

## Supplemental Data

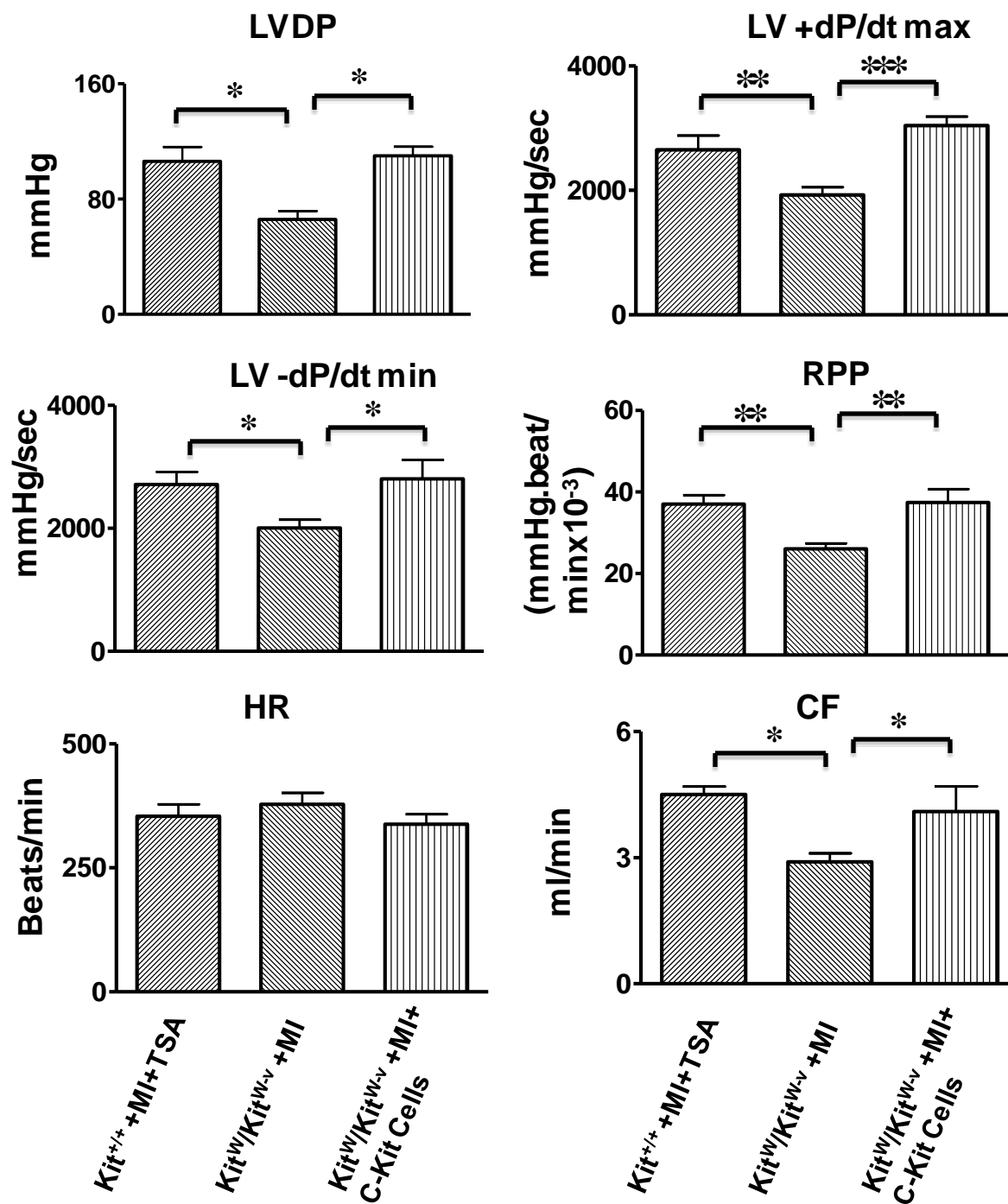
**Figure S1.** Reintroduction of TSA-treated c-kit<sup>+</sup>CSCs into Kit<sup>W</sup>/Kit<sup>W-v</sup> MI hearts restores ventricular function in Kit<sup>W</sup>/Kit<sup>W-v</sup> mice. Left ventricular (LV) function was assessed in isovolumetric hearts after 8 weeks of MI. The measured parameters included LV developed pressure (LVDP), heart rate (HR), and rate pressure product (RPP) where LVDP is systolic pressure minus LV end-diastolic pressure (LVEDP). LV dP/dtmax and dP/dtmin were continuously recorded. Coronary effluent (CF) is ml/min. A: Left ventricular functions. B: Measurements of heart/body ratio. HR: Heart rate; CF: coronary effluents; Values represent mean  $\pm$  SE, \*p< 0.05, \*\*p< 0.01, \*\*\*p< 0.001 (n=4-8/group).

