

**P064** Regulation of autoimmune inflammatory demyelination by the innate immune system: relevance to Multiple Sclerosis  
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Toll like receptors (TLRs) recognise microbial components and induce innate immune responses. We aim to find mechanisms by which TLR stimuli exacerbate or suppress CNS autoimmune inflammatory demyelination. Both effects have been observed in experimental autoimmune encephalomyelitis (EAE) an animal model of multiple sclerosis (MS) - TLRs 2, 5 and 9 have been implicated in exacerbating disease, TLR4 in delaying onset and TLR3 in reducing severity. We determined which cytokines are induced by TLR stimuli in murine splenocytes and found that the inflammatory chemokine MCP-1 (CCL2) was upregulated by six TLR stimuli - Pam3CSK4 (TLR1/2 stimulus), HKLM (TLR2), lipopolysaccharide (TLR4), Flagellin (TLR5), follistatin-like 1 (TLR6) and ssRNA40 (TLR7). The anti-inflammatory cytokine IL-10 was upregulated by the same stimuli and also by poly I: C (TLR3 stimulus) and CpG ODN1826 (TLR9). TLR9 stimulation also induced increased production of IL12p70. All TLR stimuli also induced increased T cell proliferation as measured by [<sup>3</sup>H] thymidine incorporation. Analysis of cytokine production by human immune cells in MS patients and healthy controls is in progress. The production of cytokines in response to TLR stimuli may regulate autoimmune diseases and there is potential to aid immunotherapy by targeting these TLRs and the cytokines produced.