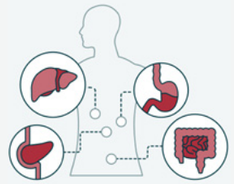
Amsterdam UMC

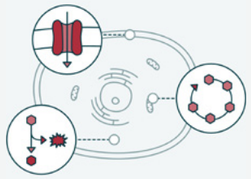
Amsterdam Gastroenterology Endocrinology Metabolism

AGEM Annual report 2025



Gastroenterology

Endocrinology



Metabolism

Colophon

Pictures

Martijn Gijsbertsen www.martijngijsbertsen.nl

Infographic and program illustrations

Elzemiek Zinkstok www.significantcommunication.eu

Graphic design and layout

Valentina Bravo

Coordination

Eva Dirkx-Beuling
Valentina Bravo
Anita Boelen
Nanne de Boer

Website

www.amsterdamumc.org/agem

Contents

Directors looking back

A year ago, looking ahead to 2025, Nanne de Boer said he hoped that by the end of it, people would be proud to say, “I belong to AGEM.” Sitting down with him and Anita Boelen now, that’s not a hope anymore; it’s actually how they’ve heard researchers talk about the institute.

Most of that, they agree, comes down to everything AGEM has built this year: the events, the committees, the small, deliberate moments of bringing people together. This year’s Grant Award Ceremony, featuring a new AGEM animation, did exactly what it was built to do, putting researchers and excellent research in the same room. “That’s what it’s really about,” de Boer says. “What we’re here for.”

Additionally, we even had an incredibly successful national symposium organised by two endocrine PhD candidates: the Androgens Symposium. Boelen points to Anouk Olthoff and Romy de Kroon, who ran it this year and pulled it off with real flair. “They did a fantastic job,” she says. “I really enjoyed seeing that.” It’s the kind of enthusiasm both directors say they admire, and are happy to facilitate as directors of the institute. “That people get a bit of a push forward because of us; that gives me energy,” de Boer says.

The PI evenings also stand out, drawing researchers together around a shared theme. Last year that was Liver Disturbances, and this year it was Societal Differences in Metabolic Health. “Bringing people together around a theme is genuinely nice,” de Boer says. “It can make you go from ‘I don’t know you at all yet’ to ‘can we do something together?’” This year, AGEM even invited a researcher from outside the institute, Charles Agyemang, to give the opening lecture because of his expertise in the field. Agyemang joined enthusiastically and was quickly drawn into conversations with many AGEM researchers. “I think that’s one of the values,” de Boer says. “You think: if we hadn’t done this, this wouldn’t have happened.” Charles, he says, simply wouldn’t have crossed their path otherwise.

Asked to describe 2025 in their own words, rather than through the lens of their roles, both land on the same word almost immediately: active. “A busy year, with a lot of fun things,” Boelen says, and de Boer agrees. But pushed a little further, growth is the word that keeps coming back. AGEM grew financially in 2025, and that growth gave the institute more room to manoeuvre. “AGEM became a notch more grown-up, a notch bigger,” de Boer says. Boelen sees the same maturing happening one level down, in the Young AGEM board, which has become clearer in its own identity and more visibly runs its own activities. “And they’re all nice things they’ve done,” she adds.

For de Boer, 2025 was also the year a few long-running loose ends were tied up. Internal and complicated financial discussions have become clearer and more established. Working through those complex issues has brought the different senior AGEM groups closer together. And underneath all of it, the four core AGEM office members have properly become a team. “We’re really a team of four now, and that’s been constant for the whole year,” Boelen says. “I think our roles are clear.”

From a broader perspective, the positioning of the research institutes and the cohesion between institute directors has improved significantly too. All directors had to join a curriculum that was still brand new this time last year. “That was such a good move,” de Boer says. “If I run into one of the other directors at work now, we have an actual chat. How’s it going? How’s the job going?” Before, that wasn’t there.” Boelen says the increased interaction between the directors has brought more alignment and a stronger shared identity. “You feel more like you’re part of something here.” The directors credit

much of that to Elga de Vries, who has taken real ownership of the group as a whole since becoming Vice-Dean of Research at Amsterdam UMC, rather than treating the directors as separate individuals. It's a shift that aligns with what de Boer and Boelen hoped for in 2025, when they spoke last year about wanting the research institutes to "find each other more easily."

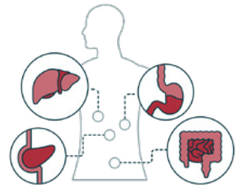
Personal highlights come just as quickly when asked. For de Boer, it's the retreat, every single year, without exception. "I already look forward to it," he says. Boelen names the societal impact session and admits to a quiet pride in this year's Veni successes among AGEM researchers. Her own influence on that may be limited, but the feeling is there regardless.

As for who surprised or inspired them most this year, de Boer keeps it simple: people who are genuinely enthusiastic. Boelen mentions the newly created AGEM Science Communication Committee, always visibly enthusiastic whenever they're around and producing work of an extremely high quality. de Boer uses the moment to tie it all together. It all loops back to the same thing: enthusiastic young people inside this hospital whom AGEM has helped along a little.

Boelen has heard the same thing from people outside AGEM this year: that there's a certain sjeu to the institute these days, a bit of liveliness. Which, in the end, is more or less what de Boer was hoping people would say twelve months ago. Belonging to AGEM, it turns out, isn't just a phrase he liked; it's become something people actually feel.

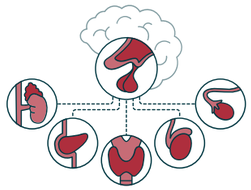
Research Programs

Within the AGEM research institute three research programs have been defined and are extensively described on the AGEM website.



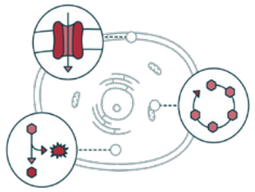
Gastroenterology

The research program "Gastroenterology" focusses on the function of the human digestive system in health and disease.



Endocrinology

The research program "Endocrinology" focusses on the effect of hormonal regulation on the human body.



Metabolism

The research program "Metabolism" focusses on metabolic disorders, both common and rare, manifesting from (pre)neonatal period into adulthood.

Research Board 2025

The AGEM research board consists of the AGEM directors, nine members (at least one representative from each of the three AGEM research programs), the AGEM dedicated business developer and two policy officers. The research board meets approximately once per two months and discusses the AGEM policy.

The Young AGEM committee consists of five members and each research board meeting at least one of the Young AGEM members is present to represent Young AGEM.

New to the AGEM research board 2025

Wendy den Elzen

Since December 2025, Wendy den Elzen joined the AGEM research board as research board member. She performed her PhD studies on anemia in older individuals and completed her residency in clinical chemistry at the LUMC in Leiden.

She has been at the Amsterdam UMC since 2021, currently serving as head of the Laboratory Specialized Diagnostics & Research, associate professor and principal investigator for AGEM and APH. Her research focuses on personalized diagnostics and decision making to improve the interpretation and clinical utility of laboratory values, especially for conditions like thyroid disease and anemia. By re-using routine care and cohort data for research, she aims to reduce inequalities in laboratory medicine and enhance diversity and equity in diagnostics.

What I want to achieve with the AGEM research institute...

In my daily work, I connect various diagnostic and research disciplines within our laboratory, and I aim to play a similar bridging role within AGEM and with other research institutes. As a research board member, I look forward to helping shape the institute's strategy and supporting the next generation of researchers, with a strong commitment to equality and sustainability to help shape a healthy future for all.

AGEM directors 2025

Prof. dr. Anita Boelen

Department of Clinical Chemistry, Endocrine Laboratory

Professor of Thyroid Hormone Metabolism, in particular molecular and diagnostic aspects
Specialization: Thyroid hormone, neonatal screening
Research subject: The role of thyroid hormone metabolism in innate immune cells and the pathogenesis of congenital central hypothyroidism.

Prof. dr. Nanne de Boer

Department of Gastroenterology and Hepatology

Professor of Gastroenterology and Hepatology, in particular on efficient and optimal use of IBD medicines
Specialization: Inflammatory bowel disease
Research subject: Cost-conscious IBD care, with effective and personalized treatment focused on efficiency and sustainable outcomes, also by means of drug rediscovery and repurposing.

AGEM Research board members 2025

Prof. dr. Annemieke Heijboer

Endocrine Laboratory & Department of Clinical Chemistry

Professor of Endocrine Laboratory Medicine
Specialization: Endocrinology/Clinical Chemistry
Research subject: To study physiology and pathophysiology within the field of endocrinology and to make the translation into endocrine diagnostics including the use of biomarkers.

Prof. dr. Annet Bosch

Department of Pediatric Metabolic Diseases

Professor of Pediatrics, Metabolic Disease
Specialization: Metabolic Diseases
Research subject: Diagnosis and Treatment of Galactosemia, Phenylketonuria, Riboflavin Transporter Deficiencies.

Dr. Richard IJzerman

Department of Endocrinology

Internist endocrinologist
Specialization: Endocrinology, diabetes
Research subject: The influence of the hormonal and microbiota gut-brain axis on the regulation of food intake and the development of obesity.

Prof. dr. Hilde Herrema

Department of Experimental Vascular Medicine

Professor of Microbiomics in Metabolic Diseases
Specialization: Cardiometabolic disease
Research subject: Translational and integrative research into development of obesity, diabetes and fatty liver disease. Gut microbiome.

Dr. Joris Erdmann

Department of Surgery

Hepatobiliary and pancreatic surgeon
Specialization: Surgery
Research subject: To study liver function, regeneration and failure within the field of liver surgery.

Prof. dr. Noam Zelcer

Department of Medical Biochemistry

Professor of Molecular regulation of metabolism
Specialization: (Post)transcriptional regulation of lipid metabolism
Research subject: The regulation of lipid metabolism and the role this has in NAFLD and CVD.

Prof. dr. Joep Derikx

Department of Pediatric Surgery

Professor of pediatric surgery
Specialization: Neonatal abdominal surgery and pediatric thyroid gland surgery
Research subject: Studying the pathophysiological consequences of intestinal anastomotic healing and disturbed healing; neonatal gut maturation and inflammation; develop markers that can be used to diagnose intestinal damage.

Prof. dr. Stephan Kemp

Department of Clinical Chemistry

Professor of Inherited Neurometabolic Disorders and Newborn Screening
Specialization: Inherited neurometabolic diseases
Research subject: Lipid metabolism and neurotoxicity with a focus on X-linked adrenoleukodystrophy.

Dr. Manon Wildenberg

Tytgat Institute for Liver and Intestinal Research & Department of Gastroenterology and Hepatology

Associate professor
Specialization: Inflammatory bowel disease
Research subject: Optimization of IBD therapy through translational studies on medication mode of action, the role of extra-intestinal tissues and surgery.

Dr. Wendy den Elzen

Department of Laboratory Medicine

Head of Laboratory Specialized Diagnostics & Research, associate professor
Specialization: Personalized diagnostics, Thyroid disease, Anemia, Aging, Population Health
Research subject: To improve the clinical utility and impact of biomarkers to meet the needs of people from all walks of life

Young AGEM Committee 2025

Dr. Signe Mosegaard Nielsen

I am a postdoctoral Fellow at the Laboratory Genetic Metabolic Diseases. My research focuses on the development of stem cell derived models for rare inherited metabolic diseases and using these to detect novel disease mechanisms and testing alternative treatment strategies.

Dr. Patrick de Jonge

I am a postdoctoral researcher at the department of experimental vascular medicine, where I started after obtaining my PhD from Utrecht University in 2020. My main research focus are viruses of microbes called bacteriophages and how they interact with bacterial populations in the human gut.

Dr. Anne van der Spek

I am currently a postdoctoral researcher in the Department of Endocrinology, focusing on (autoimmune) thyroid disease and thyroid hormone action. Besides my research I am also a medical doctor specializing in internal medicine and endocrinology.

Dr. Jeska Fritzsche

I am a medical doctor currently training to become a gastroenterologist. In addition to my clinical work, I am pursuing postdoctoral research at the Department of Gastroenterology and Hepatology, focusing on the endoscopic management of (pre)malignant lesions of the biliary tree.

Dr. Mohammed Ghiboub

I am a postdoctoral researcher at the Tytgat Institute for Liver and Intestinal Research and the Department of Pediatric Surgery at Amsterdam UMC, where I started after obtaining my PhD from the University of Amsterdam in 2022. My research focuses on identifying novel metabolomic and epigenetic signatures as biomarkers and therapeutic targets in inflammatory bowel disease (IBD) and colorectal cancer.

Dr. Arwen Gao

I am an assistant professor and principal investigator at the Laboratory Genetic Metabolic Diseases. My research focuses on lysosomes, lipids, aging, and neurodegeneration, with translational projects aimed at patients with lysosomal dysfunction.

AGEM Office 2025

Dr. Eva Dirkx-Beuling

Amsterdam Gastroenterology Endocrinology Metabolism (AGEM)

Policy officer AGEM (June 2015 – present)

PhD-thesis: GATA transcription factors and the regulation of intestinal development, differentiation and function.

Valentina Bravo, MSc.

Amsterdam Gastroenterology Endocrinology Metabolism (AGEM)

Policy officer AGEM (December 2024 – present)

MSc. Science Education & Communication (Biology)

Dr. Ric van Tol

Amsterdam Gastroenterology Endocrinology Metabolism (AGEM) and Innovation Exchange Amsterdam (IXA)

Business Development & Innovation Strategy

Specialization: Nutrition and GI Health, Industrial Research Management

Science Impressions 2025

To give an impression of the research conducted at the AGEM research institute, six teams of young investigators and their supervisors were invited to present the research projects they worked on in 2025.

