## SUPPLEMENTARY MATERIAL

## **METHODS**

## Measurement of Mn<sup>2+</sup> entry

 $Mn^{2+}$  may quench Fura-2 fluorescence. Since  $Mn^{2+}$  and  $Ca^{2+}$  share common entry pathways in the plasmalemma, Fura-2 quenching by  $Mn^{2+}$  is regarded as an index of divalent cation influx [1]. Experiments were carried out at the 360 nm wavelength, the isosbestic wavelength for Fura-2, and in  $Ca^{2+}$ -free medium supplemented with 50  $\mu$ M MnCl<sub>2</sub>, as shown elsewhere [2]. This avoids  $Ca^{2+}$  competition for  $Mn^{2+}$  entry and therefore enhances  $Mn^{2+}$  quenching. The experimental set-up is similar to that described in the Methods Section of the full length manuscript. Rat aortic rings were loaded with 16  $\mu$ mol Fura-2/AM for 60 min at room temperature.



## **FIGURE LEGENDS**

Figure 1. Injury-induces quenching of Fura-2 fluorescence by  $Mn^{2+}$ . A, no  $Mn^{2+}$  entry occurs in the unstimulated endothelium of rat aorta. Mechanical damage evokes a rapid decrease in Fura-2 fluorescence which is indicative of  $Mn^{2+}$  inflow. B, injury elicits only a modest decline in Fura-2 fluorescence when the rat aortic rings are pretreated with heptanol (4 mM). Washout of the drug rapidly restores  $Mn^{2+}$  entry and leads to the fluorochrome quenching.

**Movie legend.** Injury-induced intracellular  $Ca^{2+}$  oscillations in a number of endothelial cells (ECs) facing the lesion site. These  $Ca^{2+}$  waves, in turn, could propagate throughout the tissue and generate repetitive  $Ca^{2+}$  transients in cells distant from the wound edge. Mechanical scraping was carried out at 4 sec. Images are false coloured as depicted in the text for clarity.