Activation of Xenogeneic Endothelium to Resist Injury

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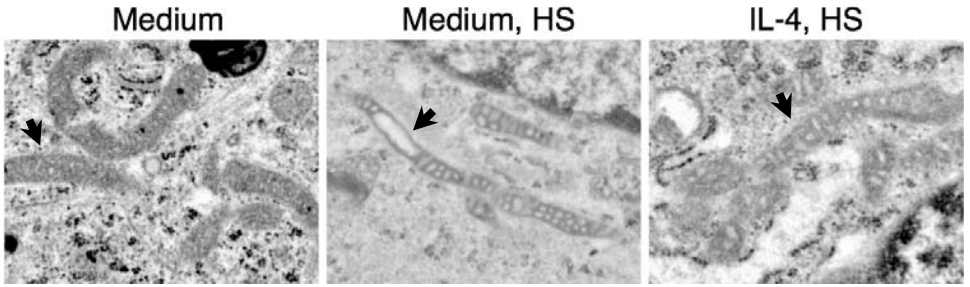
NNIN Facility utilized: Characterization Facility

DESCRIPTION OF WORK

- We study mechanisms in IL-4 induction of protection of pig endothelial cells (ECs) against killing by human complement (C)
- Our previous work showed that protection required PI3K/Akt signaling, sterol receptor element binding protein-1 (SREBP-1) activation, and phospholipid synthesis
- Since C causes major injury to mitochondria we now investigated whether IL-4 treatment of ECs prevented this C-mediated injury

MAJOR OBSERVATIONS

- Using EM, mitochondria of ECs exposed to C had marked injury: disappearance of intermembrane space and cristae, distortion of inner mitochondrial membranes and vacuolization (Medium, HS (human serum)). In contrast, mitochondria of ECs incubated with IL-4 and then exposed to C (IL-4, HS) had few structural changes and were similar to mitochondria of ECs incubated with medium alone (Medium).



- Publications: 2009. submitted.