Understanding development and optimizing treatment of patients with early-onset colorectal cancer

Lauri Borghuis, Janneke Vedder and Tineke Buffart

Colorectal cancer (CRC) is one of the leading causes of cancer-related death worldwide. Despite the declining overall incidence of CRC over the past decade, following implementation of screening programs, the incidence of early-onset colorectal cancer (eoCRC), defined as diagnosis <50 years, is rising. Alarmingly, CRC is now the leading cause of cancer-related death in young men and the second leading cause in young women. A minority of eoCRC cases is attributable to hereditary cancer syndromes, including Lynch syndrome, familial adenomatous polyposis (FAP) or MUTYH associated polyposis. Hence, most eoCRC cases are sporadic. Although environmental and behavioural factors, including unhealthy diets and physically inactive lifestyles, are likely related to CRC development, the precise causes and mechanisms driving the increase in eoCRC remain unclear.

Other striking differences, compared to CRC at older ages, are that eoCRC is more often diagnosed at an advanced stage, more frequently located on the left side of the colon or rectum, and more often has a poorly differentiated histology.

Existing studies report conflicting results on whether eoCRC patients have worse overall survival (OS) than older patients. Moreover, it remains unclear whether response to current systemic therapies differs between eoCRC and older patient, potentially reflecting underlying differences in tumour biology.

My research program focuses on the development of eoCRC and optimizing treatment for these young patients.

The first aim is to investigate whether treatment response and survival of eoCRC patients differs from older patients with CRC. We recently performed a nationwide real-world study based on data from 81,769 patients diagnosed with CRC between 2016 and 2022 to compare clinical characteristics, treatment patterns, and survival of patients with eoCRC to average-onset CRC (aoCRC, 50-69 years), and older-onset CRC (ooCRC, ≥70 years). By applying a comprehensive matching strategy across age groups for established prognostic and predictive factors, we enabled a more accurate comparison of outcomes than previous reports. We showed that

eoCRC patients have worse survival than aoCRC patients when all tumour stages are combined. However, when looking at eoCRC patients with stage IV disease at diagnosis only, we observed better survival compared to both average-aged and older-aged patients with CRC. We also showed that response to first-line systemic therapy was more favourable in eoCRC and aoCRC patients than in patients with ooCRC, but eoCRC patients received more intensified systemic treatment. After applying our comprehensive matching strategy for clinical characteristics and treatment, survival of eoCRC patients appeared to be comparable to aoCRC patients, while survival of ooCRC patients remained worse. With this study, we showed that apparent survival differences in eoCRC are primarily driven by stage at diagnosis and established risk-factors rather than distinct tumour biology (Borghuis et al. submitted).

Together with my PhD students Lauri Borghuis en Janneke Vedder, we are currently investigating differences in patterns of metastases between young and older patients with CRC, in relation to the given therapy, treatment response and outcome.

In the above-mentioned nation-wide real-world study nearly 4,000 eoCRC patients were included, the majority being sporadic. However, it also included patients with hereditary and non-hereditary predisposing syndromes, such as ulcerative colitis and M. Crohn. Although it is known from literature that patients with such inflammatory bowel disease (IBD) generally have a worse prognosis, it is unknown to what extent the treatment and the response is different compared to patients with sporadic CRC or hereditary syndromes. Together with my PhD students we are currently investigating differences in treatment and outcome between patients with sporadic eoCRC and patients with hereditary and non-hereditary predisposing conditions. Increased knowledge on current treatments and response will guide future optimization of treatment strategies.

In our own outpatient clinic of Amsterdam UMC, we also noticed the increase in eoCRC patients. Therefore, the second aim of my research program was to optimize comprehensive clinical care for patients with eoCRC. These young patients face unique problems including fertility, sexual function, career aspirations, financial security and impact on their young children, all negatively affecting their quality of life. Together with nurse specialist Anne Marije Luik we performed a qualitative study in eoCRC patients with locally advanced or metastatic CRC treated with systemic therapy to investigate the clinical care needs in this patient group. We found that patients expressed the needs of direct information and more support on multiple topics, including fertility and sexuality, support of children, interaction with family and friends and proactive care planning (Luik et al. PEC Innov 2026). Based on the care needs raised by the patients in the interviews, we developed an information folder “niet alleen de kanker”, which is available for all hospitals in the Netherlands. This illustrates how we directly translate research findings into clinical practice.

The third aim of our research is to understand the development of eoCRC, to be able to discover novel strategies for prevention and early detection. Previous studies showed that the composition of the gut microbiome is involved in the development of CRC by creating a pro-inflammatory tumour microenvironment and anti-apoptotic properties. Additionally, oral health and translocation of oral microbes to the gut are though to give rise to gastrointestinal diseases, including CRC. This lead to our hypothesis that oral microbes, as influenced by the Western lifestyle, are involved in the development of CRC. In collaboration with Prof Bastiaan Krom and his team from ACTA we pioneer the role of the oral microbiome in CRC, by studying the differences between patients and healthy individuals. Results of our first pilot study are expected soon.

Nutrition in Disease and Recovery

Yaren Zugul, Nicolette Wierdsma and Hinke Kruizenga

Good nutrition plays an important role in how patients cope with illness and how well they recover. At the Department of Nutrition & Dietetics of Amsterdam UMC, researchers work every day to improve nutritional care for patients—before, during, and after illness. Through innovative and interdisciplinary research, the department aims to help patients maintain strength, function, and quality of life, both in acute and chronic disease and throughout recovery.

The department is independently positioned within Amsterdam UMC and has its own research team, led by Dr. Hinke Kruizenga (Associate Professor and Principal Investigator), together with Dr. Nicolette Wierdsma and Liesbeth Schuijs–van Leeuwen (Head of Department).

From science to better care

The research line Nutrition in Disease and Recovery addresses a wide range of topics that are directly relevant to daily clinical practice. These include improving how we assess nutritional status and intestinal function, developing effective nutritional interventions, and exploring how nutrition and physical activity can work together to support recovery. Other important themes are sustainable nutrition in healthcare and lifestyle improvement as part of medical treatment.

Collaboration is at the heart of this work. The department partners with many disciplines within and beyond Amsterdam UMC, including AGEM, AMS, CCA, and APH, and contributes to national and international networks such as ESPEN and ECCO. Each year, around ten research and implementation projects are carried out, and two PhD candidates complete their doctoral training.

A strong link between research, education, and patient care is actively fostered. This is achieved through initiatives such as the knowledge platform Nutrition & Exercise Now (Voeding & Beweging NU), a consortium with Rehabilitation Medicine, the Amsterdam University of Applied Sciences, and research institutes AGEM and AMS, as well as through educational activities coordinated by FOCUS on NUTRITION. Together, these platforms help translate scientific insights into practical tools for healthcare professionals and patients.

Research with real-world impact

Many projects within this research line focus on improving care for specific patient groups. Examples include studies on nutritional interventions for patients with Crohn's disease, conducted in collaboration with the Departments of Gastroenterology and Pediatrics, and work on improving the diagnosis of coeliac disease together with Medical Immunology. In oncology, researchers study how combined nutrition and exercise programmes can support patients with oesophageal and gastric cancer (RADICES).

An overview of ongoing and completed projects can be found on the Voeding & Beweging NU website (https://voedingenbeweging.nu/onze-projecten/).

Spotlight: Home monitoring after Whipple surgery

A good example of how research directly improves patient care is the home monitoring project led by junior researcher Yaren Zugul in 2025/2026. This project focuses on patients with pancreatic or periampullary cancer who undergo a Whipple procedure and is carried out in close collaboration with the Central Capacity Coordination Office, the Department of Surgery, and the internal malnutrition working group.

The project starts even before hospital admission. During a structured preoperative outpatient visit, patients are screened early for malnutrition and other nutrition-related risks. When needed, nutritional support can be started immediately. This early approach helps patients enter surgery in better nutritional condition, recover more quickly, and potentially spend less time in hospital.

In 2025, the project team worked on improving screening methods, developing clear nutritional intervention protocols, and integrating a digital questionnaire into the electronic patient record. Healthcare professionals received targeted training, and outcomes such as nutritional status, complications, and patient satisfaction were carefully monitored.

Looking ahead

In the years to come, the Department of Nutrition & Dietetics will continue to build and develop. Priorities include strengthening research capacity, expanding collaborations, embedding research results into everyday care, and addressing urgent themes such as sustainable nutrition and lifestyle medicine.

By bringing together science, education, and practical innovation, the research line Nutrition in Disease and Recovery contributes to better patient outcomes and to a healthcare system in which nutritional care is both effective and sustainable.

Tackling MASLD early on: the road to optimal pediatric screening

Anne-Sophie Stroes and Bart Koot

Metabolic dysfunction-Associated Steatotic Liver Disease (MASLD) has emerged as the most common chronic liver disease in children, concomitant with the rapid rise in childhood obesity rates. Up to half of children with obesity are affected. Although most children with MASLD do not develop progressive liver disease, a subset progresses to liver fibrosis. MASLD is also associated with extrahepatic morbidity, most importantly type 2 diabetes, cardiovascular disease, and kidney dysfunction, already in adolescence and young adulthood. Given the morbidity and mortality related to MASLD at a young age, screening children with overweight and obesity for MASLD is widely recognized. However, the optimal screening strategy remains to be established, and MASLD remains frequently underrecognized.

Our research focus and past projects

Our pediatric MASLD research group at Amsterdam UMC is dedicated to improving early detection and management of MASLD in children. We focus on identifying the most effective screening strategies to promote early diagnosis, as well as understanding patient needs to support lifestyle adherence, which is essential in MASLD management.

Central to our work is the "Fibrokids" cohort, a large, multicenter cohort of children with obesity who underwent MASLD screening according to the most widely used screening strategy based on the NASPGHAN guideline. In this study, we provided evidence that alanine aminotransferase (ALT) is an effective primary screening tool to identify children at risk for advanced MASLD, as detected by elevated vibration-controlled transient elastography (VCTE). The effectiveness of ALT as a screening tool in children is a highly relevant finding, as ALT is widely available, inexpensive, and easy to implement in routine care.

To further inform screening policy, we performed a cost analysis of the two-step MASLD screening approach with initial ALT testing followed by VCTE. This is the first study to estimate the costs of pediatric MASLD screening, providing novel data to inform future cost-effectiveness analyses and policy decisions regarding MASLD screening in at-risk pediatric populations.

Besides screening feasibility and costs, we assessed patient acceptability of screening for MASLD. In a multicenter cohort of children with overweight or obesity who were referred for MASLD evaluation at Amsterdam UMC after elevated ALT, we found that MASLD screening was associated with minimal discomfort for the majority of children, and the procedures were generally well accepted. These findings further support this screening strategy in pediatric clinical practice.

To more widely investigate patient experience and needs, we conducted a large, Europe-wide survey among children and caregivers referred for MASLD evaluation across pediatric gastroenterology and hepatology clinics. The results also showed that most children experienced low burden from screening. In addition, this survey identified that children had little knowledge about what to expect during the visit, less than half of the children reported high willingness to change their lifestyle after the visit, and an important subset intended to seek additional information. These three findings highlight a clear need to improve child- and caregiver-centered educational tools to enhance understanding and engagement in MASLD care.

Current research: increasing education by an information tool

The finding that children undergoing MASLD screening have little knowledge about MASLD and little willingness to adopt lifestyle changes prompted us to initiate a project to develop an interactive educational tool for children with MASLD. We are currently conducting qualitative interviews and quantitative questionnaires to identify information needs, as well as facilitators and barriers to lifestyle change. Our intention is to co-create an information tool with children and their caregivers. By involving them in every step of the design and evaluation, we aim to create a resource that improves understanding of MASLD and supports self-management in lifestyle change.

Predicting the disease course of pediatric MASLD

Our understanding of MASLD morbidity and progression in childhood is still limited. In one of our projects, we demonstrated that steatosis at young adult age is associated with increased carotid intima-media thickness (cIMT), and that childhood steatosis is associated with cIMT progression. This underlines the early vascular impact of MASLD.
We are currently investigating the association of metabolites and lipids with MASLD progression over a 10-year follow-up period from childhood into young adulthood, aiming to identify biomarkers that can predict disease course. Looking to the future, we are preparing for a longitudinal prospective cohort study to evaluate the disease course of young adults who already had MASLD in childhood, as this group is thought to have a more advanced disease course.

Overall, our research aims to improve the identification and risk stratification of children with MASLD, who are currently still mostly unidentified and not receiving optimal care.

Rare Metabolic Disease Illuminates Common Disease Mechanisms

Andreas van Kuilenburg

Inherited metabolic disorders (IMDs) comprise a highly heterogeneous group of diseases associated with a wide spectrum of clinical manifestations and marked inter-individual variability in presentation and severity. More than 1,500 IMDs have been identified to date, and collectively they represent a major cause of morbidity and mortality in children in the Netherlands. Approximately one in four children affrected by an IMD does not survive to adulthood, and more than 10,000 families are confronted with the profound medical and societal consequences of these disorders (Figure 1).

