Applied and Translational Neurogenomics of FTLD and Related Disorders

Group Leader: Prof. Dr. Rosa Rademakers

What is FTLD?

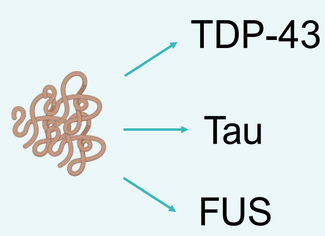
Frontotemporal Lobar Degeneration (FTLD) is the second most common young onset dementia (onset <65 years old). FTLD patients present behavioral, language, memory and movement dysfunctions.

Heterogeneity of FTLD

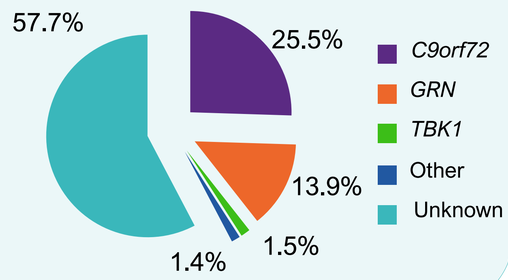
Clinical

ALS
FTD-MND
bvFTD
PPA
CBS
PSP

Pathological



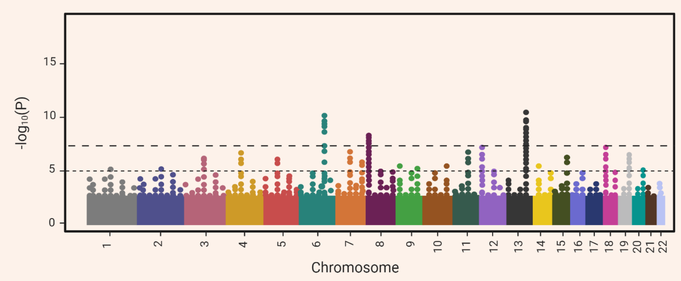
Genetic

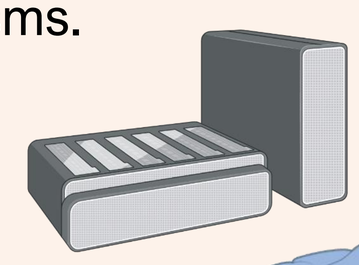


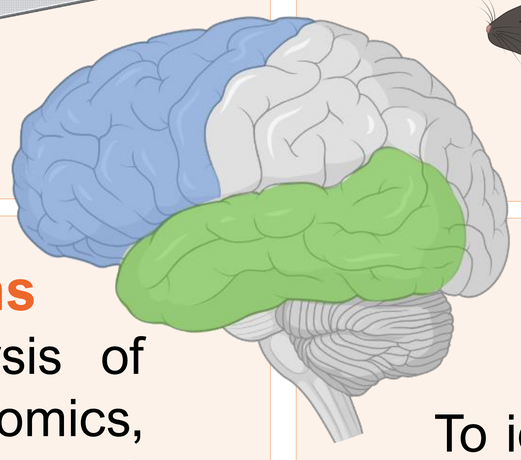
What are our research interests?

Identify new causal/risk genes

Employing short and **long-read whole genome sequencing technologies,** we aim to unravel underlying **genetic risk** for FTLD, **causal genes** for genetically unexplained patients and **genetic modifiers** of disease mechanisms.

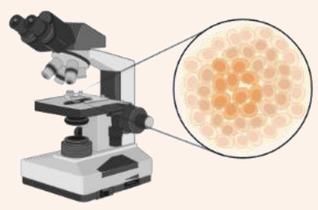


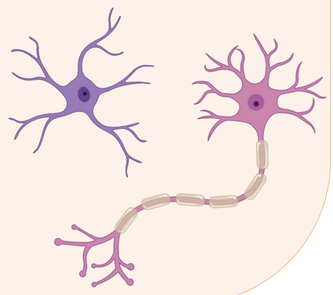




Study disease modifiers

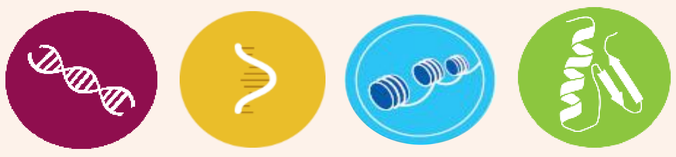
Our group focuses on **TMEM106B**, a disease- and risk-modifier in FTLD and multiple other neurodegenerative disorders. This lysosomal protein may provide protection against disease. In our group, we aim to understand the mechanism of how TMEM106B modifies disease/risk using **cellular and mouse models**.





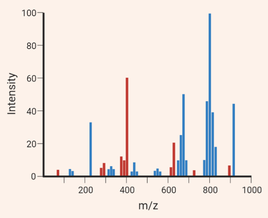
Explore disease mechanisms

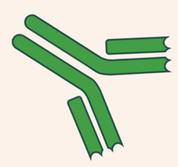
Through the generation and analysis of **large omics datasets** (genomics, transcriptomics, proteomics, epigenomics) on brain tissues (**bulk and single-nuclei data**) of FTLD patients and controls, we aim to further dissect disease mechanisms by **identifying genes and pathways** implicated in FTLD.

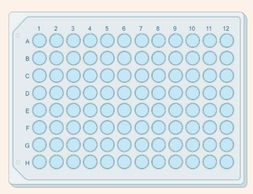


Pinpoint new biomarkers and therapeutic targets

To identify **patient-specific signatures** and potential therapeutic targets, we combine multiomics analyses with the use of **innovative proteomics** approaches. In parallel, we work on the development of **antibodies, nanobodies and assays** for the detection of biomarker candidates.







Who are we?

We are a multidisciplinary and international team at VIB-UAntwerp Center for Molecular Neurology (CMN).

What do we enjoy beyond the lab?

Running
After-work drinks
International lunches
Bouldering
Board games

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