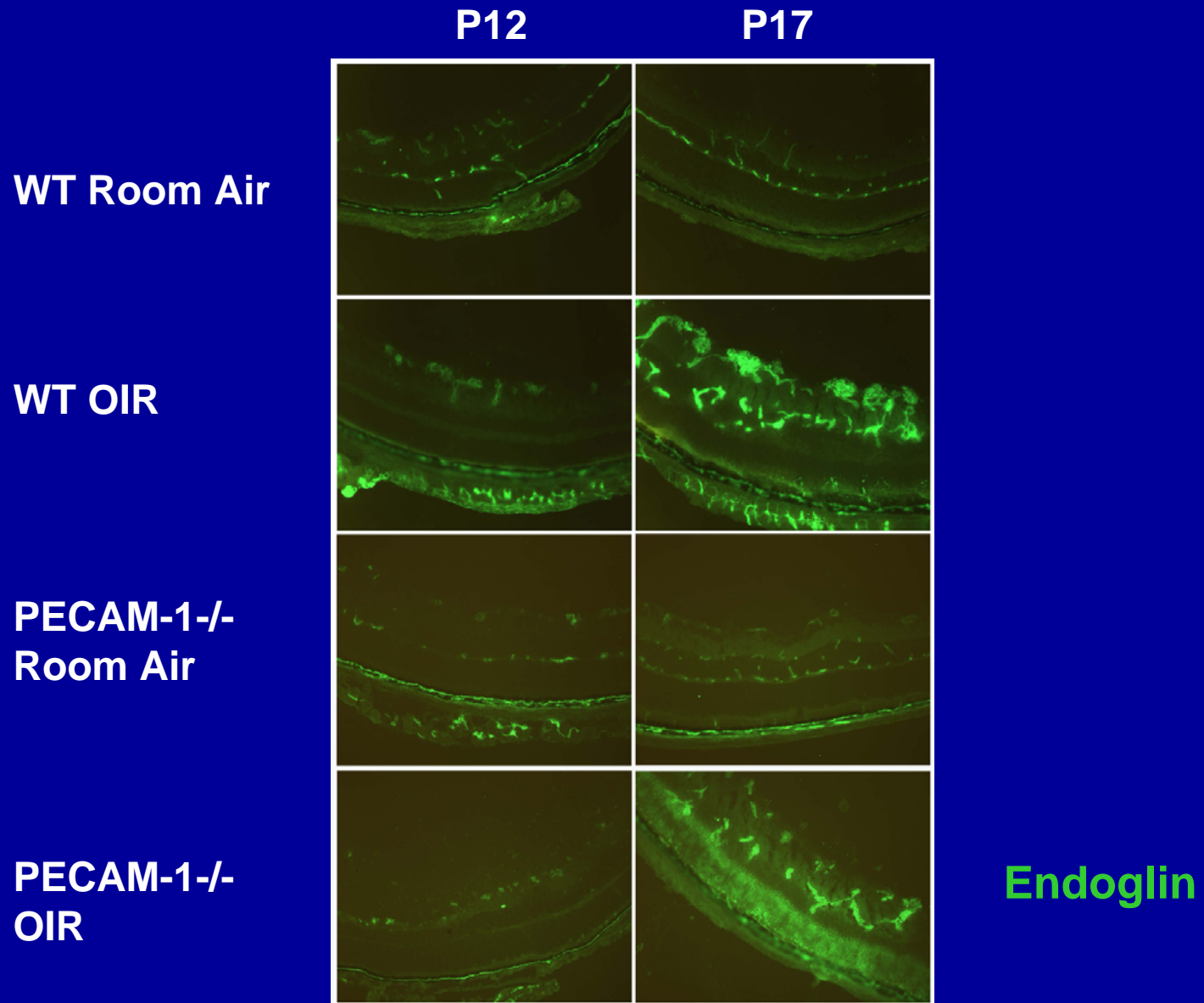
WT P8

PECAM-1^{-/-} P8

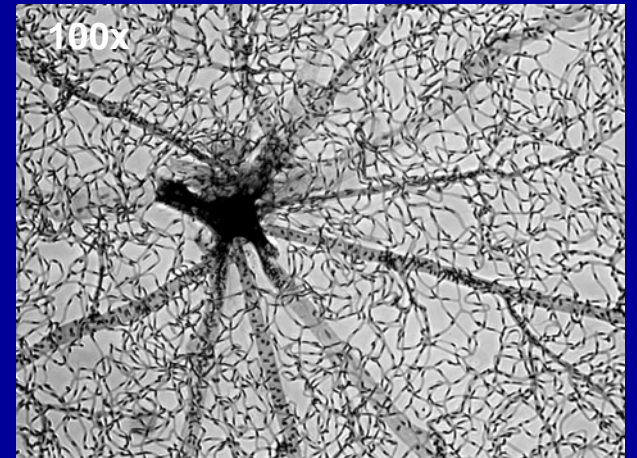
