

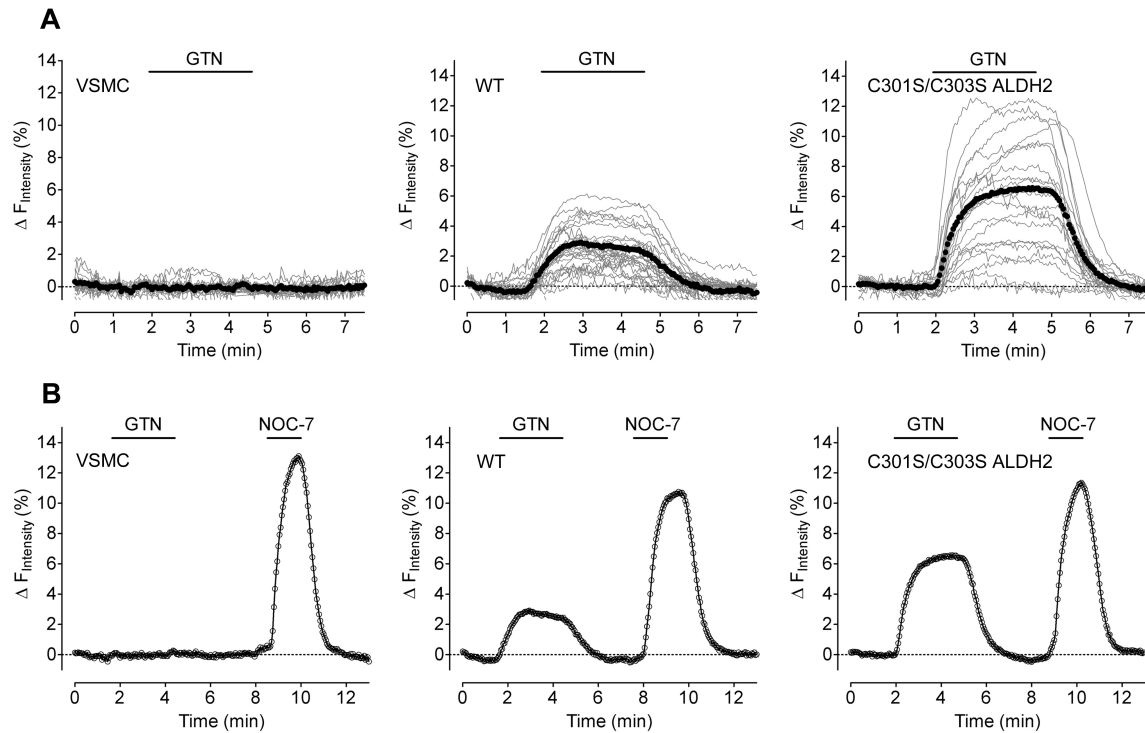
## SUPPLEMENTAL DATA

Formation of nitric oxide by aldehyde dehydrogenase-2 is necessary and sufficient for vascular bioactivation of nitroglycerin

