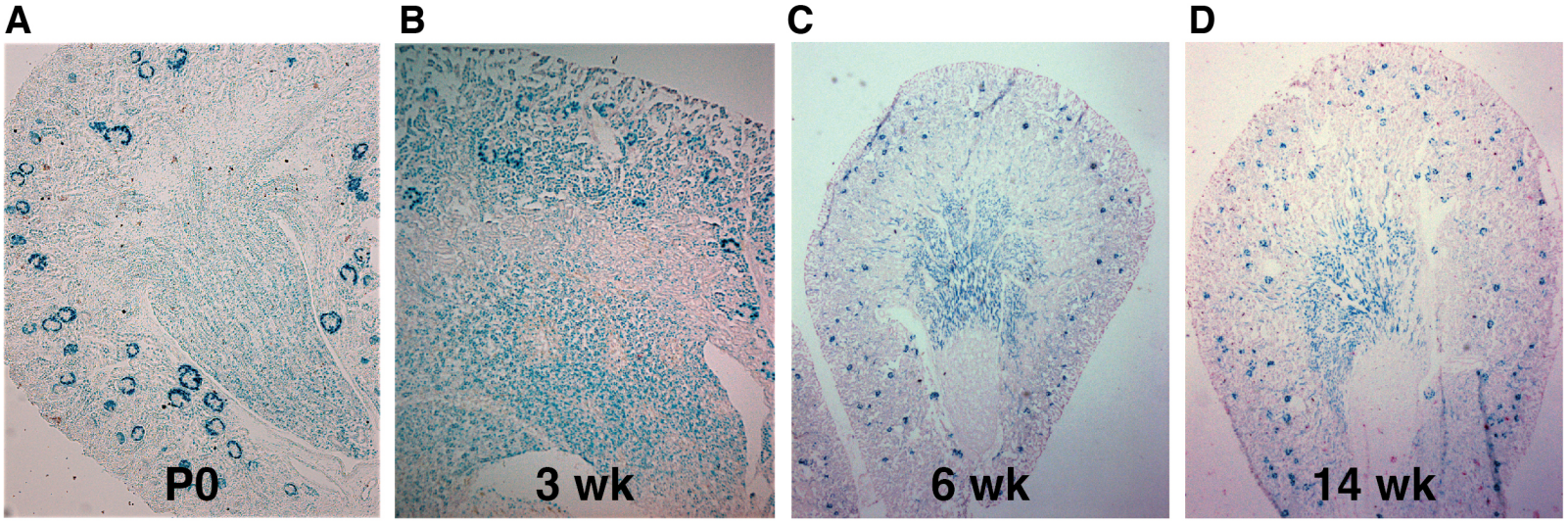
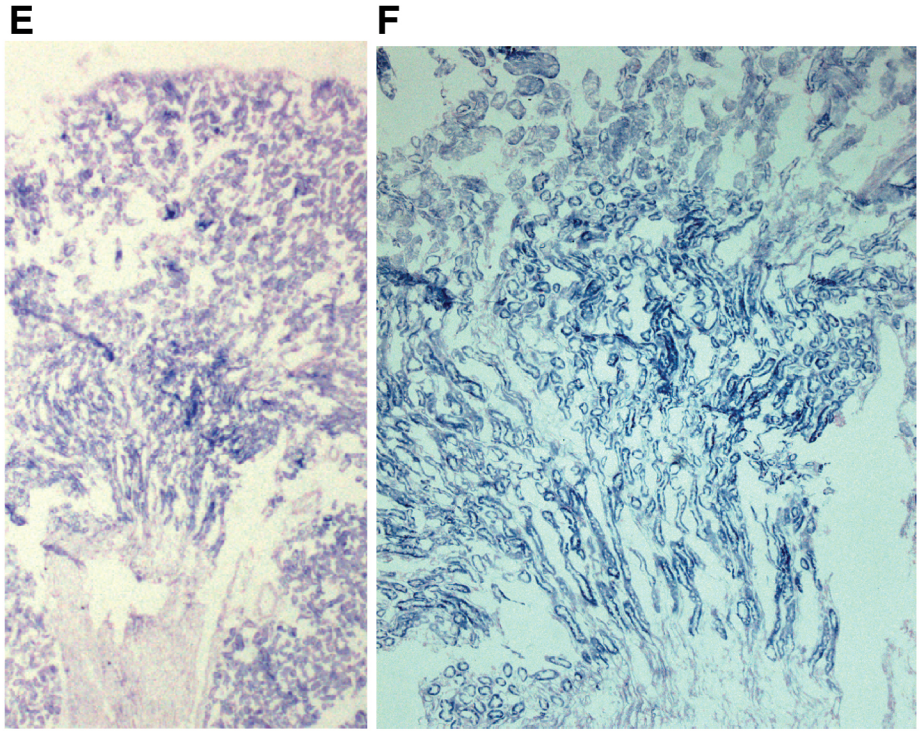
Supplemental 1

