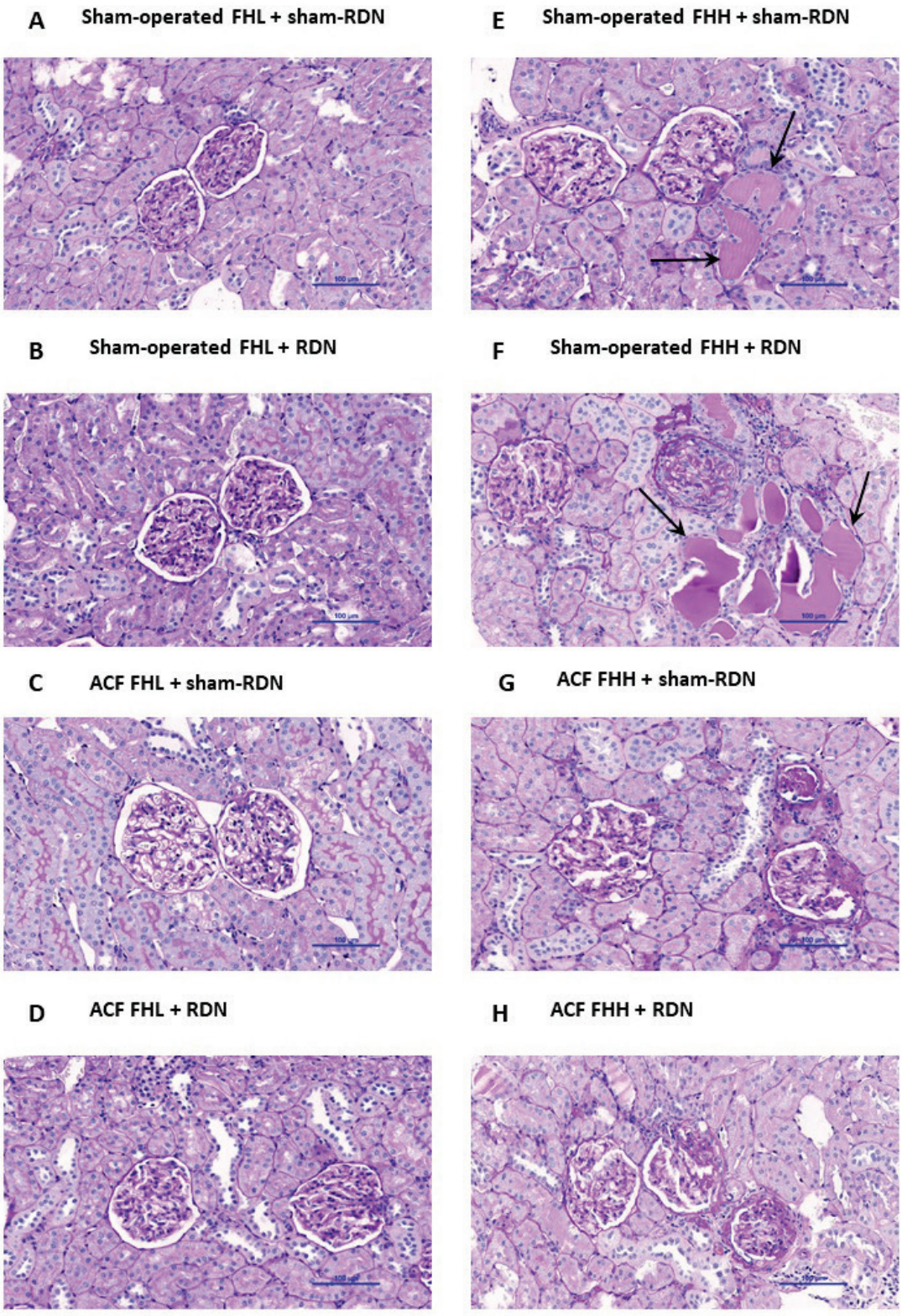
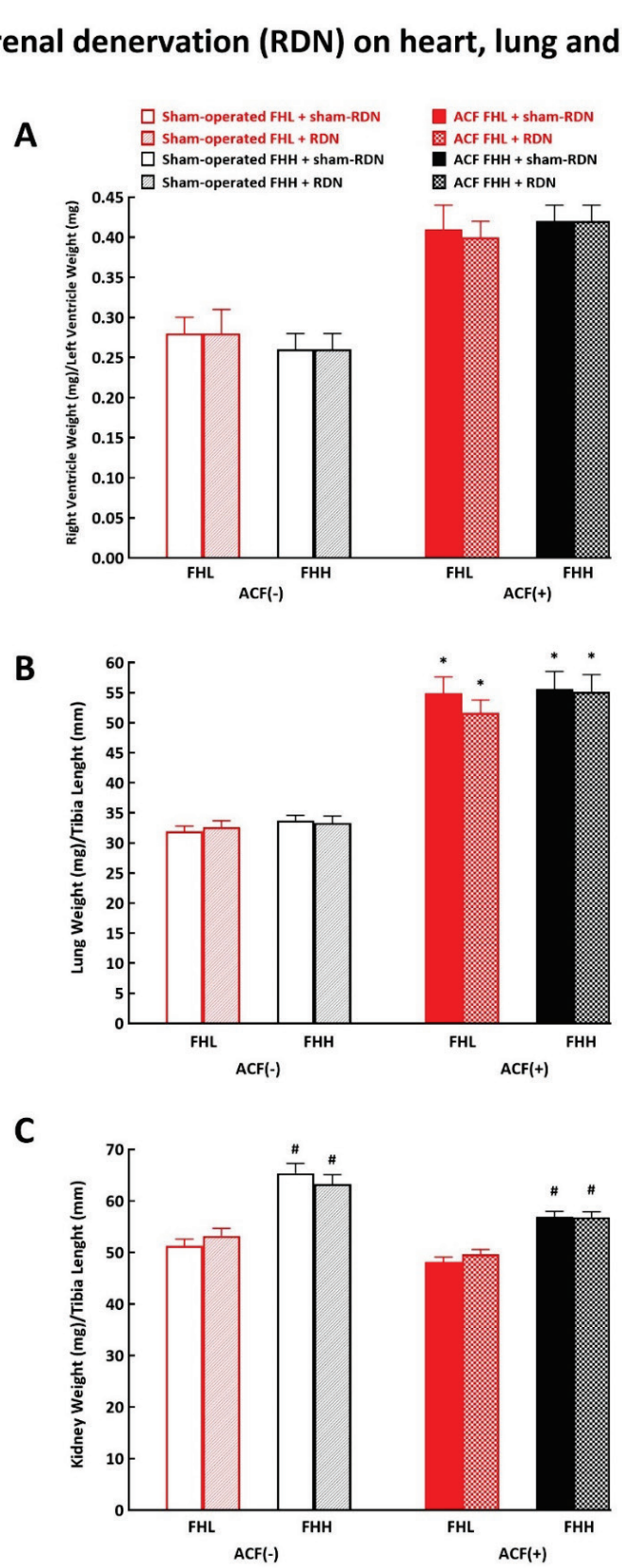
Supplementary Table 1. List of antibodies employed in Western blot analysis of the left heart tissue.

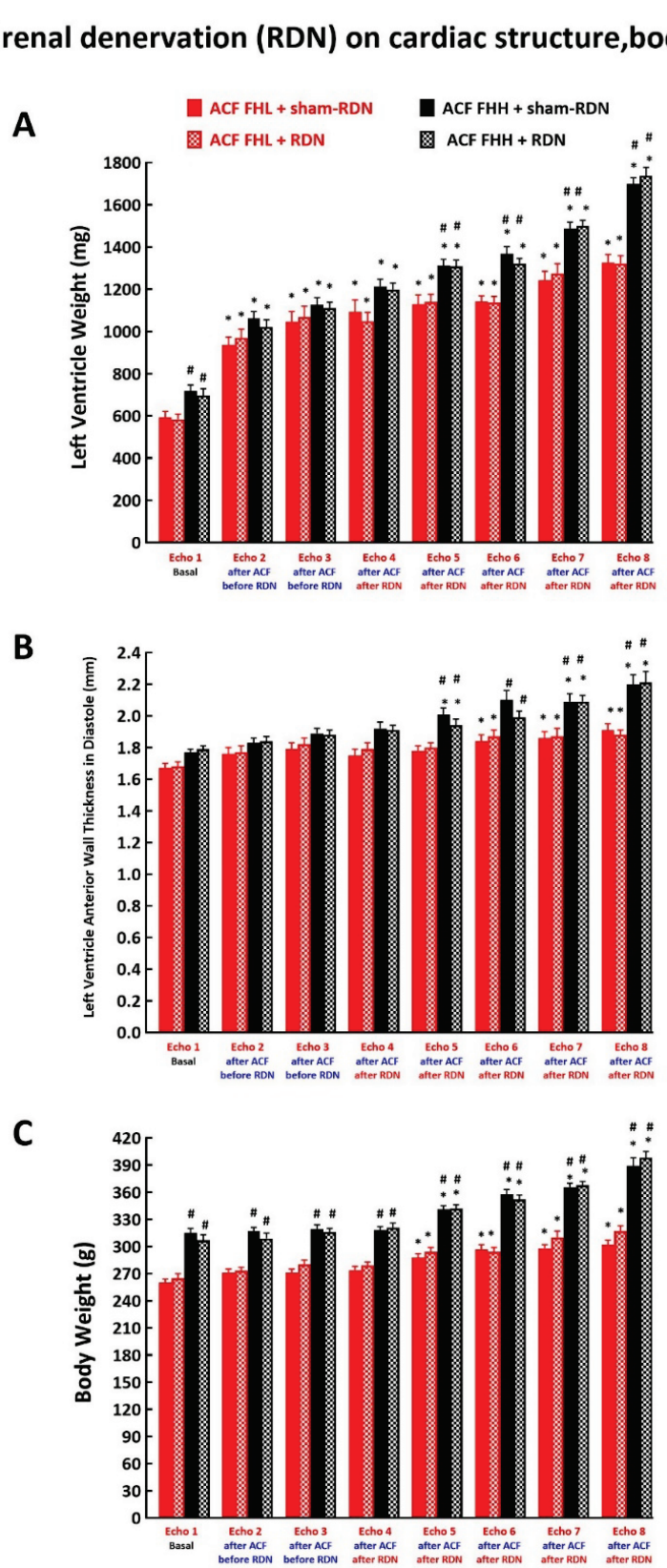
Antibody	**Dilution**	**Host**	**Type**	**Supplier and Catalogue number (#)**
Anti-connexin 43	1:5000	Rabbit	Polyclonal	Sigma-Aldrich, St. Louis, MO, USA, #C6219
Anti-phosphorylated at Serine 368 connexin 43	1:1000	Rabbit	Polyclonal	Santa Cruz Biotechnology, Dallas, TX, USA, #sc-101660
Anti-protein kinase epsilon	1:2000	Rabbit	Polyclonal	Santa Cruz Biotechnology, Dallas, TX, USA, #sc-214
Anti-protein kinase delta	1:2000	Rabbit	Polyclonal	Santa Cruz Biotechnology, Dallas, TX, USA, #sc-213
