

P037 Lack of Toll Like Receptor 4 is Linked to a Loss in Endothelium Function in Mesenteric Arteries.

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Toll Like Receptor 4 (TLR4) is a pattern recognition receptor for lipopolysaccharide from Gram negative bacteria, and as such is integral to the innate immune response in mammals. In addition, TLR4 is associated with atherosclerosis in murine models. Using confocal laser microscopy, we show that blood vessels from TLR4^{-/-} mice have an intact endothelial layer and comparable expression of NOSIII protein. However, classical bioassay of mesenteric arteries from TLR4^{-/-} mice demonstrates a greatly reduced endothelium dependent acetylcholine response. Endothelium independent smooth muscle dilation in response to SNP in vessels from TLR4^{-/-} mice remained intact. Furthermore, we show that hearts from TLR4^{-/-} mice exhibit left ventricle dilation. By contrast to results in vessels from TLR4^{-/-} mice, endothelium dependent responses to acetylcholine in vessels from TLR2^{-/-} mice remained intact. These observations illustrate a novel role for TLR4 in the homeostatic control of a functional endothelium and thereby cardiovascular health.