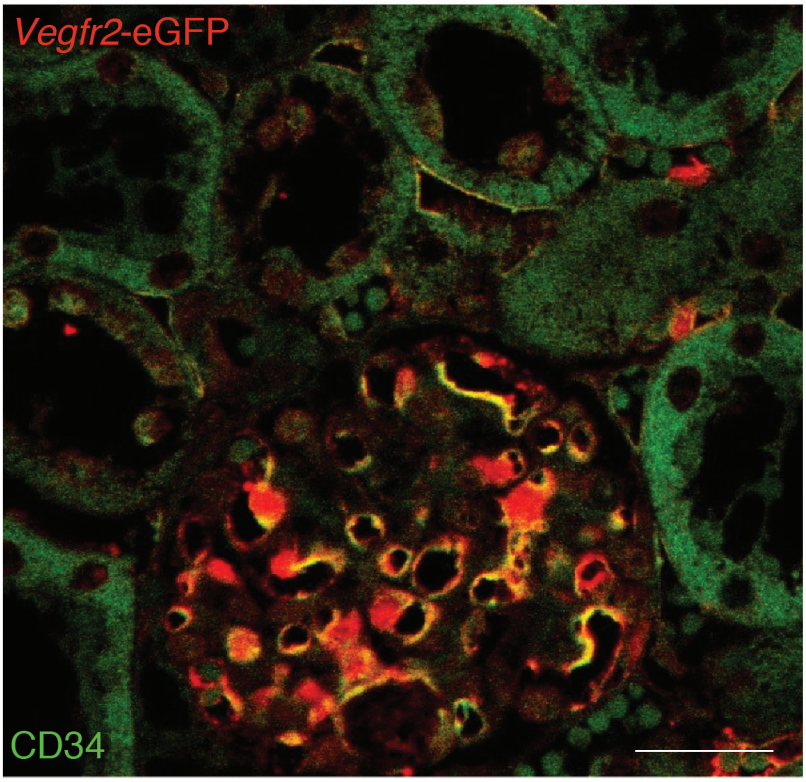




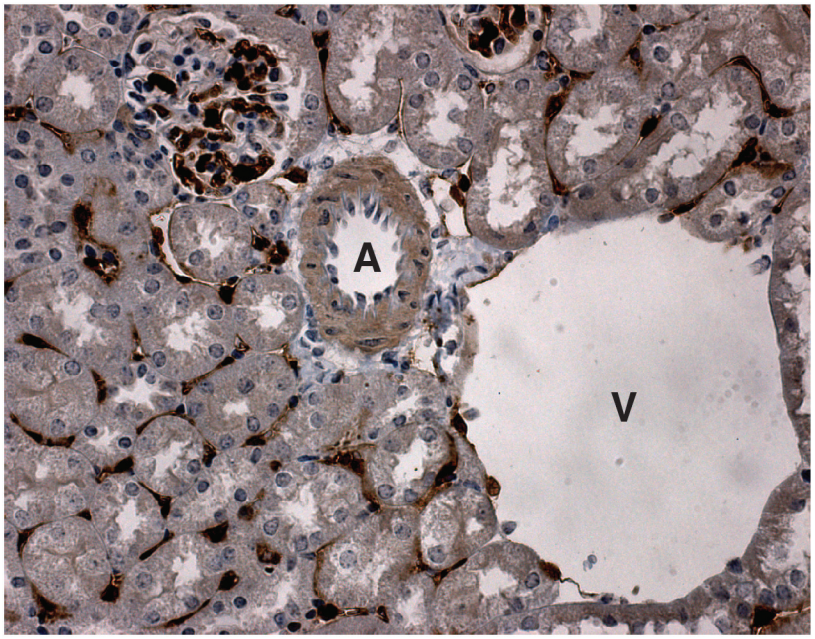
A-D) Vegfa driven LacZ expression (blue) in mice at birth (P0, A), at 3 weeks (B), at 6 weeks (C), and at 14 weeks (D). **E-F)** In situ hybridization using a Vegfa probe in kidney of a 7 week old mouse

