

Experimental Neurobiology Unit (ENU)

Prof. Dr. Tommas Ellender – Prof. Dr. Rose Bruffaerts – Prof. Dr. Debby van Dam

What are we interested in?

To unravel how cells and circuits in the brain interact to enable complex behaviours such as movement, cognition and emotion using both experimental (mouse) models and human participants.

A major focus in our unit is elucidating the cellular and circuit mechanisms that give rise to neurological disorders in order to provide early diagnosis, improve treatment options and ultimately to prevent these debilitating conditions.

By combining different areas of expertise within our different research teams, we are able to study the brain at various levels, ranging from single cells to neural circuits to whole brains and behaviour, using combinations of techniques including electrophysiology, neurochemistry, neuroimaging and computational modelling.

Our subjects



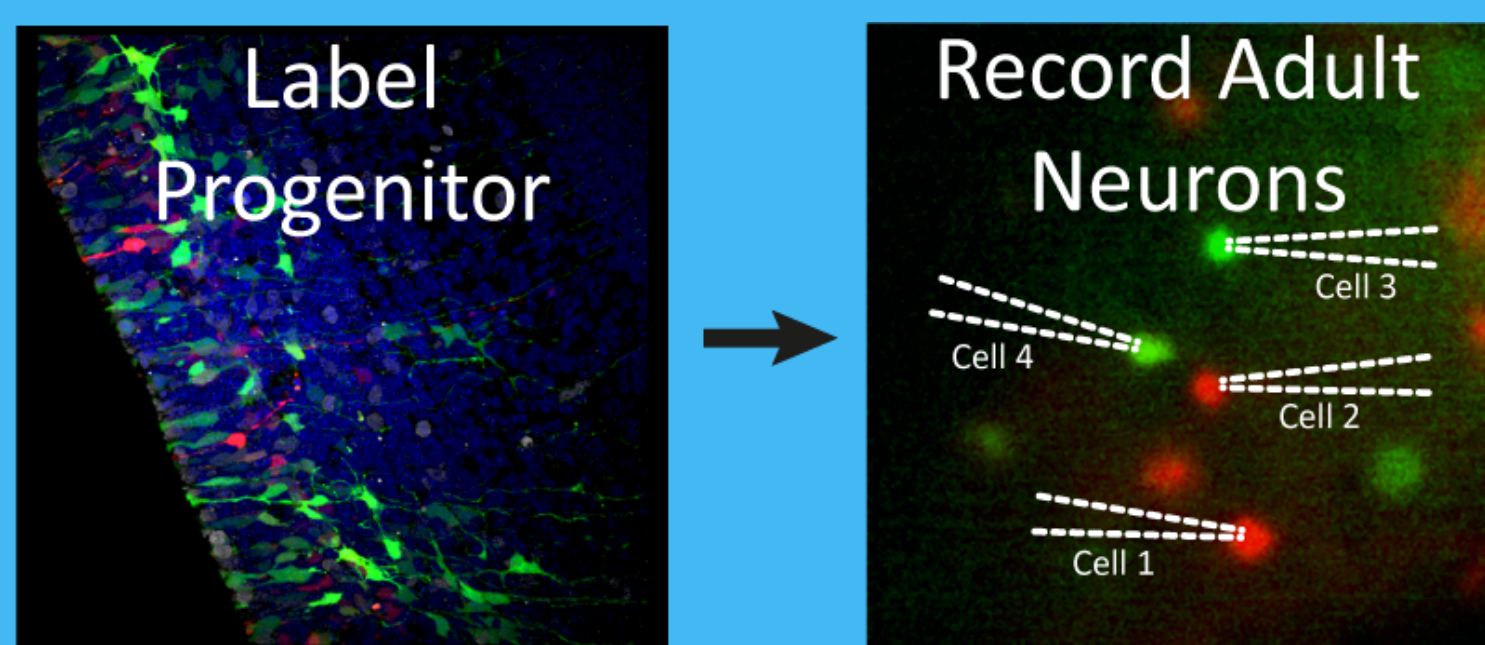
Research teams

Ellender group



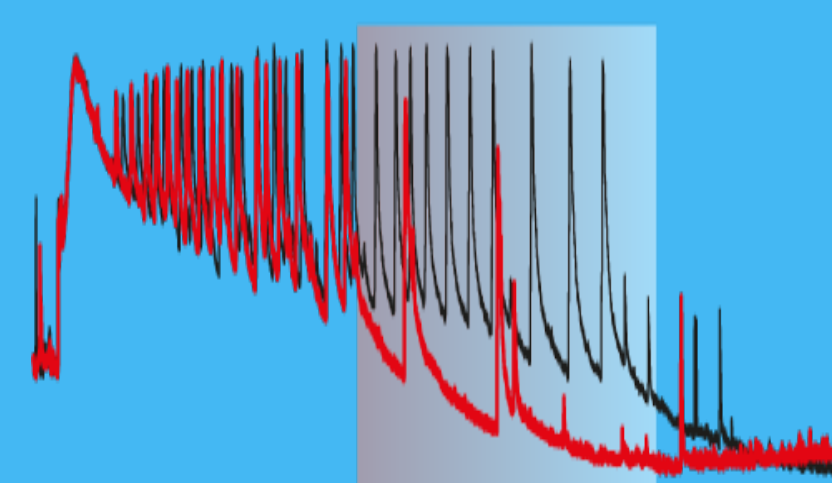
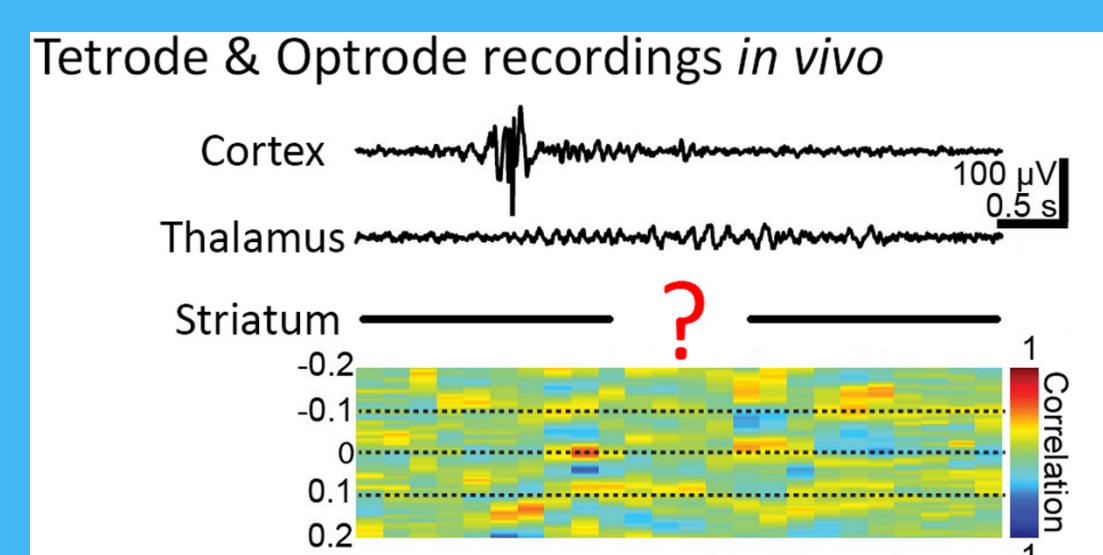
Neuronal Circuit Research

How do brain circuits develop?



Roles for (early) network oscillations?

What causes epilepsy?



Neuromodulation of brain networks in health and disease



Bruffaerts group

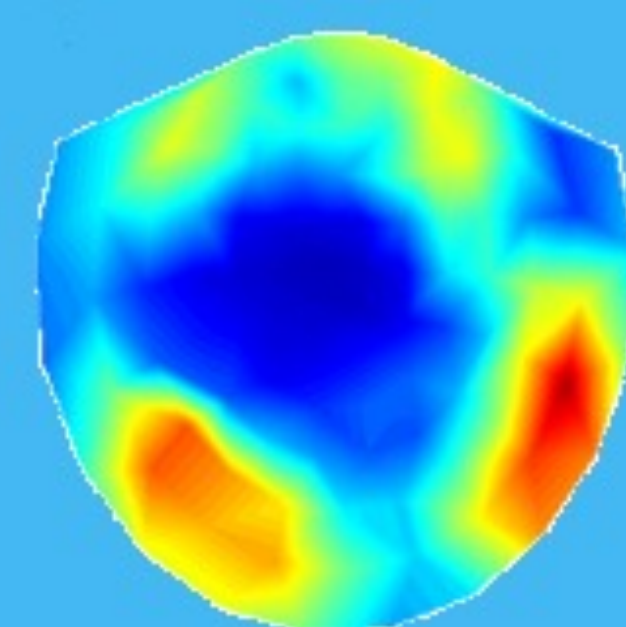


Computational Neurology

How can we diagnose neurodegeneration earlier?

EEG/MEG

MRI



Which neural computations support cognition?