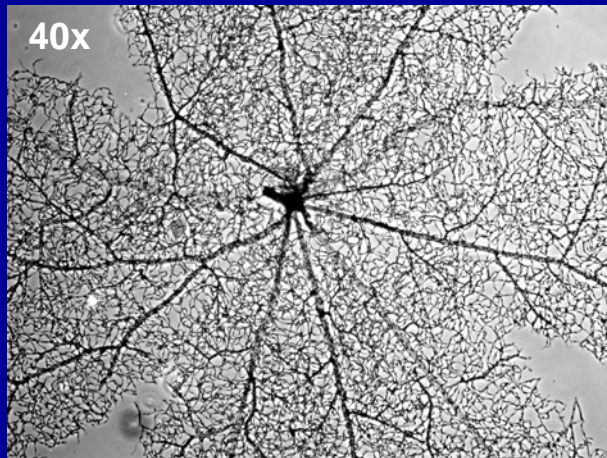
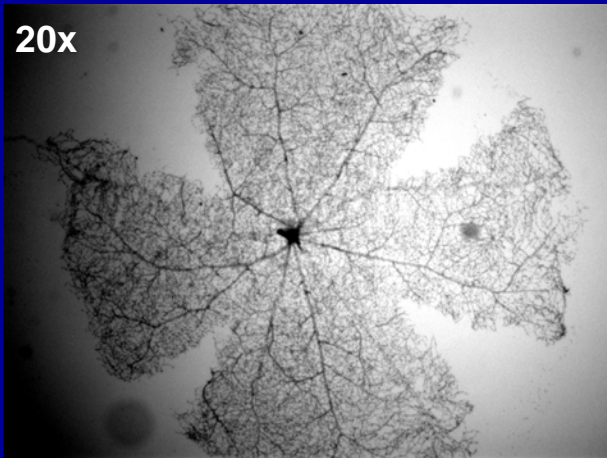