Anti-metalloproteinase 2	1:500	Rabbit	Polyclonal	Santa Cruz Biotechnology, Dallas, TX, USA, #sc-10736
Anti-GAPDH	1:1000	Rabbit	Polyclonal	Santa Cruz Biotechnology, Dallas, TX, USA, #sc-25778



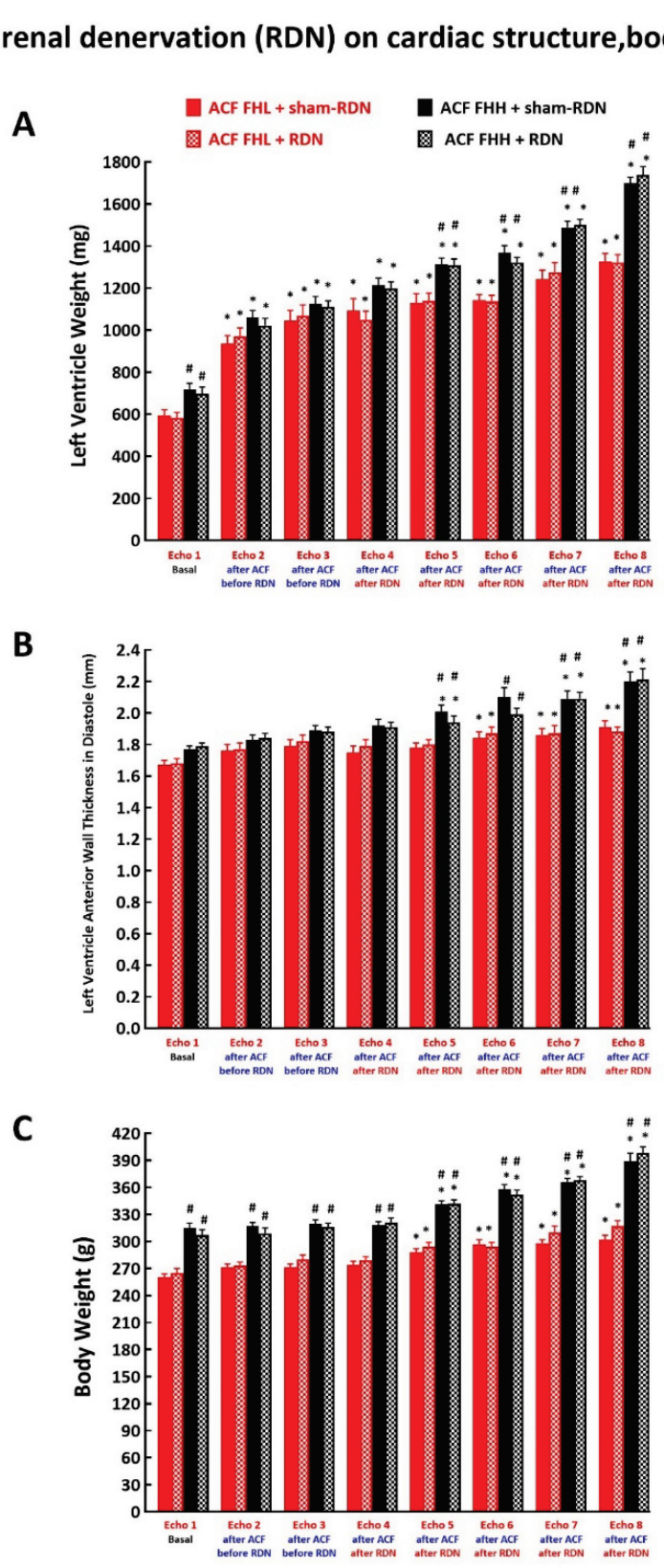
Supplementary Fig. 1. Representative histological images of periodic acid Schiff (PAS) staining in the renal cortex from rats that survived until the end of the observation in Fawn-hooded normotensive group (FHL) and Fawn-hooded hypertensive group (FHH), the rats that either underwent sham-operation or creation of aorto-caval fistula (ACF) or were exposed to either sham-renal denervation (RDN) or bilateral RDN procedure. The scale bar in the figure is 100 µm. (**A**) Sham-operated FHL + sham-RDN, (**B**) sham-operated FHL + RDN, (**C**) ACF FHL + sham-RDN, (**D**) ACF FHL + RDN. All experimental groups of FHL exhibited normal renal morphology without significant pathological changes. (**E**) sham-operated FHH + sham-RDN, (**F**) sham-operated FHH + RDN, (**G**) ACF FHH + sham-RDN, (**H**) ACF FHH + RDN. All experimental groups of FHH showed moderate renal parenchymal injury, with focal segmental and global glomerulosclerosis associated with smaller areas of tubular atrophy. Black arrows show protein casts (i.e. PAS positive material) in the lumen of the proximal tubules.