**Figures S2.** Reintroduction of TSA-treated c-kit<sup>+</sup>CSCs into Kit<sup>W</sup>/Kit<sup>W-v</sup> MI hearts reserves ventricular remodeling in Kit<sup>W</sup>/Kit<sup>W-v</sup> MI mice. Reintroduction of c-kit<sup>+</sup>CSCs increased viable myocardium and, wall thickness of infarcted myocardium but decreased scar sizes and the expansion index. Values represent mean  $\pm$  SE, \*p< 0.05, \*\*p< 0.01, \*\*\*p< 0.001 (n=3-5/group).

**Figure S3.** Representative images from TSA-treated-Kit<sup>W</sup>/Kit<sup>W-v</sup> MI mice. Nuclei were stained in blue (DAPI), cardiomyocytes in green ( $\alpha$ -sarcomeric actinin); BrdU, Ki67 and c-kit in red.  $\alpha$ -Sarc Act:  $\alpha$ -sarcomeric actinin; Scale bars represent 50 $\mu$ m.

**Figures S4.** Reintroduction of TSA-treated c-kit<sup>+</sup>CSCs into Kit<sup>W</sup>/Kit<sup>W-v</sup> MI hearts enhances myocardial proliferative index in Kit<sup>W</sup>/Kit<sup>W-v</sup> MI mice. Quantitative analyses of BrdU, Ki67 and c-Kit<sup>+</sup>CSC staining in 20 paraffin embedded sections per hearts. Hearts were fixed and sectioned 8 weeks after MI; the values represent Mean  $\pm$  SE, \*p< 0.05, \*\*p< 0.01, \*\*\*p< 0.001 (n=3-4 hearts/group).