Endoglin

Increased Expression of Endoglin in Retinal Vasculature during OIR



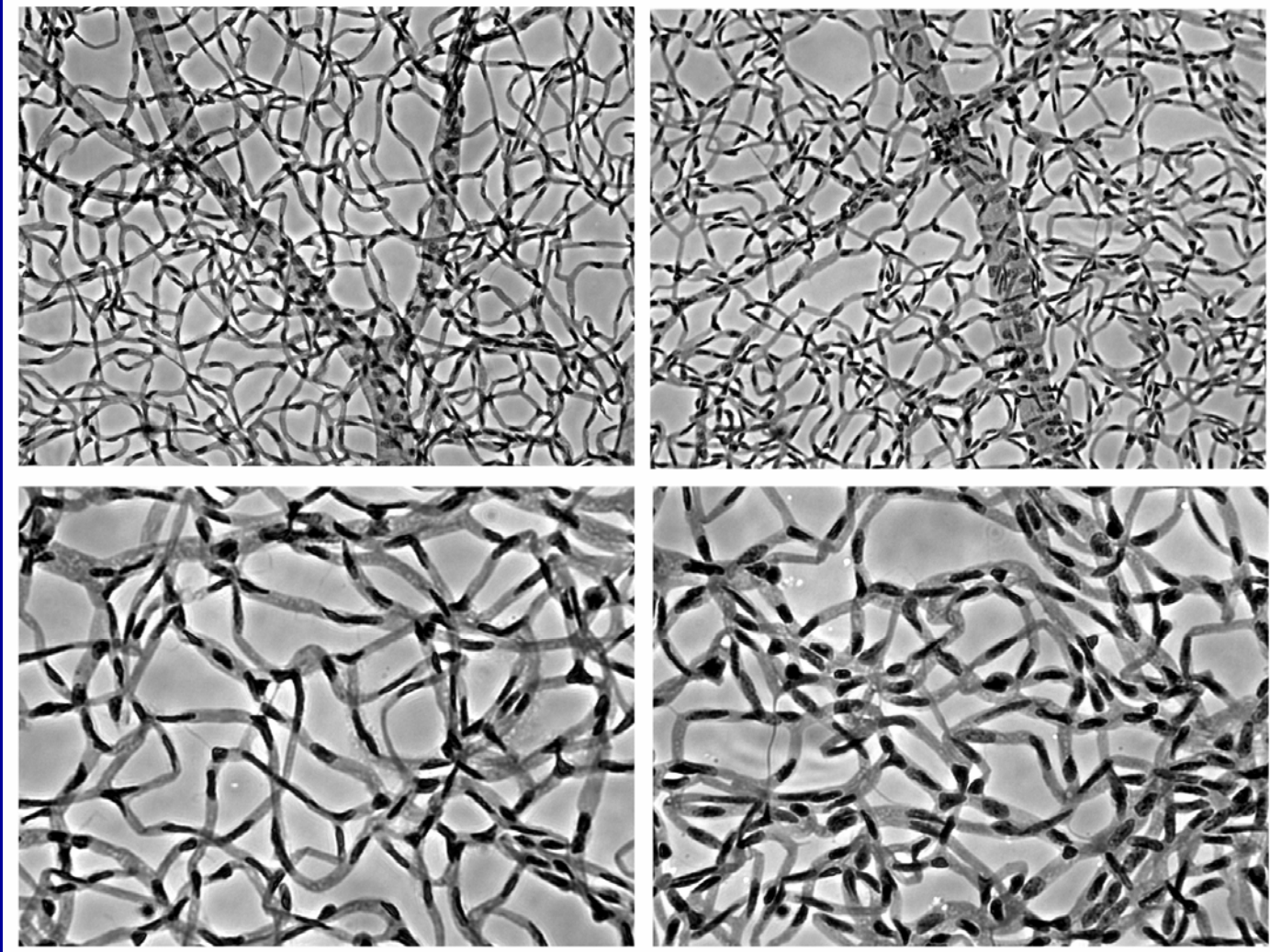
Wholemout Retinal Trypsin Digests



Retinal Trypsin Digests

WT P42