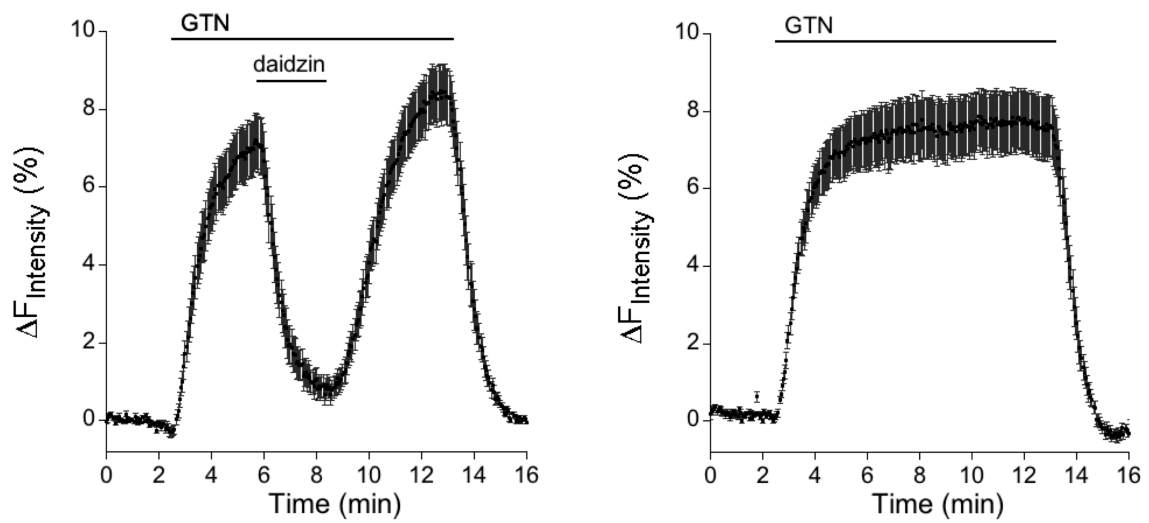
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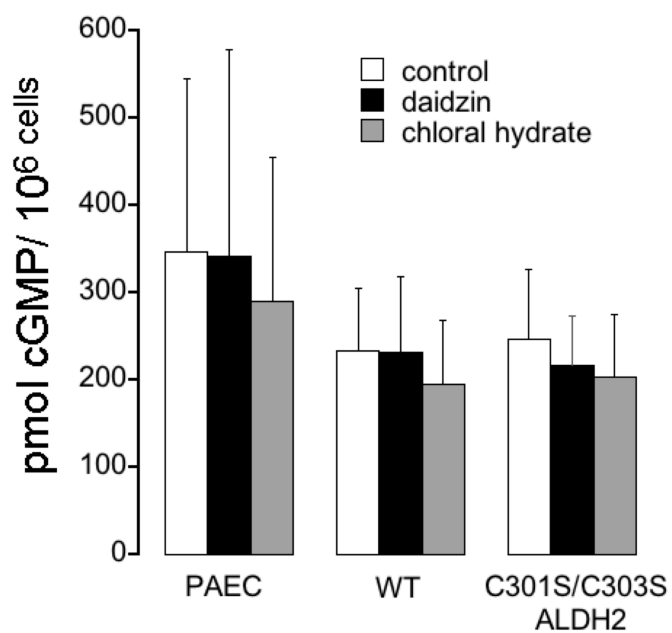
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**Supplementary Figure 1. Live-cell imaging of NO release induced by GTN or NOC-7 in vascular smooth muscle cells.** **A**, Individual traces of NO release over time were measured in VSMC infected with C-geNOp alone (left panel) or in combination with either WT (middle panel) or C301S/C303S ALDH2 (right panel) in response to 1  $\mu\text{M}$  GTN in the presence of 1 mM DTT by live-cell imaging as described in *Experimental Procedures*. Average curves with SEM are shown in Figure 2B (main text). **B**, Cellular NO release of VSMC expressing either C-geNOp alone (left panel) or in combination with either WT (middle panel) or C301S/C303S ALDH2 (right panel) in response to 1  $\mu\text{M}$  GTN or 10  $\mu\text{M}$  NOC-7 in the presence of 1 mM DTT (n=27 for VSMC; n=26 for VSMC+WT; n=20 for VSMC+C301S/C303S ALDH2). Data are expressed as inverted curves (1-F/F<sub>0</sub> in %) of the number of experiments indicated in the panel description above.



**Supplementary Figure 2. Effect of daidzin on GTN-derived NO formation in vascular smooth muscle cells expressing C301S/C303S ALDH2.** Average curves showing NO release over time in response to 1  $\mu\text{M}$  GTN in VSMC expressing C301S/C303S ALDH2 under control conditions (right panel; n=16) or upon application and subsequent washout of 0.2 mM daidzin (left panel; n=19). Data are expressed as inverted curves (1-F/F0 in %).



**Supplementary Figure 3. GTN-induced cGMP accumulation in cultured porcine aortic endothelial cells.** Non-infected and infected (WT or C301S/C303S ALDH2) porcine aortic endothelial cells were incubated with 1  $\mu$ M DEA/NO in the absence and presence of 0.4 mM daidzin and 5 mM chloral hydrate and cGMP formation was determined as described in *Experimental Procedures*. Data represent mean values  $\pm$  SEM of three to five independent experiments.