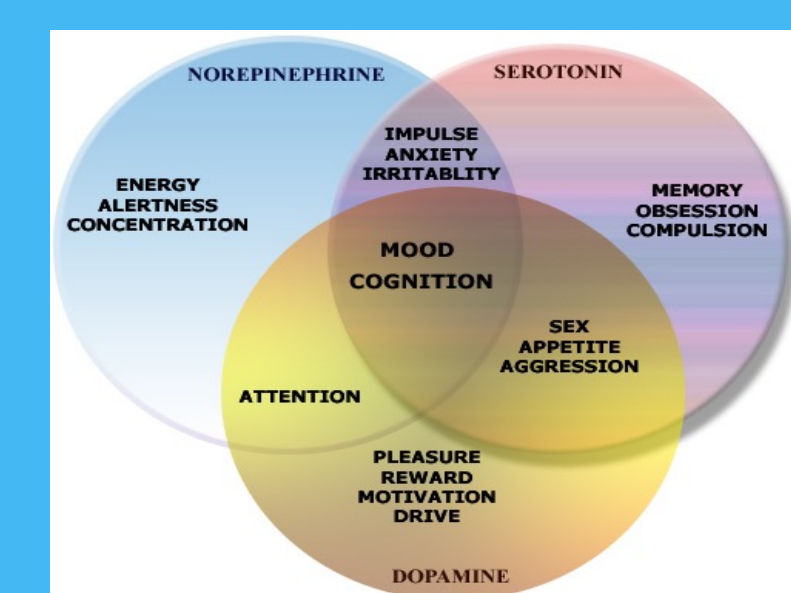
How can we use AI in the Memory Clinic?

Van Dam group



Neurochemistry and Behaviour

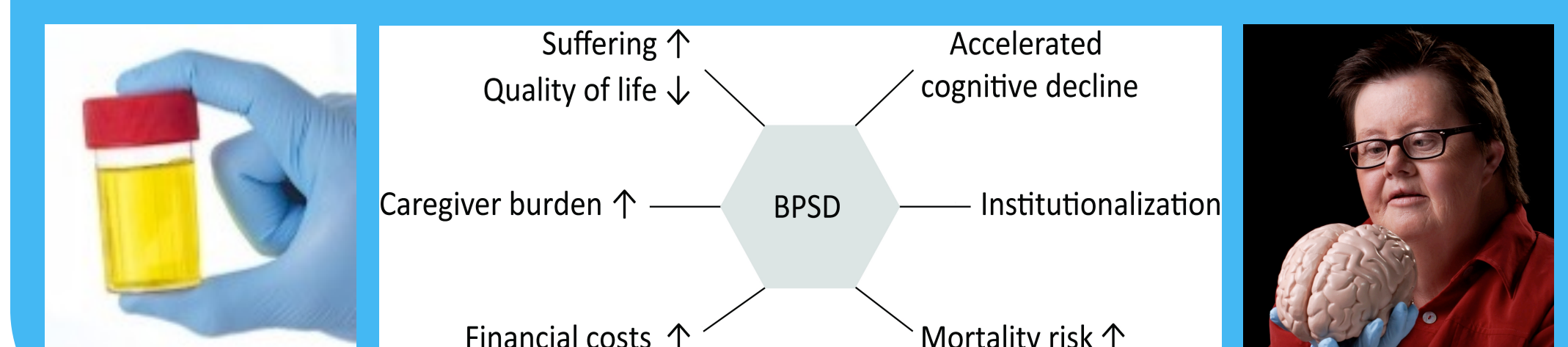
Neurochemical correlates of behavioural alterations in dementia