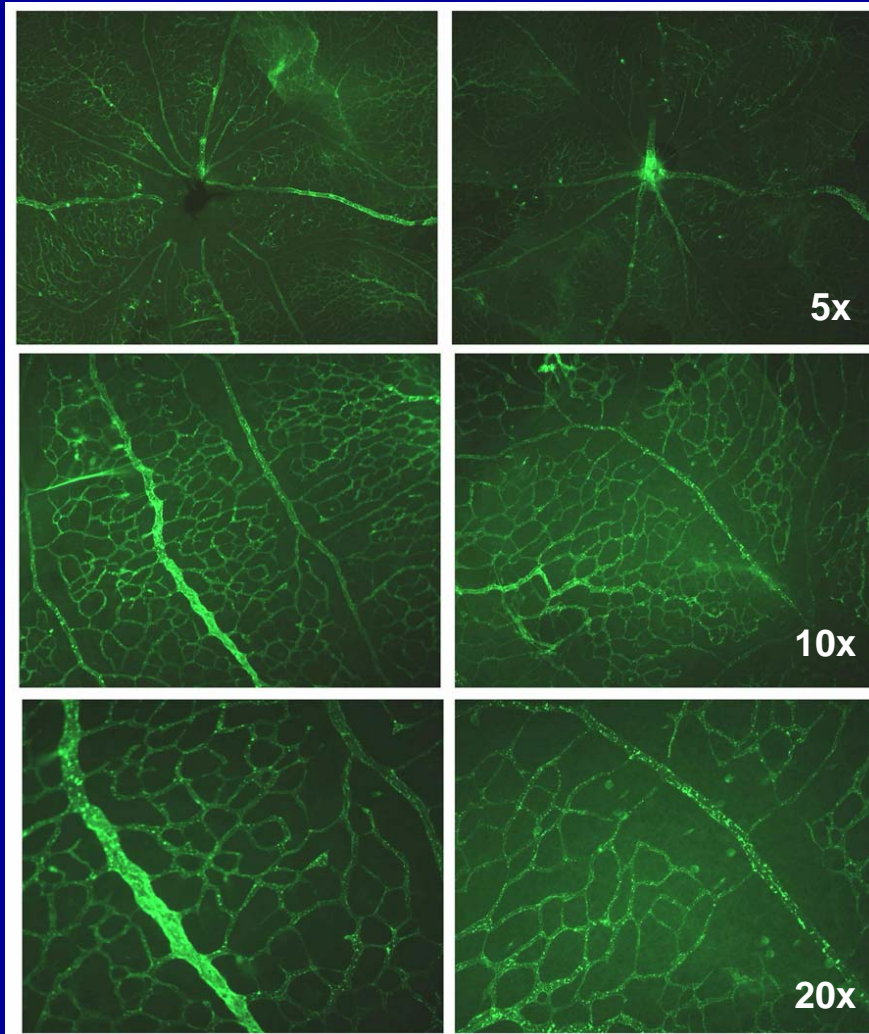
Eng^{+/-} P42



Wholemout Staining of Retinal Vasculature

WT P7

Eng^{+/-} P7

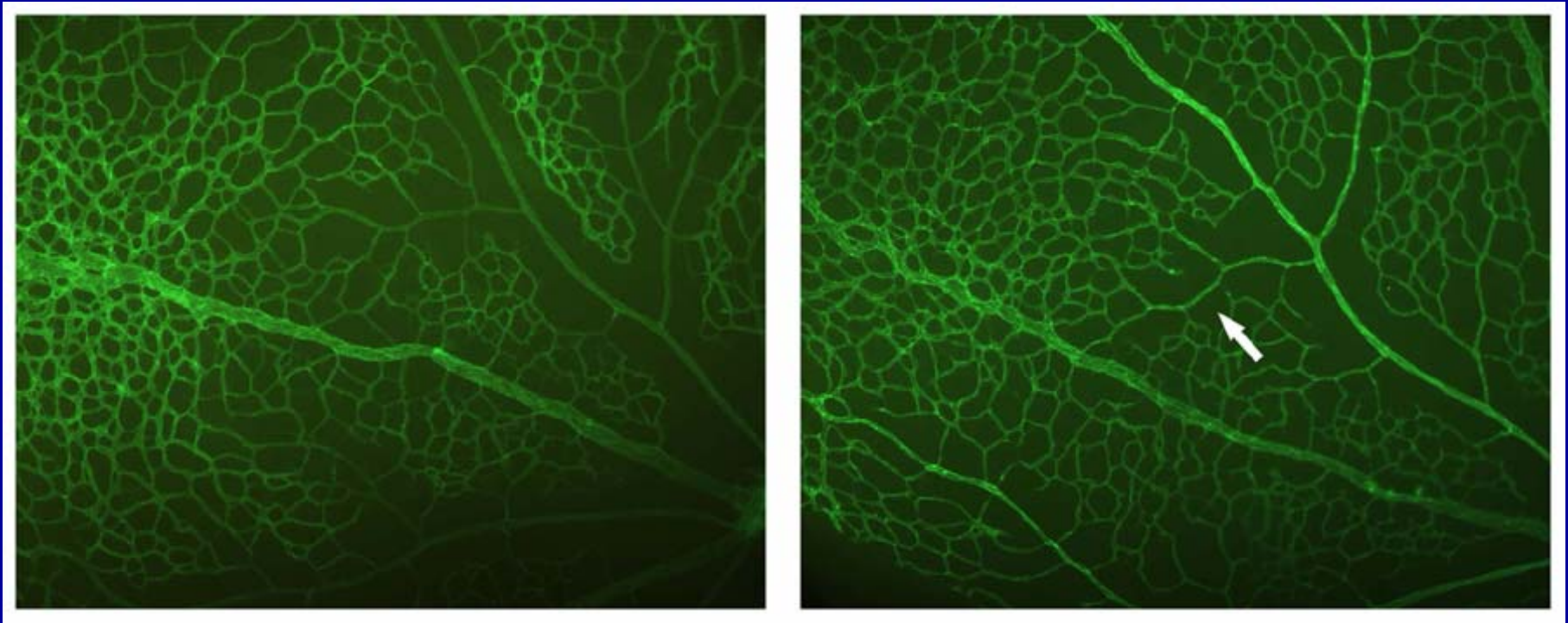


Endoglin

Arteriovenous Malformations in Eng^{+/-} Mice

WT P7

