Supplemental Material

Figure S1. In-situ rheology measurements of shear storage modulus converted to Young's Modulus (N=3, error bars show mean and standard deviation).

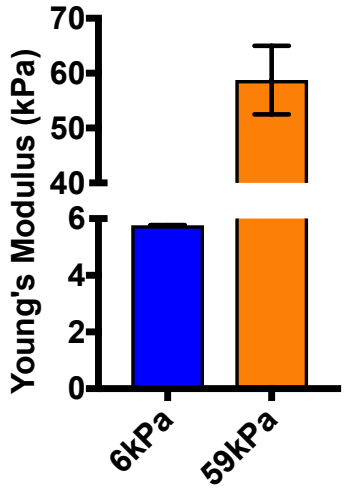
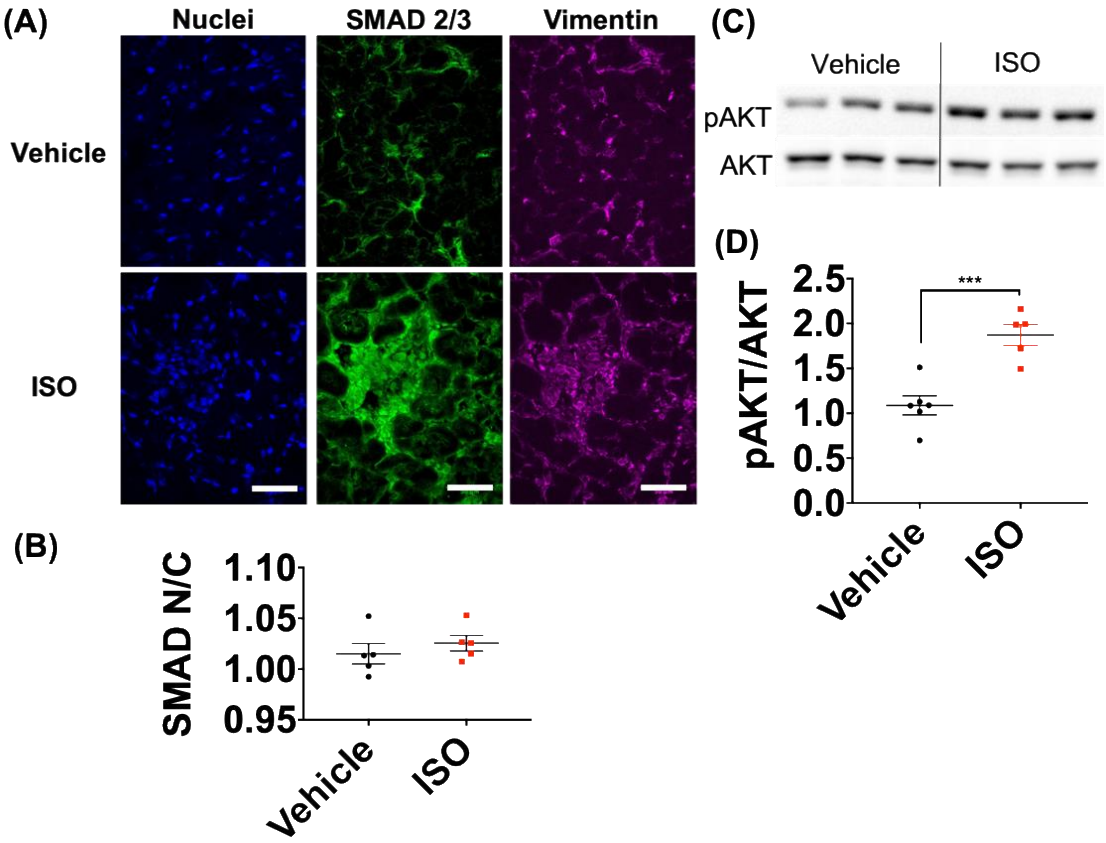
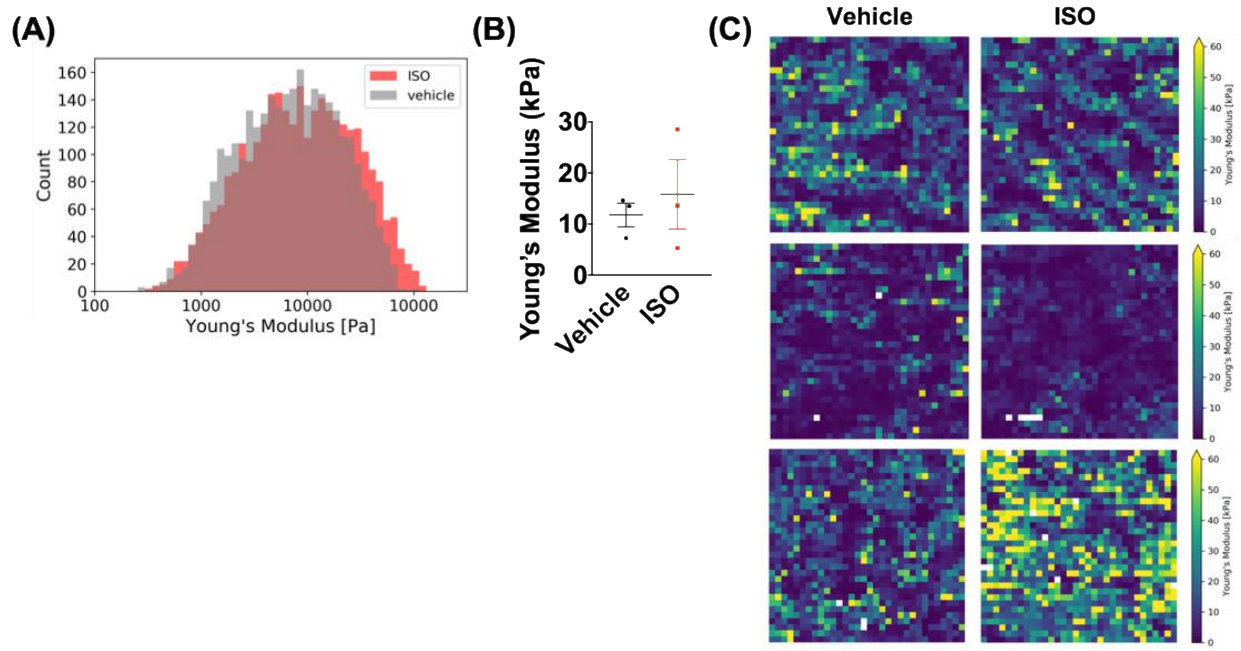


