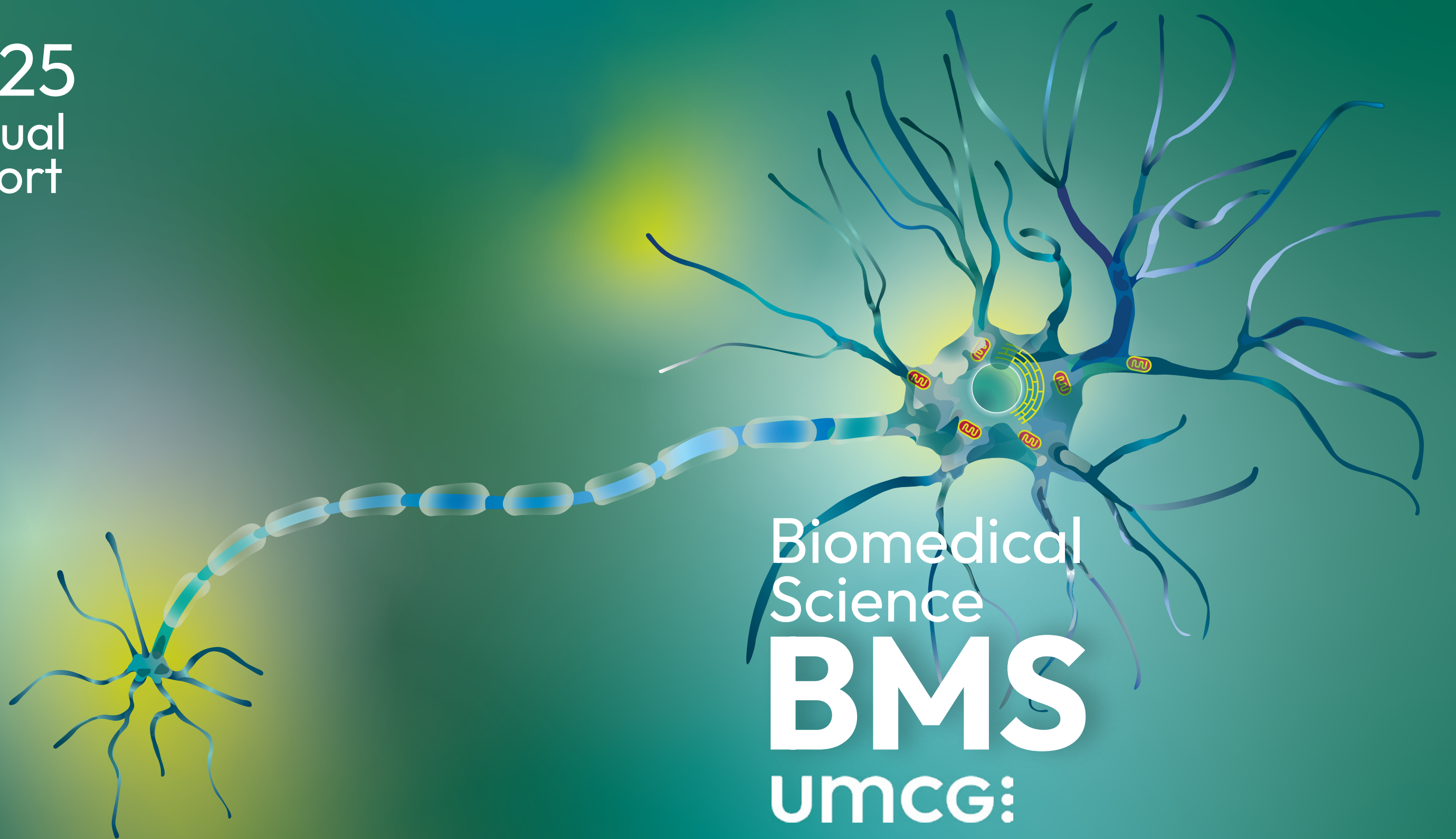


2025
Annual
Report



Biomedical
Science
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UmCG:

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2025
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FOREWORD BY THE HEAD OF DEPARTMENT

Hereby, we present the sixth Annual Report of the Department of Biomedical Sciences (BMS). This report provides an overview of our activities and achievements in 2025, with particular attention to our scientific research, educational programs, business development, and outreach initiatives.

While the data presented in this report reflect individual accomplishments, these achievements are almost always the result of collaborative efforts within our department, our cluster, across the UMCG, and through (inter)national partnerships that are essential to our success. We deeply value this team spirit and are proud of all colleagues who contribute to making these collaborations impactful.

Since 2023, our department is part of the cluster Biomedical Science & Technology, together with ERIBA and Biomaterials and Biomedical Technology. The complementary expertise within this cluster offers valuable opportunities for innovative collaborations, talent development, and inspiring education and research.

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At the same time, the landscape for preclinical biomedical research is increasingly challenging. Strengthening team science therefore remains a key strategy for ensuring the resilience and continued excellence of our department. By fostering synergies in education, research, and valorization within our department and cluster, we aim to capitalize on the extensive expertise present across these domains.

The year 2025 has been successful in many respects. In the educational domain, we contributed extensively to high-quality teaching across multiple UMCG and RUG Bachelor's and Master's programs.

We also mark important transitions within our department. After many years of dedicated leadership, our former department head, Prof. dr. Erik Boddeke, retired. We are deeply indebted to him for his commitment and lasting contributions to the development of BMS. At the same time, we are delighted to welcome Prof. dr. Mireille Claessens and dr. Lynn van Olst as new faculty members, and we look forward to their valuable contributions to our research and education.

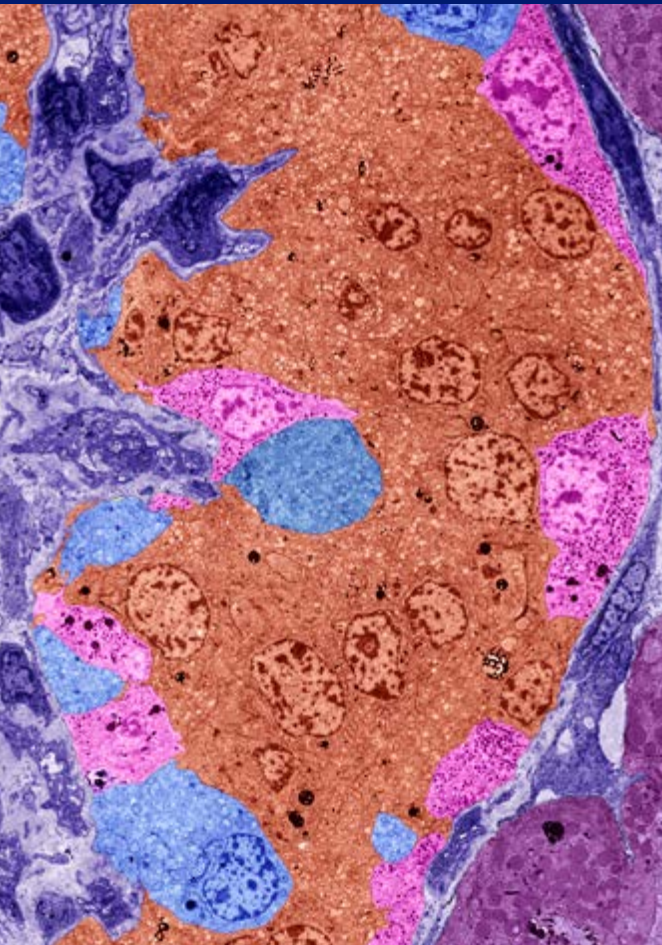
Looking ahead, the future brings both opportunities and uncertainties. Budgetary constraints may arise, and the retirement of valued colleagues raises questions about how best to preserve and further develop essential expertise. Nevertheless, I am confident that the drive, ambition, and collaborative spirit within our department will enable us to continue delivering innovative, high-quality education and to perform cutting-edge research aimed at unraveling the molecular and cellular principles underlying fundamental biomedical processes and their associated pathologies, with the ultimate aim of more healthy years for all. With determination, dedication, a strong team mentality, and the continued integration of innovative technologies in research and education, we will remain committed to educating the biomedical professionals of the future.

Finally, I would like to express my sincere appreciation to all partners and colleagues outside our department who supported and contributed to our work. We can be proud of what we have achieved together. I thank you all for your efforts and contributions in 2025 and wish you, above all, good health and a productive year ahead.

Bart Eggen,

Head of the Department Biomedical Sciences

March 2026



RESEARCH AT BMS

Our mission is to contribute significant advancements to the understanding of the fundamentals of functional and dysfunctional human biology at the molecular, cellular and systems levels that ultimately will be applicable to combat diseases and increase human health span.

In BMS, research and education are intertwined.

- With our research, we aim to discover and transfer knowledge to medical applications.
- With our education, we teach cutting-edge biology to the doctors and scientists of the future.

This way, we strive to advance the cycle of bench-to-bed-to-bench for human well-being.

The societal relevance of this mission comprised of the following 3 main items:

Microscope photography by **BMS**

.1 Understanding the basic mechanism of the function of cells & systems drives advances in Medicare

Nearly all current medical treatments are based on discoveries, often done long before the related application, on detailed insights into how molecules, cells and systems function and interact, and how they are derailed in disease.

- Our early analysis of how precision radiotherapy can be targeted to avoid radiation side effects has been the basis for proton therapy.
- Our screens in *Drosophila melanogaster* have led to the discovery of therapeutic compounds now explored for the treatment of PKAN.

.2 We connect state-of-the-art Research with Innovative Education

Academic education requires role models and modern teaching.

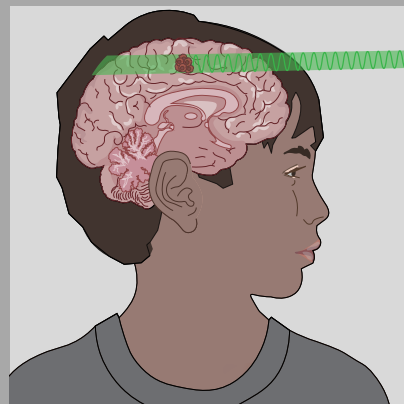
- BMS takes pride in intense training and careful supervision of its PhD students.
- We support problem-based, curiosity-driven learning programs (such as in flipped classrooms), provide basic and advanced courses in science technologies and strategies, and practical courses.
- We develop novel digital education tools (e-learning).

.3 Collaborations drive discoveries

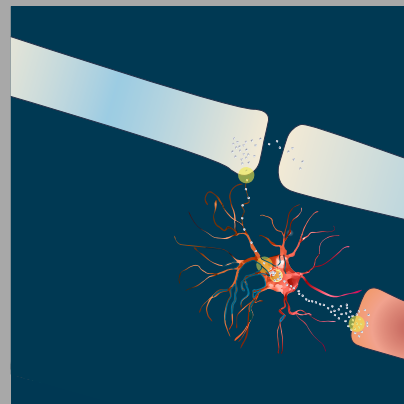
The progress of science is based on specialized expertise for discoveries, but requires intense collaborations amongst experts for driving such discoveries all the way to utilization.

- BMS strives for a great team spirit not only to nurture internal collaboration but also to strongly support collaborations with external partners in and outside the UMCG.

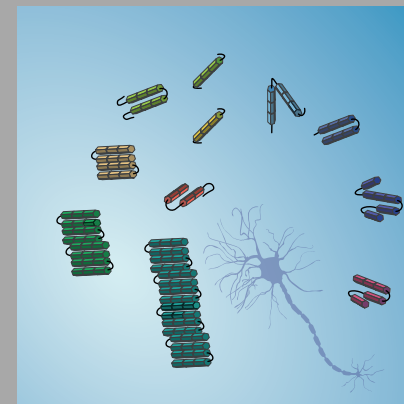
RESEARCH GROUPS AT BMS



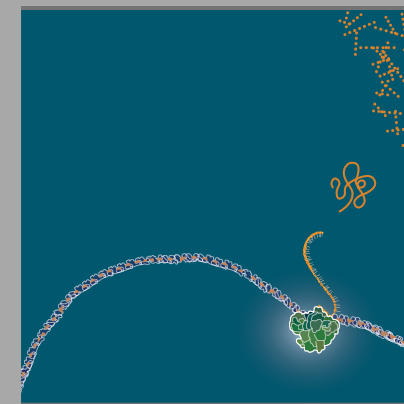
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MOLECULAR
RADIATION
BIOLOGY



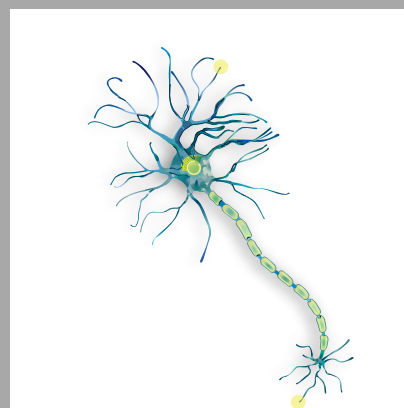
3.4
MOLECULAR
NEUROBIOLOGY



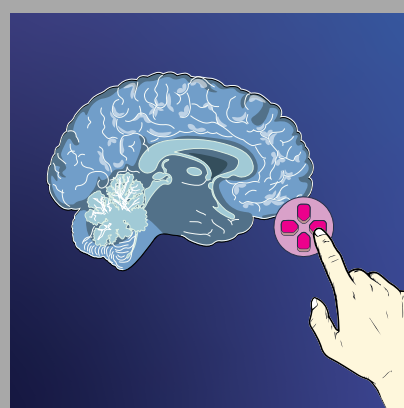
3.7
PROTEIN QUALITY
CONTROL IN
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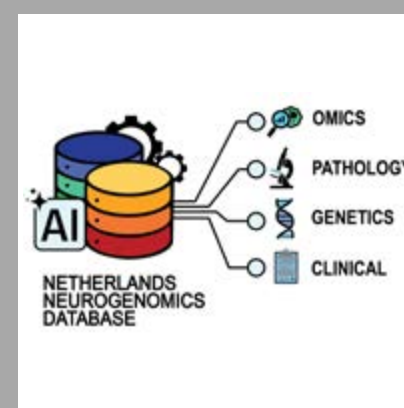
3.10
HEAT SHOCK
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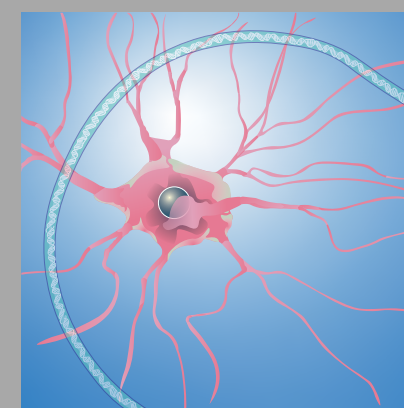
3.2
MYELIN
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3.5
MOTIVATION
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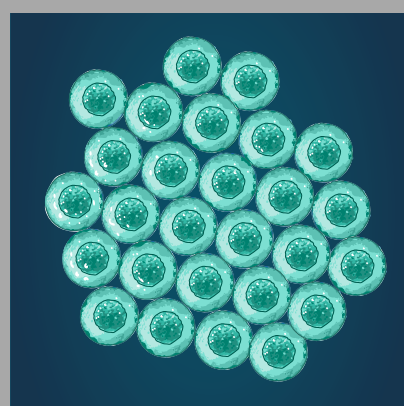
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COMPUTATIONAL
NEUROGENOMICS
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MODELING LAB



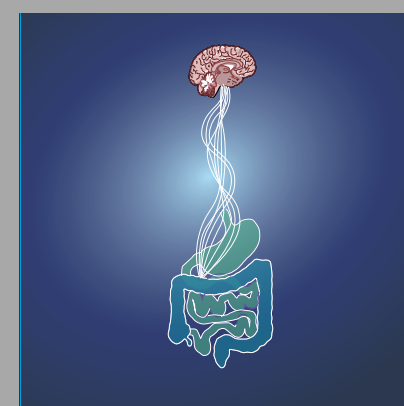
3.10
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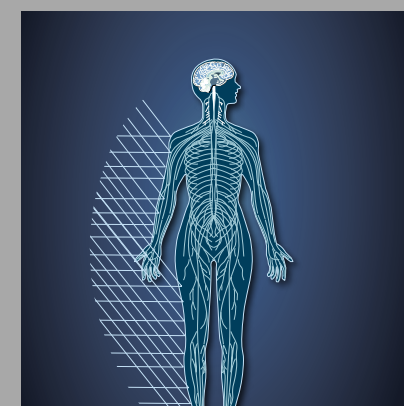
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3.1

MOLECULAR RADIATION BIOLOGY

PI name	Lara Barazzuol
Research institute	MOHAD
Research theme	Oncology, Development and Aging
Research program	Molecular Oncology, Senescence, Stem cells and Inflammation

Lara Barazzuol (Seconded from the Department of Radiation Oncology) focuses on assessing the effect of DNA damage (as caused by radiation and chemotherapy) on the brain and aims to achieve an improved biological and molecular understanding of cancer treatment-induced neurocognitive dysfunction.

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The research group of Lara Barazzuol focuses on investigating how cancer treatments, particularly radiotherapy, affect the brain, with the overarching aim of mitigating neurocognitive and endocrine dysfunction in pediatric and adult brain & CNS tumor patients. Additionally, her group investigates ways to optimally combine proton therapy with immunotherapy and other newly developed targets, aligning with the broader goal of integrating advanced radiotherapy modalities with innovative therapeutic agents.

Highlights from 2025 include the funding of three grants, including a national consortium, together amounting to nearly 3.5 M euros, as well as publications on the effects of irradiation in brain organoids, the brain-body axis, and the identification of inflammatory pathways specifically upregulated after proton therapy.

Illustrations by Ilaria Rosso ([EVOOOLVE](#))
Free interpretation of brain radiation therapy.



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3.2

MYELIN BIOLOGY IN DISEASE

PI name	Wia Baron
Research institute	MOHAD
Research theme	MOHAD
Research program	Senescence, Stem Cells and Inflammation

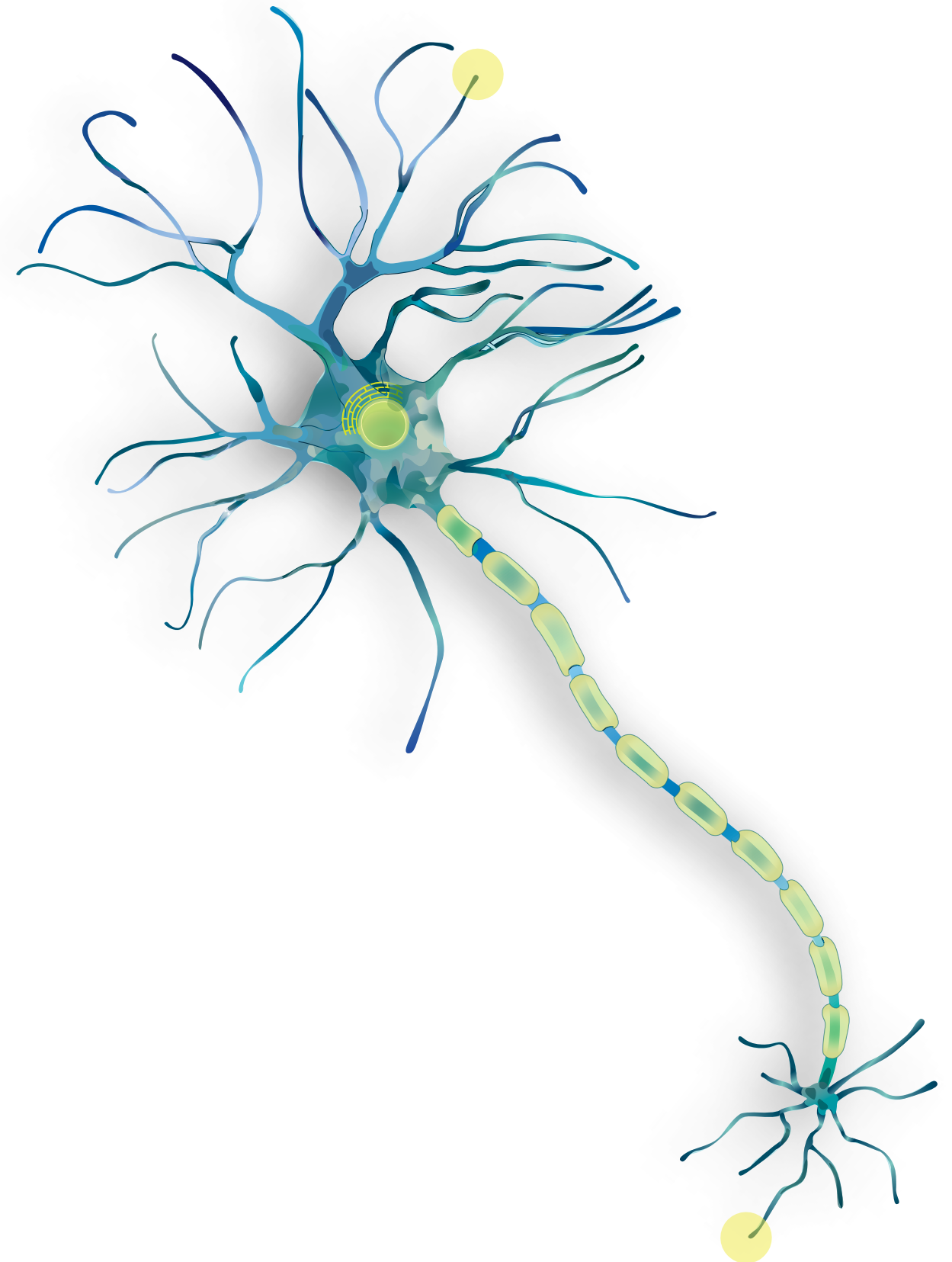
Wia Baron's research interests lie in the area of myelin biogenesis and myelin repair with emphasis on the disease multiple sclerosis (MS). Currently, her research aims at revealing and overcoming environmental restrictions in MS lesions that underlie remyelination failure.

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In 2025, the Myelin Biology in Disease group achieved significant progress through scientific publications, PhD thesis defenses, dissemination activities, and outreach. In our effort to translate basic research to therapeutic interventions for multiple sclerosis (MS), we demonstrated in an experimental model that MMP7 is not essential for remyelination upon acute demyelination, while MMP7 deficiency affects fibronectin and hyaluronan levels upon chronic demyelination. In addition, using the same model, we showed beneficial effects of a single treatment with TNFR2 agonist on remyelination following acute demyelination. Our (unpublished) findings culminated this year in four successful PhD thesis defenses and were disseminated through oral presentations at international scientific meetings and invited seminars. In addition to academic dissemination, we engaged in societal outreach activities, including a lecture for people with MS. Furthermore, a video highlighting our research on astrocytes was produced by the foundation funding the project, communicating the project objectives and methods for lay people in an accessible format.

Illustrations by Ilaria Rosso (**EVOOOLVE**)
Free interpretation of single neurone.