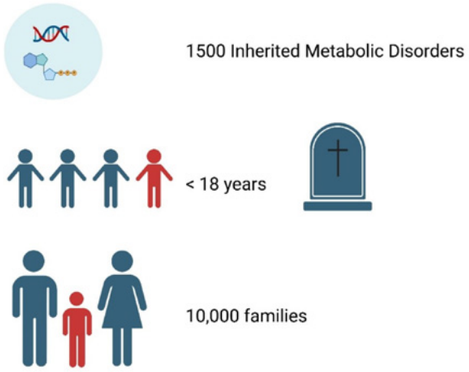


Figure 1. Inherited metabolic disorders

IMDs arise from disruption of the cell's metabolic machinery, impairing the synthesis and degradation of essential biomolecules as well as cellular energy production. Metabolism encompasses the full range of biochemical reactions required to generate energy, support growth and repair, and eliminate waste products. These reactions are catalyzed by enzymes, which determine both the rate and efficiency of metabolic flux. Defects in a single enzyme can therefore have major and far-reaching consequences for cellular and systemic homeostasis.

The laboratory Genetic Metabolic Diseases has a long-standing reputation in the field of (inherited) metabolic diseases. Our team has played a key role in the identification of disease-causing genes in patients with rare Mendelian disorders. In this context, enzyme diagnostics are valuable not only for the confirmation of known metabolic defects, but also for the discovery of previously unrecognized disorders. In patients with suspected IMDs, genetic testing—particularly exome sequencing—is often the first-line diagnostic approach. Exome sequencing enables the detection of potentially pathogenic variants across more than 22,000 genes and has substantially improved the diagnostic work-up of these conditions. However, despite its power, this approach yields a diagnosis in only approximately 50% of cases, leaving a substantial proportion of patients without a molecular explanation for their disease.

This diagnostic challenge was exemplified by three unrelated young children who presented with delayed speech and language development, impaired balance, and coordination difficulties. The only consistent biochemical abnormality was a marked elevation of plasma glutamine. This finding suggested a possible defect in glutaminase, the enzyme that catalyzes the conversion of glutamine to glutamate, as impaired glutaminase activity would be expected to result in glutamine accumulation. At the time, however, glutaminase deficiency had not yet been described, and exome sequencing did not identify a causal defect. By combining detailed clinical evaluation with biochemical and enzymatic phenotyping and whole-genome sequencing, our multidisciplinary team of clinicians, laboratory specialists, and bioinformaticians demonstrated glutaminase deficiency and identified a short tandem repeat expansion in GLS, the gene encoding glutaminase, as the underlying cause in these patients (N Engl J Med. 2019; PMID: 30970188).

The pathogenic mechanisms underlying GLS deficiency caused by this complex molecular lesion remain incompletely understood. In addition, a small number of patients with a presumed complete GLS

deficiency have since been described, presenting with a severe phenotype characterized by neonatal-onset refractory burst-suppression epileptic encephalopathy, respiratory failure, and progression to either a persistent vegetative state or early death. Early infantile epileptic encephalopathy is among the most severe developmental and epileptic encephalopathies, and an increasing number of genes involved in intermediary metabolism have been implicated in its pathogenesis. At the same time, hepatic encephalopathy remains a major neurological complication of hyperammonemia in severe liver failure and urea cycle disorders. Although ammonia has long been considered the principal neurotoxin in hepatic encephalopathy, accumulating evidence indicates that glutamine, generated during ammonia detoxification, also contributes importantly to the deleterious effects on astrocyte and mitochondrial metabolism.

To further elucidate the pathophysiology underlying the devastating clinical presentation of GLS deficiency, our team investigated three newly identified patients with complete GLS deficiency. Patient-derived fibroblasts showed pronounced ultrastructural abnormalities, including mitochondrial fragmentation, together with altered bioenergetic profiles indicative of impaired mitochondrial respiratory function. Metabolic studies demonstrated elevated glutamine concentrations in both serum and cerebrospinal fluid, alongside biochemical abnormalities that resembled those observed in urea cycle disorders, despite normal ammonia concentrations. In parallel, brain magnetic resonance imaging revealed cystic lesions similar to the neuroimaging abnormalities classically seen in patients with urea cycle defects.

These observations are particularly relevant in light of the “Trojan horse” hypothesis of hepatic encephalopathy, which proposes that glutamine synthesized in astrocytes under hyperammonemic conditions is transported into mitochondria and subsequently deaminated by glutaminase, thereby regenerating ammonia locally and inducing mitochondrial toxicity. The finding that our patients exhibited markedly elevated glutamine concentrations in cerebrospinal fluid and serum in the absence of hyperammonemia supports a direct pathogenic role for glutamine itself. This suggests that glutamine may be a key mediator of neurological injury not only in GLS deficiency, but also in hepatic encephalopathy and urea cycle disorders (Mol Genet Metab 2026; PMID: 41865506).

Taken together, our work shows how the study of a rare metabolic disorder can provide fundamental insights into disease mechanisms that are also relevant to more common neurological and metabolic conditions. In this way, rare disease research not only improves diagnosis and understanding of ultra-rare disorders, but also serves as a powerful model for elucidating the pathogenesis of more prevalent diseases.

Refining the management of familial adenomatous polyposis

Arthur Aelvoet and Evelien Dekker

Colorectal cancer is one of the most common cancers worldwide and still is one of the leading causes of cancer related mortality. The colorectal cancer research group of Amsterdam UMC aims to improve the prevention, early detection and treatment of colorectal cancer by studying several important aspects, such as population screening and surveillance for colorectal cancer, quality and new techniques in colonoscopy and endoscopic treatment of polyps and cancer.

In addition, our group focuses on hereditary gastrointestinal cancer syndromes, which account for approximately 5% of all colorectal cancers. In this AGEM Science Impression, we highlight our work in this specific field, with a particular focus on familial adenomatous polyposis (FAP).

Familial adenomatous polyposis (FAP) is an inherited disease caused by a germline pathogenic variant in the APC gene. Patients with FAP develop hundreds to thousands of colorectal polyps from teenage years, resulting in a 100% risk of developing colorectal cancer when left untreated. A prophylactic colectomy is performed, generally when patients are 20 to 30 years old, with creation of an ileorectal anastomosis (IRA) or ileal pouch-anal anastomosis (IPAA). We recently showed that after surgery, patients with IRA develop polyps in the retained rectum, but also most patients with IPAA develop polyps in the ileal pouch (Gastrointestinal Endoscopy 2023, PMID: 36029885). Current guidelines therefore advise 1-2 yearly endoscopic surveillance after IRA and IPAA including removal of polyps >5mm. This is a general recommendation for all patients, while some patients have a more severe phenotype than others, highlighting the need for personalized surveillance.

Beyond the colorectum, nearly all patients with FAP develop duodenal adenomas and 5-10% duodenal cancer. For this reason, patients undergo regular endoscopic surveillance of the upper GI tract from age 25, traditionally guided by a staging system based on number, size and histology of adenomas. In the past years however, the system appeared to be an imperfect predictor for duodenal and ampullary cancer. Besides, despite the increasing use of endoscopic resections in the duodenum it provided limited guidance for prophylactic treatment. Patients with extensive duodenal polyposis require intervention to prevent duodenal cancer. Recently, we showed that endoscopic resections can be performed safely in FAP (Endoscopy International Open 2023, PMID: 37954110). For duodenal polyposis not amenable to endoscopic treatment, generally a pancreas-preserving total duodenectomy is performed with a substantial risk of postoperative morbidity (HPB 2022, PMID: 35568653).

A third and increasingly important limitation of the Spigelman system is that it does not incorporate gastric cancer risk. Over the past decade, an alarming rise in gastric cancer incidence has been reported in Western FAP patients. Accordingly, in a recent nationwide study, we demonstrated that gastric cancer nowadays is the most commonly diagnosed cancer in FAP, with a 12-fold higher risk compared to the general population (Accepted in Gastroenterology 2025). Remarkably, all patients with gastric cancer in our FAP cohort underwent regular endoscopic surveillance of the upper GI tract before diagnosis (Endoscopy International Open 2025, PMID 39776297). When diagnosed, most patients with gastric cancer have advanced disease and a poor prognosis. Clearly, detection and resection of gastric precursor lesions is challenging.

Together, these findings highlight the need to refine

endoscopic surveillance in FAP. Building on the abovementioned findings and advances, we developed a new personalized endoscopic surveillance protocol for both the upper and lower gastrointestinal tract (Endoscopy International Open 2023, PMID: 37102182). This approach is currently being evaluated in a prospective study across all centers participating in the International FAP Consortium (supported by KWF). We founded this consortium in 2019 with the goal to perform high quality research in a large joint international cohort of FAP patients. This collaborative effort has already resulted in several finished and ongoing projects. Collaboration is key in a rare and complex disease like FAP in order to generate evidence and ultimately improve daily care.

Looking ahead, our research efforts will increasingly focus on gastric cancer in FAP. Key questions include why the incidence of gastric cancer is rising and which lesions serve as true precursors. In contrast to the colon and duodenum, where the adenoma–carcinoma sequence is well established, the etiology of gastric cancer in FAP remains poorly understood. Several different dysplastic and non-dysplastic gastric lesions can be found in FAP, and their malignant potential is unclear. In the coming years we will study which of these lesions can progress to cancer. Next, we will study how to timely detect and resect these lesions.

Next to endoscopy and surgery, several chemopreventive agents have been studied in FAP in order to prevent cancer and surgery. We participate in several trials initiated by pharmaceutical companies and also initiated our own trial within Amsterdam UMC studying the effect of lithium on the spread of APC mutant cells within intestinal crypts in FAP patients and the effect on polyp burden (BMC Gastroenterology, PMID: 35962368).

Last, the mental impact of FAP on patients and their families can be vast, as we recently discussed in a systematic review (Psychooncology, PMID: 40356044).

Living with an increased risk of cancer, undergoing colorectal surgery at a young age and lifelong endoscopic surveillance are some of many factors in FAP that could provoke mental health issues. We are currently studying how to timely detect psychosocial issues in FAP patients and subsequently how to handle these accordingly.

Ultimately, our efforts on different aspects within the management of FAP are directed toward reducing cancer burden in patients with FAP, while preserving their quality of life.

Optimizing women's health in diabetes care

Veronika Duwel and Sarah Siegelaar

Being diagnosed with diabetes (DM) is a significant burden for those affected, with potentially large psychological impacts. This diabetes distress in turn is associated with poor glycemic control. However, for people with DM optimizing glucose management is of utmost importance, since higher glucose values directly relate to the incidence of micro- and macrovascular complications as diabetic retinopathy, nephropathy and cardiovascular disease. Specifically, women with diabetes face large challenges in glucose optimization as hormonal changes during the menstrual cycle, pregnancy and (peri)menopause negatively influence glucose management. It is therefore necessary to specifically target women's health in diabetes care. The goal of this research line is to objectify both physical and psychological woman-specific challenges of DM and develop tailor-made interventions to overcome sex-based differences.

Zooming in on pregnancy, we see that maternal metabolism adapts to meet the increasing demands of fetal growth, including a physiological rise in insulin resistance throughout the second and third trimesters. However, women with pregestational diabetes mellitus (PGDM) cannot compensate and require close monitoring to prevent dysglycemia and its complications. Hyperglycemia in pregnancy is associated with an increased risk for negative outcomes, such as preeclampsia, preterm labor, cesarean section, and stillbirth. Changing insulin requirements make it an especially demanding time for women with PGDM and their healthcare providers.

Our team (PhD student Veronika Duwel, funded by Diabetesfonds 2023) aims to improve care for pregnant people with PGDM in the Netherlands through national data collection and developing best practice protocols. The last large study on the PGDM population in the Netherlands was conducted in 2004, a new dataset will help inform patients as well as healthcare professionals and policy makers on current best practices to reduce negative fetal and maternal outcomes. Our primary goal is to establish the Diabetes in Pregnancy Registry in the Netherlands (DiaPregNL) through collaboration with the Dutch Pediatric and Adult Diabetes Registry (DPARD). We will pilot a pregnancy-related variable set in the 2027 DPARD national data extraction, scheduled for early 2028.

Nation-wide data extraction takes considerable time, as national implementation is inherently a slow process, and relevant stakeholders need to reach agreement. To fill the knowledge gap in advance of the registry becoming operational, in 2025 we initiated a multicenter observational cohort. This non-WMO prospective study documents diabetes treatment throughout pregnancy, perinatal outcomes, and patient-reported outcomes and experiences. Such a design allows us to complement clinical outcomes together with patient perspective. Since starting data collection in July 2025, we recruited more than 55 participants from five hospitals. Four other centers just started recruitment, and eight more await local approval. Additionally, there are 18 more centers interested in participating; if all centers participate, this cohort will comprise 50% of eligible hospitals in the Netherlands, ensuring representativeness.

Standardization of care through national guidelines ensures consistent application of advances in PGDM management. The most recent Dutch guidelines for treatment of PGDM are from 2018 and no longer reflect current advancements in diabetes treatment. We conducted a survey to map current care practices among Dutch obstetrics and diabetes care providers. In 2025, 118 Dutch care providers responded representing 97.1% of eligible hospitals (56 internal medicine and 62 obstetrics departments). Several themes emerged as candidates for addressing in any updated guidelines: national preconception glycemic targets, timely preconception counselling, clearer eligibility for glucose sensor access, uniform treatment advice, and multidisciplinary collaboration. We plan to publish our results later in 2026.