Figure S2. SMAD 2/3 IHC staining and pAKT Western Blot images in Vehicle or Isoproterenol treated rat left ventricle tissue sections.



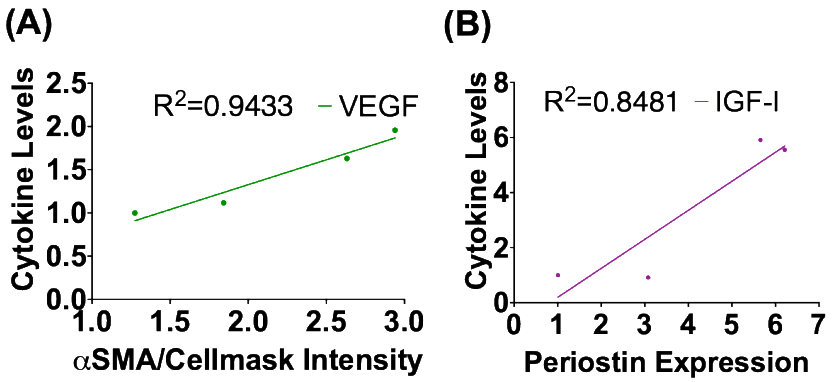
(A) Images of Nuclei, blue, SMAD 2/3, green, and Vimentin, pink, staining in tissue sections (40X objective, scale bar is 50μm). **(B)** Quantification of SMAD 2/3 nuclear/cytoplasmic (N/C) intensity, N=5 rats, Unpaired T-test, non-significant. **(C)** Images of Western blot of pAKT/AKT1 in left ventricle rat tissue in Vehicle and ISO treated rats (treated 7 days with ISO at 4mg/kg/day). **(D)** Quantification of pAKT to total AKT from Western blot, N=6, Unpaired T-test, $P \leq 0.001$ (***).

Figure S3. Atomic force microscopy (AFM) measurements of 10μm thick left ventricle cryosectioned tissue from male Sprague Dawley rats treated with vehicle or isoproterenol (ISO) 4mg/kg/day for 7 days.



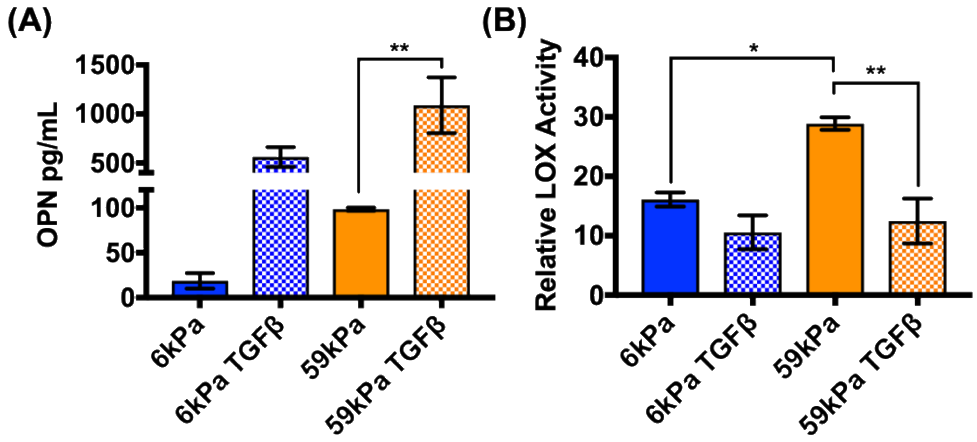
(A) Histogram of pixels binned for modulus measurements for pooled data (Scan area: 90 μm x 90μm (32 x 32 pixels), N=3 rats with data pooled for vehicle and ISO). **(B)** Average Young's Modulus for vehicle and ISO treated rats (N=3 for vehicle and ISO, error bars show mean and SEM). **(C)** Heat maps of AFM tissue measurements showing Young's Modulus (Scan area for images: 90 μm x 90μm (32 x 32 pixels), 1 section per rat, N=3 rats for vehicle and ISO).

Figure S4. Cytokines that correlate significantly with either (A) alpha-smooth muscle actin (αSMA) intensity (immunofluorescence) (left) or (B) Periostin expression (measured by RT-qPCR) (right), averages of 3 replicates are plotted.



VEGF=vascular endothelial growth factor, IGF-1=insulin growth factor 1.

Figure S5. Osteopontin (OPN) ELISA and Lysyl Oxidase (LOX) activity assay on cardiac fibroblast conditioned media.



(**A**) OPN ELISA (N=3, error bars show mean and SEM, One-way ANOVA, P≤0.01 (**)). (**B**) LOX activity assay (N=3, error bars show mean and SEM, One-way ANOVA, P≤0.05 (*), P≤0.01 (**)).