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3.3

EFFECTS OF RADIATION ON NORMAL TISSUES

PI name	Rob Coppes
Research institute	MOHAD
Research theme	Molecular Oncology
Research program	Molecular Oncology

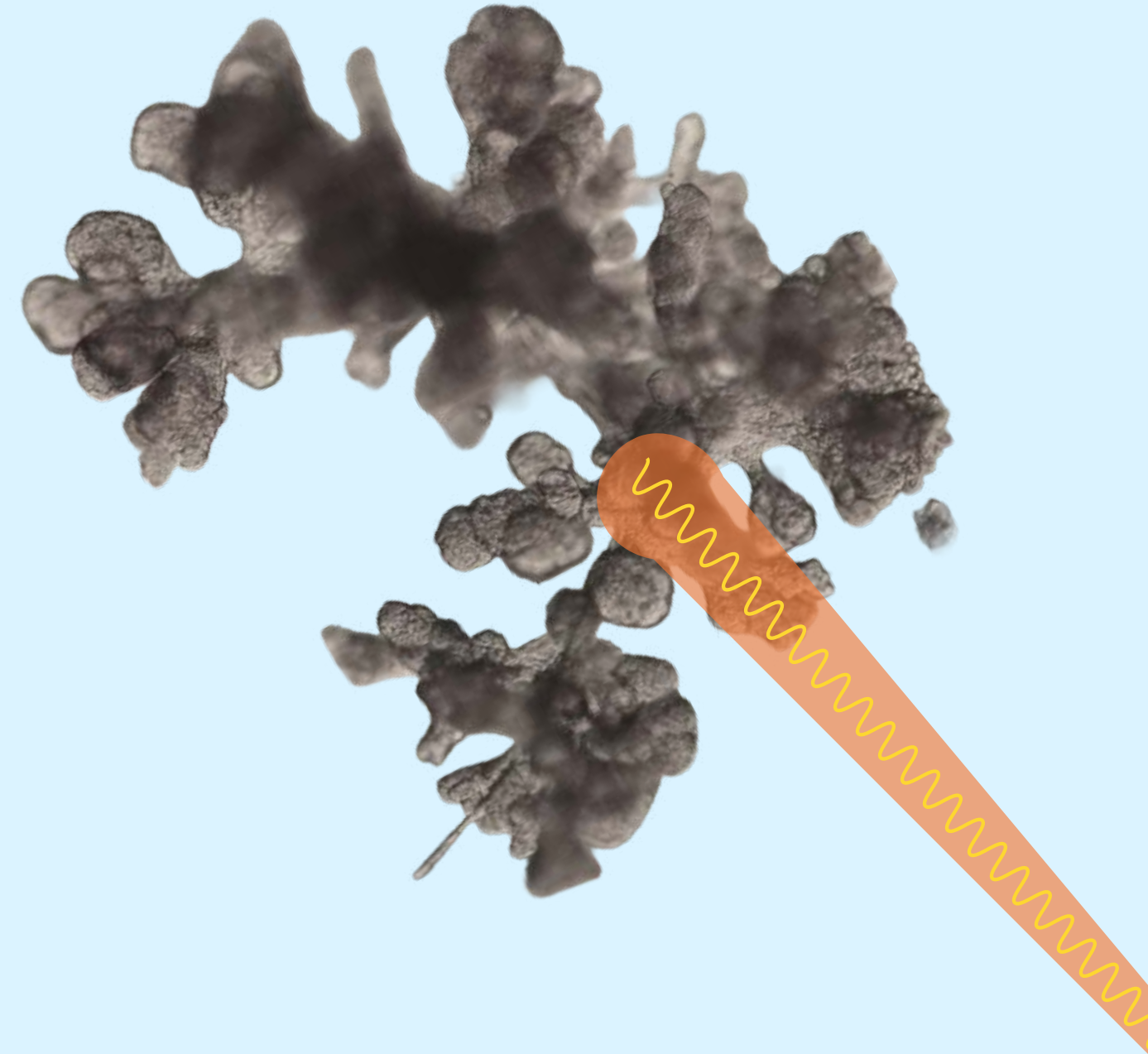
Rob Coppes (Seconded from the Department of Radiation Oncology) focuses on the role, mechanism and regenerative potential of normal tissue stem cells in the response of tissues to different radiation qualities, such as photons and protons.

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To further improve radiotherapy and proton therapy, we are exploring the physiological mechanisms of interaction within and between irradiated tissues using organoid and animal models. This year, we published evidence showing that the enhanced immune response to proton therapy, compared to photon radiotherapy, may help explain some clinical differences. Additionally, we identified a new type of stem cell in the salivary gland that explains how the tissue regenerates after radiation damage. This work earned Davide Cinat a cum laude PhD on July 2nd, titled “From radiation damage to regeneration using salivary gland organoids: unraveling the underlying signaling pathways.” Furthermore, our research on “Transplantation of Adult Salivary Gland Stem Cells to Restore Salivary Gland Function after Radiotherapy” led to a Phase I/II clinical trial, with the last patient treated in September this year. To develop a phase III trial, 2 grants were obtained from ZonMW-VIMP and the UMCG-HSTE innovation fund.

Illustrations by Ilaria Rosso ([EVOOOLVE](#))
Free interpretation of proton therapy on organoid with tumor.



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3.4

MOLECULAR NEUROBIOLOGY

PI name	Bart Eggen
Research institute	MOHAD
Research theme	Development and Ageing
Research program	Senescence, Stem cells and Inflammation

The group of Bart Eggen focuses on neuron-glia signalling and on the epigenetic regulation of different glial cell phenotypes and associated functionalities. This research is focused on brain development, ageing and perturbed functions of cells of the central nervous system cell in neurodegenerative conditions.

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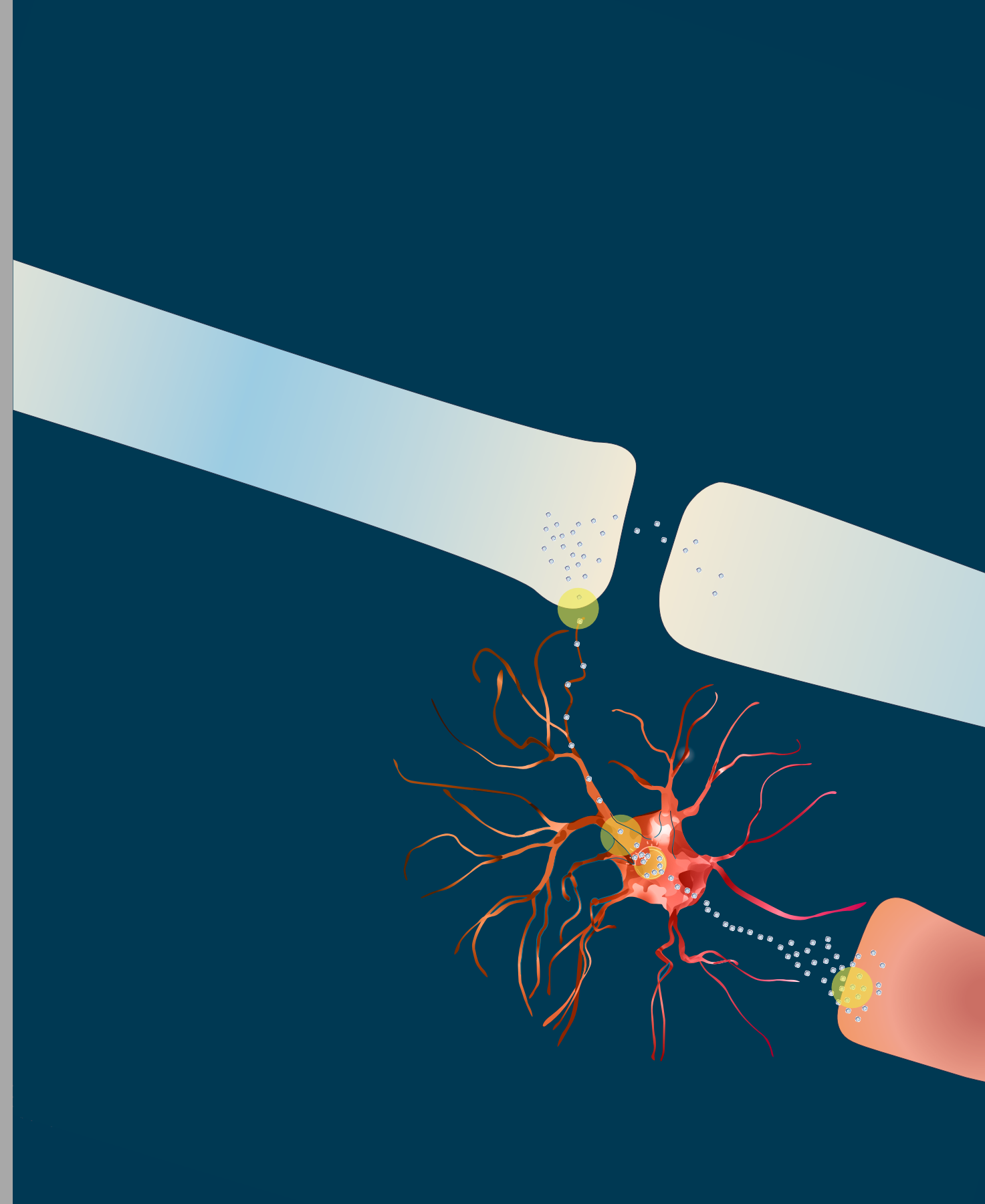
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My research focuses on neuron-glia signaling and changes in glial cell function in CNS disease. We employ a range of -omics strategies and hiPSC-derived models for CNS to unravel the biological systems that underlie normal CNS cell function and pathological perturbations observed in CNS diseases such as Alzheimer's disease, frontotemporal dementia, multiple sclerosis and psychiatric disorders.

Highlights are the further development of the Gravitation consortium iCNS (Institute for Chemical Neurosciences), publication of a spatial transcriptomics paper in Nature Neuroscience, where this innovative technology offered insights in MS lesion evolution.

Four PhD students I co-supervised defended their thesis in 2025, Wendy Oost, Marion Wijering, Jody de Jong and Astrid Alsema, always a memorable moment for both the PhD student and the supervision team.

Illustrations by Ilaria Rosso (**EVOOOLVE**)
Free interpretation of glial cell in function.



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3.5

MOTIVATION IN BIOMEDICAL EDUCATION

PI name	Janniko Georgiadis
Research institute	MOHAD
Research theme	LEARN
Research program	LEARN, Vitality and Sustainable Employability

The research group of Janniko Georgiadis mainly focuses on::

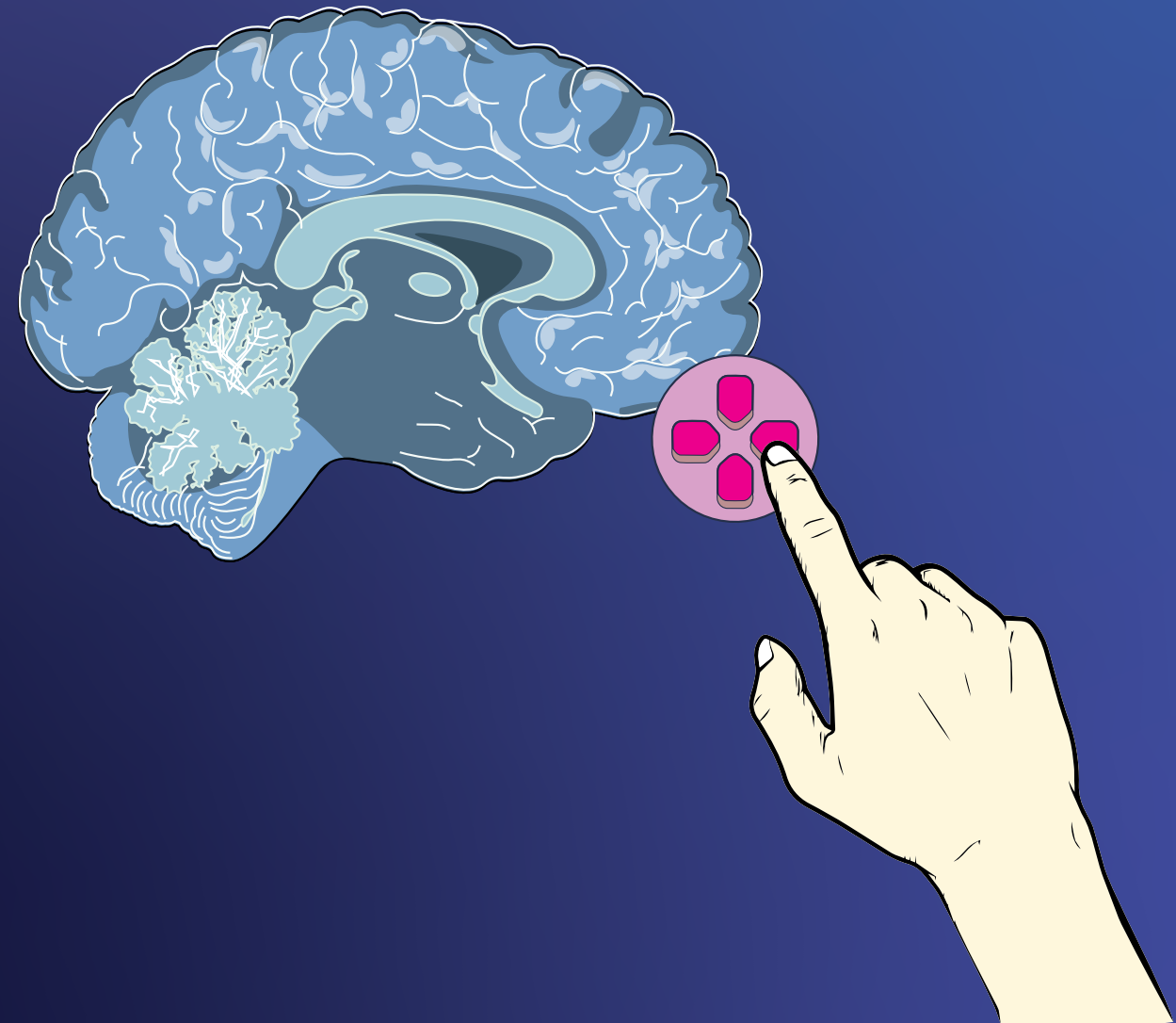
1. human motivational processes in biomedical education and training from both student and teacher perspectives, and
2. sexual behaviour, focusing on predictive coding theory.

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We do quantitative, qualitative and applied research to understand motivation mechanisms in biomedical education and training. We also actively develop digital education innovations, alone and through public-private partnerships (Enatom, Memory Lab), starting from these motivation principles. This is a relatively new research line operating in the LEARN program. In 2025, we published a qualitative study on medical e-learning usage and an ALE-meta-analysis on brain mechanisms involved in medical expertise. Three new experiments have started in 2025. We completed two large education innovation projects (SNN Valorization and Comenius Senior) and were able to strengthen collaboration with UMCG Team DoIT and UMCG Innovation Center for our ongoing education innovation development. Finally, in 2025 we had a Comenius Teaching Fellow awarded, and with a HTRiC consortium made it to the penultimate stage of securing a large NPG grant (Arbeidsmarkt en Educatie). This includes support for applied research into optimal use of our education innovation Enatom.

Illustrations by Ilaria Rosso (**EVOOOLVE**)
Free interpretation of gaming psychology triggers.



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3.6

ADVANCED MICROSCOPY & T1D

PI name	Ben Giepmans
Research institute	MOHAD
Research theme	Advanced Microscopy & T1D
Research program	Bridge & protein homeostasis

The group of Ben Giepmans aims to better visualize how molecules, organelles and cells act in concert to organize life, and how this may be affected in diseases. The focus is on developing and improving large-scale multimodal microscopy approaches that allow better identification of targets with new probes. Special interest is in uncovering the trigger that leads to, Type 1 diabetes.

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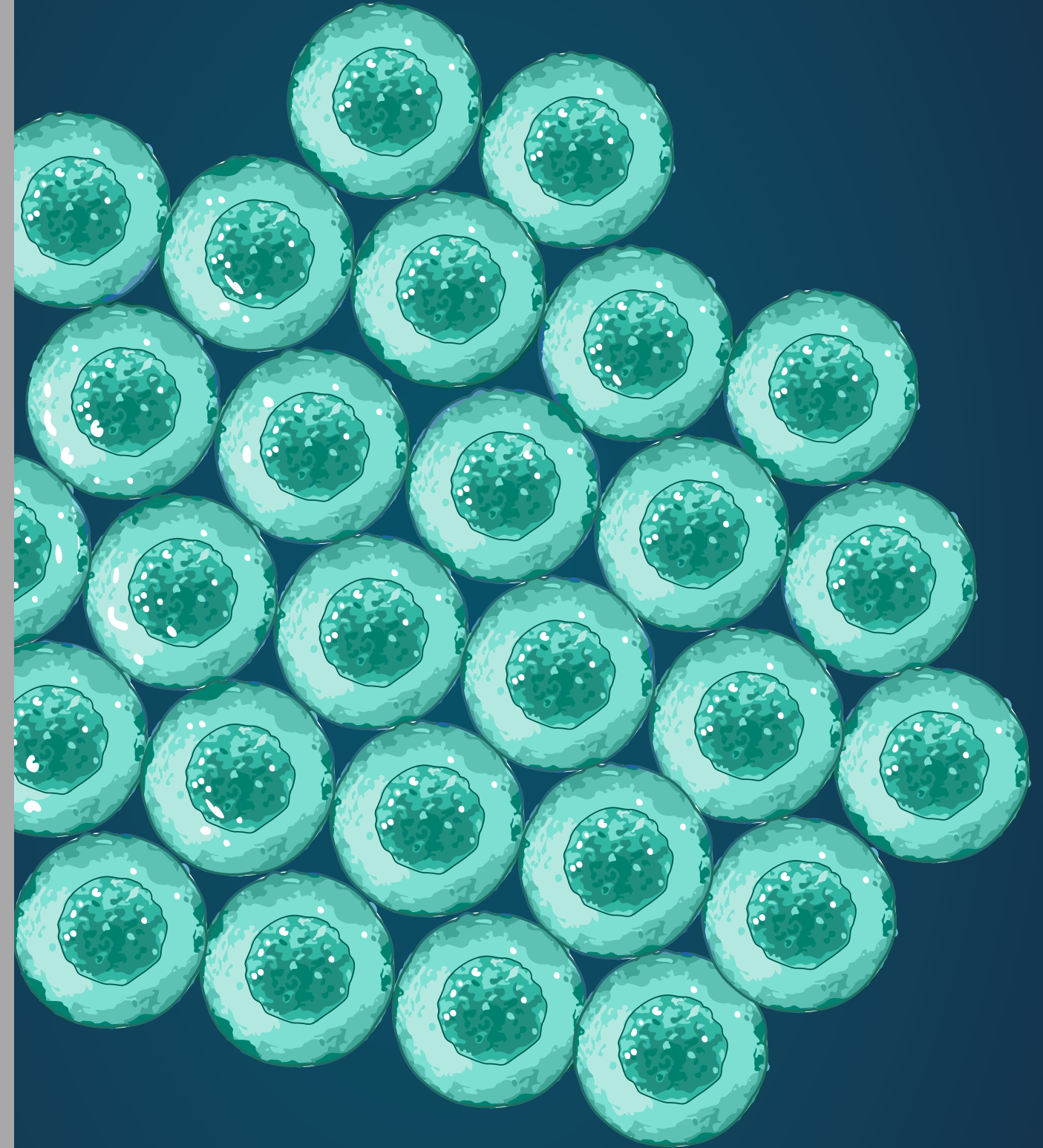
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Innovating microscopy for biomedicine: Building on large scale EM (nanotomy) and correlated microscopy (CLEM) we pioneer faster acquisition with a 64 beam scanning EM as well as pixel precise information at the nanometer scale to better mine nanotomy datasets. Both FAST-EM as well as ColorEM and machine-learning analysis derived from these developments have gotten a boost in 2025, as showcased in international talks and publications, as well as in the thesis of Anusha Aswath and Peter Duinkerken.

Islet stress preceding T1D: Application of advanced microscopy imaging techniques and especially the use of an in vivo pancreas (zebrafish), where exocrine cells can be damaged, revealed that it leads to stress in the beta cells in Islets of Langerhans as detailed in the thesis of Noura Faraj. To address whether this is an underlying phenomenon that caused T1D is a spearpoint of the research field.

Illustrations by Ilaria Rosso (**EVOOOLVE**)
Free interpretation of beta cells clusters.



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3.7

PROTEIN QUALITY CONTROL IN HEALTH AND DISEASE

PI name	Mark Hipp
Research institute	MOHAD
Research theme	Development and Ageing
Research program	Protein Homeostasis

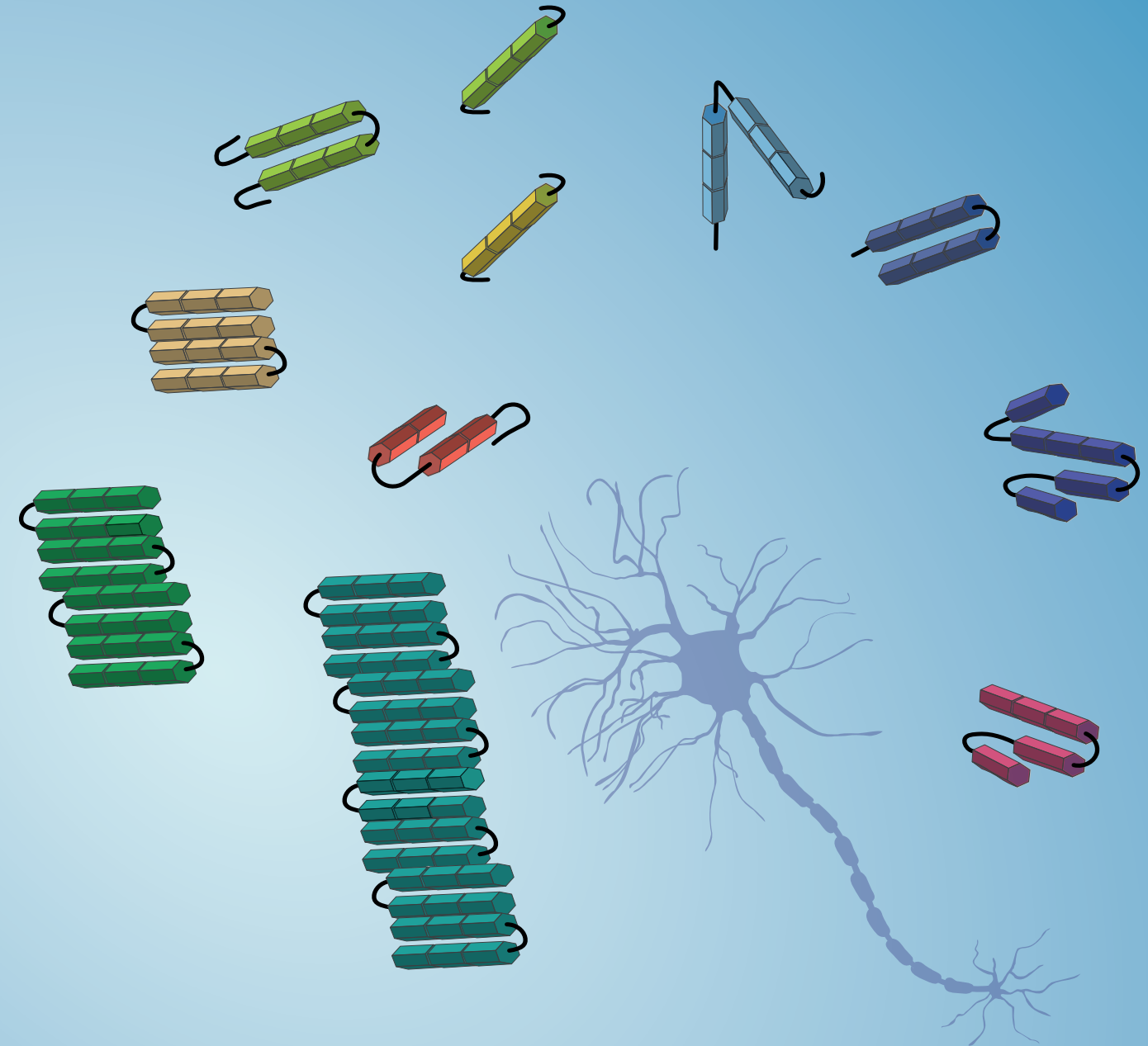
The group of Mark Hipp studies the cellular quality control machinery to identify the mechanisms that healthy cells use to prevent toxic protein aggregation, and to help cells to use these mechanisms to prevent diseases associated with protein aggregation.

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Mark Hipp studies the cellular quality control machinery to identify the mechanisms that healthy cells use to prevent toxic protein aggregation, and to help cells to use these mechanisms to prevent diseases associated with protein aggregation. As members of the Gravitation Programme FLOW and the Research along Routes by Consortia programme CureQ the aggregation-prone proteins alphaSynuclein and Huntingtin reached larger prominence in the group, joining ongoing research on the Alzheimer related protein tau and on TDP-43 which is related to frontotemporal dementia and amyotrophic lateral sclerosis. Work on non-human model proteins for protein misfolding diseases is also still ongoing, as is work on a plasticity related protein (PRG5) which is performed in close collaboration with the University Oldenburg.

Illustrations by Ilaria Rosso (**EVOOOLVE**)
Free interpretation of protein misfolding in neurological disease.



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3.8

COMPUTATIONAL NEUROGENOMICS AND DISEASE MODELING LAB

PI name	Inge Holtman
Research institute	MOHAD
Research theme	Senescence, Stem cells and inflammation
Research program	BRAIN

The group of Inge Holtman focuses on multi-modal data analysis to identify shared and unique features underlying brain diseases using computational modeling and machine learning approaches.

