miR-511-3p, embedded in the macrophage CD206 gene, contributes to experimental colitis


**Introduction**

miR-511-3p is embedded in intron 5 of the macrophage mannose receptor (CD206) gene *Mrc1*, that is expressed by M2 macrophages. Expression of CD206 and miRNA511-3p is co-regulated. CD206 is a pattern recognition receptor which recognizes a broad range of microbes. The contribution of both CD206 and miR-511-3p to colitis is unclear. We examined the role of CD206 and miR-511-3p in intestinal inflammation in both mouse and human systems.

**Methods**

Colonic inflammation was induced by dextran sodium sulphate in CD206-deficient and WT mice, as well as mice in which the CD206 was blocked using an blocking antibody. Both M1 and M2 macrophages were stimulated with LPS, and cytokine responses measured. Expression levels of miR-511-3p were measured in macrophages from CD206-deficient mice using qPCR. Macrophages transduced to either overexpress or knock-down miR-511-3p were characterized.

**Results**

Less inflammation in CD206/- mice

CD206/- macrophages have reduced LPS responses

miR-511-3p knockdown reduces TLR4 levels and responses

CD206/- macrophages have reduced TLR4 levels

CD206/- macrophages have reduced miR-511-3p levels

**Conclusion**

We demonstrate that miR-511-3p plays a role in mouse colitis. Likely due to regulation of TLR4 expression levels.