Figure S1A



**B**

### Heart/body ratio

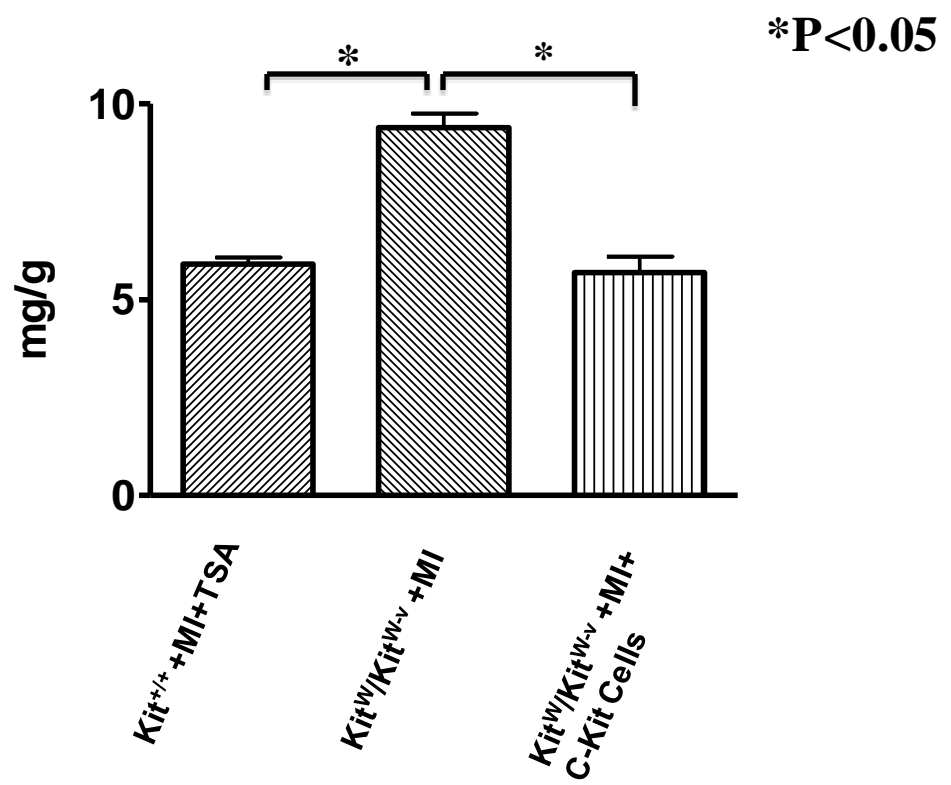


Figure S2

