Nantes Université | CR2TI UMR1064 *"iTHINK" Team3* [integrative Transplantation, HLA, Immunology and geNomics of Kidney injury]

- **SNP-HLA Reference Consortium (SHLARC)- [Researcher & SHLARC Coordinator]**

SHLARC (SNP-HLA Reference Consortium) is an international network dedicated to advancing the study and application of HLA and SNP data through a comprehensive and collaborative approach. The primary focus of SHLARC includes:

- **Data Collection**: Amassing a substantial collection of high-quality HLA (Human Leukocyte Antigen) and SNP (Single Nucleotide Polymorphism) data from a broad and ethnically diverse population. This extensive dataset is crucial for ensuring the inclusivity and accuracy of genetic research across various demographic groups.
- **Method Optimization**: Enhancing SNP-HLA imputation methods to improve the precision and reliability of genetic analysis. By refining these techniques, SHLARC aims to bridge the gap between SNP data and HLA allelic information, facilitating more accurate and comprehensive genetic studies.
- **Resource Development and Sharing**: Creating and disseminating large reference panels to support researchers worldwide. These panels are invaluable resources that enable scientists to explore HLA allelic information within their cohorts, fostering global collaboration and innovation in genetic research.

Through these initiatives, SHLARC plays a pivotal role in the genetic research community, contributing to the understanding and application of HLA and SNP data in diverse populations. For more information, please contact us at **shlarc@univ-nantes.fr** or visit our web server at https://shlarc.univ-nantes.fr/.

- **Neurogenetic and Multi-layer Omics of Neuroinflammation: NeuroMOtion project [Researcher & Project Coordinator], Project Leader**: Dr. Nicolas Vince

The **Neurogenetic and Multi-layer Omics of Neuroinflammation** (**NeuroMOtion**) project aims to unravel the genetic and epigenetic underpinnings of **NMOSD** (Neuromyelitis Optica Spectrum Disorder) and **MOGAD** (MOG antibody-associated disease) in relation to MS (**Multiple Sclerosis**), all of which are severe demyelinating neurological diseases with complex etiologies.

***Objectives*:**

- Genetic Associations: Conduct Genome-Wide Association Studies (GWAS) on NMOSD and MOGAD patients, focusing on their specific serological subgroups (AQP4-Ab and MOG-Ab).
- Epigenomic Studies: Investigate the epigenome of neuroinflammation by comparing NMOSD and MOGAD to MS patients through Epigenome-Wide Association Studies (EWAS).
- Transcriptomic Analysis: Explore the transcriptome (RNA sequencing) of selected patients to understand the functional implications of the genetic and epigenetic findings.

Approach:

- Integrate multi-layer data from genetic, epigenetic, and transcriptomic studies to elucidate the mechanisms driving these disorders.
- Utilize unique clinical materials for comprehensive analysis.

Impact: The project anticipates that this stepwise, multi-omics approach will significantly advance translational research, enhancing the understanding and management of NMOSD and MOGAD. For more information, contact us: at nicolas.vince@univ-nantes.fr / sonia.bourguiba-hachemi@univ-nantes.fr