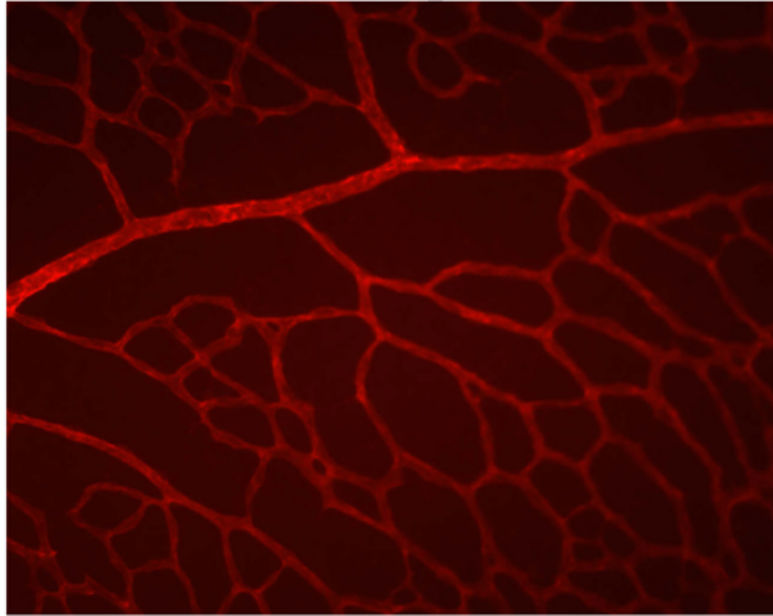
Eng^{+/-} P7



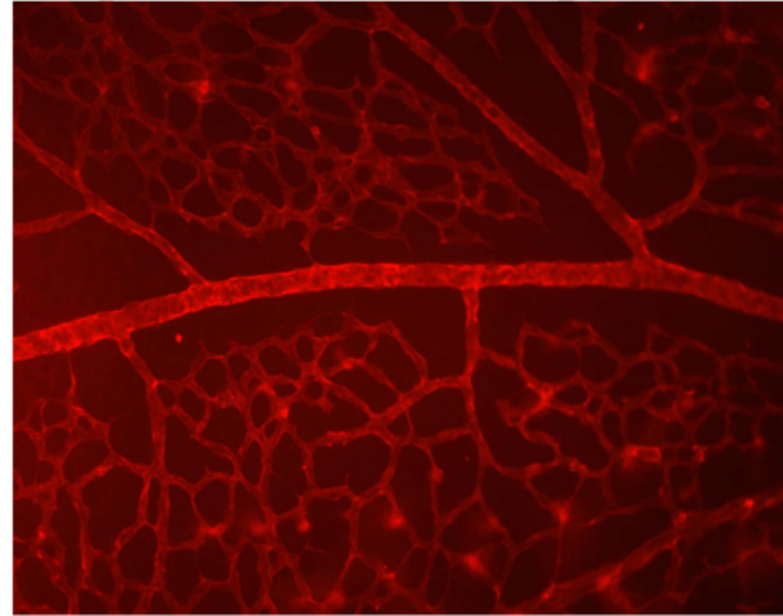
PECAM-1

Wholemout Staining of Retinal Vasculature

WT P7



Eng+/- P7

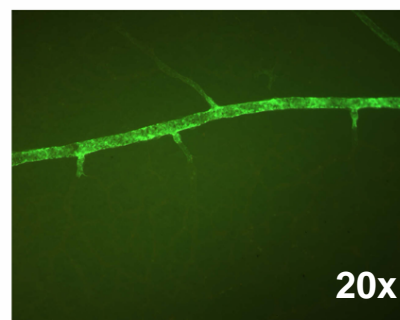