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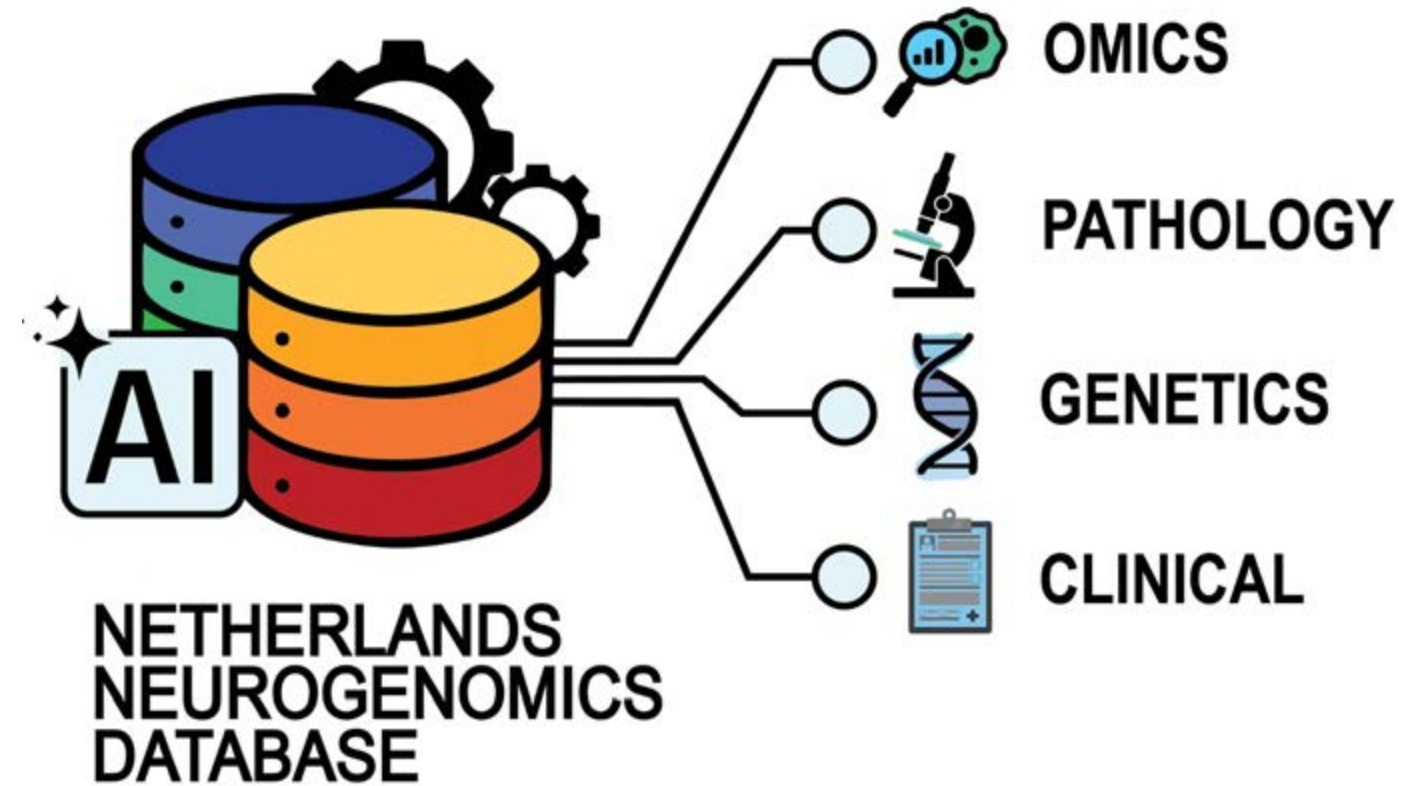
The Holtman lab focuses on multi-modal data integration to improve diagnosis, prognosis, and mechanistic understanding of brain disorders. By combining clinical, genetic, multi-omics, and neuropathological data from post-mortem human brain and brain organoids, we aim to obtain a better understanding of shared and unique features underlying brain diseases.

In 2025, we secured a Hoofdzaken grant for the Netherlands Neurogenomics Database 2.0, an upgraded open-access infrastructure for the Netherlands Brain Bank. This initiative strengthens national data integration and enables secure, large-scale analysis of complex datasets.

Dr. Shivam Kumar joined the lab as a postdoctoral researcher and develops LLMs and AI-based image analysis models to process neuropathological text information, and histological images.

In collaboration with Karim Kreft from the University of Nottingham, we identified three genetic subtypes of MS with clinical implications, published in *Journal of Neurology, Neurosurgery & Psychiatry*.

Computational Neurogenomics and Disease Modeling Lab Logo



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3.9

INTRACELLULAR TRAFFICKING & CELL POLARITY

PI name	Sven van IJzendoorn
Research institute	MOHAD
Research theme	Development & Aging
Research program	Transport & metabolism

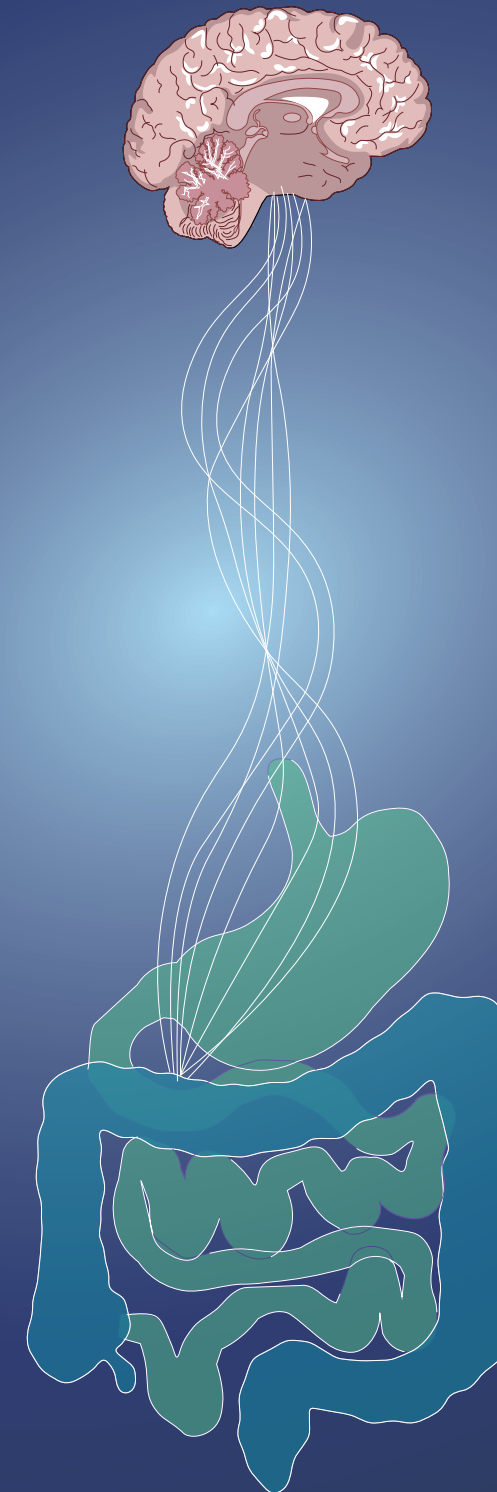
The group of Sven van IJzendoorn aims to understand the molecular mechanisms that control the intracellular dynamics of proteins, lipids and membranes in the context of the functional organization of cells, and to understand how these mechanisms contribute to health or, when disrupted, to human disease. In this context, our focus is also on rare congenital disorders caused by disrupted intracellular protein dynamics and cellular organization, which includes elucidating their pathogenesis, development of patient-specific iPSC-based cell models and lead identification for novel therapeutic strategies.

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We aim to understand the molecular basis of gene variant-driven diseases, focusing on the gastrointestinal tract with repercussions for the brain and Parkinson disease. A highlight in 2025 was our series of studies that redefined the pathophysiology of MYO5B-, USP53- and UNC45A-driven cholestatic liver disorders, pinpointing novel trafficking defects in bile salt export and revealing toxic gain-of-function variants, paving the way for new therapies. The effectivity of one therapy was published in a case report. Furthermore, a novel gut organoid model with an enteric nerve system embedded was developed to better understand gut pathology in Parkinson disease. With a research grant from ParkinsonNL, this mini gut model will be further exploited to study the role of the microbiome in gut responses in Parkinson disease.

Illustrations by Ilaria Rosso (**EVOOOLVE**)
Free interpretation of role of the
microbiome in gut and brain diseases.



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PI name Harrie Kampinga
Research institute MOHAD
Research theme Aging and Disease
Research program Protein Homeostasis



PI name Mario Mauthe
Research institute MOHAD
Research theme Aging and Disease
Research program Protein Homeostasis

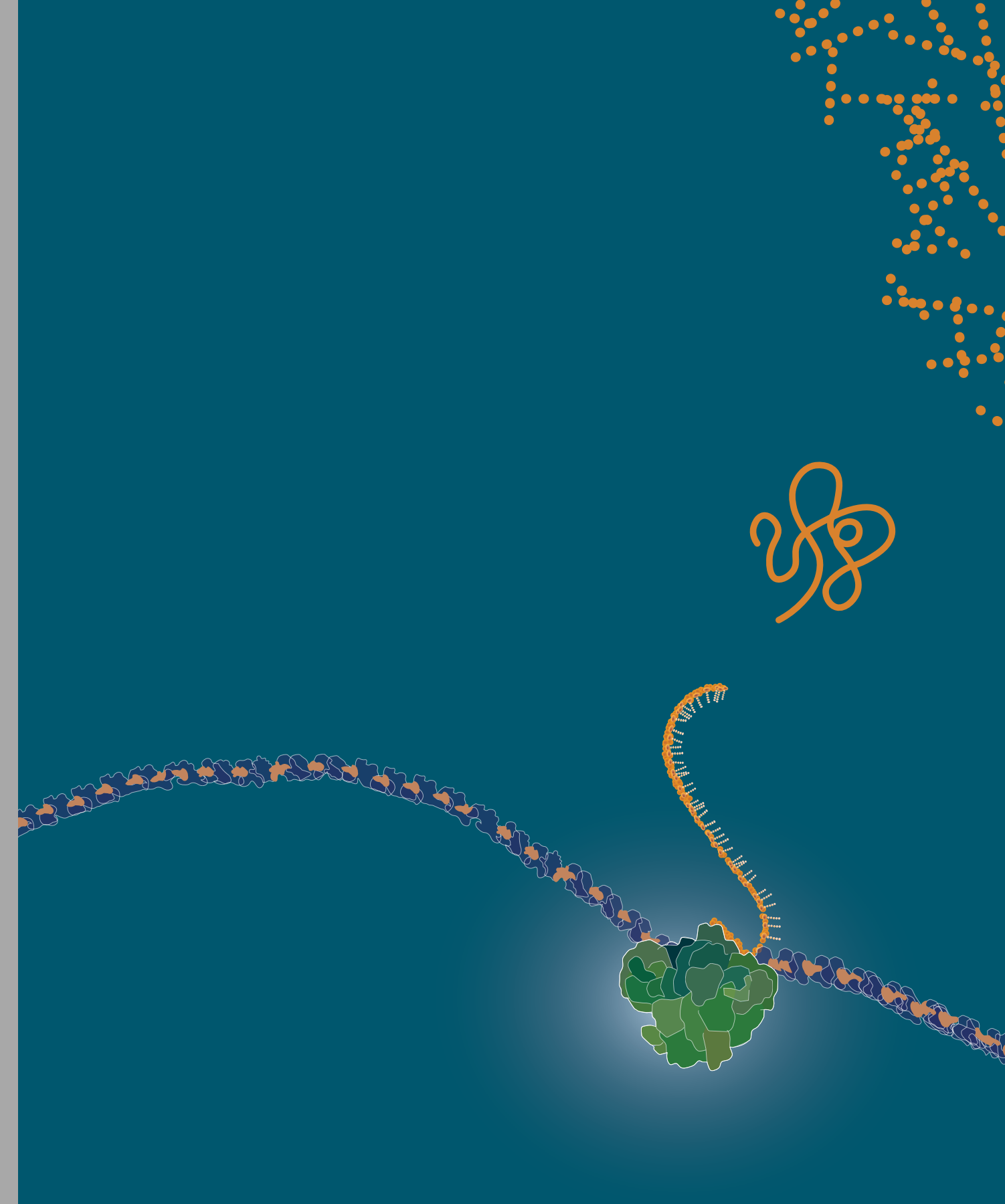
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The group of Harrie Kampinga/ Mario Mauthe studies how cells maintain a healthy proteome, which is not only crucial for protein function and hence functionality of cells, but also essential to prevent accumulation of protein damage (protein aggregates) that can lead to a cascade of toxic events that threaten cellular health span. To ensure proper protein homeostasis, an intricate protein quality control (PQC) network exists in cells in which Heat Shock Proteins (HSP), the central research topic in his group, play a central role.

RESEARCH HIGHLIGHTS FROM 2025

In order for proteins to function, they require to be properly folded and timely degraded. If this fails, we refer to this as a collapse in protein homeostasis. This not only leads to a loss of protein function, but also to the formation of protein clumps (aggregates or amyloid) that have been shown to cause several age-related diseases. An important guardian of this protein quality network is the J-domain protein (JDP), DNAJB6. We found how it interacts with substrates and that it plays a role in supporting protein aggregates to be fragmented in smaller pieces with the help of the 19S proteasomal particle and guide these pieces to autophagosomal degradation. We also found that a stress-induced association of two JDPs plays a key role in taking care of tight stress-induced aggregates. Finally, we also found how components of chaperone machines of host cells are key to viral replication.

Illustrations by Ilaria Rosso ([EVOOOLVE](#))
Free interpretation of formation, misfolding
and fragmentation of proteins.



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3.11

GLIA IN DEVELOPMENT AND DISEASE

PI name	Susanne Kooistra
Research institute	MOHAD
Research theme	Development and Ageing
Research program	Senescence, Stem cells and Inflammation

The group of Susanne Kooistra focuses on how the epigenome regulates glial cell identity and function under neuroinflammatory conditions like multiple sclerosis, using single cell-omics approaches.

RESEARCH HIGHLIGHTS FROM 2025

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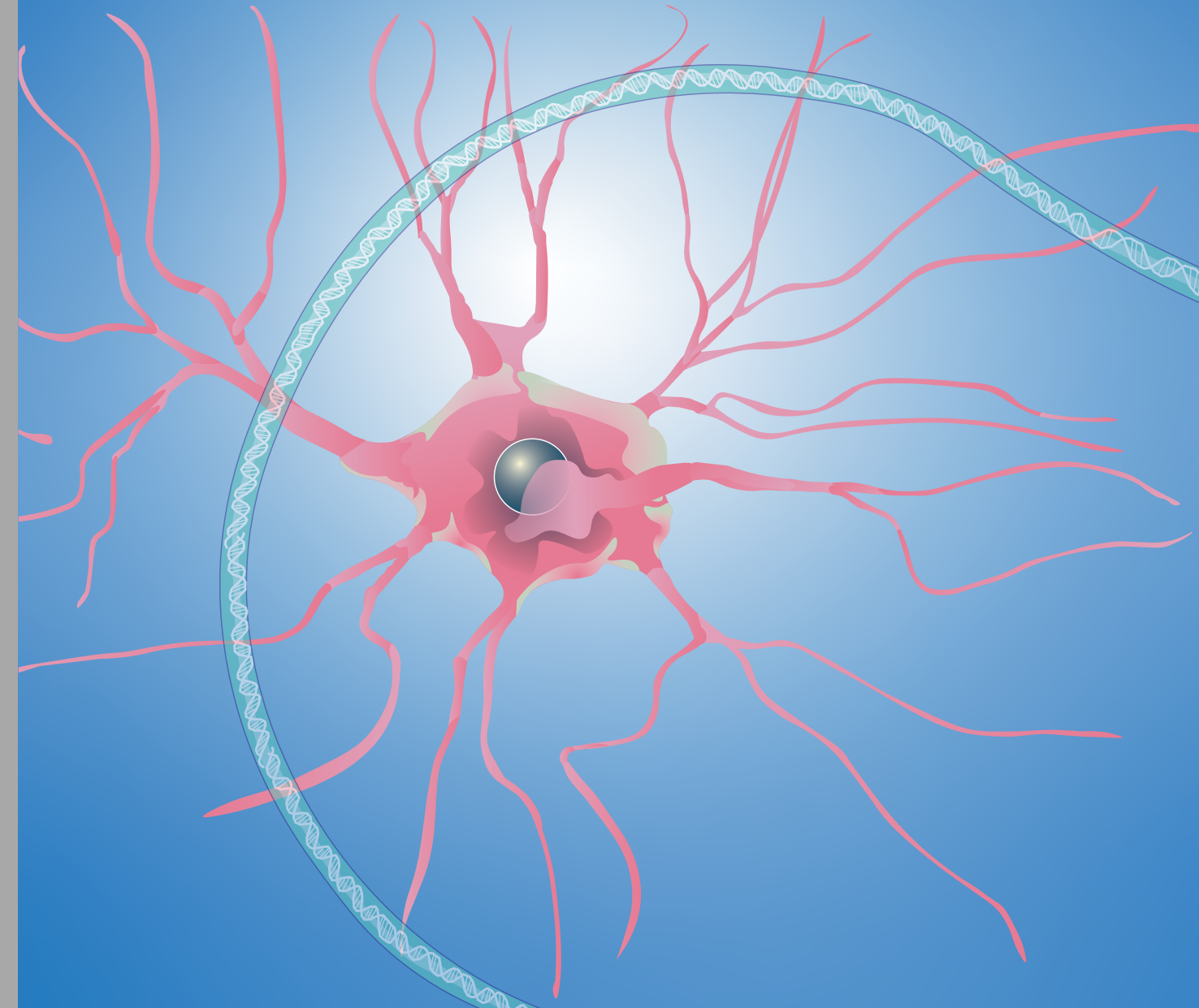
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Susanne Kooistra focuses on how the epigenome regulates glial cell identity and function under neuroinflammatory and neurodegenerative conditions like multiple sclerosis and Alzheimer's disease. Using post-mortem human material as a starting point combined with single-cell transcriptomics and spatial transcriptomics approaches, disease-relevant changes are identified.

Illustrations by Ilaria Rosso (**EVOOOLVE**)
Free interpretation of glia and DNA.



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3.12

FATIGUE AND FATIGABILITY

PI name	Inge Zijdewind
Research institute	MOHAD
Research theme	Development and Ageing
Research program	Brain

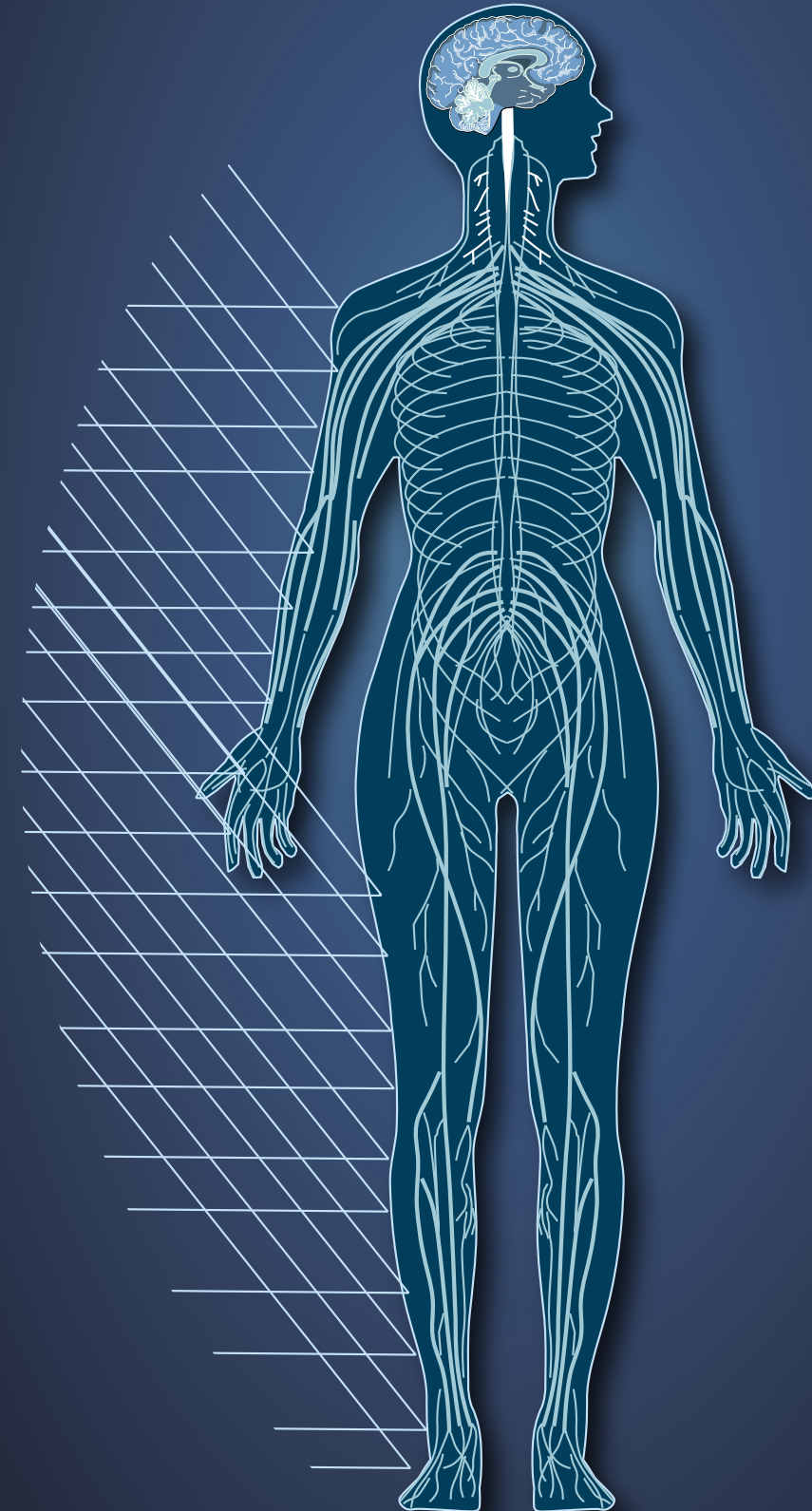
The group of Inge Zijdewind investigates mechanisms – at the level of muscles, spinal cord, and cortex – responsible for increased levels of fatigue and fatigability in different groups of subjects (including multiple sclerosis). Additionally, associated effects of fatigue and fatigability on physical and cognitive performance, and quality of life are studied.

RESEARCH HIGHLIGHTS FROM 2025

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This year, we reported the positive outcomes of a randomized controlled trial demonstrating that transcutaneous electrical nerve stimulation improves walking performance in persons with multiple sclerosis (MS). In addition, we conducted more than 300 experiments involving individuals with myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) and their controls. Through this extensive work, we aim to strengthen the recognition of this disease and advance the understanding of its most disabling symptom, post-exertional malaise (PEM).

Illustrations by Ilaria Rosso ([EVOOOLVE](#))
Free interpretation of transcutaneous electrical nerve stimulation.



3. RESEARCH AND EDUCATION GRANTS



RESEARCH AND EDUCATION GRANTS



2025



Total funding for projects started during 2025
€ 1,168,802.10



At BMS, each year our researchers apply for and receive funding from various research funding agencies across the world. Below we list out the projects that received funding and started with a starting date in 2025. The starting date is when both the UMCG and the funding agency agree that the Grant Agreement enters into force.

3. RESEARCH AND EDUCATION GRANTS

APPLICANT	GROUP LEADER	FUNDING AGENCY	TITLE	FUNDING AWARDED
Tamara, T. Hageman	Baron, W.	De-Cock-Hadders-2024	Novel disease targets in MS: exploring the role of the astrocytic extracellular matrix in remyelination (failure)	€ 4,500.00
Eva Marieke Sofieke Geerts	Baron, W.	Stichting MS Research - Monique Blom-de Wagt grant	Unraveling the role of astrocyte phenotypes in white matter MS lesion evolution using MS-iPSC models	€ 12,520.00
Baron, W.	Baron, W.	Stichting MS Research - Project grant	Neurogenic fate of OPCs: a potential therapeutic target for progressive MS?	€ 370,000.00
Xiaolin Zhu	Eggen, B.J.L.	De-Cock-Hadders-2024	Deciphering the cellular heterogeneity of Frontotemporal dementia	€ 4,500.00
Esmée Dragt	Eggen, B.J.L.	De-Cock-Hadders-2024	Exploring microglial SPP1 signaling in Alzheimer's Disease	€ 4,500.00
Xiaolin Zhu	Eggen, B.J.L.	ZonMw	IgLON5 disease: the Model for Inflammation towards early treatment of NeuroDegeneration (IGNITEMIND)	€ 121,577.50
Janssen Kotah	Eggen, B.J.L.	St. Alzheimer Nederland - Early Career Grant - Kwaliteit van Leven (ECG-KvL)	Unraveling microglial transcriptional heterogeneity in dementia (Janssen Kotah)	€ 124,950.00
Eric Sietsema	Georgiadis, J.R.	NRO - Comenius Teaching Fellows 2025 - Teaching Fellow	Integrating Simulation-Based Video modules with Branching Scenarios into Peer-Assisted Medical Physiology Education	€ 49,954.00
Giepman, B.N.G.	Giepman, B.N.G.	Ubbo Emmius Fonds T.a.v. D. Bosker	Het fundament van HTRIC: Investeren in NextGen Gezondheidstechnologie (Scanning electron microscopy (SEM))	€ 150,000.00

Total funding for projects started during 2025

€ 1,168,802.10

* "Project starting date" is different from "grant award date". Here we considered "starting date" for this table.