AGEM Science Impressions 2025

For menopause, our group is part of the national MenoPause consortium (NWO-consortium grant 2023). During the menopausal transition, the menstrual cycle eventually stops, and estrogen levels decrease to (nearly) absent. This transition to menopause is unfavorable for women showing higher cardiovascular and osteoporosis as well as diabetes risk. We investigate the relation between diabetes and menopause on a basal, clinical, and epidemiological level. We assess the effect of estrogen on liver health (together with PI Eveline Bruinstroop, PhD student Merel Goedkoop), since postmenopausal women show increased incidence of MASLD. Clinical studies (PhD student Rona Brokkelkamp) zoom in at the effects of menopausal hormone therapy (MHT) on insulin sensitivity, glucose regulation and liver fat measured with MRI (AGEM innovation grant 2026) in (peri)menopausal women with type 1 and type 2 DM. We also are setting up a longitudinal cohort of women with DM1 to look more in detail into the menopausal transition; what happens when? Our group has previously shown that two thirds of postmenopausal women with type 1 DM experience negative changes in their glucose management around menopause, the extent related to the severity of menopausal symptoms. Epidemiological studies use data of the multiethnic longitudinal HELIUS cohort to investigate the relation between menopausal status, symptoms, diabetes risk, and diabetes regulation (together with PI Irene van Valkengoed, PhD student Erik Kemper).

Best Publication 2025

In 2026, AGEM once more organized the Best Publication battle. For this, all AGEM principal investigators (PIs) had the opportunity to nominate publications of their best researcher, PhD student or postdoc, that published as first author in a top journal in 2025.

Out of these nominees, members of the AGEM Research Board selected a top four. These selected candidates were offered a pitch workshop and, with the skills learned, Koen Vermeijden, Job Saris, Han Jiao and Iman Hu pitched their publication during the AGEM award ceremony on Thursday May 21st, 2026. After this so-called "AGEM Best Publication 2025 Battle" a jury, consisting of Clara van Karnebeek, Wendy den Elzen, Joris Erdmann, and Ric van Tol, choose their ultimate favorite that became the winner of the AGEM Best Publication 2025.

Meet the nominees for the AGEM Best Publication 2025

Koen Vermeijden

Koen Vermeijden was nominated by Marc Benninga for the article published in Gastroenterology: *"Mebeverine and the Influence of Labeling in Adolescents With Irritable Bowel Syndrome or Functional Abdominal Pain Not Otherwise Specified: A 2 × 2 Randomized, Placebo-Controlled Trial".*
Read Koen's article here.

The motivation of Marc Benninga for the nomination was: "A unique study design never before applied in pediatrics, in which positive labeling of a medication led to a significant increase in the effectiveness of both the active drug and the placebo in children with chronic abdominal pain. Together with Robyn Rexwinkel, Koen led this large clinical trial, analyzed the data, and wrote the manuscript."

Job Saris

Job Saris was nominated by Joep Grootjans for the article published in Nature Communications: *"Peritoneal resident macrophages constitute an immunosuppressive environment in peritoneal metastasized colorectal cancer".*
Read Job's article here.

The motivation of Joep Grootjans for the nomination was: "Job Saris is an exceptionally skilled physician scientist who pioneered the role of the peritoneal immune system, in particular peritoneal macrophages, in driving resistance to therapy in peritoneal metastasized colorectal cancer. He started collaborations with the dept of Surgery and Pathology and Gastroenterology to initiate a clinical trial (MAPS) to collect human material that forms the basis of this manuscript, but also performed experiments in vitro and in vivo in pre-clinical models. This publication formed the basis of our current efforts to start a clinical proof of concept study in which we target peritoneal macrophages in patients with peritoneal metastasized cancer.."

Han Jiao

Han Jiao was nominated by Chun-Xia Yi for the article published in Cell Rep: *"Time-restricted feeding provides limited microglial immunometabolic improvements in diet-induced obese rats" is attached".*
Read Han's article here.

The motivation of Chun-Xia Yi for the nomination was: "This paper makes a major contribution by revealing that time-restricted feeding, despite improving body composition and circadian microglial rhythms, does not reverse obesity-induced microglial immunometabolic dysfunction. By uncovering a persistent "obesogenic memory" in microglia, the study provides a crucial mechanistic insight that reshapes our understanding of why weight regain is so common and identifies a critical target for future therapies."

Iman Hu

Iman Hu was nominated by Riekelt Houtkooper for the article published in Nature Communications: *"Immuno-metabolic stress responses control longevity from mitochondrial translation inhibition in C. elegans".*
Read Iman's article here.

The motivation of Riekelt Houtkooper for the nomination was: "Iman discovered an entirely novel mechanism of how immuno-metabolic stress regulation drives longevity. Besides the scientific novelty I think she particularly deserves this award because she really developed the project from the initial observation by a previous PhD student (just prior to her PhD in 2020) into a mature project, followed several of her own hypotheses with a massive number of small- and large-scale experiments, and in the end had to fight hard to convince the reviewers to accept the paper. As such, the paper is a great example of scientific creativity and persistence."

AGEM Best Publication 2025 Winner

Han Jiao

Time-restricted feeding provides limited microglial immunometabolic improvements in diet-induced obese rats

My name is Han Jiao, and I have worked as a PhD candidate at the Department of Endocrinology and Metabolism under supervision of promotors Chun-Xia Yi and Andries Kalsbeek and copromotor Rinke Stienstra. My research focused on how obesity affects microglia, the immune cells of the brain, and whether dietary timing can help restore their function. Together with Jarne Jermei, Xian Liang, Hendrik van der Zande and other co-authors, we investigated how time-restricted feeding affects microglial immunometabolism in diet-induced obese rats. In March 2026, I successfully defended my PhD, and from July I will continue my research as a postdoctoral researcher at the University of Oxford.

Obesity is highly prevalent worldwide and is often studied through changes in body weight, fat mass and metabolic health. However, obesity also affects the brain. Microglia, the brain's resident immune cells, are sensitive to nutritional and metabolic stress, and their dysfunction may contribute to long-lasting effects of obesity. This made me interested in whether improving body weight through a dietary intervention would also mean that the brain's immune environment recovers.

AGEM Best Publication 2025

The article that was awarded the AGEM Best Publication 2025 Award made me very happy because it highlights a central message of my PhD research: weight loss does not necessarily mean full biological recovery. In this project, we studied whether time-restricted feeding, a dietary strategy that limits food intake to specific times of the day, could improve obesity-induced changes in microglia.

We used diet-induced obese Wistar rats and compared different feeding schedules. We found that restricting food intake to the active phase reduced fat mass, strengthened rhythmic patterns in the microglial transcriptome, and prevented an obesity-associated increase in hypothalamic microglial cell numbers. However, time-restricted feeding did not fully reverse obesity-induced microglial immune dysfunction and metabolic disturbances, including impaired mitochondrial activity, altered lipid metabolism and reduced metabolic flexibility. Therefore, our findings suggest that some obesity-induced changes in microglia may persist despite improvements in body weight. This may help explain why the body and brain can retain an "obesogenic memory" after dietary interventions, and why long-term recovery from obesity may require more than weight loss alone.

Grants 2025

In 2025, AGEM awarded four types of grants. Like previous years AGEM awarded the AGEM talent development grant for exceptionally talented researchers who are in the first 5 years after obtaining a PhD-degree and want to start their own research line (VENI-like-profile) or who want to further develop their own research line (VIDI-profile, max 8 years after PhD graduation), the AGEM innovation grant for innovative ideas beneficial to the AGEM research institute as a whole, the AGEM international student fellowship for (bio-)medical students (in their MSc-program or just graduated) to participate in a research internship for a 6-12 months at an international top institute, and the AGEM contribution printing costs of theses for AGEM PhD candidates.

The AGEM talent development grant 2025 (€100.000)

Marte Molenaars (VENI-like-profile)

The Iron Clock: Optimizing Circadian Iron Metabolism to Improve Sex-specific Iron Status

.I am a postdoctoral researcher in the department of Endocrinology. My research focusses on iron; the most abundant transition metal in biological systems. Every living cell needs iron, where its used not only for heme but also for many metabolic enzymes enabling for instance energy production. Conversely, the iron pool should be kept at a minimum, as excess free iron is harmful due to its reactivity. For this reason, many iron regulatory mechanisms evolved to prevent both iron deficiency and iron toxicity. Currently I am taking the next steps towards an independent research line focused on these iron regulatory pathways, as many people will, or already experience problems regarding iron status. That is:

1. Iron deficiency is the most prevalent nutritional deficiency, affecting 40% women causing fatigue, muscle/joint pain, sleep problems, and more.
2. Iron accumulates in almost all tissues during aging, which is associated with many age-related diseases.

The AGEM talent development grant allows me to study how iron regulatory mechanismare affected by sex-hormones and 24 hour day-night rhythms. While sex-specific differences in iron handling are historically ascribed to menstruation, sex-hormones may actually be responsible for this, as animals lacking a menstrual cycle show similar sex-specific differences. Moreover, though it is known that iron uptake and export processes show 24-hour (circadian) rhythms, this phenomenon is underexplored, and optimal timing of iron intake and cellular processing is unknown. As of yet, day-night rhythms are not included in either diagnosis or treatment of iron deficiency. The same holds for taking into account the estrous cycle. My ultimate goal is to optimize the timings of iron intake, to both resolve iron deficiency as well as harmful excess iron storage that accumulates during aging.

Sofie Bosch (VENI-like-profile)

The development of a user-friendly, non-invasive, handheld fecal gas sensor for athome population-based screening for colorectal cancer and high-risk polyps: advancing from early detection to prevention

During my PhD, I investigated how the gut microbiota and human metabolism interact in the context of colorectal cancer (CRC) and explored novel biomarkers for early detection of the disease. Together with my research team, I discovered that analysis of volatile organic compounds (VOCs)—the scent molecules present in stool—can identify individuals with high-risk polyps and colorectal cancer with remarkable accuracy. We optimized the experimental conditions for this approach using an "electronic nose" (eNose), a sensor-based technology that detects complex scent patterns.

After completing my PhD, I continued this line of research alongside my clinical training in gastroenterology and hepatology. In collaboration with a technical university, I am currently working on the development of a portable, low-cost eNose device for early, non-invasive detection of colorectal cancer. Furthermore, I am expanding this research framework to include other gastrointestinal malignancies, such as pancreatic and bile duct cancers.

The AGEM talent development grant allows me to investigate whether the colorectal cancer (CRC)-specific scent patterns we previously identified remain consistent across geographical regions within the Netherlands, and whether they can be reliably reproduced in multiple independent external cohorts. This validation phase is crucial to ensure the robustness, generalizability, and clinical applicability of the scent-based diagnostic approach. Upon successful validation, this research will lay the foundation for the design and production of a dedicated CRC-specific electronic nose (eNose) prototype optimized for large-scale, population-based screening programs.

Ultimately, our goal is to enhance the prevention and early diagnosis of colorectal cancer in a population based screening setting, by reducing the number of missed cancer cases, identifying high-risk polyps before malignant transformation, and minimizing the need for unnecessary invasive procedures such as screening colonoscopies.

The AGEM innovation grant 2025 (€25.000)

Kitty Latupeirissa and Annemieke Heijboer

Improving the diagnosis of thyroid disease by establishing multi-ethnic reference intervals for thyroid hormones, a collaboration with the HELIUS cohort

Kitty Latupeirissa is a medical doctor and PhD candidate at the Endocrine Laboratory at Amsterdam UMC. In her research, she focuses on improving laboratory diagnostics for hypo-and hyperthyroidism with an emphasis on optimizing thyroid diagnostics in specific patient groups, such as pregnant women and ethnic minorities. Her PhD project comprises various types of studies: clinical studies involving patient contact in collaboration with clinicians, research on laboratory measurements in collaboration with laboratory specialists, and observational data analyses.

Annemieke Heijboer is a clinical chemist-endocrinologist, professor in Endocrine Laboratory Medicine and head of the Endocrine Laboratory Amsterdam UMC. She is an expert in hormone analysis and clinical application, with a focus on steroid and thyroid hormones. She is chair of the Endocrine committee of the Dutch Society for Clinical Chemistry, member of the Postanalytical committee of the European Federation of Laboratory Medicine and member of the Lab Service committee of the American Thyroid Association. NWO-KIC consortium.

The AGEM innovation grant allows us to to measure multiple thyroid hormones by immunoassay in nearly 6000 blood samples from individuals representing six different ethnic groups. These samples were made available through a newly established collaboration with the Amsterdam-based, multi-ethnic cohort study HELIUS (HEalthy Life in an Urban Setting). Because a wide range of clinical information about the participants is available, we will not only be able to investigate the potential influence of ethnicity on thyroid hormone levels, but also gain insight into the possible underlying mechanisms. This grant enables us to contribute to more equitable and inclusive diagnostics for thyroid diseases.

Maria Trętowicz and Riekelt Houtkooper

Drop-of-blood metabolomics for lifestyle efficacy and healthy aging

Maria Trętowicz is a biomedical scientist specializing in mass spectrometry–based metabolomics. Her PhD research develops integrative omics approaches to study the metabolic effects of lifestyle interventions, aging, and age-related diseases. By applying these techniques to minimal blood volumes and human tissues such as muscle, adipose tissue, and brain, she captures the complexity of metabolic regulation in aging across systems. As part of the NADIS consortium, she investigates whole-blood NAD^+ levels as a biomarker and sensitive indicator of biological age. Her work translates complex omics data into insights that advance understanding of human metabolism and healthy aging.

Riekelt Houtkooper is a biomedical scientist and Professor of Translational Metabolism at Amsterdam UMC. His research focuses on mitochondrial function and rare metabolic disorders such as Barth syndrome, and on how mitochondrial dysfunction drives aging and metabolic decline. As head of the NAD International Scientist (NADIS) training network, he leads international efforts across ten research centers in Europe to investigate how NAD^+ metabolism connects cellular energy regulation with longevity. His work bridges molecular biology and clinical translation, aiming to translate molecular insights into biomarkers and interventions that restore and maintain metabolic function in both rare diseases and aging.

