

Project Title: Dynamic of TCR repertoire in CSF lymphocytes isolated from RRMS CSF

#### Background

To date there is no investigation about T cell clone receptor architecture and frequency distribution in relapsing remitting multiple sclerosis (RRMS), a T cell mediated autoimmune disease of the central nervous system, cerebrospinal fluid compared to peripheral T cell subpopulation receptor. These data will add an important piece of knowledge about the nature of brain infiltrating T cell in naïve patients collected at the moment of diagnosis.

#### Methods

We have collected 5 RRMS patients (Local Ethical Committee authorization #2014/003601), isolated T cells from CSF and peripheral blood and extracted RNA. TCR has been sequenced in NGS by iRepertoire service MiSeq and data collected in the data base iRWeb for a total of 6.000.000 of CDR3 region sequences

#### AIM

Aim of the present project is to analyse the obtained sequences by statistical programming R, R packages ggplot2, ggpubr, igraph, Complex Heatmap, NMF package and profiling hierarchical clustering for a final comparison between CSF T cell clones and peripheral blood T cell sub population TCR: CD4+ or CD8+, memory and naïve. Public sequences present in the public TCR data base (McPAS-TCR; VDJdb)