

Title: Improvement of insulin signalling rescues inflammatory cardiac dysfunction

Authors: Isehaq Al-Huseini<sup>1</sup>, Masayuki Harada<sup>1</sup>, Kiyoto Nishi<sup>1</sup>, Dat Nguyen-Tien<sup>1</sup>, Takeshi Kimura<sup>1</sup>, Noboru Ashida<sup>1</sup> \*

Affiliations:

<sup>1</sup>Department of Cardiovascular Medicine, Graduate School of Medicine, Kyoto University, Kyoto, Japan

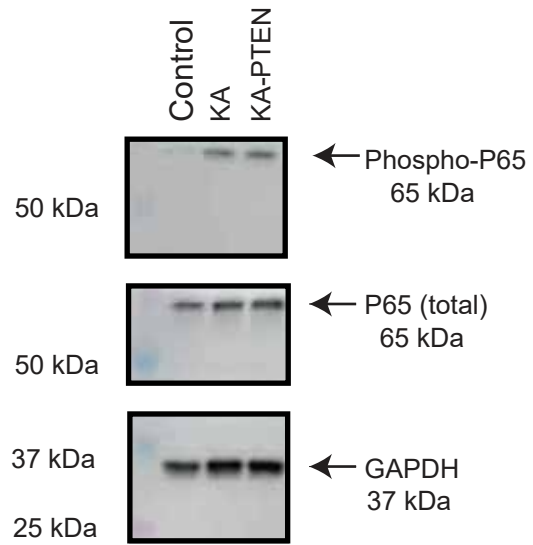
Current address of Isehaq Al-Huseini; Department of Physiology, College of Medicine and Health Sciences, Sultan Qaboos University, Muscat, Oman

Current address of Kiyoto Nishi; Mitochondria and Metabolism Center, Department of Anaesthesiology and Pain Medicine, University of Washington, Seattle, WA98109, USA

Current address of Dat Nguyen-Tien; Department of Molecular Immunology and Inflammation, Research Institute, National Center for Global Health and Medicine, 1-21-1 Toyama, Shinjuku-ku, Tokyo 162-8655, Japan.

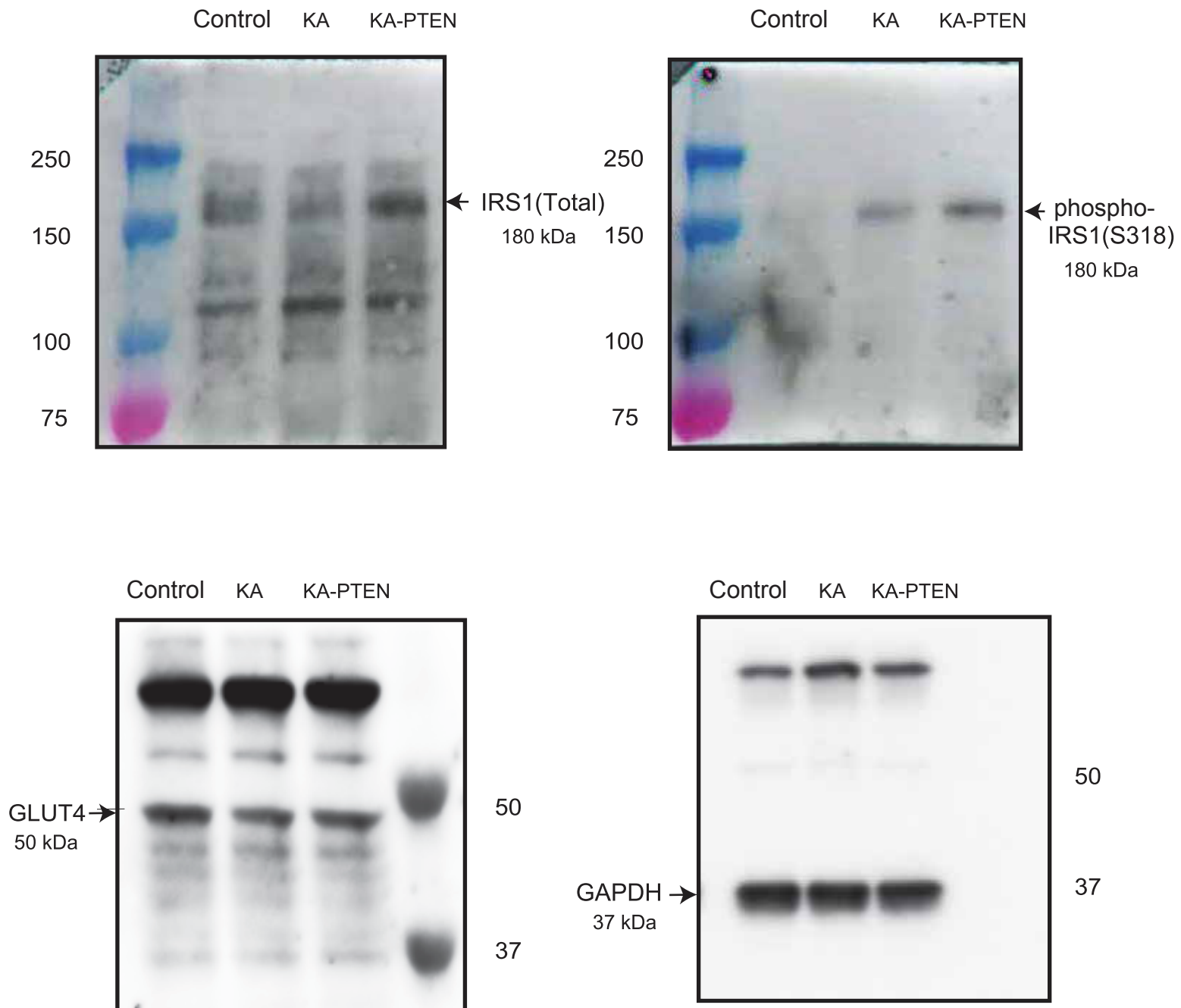
\*Corresponding author: Noboru Ashida M.D., PhD; E-mail: [nashida@kuhp.kyoto-u.ac.jp](mailto:nashida@kuhp.kyoto-u.ac.jp); Department of Cardiovascular Medicine, Graduate School of Medicine, Kyoto University, Kyoto, Japan. Address: 54 Kawahara-cho, Shogoin, Sakyo-ku, Kyoto, Japan, 606-8507. Telephone: +81-75-751-3195. Fax: +81-75-751-3203