Supplemental 2

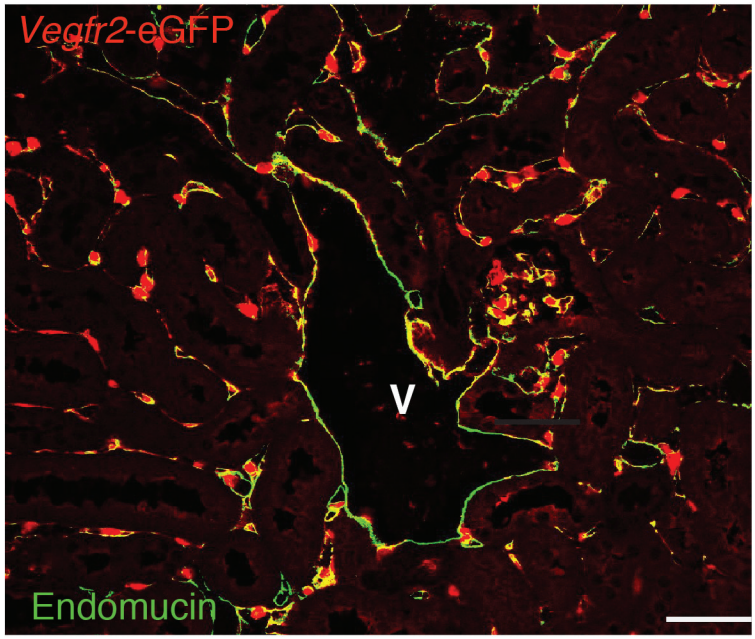
A



B

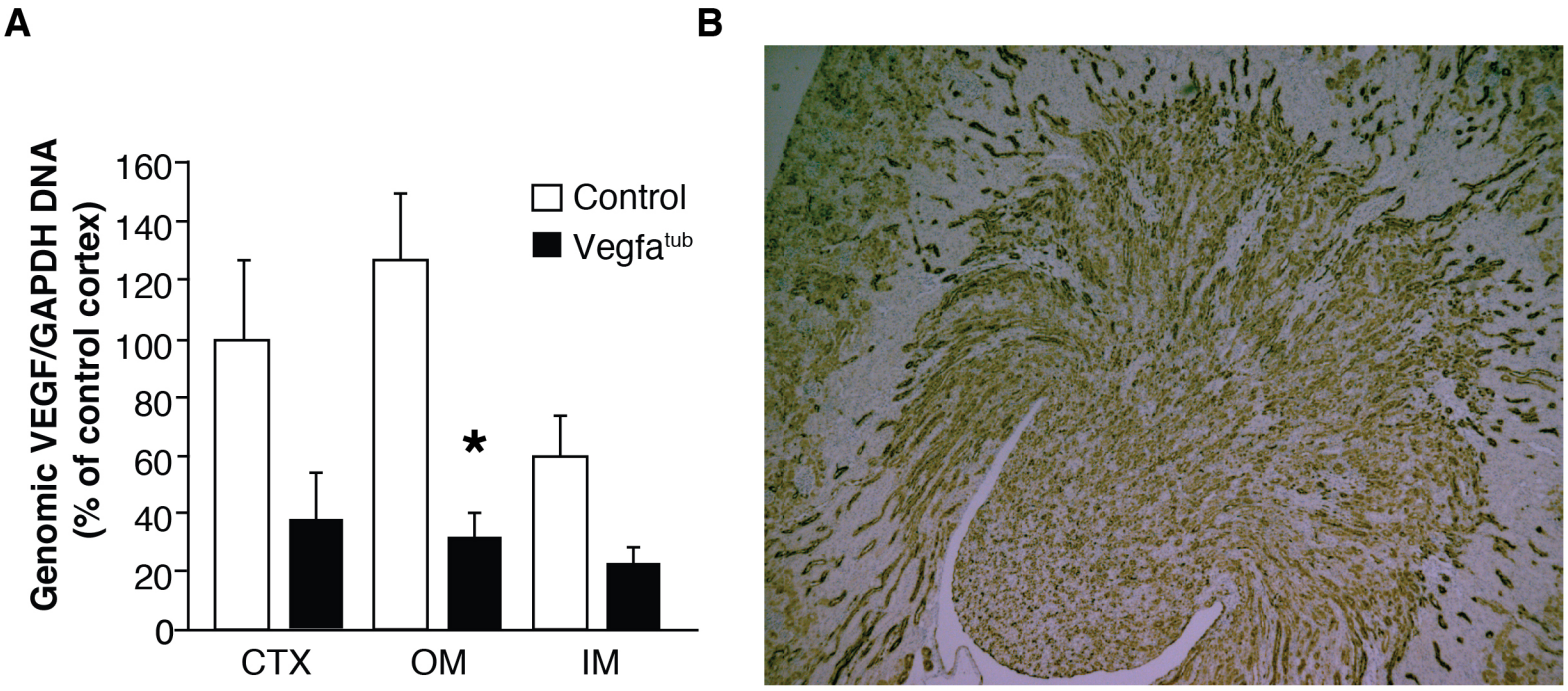


C



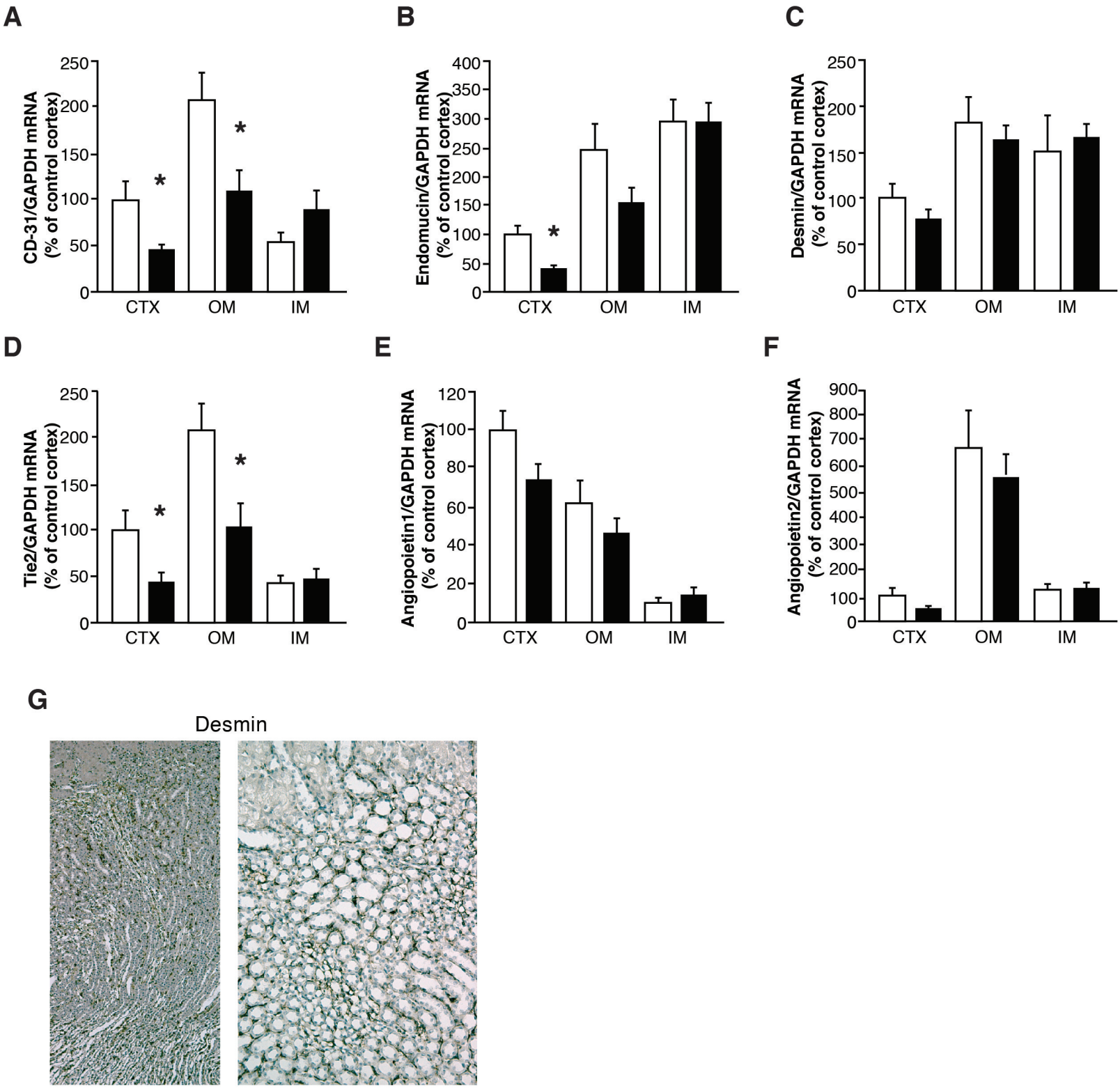
A) Immunofluorescence showing localization of *Vegfr2* driven eGFP expression (red) in Vegfr2$^{eGFP/wt}$ mice to endothelial cells in the glomerular microvasculature also positive for CD34 (green). Scale bar is 23.71 µm. **B)** Crosssection of kidney showing localization of *Vegfr2* driven eGFP expression to peritubular cells as well as certain cells within veins (marked V), but not in arteries (A). **C)** Immunofluorescence using antibodies directed against eGFP (red) and Endomucin (green) in Vegfr2$^{eGFP/wt}$ mice to show localization to certain cells within larger veins (v). Scale bar is 23.71 µm.