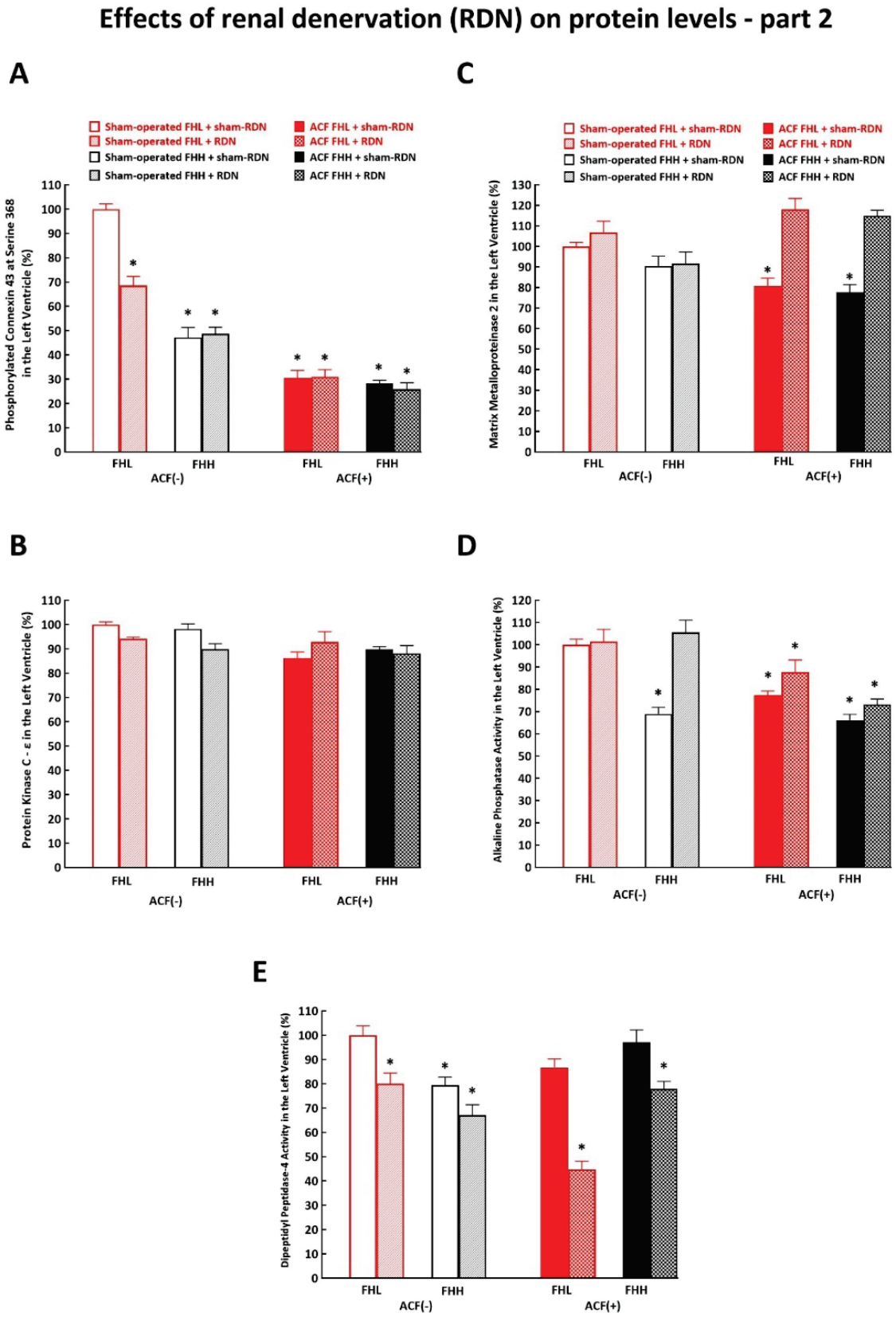
Supplementary Fig. 2. Morphometric measurements in materials collected from rats that survived until the end of the observation in Fawn-hooded normotensive group (FHL) and Fawn-hooded hypertensive group (FHH), the rats that either underwent sham-operation or creation of aorto-caval fistula (ACF) or were exposed to either sham-renal denervation (RDN) or bilateral RDN procedure. (**A**) right to left ventricle weight ratio, (**B**) lung weight and (**C**) kidney weight. * $P<0.05$ vs. sham-operated animals. # $P<0.05$ vs. FHL groups.



