

**Figure legends:****Supplementary Fig. 1: LV-shRNA-VEGF-A transfection decreases VEGF-A expression in cells.**

Gene expression of VEGF-A (**A**) and Western blot for VEGF-A in normal AKR-2B, **C** (control, AKR-2B transfected with control shRNA) or **LV** (LV-shRNA-VEGF-A transfected cells) showing greater than two fold decrease in VEGF-A expression with LV-shRNA-VEGF-A silencing when compared to controls.

**Supplementary Fig. 2: Hematoxylin and eosin (H and E) and picrosirius red staining of the LV-shRNA-VEGF-A transfected vessels and control vessels from single and double injection experiments.**

**(A)** Upper panel is representative sections after hematoxylin and eosin (H and E) at the venous stenosis of the LV-shRNA-VEGF-A (**LV**) and scrambled-VEGF-A (**C**) transfected vessels at day 3, 7, 14, 21, and 28 after the creation of the arteriovenous fistula showing increase in lumen vessel area. **(A)** lower panel is representative polarized light microscopy of picrosirius red-stained venous stenosis showing decreased fibrosis (collagen fibers are bright yellow) of the LV-shRNA-VEGF-A (**LV**) and scrambled-VEGF-A (**C**) transfected vessels at day 3, 7, 14, 21, and 28 after the creation of the arteriovenous fistula. At days 3 to 21, there is reduction of collagen with recovery by day 28 which at early time points is located in the adventitia and media (days 3 and 7). Bar is 200- $\mu$ M. There is a

significant increase in the mean lumen vessel area of the LV-shRNA-VEGF-A (LV) transfected vessels when compared to scrambled-VEGF-A (C) transfected vessels at day 14 to 28. Qualitatively, there is reduction in the collagen staining by Picrosirius red staining. Bar is 50- $\mu$ M.

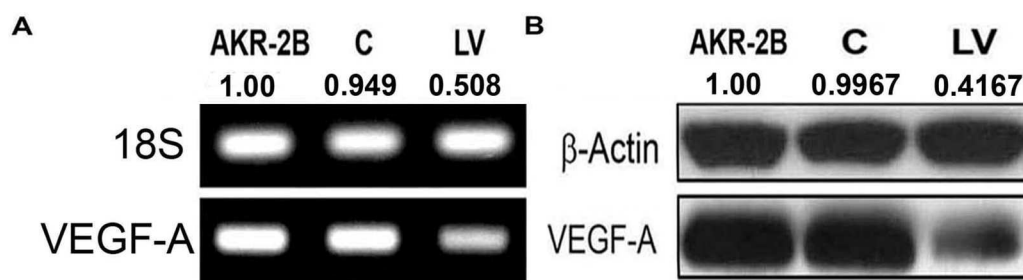
**Supplementary Fig. 3: *Vimentin staining shows no difference in LV shRNA transduced vessels when compared to controls***

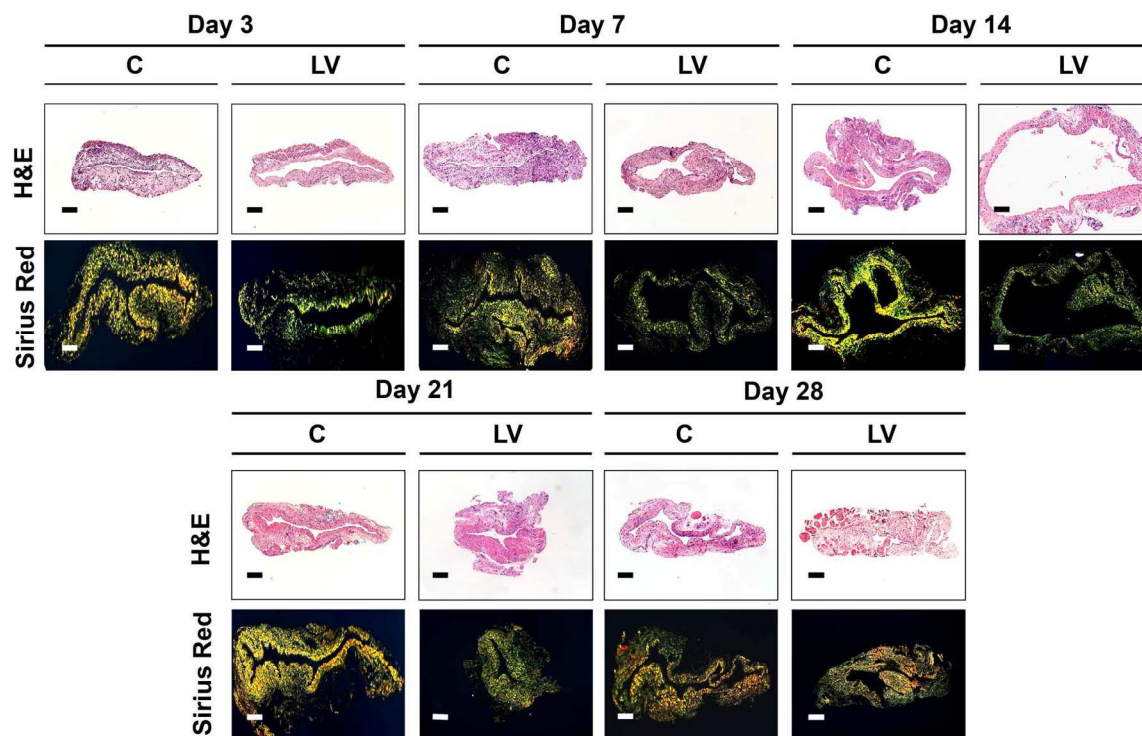
Representative sections after vimentin staining at the venous stenosis of the LV-shRNA-VEGF-A (LV) and scrambled-VEGF-A (C) transfected vessels at day 14, 21, and 28 after the creation of the arteriovenous fistula showing showing no difference between the two groups.