## Supplementary information Figure 1.



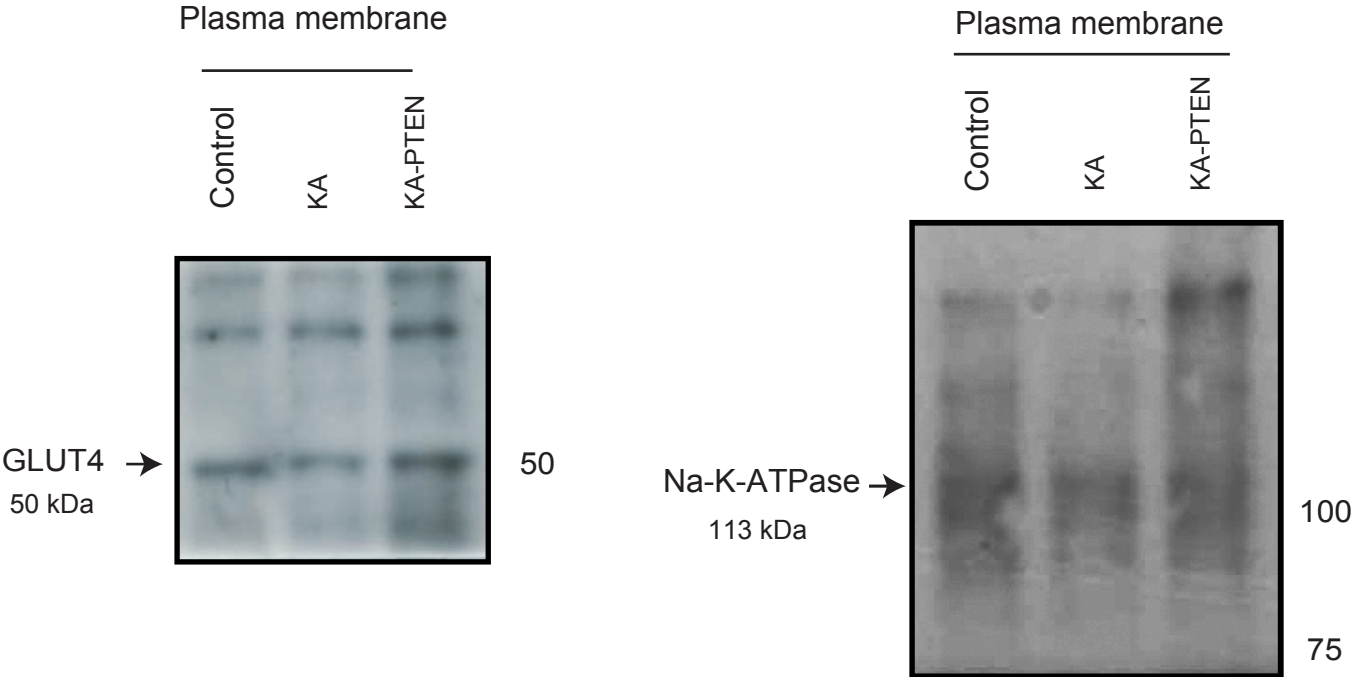
**Supplementary figure 1.** Full length immunoblots of anti-phospho-PP65, anti-P65(Total) and anti-GAPDH as loading control.