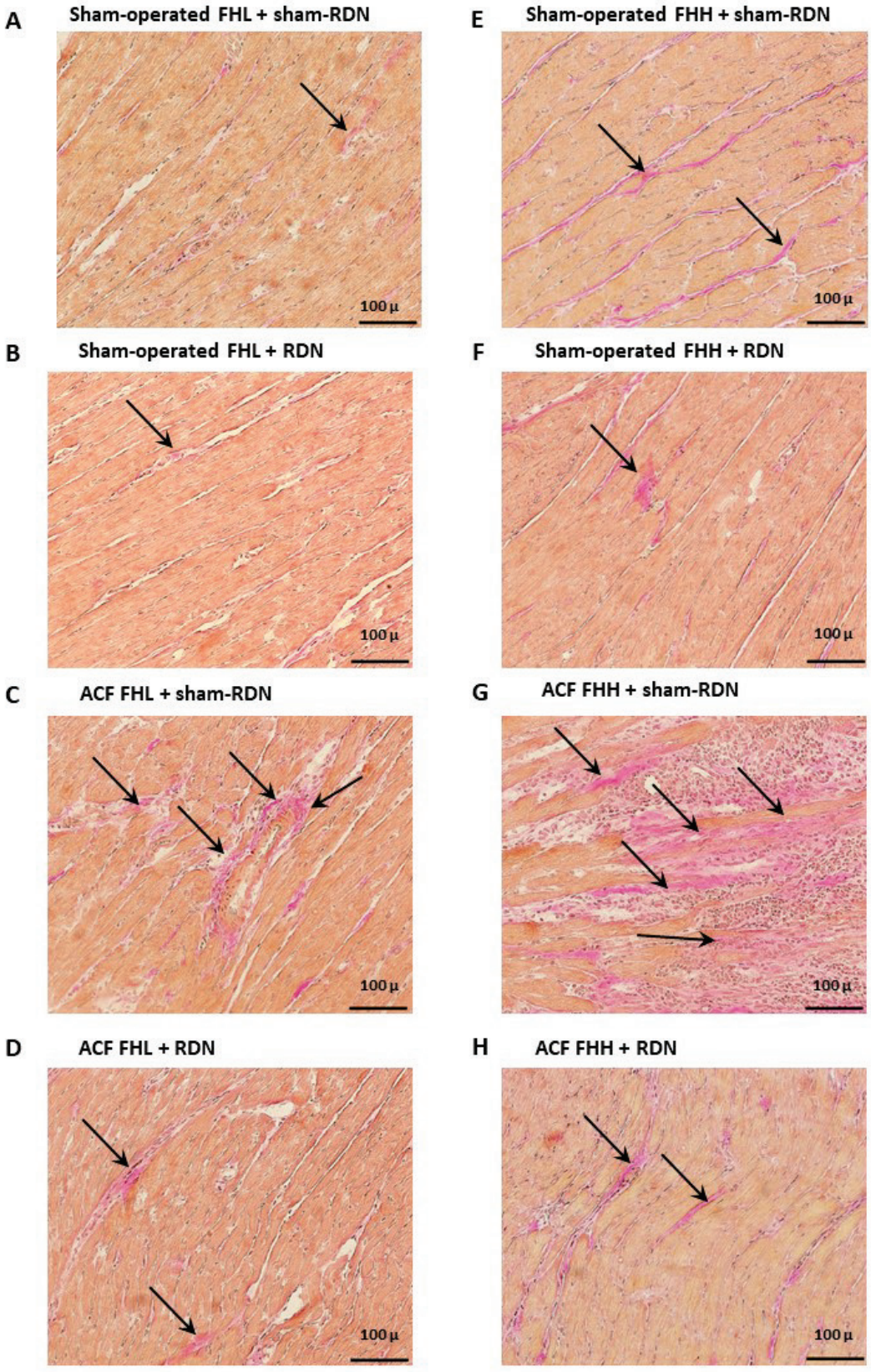
Supplementary Fig. 3. Echocardiographic analyses of cardiac function throughout the study in Fawn-hooded normotensive rats (FHL) and Fawn-hooded hypertensive rats (FHH) that either underwent sham-operation or creation of aorto-caval fistula (ACF) or were exposed to either sham-renal denervation (RDN) or bilateral RDN procedure. (**A**) Heart rate, (**B**) fractional shortening of the left ventricle, (**C**) fractional area change of the right ventricle. * $P<0.05$ vs. basal values at the same group (i.e. vs. data obtained on Echo 1 measurements).



