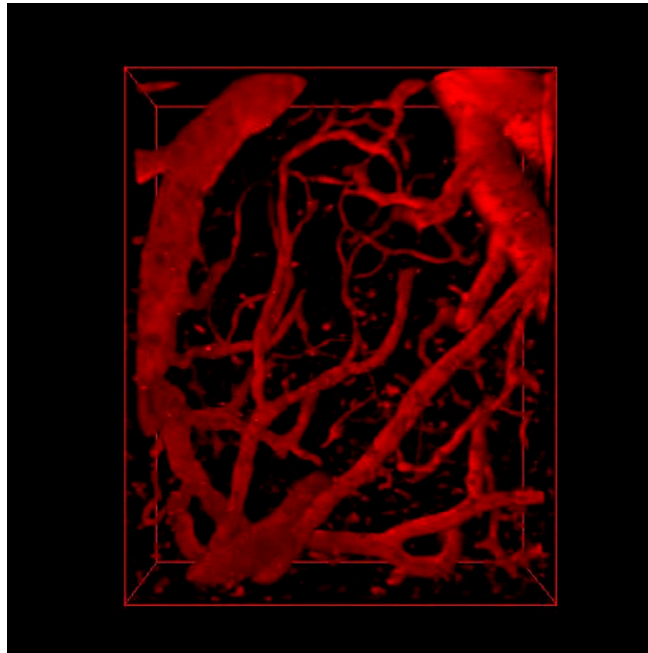


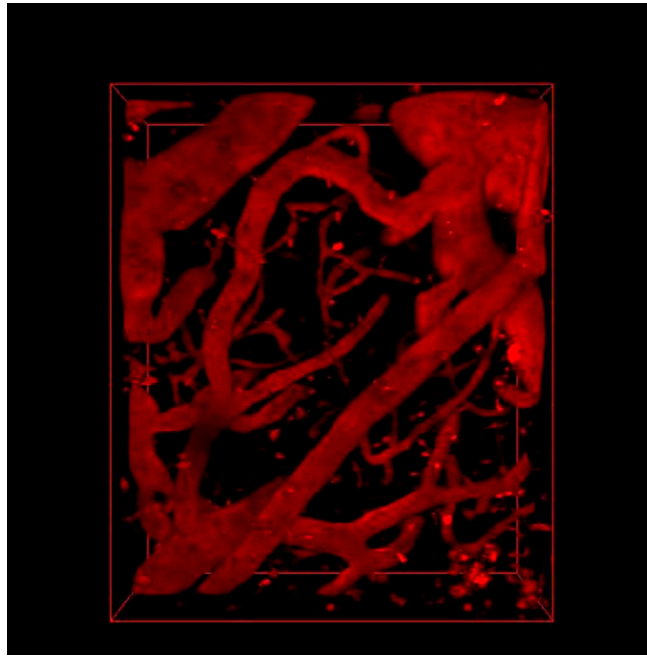
# Supporting Information

Murphy et al. 10.1073/pnas.1415316111



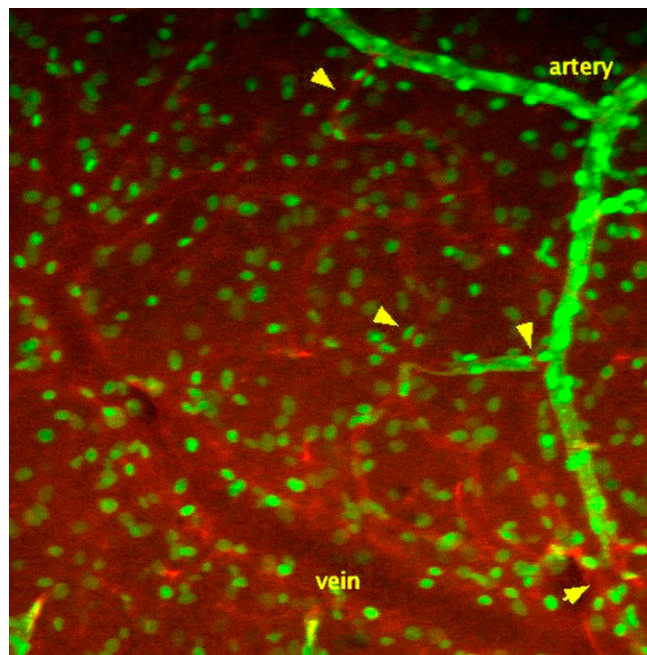
**Movie S1.** Vascular network in Notch4\* mutant before AV shunt formation. Three-dimensional rendering of a two-photon imaging stack from the P14 Notch4\* mutant shown in Fig. 1A.

