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Comparison of in vivo and in vitro responses to LPS of microglial cells that lack functional fractalkine receptor.

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CX3CR1(fractalkine receptor)is important for sustaining normal microglial activity in the brain.Challenges,such as lipopolysaccharide treatment,focal cerebral ischemia result in remarkable differences in the CX3CR1 deficient(-/-)animals compared with CX3CR1+/-and wild-type mice. In the present study we compared the effect of endotoxin challenge on the blood cytokine levels in wild type C57Bl6mice and mice in which the fractalkine signaling is defective due to transgenic insertion of gfp reporter sequence.In the second series of experiments, microglial cells were separated from newborn wild type,gfp/+ or gfp/gfp and were challenged in vitro with LPS.Cytokine/chemokine levels from the plasma,from the culture supernatant and cell pellets were analyzed by BD™Cytometric Bead Array. LPS injection resulted in significant elevation of IL-1,IL-6,TNFα,RANTES,MCP-1,GCS-F levels in all genotypes.Induction of IL-12 was slightly impaired in CX3CR1 deficient animals.LPS treatment for 6 hours resulted in a significant increase of TNFα in microglial cells from both genotypes,but the effect did not reach significant level in the supernatants.MCP-1 was elevated in response to LPS in cultures prepared from mice with normal fractalkine signaling.LPS treatment at this time point did not affect the expression and the release of the other immune mediators. These data suggest that fractalkine signalling does not have a major impact on endotoxin-Toll like receptor mediated responses in vivo or in vitro.