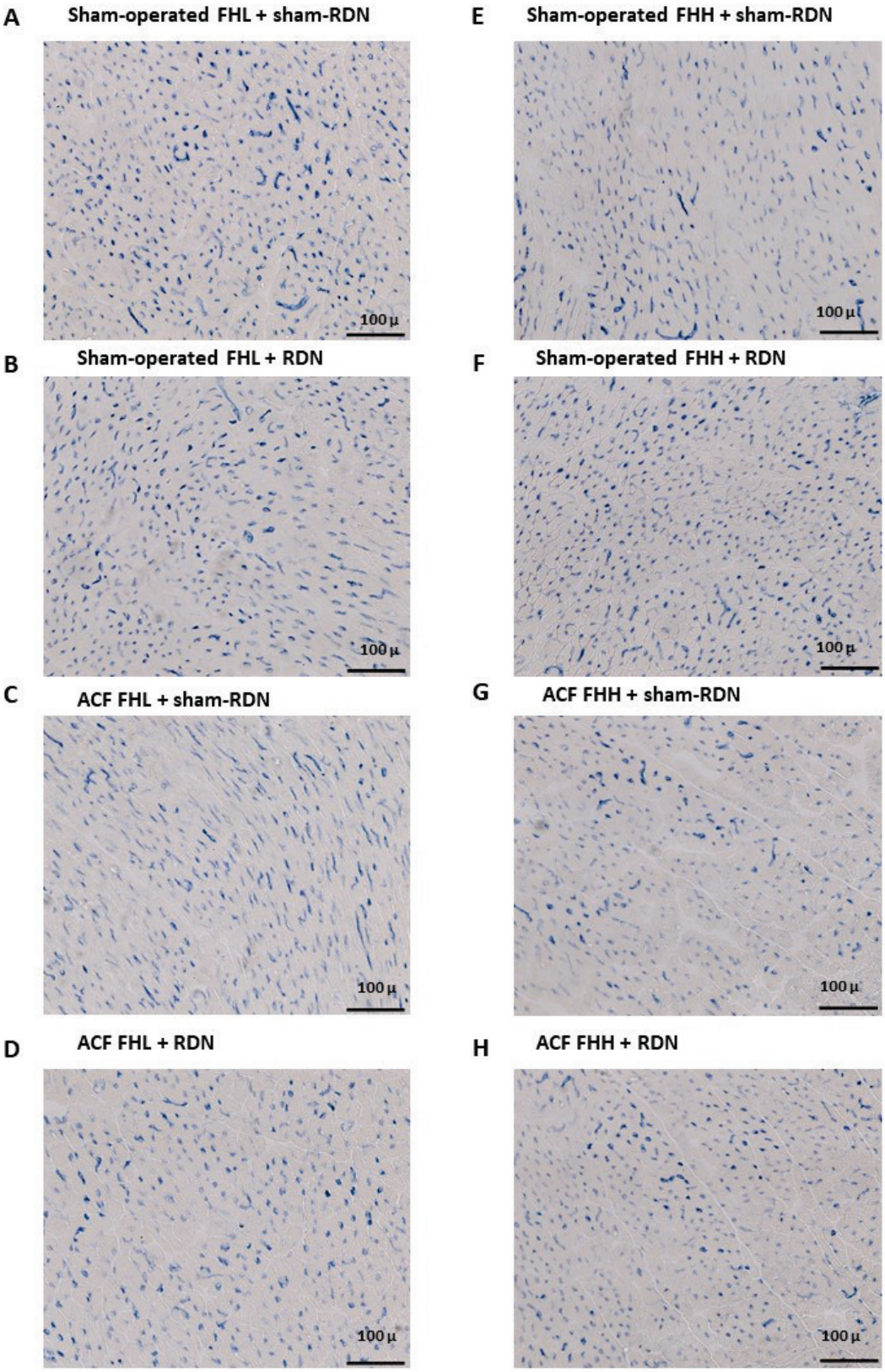
Supplementary Fig. 4. Echocardiographic analyses of cardiac structure and body weight throughout the study in Fawn-hooded normotensive rats (FHL) and Fawn-hooded hypertensive rats (FHH) that either underwent sham-operation or creation of aorto-caval fistula (ACF) or were exposed to either sham-renal denervation (RDN) or bilateral RDN procedure. (**A**) Left ventricle weight, (**B**) left ventricle anterior wall thickness in diastole, (**C**) body weight. * $P<0.05$ vs. basal values at the same group (i.e. vs. data obtained from Echo 1 measurements). # $P<0.05$ vs. FHL groups at the same time point.



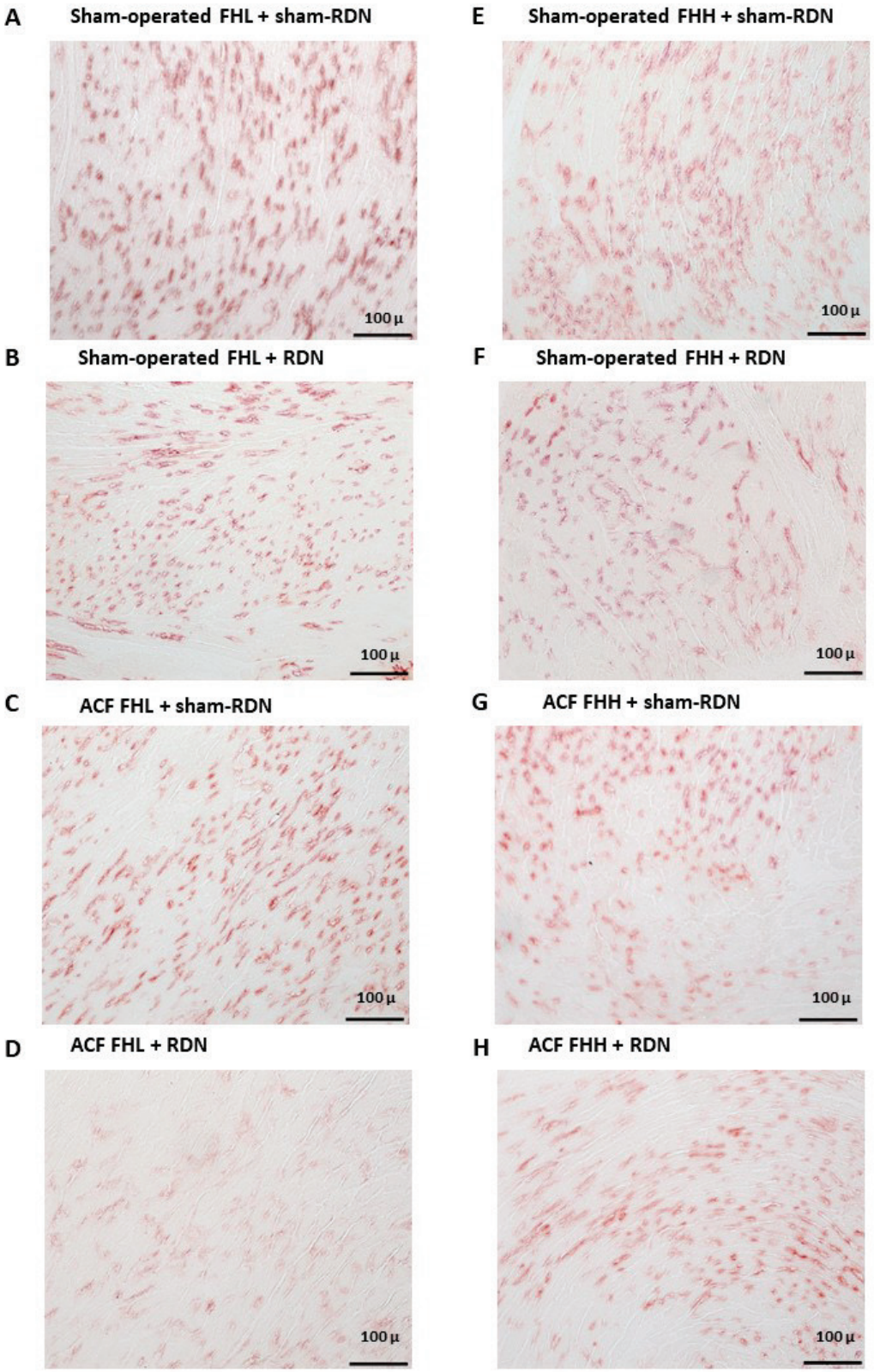
Supplementary Fig. 5. Western blot demonstration of the functional phosphorylated form of connexin 43 (**A**), protein kinase C epsilon (ε) (**B**), matrix metalloproteinase 2 (**C**). Histochemical quantification of alkaline phosphatase activity (**D**) and dipeptidyl peptidase-4 activity (**E**) in the left heart ventricle collected from rats that survived until the end of the study in Fawn-hooded normotensive group (FHL) and Fawn-hooded hypertensive group (FHH), the rats that either underwent sham-operation or creation of aorto-caval fistula (ACF) or were exposed to either sham-renal denervation (RDN) or bilateral RDN procedure. * $P<0.05$ vs. sham-operated FHL + sham-RDN.



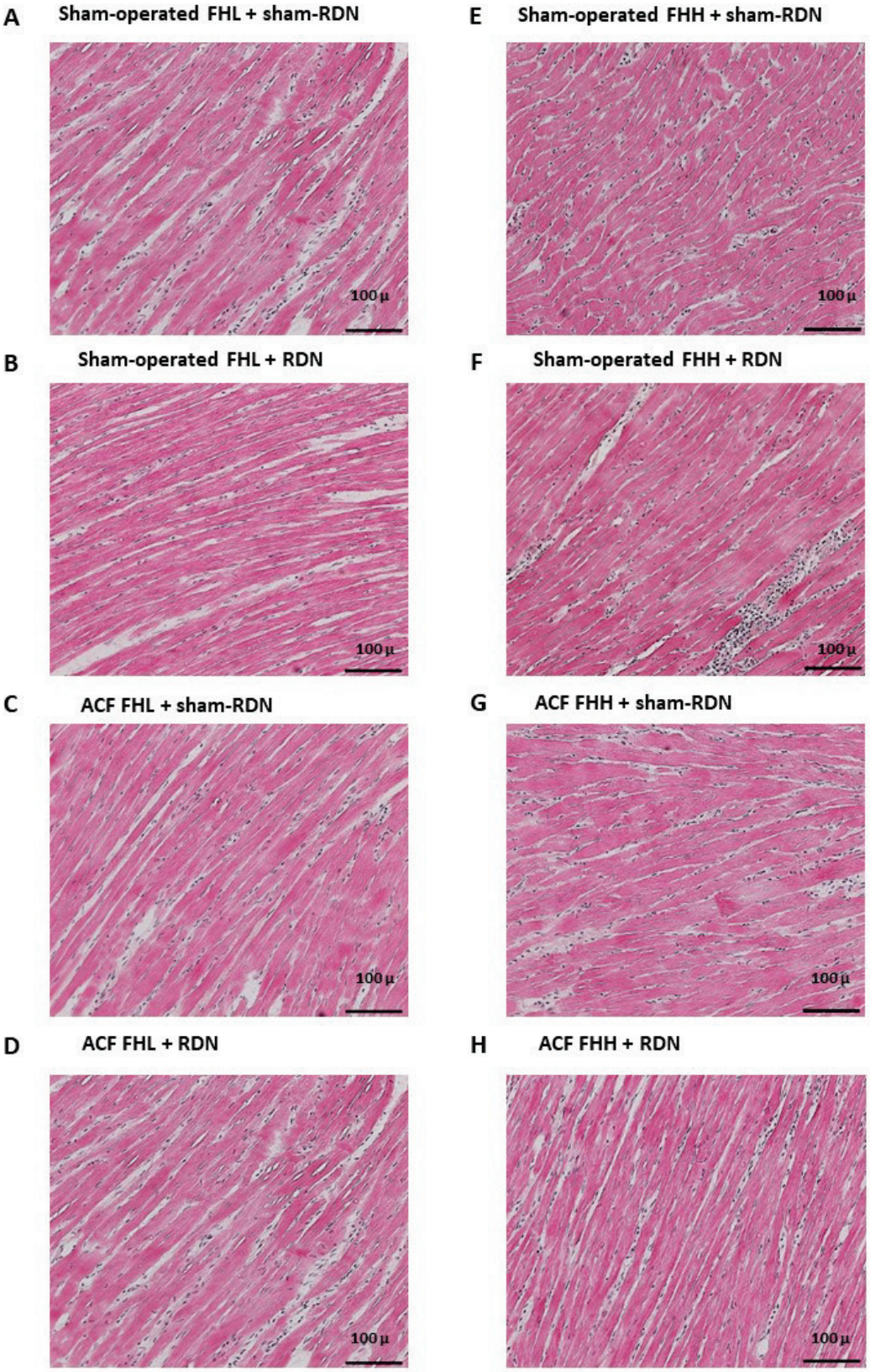
