

The role of Haemophilus parainfluenzae in regulating antigen presenting cells in primary sjogren's syndrome

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Sjogren's syndrome is an autoimmune disease which caused by the immune system attacking and destroying the exocrine glands. It leads loss of secretory gland functions, such as dry eyes, dry nose, or dry mouth. In past studies, we found that the oral microbiome of Sjogren's disease patients was dysregulated, and the Haemophilus parainfluenzae was significantly reduced. The study also found that treatment of A253 cells in vitro with H. parainfluenzae upregulated PD-L1 expression, and H. parainfluenzae-pretreated A253 cells suppressed CD4 T cell proliferation. By NGS analysis, A253 cells treated with H. parainfluenzae were found to have significantly increased TLR2 expression. Therefore, in this study, we aim to investigate whether H. parainfluenzae modulates TLR signaling pathway and the role of H. parainfluenzae in regulating antigen presenting cells. Using macrophage cell line-RAW264.7, we found that H. parainfluenzae can upregulate PD-L1 expression and inhibit the proliferation of CD4 T cells. Using TLR2 antagonist-MMG11, PD-L1 expression on RAW264.7 is downregulated and reverse the decrease of CD4 T cell proliferation. In the following study, we want to confirm that the regulation of immunity by H. parainfluenzae is related to the TLR2 signaling pathway, and which bacterial components of Haemophilus parainfluenza can regulate the immune responses.

探討原發性修格蘭氏症中嗜血副流感桿菌調節抗原呈現細胞的作用

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修格蘭氏症(sjogren's syndrome)是一種自體免疫性疾病。由免疫系統攻擊和破壞外分泌腺引起。它會造成腺體功能的喪失，導致眼睛、鼻子、口腔乾燥。在過去的研究發現修格蘭氏症病人口腔微生物出現失調的狀況，其中嗜血副流

感桿菌大量減少。該研究還發現，在體外用嗜血副流感桿菌處理 A253 細胞可上調 PD-L1 表達，而經過嗜血副流感桿菌預處理的 A253 細胞可抑制 CD4 T 細胞增殖。通過 NGS 分析，發現用嗜血副流感桿菌處理的 A253 細胞 TLR2 表達顯著增加。因此，在本研究中，我們旨在研究嗜血副流感桿菌是否調節 TLR 信號通路以及嗜血副流感桿菌在調節抗原呈遞細胞中的作用。使用巨噬細胞 RAW264.7，我們發現嗜血副流感桿菌可以上調 PD-L1 表達並抑制 CD4 T 細胞的增殖。使用 TLR2 拮抗劑-MMG11，RAW264.7 上的 PD-L1 表達下調並逆轉 CD4 T 細胞增殖的減少。在接下來的研究中，我們想確認副流感嗜血桿菌對免疫的調節與 TLR2 信號通路有關，以及嗜血副流感桿菌的哪些細菌成分可以調節免疫反應。