Supplemental 3



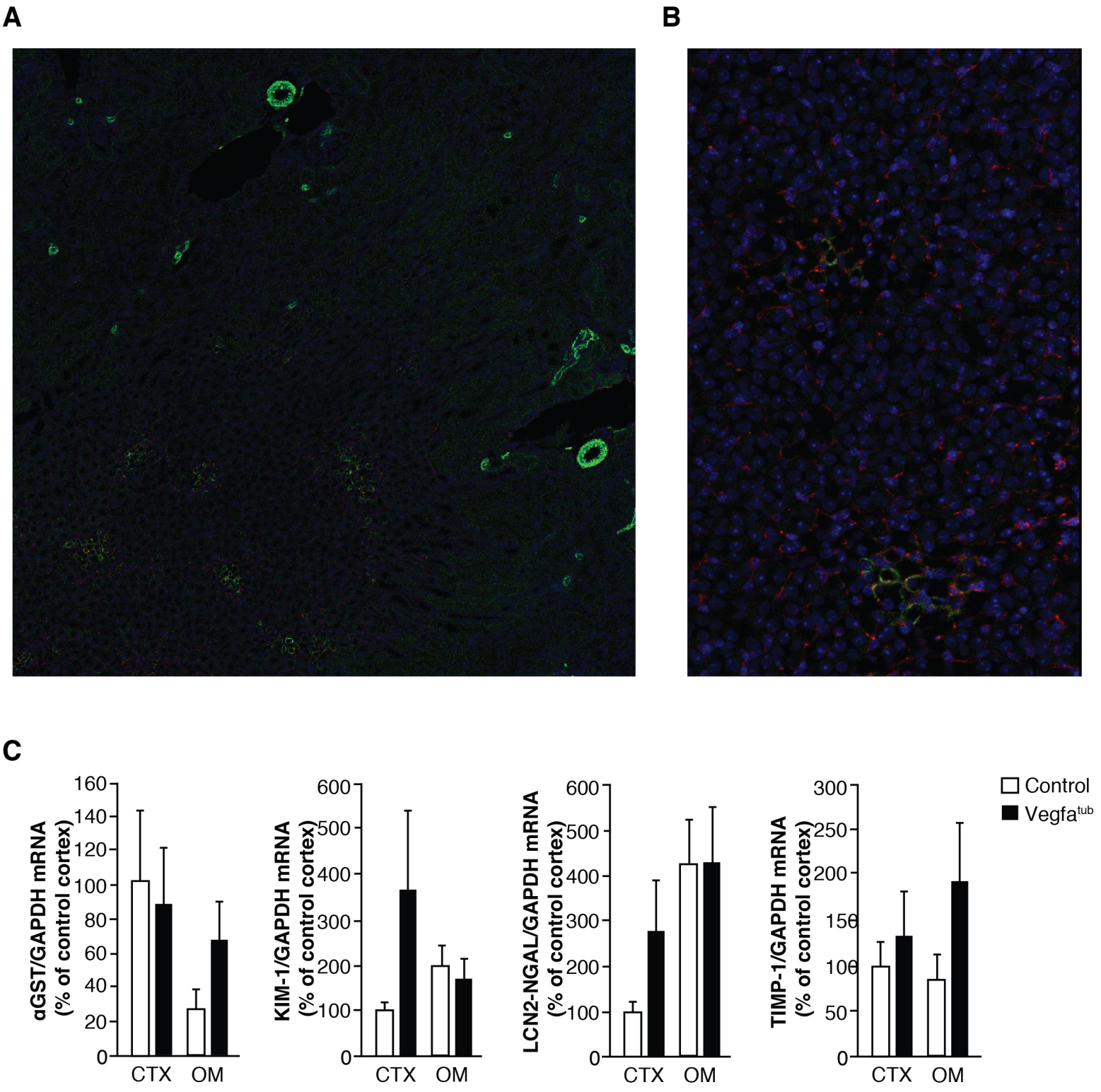
A) Abundance of genomic Vegfa in kidney zones of Vegfa^{tub} mice and littermate controls (n=5-7). **B)** Representative picture of eGFP staining in a 5 week old Pax8-rtTA;Tet-O-Cre;Z/EG mouse induced by doxycycline from embryonic day 0. Cre-mediated excision drives expression of eGFP.