## Supplementary information figure 2.



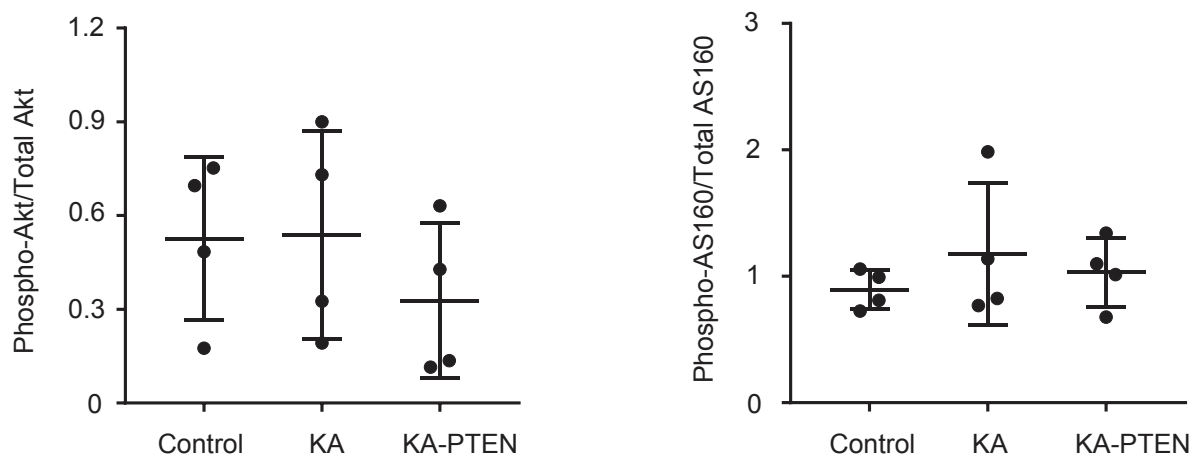
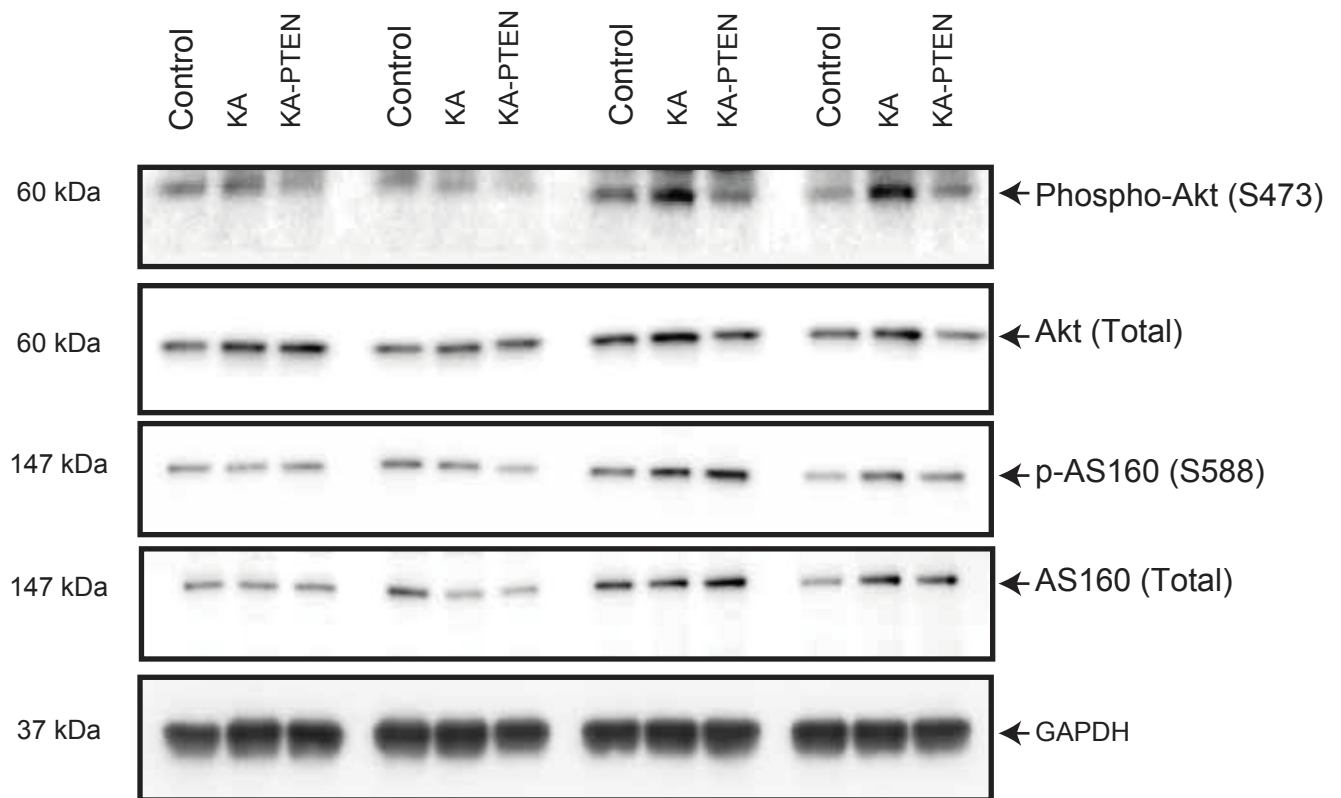
**Supplementary figure 2.** Full length immunoblots of anti-phospho-IRS1 (serine318) and anti-IRS1 (total), anti-Glut4 and anti-GAPDH as loading control.