** Financial administration of this funding is handled by the Department of Radiation Oncology.

3. RESEARCH AND EDUCATION GRANTS

APPLICANT	GROUP LEADER	FUNDING AGENCY	TITLE	FUNDING AWARDED
Inge Zuhorn	Giepmans, B.N.G.	Ubbo Emmius Fonds T.a.v. D. Bosker	Het fundament van HTRIC: Investeren in NextGen Gezondheidstechnologie (Super resolution microscopy for nanoparticle characterization)	€ 85,000.00
Giepmans, B.N.G.	Giepmans, B.N.G.	NWO - TDCC-LSH FAIR fellowship	Strengthening the Dutch LSH FAIR data stewardship landscape – installing a national cohort of FAIR LSH fellows	€ 31,869.60
Zhe Zhou	IJzendoorn, van S.C.D.	De-Cock-Hadders-2024	HSP70A1A Upregulation as a Potential Therapeutic Strategy for UNC45A-associated PFIC	€ 3,700.00
Mahya Hosseini	IJzendoorn, van S.C.D.	De-Cock-Hadders-2024	Does GBA1 Deficiency Increase Vulnerability of an Alpha-Synuclein Overexpressing HEK293 Cell Model to Parkinson's-Associated Gut Bacteria?	€ 3,181.00
Chang Sun	IJzendoorn, van S.C.D.	De-Cock-Hadders-2024	Narrowing the target to treat microvillus inclusion disease	€ 4,500.00
Mahya Hosseini	IJzendoorn, van S.C.D.	ParkinsonNL	Effect of the microbiome on gut epithelium and enteric nerve cells in PD	€ 193,750.00
Nikki Dreijer	Zijdewind, C.A.T.	Stichting MS Research	Fatigue in MS: from invisible to measurable	€ 4,300.00
Barazzuol, L.	Barazzuol, L.	Stichting Steunfonds UMCG	Mapping the effects of cancer treatment on the pediatric brain microenvironment	€ 75,000.00 **
Coppes, R.P.	Coppes, R.P.	Stichting Steunfonds UMCG	Three-dimensional spatial profiling of in-vivo stem cell differentiation postirradiation.	€ 30,000.00 **

Total funding for projects started during 2025
€ 1,168,802.10

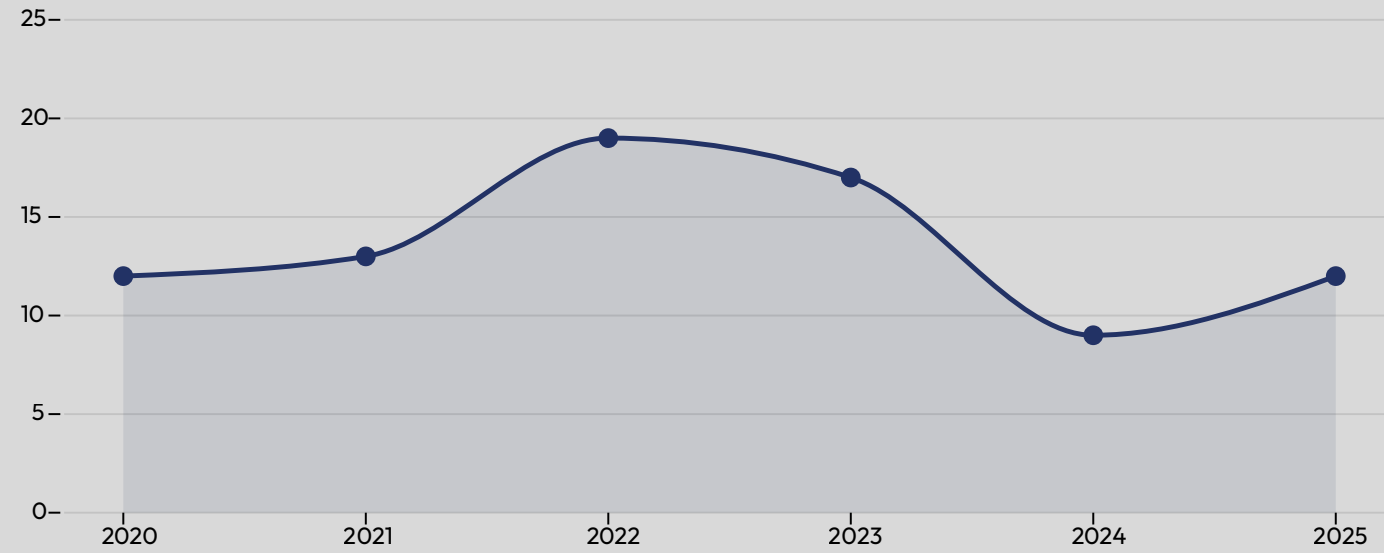
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FACTS AND FIGURES

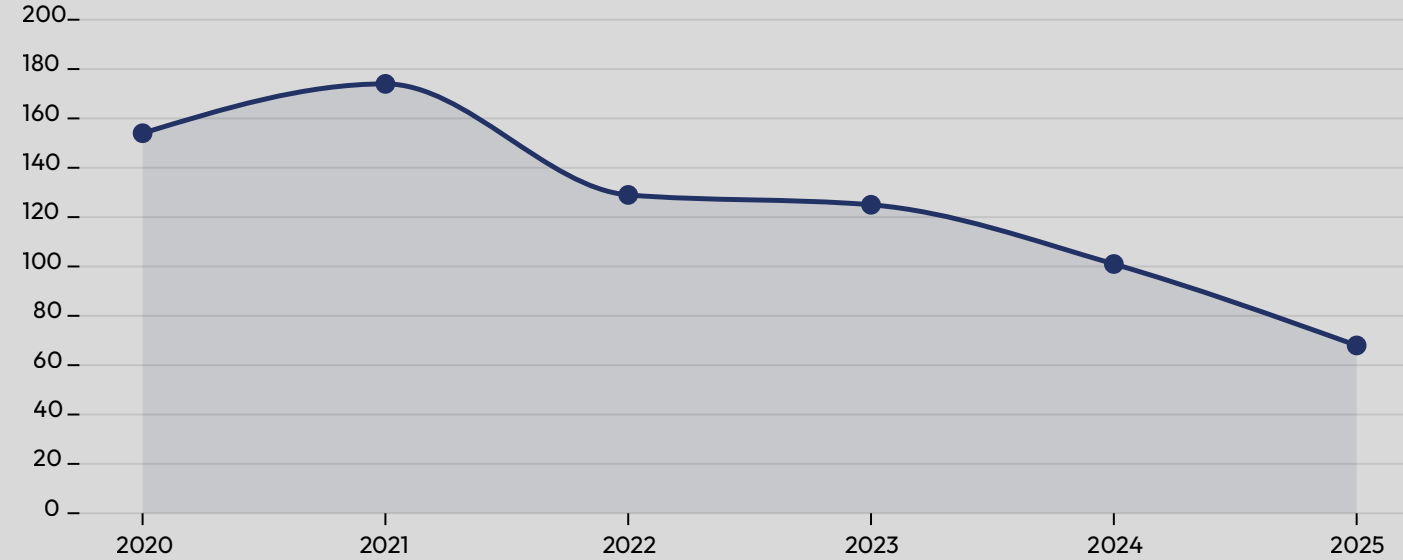
PhD GRADUATIONS

↑ PhD graduated



SCIENTIFIC PUBLICATIONS

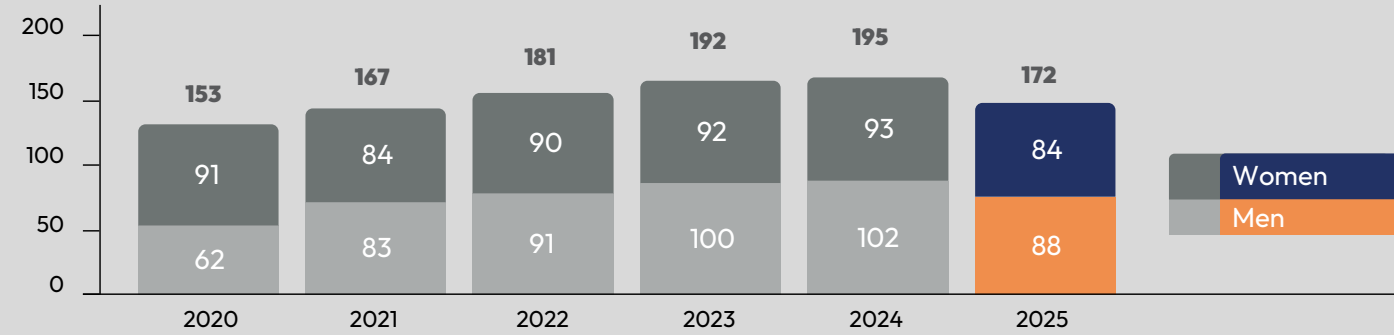
↑ Publications



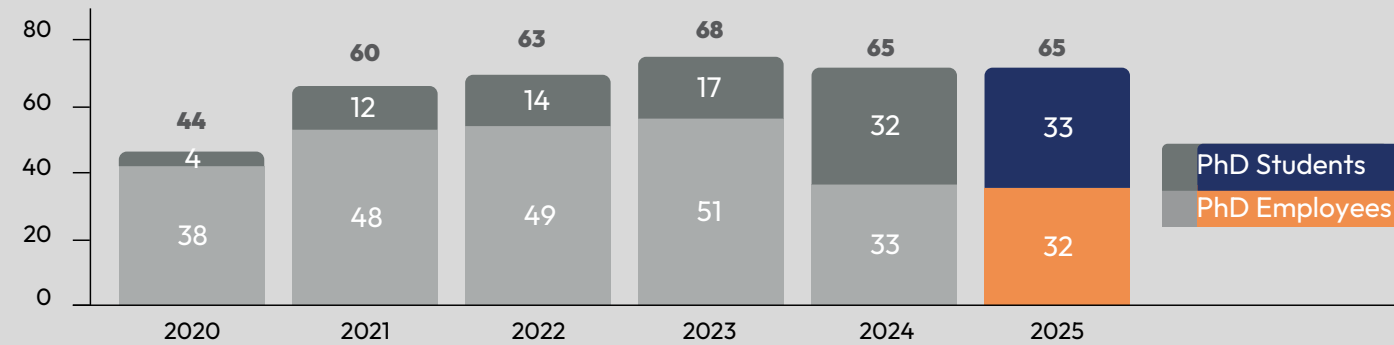
PEOPLE

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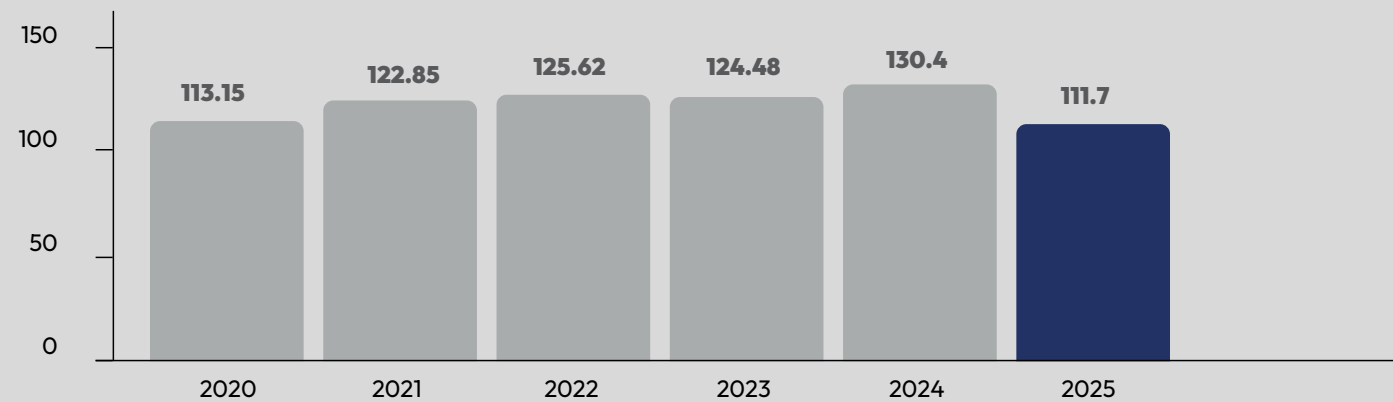
GENDER



PhD PRESENCE

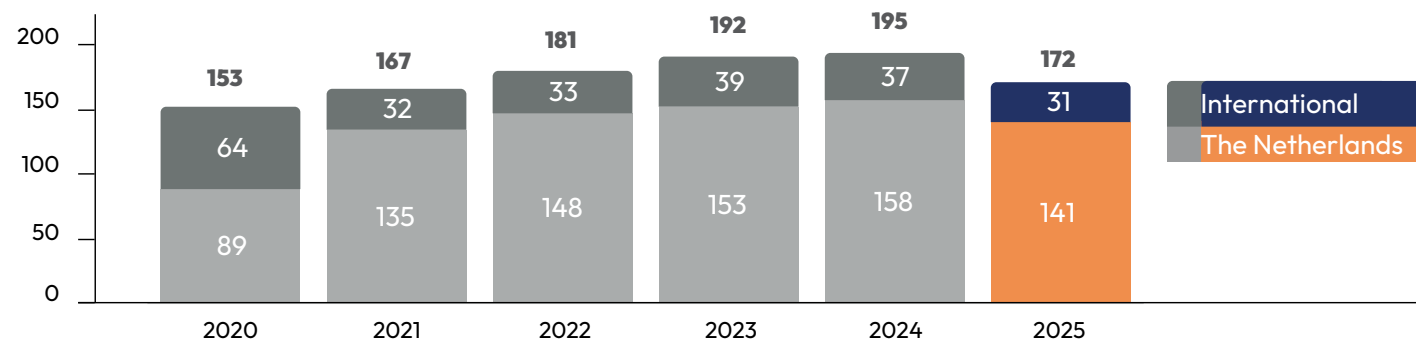
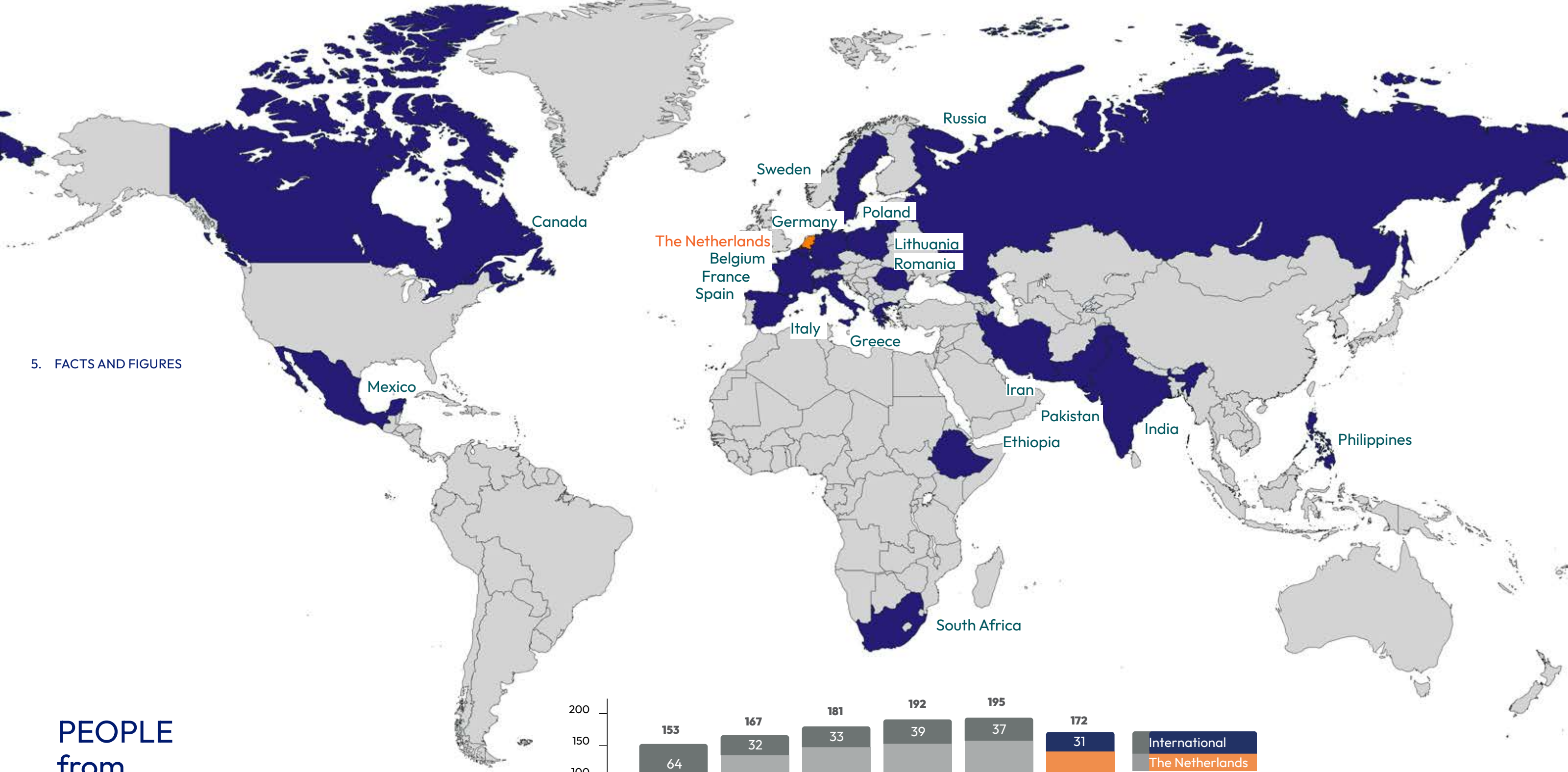


FULL-TIME EQUIVALENT (FTE)



5. FACTS AND FIGURES

PEOPLE
from
20 different
countries



MANAGEMENT TEAM BMS

Hayo Schultink
Managing Director

Ria Ubels
Quality Assurance Manager
and Staff Advisor

Fokje van der Weg
Secretariaat

Bart Eggen
Head of Department

Mallikarjuna Gurram
Project Manager and
Grant Support

Greetje Noppert
Secretariaat

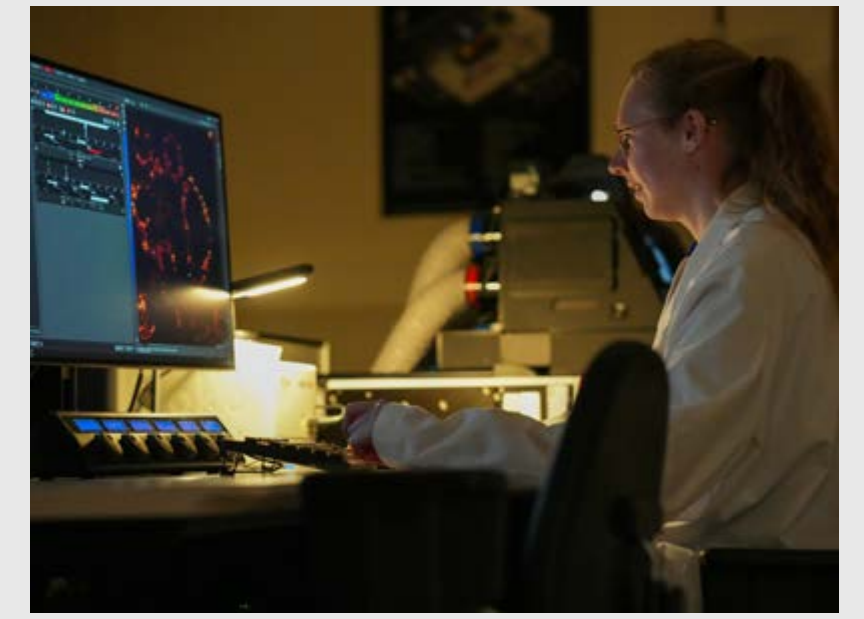
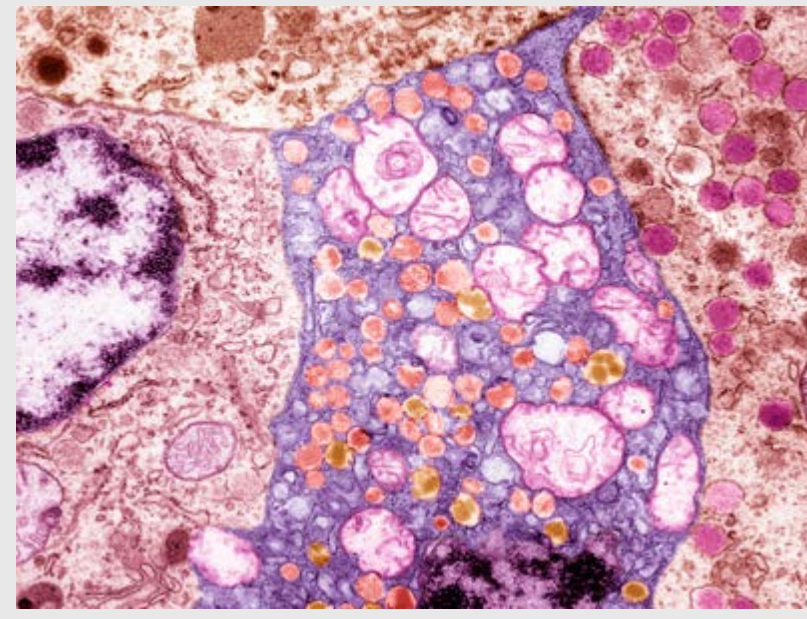
Jenny Fledderus
Financial Controller

Wytse Hogewerf
Staff Assistant

Trix van der Sluis-Rozema
Secretariaat

FACILITIES

6. FACILITIES



6.1

DISSECTION ROOM FACILITY



The Dissection Room facility is a modern facility where real human anatomy can be studied extensively and in considerable detail. The facility strongly supports life-long learning, offering both basic undergraduate courses and specialistic post-graduate trainings across a great variety of teaching and training programs, locally, regionally, nationally and internationally. This irreplaceable form of learning is afforded by human body donors, who generously give their body to the [University Medical Center Groningen](#) to stimulate, support and improve biomedical education and research.. The facility has a close collaboration with the [Wenckebach Skills Center](#) for the optimization of resident training and surgical approaches, for simulating skills needed in the operation room, and for research on clinically relevant anatomy.

SPECIFIC SERVICES

- 3 different embalming methods to optimally cater to a range of education or research requests.
- partnership with Wenckebach Skills Center enables very wide range of education, training, and research activities with donated bodies.

Great expertise in organizing international specialistic surgical courses

PEOPLE INVOLVED IN THE FACILITY AND THEIR ROLES

Janniko Georgiadis Head of the facility
Steve Oosterhoff Manager of the facility
Peter Veldman Prosector
Ronald Meijer - Prosector

CONTACT

Department of Biomedical Sciences
University Medical Center Groningen

Antonius Deusinglaan, 1
Section Anatomy and Medical
Physiology
Internal Zipcode FB42
9700 AD Groningen
The Netherlands

<https://umcgresearch.org/w/dissection-room>

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The Medical Physiology Lab is used to teach the basic concepts of physiology to 700-1000 students per year of medicine, human movement sciences, dentistry, pharmacy, biomedical sciences and the University College Groningen. Via experiential learning, these students master the concepts in respiratory physiology, cardiovascular physiology, exercise physiology and neurophysiology: the students experience the tests themselves, and they perform those tests on fellow students, and learn to interpret the results. For medical students, this is also their first experience in physical examination and additional measurements, such as electrocardiography, blood pressure measurements, and lung function tests.

In 2020, we received a financial investment from the UMCG to update, upgrade, and increase the numbers of our equipment, to be able to match the practice in the clinic, to deal with larger numbers of students per practical, and to be able to offer high-end courses in physiology for medical residents and specialists. The first investments were used to update (and upgrade) one of the set-ups of exercise physiology, to renew the set-up for continuous blood pressure measurements, and to replace the stethoscopes for the cardiovascular function tests.

