237 Members
- 43 senior researchers
- 31 senior research clinicians

Two university hospitals
Research lines
Neurodevelopment

Fadel Tissir, Yves Jossin
- Neurogenesis, neuronal migration, and axon guidance in the brain
- Role of Celsr genes in intellectual disability, microcephaly, and autism.

Frédéric Clotman
- Neuronal differentiation and migration in the developing spinal cord and after adult spinal cord injury.

Marie-Cécile Nassogne
- Head of the department of paediatric neurology at University hospital Saint-Luc.
- Neurological hereditary metabolic disorders.
Neuropharmacology & neuronal cell physiology

Emmanuel Hermans  
- Modulation of synaptic transmission by drugs acting on diverse receptors and transporters.
- Dopamine and glutamate metabotropic receptors.
- Neuroinflammation and glial-neural interactions in models of nervous tissue lesions (e.g. ALS, neuropathic pain).

Philippe Gailly, Nicolas Tajedinne  
- Cellular electrophysiology
- Role of TRP channels in cellular physiology
- Modulation of synaptic transmission and neuronal excitability
Neurodegenerative diseases – Alzheimer’s disease

Jean-Noël Octave, Pascal Kienlen-Campard, Philippe Gailly
- Effects of APP on neuronal excitability and synaptic plasticity
- Mechanisms underlying the formation and progression of amyloid plaques

Adrian Ivanoiu, Bernard Hanseeuw, Renaud Lhommel
- Amyloid and tau PET imaging.
- Structure-function studies on the relationship between neuroimaging abnormalities (MRI/PET), biological markers (plasma/CSF), genotyping (ApoE) and cognitive dysfunction in AD patients.
- GABAergic neurotransmission in AD assessed using TMS/EEG
- Clinical trials.

Caroline Huart, Philippe Rombaux
- Olfactory disorders in AD, olfactory brushing as a non-invasive biomarker of AD
- Understanding the morbidity/mortality associated with olfactory dysfunction.
Neurodegenerative diseases – Parkinson’s disease

Emmanuel Hermans
- Influence of caffeine and related substances on dopaminergic transmission

Julie Duqué, Sylvie Nozaradan, Marcus Missal
- PD-related motor and cognitive dysfunction
- Rhythm perception and production in PD

Thierry Lejeune, Christine Detrembleur
- Gait variability as an early marker to assess individual risk for fall.
- Clinical efficacy of therapies to reduce gait dysfunction in PD.

Bernard Hanseeuw, Renaud Lhomme
- PET imaging of biochemical alterations in the tau protein in Parkinsonian syndromes.
Multiple sclerosis

Vincent Van Pesch, Souraya El Sankari

- Immune response and the cytokine network in MS.
- Biobank: peripheral blood mononuclear cells (PBMC), CSF and serum.
- Role of lipid/miRNA extracellular vesicles in oligodendrocyte and myelin biology
- Correlation between biological markers of MS, neuroimaging and cognition in MS.
- Clinical trials
Epilepsy

Susana Ferrao-Santos, Riem El Tahry, Christian Raftopoulos
- Intracerebral EEG.
- CNS effects of VNS, biomarkers of clinical efficacy.
- Seizure detection
- Evaluation of new medical and non-medical treatment options.

Reference center for refractory epilepsy

Neurooncology and tissue engineering

Bernard Gallez, Véronique Préat, Anne Des Rieux
Christian Raftopoulos, Aleksandar Jankovski, Thierry Duprez
- Preclinical and clinical biomedical MR tumor neuroimaging.
- Advanced drug delivery and biomaterials
- Nanomedicines to stimulate CNS repair by local, system, or mucosal delivery

Christian Raftopoulos, Nicolas Tajeddine, Fadel Tissir
- Links between aneuploidy and glioblastomas
Psychopathology

Philippe de Timary  NEUR  Nathalie Delzenne  LDRI
Pierre Maurage, Julie Duqué  COSY
- Neurobiology of addictions
- Brain-gut interactions and alcoholism
- Inhibitory control and addictions

Alexandre Heeren  NEUR
- Network approaches to psychopathology
- Attentional and executive processes as core transdiagnostic mechanisms of psychopathology
- Anxiety disorders and stress-related psychopathology
Nociception and pain

Emmanuel Hermans - Neuroinflammation and microglial activation in neuropathic pain

André Mouraux, Valéry Legrain - Biomarkers of nociception derived from functional neuroimaging (EEG, fMRI).
- Peripheral afferents responsible for the perception of heat, cold and mechanical pain.
- Role of peripheral and central sensitization in the development of persistent pain.
- Interactions between nociception and attention

Patricia Lavand’homme, Anne Berquin, Gilles Caty - Risk factors for the development of persistent post-operative pain
- Primary and secondary chronic pain
Motor control and learning, haptics, action planning, ...

Julie Duqué, Sylvie Nozaradan, Martin Edwards, Robert Hardwick, Yves Vandermeeren
- Rhythm perception and production
- Motor planning and action selection

Philippe Lefèvre, Frédéric Crevecoeur, Jean-Louis Thonnard André Mouraux, Olivier Collignon
- Sensorimotor coordination
- Haptics: dynamic touch
- Fingertip biomechanics

Marcus Missal, Philippe Lefèvre, Demet Yuksel
- Eye movements

Renaud Ronsse
- Human-inspired robotics

CEMO
COSY
NEUR

ERC-STG: RHYTHM&BRAIN
(Sylvie Nozaradan)

ITN: MULTITOUCH

J. Duqué
S. Nozaradan
M. Edwards
P. Lefèvre
F. Crevecoeur
JL Thonnard
R. Hardwick
R. Ronsse
M. Missal
A. Mouraux
O. Collignon
Y. Vandermeeren
D. Yuksel

COSY
NEUR

Arsalis

WALK-MAN
CYBERLEGS
CYBERLEGS++
Neurorehabilitation

Yannick Bleyenheuft, Anne Devolder
- Motor skill learning and intensive neurorehabilitation
- Cerebral palsy

Yves Vandermeeren, Martin Edwards
- Plasticity after stroke: fMRI, robotics, non-invasive neuromodulation

Jean-Louis Thonnard, Massimo Penta
- Rasch analysis for the assessment of rehabilitation outcomes
- Measurement tools for the clinical evaluation of treatment outcomes
Physical exercise

Marc Francaux, Louise Deldicque, Thierry Marique

- Molecular mechanisms induced by physical activity/inactivity, nutrition and ageing lead to muscle hypertrophy or atrophy.
- Applied research aiming at optimizing athletic performance.

Physiology and biomechanics of locomotion

Bénédicte Schepens, Patrick Willems, Dominique De Jaeger, Guillaume Bastien

- Intrinsic and extrinsic factors influencing locomotion.

Christine Detrembleur, Thierry Lejeune

- Gait dysfunction in neurological, neuromuscular and orthopedic disorders.
Cognitive neurosciences

Marcus Missal
- Temporal cognition

Olivier Collignon, Virginie Crollen
- Crossmodal perception
- Plasticity following sensory deprivation

Valérie Goffaux
- Vision neuroscience
- Face perception

Mauro Pesenti, Michael Andres, Virginie Crollen
- Numerical cognition

Gilles Vannuscorps, Virginie Crollen, Agnesa Pillon, Adrian Ivanoiu
- Neuropsychology

Agnesa Pillon, Marie Vanreybroeck
- Language

Dana Samson
- Social neurosciences, theory of mind

ERC-STG : FACE-SSVEP (Bruno Rossion)
ERC-STG : MADVIS (Olivier Collignon)