Supplemental 4



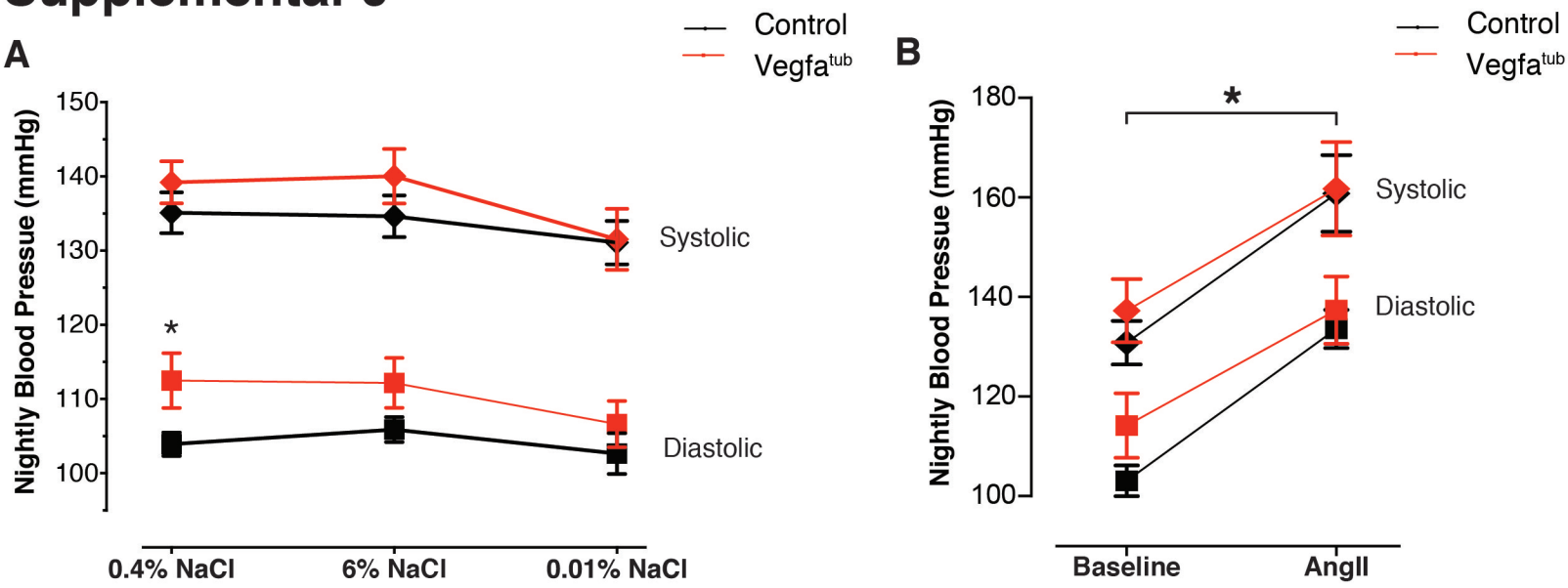
A-F) Renal mRNA abundance of CD-31 (PECAM, A), Endomucin (B), Desmin (C), Tie2 (D), Angiopoeitin1 (E), and Angiopoeitin2 (F) in kidney zones of Vegfa^{tub} mice and littermate controls (n=7-11). **G)** Desmin staining in kidney, no difference was noted between groups (n<6) (original magnification x100 and x200, respectively

Supplemental 5



A-B) Representative picture of α-smooth muscle actin (green), Desmin (red), and DAPI (blue) in kidneys of control mice. Staining of α-smooth muscle actin is evident in vascular smooth muscle cells in larger vessels (A) as well as specific cells within the vasa recta bundles (A-B). **C)** Renal mRNA abundance renal damage markers, namely Glutathione S-transferase (αGST), Kidney Injury Molecule-1 (KIM-1), Lipocalin-2 (LCN2) also known as neutrophil gelatinase-associated lipocalin (NGAL), and tissue inhibitors of metalloproteinases (TIMP-1) in kidney zones of Vegfa^{tub} mice made with normalized hematocrit and littermate controls (n=7-8).

Supplemental 6



A) Effect of high and low dietary NaCl on systolic and diastolic blood pressure betweeen groups (n=5-8). **B)** Effect of angiotensin II infusion on systolic and diastolic pressure in Vegfa^{tub} and littermate controls (n=5-8).