PEOPLE INVOLVED IN THE FACILITY AND THEIR ROLES

Hiske van Duinen Head of the facility
Ruby Otter-Drost Manager of the facility
Anna Bakker Coordinator of the facility

CONTACT

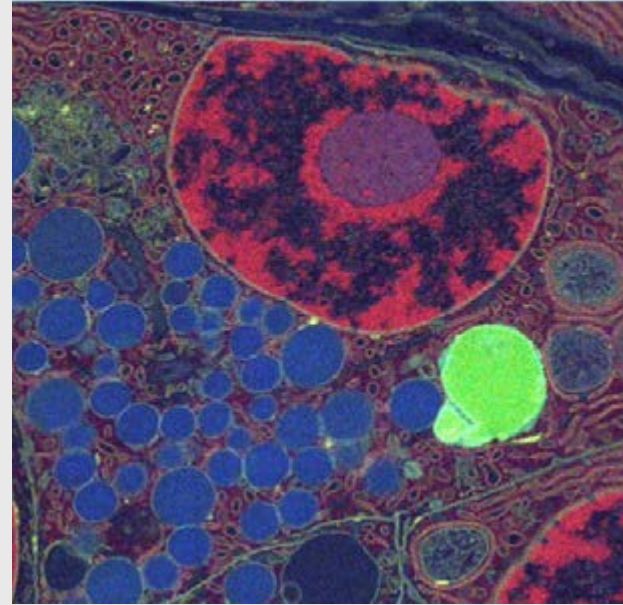
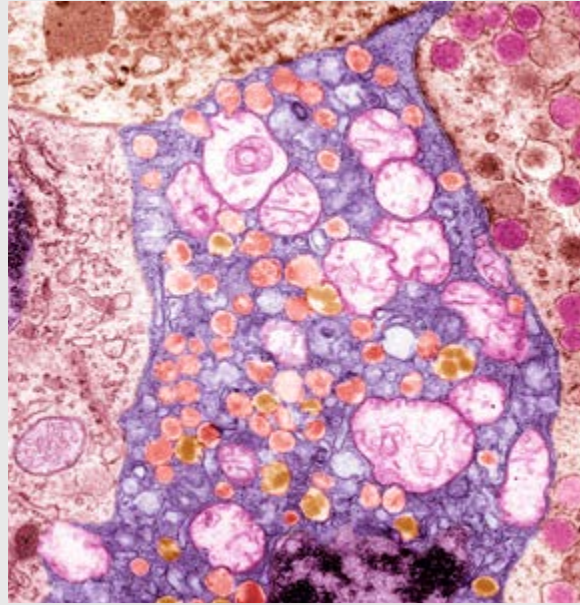
Department of Biomedical Sciences
University Medical Center Groningen

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Section Anatomy and Medical Physiology
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medicalphysiology@umcg.nl

<https://umcgresearch.org/w/medical-physiology-lab>

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Multimodal microscopy: Different signals are obtained from the electron microscope (left) that allows 'nanotomy' and 'ColorEM' (right). Samples are local and/or sent from other regions in the Netherlands/ world to use these niche techniques in biomedical research.
Image credits: BHP Duinkerken, Giepmans lab



Microscopy is a longstanding great enabling technology to help to understand how molecules regulate, or affect, live. UMIC offers training and access to advanced microscopes and image processing aimed at cellular imaging.

UMIC staff is highly enthusiastic because it is again a fantastic time to be a microscopist! Recent developments that already routinely can be used at UMIC include:

(I) intravital microscopy to study molecules and cells in living organism using

- a. single-photon confocal laser scanning microscopy (CLSM)
- b. two-photon CLSM
- c. light sheet microscopy
- d. Raman microscopy techniques

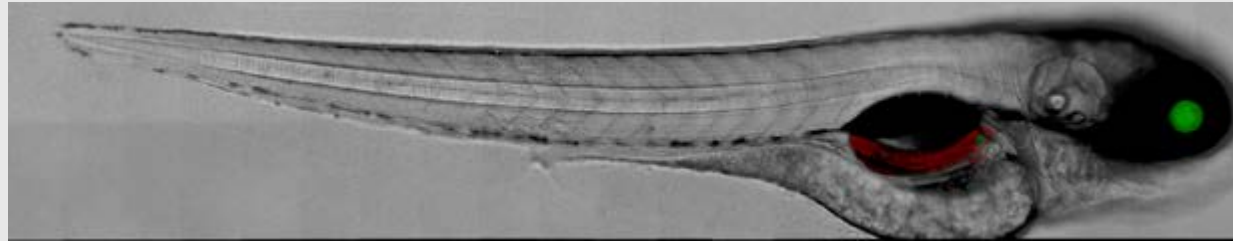
(II) Robotics allow live-cell imaging plates at high throughput

Special niches at UMIC, including custom-built microscopes and expert assistance that attract international researchers include

- 1) correlated light and electron microscopy (CLEM);
- 2) 'nanotomy' to analyze molecules and organelles in tissues in a Google earth-like manner with nanometer range resolution
- 3) identification using 'Color' electron microscopy

UMIC is very dynamic and has many more approaches for cellular imaging, with several new investments planned. Do you want to apply seemingly impossible microscopic approaches in your research, please contact us at umcgresearch.org/w/umic

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Zebrafish exocrine cell ablation construct: Zebrafish larvae to study the pancreas in context of Type 1 diabetes. UMIC optogenetics and imaging of living larvae, including using multi-photon, single plane illumination microscopy and FAST-EM

The global niche of UMIC is microscopy innovation developed in the Giepmans lab: large-scale EM (Nanotomy), ColorEM and Raman imaging techniques routinely implemented in diverse biomedical research.

UMIC HIGHLIGHTS FROM 2025

New staff has been well-trained and brought new functionalities: With Emma Dijkstra several projects benefitted from analysis using **light sheet microscopy**, as well as the analysis of **cleared tissue**, cutting edge developments in microscopic biology. With Eline de Lange, who successfully defended her thesis applying STED microscopy, **Raman** imaging techniques were optimized and are now implemented in research. In collaboration with innovations enabled by NL-BI and NEMI staff in de Giepmans group, **Nanotomy** using **FAST-EM**, as well as **ColorEM** are now routinely applied in many projects and data is deposited **FAIRly!** Next year we will report on ColorEM as ground truth for automated recognition of subcellular features. In collaboration with the Eggen group spatial omics is facilitated in areas including neurodegeneration and cancer research.

A successful road to acquire instruments for **dynamic imaging** and or **super/superdepuper resolution** will result in installation of four new microscopes in 2026.

OUR MICROSCOPY EXPERTS

- Anouk Wolters** Electron Microscopy
- Ben Giepmans** Group leader, UMIC Director
- Eline de Lange** Imaging scientist
- Emma Dijkstra** Research Technician
- Jeroen Kuipers** Electron Microscopy
- Joost de Folter** Scientific researcher
- Kim Kats** Electron Microscopy
- Pascal de Boer** Imaging scientist data management and analysis
- Peter Duinkerken** Postdoctoral researcher

UMIC participates in the NVvM, NL-Biolmaging, NEMI, is a DTL-hotel and nPOD core facility

CONTACT

UMCG Microscopy & Imaging Center UMIC

Antonius Deusinglaan 1 (FB32)
9700 AD Groningen
The Netherlands

EM-dbase nanotomy.org

UMIC core umcgresearch.org/w/umic

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2. RESEARCH AT **BMS**
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The Cesium-137 γ -ray machine is to be used by authorized researchers to irradiate cells, *Drosophila* larvae, mice and rats and other samples.

PEOPLE INVOLVED IN THE FACILITY AND THEIR ROLES

Rob Coppes RPO (Radiation Protection Officer)

Rick Havinga RPE (Radiation Protection Expert)

Uilke Brouwer Contact person radiation worker (level 5)

CONTACT

Department of Biomedical Sciences

University Medical Center Groningen

Antonius Deusinglaan, 1

Section Molecular Cellbiology Internal Zipcode FB32

9700 AD Groningen

The Netherlands

u.brouwer@umcg.nl

umcgresearch.org/w/cesium-137-gamma-ray-facility

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PARTREC is a dedicated research facility functioning in synergy with the UMCG Groningen Proton Therapy Center (GPTC). We uniquely combine technological development, preclinical studies, and patient studies with a Research and Development (R&D) programme to continuously improve proton therapy technology and treatment, while assessing the feasibility of other particles for high-precision radiotherapy.

The facility operates a large superconducting cyclotron for experimental research, mainly in the fields of radiation physics and biology. We support the further development of ion beam radiotherapy and the use of cyclotrons and accelerators.

SPECIFIC SERVICES

- The cyclotron delivers beams of various ions ranging from protons to oxygen, with energies up to 190 MeV (for protons) and 90 MeV per amu (for ions of helium to oxygen).
- The accelerator is also used by the University of Groningen for nuclear physics research and commercial radiation-hardness testing, with the possibility of using a heavy cocktail of ions as massive as Xe, with an energy of 30 MeV per amu.

Our technical staff operates the accelerator facility and provides support for designing, building, and operating experimental apparatus.

PEOPLE INVOLVED IN THE FACILITY AND THEIR ROLES

Alexander Gerbershagen Team Leader for Accelerator and Radiation Physics
Marc-Jan van Goethem Contact liaison for beam time request/booking.

CONTACT

Department of Biomedical Sciences
University Medical Center Groningen
Particle Therapy Research Center (PARTREC)
Zernikelaan 25
9747 AA Groningen
The Netherlands

umcgresearch.org/w/partrec

EDUCATION

Teaching and training are also core activities within the BMS department. BMS staff are involved in a wide range of educational activities, ranging from large-classroom teaching (>400 students) to 1-on-1 mentoring, spanning multiple faculties, facilities, programs, and institutions. Below we provide a list of courses and education/training activities that are being coordinated or facilitated by the research staff from the BMS. However, this list does not include the many hours of lectures and other activities where BMS staff were not coordinators. The students that did a bachelor or master thesis with us are mentioned separately in the next chapter.

As the academic year runs from September 2024-August 2025 and September 2025-August 2026, some courses/roles were only coordinated for part of the year, if so, this is added. If the course is coordinated in both academic years, these years are not mentioned.

Within the medical faculty, we have three bachelor programs: medicine, human movement sciences, and dentistry (no coordinating roles). Furthermore, we have the MMIT master program and the Graduate School of Medical Sciences that involves PhD training. Besides the teaching (and coordination) within the medical faculty, we also play an important role in the educational programs of the Faculty of Science and Engineering, the University College Groningen, and the Hanze University of Applied Sciences. Next to these courses, we also have various teaching and training roles within the UMCG that are not visible in schedules or DBUs, but that are important. As are our active roles in educational innovations.

BMS staff are involved in a wide range of educational activities, ranging from large-classroom teaching to 1-on-1 mentoring, spanning multiple faculties, facilities, programs, and institutions

7. EDUCATION



1. FOREWORD BY THE HEAD OF DEPARTMENT

Faculty Course Coordinator
Medicine
G2020: OWE 1.1
Anne-Marijke Kosta

2. RESEARCH AT **BMS**

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Faculty Course Coordinator
Medicine
G2020: OWE 2.2 (2024-25)
Hiske van Duinen

Faculty Course Coordinator
Medicine
G2020: OWE 3.1 (2025-26)
Pepijn Schoonen

Faculty Course Coordinator
Medicine
G2020: OWE
Premaster (2024-25)
Rob Bakels

Faculty Course Coordinator
Medicine
G2020: OWE
Premaster (2025-26)
Hiske van Duinen

Faculty Course Coordinator
Medicine
G2020: Phase out
Global health (2025-26)
Rob Bakels

Faculty Committee role
Coordinator
Medicine
Test item assessment panel (TBP, chair)
Rob Bakels

Faculty Committee role
Coordinator
Medicine
Test item assessment panel (TBP, member)
Anne-Marijke Kosta

Faculty Committee role
Coordinator
Medicine
Committee Profile education (member)
Bart Eggen

Faculty Committee role
Coordinator
Medicine
Assessment committee MD/PhD
Ody Sibon

Faculty Committee role
Coordinator
Medicine
Educational Committee
Medicine (OCG, member)
Carola Haven

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Faculty
Committee role
Coordinator
Medicine
Board of examiners
Medicine & Dentistry (ECTG)
Inge Zijdewind

Program
Course
Coordinator
Human Movement Sciences
Bachelor BW:
Neuroanatomie 1
Janniko Georgiadis

Faculty
Course
Coordinator
Science and Engineering
MSc BCN: Functional
Neuroscience (C-track)
Monique Lorist

Faculty
Committee role
Coordinator
Medicine
Exam Committee
Medicine & dentistry
(ECTG, member)
Pepijn Schoonen

Faculty
Course
Coordinator
Science and Engineering
BSc Biology: Medical
physiology
Hiske van Duinen

Faculty
Course
Coordinator
Science and Engineering
MSc BCN: Human
neuroanatomy
Janniko Georgiadis

Program
Course
Coordinator
Human Movement Sciences
Bachelor BW:
Algemene fysiologie
Hiske van Duinen

Faculty
Course
Coordinator
Science and Engineering
BSc Biology: Medical
cell biology
Mario Mauthe

Faculty
Course
Coordinator
Science and Engineering
MSc BCN: Membrane Biology
and Disease
Wia Baron

Program
Course
Coordinator
Human Movement Sciences
Bachelor BW: Neurofysiologie
Pepijn Schoonen

Faculty
Committee role
Coordinator
Science and Engineering
Cluster Coordinator for the
Research Project Biomedical
Sciences
Mark Hipp

Faculty
Course
Coordinator
Science and Engineering
MSc BCN:
Stem Cell and Glia Biology
Bart Eggen

Program
Course
Coordinator
Human Movement Sciences
Bachelor BW:
Inspanningsfysiologie
Ruby Otter-Drost

Faculty
Course
Coordinator
Science and Engineering
MSc BCN: Functional
Neuroscience
Susanne Kooistra

Faculty
Course
Coordinator
Science and Engineering
BCN board of advisors
Inge Holtman

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Faculty
Committee role
Coordinator
Science and Engineering
Board of examiners Biology
(chair)
Sven van IJzendoorn

Program
Committee role
Coordinator
MMIT
Week coordinator Cell Biology
and Pharmacology
(Mechanisms of Disease)
Ben Giepmans

Faculty
Committee role
Coordinator
MMIT
MMIT neuroscience track
Susanne Kooistra &
Bart Eggen

Faculty
Committee role
Coordinator
Science and Engineering
Exam Committee BCN
(member)
Susanne Kooistra

Program
Committee role
Coordinator
MMIT
Scientific integrity
Sven van IJzendoorn

Program
Committee role
Coordinator
MMIT
NEW: Biostatistics
(including bio-informatic
analyses of genomics data)
Inge Holtman

Faculty
Committee role
Coordinator
Science and Engineering
Program Committee BCN
Research Master
Ody Sibon

Program
Committee role
Coordinator
MMIT
Admissions committee MMIT
Mario Mauthe

Program
Committee role
Coordinator
GSMS
Cellular Imaging Light
Ben Giepmans

Program
Course
Coordinator
MMIT
Mechanisms of disease and
innovative treatment
Sven van IJzendoorn

Faculty
Committee role
Coordinator
MMIT
MMIT Program Committee
Mario Mauthe

Program
Committee role
Coordinator
GSMS
Cellular Imaging Advanced
Ben Giepmans

Program
Committee role
Coordinators
MMIT
Week coordinator MMIT
neuroscience
(Mechanisms of Disease)
Susanne Kooistra &
Bart Eggen

Program
Committee role
Coordinator
MMIT
Coordinator year 1
Sven van IJzendoorn

Program
Committee role
Coordinator
GSMS
Ethics in science and
Scientific Integrity
Sven van IJzendoorn

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Program GSMS
Committee role Coordinator PhD education MOHAD institute
Coordinator Sven van IJzendoorn

Program GSMS
Committee role PhD Education Committee (PRECISION & MoHAD)
Coordinator Mario Mauthe

Program GSMS
Committee role MMIT-CPE Exam committee (chair)
Coordinator Bart Eggen

Institution University College Groningen
Course Human Anatomy
Coordinator Eric Sietsema

Institution University College Groningen
Course Human Physiology
Coordinator Eric Sietsema

Institution Hanze University of Applied Sciences
Course Anatomie van de mens (Master Physician Assistant)
Coordinator Carola Haven

Institution Hanze University of Applied Sciences
Course Embryology for Verloskundeacademie Amsterdam-Groningen (AVAG)
Coordinators Anne-Marijke Kosta & Janniko Georgiadis

Institution UMCG
Committee role Common Trunk surgery residency training program (anatomy coordination)
Coordinator Carola Haven

Institution UMCG
Committee role European Medical School Oldenburg-Groningen
Coordinator Janniko Georgiadis

Institution UMCG
Committee role Groningen-Oldenburg International Workshop: "Meetthe Brain"
Coordinators Janniko Georgiadis
Mark Hipp
Anja Bräuer

Institution UMCG
Committee role JAT (including UTQ):
Coordinator Renske Karsenberg
Hiske van Duinen

Institution UMCG
Committee role AT (including UTQ):
Coordinators Adrian Klak
Janniko Georgiadis / Carola Haven

Institution UMCG
Committee role AT: Anne Mooij
Coordinators Rob Bakels / Bram Jacobs (neurology)

Institution UMCG
Committee role Educational ambassador of the department
Coordinator Hiske van Duinen

Institution UMCG
Committee role Portfolioholder Education and training Cluster BST
Coordinator Janniko Georgiadis

7.2

TEACHING RELATED ACTIVITIES

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1. FOREWORD BY THE
HEAD OF DEPARTMENT

Institution UMCG
Committee role Parent day Human
Movement Sciences
Speaker Pepijn Schoonen

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Institution UMCG
Course Bachelor buluitreikingen
Speaker Rob Bakels,
Hiske van Duinen,
Pepijn Schoonen

Institution UMCG
Committee role How to make exam
questions – workshops
Speaker Rob Bakels

Institution UMCG
Course ISCOMs workshops
and group
Speaker Rob Bakels, Hiske van Duinen

Institution UMCG
Committee role College carrousel
Speaker Pepijn Schoonen

Institution UMCG
Course 2 workshops for participants
of FINGER-NL study
Speaker Rob Bakels

Institution UMCG
Committee role Anatomy – Simulation Centre
Speaker Carola Haven &
Janniko Georgiadis

Institution UMCG
Course Comenius:
Exercise is medicine
Speaker Ruby Otter-Drost

Institution UMCG
Committee role Body donation programme
Speaker Janniko Georgiadis

Besides our teaching activities, we are also involved in innovative projects in education

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ANATOMY GYM

This application which is currently under development uses a Duo-Lingo like function to stimulate the learning of anatomy facts. It includes gamification and item generation and presentation supported by AI.

Carola Haven Coordinator

ENATOM

Enatom is an application developed by a UMCG spin out company in collaboration with the Anatomy group. This web-based application uses photogrammetry to visualize real anatomical specimens and includes XR-functionality, teacher mode, and an AI-chatbot.

Janniko Georgiadis Coordinator

MY PHYSIOLOGY L'APP

This application is used by students to prepare the practicals to enhance their learning experience. We use an AI-chatbot to teach students about different lung volumes and how they are predicted and measured.

Hiske van Duinen / Renske Karsenberg Coordinator

COMENIUS SENIOR FELLOW: EXERCISE = MEDICINE

In this program, an interdisciplinary learning community was built to improve the quality of clinical exercise physiology.

Ruby Otter-Drost Coordinator

Comenius Teaching fellow: Simulation-Based Video modules with Branching Scenarios (SBVBS)

With SBVBS, we will prepare our students how to act in dangerous situations during practicals, without having to create these situations in real-life. This prepares our students better to act properly than when only reading about these situations.

Eric Sietsema / Renske Karsenberg Coordinator

GENERAL PHYSIOLOGY

Formative assessment of starting quizzes (part of Dynamic lecturing, which was implemented in 2023-24 for the first time) count for the course result (2025-26).

Hiske van Duinen Coordinator

NEUROPHYSIOLOGY

Formative assessment of practicals and seminars that partly count for course result (started in 2024-25 and continues in 2025-26).

Pepijn Schoonen Coordinator

NANOTOMY.ORG

Implemented in UMCG, RadboudUMC, TU Delft

Ben Giepmans Coordinator

1. FOREWORD BY THE HEAD OF DEPARTMENT

Student/intern Education Institute Group Leader
Melissa Everts
MSc Biomedical Sciences
RuG
Lara Barazzuol

Student/intern Education Institute Group Leader
Stijn de Haan
University Applied Sciences
Hanze
Wia Baron

Student/intern Education Institute Group Leader
Lizayra Dassen
BSc Medicine
UMCG/RuG
Janniko Georgiadis

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Student/intern Education Institute Group Leader
Maria Muñoz Xandri
BSc (Spain)
Erasmus program
Lara Barazzuol

Student/intern Education Institute Group Leader
Lotta Schilling
MSc
University of Oldenburg
Wia Baron

Student/intern Education Institute Group Leader
Nieke Duiven
BSc Medicine
UMCG/RuG
Janniko Georgiadis

Student/intern Education Institute Group Leader
Jules Borgers
MSc
RuG
Wia Baron

Student/intern Education Institute Group Leader
Peter Laczó
MSC-Biology-Cancee and Immunology
RuG
Rob Coppes

Student/intern Education Institute Group Leader
Thomas Trip
BSc Medicine
UMCG/RuG
Janniko Georgiadis

Student/intern Education Institute Group Leader
Andrea Flores Abarca
MSc
Universidad de Chile
Wia Baron

Student/intern Education Institute Group Leader
Hanna Bergsma
Forensisch Laboratoriumonderzoek (Univ Applied Sciences)
Hogeschool Van Hall Larenstein (Leeuwarden)
Janniko Georgiadis

Student/intern Education Institute Group Leader
Paula Lorenz
BSc Medicine
UMCG/RuG
Janniko Georgiadis

The Department of Radiation Oncology handles training and education from the groups of Rob Coppes and Lara Barazzuol

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Student/intern Education Institute Group Leader
Nicolien Fennema
BSc Medicine
UMCG/RuG
Janniko Georgiadis

Student/intern Education Institute Group Leader
Muth, Saskia
MSc, Erasmus+
Friedrich-Schiller-University
Jena
Mark Hipp

Student/intern Education Institute Group Leader
Abel Koffeman
Computational cognitive science, MSc, FSE
RUG
Inge Holtman

Student/intern Education Institute Group Leader
Yulia van den Bosch
BSc Medicine
UMCG/RuG
Janniko Georgiadis

Student/intern Education Institute Group Leader
Boekhout, Melanie
University of Applied Sciences
Hanze University of Applied Sciences Groningen
Mark Hipp

Student/intern Education Institute Group Leader
Yannick Klentz Marten
Molecular Biotechnology, MSc
University of Heidelberg
Inge Holtman

Student/intern Education Institute Group Leader
Mahshid Seidony
BSc Medicine
UMCG/RuG
Janniko Georgiadis

Student/intern Education Institute Group Leader
Wittenaar, Gerald
University of Applied Sciences
Hanze University of Applied Sciences Groningen
Mark Hipp

Student/intern Education Institute Group Leader
Rosalie Molenaar
BSc RP
RUG
Sven van IJzendoorn

Student/intern Education Institute Group Leader
Tara van der Meer
BSc, Applied Sciences
InHolland
Ben Giepmans

Student/intern Education Institute Group Leader
Klerk, Iris
MSc
RuG
Mark Hipp

Student/intern Education Institute Group Leader
Eric Peng
BSc RP
RUG
Sven van IJzendoorn

The Department of Radiation Oncology handles training and education from the groups of Rob Coppes and Lara Barazzuol

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Student/intern Fatemeh Aram
Education Msc
Institute University of Milan
Group Leader Kampinga/Mauthe

Student/intern Dar Gliksberg
Education PhD
Institute Weizmann Institute
Group Leader Kampinga/Mauthe

Student/intern Nienke van der Veen
Education MSc
Institute RuG
Group Leader Susanne Kooistra

Student/intern Jesse Dijkstra
Education Univ Applied Sciences
Institute Hanze
Group Leader Kampinga/Mauthe

Student/intern Matilde Ruo
Education MSc
Institute RuG
Group Leader Susanne Kooistra

Student/intern Anastasia Marin
Education BSc
Institute UMCG
Group Leader Inge Zijdewind

Student/intern Douwe van der Vaart
Education Univ Applied Sciences
Institute Hanze
Group Leader Kampinga/Mauthe

Student/intern Bea Gaalova
Education MSc
Institute RuG
Group Leader Susanne Kooistra

Student/intern Arina Aladysheva
Education BSc
Institute University College
Group Leader Inge Zijdewind

Student/intern Lisa Cabooter
Education Msc
Institute RuG
Group Leader Kampinga/Mauthe

Student/intern Marit Boer
Education MSc
Institute RuG
Group Leader Susanne Kooistra

Student/intern Judith van Beekum
Education Ms
Institute Human Movement Sciences
Group Leader Inge Zijdewind

The Department of Radiation Oncology handles training and education from the groups of Rob Coppes and Lara Barazzuol

SCIENTIFIC DISSEMINATION & BUSINESS DEVELOPMENT

At BMS, we encourage and support researchers to share our know-how, drive discoveries towards applications and (in doing so) collaborate with industries. We welcome collaborations to generate access to our scientific ideas and state-of-the-art facilities. Below we list out results from our recent efforts to connect science with business.

8. SCIENTIFIC DISSEMINATION & BUSINESS DEVELOPMENT

ENATOM

Enatom is a joint initiative by the Section Anatomy & Medical Physiology and the 360 degree visualization company [VIEMR](#) to visualize in exquisite detail human anatomical specimens for use in distance learning applications and solutions. Thanks to considerable investments over the past few years, Enatom has made substantial progress in anatomic content and image quality.

ANATOMY GYM

Anatomy Gym is a game-like App for smartphone and tablet to learn anatomical facts. It was launched in 2020. Anatomy Gym has seen considerable interest from users as well as from teaching parties that want to include specific modules. Anatomy Gym is scalable to a very large and diverse audience, and progress has been made to stimulate its further development and sustainability.

STEM CELL THERAPY

Radiotherapy of head and neck cancer is often accompanied with dysfunction of the salivary glands leading to xerostomia (dry mouth syndrome). Basic science by the Coppes' lab linked this to identification of a salivary gland cell stem compartment that is depleted by radiation. This has now developed into a stem cell therapy in which stem cells from the patient are collected before and give back after radiation for the treatment of this side effect. After pre-clinical testing and development of a protocol for safe clinical use, a first-in-man Phase I/II trial will start this summer at the UMCG.