The AGEM innovation grant allows us to validate a minimally invasive, drop-of-blood metabolomics approach for assessing the metabolic effects of aging and lifestyle interventions. Using ultra-high-performance liquid chromatography coupled to high-resolution mass spectrometry (UPLC-HRMS), we analyzed 10 µL whole-blood samples from five diverse human cohorts, ranging from elite athletes to frail older adults undergoing exercise and nutritional interventions. This comprehensive dataset revealed metabolomic signatures of aging, physical performance, and lifestyle efficacy, which we cross-compared to identify shared and opposing trends. Importantly, we identified 26 metabolites—such as glutathione, lactate, and taurine—that shift in opposite directions between aging and effective interventions. Supported by the AGEM grant, we were able to integrate data and expertise across multiple human cohorts, establishing the feasibility of drop-of-blood metabolomics for tracking metabolic adaptations to aging and lifestyle interventions. These findings provide a framework for applying drop-of-blood metabolomics in clinical and research settings to assess metabolic responses across different cohorts and intervention types.

Rimke de Kroon and Mirjam van Weissenbruch

Development of a novel amniotic fluid-based diagnostic tool: early identification of extremely preterm infants exposed to chorioamnionitis (AMFIBIE study)

Rimke de Kroon is a medical doctor and PhD student at the Department of Pediatric Gastroenterology and Neonatology of the Amsterdam UMC. In her PhD research, she explores the role of amniotic fluid in the development of the preterm gastrointestinal tract and early intestinal colonization of extremely preterm infants. Through this interdisciplinary work, she contributes to a deeper understanding of early-life gastrointestinal development and the identification of novel amniotic fluid-based diagnostic tools to improve neonatal outcomes. For the current project, she collaborates closely with the department of Obstetrics and Clinical Chemistry of the Amsterdam UMC.

Mirjam van Weissenbruch is a pediatric-neonatologist. She holds a full professorship in Neonatology at the Amsterdam UMC. Her work centers on neonatal development, nutrition, and metabolism. She supervises several PhD students and leads international collaborations, including collaborations with universities in South Africa and Indonesia, integrating global child health efforts. She is one of the initiators and principal investigator of the AMFIBIE study, which is currently ongoing at the Amsterdam UMC and Maxima Medical Center. strengthen one another every day.

The AGEM Innovation Grant has allowed us to perform both microbial and metabolic analysis on amniotic fluid samples and longitudinal fecal samples collected within the AMFIBIE study. With this support, we are able to investigate the composition of amniotic fluid collected during extremely preterm birth and determine how the composition is altered in the presence of intra-uterine inflammation (or chorioamnionitis). Furthermore, the grant allows us to examine how variations in amniotic fluid composition influence early-life gut colonization in extremely preterm infants. In the future, this research may contribute to the development of novel amniotic-fluid-based diagnostic tools to identify extremely preterm infants exposed to chorioamnionitis, and therefore at increased risk to develop diseases such as necrotizing enterocolitis or sepsis, at an early stage. Overall, this grant strengthens our ability to advance early diagnostics and improve outcomes for this vulnerable population.

Romy de Kroon and Annemieke Heijboer

Improving the diagnosis of non-classical congenital adrenal hyperplasia, improving women's health

Romy de Kroon is a Master's student in Medicine at the University of Amsterdam and a PhD student at the Endocrine Laboratory of the Amsterdam UMC. In her PhD research at Amsterdam UMC, she focuses on advancing both the clinical and biochemical diagnosis of hirsutism and its psychosocial, cardiovascular and metabolic impact in women. This includes the use of digital microscopy as an objective quantification tool for hirsutism, as well as the investigation of new biomarkers to strengthen the diagnostic framework for female-specific endocrine conditions.

Annemieke Heijboer is a clinical chemist-endocrinologist, professor in Endocrine Laboratory Medicine and head of the Endocrine Laboratory Amsterdam UMC. She is an expert in hormone analysis and clinical application, with a focus on steroid and thyroid hormones. She is chair of the Endocrine committee of the Dutch Society for Clinical Chemistry, member of the Postanalytical committee of the European Federation of Laboratory Medicine and member of the Lab Service committee of the American Thyroid Association.

The AGEM innovation grant allows us to perform DNA mutation analyses of the CYP21A2 gene in 83 samples with detectable 21-deoxycortisol concentrations, collected within the Netherlands Epidemiology of Obesity study at Leiden University Medical Center. 21-deoxycortisol is a highly specific neonatal screening marker for classical congenital adrenal hyperplasia due to 21-hydroxylase deficiency, but it relevance in adults who may suffer from late-onset congenital adrenal hyperplasia remains unclear. The AGEM Innovation Grant enables us to investigate genetic implications of detectable 21-deoxycortisol concentrations in the general adult population. Importantly, clinical manifestations of late-onset congenital adrenal hyperplasia, such as subfertility and hirsutism, are predominantly observed in women. 21-deoxycortisol may therefore contribute to a more comprehensive framework for female-specific endocrine conditions. With this grant we will increase the knowledge on 21-deoxyocortisol in the context of CYP21A2 mutations, potentially leading to a better biomarker to diagnose late-onset congenital adrenal hyperplasia.

The AGEM international student fellowship 2025 (€500/month)

Stacia Everts

Sex-Dependent Responses to Targeting Ceramide De Novo Synthesis in Metabolic Associated Steatohepatitis in PWK/PhJ Mice

Metabolic dysfunction-associated steatohepatitis (MASH) is an age-related liver disease characterized by fat build-up and damage in the liver. This disease is sexually dimorphic, meaning that men and women are affected differently. Currently, only one treatment is available for MASH, but it is not effective for all patients. For my internship, I joined the laboratory of Prof. Dr. Johan Auwerx at EPFL, where a new drug called ALT-007 was recently discovered. This drug is hypothesized to alleviate MASH symptoms by reducing specific fat molecules known as ceramides.

My project used a specific mouse model, called PWK/PhJ, that closely mimics human MASH. I observed that the disease progressed differently between male and female mice on a molecular level. When treated with ALT-007, only male mice showed improvements in fat metabolism and mitochondrial function in the liver, which are also affected in human MASH. Furthermore, I found that ALT-007 reduced fat buildup in lab-grown liver cells, prevented accumulation of damaged proteins, and improved the cells' ability to use oxygen. My contributions to this research help better understand how sex-based differences influence MASH progression on a physiological and molecular level, while showing promising results for the development of new treatments for all MASH patients.

Britta de Haan

Inadvertent papillectomy and mismatch in pathology results: a two-center international retrospective cohort study

Papillary adenomas are rare premalignant lesions of the ampulla that require precise diagnostic evaluation, as their main treatment, endoscopic papillectomy (EP), carries substantial procedural risk. Yet, diagnostic discrepancies between pre-resection biopsies and post-resection histopathology are common, and inadvertent papillectomies (IAPs), defined as resections without dysplasia on final pathology, may expose patients to unnecessary complications.

During my six-month AGEM International Student Fellowship at Westmead Hospital in Sydney, I conducted a retrospective dual-center cohort study of 250 patients who underwent EP in Sydney and Amsterdam. I collected clinical, endoscopic, and histopathological data and compared pre- and post-resection findings to evaluate diagnostic accuracy.

IAPs occurred in 6.0% of cases, while specialized pathology review led to reclassification in reviewed cases, highlighting the value of expert assessment. Histological discordance was observed in one-third of patients, and high-grade dysplasia on biopsy strongly predicted adenocarcinoma after resection.

These findings underscore the diagnostic limitations of biopsy sampling in ampullary lesions and support structured second-opinion pathology and multidisciplinary evaluation. By refining patient selection and pre-resection assessment, our work may inform future guidelines and reduce overtreatment and procedure-related complications. The fellowship reinforced my commitment to my PhD in gastroenterology.

Luise Elizabeth Veelken

The potential substrates of sideroflexin 4 transporter function

Mitochondria are essential metabolic organelles coordinating metabolism and signalling processes in multicellular organisms, and are integral to human physiology. Despite long-standing efforts to decode the molecular functions of the ~1500 proteins localizing to mitochondria, select mitochondrial protein families remain poorly understood. Sideroflexin 4 (SFXN4) is a nuclear-encoded mitochondrial protein localized in the inner mitochondrial membrane that plays a crucial role in mitochondrial respiration and complex I assembly. Loss of SFXN4 has been shown to impair mitochondrial respiration and alters levels of metabolites involved in the TCA cycle, whereas overexpression of SFXN4 boosts mitochondrial respiration and TCA cycle flux, indicating a possible transporter function. Despite being part of the sideroflexin family of inner mitochondrial membrane proteins, of which at least three out of five are serine transporters, the transporter function of SFXN4 still remains elusive.

During my internship at Harvard University we plan to screen for potential SFXN4 transporter functions by performing metabolite uptake assays, MitoIP-based mitochondrial metabolite profiling, and a CRISPR-Cas9 proliferation screen in SFXN4-null cells with reintroduced yeast complex I analogue NDI1. The identified metabolic changes and genetic interactions will contribute to a better understanding of SFXN4-related rare metabolic diseases.

Julie Door Höppener

Gene therapy targeted towards the proximal tubule of the kidney

Cystinosis is a rare genetic disorder affecting the kidneys. It is estimated that cystinosis occurs somewhere between 1 in 100,000 to 1 in 200,000 live births. It is usually diagnosed at a young age and immediate intervention is required to save the kidneys, however transplants are often still needed.

The problem in cystinosis is a build-up of the amino acid cystine. This causes cystine crystals to form in many organs of the body. These crystals form first in the kidneys and the eyes, and later in the muscles, pancreas, thyroid gland and white blood cells. The proximal tubular cells of the kidney are particularly susceptible, resulting in proteinuria and progressive renal dysfunction. Currently, no therapy can fully cure cystinosis, and existing treatments are associated with significant side effects.

That is why the aim of my project is to develop a gene therapy using adeno-associated-viruses (AAVs) as a delivery vector. The virus will introduce a functional copy of the defective gene to the patient preventing cystine build-up and hopefully stopping further damage to the kidneys. The main focus of my research is trying to find the right AAV serotype for proximal tubular cell tropism and achieving high transduction efficacy and transgene expression in these cells by choosing the right promoter. We are still in the early stages, but the prospects for this therapy are promising. In my picture you see HEK cells transduced with our current viral construct, demonstrating robust GFP expression.

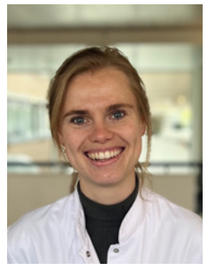
Pinelopi Kokkou

Uncharted Player in Type 2 Diabetes

Type 2 Diabetes (T2D) is a heterogeneous disease with inflammatory subtypes. Monocytes are suspected major drivers of inflammatory T2D, as they differentiate into tissue macrophages and contribute to disease progression. Metabolic and inflammatory signals are also suspected to induce epigenetic and transcriptional alterations via currently unknown mechanisms. Functional epigenomics studies suggest that such alterations are tightly controlled by transcription factors, coregulators, and histone/DNA modifications, which dynamically remodel chromatin and define cis- regulatory elements. Recent advances, primarily based on mouse macrophage studies, revealed that the HDAC3 corepressor complex is a key coregulator of metabolic-inflammatory pathways. Notably, the expression of its subunits in human macrophages is negatively correlated with inflammation and diabetic status. The intriguing hypothesis that an immuno-metabolic disease environment alters corepressor complex function has yet to be experimentally addressed.

My project aims to uncover novel mechanisms of corepressors action in human immune cells. I will investigate chromatin accessibility, dynamics, and gene expression in corepressor-depleted human monocytes. Furthermore, I will study how metabolic and inflammatory signals modulate corepressor pathways. Overall, this project promises to shed light on a hitherto uncharted player in the epigenetic control of inflammatory T2D pathophysiology.

The AGEM contribution printing costs of theses 2025 (€250)



Eva Verheij

Date of defense: January 9, 2025

Optimizing and personalizing Barrett's neoplasia management: facilitating future transition

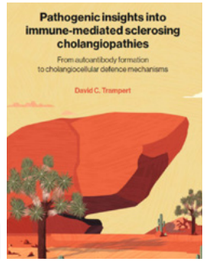
The incidence of esophageal cancer is increasing in Western countries. The main risk factor for development of this type of cancer is having a condition called Barrett's Esophagus and the related changes in cells, called dysplasia. Over the last two decades, endoscopic treatment options for early stages of this type of cancer have proven to be effective and safe. This thesis aimed to optimize the care for patients with Barrett related dysplasia and early esophageal cancer.

Tessa Dieckman

Date of defense: January 29, 2025

Refractory Celiac Disease: from basic insights to therapy

Celiac disease, or gluten intolerance, affects the small intestine. Refractory celiac disease type II (RCDII) is a severe complication where intestinal damage persists, despite a gluten-free diet. This thesis explores medical treatment strategies for celiac disease and describes efficacy of a new therapeutic strategy for RCDII, tofacitinib. Moreover, it provides an in-depth analysis of the immune system in celiac disease and RCDII, offering insight into their pathophysiology, of importance for development of novel therapeutic strategies.