Supplementary information figure 3.



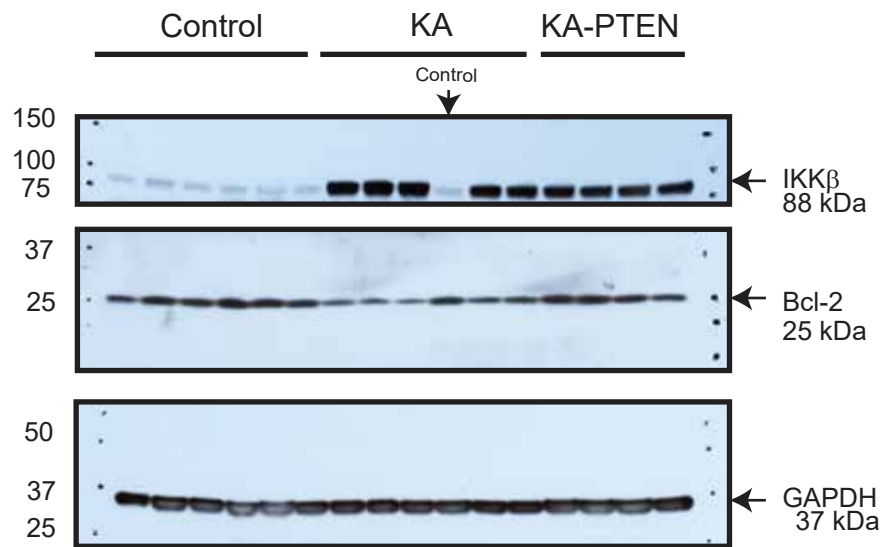
Supplementary figure 3. Full length immunoblots of anti-Glut4 and anti-NA-K-ATPase.

## Supplementary information figure 4.



**Supplementary figure 4.** Full length immunoblots of phospho-Akt (S473), anti-Akt (Total), anti-phospho-AS160 (S588) and anti-AS160 (Total) and anti-GAPDH as loading control. Densitometric analyses of phospho-Akt ser473/total Akt and phospho-AS160 Ser588/total AS160 in heart lysates. Scatter dot plots represent the mean  $\pm$  SD

## Supplementary information figure 5



**Supplementary figure 5.** Full length immunoblots of anti-IKK $\beta$ , anti-Bcl-2 and anti GAPDH as loading control.

**Supplemental Video 1.** Representative echocardiography video taken at the mid-ventricular short-axis of control and KA mice at the ages of three and six weeks.

**Supplemental Video 2.** Representative echocardiography video taken at the mid-ventricular short-axis of control and KA mice (the same videos that are presented in Supplemental Video 1) and also of KA-PTEN mice at the ages of three and six weeks.