OUTREACH & DISSEMINATION

Outreach activities by the PIs, PhDs, Postdocs, and Technicians

Besides research and education, all scientific staff members from BMS, including PhD students, postdocs, and group leaders, have been actively involved in the scientific outreach and dissemination activities. Below we list out the notable activities by BMS during the year 2025.

- | | | | | | |
|---|---|---|--|---|--|
| 1 Lara Barazzuol lab
€3 million
<u>KWF grant for innovative head and neck cancer research</u>
UMCG research news;
17 December 2025 | 3 Lara Barazzuol
Invited speaker,
Scientific Association
of Swiss Radiation
Oncology SASRO
(Davos, Switzerland) | 5 Lara Barazzuol
Invited speaker,
International Wolfsberg
Meeting on Molecular
Radiation Biology/
Oncology (Norway) | 7 Wia Baron
Video
<u>Myelineherstel bij</u>
<u>MS</u> Astrocytenonderzoek
Nationaal MS Fonds | 9 Rob Coppes lab
Organoids in radiation
research.
Organoid/Organ-
on-Chip Symposium.
November 26, 2025.
Groningen.
Invited presentation | 11 Rob Coppes lab
Radiation and targeted
agent (anti EGFR and
beyond).
Seminar on stereotactic
radiotherapy,
November 7, Lyon.
Invited lecture. |
| 2 Lara Barazzuol
Invited speaker,
European Association
of Neuro-Oncology:
EANO (Prague, Czech
Republic) | 4 Lara Barazzuol
Invited speaker,
Radiation Research
Society RRS
(San Juan, Puerto Rico) | 6 Wia Baron,
Lezing Nationale MS
Dag, 2 november 2025,
<u>Myelineherstel bij</u>
<u>MS: wat weten we</u>
<u>en wat is nog nodig'</u> | 8 Wia Baron & Jan Meilof
interview MS magazine,
45-jarig bestaan van
Stichting MS research. | 10 Rob Coppes lab
Stem cells in
radiotherapy.
OOA Radiation
Oncology course AUMC,
November 12, 2025.
Amsterdam.
Teaching lecture. | 12 Rob Coppes lab
Recovery factor
of normal tissues.
Seminar on stereotactic
radiotherapy,
November 7, Lyon.
Invited lecture. |

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13 **Rob Coppes lab**
General principles of re-irradiation: tolerance of normal tissues. BeSTRO teaching course: Re-irradiation. October 17, Belgium online. Teaching lecture

14 **Rob Coppes lab**
Organoids for Regeneration of Salivary Glands. Regeneration course, Hubrecht Institute, 11. Juli, Utrecht. Keynote lecture.

15 **Rob Coppes lab**
Notch signaling as a key driver of post-irradiation regenerative and migratory traits in glandular stem cells. 17th International Wolfsberg Meeting on Molecular Radiation Biology/Oncology. Hurdalsjøen, Norway, June 21–23, 2025. Proffered presentation.

16 **Rob Coppes lab**
Van bestralingseffecten op de speekselklier naar stamceltherapie. Afscheid Symposium Prof A. Vissink, UMCG. June 6, 2025. Invited speaker

17 **Rob Coppes lab**
From bed-to bench-to bed: Autologous organoid transplantation for post-radiotherapy regeneration of salivary glands. Erasmus MC Radiotherapy Department research rounds. May 22, 2025. Invited lecture online

18 **Rob Coppes lab**
Towards clinical applications of thyroid cancer organoids. Thyroid cancer symposium, UMCG. May 15, 2025.

19 **Rob Coppes lab**
Dry Mouth Treatment: The Potential of Stem Cells 2025 AAOM/EAOM Joint Meeting May 14–17, 2025, Las Vegas. Invited speaker.

20 **Rob Coppes lab**
The use of organoids in radiation therapy research - mechanisms, prediction and regeneration. 17 April 2025, University Federico II of Naples. Invited lecture.

21 **Rob Coppes lab**
From bed-to bench-to bed: Autologous organoid transplantation for post-radiotherapy regeneration of salivary glands. Joint Institutes Symposium, UMCG, March 13, 2025. Invited lecture.

22 **Rob Coppes lab**
Organoids for Post-Radiotherapy Regeneration of Submandibular Gland - The RESTART study. Salivary Glands and Exocrine Biology Gordon Research Conference, 26–31 January 2025, Ventura, USA. Proffered presentation.

23 **Rob Coppes lab**
Organoids for Post-Radiotherapy Regeneration of Submandibular Gland - The RESTART study. ESTRO CERRO Meeting 2025, Les Menuires, France, January 13–18, 2025. Invited presentation.

24 **Rob Coppes lab**
Podcast: On Target with Dr Akila Viswanathan - The Future of Radiation Oncology for Seminars in Radiation Oncology
Rob Coppes
18 Feb 2025

25 **Rob Coppes lab**
FHI newsletter: Speekselklier-transplantatie: een doorbraak na twintig jaar onderzoek
Rob Coppes
14 Januari 2025

26 **Fokje van der Weg, Janniko Georgiadis** organizers. All staff present.
Annual commemoration service for bereaved of body donors.
4 October.

27 **Hiske van Duinen and Rob Bakels** Editors and authors
Leerboek Medische Fysiologie (textbook medical physiology) was published.

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28 **Ruby Otter-Drost.**
Targets exercise physiology specialists.
Symposium Exercise is Medicine.

31 **Tim Valk, Hiske van Duinen**
Parent day Human Movement Sciences.
February.

34 **Hiske van Duinen**
Contribution **STQ seminar** (Senior Teacher Qualification).
May.

37 **Ben Giepmans**
Activity involving Giepmans at NVvM in Core Facility Day NVvM
NVvM,
Core Facility Day NVvM,
2025-04-02

39 **Ben Giepmans**
Innovating microscopy for cell biology
DSCB,
Amsterdam, NL,
2025-05-08

42 **Ben Giepmans**
Innovating microscopy for cell biology
SCANDEM, Bergen, Norway,
2025-06-12

29 **Rob Bakels**
Workshops for **FINGER-NL studies** (Neurophysiology).

32 **Janniko Georgiadis**
Session HTRiC Event.
Nov 13th.

35 **Hiske van Duinen**
STQ assessment.
November.

38 **Ben Giepmans**
Leveraging hyperspectral electron microscopy towards data-driven segmentation of cellular ultrastructure
FOM, Taipei, Taiwan,
2025-04-13

40 **Ben Giepmans**
microscopy.nl
NWO Life, Egmond aan Zee,
2025-05-27,
<https://nwolife.nl/>

43 **Ben Giepmans**
Innovative Imaging for 3D Cell Biology
NL-BI/Imagine!,
Utrecht, NL,
2025-06-17

30 **Hiske van Duinen, Rob Bakels, Pepijn Schoonen.**
Bachelor Medicine certificate ceremony.
May and November.

33 **Pepijn Schoonen**
Lecture Concourse for high school students.
April.

36 **Ben Giepmans**
Automated analysis of Islet ultrastructure through large-scale hyperspectral EM
nPOD,
Clearwater Beach, FL, USA,
2025-03-02

41 **Ben Giepmans**
Leveraging hyperspectral electron microscopy towards data-driven segmentation of cellular ultrastructure
ELMI, Heidelberg, DL,
2025-06-04,

44 **Ben Giepmans**
Microscopy to understand T1D etiology
EASD, Oxford, UK,
2025-08-23

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45 **Ben Giepmans**
Leveraging hyperspectral electron microscopy towards data-driven segmentation of cellular ultrastructure
MC2025, Karlsruhe, DL, 2025-09-03

47 **Ben Giepmans**
Activity involving Giepmans at NWO
Biophysics in Veldhoven, NL
NWO Biophysics, Veldhoven, NL, 2025-10-06

50 **Ben Giepmans**
Advanced Microscopy i to study the building blocks of life
GIBH, Guangzhou, China, 2025-12-03

53 **Ben Giepmans**
Large Scale/vEM
IBP, Beijing, China, 2025-12-11

56 **Ben Giepmans**
ColorEM and AI Retrofit Color-based Identification on Traditional EM
IBP, Beijing, China, 2025-12-17

48 **Ben Giepmans**
1st Dutch Microscopy Days,
Dutch Microscopy Days, Groningen, NL, 2025-10-27

51 **Ben Giepmans**
Advanced Microscopy in biomedicine: To label or not to label
GIBH, Guangzhou, China, 2025-12-05

54 **Ben Giepmans**
Innovative microscopy in T1D research
Ben IBP, Beijing, China, 2025-12-15

57 **Ben Giepmans**
Database and Data Sharing for Large-scale Microscopy Data
IBP, Beijing, China, 2025-12-18

46 **Ben Giepmans,**
Sharing multibeam optical STEM data in life sciences
MC2025, Karlsruhe, DL, 2025-09-02

49 **Ben Giepmans**
ColorEM and CLEM in biomedical research
Functional Imaging and super resolution, Erasmus MC, Rotterdam, NL, 2025-11-10

52 **Ben Giepmans**
400 Years of Microscopy: Selected Breakthroughs Highlighted
IBP, Beijing, China, 2025-12-10

55 **Ben Giepmans**
Large-scale Electron Microscopy Study of Human Donor Materials
IBP, Beijing, China, 2025-12-16

58 **Ben Giepmans**
Label-free LM & EM
IBP, Beijing, China, 2025-12-19

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59 **Ben Giepmans**
Correlative Light and Electron Microscopy, Probes for LM & EM
IBP, Beijing, China,
2025-12-22

60 **Ben Giepmans**
Light Sheet Microscopy
IBP, Beijing, China,
2025-12-23

61 **Ben Giepmans**
Nanotomy 101: Workshop to Identify EM Structures in Brain & Pancreas
IBP, Beijing, China,
2025-12-24

62 **Ben Giepmans**
Open dag UMCG – UMIC @ Zpannend Zernike: Kids made their own van Leeuwenhoek microscope

63 **Ben Giepmans**
1st Dutch Microscopy days – Groningen organized and hosted microscopy for all Dutch scientists

64 **Ben Giepmans**
Organizer and chair of the NVvM Core Facility Day

65 **Ben Giepmans**
Gave a lecture on leveraging hyperspectral electron microscopy for data-driven segmentation of cellular ultrastructure

66 **Ben Giepmans**
Presented a pitch and hosted a stand representing microscopy.nl - <https://nwolife.nl/>

67 **Ben Giepmans**
Delivered a lecture on hyperspectral electron microscopy for data-driven segmentation of cellular ultrastructure

68 **Ben Giepmans**
Presented a keynote on innovating microscopy for cell biology

69 **Ben Giepmans**
Served as organizer and moderator for the ‘Innovative Imaging for 3D Cell Biology’ event

70 **Ben Giepmans**
Gave a lecture on hyperspectral electron microscopy for data-driven segmentation of cellular ultrastructure -

71 **Ben Giepmans**
Presented a lecture on sharing multibeam optical STEM data in life sciences

72 **Ben Giepmans**
Served on the program committee and chaired a session <https://nwobiophysics.nl/programme>

73 **Ben Giepmans**
Organizer of the 1st Dutch Microscopy Days <https://microscopydays.microscopy.nl/>

74 **Ben Giepmans**
Gave a lecture on ColorEM and CLEM in biomedical research

75 **Ben Giepmans**
Delivered a lecture on advanced microscopy to study the building blocks of life

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76 **Inge Holtman**
Interview with de Stichting Vrienden van het Herseninstituut, **De NND: Goudmijn aan informatie over erfelijkheid en hersenziekten**

77 **Mark Hipp**
Co-organizer India | EMBO Lecture Course **Structure, function, and quality control of proteins in cell organelles** in Hyderabad, India (November 2025).
Mark Hipp took part in outreach sessions for college students as part of the conference at the CSIR-Centre for Cellular and Molecular Biology Hyderabad and at additional sessions aimed at Master and Graduate students at the University of Hyderabad and the Indian Institute of Technology Hyderabad

78 **Mark Hipp**
Organization of international workshop **“Meet the brain”** (Groningen, October 2025) for PhD students as part of cooperation measures between the University of Oldenburg and the University of Groningen.

79 **Mark Hipp**
Invited lectures in Germany (June), Italy (June) and India (November)

80 **Mario Mauthe**
Participation and invited speaker at the **NBIA patient conference** in Poland (Gdansk)

81 **Mario Mauthe**
Participation and invited speaker at the **NBIA Disorders Association Family Conference** in the USA

82 **Mario Mauthe**
Invited speaker at the **3rd International Online Conference on Cells**, virtual

83 **Harrie Kampinga**
Chairman/organizer of and speaker at the 3rd workshop on JDP proteins Gdansk, Poland

84 **Harrie Kampinga**
Keynote Lecturer at the **25th Dutch Chaperone Meeting**, Utrecht

85 **Harrie Kampinga**
Invited Speaker at the **EMBO Protein Quality Control Meeting**, Crete, Greece

86 **Harrie Kampinga**
Chairman/organizer of the **GRC Protein Homeostasis meeting**, Jordan River, USA

87 **Harrie Kampinga**
Invited Speaker at the **AMED International Symposium**, Kyoto, Japan

88 **Harrie Kampinga**
Keynote speaker and student lecturer at the **protein aggregation meeting** in Stockholm, Sweden

89 **Harrie Kampinga**
Invited Speaker at the **Lustrumsymposium “ouderengeneeskunde”** UMCG, Groningen, The Netherlands

90 **Redactieraad van MS.nl**
Susanne Kooistra

91 **Susanne Kooistra & Janneke Bosma**
Interview for **45-year anniversary magazine of Stichting MS Research**

92 **Susanne Kooistra**
Lezingen & discussie in Comenius leergang

93 **Susanne Kooistra, Janneke Bosma, Nienke Mekkes**
Meetup MS bezoekt MS-centrum Noord Nederland

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94 **Susanne Kooistra**
Input voor artikel volkskrant: **Hoe MS ontstaat – en hoe onderzoek naar een zeer zeldzame ziekte daar een ander licht op werpt**

95 **Inge Zijdewind**
Leda Maffei
Tjalling Nijboer

Zpannend Zernike

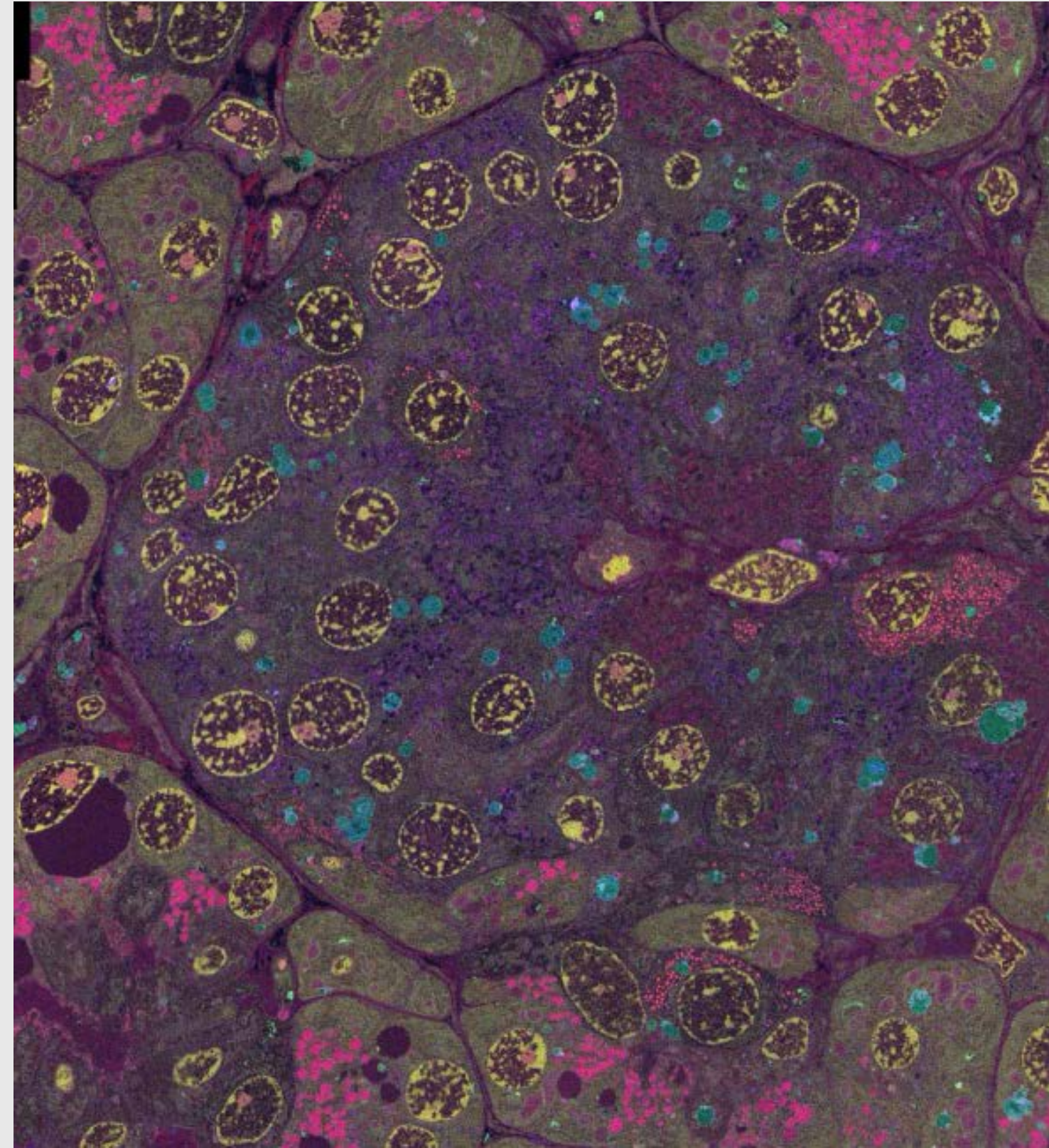
96 **Nikki Dreijer**
Leda Maffei
May 50 K – Multiple Sclerosis Sponsor activities

97 **Inge Zijdewind**
Blog: **Understanding ME/CFS better by monitoring symptoms after exertion**
(Blog: **Understanding ME/CFS better by monitoring symptoms after ex** ([zonmw.nl](https://www.zonmw.nl)))

98 **Inge Zijdewind**
Webinar: <https://www.zonmw.nl/nl/nieuws/terugblik-webinar-over-onderzoek-naar-mecvs>

G-color-
Em-nanotomy

Image credit
Ben Giepmans **BMS**



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More details about the PhD
graduations can be found on the
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David Cinat

Promoters Rob Coppes & Lara Barazzuol

From radiation damage to regeneration using salivary gland organoids: unraveling the underlying signaling pathways

<https://research.rug.nl/en/publications/from-radiation-damage-to-regeneration-using-salivary-gland-organo/>

Peter Duinkerken

Promoters Ben Giepmans, Jacob Hoogenboom

Multidimensional electron microscopy: Hyperspectral and high-throughput EM in life sciences

<https://research.rug.nl/en/publications/multidimensional-electron-microscopy-hyperspectral-and-high-throu/>

Yuting Jiang

Promoters Lara Barazzuol & Rob Coppes & Marco Demaria

Mechanisms of radiation-induced brain damage: from neurodevelopment to systemic crosstalk

<https://research.rug.nl/en/publications/mechanisms-of-radiation-induced-brain-damage-from-neurodevelopmen/>

Noura Faraj

Promoters Ben Giepmans, Sven van IJendoorn

Pancreatic exocrine-beta cell communication: a story of two neighbours

<https://research.rug.nl/en/publications/pancreatic-exocrine-beta-cell-communication-a-story-of-two-neighb/>

Anusha Aswath

Promoters Ben Giepmans, George Azzopardi, Dimka Karastoyanova

Automatic segmentation of cellular structures in large-scale electron microscopy images

<https://research.rug.nl/en/publications/automatic-segmentation-of-cellular-structures-in-large-scale-elec/>

Marleen van der Laan

Promoters Jolanda Smit, Harrie Kampinga

Guiding in, Chaperoning out: Defining Virus-Host Interactions for Functional Insights into Chikungunya Virus Infection

<https://research.rug.nl/en/publications/guiding-in-chaperoning-out-defining-virus-host-interactions-for-f/>

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Susanne Dekker

Promoters Harrie Kampinga, Folkert Kuipers

**Impact of Genomic Instability on Cellular & Organismal
Fitness via Impairment of Protein Homeostasis**

[https://research.rug.nl/en/publications/impact-of-genomic-
instability-on-cellular-amp-organismal-fitness-/](https://research.rug.nl/en/publications/impact-of-genomic-instability-on-cellular-amp-organismal-fitness-/)

Niels Alberts-Visscher

Promoter Harrie Kampinga

Co-promoter Nadinath B Nillegoda

**Protein disaggregation by the metazoan Hsp70-system:
The role of J-domain proteins**

[https://research.rug.nl/en/publications/protein-disaggregation-by-
the-metazoan-hsp70-system-the-role-of-j/](https://research.rug.nl/en/publications/protein-disaggregation-by-the-metazoan-hsp70-system-the-role-of-j/)

Astrid Alsema

Promoter Bart Eggen

Co-promoter Erik Boddeke

**Decoding central nervous system diseases:
a single-cell and spatial RNA sequencing perspective**

<https://doi.org/10.33612/diss.1181008051>

Jody de Jong

Promoters Wia Baron, Bart Eggen

Co-promoter Susanne Kooistra

**Extracellular matrix signatures of decellularized multiple
sclerosis brain tissue: insights into grey and white matter pathology**

<https://doi.org/10.33612/diss.1411131252>

Marion Wijering

Promoters Bart Eggen, Wia Baron

Co-promoter Susanne Kooistra

**Insights in glial cell pathology and multiple sclerosis:
from an -omics and hiPSC perspective**

<https://doi.org/10.33612/diss.1161813556>

Wendy Oost

Promoters Wia Baron, Bart Eggen

Co-promoter Susanne Kooistra

**Pathological abnormalities in progressive multiple sclerosis:
insights from ultrastructural and surface proteomic studies**

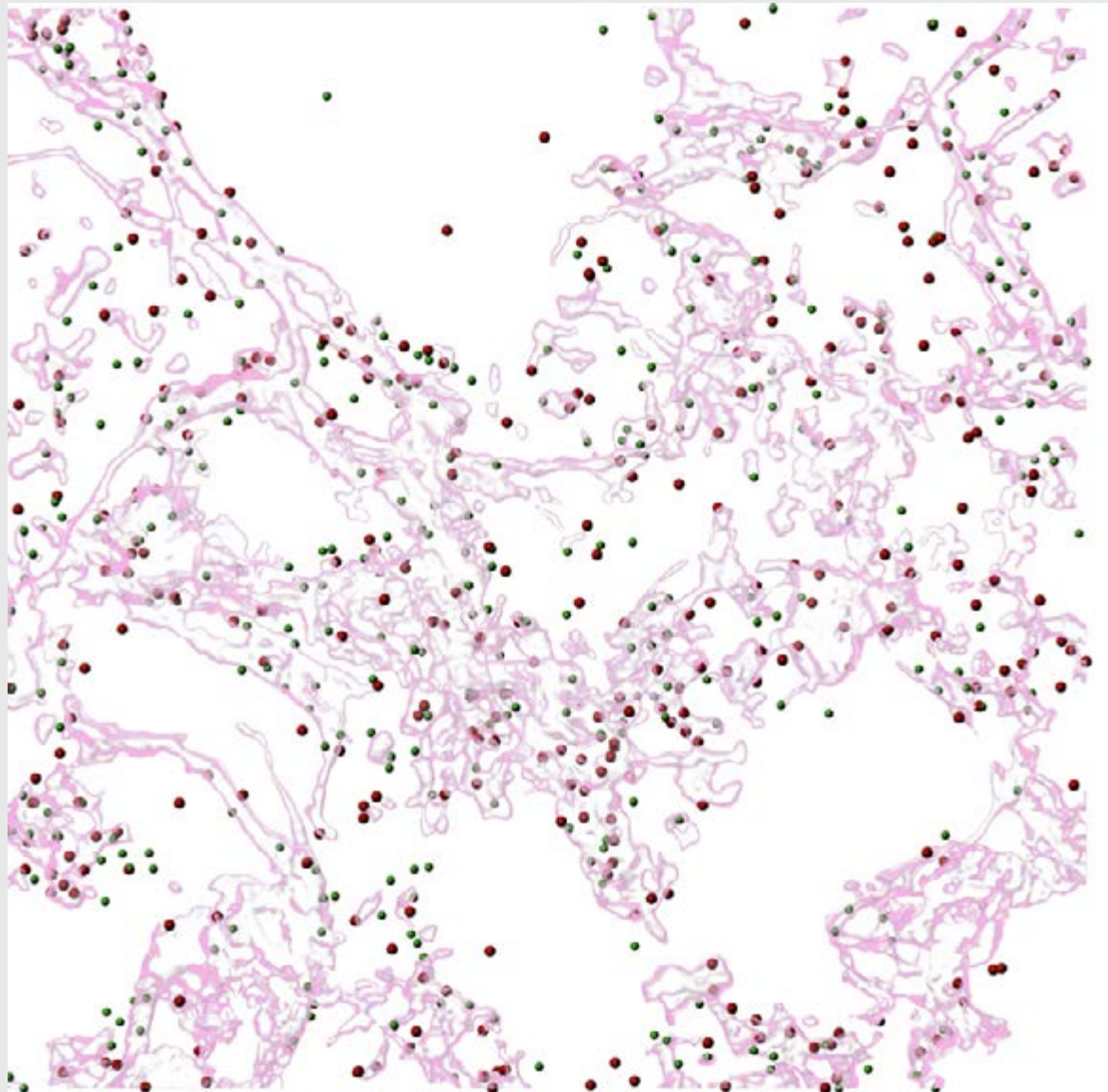
<https://doi.org/10.33612/diss.1315817433>

APPENDIX: PUBLICATIONS

3D render image showing pre- and post-synaptic proteins in neurons from human brain organoids

Image credit

Dr. Yuting Jiang (former PhD students in Barazzuol's group)



More details about these publications can be found on the [University Research Portal](#)

**Molecular Radiation Biology
Group Lara Barazzuol**

- 1 Brain irradiation drives remote liver changes via senescence-independent mechanisms.**
Jiang, Y., Voshart, D. C., Gustinelli, A., Scholma, A. C., Hageman, E., Reali Nazario, L., Brouwer, U., Demaria, M., Coppes, R. P. & Barazzuol, L., 9-Jan-2026, (E-pub ahead of print) In: *Radiotherapy and Oncology*. 216, p. 111373.
<https://doi.org/10.1016/j.radonc.2026.111373>
- 2 Differential synaptic signaling responses in human cortical organoids after photon and proton irradiation.**
Jiang, Y., Guerra, D. B., Voshart, D. C., Hageman, E., Nazario, L. R., van Goethem, M.-J., Coppes, R. P. & Barazzuol, L., 8-Jan-2026, (E-pub ahead of print) In: *Stem Cell Reports*. p. 102777.
<https://doi.org/10.1016/j.stemcr.2025.102777>
- 3 Development and validation of cost-effective multi-sample hypoxia chambers for proton ultra-high dose rate organoid irradiations.**
de Koster, R. J. C., Gunawan, J. P., Peters, H., Bussink, J., Barazzuol, L., van Goethem, M.-J., Gerbershagen, A., Coppes, R. P. & Both, S., Jul-2025, In: *Clinical and Translational Radiation Oncology*. 53, 6 p., 100970.
<https://doi.org/10.1016/j.ctro.2025.100970>
- 4 Early effects in epithelial tissues: The role of stem cells and time factors.**
Coppes, R. P., Dörr, W., van Luijk, P. & Barazzuol, L., 1-Jan-2025, *Basic Clinical Radiobiology, Sixth Edition*. CRC Press, p. 126-134 9 p. ISBN 9781032243818

Probes & labeling

Image credit **BMS**

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5 Evaluating and reporting LET and RBE-weighted dose in proton therapy for glioma – The Dutch approach.