David Trampert

Date of defense: February 19, 2025

Pathogenic insights into immune-mediated sclerosing cholangiopathies: From autoantibody formation to cholangiocellular defence mechanisms

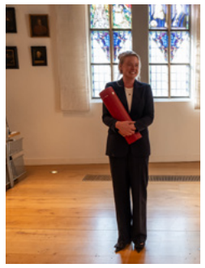
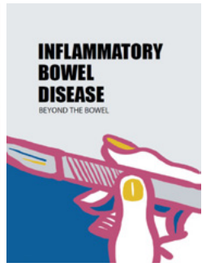
In primary sclerosing cholangitis (PSC) and IgG4-related cholangitis (IRC), the relevance of autoantibodies interfering with cholangiocyte function is unknown. This thesis identifies SLC transporters, carbonic anhydrase (CA) and laminin 511 as key elements defending against toxic bile acids and supporting barrier function. Functional autoantibodies against CA enzymes, especially CA5B, were common in PSC and IRC, while laminin 511 autoantibodies appeared in IRC. These findings suggest that some autoantibodies may disrupt the "cholangiocyte defence triangle".


Anne-Sophie van Rijswijk

Date of defense: March 28, 2025

A Kick in the Guts: Insulin Resistance, Gut Microbiota and Cardiometabolic Diseases

Aim of this dissertation is optimizing pre-, peri- and postoperative bariatric and metabolic surgical care. In the first part, the focus is on the definition of success after surgical weight-loss, the use of %EWL or %TWL in the report of weight-loss and on expectations and risk-acceptation of patients undergoing surgery. The remission of T2DM after surgery is assessed in the second part. The third part reports on the learning-curve of surgical residents in gastric bypass.

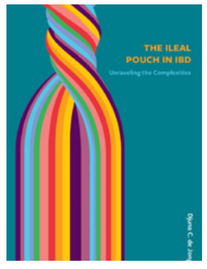



Marte Becker

Date of defense: April 4, 2025

Inflammatory Bowel Disease: Beyond the Bowel

This thesis presents research findings that could improve the management of inflammatory bowel diseases (IBD) such as Crohn's disease and Ulcerative Colitis (UC). The thesis focuses on three key themes within IBD that go beyond the primary involvement of the intestines: perianal fistulas, the role of the mesentery, and the appendix.

Djuna de Jong

Date of defense: May 15, 2025

The Ileal Pouch in IBD: Unraveling the Complexities

Approximately 10% of ulcerative colitis patients require proctocolectomy within ten years, with an ileal pouch-anal anastomosis as the standard reconstruction; pouchitis and other pouch complications are common. Patients with a pouch may experience substantial morbidity. This dissertation focused on evaluating these complications, including chronic pouchitis, Crohn's-like disease of the pouch, and pre-pouch ileitis, highlighting frequent diagnostic challenges and the need for improved identification of postoperative structural problems.

Melanie Benard

Date of defense: June 6, 2025

Microbial Alchemy in Ulcerative Colitis: Crafting the recipe for Fecal Microbiota Transplantation

This thesis investigates how fecal microbiota transplantation (FMT) – transferring healthy gut bacteria – may help treat ulcerative colitis, a chronic bowel disease. It explores how donor selection, stool processing, and other microbes like fungi and protozoa such as Dientamoeba and Blastocystis influence treatment outcomes. The findings aim to improve FMT as a safe, effective, and scientifically grounded therapy by better understanding the complex ecosystem of microbes living in the human gut.


Kim Beek

Date of defense: June 10, 2025

Advances in MRI for Crohn's disease complications

MRI is widely used to evaluate Crohn's disease (CD). This thesis explores MRI advances in assessing stricturing and perianal fistulising CD. The first part investigates quantitative MRI techniques to differentiate inflammatory from chronic strictures. The second part focuses on validating the MAGNIFI-CD index for monitoring treatment response in perianal fistulising CD, including establishing MRI cut-off values for clinical response and remission. The final chapter examines these values in patients treated with Mesenchymal Stem Cell therapy.


Eline Eskes

Date of defense: June 13, 2025

Chronic visceral Acid Sphingomyelinase Deficiency: Paving the way to biomarker development

Acid sphingomyelinase deficiency (ASMD) is a rare lysosomal storage disease in which sphingomyelin accumulates. ASMD covers a broad clinical spectrum with the chronic visceral subtype as the least severe. Treatment has recently become a vailable. The aim of this thesis was to evaluate the current insights regarding imaging and biochemical markers of visceral ASMD manifestations, to use these insights to formulate recommendations for initiation of treatment and to investigate potential new biomarkers of ASMD.


Bregje Mol

Date of defense: September 18, 2025

Lending colour to the black box: Insights into the course and burden of primary sclerosing cholangitis

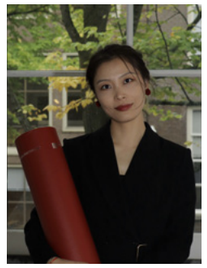
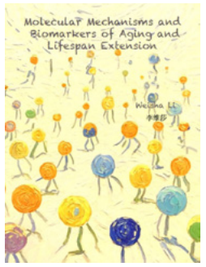
Primary sclerosing cholangitis (PSC) is a rare, cholestatic liver disease closely linked to IBD. It carries substantial clinical and economic burden, with major losses in healthy life-years, high healthcare use, and impaired quality of life. The gut-liver axis is likely to play a pivotal role in the pathogenesis, with proctocolectomy with ileostomy showing a clear benefit.


Ayano Shiba

Date of defense: September 23, 2025

THE CLOCK IS RUNNING - Effects of Timed Exercise and Food intake on the Circadian Timing System in the Rat

This thesis shows that our body's internal clocks in organs like the liver and muscles rely on well-timed eating and exercise to keep metabolism healthy. When eating or physical activity happens at the wrong times, it can disrupt these clocks and increase risks for obesity and diabetes. The research found that aligning meal times and exercise with natural active periods improves metabolism, while the wrong timing harms it—even with healthy food. Hormones and activity also affect the brain's master clock.

Weisha Li

Date of defense: October 6, 2025

Molecular mechanisms and biomarkers of aging and lifespan extension

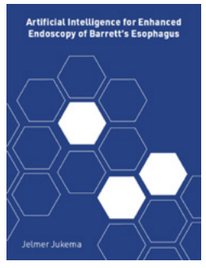
The thesis investigates molecular regulators of aging and lifespan using genetic and systems approaches. It identifies naltrexone as a geroprotective compound acting via SKN-1/NRF2 pathways in C. elegans. Multi-omics analysis of recombinant lines reveals variability in longevity and novel regulators. Doxycycline-induced stress had strain-specific lifespan effects, identifying fipp-1/FIP1L1 as a UPRmt regulator. Human and cross-species lipidomics uncover triglyceride accumulation and acyl-chain lengthening as conserved aging features, linking lipid remodeling to lifespan regulation and cardiovascular disease.


Celine Busch

Date of defense: October 9, 2025

Endoscopic duodenal ablation for the treatment of type 2 diabetes; New insights and techniques

Type 2 diabetes (T2D) is increasing worldwide. Evidence shows the duodenum is a key regulator of glucose metabolism, explaining why gastric bypass rapidly improves blood glucose before weight loss. Based on this, new endoscopic therapies target the duodenal mucosa. Duodenal mucosal resurfacing (DMR) and recellularization via electroporation therapy (ReCET) regenerate mucosa, improving glucose control and related conditions such as fatty liver and cardiovascular risks. These minimally invasive techniques show promise as safe, durable treatments for T2D.

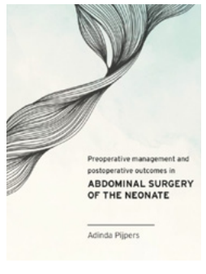



Jelmer Jukema

Date of defense: October 21, 2025

Artificial Intelligence for Enhanced Endoscopy of Barrett's Esophagus

Barrett's esophagus (BE) carries a small but serious risk of progressing to esophageal cancer, making reliable surveillance critical. This thesis describes the development and validation of AI-powered systems to assist endoscopists in detecting and characterizing BE neoplasia. The CADe system outperformed general endoscopists and matched expert-level sensitivity, while the CADx system similarly boosted diagnostic accuracy. Additional research explored domain-specific AI pretraining and optimal visual interfaces, collectively advancing AI-assisted endoscopy toward clinical implementation.

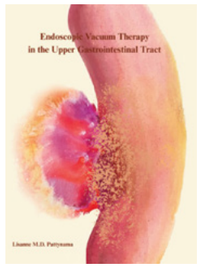



Adinda Pijpers

Date of defense: November 14, 2025

Preoperative management and postoperative outcomes in abdominal surgery of the neonate

This thesis shows that neonatal abdominal surgery for congenital gastrointestinal diseases requires a multidisciplinary approach to improve outcomes. Part I examines prenatal screening, associated anomalies, and long-term outcomes in duodenal obstruction. Part II investigates postoperative mortality, complications, and risk factors in necrotizing enterocolitis, and addresses the lack of a standardized definition for NEC totalis. Part III studies contrast-induced hypothyroidism after enteral iodinated contrast use in neonates.

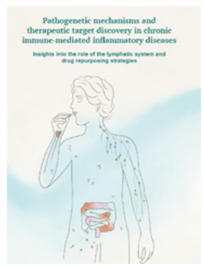



Lisanne Pattynama

Date of defense: November 19, 2025

Endoscopic Vacuum Therapy in the Upper Gastrointestinal Tract

This thesis explores endoscopic vacuum therapy (EVT), a minimally invasive endoscopic treatment for upper gastrointestinal tract defects, mostly after esophago-gastric surgery. By applying suction through a vacuum-sponge or -stent, EVT helps to establish source control and promotes secondary wound healing. The studies show EVT is effective and safe, can improve recovery, reduce the need for additional surgery, and may lower healthcare costs. Further research is needed to establish evidence-based protocols.

Dimitrios Nikolakis

Date of defense: November 27, 2025

Pathogenetic Mechanisms and Therapeutic Target Discovery in Chronic Immune-mediated Inflammatory Diseases: Insights into the Role of the Lymphatic System and Drug Repurposing Strategies

Overall, this PhD thesis highlights the value of cross-disease research in identifying new mechanisms and therapies for immune-mediated inflammatory diseases. It focusses on the role of the lymphatic system in the pathogenesis and treatment of inflammatory bowel disease (IBD), as well as on drug discovery for systemic lupus erythematosus, rheumatoid arthritis, and IBD-associated intestinal fibrosis. It provides a foundation for future translational research to improve patient outcomes.


Anhui Wang

Date of defense: December 1, 2025

Timing of light: circadian and metabolic effects

In mammals, the circadian timing system consists of a light- sensitive central brain clock located in the hypothalamic suprachiasmatic nucleus (SCN) and various peripheral clocks. Disruption of this circadian system is associated with adverse health problems including adiposity and diabetes mellitus. The overall aim of this thesis was to study the effects of (the timing of) light, on the circadian system and energy metabolism in rats and humans.

Events 2025

AGEM PhD candidate course

AGEM PhD candidate course 2025

January 21st till 29th, 2025

Amsterdam UMC, location AMC, Amsterdam

From Tuesday January 21st till Wednesday January 29th AGEM organized the AGEM PhD candidate course for the fifth time. This course aims to inform (starting) PhD candidates about gastroenterology, endocrinology and metabolism, including those topics that are not necessarily within the scope of the PhD candidates own research. The course was coordinated by Annemieke Heijboer and Hilde Herrema and 15 teachers gave lectures during the course.

Tuesday through Friday of the first week, all participants were given an overview of general insights and methodology applicable to gastroenterology, endocrinology and metabolism in daily lectures with subjects ranging from the pathophysiology of intestinal diseases to organoids as model system for GI research, from endocrine physiology to techniques for measuring hormones, and from inborn errors of metabolism to tools to study acquired metabolic disease.

Over just under two weeks, six interdisciplinary teams collaborated to develop a 1,500-word research proposal and craft a compelling pitch to present their ideas. This approach fosters innovative thinking and cross-disciplinary collaboration, leading to truly original research proposals. Both the best proposal and the best pitch were awarded separately, but for the first time, one team won both! They skillfully applied the insights from the pitch workshop, winning over their peers, and impressed the AGEM research board with the quality of their proposal securing the €5000 grant to bring their research to life.

A huge well done to all teams for the exceptional work they delivered in such a short time. We hope the skills they honed during this course will serve you throughout your research careers!

AGEM annual retreat

AGEM retreat 2025

April 3rd and 4th, 2025

Bilderberg Hotel 't Speulderbos, Garderen

At 10am on Thursday, April 3rd, Nanne de Boer and Diederick van Doorn welcomed around 105 attendees to the AGEM retreat at Bilderberg 't Speulderbos. Over two days, PhD candidates and postdocs presented their work through posters, pitches, and classical talks, fostering inspiration and connection among young researchers.

The program began with Session A, followed by keynote speaker Bart Takkenberg, who challenged the idea of "healthy drinking" by explaining the broader health risks of alcohol. His engaging talk encouraged the audience to see alcohol as the new smoking.

After a short break, participants joined parallel sessions for more interactive presentations, followed by a sunny lunch on the patio. A range of afternoon workshops followed: action painting, PowerPoint karaoke, optimizing the biological clock, public speaking, and PhD organization, plus a forest walk and even a run, earning one participant a shoutout from the next keynote speaker.

Marjolijn Duijvenstein's keynote focused on sustainability in healthcare, urging researchers to consider the environmental impact of their work, from hospital transport to food choices, and to explore life-cycle assessments to reduce their carbon footprint.

The last presentation session of the day was the poster session. Poster sessions always evoke great interactive discussions with the researchers.

The evening program consisted of dinner, a pub-quiz, and a chance to dance and chat while the DJ spun records all night. There was a prize going for best dressed at the themed party, with the theme being: Your favourite TV show/movie. There were many great contenders for the award, and it was great to see all the costumes dot around the dancefloor.