**Supplementary Fig. 4: *Micro-CT analysis of a mouse jugular vein.***

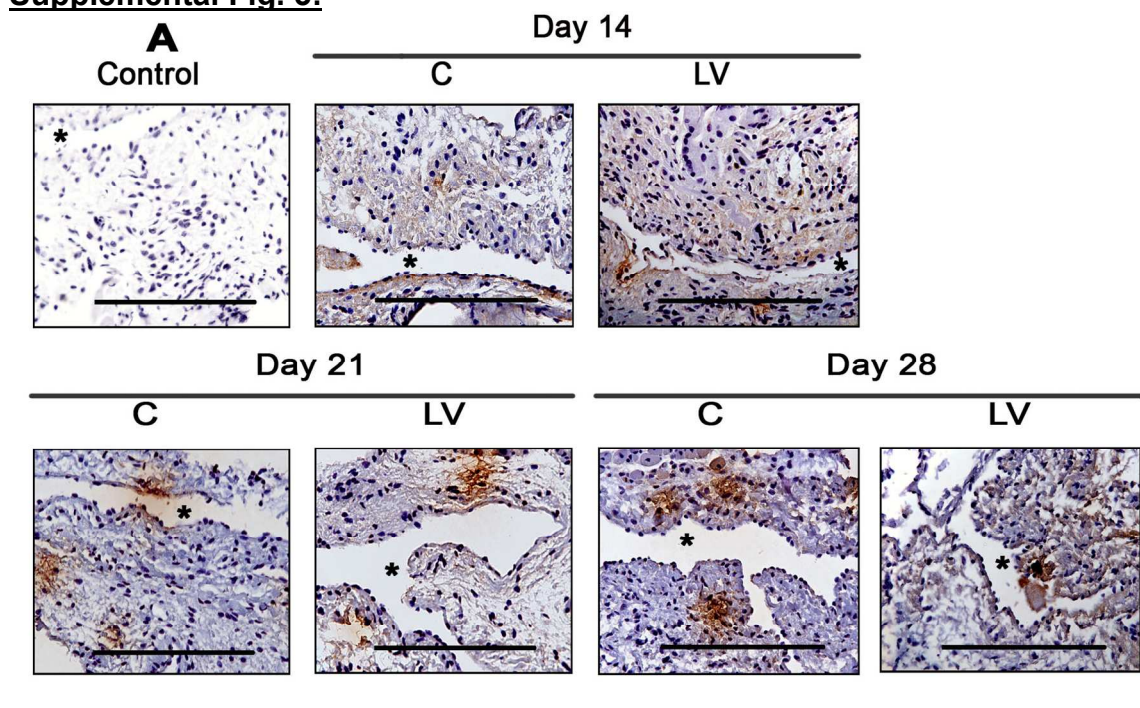
Micro-CT analysis of a mouse jugular vein showing the vasa vasorum in green.

**Supplemental Fig. 1:**



**Supplemental Fig. 2:**

**Supplemental Fig. 3:**



**Supplemental Fig. 4:**