Wagenaar, D., Habraken, S. J. M., Rinaldi, I., Eekers, D. B. P., Kramer, M., Jaspers, J. P. M., van Gent, D., Barazzuol, L., Klaver, Y. L. B., Zindler, J., Coremans, I., Compter, I., Scandurra, D., van der Weide, H. L., Both, S., Hoogeman, M., Unipan, M. & Méndez Romero, A., Jan-2025, In: Radiotherapy and Oncology. 202, 6 p., 110653. <https://doi.org/10.1016/j.radonc.2024.110653>

6 IFN- γ signaling enhances salivary gland stem and progenitor cell activity after irradiation.

Cinat, D., van der Wal, R., Baanstra, M., Soto-Gamez, A., Maturi, R., Jellema-de Bruin, A. L., Brouwer, U., van Goethem, M.-J., van Vugt, M. A. T. M., Barazzuol, L. & Coppes, R. P., 18-Nov-2025, In: Science signaling. 18, 913, eady0398. <https://doi.org/10.1126/scisignal.ady0398>

More details about these publications can be found on the [University Research Portal](#)

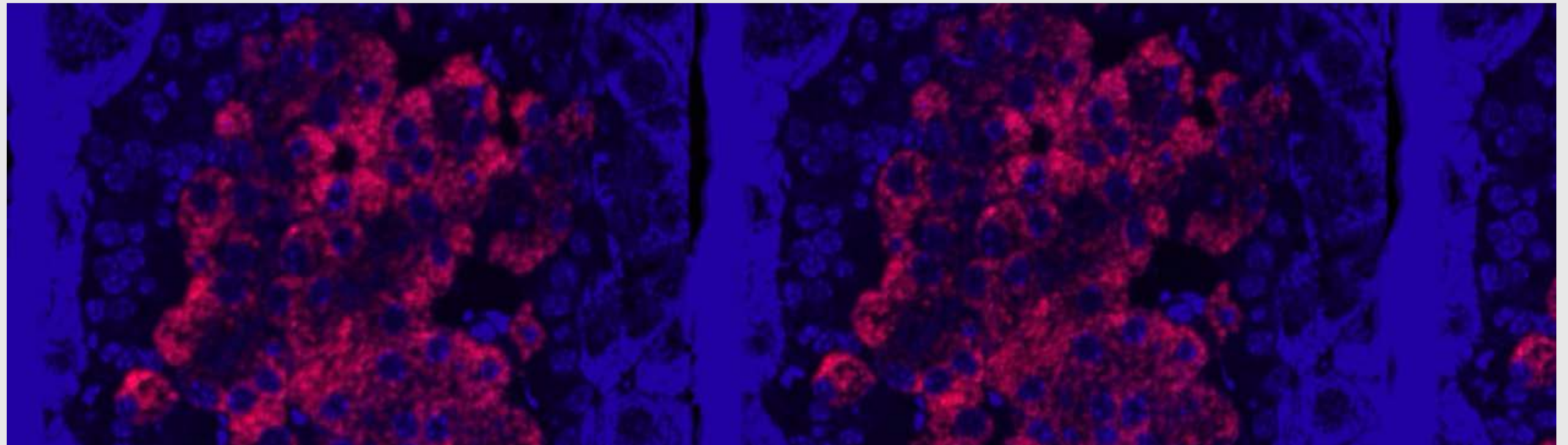
Molecular Radiation Biology
Group Lara Barazzuol

7 Notch signaling is a driver of glandular stem cell activity and regenerative migration after damage.

Cinat, D., Maturi, R., Gunawan, J. P., Jellema-de Bruin, A. L., Kracht, L., Serrano Martinez, P., Wu, Y., Soto-Gamez, A., van Goethem, M.-J., Holtman, I. R., Pringle, S., Barazzuol, L. & Coppes, R. P., 5-Nov-2025, (E-pub ahead of print) In: The EMBO Journal. <https://doi.org/10.1038/s44318-025-00607-w>

8 Pathogenesis of late normal tissue effects.

Barazzuol, L., van Luijk, P., Coppes, R. P., van der Kogel, A. J. & Dörr, W., 1-Jan-2025, Basic Clinical Radiobiology, Sixth Edition. CRC Press, p. 144-159 16 p. ISBN 9781032243818



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1 Multiple sclerosis: what have we learned and can we still learn from electron microscopy.
Oost, W., Meilof, J. F., & Baron, W. (2025).
Cellular and molecular life sciences, 82(1), Article 172.
<https://doi.org/10.1007/s00018-025-05690-0>

2 Single intracerebroventricular TNFR2 agonist injection impacts remyelination in the cuprizone model. Journal of Molecular Medicine.
Pegoretti, V., Boerema, A., Kats, K., Dafaue Garcia, J. M., Fischer, R., Kontermann, R. E., Pfizenmaier, K., Laman, J. D., Eisel, U. L. M., & Baron, W. (2025).
<https://doi.org/10.1007/s00109-025-02549-6>

3 Spatial mapping of the AA-PGE2-EP axis in multiple sclerosis lesions.
Hansen, C. E., Konings, J., Toth, G., Chorny, S., Karsten, M., van Het Hof, B., van der Pol, S. M. A., Beekhuis-Hoekstra, S. D., Kok, N., Fung, W. K., Dijkman, N. S., Baron, W., Witte, M. E., Lanekoff, I., de Vries, H. E., & Kooij, G. (2025).
Acta Neuropathologica, 149(1), Article 39.
<https://doi.org/10.1007/s00401-025-02878-3>

More details about these publications can be found on the [University Research Portal](#)

Myelin biology in disease
Group **Wia Baron**

4 The Future of PET Imaging in Multiple Sclerosis: Characterisation of Individual White Matter Lesions.
van der Weijden, C. W. J., Meilof, J. F., van der Hoorn, A., de Vries, E. F. J., & Baron, W. (2025).
Journal of Clinical Medicine, 14(13), Article 4439.
<https://doi.org/10.3390/jcm14134439>

5 Unexpected Remyelination in the Absence of Matrix Metalloproteinase 7.
Gorter, R. P., Arreguin, A. J., Oost, W., de Jonge, J. C., Kampinga, H. H., Amor, S., Colognato, H., & Baron, W. (2025).
Glia, 73(6), 1288–1306.
<https://doi.org/10.1002/glia.70005>

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1 Biological modifiers of normal tissue effects.
Coppes, R. P. & Dörr, W.,
Jan-2025, Basic Clinical Radiobiology, Sixth Edition. CRC Press,
p. 173–183 11 p.

2 Cancer stem cells in radiotherapy.
Coppes, R. P., Baumann, M., Krause, M. & Hill, R. P.,
Jan-2025, Basic Clinical Radiobiology, Sixth Edition. CRC Press,
p. 295–304 10 p.

3 Clinical applications of human organoids.
Verstegen, M. M. A., Coppes, R. P., Beghin, A., De Coppi, P.,
Gerli, M. F. M., de Graeff, N., Pan, Q., Saito, Y., Shi, S.,
Zadpoor, A. A. & van der Laan, L. J. W.,
3-Feb-2025,
In: Nature Medicine. 31, p. 409–421 13 p.

More details about these
publications can be found on the
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Effects of radiation on normal tissues
Group **Rob Coppes**

4 Development and validation of cost-effective multi-sample hypoxia chambers for proton ultra-high dose rate organoid irradiations.
de Koster, R. J. C., Gunawan, J. P., Peters, H., Bussink, J., Barazzuol, L., van Goethem, M.-J., Gerbershagen, A., Coppes, R. P. & Both, S., Jul-2025, In: Clinical and Translational Radiation Oncology. 53, 6 p., 100970.

5 Driving innovation in radiation oncology in a changing world: The Green Journal's roadmap for the next decade.
Blanchard, P., Georg, D., Coppes, R. P. & Offersen, B. V., Jan-2025, In: Radiotherapy and Oncology. 202, 2 p., 110586.

6 Early effects in epithelial tissues: The role of stem cells and time factors.
Coppes, R. P., Dörr, W., van Luijk, P. & Barazzuol, L.,
1-Jan-2025, Basic Clinical Radiobiology, Sixth Edition. CRC Press,
p. 126–134 9 p.

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7 Establishment of salivary tissue-organoid biorepository: characterizing salivary gland stem/progenitor cells and novel differentiation marker PSMA/FOLH1. Aalam, S. M. M., Varela, A. R., Khaderi, A., Mondesir, R. J., Mun, D.-G., Ding, A., Lombaert, I. M. A., Coppes, R. P., Emperumal, C. P., Pandey, A., Janus, J. R. & Kannan, N., 21-May-2025, In: npj Regenerative Medicine. 10, 19 p., 23.

8 IFN- γ signaling enhances salivary gland stem and progenitor cell activity after irradiation. Cinat, D., van der Wal, R., Baanstra, M., Soto-Gamez, A., Maturi, R., Jellema-de Bruin, A. L., Brouwer, U., van Goethem, M.-J., van Vugt, M. A. T. M., Barazzuol, L. & Coppes, R. P., 18-Nov-2025, In: Science signaling. 18, 913, eady0398.

9 Notch signaling is a driver of glandular stem cell activity and regenerative migration after damage. Cinat, D., Maturi, R., Gunawan, J. P., Jellema-de Bruin, A. L., Kracht, L., Serrano Martinez, P., Wu, Y., Soto-Gamez, A., van Goethem, M.-J., Holtman, I. R., Pringle, S., Barazzuol, L. & Coppes, R. P., 5-Nov-2025, (E-pub ahead of print) In: The EMBO Journal.

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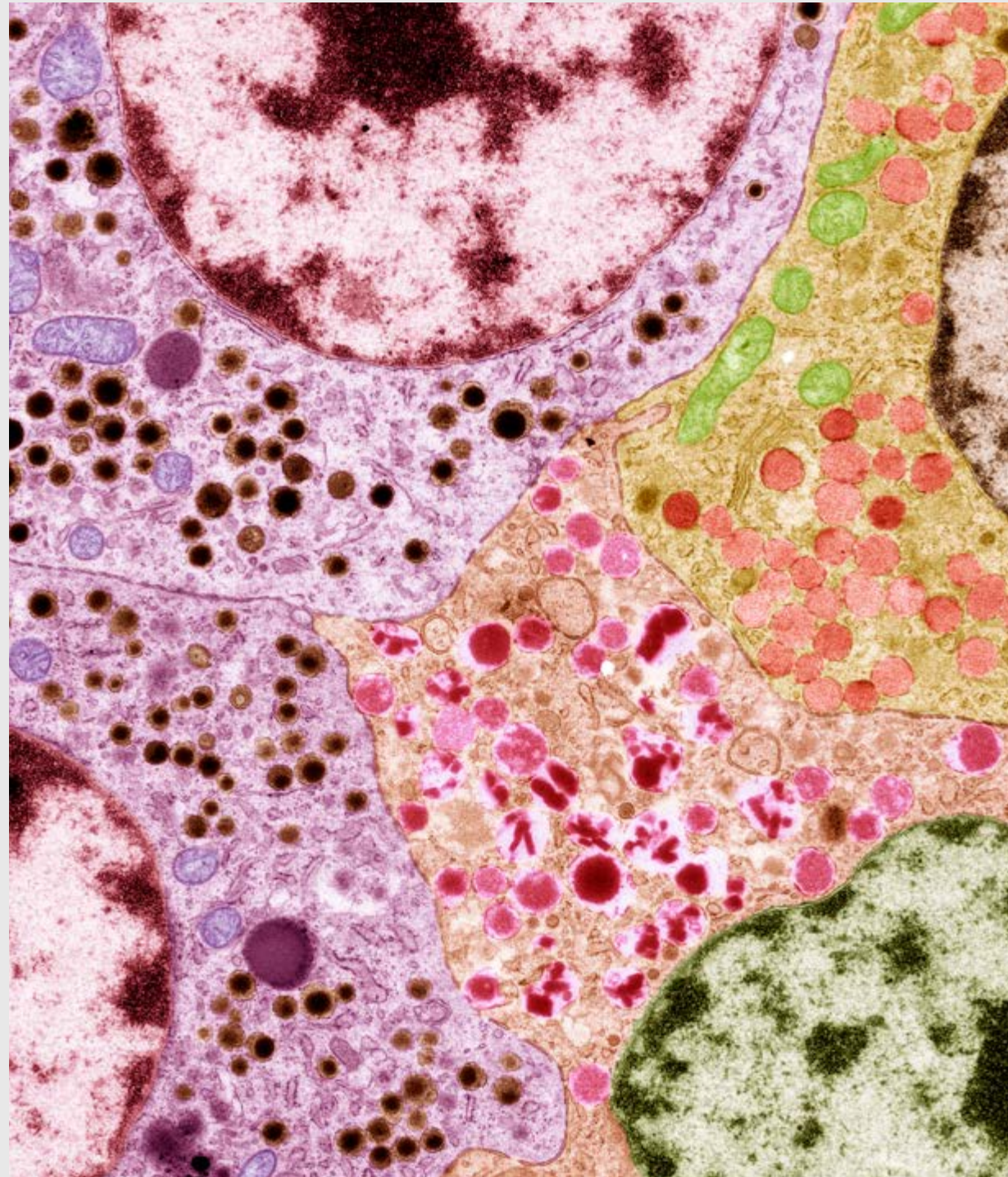
10 Pathogenesis of late normal tissue effects. Barazzuol, L., van Luijk, P., Coppes, R. P., van der Kogel, A. J. & Dörr, W., 1-Jan-2025, Basic Clinical Radiobiology, Sixth Edition. CRC Press, p. 144–159 16 p.

11 Patient-Derived Medullary Thyroid Cancer Organoids: A Potential Model for Mechanistic Studies on Diagnostics and Therapy. Jager, E. C., Sondorp, L. H. J., Maturi, R., Antunes, I. F., van Hemel, B. M., Brouwer, U., Jansen, L., Zandee, W. T., Brouwers, A. H., Links, T. P., Coppes, R. P. & Kruijff, S., 18-Aug-2025, (E-pub ahead of print) In: European Thyroid Journal.

12 Selection of patients for proton therapy to reduce risk of second primary lung and breast cancer. Boersma, L. J., Hessels, A., Roberti, S., Seravall, E., Bijker, N., Coppes, R. P., Crijns, A. P. G., Daniels, L., Eekers, D. B. P., Essers, M., van Gestel, C. M. J., Heemsbergen, W., Hoogeman, M., Immink, M., Klaver, Y. L. B., Kroesen, M., Langendijk, J. A., Maduro, J. H., Niezink, A. G. H. & Petoukhova, A. L. & 8 others, Sept-2025, In: Radiotherapy and Oncology. 210, 6 p., 110998.

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Effects of radiation on normal tissues
Group **Rob Coppes**

13 Sparing of the heart facilitates recovery from cardiopulmonary side effects after thoracic irradiation.
Wiedemann, J., Paruchuru, S. K., den Boef, L. E., Brouwer, U., Silljé, H. H. W., Schouten, E. M., Dickinson, M. G., van Goethem, M.-J., Coppes, R. P. & van Luijk, P., Jan-2025, In: International Journal of Radiation Oncology, Biology, Physics. 121, 1, p. 191–201 11 p.

14 Sustainable radiation oncology in a world with grand environmental and societal challenges: Society Matters - A new section in the Green Journal.
Tanderup, K., Offersen, B. V., Georg, D., Coppes, R. P. & Blanchard, P., Jun-2025, In: Radiotherapy and Oncology. 207, 4 p., 110876.

15 Volume effects, regional responses and risk models.
van Luijk, P., Coppes, R. P., Dörr, W. & van der Kogel, A. J., 1-Jan-2025, Basic Clinical Radiobiology, Sixth Edition. CRC Press, p. 160–172 13 p.

1. FOREWORD BY THE HEAD OF DEPARTMENT
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1 Beyond the nuclear border: single-cell analysis of in situ sequenced human brain tissue using cellular features.
Kotah, J. M., Rust, T., van Weering, H. R. J., Bosma, J., Woudstra, A. L., Kooistra, S. M., & Eggen, B. J. L. (2025).
Communications Biology, 8(1), Article 1089.
[doi: 10.1038/s42003-025-08518-6](https://doi.org/10.1038/s42003-025-08518-6)

2 Calorie restriction increases the sensitivity of progeroid Ercc1Δ/– mice to acute (neuro)inflammation.
Reitsema, V. A., Schreuder, L., Gerrits, E., Eggen, B. J. L., Goris, M., Laman, J. D., de Rooij, S. E., Wesseling, E. M., Bouma, H. R., & Henning, R. H. (2025).
GeroScience, 47, 1641–1652.
[doi: 10.1007/s11357-024-01347-1](https://doi.org/10.1007/s11357-024-01347-1)

More details about these publications can be found on the [University Research Portal](#)

**Molecular Neurobiology
Group Bart Eggen**

3 Microglia endotoxin tolerance is retained after enforced repopulation.
Medeiros-Furquim, T., Miedema, A., Schilder, E., Brouwer, N., Holtman, I. R., Kooistra, S. M., & Eggen, B. J. L. (2025).
Brain, Behavior, and Immunity, 128, 512–528.
[doi: 10.1016/j.bbi.2025.04.014](https://doi.org/10.1016/j.bbi.2025.04.014)

4 Microglial lipid phosphatase SHIP1 limits complement-mediated synaptic pruning in the healthy developing hippocampus.
Matera, A., Compagnion, A. C., Pedicone, C., Kotah, J. M., Ivanov, A., Monsorno, K., Labouèbe, G., Leggio, L., Pereira-Iglesias, M., Beule, D., Mansuy-Aubert, V., Williams, T. L., Iraci, N., Sierra, A., Marro, S. G., Goate, A. M., Eggen, B. J. L., Kerr, W. G., & Paolicelli, R. C. (2025).
Immunity, 58(1), 197–217.e13.
[doi: 10.1016/j.immuni.2024.11.003](https://doi.org/10.1016/j.immuni.2024.11.003)

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5 Microglia regulate myelin clearance and cholesterol metabolism after demyelination via interferon regulatory factor 5.
Montilla, A., Zabala, A., Calvo, I., Bosch-Juan, M., Tomé-Velasco, I., Mata, P., Koster, M., Sierra, A., Kooistra, S. M., Soria, F. N., Eggen, B. J. L., Fresnedo, O., Fernández, J. A., Tepavcevic, V., Matute, C., & Domercq, M. (2025).
Cellular and Molecular Life Sciences, 82, Article 131.

[doi: 10.1007/s00018-025-05648-2](https://doi.org/10.1007/s00018-025-05648-2)

6 Schizophrenia-associated changes in neuronal subpopulations in the human midbrain
Alsema, A. M., Puvogel, S., Kracht, L., Webster, M. J., Weickert, C. S., Eggen, B. J. L., & Sommer, I. E. C. (2025).
Brain, 148(4), 1374–1388.

[doi: 10.1093/brain/awae321](https://doi.org/10.1093/brain/awae321)

More details about these publications can be found on the [University Research Portal](#)

**Molecular Neurobiology
Group Bart Eggen**

7 Unboxing “Omics” in Glial Biology to Understand Neurological Disease
Weinstein, J. R., Jayadev, S., Liddel, S., & Eggen, B. J. L. (2025).
Glia, 73(3), 448–450.

[doi: 10.1002/glia.24651](https://doi.org/10.1002/glia.24651)

8 WDR49-Positive Astrocytes Mark Severity of Neurodegeneration in Frontotemporal Lobar Degeneration and Alzheimer's Disease.
Rajicic, A., Giannini, L. A. A., Gerrits, E., van Buuren, R., Melhem, S., Slotman, J. A., Rozemuller, A. J. M., Eggen, B. J. L., van Swieten, J. C., & Seelaar, H. (2025). Glia, 73(5), 948–968.

[doi: 10.1002/glia.24663](https://doi.org/10.1002/glia.24663)

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1 Early Bird or Night Owl: Insights into Dutch Students' Study Patterns using the Medical Faculty's E-learning Registrations.
Ebeling, U. S., de Leeuw, R. A., Georgiadis, J. R., Scheele, F. & Wietasch, J. K. G., 2025, In: Teaching and Learning in Medicine. 37(2), p. 169–181.
[doi: 10.1080/10401334.2024.2331649](https://doi.org/10.1080/10401334.2024.2331649)

2 Measuring the perceived duration of post-ejaculatory penile detumescence: a pilot study in a real-life setting.
Suijker, C. A., Georgiadis, J. R. & Meijer, B., 30-Jun-2025, (E-pub ahead of print)
In: International Journal of Impotence Research.
[doi: 10.1038/s41443-025-01122-6](https://doi.org/10.1038/s41443-025-01122-6)

More details about these publications can be found on the [University Research Portal](#)

Motivation in Biomedical Education,
Group **Janniko Georgiadis**

3 The brain on expert medical performance: A systematic review and activation likelihood estimation functional magnetic resonance imaging meta-analysis.
Cera, N., Pinto, J., Dong, M., Durning, S. & Georgiadis, J. R., 2025, In: Psychoradiology. 5, 17 p., kkaf019.
[doi: 10.1093/psyrad/kkaf019](https://doi.org/10.1093/psyrad/kkaf019)

4 The Sexual Response.
Georgiadis, J. R., 2025, Encyclopedia of the Human Brain. Grafman, J. H. (ed.), 2nd ed. Elsevier, p. 341–356.
[doi: 10.1016/B978-0-12-820480-1.00024-3](https://doi.org/10.1016/B978-0-12-820480-1.00024-3)

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1 Calciprotein particle-activated endothelial cells aggravate smooth muscle cell calcification via paracrine signalling.