[Movie S1](#)



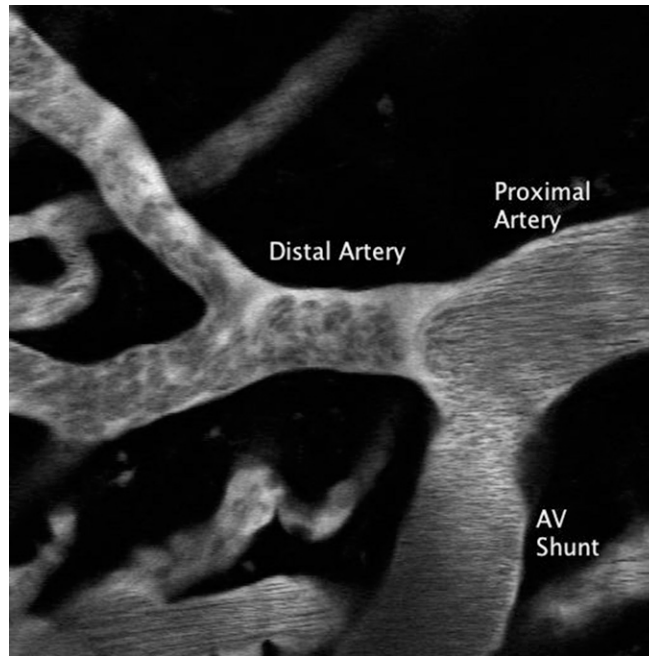
**Movie S2.** Vascular network in *Notch4\** mutant after AV shunt formation. Three-dimensional rendering of an imaging stack from P19 *Notch4\** mutant shown in Fig. 1A and [Movie S1](#), 5 d later. An AV shunt can be observed in the center of the field, where only capillary connections had been seen previously.

[Movie S2](#)



**Movie S3.** Overlapping expression of *ephrinB2-H2b-eGFP* and *BMX(PAC)-CreERT2* induced mT/mG. Optical z-stack from two-photon imaging of the cortical surface of the brain of a *BMX(PAC)-CreERT2; mTmG; ephrin-B2-H2b-eGFP* mutant mouse following perfusion with Alexa-647-labeled tomato lectin. Green channel: *ephrin-B2-H2b-eGFP* and *BMX(PAC)-CreERT2* activated mT/mG reporter; red channel: lectin perfusion. Note that the *BMX(PAC)-CreERT2* reporter ends in the large arterioles before *ephrin-B2-H2b-eGFP* capillaries.

[Movie S3](#)



**Movie S4.** Dramatic reduction in distal blood flow with proximal steal effect. Single-plane movie from a two-photon imaging stack taken at a late time point in AV shunt progression in a *Tie2-tTA; TRE-Notch4\** mutant mouse. Movement of dark-red blood cells can be observed by contrast Texas-Red-dextran labeled plasma. Slowly moving red blood cells can be observed as distinct spheres, and quickly moving blood cells appear as streaks. Blood flow and vessel diameter was reduced in this distal branch over time as the proximal connection grew.

[Movie S4](#)

## Other Supporting Information Files

[SI Appendix \(PDF\)](#)