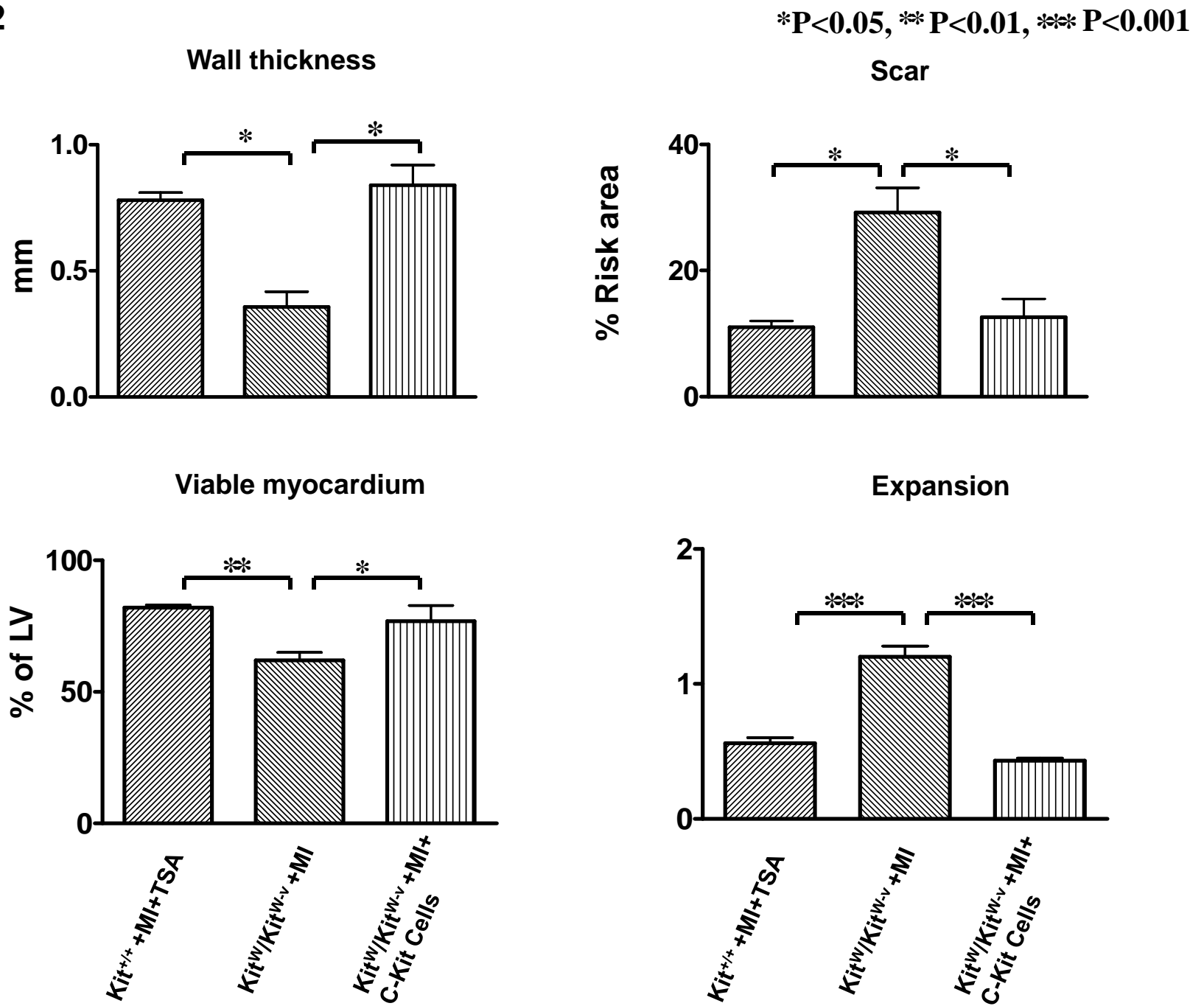
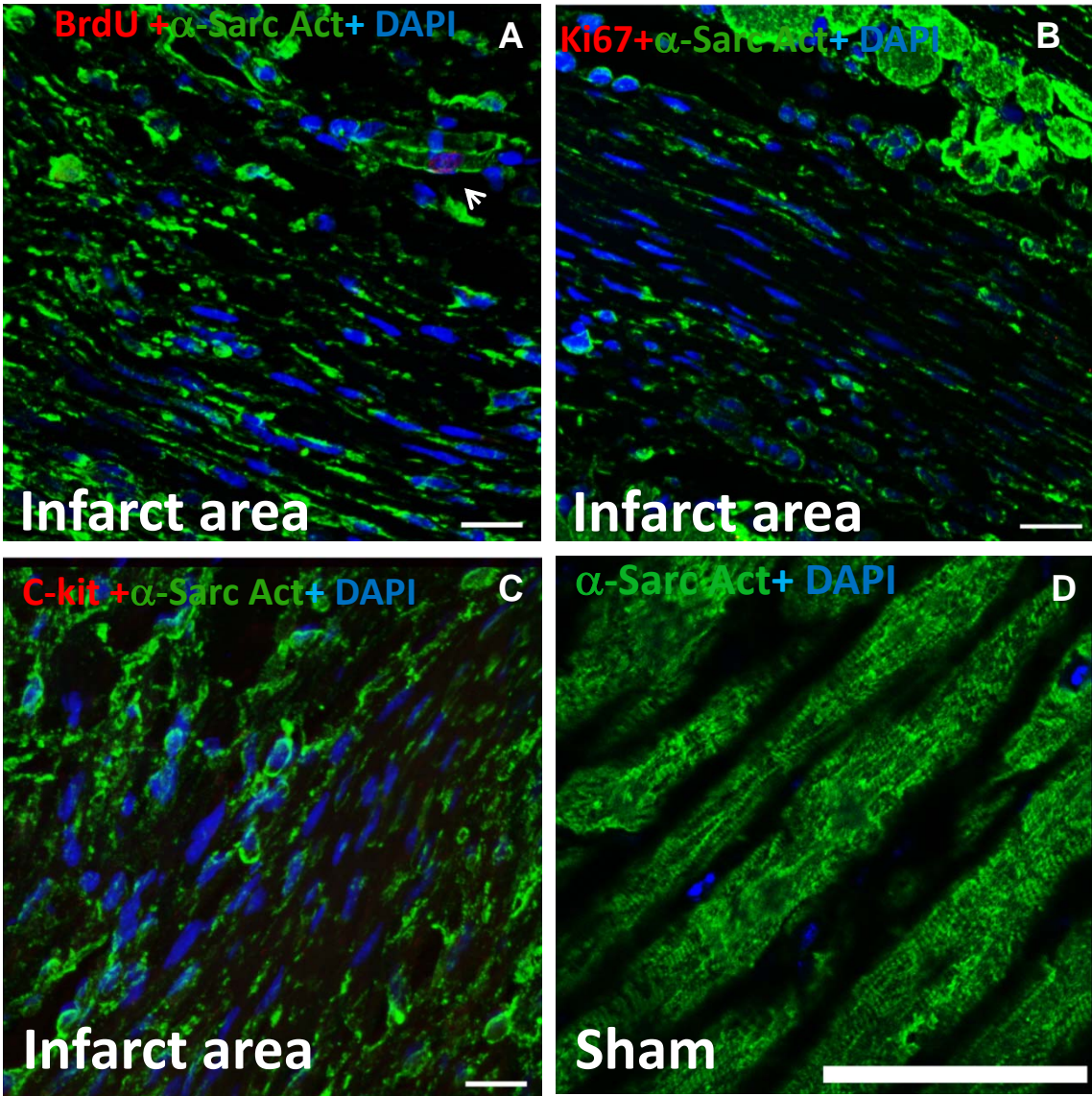
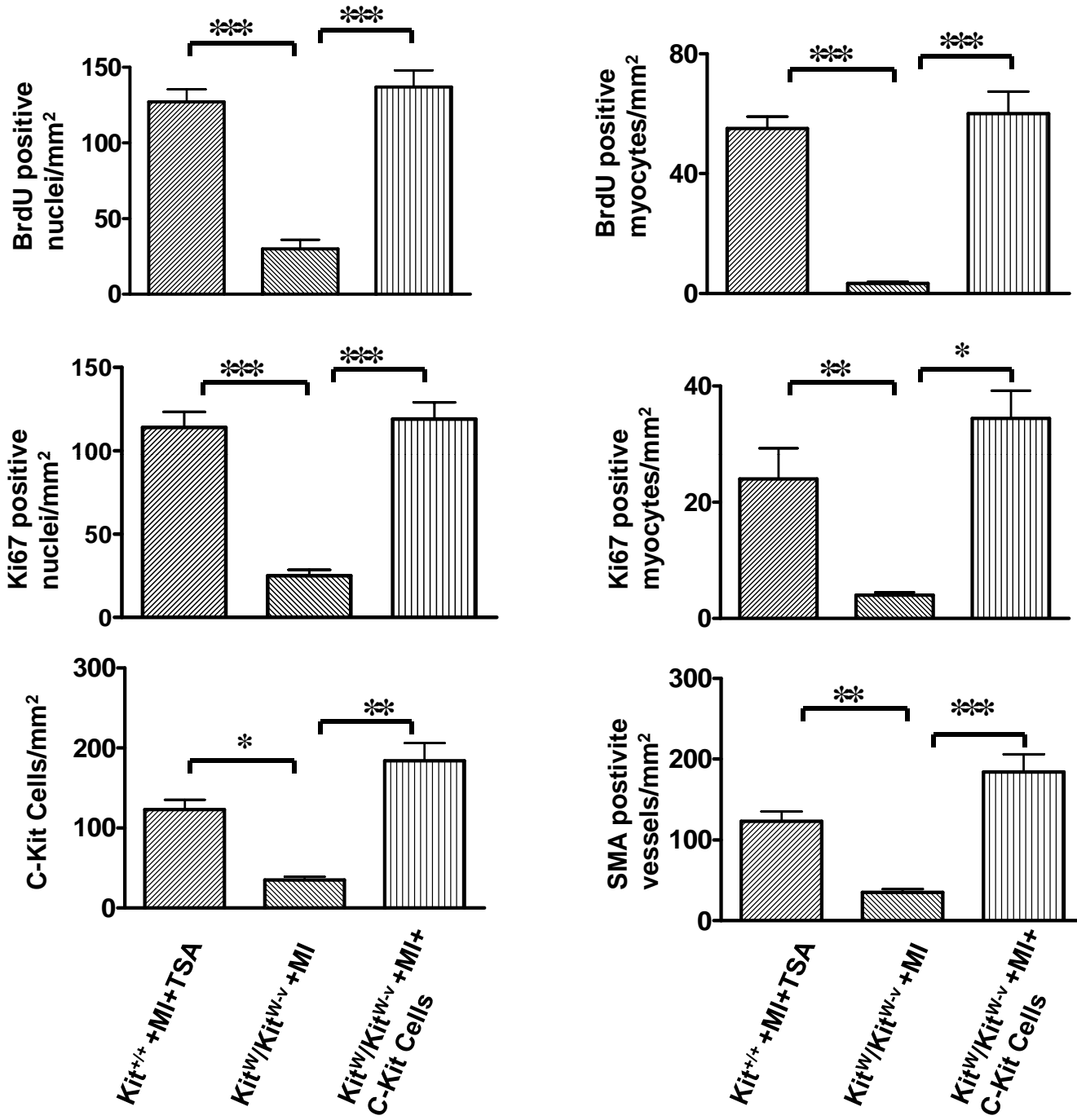


Figure S 3



Kit<sup>W</sup>/Kit<sup>W-v</sup> +MI+TSA

Figure S4



\*P<0.05, \*\* P<0.01,

\*\*\* P<0.001