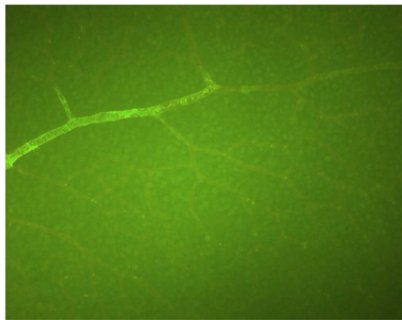
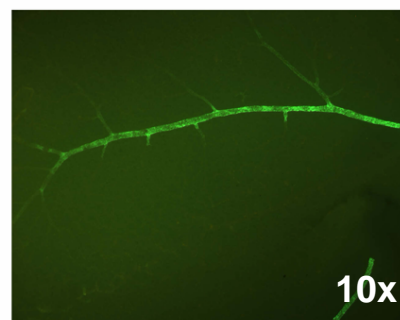
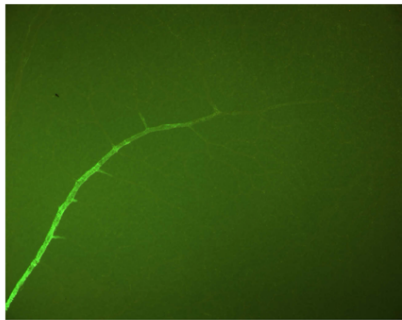
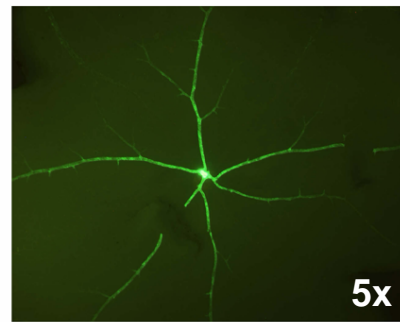
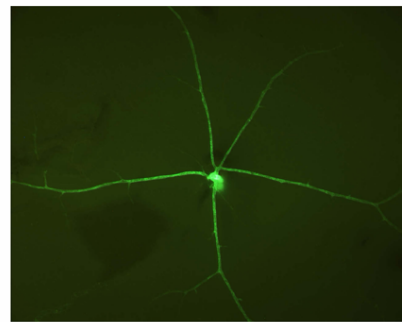


