AARHUS UNIVERSITY
DEPARTMENT OF BIOMEDICINE

Autoimmunity

Targeting macrophage activity to promote remyelination

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Background

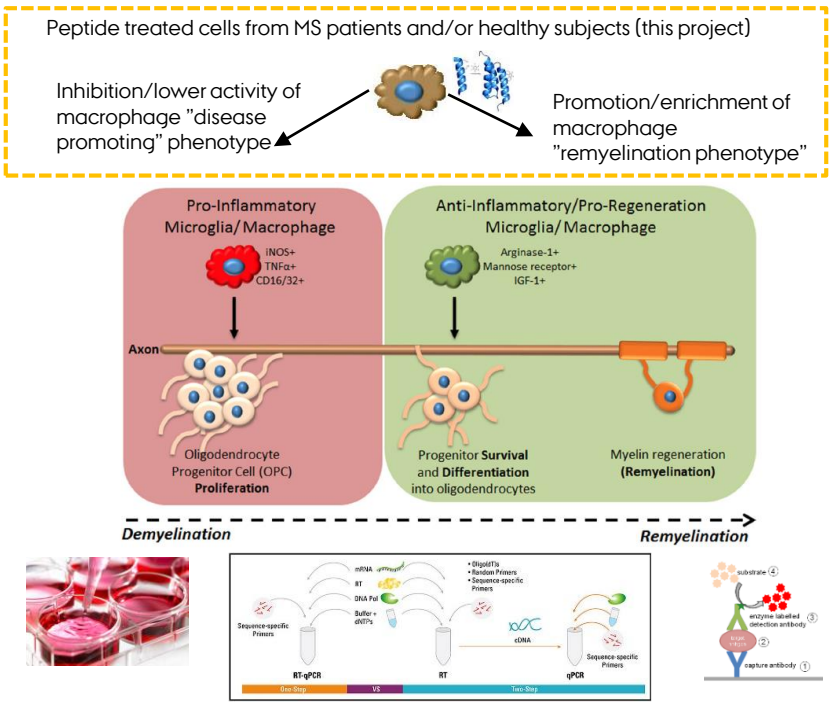
Remyelination is an example of central nervous system (CNS) regeneration, whereby myelin is restored around demylinating axons, re-establishing salutatory and trophic/metabolic support. Remyelination failure is a hallmark of **multiple sclerosis (MS)** development, and contributes to progressive neurodegeneration and accumulated clinical disability. Given that, there is no approved therapies to drive remyelination in MS, identification of critical remylinating driving signals would aid in the development of regenerative therapeutics to enhance remyelination in MS and potentially prevent disease progression.

Projects and techniques

Background

We have demonstrated that small peptide holds therapeutic potential for MS as verified in a mouse model of MS, named EAE (1) . The results show that this specific human derived immunosuppressive peptide, inhibits the development of EAE in mice, accompanied by a reduced demyelination and inhibition of inflammatory cells. The effect seems, at least in part, due to a peptide-driven modulation of the responses of macrophages.

Figure 1. Microglia/macrophage funcional phenotypes during CNS regeneration of myelin. Aim of this project.



This project

This project aims to explore the therapeutic value of this novel peptide drug candidate on activation of beneficial anti-inflammatory and pro-remyelination pathways in human macrophages from MS patients and healthy subjects (Figure 1).

Techniques

Cell culture *in vitro* and *ex-vivo* models, Q-PCR, ELISA and others.

About us

We are small but active research group with many national and international collaborations with academic institutions as well as with a private sector. You are welcome to join us, whether you are looking for a Bachelor's, Master's, PhD, research year project or similar.

(1). Shervin Bahrami, Elzbieta Anna Gryz, Jonas Heilskov Graversen, Anne Troldborg,Kristian Stengaard Pedersen and **Magdalena Janina Laska**. Immunomodulating peptides derived from different human endogenous retroviruses (HERVs) show dissimilar impact on pathogenesis of a multiple sclerosis animal disease model. 2018- Clinical Immunology Journal Jun; 191:37-43.