Supplementary Fig. 6. Representative histological images of collagen deposition (pink color, black arrows) detected by Van Gieson staining in the left heart ventricle collected from rats that survived until the end of the observation in Fawn-hooded normotensive group (FHL) and Fawn-hooded hypertensive group (FHH), the rats that either underwent sham-operation or creation of aorto-caval fistula (ACF) or were exposed to either sham-renal denervation (RDN) or bilateral RDN procedure. The scale bar in the figure is 100 µm. (**A**) Sham-operated FHL + sham-RDN, (**B**) sham-operated FHL + RDN, (**C**) ACF FHL + sham-RDN, (**D**) ACF FHL + RDN (**E**) sham-operated FHH + sham-RDN, (**F**) sham-operated FHH + RDN, (**G**) ACF FHH + sham-RDN, (**H**) ACF FHH + RDN.



Supplementary Fig. 7. Representative histological images of myocardial capillary density based on histochemical demonstration of alkaline phosphatase activity (blue) in the left heart ventricle collected from rats that survived until the end of the study in Fawn-hooded normotensive group (FHL) and Fawn-hooded hypertensive group (FHH), the rats that either underwent sham-operation or creation of aorto-caval fistula (ACF) or were exposed to either sham-renal denervation (RDN) or bilateral RDN procedure. The scale bar in the figure is 100 µm. (**A**) Sham-operated FHL + sham-RDN, (**B**) sham-operated FHL + RDN, (**C**) ACF FHL + sham-RDN, (**D**) ACF FHL + RDN, (**E**) sham-operated FHH + sham-RDN, (**F**) sham-operated FHH + RDN, (**G**) ACF FHH + sham-RDN, (**H**) ACF FHH + RDN.