Friday began with bootcamp and yoga for the early risers, then continued with Session C and a keynote by Georges Janssens on the science of ageing. His energetic talk explored how ageing might be influenced, highlighting the “hallmarks of ageing” and questioning whether mortality has a fixed limit.

One last parallel session followed, with participants still fully engaged. After Session E, the retreat wrapped up with a new feature: a prize lottery for those who stayed to the end.

The committee then announced the winners of various awards:

- Best classical presentation: Kitty Latupeirissa
- Best elevator pitch: Steven Eleanora
- Most active participant: Merel Goedkoop
- Best outfit: The Alice in Wonderland group
- Best poster: Ilaria Micallo

AGEM meetings 2025

Young AGEM event “Alternative Careers”

January 14th, 2025

Volkshotel, Amsterdam

On January the 14th, Young AGEM organized and hosted an event at the Volkshotel in Amsterdam, titled Alternative Careers, aimed at researchers who are considering taking career steps outside of academia.

The discussion compared the experiences of the panelists both inside and outside of academia, bringing to light both the pros and the cons that each industry brings with them. Their personal stories as well as their advice elicited interested questions and chuckles from the audience. What made for an especially insightful twist in the discussion was the fact that one of the speakers returned to academia after a meaningful time outside of it, demonstrating that leaving academia does not have to be a permanent decision.

After the panel discussion, all participants of the event gathered around tables, enjoyed a vegetarian meal and refreshing drinks, and listened to each other’s stories and reflections on the talk.

AGEM symposium: “(Dis)balances in Androgens Throughout Life”

March 7th, 2025

Volkshotel. Amsterdam

On Friday, March 7th, AGEM hosted the “(Dis) balances in Androgens Throughout Life” symposium at the Volkshotel, Amsterdam. Following registration, coffee, and stroopwafels, the morning kicked off with Annemieke Heijboer, head of the Endocrine Laboratory at Amsterdam UMC. Her talk on methods for measuring androgens provided attendees with a solid foundation to critically engage with the rest of the day’s presentations. How important is it to consider which measurement method we use? What does that mean for reference intervals, and how do we even establish reference intervals for something influenced by so many different factors?

Bas Adriaansen opened Session 2 (Androgens in Children) with a talk on androgen overproduction in girls due to congenital adrenal hyperplasia, impressing everyone with his excellent presentation and delivery. Sabine Hannema followed with a discussion on androgen deficiency in childhood, highlighting the potential predictive functions of mini-puberty. Lidewij Boogers sparked an engaging discussion on testosterone suppression and supplementation in transgender adolescents, emphasizing the consequences of initiating and discontinuing hormone treatments at different stages of a transgender person’s life. The session concluded with Baudewijntje Kreukels, who explored the psychological effects of having too many or too few androgens, an especially relevant topic given evolving perspectives on sex and gender differences.

During the lunch break, half of the attendees and speakers could be found enjoying their sandwiches and soup in the sunshine, it was, after all, a sunny March day. The other half opted to stay inside, continuing discussions from Session 2 around the standing tables.

Session 3 started strong with Joop Laven’s talk on PCOS. Did you know that PCOS symptoms generally decline with age and that individuals with PCOS may have a later fertile window in life? Joop also discussed the characteristics associated with the offspring of individuals with PCOS. Inge Custers immediately captured everyone’s attention by opening her talk with the question: “What is sex?” She explored the influence of age, and androgens, on sex throughout life, drawing an analogy between the progression of sex drive and the ability to complete a marathon at different life stages. Andreas Meißner followed with a highly interactive, clinically inspired presentation on the effects of androgen deficiency in males. He presented unique cases, including one that demonstrated how low testosterone levels do not always necessitate replacement therapy if the patient does not experience negative effects or feel the need to increase their levels. Lastly, Pim de Ronde shared the background of how the Anabolenpoli, a clinic for individuals using anabolic steroids for performance, came to be. He presented results from two major studies conducted at the clinic, highlighting key findings such as: “Without any patient education on steroid use, individuals are likely to take significantly more than intended.” A great example of how creating a safe and open environment can improve both patient and healthcare outcomes.

The day wrapped up with drinks and classic Dutch snacks, providing attendees with the opportunity to connect with speakers and each other to discuss the day’s fascinating insights. A successful event that will keep its momentum going for some time!

Young AGEM event “Experiences Abroad”

May 15th, 2025

Amsterdam UMC, location AMC, De Vrijzaal

On May 15th, the Young AGEM board organized their final event of the 2024–2025 academic year. This event took place in-house at Amsterdam UMC, AMC, and was combined with a Young AGEM lunch event. It was well-attended by about 30 early-career researchers, including one master’s student, who were interested in pursuing research abroad.

A panel of three Amsterdam UMC researchers, each of whom had spent part of their career outside the Netherlands, presented their journeys in short presentations and then answered questions from the Young AGEM board as well as the attendees.

The audience was particularly interested in the grant procedures, how the researchers chose a research group to apply to, and how they experienced settling into a new country. The answers varied widely, from one researcher who followed lab traditions and joined a lab in Switzerland as a postdoc, to another who wanted to live in New York City for a period of her life and built the rest of her research plans around that goal.

As always, the vegetarian lunch was delicious, although AGEM will be sure to request extra tissues next time!

AGEM Grant Award Ceremony

May 22nd, 2025

Amsterdam UMC, location AMC, Fonteynzaal, Amsterdam

The AGEM Grant Award Ceremony took place on Thursday, May 22nd at Amsterdam UMC (AMC location), transforming the Orange Box from lunchroom to stage for outstanding research stories. AGEM directors opened the event with a warm welcome and a well-received animation about the history and impact of AGEM grants.

Koen Dreijerink, recipient of a 2020 Clinical Research Matching Grant, kicked off the presentations with his work on progesterone use for breast development in trans women, made possible in part by AGEM funding.

- Maria Tretowicz (represented by a team member) presented her drop-of-blood metabolomics project via video, highlighting its potential to ease patient care.
- Kitty Latupeirissa accepted her award in person, detailing her project to improve thyroid screening inclusivity in the Netherlands.
- Rimke de Kroon explained her research on amniotic fluid biomarkers to support gut development and postpartum interventions.
- Romy de Kroon discussed refining diagnostics for non-classical congenital adrenal hyperplasia using 21-deoxycortisol.

The 2025 Innovation Grant winners were then announced:

Geert D'Haens shared insights from three impactful patient-centered studies before the AGEM Best Publication Battle, featuring strong pitches by Felipe Correa da Silva, Heleen Jansen, and Lotte Slooter—with Heleen Jansen taking home the prize.

Dirk Jan Stenvers followed with an engaging talk on his 2021 Talent Development Grant project exploring the brain clock's role in insulin resistance, highlighting AGEM's role in his research journey.

Finally, the 2025 Talent Development Grant winners were announced:

- Sofie Bosch, working on a low-cost electronic nose (eNose) to detect colorectal cancer via stool gases.
- Marte Molenaars, researching iron metabolism and how circadian rhythms can optimize iron intake and improve outcomes.

The event closed with remarks from the directors, followed by a vegetarian buffet, drinks, and lively discussions about the inspiring research presented.

AGEM-sponsored symposium: "ImmunoMetNet"

June 26th, 2025

Amsterdam UMC, location VUmc, O|2 building

The 2025 edition of the Annual ImmunoMetNet was held this year at the auditorium of the O2 building. More than 100 researchers from different institutes across the country joined what has officially become the national reunion of groups working on immunometabolism.

The day kicked off with a session dedicated to tools and targeting, with speakers Jade Bailey (Sitryx, Oxford, UK), who talked about targeting immunometabolism in chronic inflammatory diseases, Kim Bonger (Leiden University), who presented a comprehensive overview of metabolic protein labeling using bioorthogonal threonine analogues, and Bart Eggen (UMC Groningen), who gave a lecture on omics applications to study microglia, the so-called immune sentinels of the CNS.

After a pleasant coffee break, a session on metabolism in immune cells was held. Maxim Nosenko (Trinity College Dublin) shared his research on the regulation of NK cell responses in sepsis by targeting amino acid uptake, followed by Annemiek van Spriel (Radboud UMC) who discussed how tetraspanin CD37 inhibits fatty acid metabolism in aggressive B-cell lymphomas, and Olaf Perdijk (Utrecht University), who spoke on modulating respiratory immunity through microbial priming of the epithelium.

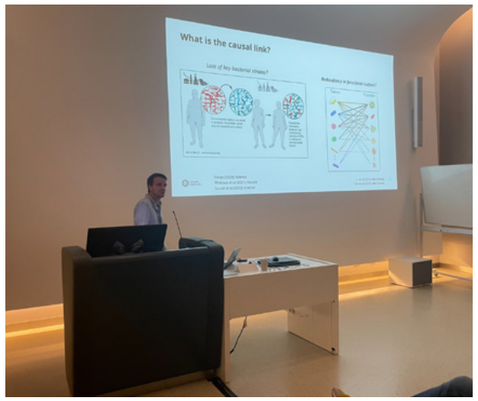
An excellent lunch provided by AGEM once again fueled many great interactions between the speakers of the two sessions in the morning and the other attendants, sparking new collaborations! It was also a good opportunity for students from different labs to interact with each other and exchange thoughts and opinions not only about the talks but also about future career development.

In the afternoon, the session focused on lipid metabolism began with keynote speaker Charlotte Scott (VIB, Ghent, Belgium) and her talk on the functional heterogeneity of hepatic macrophages

in metabolic disease, followed by Robbin Kramer (Radboud UMC) who shared her research on BCG and beta-glucan effects on moDC function toward the induction of tolerogenic immune responses, and culminated by Sabine Daemen (Maastricht University) who addressed the question of whether lipid-associated macrophages regulate MASH and liver fibrosis.

After a coffee break, the final session of the day focused on macrophages metabolism. Dixie Bakker opened the session with a talk on Pgm1 as modulator of inflammatory response of macrophages in experimental pneumococcal meningitis, followed by Hanneke Willemen (UMC Utrecht), who discussed neuron-macrophage crosstalk and the contributions of mitochondria to active pain resolution and persistent pain. Keynote speaker Dylan Ryan (University of Cambridge, UK) delivered a great closing lecture on mitochondrial control of inflammatory macrophage function.

The meeting concluded with all speakers and attendees invited to join for drinks and to stay updated by following the ImmunoMetNet webpages (both the Dutch network and the European one) for updates. The day after, several workshops by the sponsors and collaborators of ImmunoMetNet were held, including a Seahorse workshop by Agilent, a workshop on drug development by Sitryx and one on the Seahorse R package by Vincent de Boer.



Young AGEM event “Pizza Party”

September 16th, 2025

Amsterdam UMC, location AMC, The Orange Box

On September 16th, Young AGEM organized a pizza party networking lunch in celebration of the Postdoc Appreciation Week NL. The AGEM postdocs were happy to welcome PhD candidates too, so on around midday, 50 of our Young AGEM members came to grab a slice and have a chat.

The pizzas were finished by the end of the lunch hour, but conversations will continue!

AGEM PI event: “Societal differences in metabolic health”

October 16th, 2025

Volkshotel, Amsterdam

On October 16th, the AGEM PI event stood in the theme of Societal differences in metabolic health. Societal differences and their implications on health cannot be ignored and they influence far more aspects of healthcare than we often realize.

This AGEM event Charles Agyemang was invited, who focusses on ethnic inequalities in health, to give an introductory lecture.

Furthermore, there were 4 pitches, all on varying topics within our theme, explaining how societal differences are relevant in their research and what that means for healthcare.

The excellent pitches came from Jan Van den Bossche, Peter Bisschop & Sarah Siegelaar, Niels Broekman and Wendy den Elzen.

AGEM – CCA symposium: “HPBetter Symposium 2025 / Together we can make HPB treatments better”

November 21st, 2025

Amsterdam UMC, location VUmc, Adore building (Room ‘t IJ)

On November 21, 2025, the HPBeter multidisciplinary symposium was held in Amsterdam, bringing together healthcare professionals involved in hepatopancreatobiliary (HPB) care and research. The overarching theme, “The Vulnerable Patient as a Compass in Healthcare,” emphasized the importance of patient-centered decision-making throughout the HPB care continuum.

The program consisted of four thematic sessions addressing vulnerability in HPB care, malignant biliary and pancreatic disease, liver disease, and pancreatic conditions. Presentations combined clinical research, translational science, and practical insights into care pathways, illustrating how innovation in HPB medicine can be aligned with the needs and resilience of individual patients.

The opening session focused on the vulnerable patient, with attention to care for older patients, high-risk anesthesiology, and spiritual care, setting the tone for a holistic and multidisciplinary approach. Subsequent sessions highlighted advances in surgical outcomes, clinical trials, novel diagnostic strategies, prehabilitation, and multidisciplinary treatment approaches.

The symposium attracted a broad audience of medical specialists, residents and fellows, researchers, nurse practitioners, and other healthcare professionals from both academic and peripheral hospitals, fostering active discussion and exchange.

The day concluded with an inspiring keynote lecture by Sander de Hosson on palliative care, encouraging reflection on vulnerability, quality of life, and the integration of palliative principles into HPB care. HPBeter 2025 was a successful meeting. The organizing committee would like to thank Cancer Center Amsterdam (CCA) and Amsterdam Gastroenterology, Endocrinology and Metabolism (AGEM) for their support.

AGEM seminar series 2025

AGEM Tager Lectures

The AGEM research institute has a seminar series in the Amsterdam UMC, location AMC, focused on metabolism and endocrinology; the Tager Lecture, called after Professor Joseph Tager.
Joseph Tager made important contributions to Fabry, Pompe and Gaucher disease and had a major impact on our understanding of peroxisomal diseases. He was chairman of the Biochemistry Department at the University of Amsterdam (1980-1991).