Collagen IV

Wholemout Staining of Retinal Vasculature

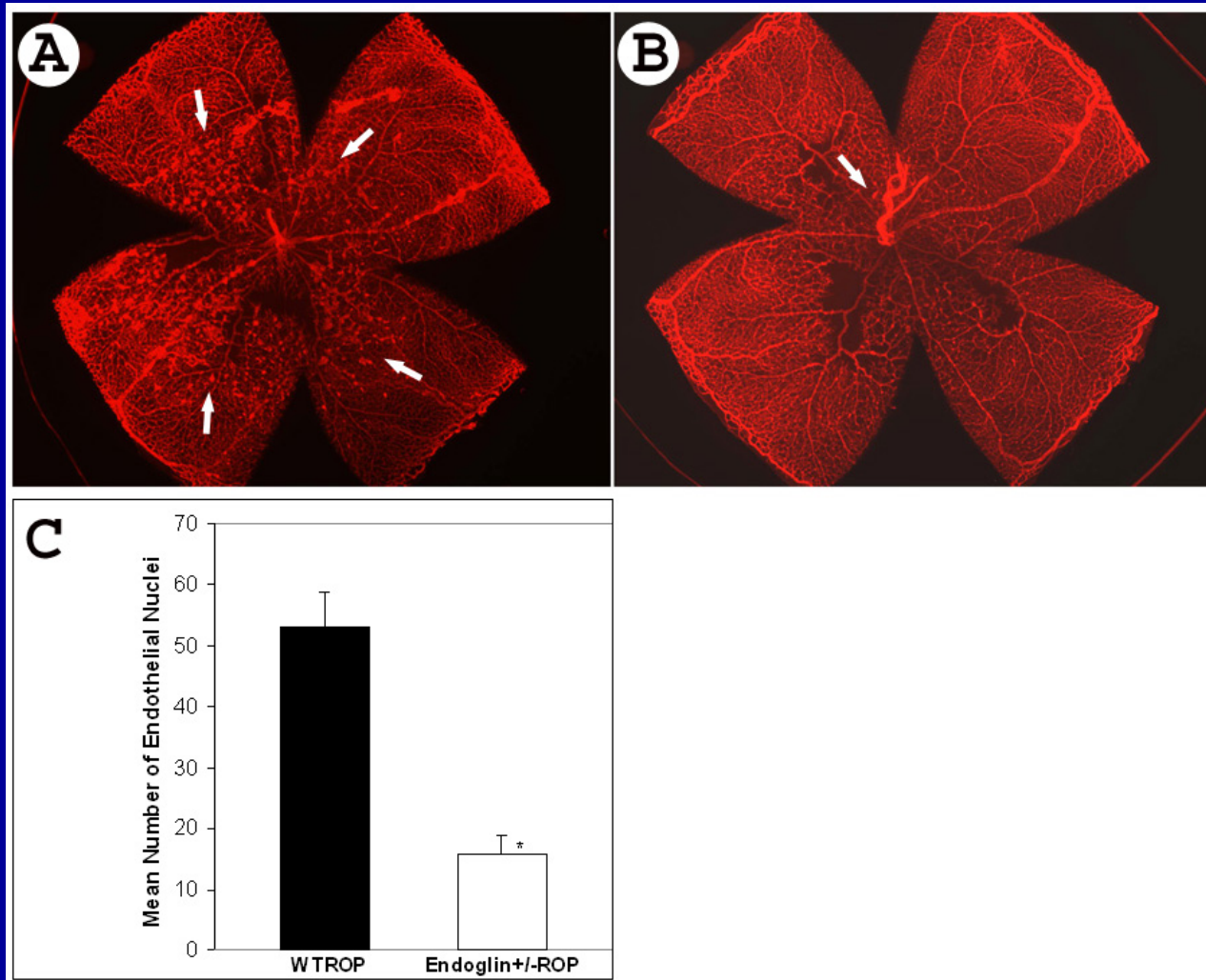
WT P7

Eng+/- P7



Smooth Muscle Actin

Attenuation of Retinal Neovascularization in Eng^{+/-} Mice



SUMMARY

- Endoglin plays an important role during retinal vascular development and its expression is essential for maturation of retinal blood vessels.
- Endoglin is expressed in retinal vessels and its expression is increased during active neovascularization.
- The ability of Eng^{+/-} mice to undergo retinal neovascularization is abrogated during OIR.
- Endoglin may provide an important target for modulation of angiogenesis.

Acknowledgements

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