TransplantLines Investigators, Feenstra, L., Zeper, L. W., van de Langenberg, B., Kahlman, E. J. E. M., de La Roij, G., Reijrink, M., Bernay, B., Chatre, L., Kuipers, J., Giepmans, B. N. G., Mastik, M. F., Kooistra, W., Lodewijk, M. E., Zuidschewoude, M., Pol, R. A., Smith, E. R., Krenning, G., de Baaij, J. H. F. & Hillebrands, J.-L. & 1 others, 26-Apr-2025, In: Cellular and Molecular Life Sciences. 82, 18 p., 177.

[doi: 10.1007/s00018-025-05702-z](https://doi.org/10.1007/s00018-025-05702-z)

2 Interactive Segmentation of biostructures through hyperspectral electron microscopy.

Aswath, A., Duinkerken, P., Giepmans, B., Azzopardi, G. & Alsahaf, A. M. J. A., 19-Feb-2025, 14th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS). Helsinki: IEEE, p. 1-5.

[doi: 10.1109/WHISPERS65427.2024.10876486](https://doi.org/10.1109/WHISPERS65427.2024.10876486)

3 Pancreatic exocrine damage induces beta cell stress in zebrafish larvae.

Faraj, N., Hoogaars, W. M. H., Duinkerken, B. H. P., Wolters, A. H. G., Kats, K., Dekkers, M. C., Zaldumbide, A. & Giepmans, B. N. G., Aug-2025, In: Diabetologia. 68, p. 1754-1768.

[doi: 10.1007/s00125-025-06432-4](https://doi.org/10.1007/s00125-025-06432-4)

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**Advanced Microscopy & T1D
Group Ben Giepmans**



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Advanced Microscopy & TID
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4 Sample Processing and Benchmarking for Multibeam Optical Scanning Transmission Electron Microscopy
Duinkerken, B. H. P., Kievits, A. J., Wolters, A. H. G., van Beijeren Bergen en Henegouwen, D., Kuipers, J., Hoogenboom, J. P. & Giepmans, B. N. G., Apr-2025, In: Microscopy and Microanalysis. 31(2), 11 p., ozaf024.

5 UMIC_Toolkit
Duinkerken, P. (Developer) & Giepmans, B. (Developer), 2025.

6 Raman-based label-free microscopic analysis of the pancreas in living zebrafish larvae
Faraj, N., de Lange, E. M. F., Sjollem, K. A. & Giepmans, B. N. G., 25-Nov-2025, In: FEBS Open Bio (Early View).
[doi: 10.1002/2211-5463.70163](https://doi.org/10.1002/2211-5463.70163)

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1 A chaperone-proteasome-based fragmentation machinery is essential for aggrephagy

Mauthe, M., van de Beek, N., Mari, M., Korsten, G., Nobari, P., Castelino, K. B., de Mattos, E. P., Ouhida, I., Dijkstra, J. L., Schipper-Krom, S., de la Ballina, L. R., Mueller, M. R., Simonsen, A., Hipp, M. S., Kapitein, L. C., Kampinga, H. H. & Reggiori, F., Sept-2025, In: Nature Cell Biology. 27, p. 1448–1464.

[doi: 10.1101/2025.09.05.673478](https://doi.org/10.1101/2025.09.05.673478)

2 Mitochondrial proteostatic stress disrupts mitoribosome biogenesis and translation

Holthusen, H., Trinkaus, V. A., Fernandez Gonzalez, C., Saha, I., Pachmayr, I., Kimbu Wade, O., Deiser, A., Hummel, B., Yuste-Checa, P., Ehses, K., Körner, R., Fernández-Busnadiego, R., Sawarkar, R., Jungmann, R., Hipp, M. S. & Hartl, F. U., 2025, bioRxiv.

3 Establishment of the phagophore-ERES membrane contact site initiates phagophore elongation

Gómez-Sánchez, R., Chumpen Ramirez, S., Vargas Duarte, P., Hu, Y., Mari, M., Olschewski, K., Hardenberg, R., Fromme, J. C., Ungermann, C. & Reggiori, F., 2025, In: Nature Structural & Molecular Biology.

[doi: 10.1038/s41594-025-01621-6](https://doi.org/10.1038/s41594-025-01621-6)

4 Atg2/TRAPPIII-Ypt1 axis: deciphering the phagophore-ERES connection

Gómez-Sánchez, R., Fromme, J. C., Ungermann, C. & Reggiori, F., 2025, In: Autophagy.

[doi:10.1080/15548627.2025.2571682](https://doi.org/10.1080/15548627.2025.2571682)

5 Opt1 imports CoA precursors as glutathione mixed disulfides

Wedman, J. J., de Vries, L., van Lingen, B., van der Zwaag, M., Gómez-Sánchez, R., Hardenberg, R., Huibers, W., Permentier, H., Strauss, E., Chang, M., Reggiori, F., de Kroon, A. I., Sibon, O. C. M. & Schepers, H. J Biol Chem. 2025 Sep;301(9):110503.

[doi: 10.1016/j.jbc.2025.110503](https://doi.org/10.1016/j.jbc.2025.110503)

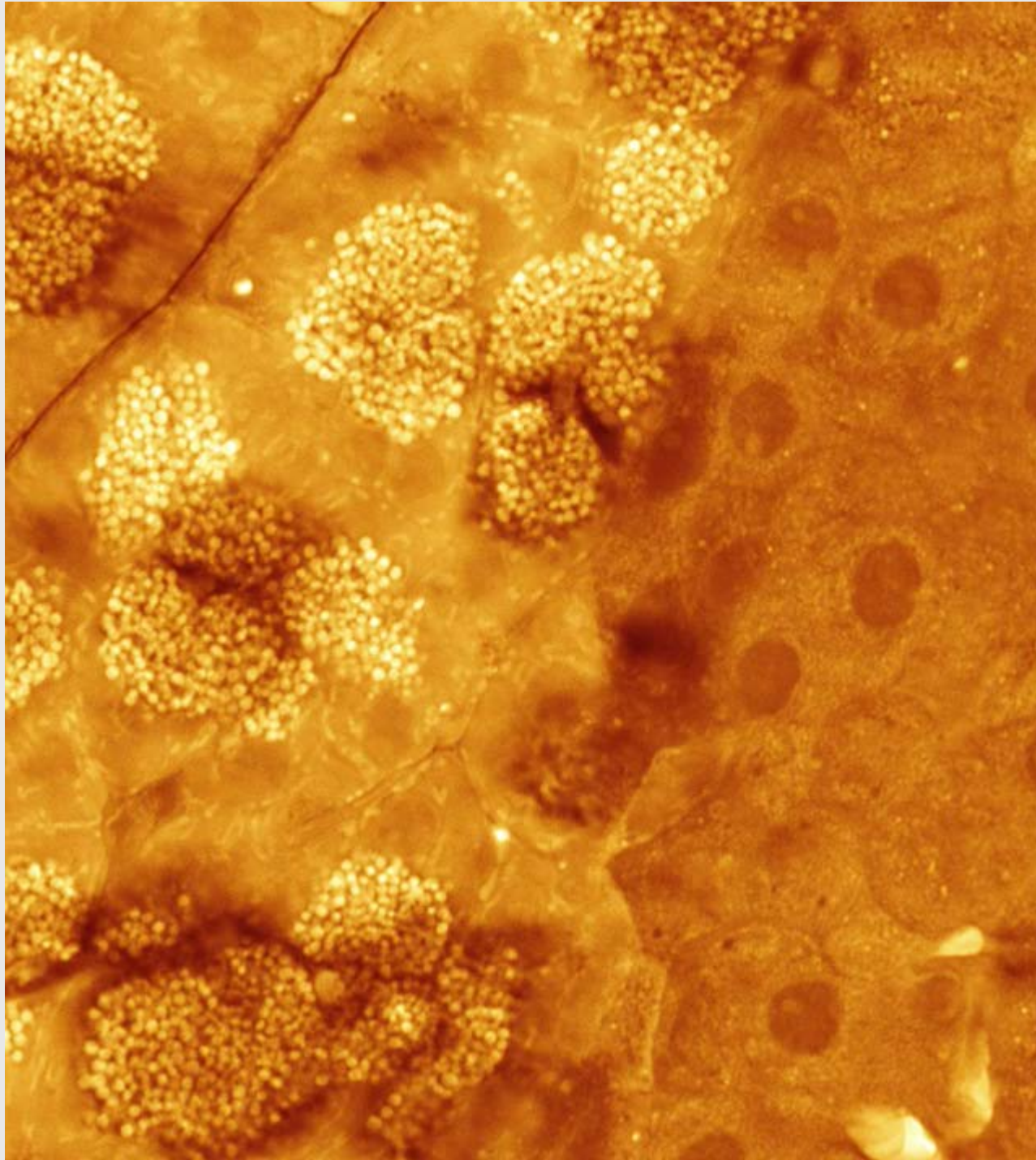
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Protein Quality Control in Health and Disease
Group Mark Hipp

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Neurogenomics and transcriptional regulation Group Inge Holtman

- 1 Genetic subtypes predict multiple sclerosis severity and response to treatment**
Kreft, K., Mekkes, N., Uzochukwu, E., Loveless, S., Wynford-Thomas, R., Harding, K., Wardle, M., Holmans, P., Brown, J. W., Lawton, M., Tallantyre, E., Holtman, I. R. & Robertson, N. (2026).
Journal of Neurology, Neurosurgery & Psychiatry
[doi: 10.1136/jnnp-2025-337337](https://doi.org/10.1136/jnnp-2025-337337)
- 2 Notch signaling is a driver of glandular stem cell activity and regenerative migration after damage**
Cinat, D., Maturi, R., Gunawan, J. P., Jellema-de Bruin, A. L., Kracht, L., Serrano Martinez, P., Wu, Y., Soto-Gamez, A., van Goethem, M.-J., Holtman, I. R., Pringle, S., Barazzuol, L. & Coppes, R. P. (2025).
The EMBO Journal.
[doi: 10.1038/s44318-025-00607-w](https://doi.org/10.1038/s44318-025-00607-w)
- 3 Microglia innate immune memory is retained after enforced repopulation**
Medeiros-Furquim, T., Miedema, A., Schilder, E., Holtman, I. R., Kooistra, S. M. & Eggen, B. J. L. (2025).
Brain, Behavior and Immunity

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**Intracellular Trafficking & Cell Polarity
Group Sven van IJzendoorn**

1 A liver-specific mouse model for MYO5B-associated cholestasis reveals a toxic gain-of-function as underlying disease mechanism
She, H. Y., Qiu, Y. L., Feng, J. Y., Cheng, Y., Chi, H., van IJzendoorn, S. C. D., Xing, Q. H. & Wang, J. S.,
12-Apr-2025,
In: Biochemical and Biophysical Research Communications. 758, 9 p., 151669.

2 A novel mechanism involving USP53-regulated BSEP trafficking underlies low-GGT intrahepatic cholestasis
Ding, J., She, H.-Y., Cheng, Y., Sun, H.-Y., Feng, J.-Y., Liu, T., Qiu, Y.-L., Wei, B.-X., Zhang, J., Su, Y., Li, Y.-Q., Zhang, J.-J., Chen, S.-Y., Wang, T., Yu, Y., van IJzendoorn, S. C. D., Wang, J.-S. & Xing, Q.-H., 19-Aug-2025, (E-pub ahead of print)
In: Hepatology. 37 p.

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1 A chaperone-proteasome-based fragmentation machinery is essential for aggrephagy

Mauthe, M., van de Beek, N., Mari, M., Korsten, G., Nobari, P., Castelino, K. B., de Mattos, E. P., Ouhida, I., Dijkstra, J. L., Schipper-Krom, S., de la Ballina, L. R., Mueller, M. R., Simonsen, A., Hipp, M. S., Kapitein, L. C., Kampinga, H. H. & Reggiori, F., Sept-2025, In: Nature Cell Biology. 27, p. 1448–1464.

2 Aggregate fragmentation: the ticket to aggrephagy

Mauthe, M., Kampinga, H. H. & Reggiori, F., 21-Sept-2025, (E-pub ahead of print) In: Autophagy.

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Heat shock proteins & protein homeostasis
Group **Harrie Kampinga and Mario Mauthe**

3 Clearing the protein clutter in human cells: the role of protein disaggregases

Alberts-Vischer, N., De Los Rios, P., Kampinga, H. H. & Nillegoda, N. B., 2025, In: Transactions of the Royal Society of South Africa. 80(1), p. 27–45.

4 Conserved intrinsically disordered region of DNAJB6 dictates its surveillance of FG-Nup condensates

Bergsma, T., Musskopf, M. K., Gallardo, P., Rebeaud, M. E., Feenstra, J., Fernando, S. M. Y., Steen, A., Kampinga, H. H. & Veenhoff, L. M., 20-Oct-2025, In: bioRxiv.

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5 Mechanisms and regulation of the Hsp70 chaperone network
Wentink, A., Rosenzweig, R., Kampinga, H. & Bukau, B., 27-Oct-2025,
(E-pub ahead of print)
In: Nature Reviews Molecular Cell Biology.

6 Publisher Correction:
Mechanisms and regulation of the Hsp70 chaperone network
(Nature Reviews Molecular Cell Biology, (2025), 10.1038/s41580-025-00890-9).
Wentink, A., Rosenzweig, R., Kampinga, H. & Bukau, B., 6-Nov-2025, (E-pub ahead
of print)
In: Nature Reviews Molecular Cell Biology. 1 p.

[doi: 10.1038/s41580-025-00890-9](https://doi.org/10.1038/s41580-025-00890-9)

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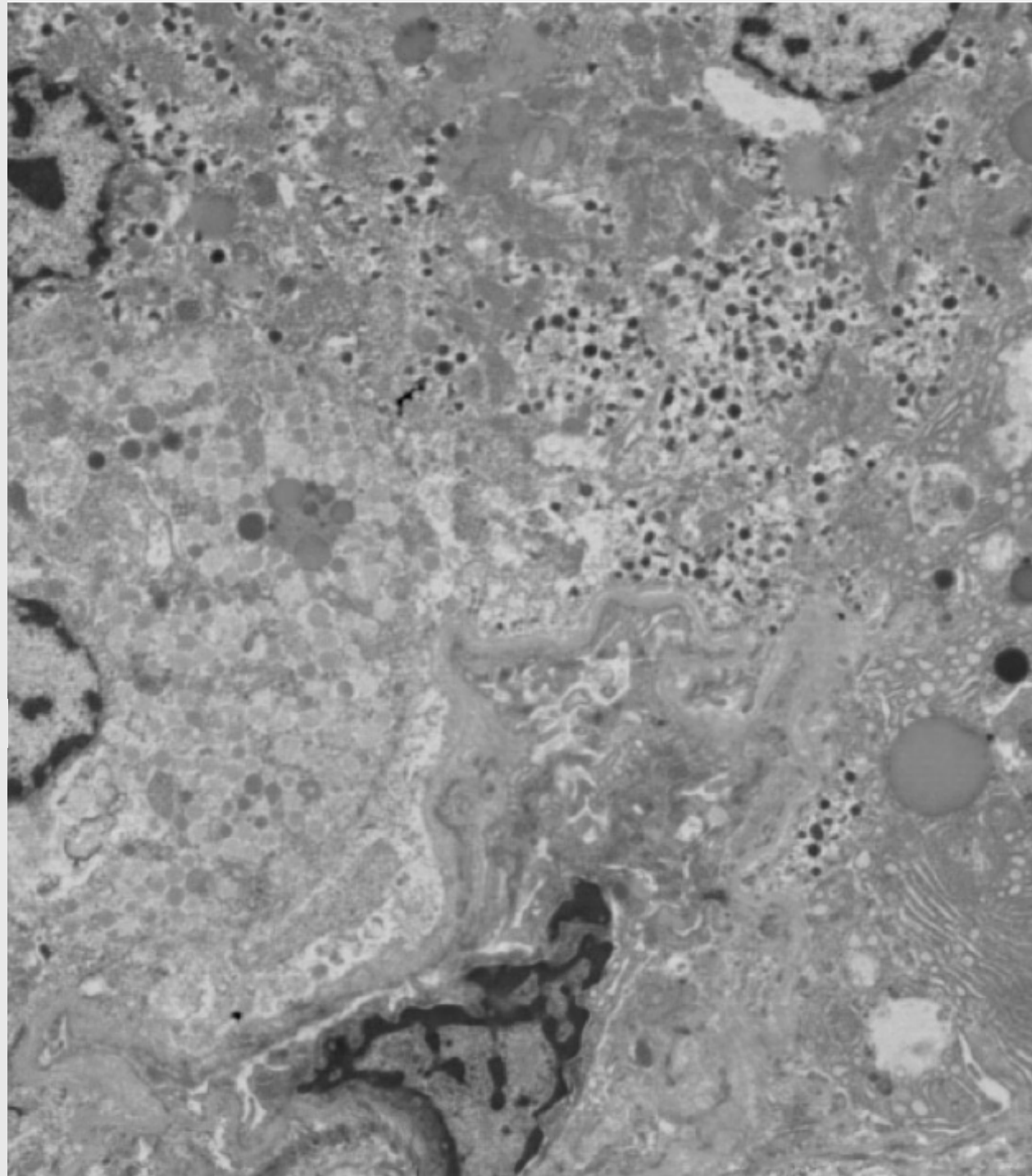
Heat shock proteins & protein homeostasis
Group **Harrie Kampinga and Mario Mauthe**

7 Studying the FLOW of α -Synuclein using an inducible expression system
Gómez-Sánchez, R., Preusser Mattos, E.,
Kampinga, H. H. & Hipp, M. S., 2025.

8 Unexpected Remyelination in the Absence of Matrix Metalloproteinase 7
Gorter, R. P., Arreguin, A. J., Oost, W., de Jonge, J. C., Kampinga, H. H., Amor, S.,
Cognato, H. & Baron, W., Jun-2025, In: Glia. 73(6), p. 1288–1306.

pmc.ncbi.nlm.nih.gov/articles/PMC12012326/

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Intracellular Trafficking & Cell Polarity
Group **Sven van Ijzendoorn**

1 A liver-specific mouse model for MYO5B-associated cholestasis reveals a toxic gain-of-function as underlying disease mechanism

She, H. Y., Qiu, Y. L., Feng, J. Y., Cheng, Y., Chi, H., van Ijzendoorn, S. C. D., Xing, Q. H. & Wang, J. S., 12-Apr-2025, In: Biochemical and Biophysical Research Communications. 758, 9 p., 151669.

2 A novel mechanism involving USP53-regulated BSEP trafficking underlies low-GGT intrahepatic cholestasis

Ding, J., She, H.-Y., Cheng, Y., Sun, H.-Y., Feng, J.-Y., Liu, T., Qiu, Y.-L., Wei, B.-X., Zhang, J., Su, Y., Li, Y.-Q., Zhang, J.-J., Chen, S.-Y., Wang, T., Yu, Y., van Ijzendoorn, S. C. D., Wang, J.-S. & Xing, Q.-H., 19-Aug-2025, (E-pub ahead of print) In: Hepatology (Baltimore, Md.). 37 p.

[doi: 10.1097/HEP.0000000000001501](https://doi.org/10.1097/HEP.0000000000001501)



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1 Beyond the nuclear border: single-cell analysis of in situ sequenced human brain tissue using cellular features
Kotah, J. M., Rust, T., van Weering, H. R. J., Bosma, J., Woudstra, A. L., Kooistra, S. M., & Eggen, B. J. L. (2025)
Communications biology, 8(1), Article 1089.
[doi: 10.1038/s42003-025-08518-6](https://doi.org/10.1038/s42003-025-08518-6)

2 Microglia endotoxin tolerance is retained after enforced repopulation
Medeiros-Furquim, T., Miedema, A., Schilder, E., Brouwer, N., Holtman, I. R., Kooistra, S. M., & Eggen, B. J. L. (2025)
Brain, Behavior, and Immunity, 128, 512-528.
[doi: 10.1016/j.bbi.2025.04.014](https://doi.org/10.1016/j.bbi.2025.04.014)

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Glia in development and disease
Group **Susanne Kooistra**

3 Microglia regulate myelin clearance and cholesterol metabolism after demyelination via interferon regulatory factor 5
Montilla, A., Zabala, A., Calvo, I., Bosch-Juan, M., Tomé-Velasco, I., Mata, P., Koster, M., Sierra, A., Kooistra, S. M., Soria, F. N., Eggen, B. J. L., Fresnedo, O., Fernández, J. A., Tepavcevic, V., Matute, C., & Domercq, M. (2025).
Cellular and molecular life sciences, 82, Article 131.
[doi: 10.1007/s00018-025-05648-2](https://doi.org/10.1007/s00018-025-05648-2)

4 Multiple Sclerosis: Glial Cell Diversity in Time and Space
Kooistra, S. M., & Schirmer, L. (2025).
Glia, 73(3), 574-590.
[doi: 10.1002/glia.24655](https://doi.org/10.1002/glia.24655)

Image credit **BMS** Zeiss Light sheet 7 (LS7)

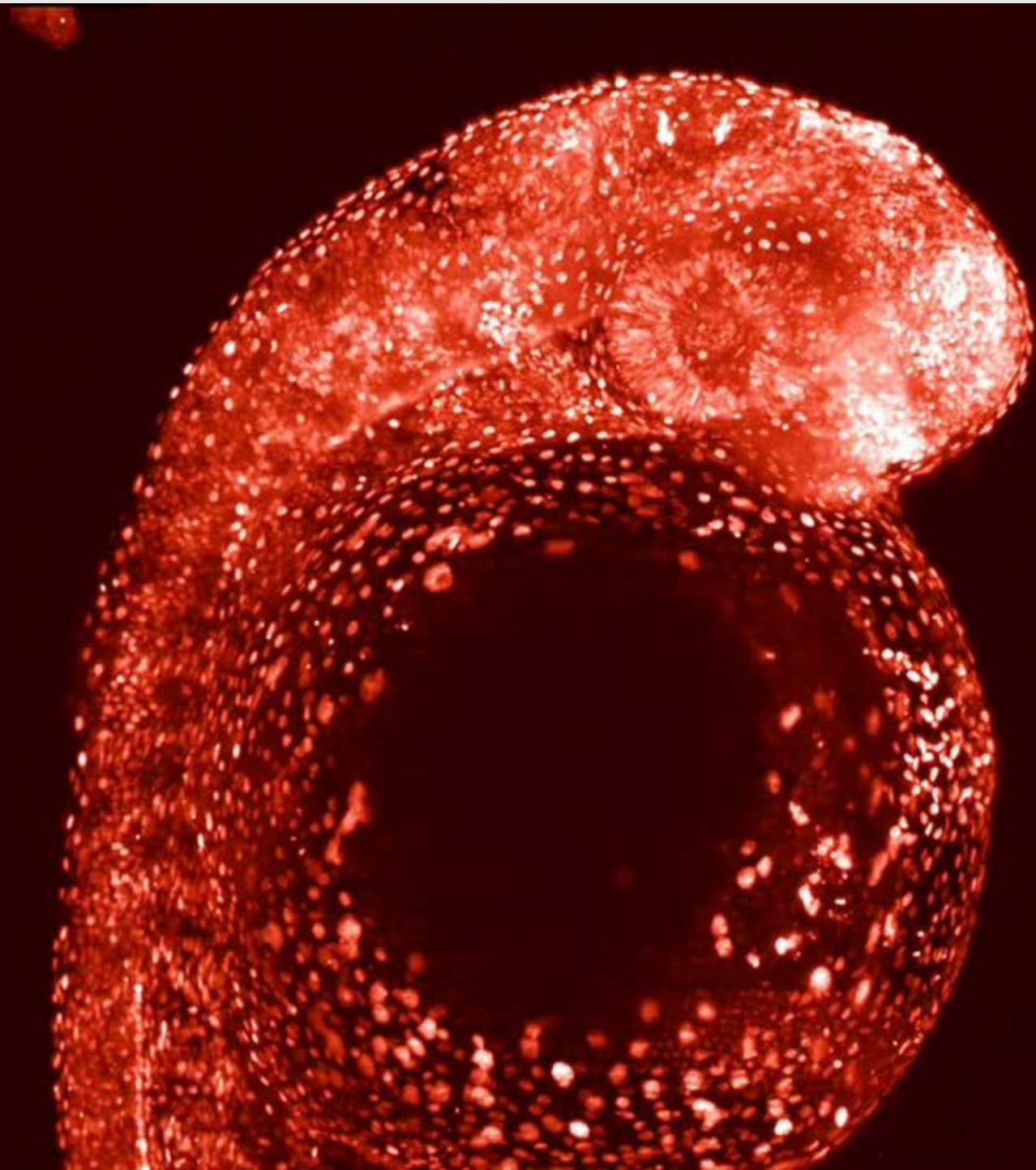
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Group **Fulvio Reggiori**

1 Influenza A virus subverts the LC3-pericentrin dynein adaptor complex for host cytoplasm entry

Cong Y, Verlhac P, Green BB, de Vries-Idema J, Strauss LM, Río-Bergé C, Etzerodt A, Nejsum LN, Huckriede ALW, Reggiori F. Sc Adv. Jun 13;11(24):eadu7602.

[doi: 10.1126/sciadv.adu7602](https://doi.org/10.1126/sciadv.adu7602)



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