Supplementary Fig. 8. Representative histological images of dipeptidyl peptidase-4 (dark brown) in endothelial cells of the venous portion of the capillary network, based on histochemical studies of the left heart ventricle collected from rats that survived until the end of the study in Fawn-hooded normotensive group (FHL) and Fawn-hooded hypertensive group (FHH), the rats that either underwent sham-operation or creation of aorto-caval fistula (ACF) or were exposed to either sham-renal denervation (RDN) or bilateral RDN procedure. The scale bar in the figure is 100 µm. (**A**) Sham-operated FHL + sham-RDN, (**B**) sham-operated FHL + RDN, (**C**) ACF FHL + sham-RDN, (**D**) ACF FHL + RDN (**E**) sham-operated FHH + sham-RDN, (**F**) sham-operated FHH + RDN, (**G**) ACF FHH + sham-RDN, (**H**) ACF FHH + RDN.



Supplementary Fig. 9. Representative histological images of hematoxylin-eosin staining in the left heart ventricle collected from rats that survived until the end of the study in Fawn-hooded normotensive group (FHL) and Fawn-hooded hypertensive group (FHH), the rats that either underwent sham-operation or creation of aorto-caval fistula (ACF) or were exposed to either sham-renal denervation (RDN) or bilateral RDN procedure. The scale bar in the figure is 100 µm. (**A**) Sham-operated FHL + sham-RDN, (**B**) sham-operated FHL + RDN, (**C**) ACF FHL + sham-RDN, (**D**) ACF FHL + RDN (**E**) sham-operated FHH + sham-RDN, (**F**) sham-operated FHH + RDN, (**G**) ACF FHH + sham-RDN, (**H**) ACF FHH + RDN.