Rodent Behavioural research unit

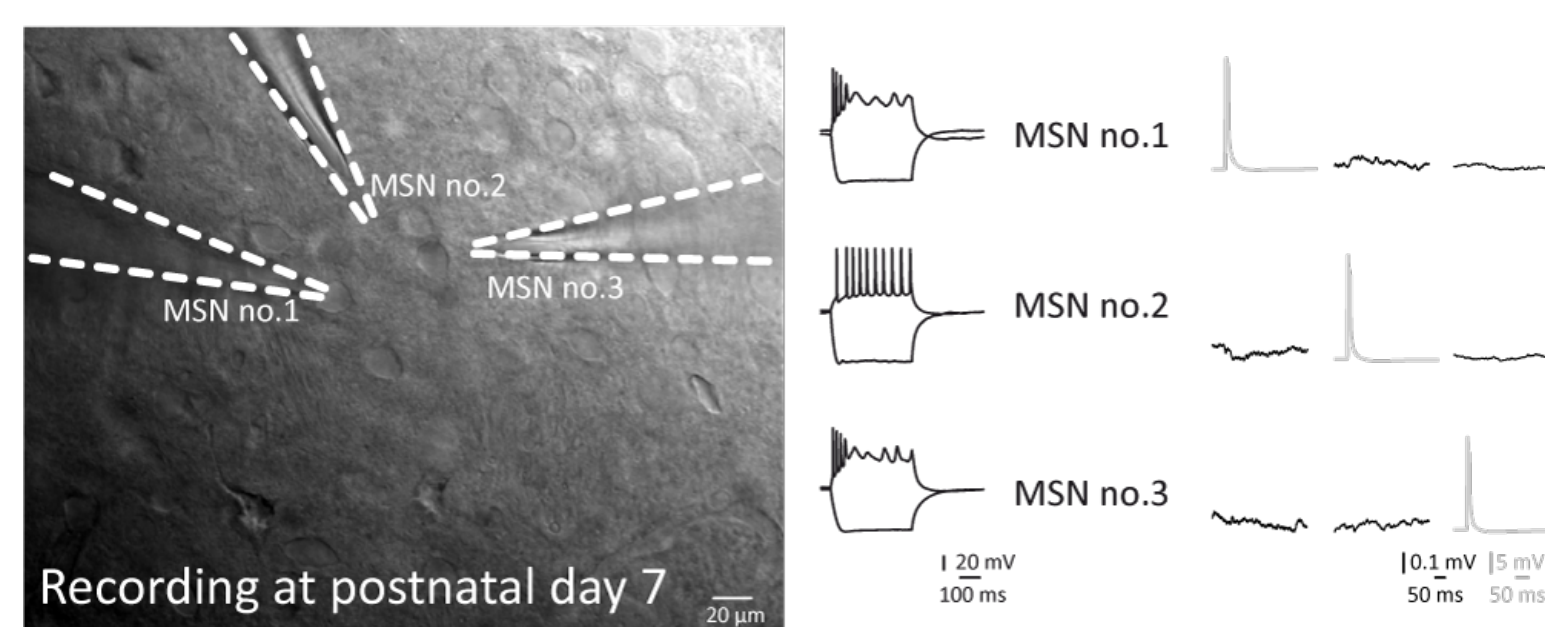


Biomarkers for dementia associated with mental disability



What tools do we use in our labs?

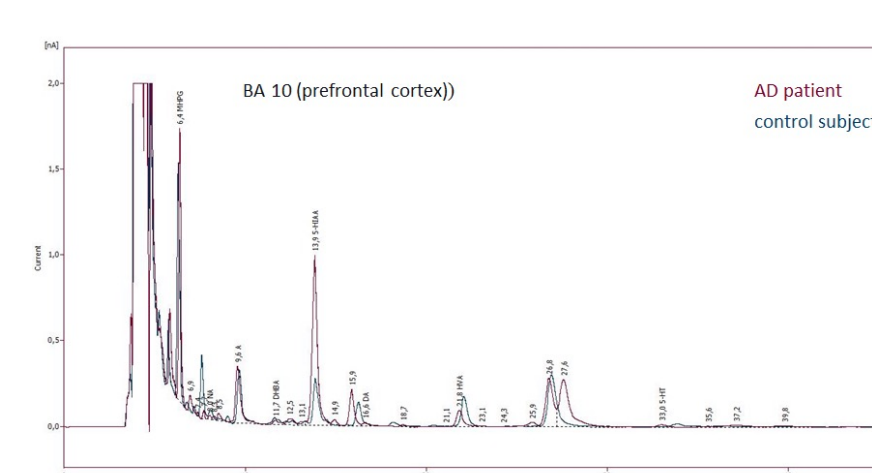
Human neurophysiology



Brain slice electrophysiology



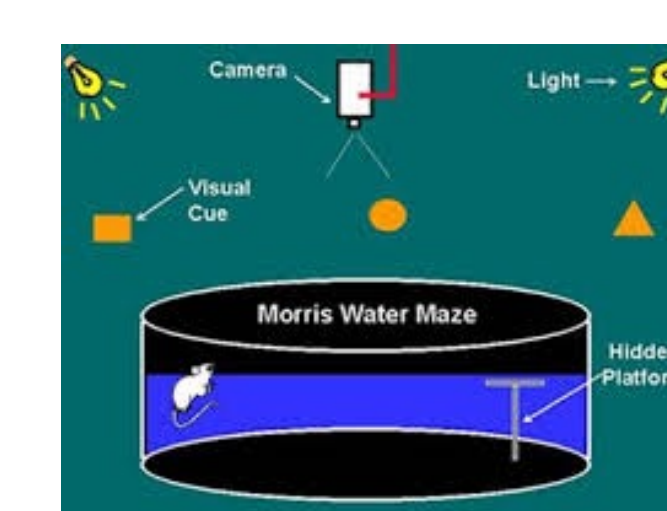
Neuroimaging



Neurochemistry



Computational models & AI



Behaviour



Interested to join our unit?

We are always on the look out for motivated students and researchers to join our team.

Email us to get in touch to find out more about available projects.

Contact: tommas.ellender@uantwerpen.be

rose.bruffaerts@uantwerpen.be

debby.vandam@uantwerpen.be

