

Internship Proposition
(one page max)

Master 2 GP Immunology & ImmunIntervention (I³)
2025-2026



Lab: CR2TI

Team: 5 (NEMO)

Name and position of the supervisor: Arnaud NICOT, CRCN Inserm

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Candidate (if internship filled): Sarah Wojciechowski ?

Title of the internship:

Kir4.1 autoantibody in multiple sclerosis: specificity and mode of action

Summary of the internship proposal:

Autoimmunity in multiple sclerosis (MS) involves antibodies and T/B lymphocytes directed against antigens of the central nervous system, leading to neuroinflammation and demyelination. Different autoantigen candidates have been highlighted in recent years. This diversity mirrors the notorious clinical variability of MS. We previously showed that Kir4.1 autoreactivity promotes white matter neuroinflammation in a mouse model. Clearly, IgG against the extracellular part of Kir4.1, a K⁺ channel present on glial cells involved in myelination, is higher in a subgroup of MS patients, as detected in serum by ELISA. Cell line-based assays will be developed to quantify and screen more specifically anti-aglycosylated Kir4.1 IgG autoreactivity. Moreover, using in vitro assays we will assess how the such autoantibody can be deleterious to Kir4.1 expressing cells (determination of IgG class, involvement of complement, functional assays on channel activity).

Methods used: Cell culture, transfection, immunocytochemistry, FACS, Western Blot, ELISA, patch clamp. Interests in cell biology, neurology and immunology required.

Option(s) linked to the project:

- ☐ Clinical Research Profile (Recherche Clinique)
- ☐ Data Analyst Profile (Recherche et Analyse de Données Omiques)
- ☒ Experimental Biology Profile (Recherche Expérimentale)