Supplemental figure 7

Real-Time PCR Gene name	Forward Primer	Reverse Primer
Vegfa[1]	CAGGCTGCTGTAACGATGAA	CTATGTGCTGGCTTTGGTGA
Vegfr2	GGCGGTGGTGACAGTATCTT	GTCACTGACAGAGGCGATGA
CD-31	CAAGCAAAGCAGTGAAGCTG	AGCAGGACAGGTCCAACAAC
Endomucin	GCACACACCATGTCACTGCTTC	CCAGCGCGATAACCACAGGC
Desmin	TACACCTGCGAGATTGATGC	ACATCCAAGGCCATCTTCAC
β-actin	GACATGGAGAAGATCTGGCA	GGTCTCAAACATGATCTGGGT
HPRT	GGCTATAAGTTCTTTGCTGACCTG	AACTTTTATGTCCCCCGTTGA
GAPDH	AACTTTGGCATTGTGGAAGG	TGTGAGGGAGATGCTCAGTG
Slc12a1 F	GAGATTGGCGTGGTCATAGTC	TGCTGCTGATGTTGCCGTC
Epo	CATCTGCGACAGTCGAGTTCT	CACAACCCATCGTGACATTTTC
Tie2[1]	TGGAGTCAGCTTGCTCCTTT	ACCTCCAGTGGATCTTGGTG
Angiopoietin 1[1]	GGGGGAGGTTGGACAGTAA	CATCAGCTCAATCCTCAGC
Angiopoietin 2[1]	GATCTTCCTCCAGCCCCTAC	TTTGTGCTGCTGTCTGGTTC
Vegfa 120[2]	GCGGATCAAACCTCACCAAA	CTCGGCTTGTCACATTTTTC
Vegfa 164[2]	ACAGGACAAAGCCAGAAAAACAC	GTTTAACTCAAGCTGCCTCGCCT
Vegfa 188[2]	GCGGATCAAACCTCACCAAA	GAACAAGGCTCACAGTGAACGC
Vegfa (genomic)	CCTGGCCCTCAAGTACACCTT	TCCGTACGACGCATTTCTAG
GAPDH (genomic)[3]	CCCAGCAAGGACACTGAGCAAGAG	ATGGGGGTCTGGGATGGAAATTGT

Genotyping Name	Forward Primer	Reverse Primer
Vegfa-flox[4]	CCTGGCCCTCAAGTACACCTT	TCCGTACGACGCATTTCTAG
Pax8-rtTA	CGTAGGAAAGCTGCGAGTGT	AGTGGGTATGATGCCTGTCC
Cre	GTTCGCAAGAACCTGATGCACA	CTAGAGCCTGTTTTGCACGTTC
Vegfr2^{eGFP}	CTGTGTCCCGCAGCCGGATA	CTTGAAGAAGTCGTGCTGCTT
Vegfa$^{(lacZ)5}$	TGGCGATTTAGCAGCAGATA	GGTAGGGGTTTTTCACAGAC
GFP	GCGACGTAAACGGCCACAAGTTC	AGTCCGGACTTGTACAGCTCGTC

Primers used for real-time semi-quantitative PCR analysis and genotyping.

References

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3. Bisson N, Ruston J, Jeansson M, Vanderlaan R, Hardy WR, Du J, Hussein SM, Coward RJ, Quaggin SE and Pawson T. The adaptor protein Grb2 is not essential for the establishment of the glomerular filtration barrier. *PloS one*. 2012;7:e50996.
4. Gerber HP, Hillan KJ, Ryan AM, Kowalski J, Keller GA, Rangell L, Wright BD, Radtke F, Aguet M and Ferrara N. VEGF is required for growth and survival in neonatal mice. *Development*. 1999;126:1149-59.
5. Miquerol L, Langille BL and Nagy A. Embryonic development is disrupted by modest increases in vascular endothelial growth factor gene expression. *Development*. 2000;127:3941-6.

Supplemental figure 8

Target epitope	Species (id)	Source
Aquaporin 2	Rabbit (H7661 AP)	Characterized by Dimke *et al*[1]
Beta-Actin	Rabbit (ab8227)	Abcam, Toronto, Canada
CD34	Rat (ab8158)	Abcam, Cambridge,UK
Desmin	Rabbit (ab15200)	Abcam, Toronto, Canada
Endomucin	Rat (ab106100)	Abcam, Toronto, Canada
GFP	Chicken (ab13970)	Abcam, Toronto, Canada
GFP	Rabbit (A6455)	Invitrogen, Burlington, Canada
Nkcc2	Rabbit (NKCC21-A)	Alpha Diagnostics, San Antonio, TX, *USA*
α-Smooth Muscle Actin	Mouse (F2777)	Sigma-Aldrich, Oakville, ON, Canada

Antibodies used for immunohistochemical and western blot analysis

References

1. Dimke H, Flyvbjerg A, Bourgeois S, Thomsen K, Frokiaer J, Houillier P, Nielsen S, Frische S. Acute growth hormone administration induces antidiuretic and antinatriuretic effects and increases phosphorylation of nkcc2. *American journal of physiology. Renal physiology*. 2007;292:F723-735