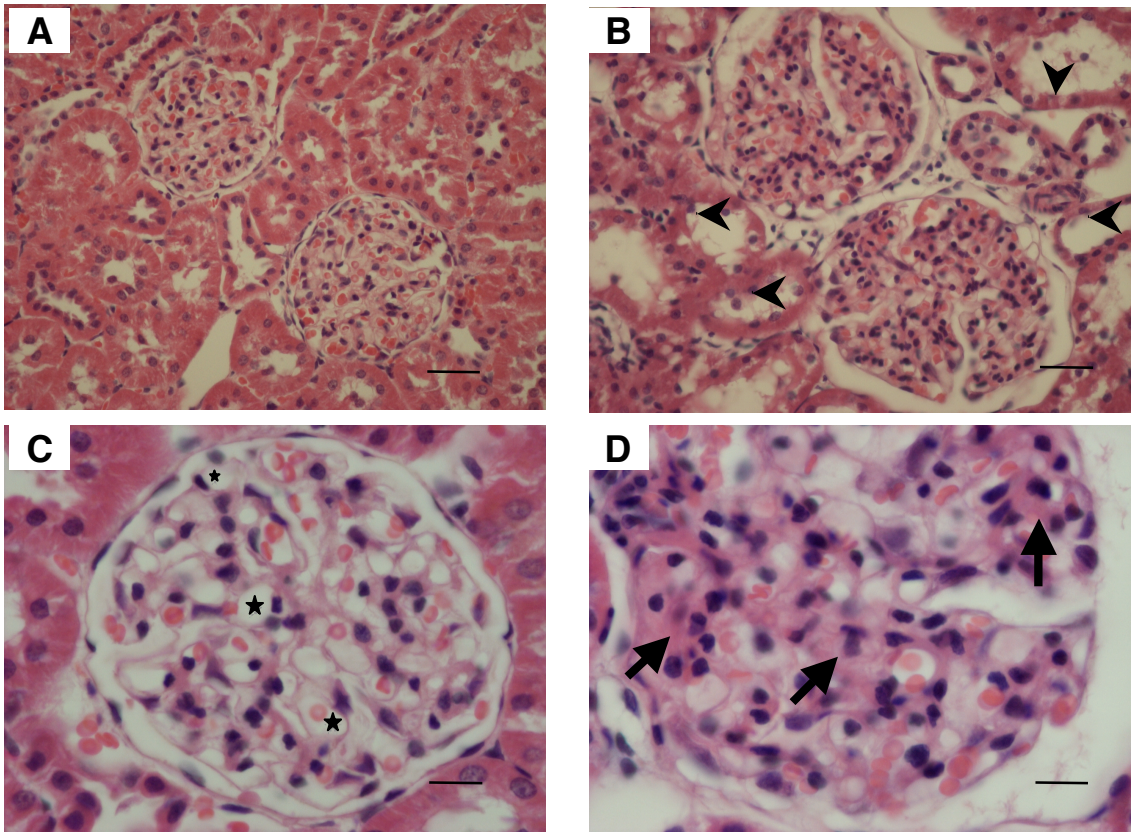
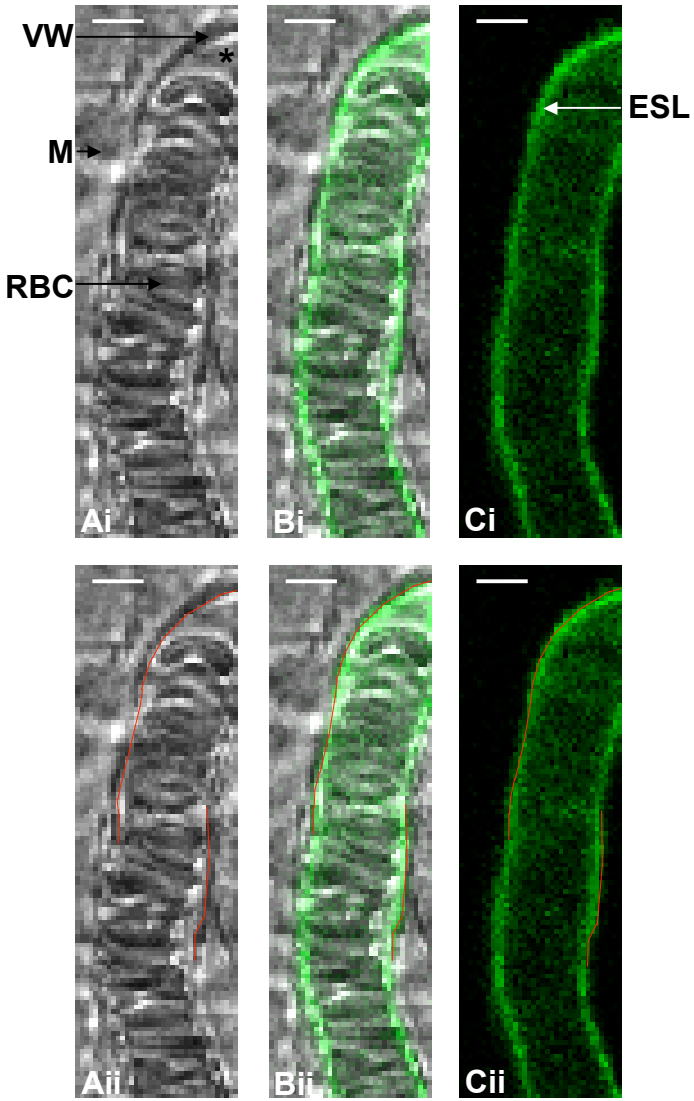


Supplementary figure 1. Older MWF rats have larger glomeruli, mesangial expansion and flattened tubular epithelium. 5µm thick, paraffin-embedded sections of kidney tissue from healthy Wistar (***A,C***) and older MWF (***B,D***) rats, stained with haematoxylin and eosin. Low power images from (***A***) Wistar and (***B***) older MWF (x40; scale bar = 50µm) show both glomerular and tubular tissue. In older MWF rat kidney, glomeruli are larger (3.7±0.17nl vs 2.3±0.23nl (Wistar); $p<0.001$, unpaired t-test) and the tubular epithelium is thinner (arrow head). High power images (x100; scale bar = 20µm) of glomeruli in Wistar rats (***C***) show normal morphology with open capillary loops (*), whereas older MWF rat glomeruli show expansion of mesangial regions (arrows) (***D***).



Supplementary figure 2. FITC-WGA labelling at the luminal edge of mesenteric microvessel walls identifies endothelial surface layer. Confocal laser scanning microscopy, using a 488nm laser to generate a differential interference contrast (DIC) image (A) and to excite FITC-WGA (green: C) (overlay: B) in a single microvessel within the mesentery (M). The luminal surface of endothelial cells is identified as the inner aspect of the dark vessel wall (VW), highlighted with a red line in panels Aii, Bii & Cii. In regions of the vessel edge where no clear inner aspect of the dark vessel wall could be defined (absence of red line in panels Aii, Bii & Cii), no measurements were taken. Excitation of FITC-WGA generates an intense linear signal lining the luminal surface of endothelial cells (B). The intensity of this signal significantly exceeds FITC-WGA intensity in the vessel lumen as a whole, and in plasma (i.e. within the vessel lumen but between red blood cells (rbc) (*)), indicating that this high vessel wall signal represents specific labelling of the endothelial surface layer rather than merely the absence of red blood cells. Scale bar: 5μm.