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Title:	Vibrio Cholerae OmpU Activates Distinct Signalling Cascades In Innate Immune Cells
Authors:	Prasad, G.V.R.Krishna (/jspui/browse?type=author&value=Prasad%2C+G.V.R.Krishna)
Keywords:	Vibrio cholerae bacterium pathogenesis OmpU-induced
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**Abstract:** OmpU is an outer membrane protein of *Vibrio cholerae*. It is porin in nature and helps the bacterium for well survival in the human gut during pathogenesis. Towards characterising the host-immunomodulatory responses, we have previously shown that OmpU has the ability to activate innate immune cells, such as, monocytes and macrophages for the production of pro-inflammatory cytokines such as, TNF alpha and IL-6. Monocytes are the precursors of macrophages. For the induction of pro-inflammatory cytokine production OmpU hetero-dimerizes TLR1/2, recruits MyD88 to the receptor complex and activates NF- $\kappa$ B transcription factor in both the cell types. In the thesis work, we are showing that in both monocytes and macrophages, OmpU-induced pro-inflammatory responses also involve activation of MAPKinases (p38 and JNK) and AP-1 transcription factor. Interestingly, we observed that in OmpU-treated macrophages, TLR2 activation leads to only p38 activation but not JNK. JNK activation in OmpU-treated macrophages happens through another pathway involving CD36-dependent ROS generation by NADPH oxidase complex. For the first time, we are showing that a gram-negative bacterial protein can activate scavenger receptor CD36 as pattern recognition receptor. Additionally, we found that in OmpU-treated monocytes both JNK and P38 activation is linked to the TLR2 activation only. Therefore, the ability of macrophages to employ multiple receptors such as, TLR2 and CD36 to recognize a single ligand, in this case OmpU, probably explains the very basic nature of macrophages being more pro-inflammatory than monocytes.


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**Appears in** PhD-2012 (</jspui/handle/123456789/955>)  
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