The Tager Lecture series is organized by AGEM PI's Riekelt Houtkooper, Susanne La Fleur, Noam Zelcer and Eveline Bruinstroop. Suggestions for future speakers for the Tager lecture are always welcome.

April 17th, 2025
Amsterdam UMC, location AMC

Charna Dibner
Laboratory of Circadian Endocrinology in the Division of Endocrinology, Diabetes, Hypertension and Nutrition, University of Geneva
" Circadian clocks: A driving force of rhythmin physiology and metabolism"

June 19th, 2025
Amsterdam UMC, location AMC

Alexander Bartelt
Translational Nutritional Medicine at Technical University Munich, Germany.
" The Metabolic Physiology of Proteostasis"

September 25th, 2025
Amsterdam UMC, location AMC

Ana Domingos
Neuroscience at the Department of Physiology, Anatomy and Genetics at University of Oxford
" Sympathetic neuron-derived NYP protects from obesity"

November 6th, 2025
Amsterdam UMC, location AMC

Martin Jatroch
Department of Molecular Biosciences, The Wenner-Gren Institute, Stockholm University, Sweden
" Uncovering thermogenic pathways in adipose tissue by evolutionary reconstruction"

November 17th, 2025
Amsterdam UMC, location AMC

Frank Scheer
Division of Sleep and Circadian Disorders, Departments of Medicine and Neurology, Brigham and Women's Hospital, Harvard University
" Circadian Control of Human Metabolism"

ImmunoMetNet Amsterdam UMC meetings 2025

Since 2022 ImmunoMetNet AUMC organizes a local ImmunoMetNet AUMC series where "young" Amsterdam UMC researchers from distinct disciplines and research institutes can present immunometabolism-related work. Hereby, the aim is to share expertise, tools and samples across the borders of the distinct Amsterdam UMC research institutes with immunometabolism as the unifying factor.

January 21st, 2025

O2-building VUmc

The local ImmunoMetNet meeting was well-attended with around 30 attendees and there were four interesting talks by junior researchers from distinct research institutes:

- Sabrina van der Dussen-Pollastro
  Sabrina (Postdoc in the group of Marieke van Ham, Sanquin) presented on how she is applying scRNA-seq to dissect metabolic changes during B cell differentiation.

- Demi Both
  Demi (PhD student in the lab of Eric Eldering with Helga Simon Molas (AMC)) presented less metabolic but very interesting work on translation regulation in cancer.

- Christine van Linge
  Christine (PhD in the lab of Alex de Vos and Tom van der Poll, AMC) presented her PhD work on immunometabolic pathways in human alveolar macrophages.

- Serhii Chornyi
  Serhii (Postdoc in the lab of Gijs Kooij, VUmc) showed lipidomics data revealing that macrophages produce specific lipid mediators during pneumococcal meningitis.

October 20th, 2025

Amsterdam UMC, location AMC, Vrijzaal

On Monday the 20th of October, a new session of the AUMC ImmunoMetNet Network was held with approximately twenty attendees at the AMC. The afternoon kicked off with Jeffrey Kroon, associate professor at Amsterdam Cardiovascular Sciences Institute, with a talk entitled 'From glycolysis to beyond: endothelial metabolism as gatekeeper for inflammation and atherogenesis'.

After that, the second speaker Mohammed Giboub, postdoctoral researcher at AGEM and Tytgat Institute, shared his innovative research on 'Serotonin: the hidden epigenetic key to chronic fatigue in Crohn's disease'.

Lastly, Tessa Knol, PhD student in the group of Maria Themeli at Hematology Department, shared the results of her PhD project entitled 'The effect of Immunochemotherapy on CD19 CAR T-cell fitness'. The format of three talks instead of the four we had in previous editions, favoured discussions between the audience and the speakers, and new ideas for experiments emerged.

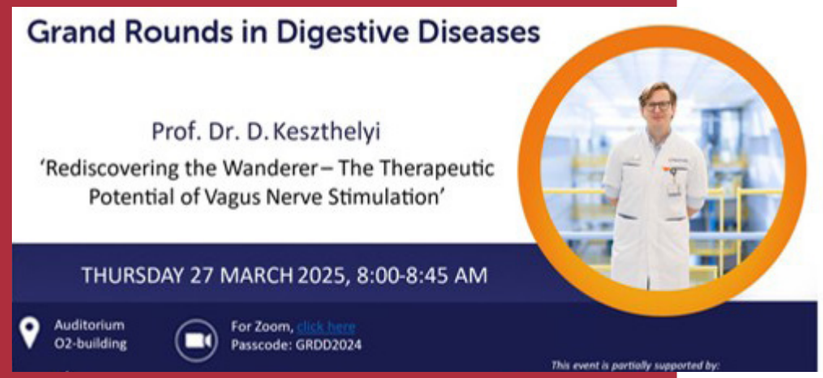
The evening closed with some drinks and bites kindly provided by AGEM. Everyone was invoted to join the next Amsterdam UMC ImmunoMetNet meeting, which will be organized in the first trimester of 2026.

Grand Rounds in Digestive Diseases 2025

From the origins of colorectal cancer, to duodenal resurfacing for the treatment of diabetes or spatial omics to decipher the role of macrophages in liver disease. These are just a few examples of the series of lectures organized by the Department of Gastroenterology & Hepatology, entitled 'Grand Rounds in Digestive Diseases'.

In monthly Thursday morning sessions, top-level scientists from the Amsterdam UMC and beyond provide a broad audience with an overview of the recent scientific advances in their research field. In addition to purely scientific Gastroenterology & Hepatology-related presentations, sometimes more general topics are covered.

These series of lectures have been initiated by Prof. Geert D'Haens and Dr. Joep Grootjans from the department of Gastroenterology & Hepatology. Topics are selected by a steering committee which includes clinical and basic scientists from the departments of Surgery, Paediatrics, Radiology, Pathology and the Tytgat Institute. The Grand Rounds are hosted both on-site at location VUmc (Auditorium, O2-building) and online via zoom Thursday mornings from 8.00AM to 8.45AM.



30 January 2025
Schalk van der Merwe
From Palliation to Prolongation: Transforming Biliary Drainage in Cancer Care

27 February 2025
Rinse Weersma
The gut microbiome in health and disease

27 March 2025
Daniel Keszthelyi
Rediscovering the Wanderer – The Therapeutic Potential of Vagus Nerve Stimulation

17 April 2025
Marco Bruno
Surveillance of high-risk individuals for developing pancreatic cancer

15 May 2025	**Shyam Varadarajulu**	Future perspectives in EUS and ERCP
22 May 2025	**Rob Brierley**	Medical publishing: behind the scenes
19 June 2025	**Michal Kaminski**	Multimodal cancer treatment with GI endoscopy
25 September 2025	**Tommy Wieringa and Mark van Berge Henegouwen**	What's at stake in Ukraine and how can we all support
16 October 2025	**Christianne Buskens**	The role of the appendix in health and disease
6 November 2025	**Robert Schoen**	Blood-based testing for colorectal cancer
18 December 2025	**Mihai Netea**	Trained immunity: from mechanisms to disease

AGEM Events 2025

EKZ Grand Rounds & Inspirational Sessions

At the end of 2023, the science committee of the Emma Children's Hospital was established in order to organize the monthly Grand Rounds in Pediatric Research. These EKZ Grand Rounds provide a platform for the wonderful scientific projects and developments in and around the Emma Children's Hospital, as well as increase cooperation and visibility of (young) researchers. These Grand Rounds are open to all employees of the Amsterdam UMC. Especially the presence of the researchers, staff physicians and physician assistants at the Emma Children's Hospital is highly anticipated.

The EKZ Science Committee also organizes Inspirational Speaker Sessions on Pediatric Research. These sessions are for EKZ researchers, young and older, and all interested parties in Amsterdam UMC are welcome!

Organized by the EKZ Research Committee: ekzwetenschapscommissie@amsterdamumc.nl

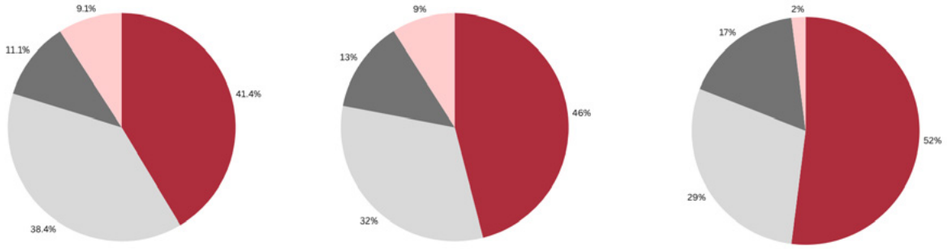
Thursday January 9, 2025	**Grand Rounds: Jolanda Maaskant** PhD Spotlight
Thursday February 13, 2025	**Grand Rounds: Aranka Wesemael & Rimke de Kroon** Festival of mistakes
Thursday February 27, 2025	**Inspirational Speaker** Fasting in Islam and Christianity
Thursday March 13, 2025	**Grand Rounds: Dana Yumani & Sjanna Besteman** Inclusive Education
Thursday April 10, 2025	**Grand Rounds: Jolanda Maaskant and Jenneke** PhD Spotlight
Thursday May 8, 2025	**Grand Rounds: Wouter Hehenkamp** Sustainability in healthcare
Thursday June 12, 2025	**Grand Rounds: Job van Woensel** Paediatric intensive care
Thursday June 26, 2025	**Inspirational Speaker: Harriët Heijboer** Shared doing
Thursday September 11, 2025	**Grand Rounds: Jolanda Maaskant** PhD Spotlight
Thursday October 9, 2025	**Grand Rounds: Rashmi Kusurkar (Sjanna Besteman/ Tahira Hussain)** Diversity in pediatric research
Thursday November 13, 2025	**Grand Rounds: Lotte Haverman** Paediatric psychology and PROMs
Thursday December 11, 2025	**Grand Rounds: Taco Kuijpers** It's good, but can always be better

Numbers and Facts 2025

AGEM finances 2025

For 2025, the AGEM research institute was provided with €748.724 (€440.287 from location VUmc and €308.437 from location AMC). In the table below is shown how this money was spent. Most of the 2025 budget was used for the AGEM grants.

2023		2024		2025	
Income		**Income**		**Income**	
AMC	€ 305.415	AMC	€ 308.435	AMC	€ 308.437
VUmc	€ 253.838	VUmc	€ 256.513	VUmc	€ 440.287
Total	**€ 559.253**	**Total**	**€ 564.948**	**Total**	**€ 748.724**



Appointed professors 2025

Prof. dr. Nanne de Boer

Efficient and Optimal Medication Use for Inflammatory Bowel Disease

On February 1st 2025, Nanne de Boer was appointed professor of Efficient and Optimal Medication Use for Inflammatory Bowel Disease at the VU University in Amsterdam. The chair is embedded within the Department of Gastroenterology at Amsterdam UMC. He delivered his inaugural lecture "Amazing drug discoveries: het onderste uit de kan" on January 9th 2026.

Nanne will focus on getting the best out of the existing medicines for inflammatory bowel disease. Not only efficacy and toxicity of medicines should be balanced, but also costs and environmental impact should be taken into account when choosing the right medicine.

To broaden and keep the current care for IBD patients affordable, the drug development route of drug rediscovery (using existing drugs for a novel indication) must be embraced.

Finally, he will lead the IBD Essential Medicines List initiative to create and validate a WHO-supported list of drugs that should be available and affordable for all patients worldwide.

Prof. dr. Pim de Ronde

Internal medicine: Doping and health

On July 1st 2025, Pim de Ronde was appointed professor of professor of doping and health. He obtained his PhD with a dissertation on male hypogonadism.

Early in his career, he recognized that many individuals using anabolic steroids develop health problems, including hypogonadism. In response to this growing and largely unmet clinical need, he founded the first Dutch outpatient clinic for anabolic steroid users in 2010. This clinic provides medical evaluation and treatment for patients while simultaneously generating valuable scientific knowledge on the short- and long-term health effects of anabolic steroid abuse.

The overarching aim is to improve medical care while also developing evidence-based interventions that can reduce harm. In close collaboration with the Dutch Anti Doping Authority, De Ronde's research group is working on a program aimed at providing value-neutral, scientifically grounded information about doping use in strength and combat sports. Through this program, evidence-based information on the health effects of performance- and image-enhancing substances is developed and disseminated to athletes, coaches, and healthcare professionals.

De Ronde is internist-endocrinologist at Spaarne Gasthuis and chair of the department of Internal Medicine and Gastroenterology.

Prof. dr. Hilde Herrema

Microbiomics in Metabolic Disease

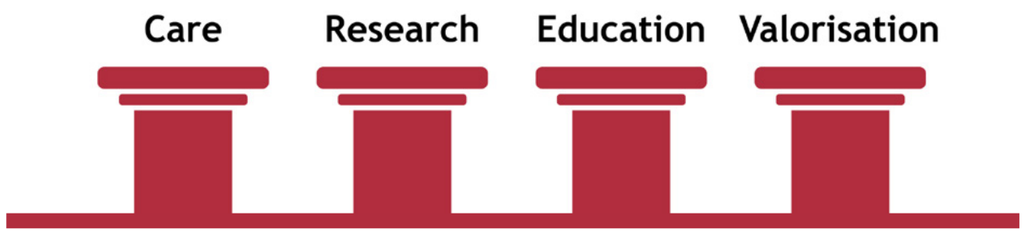
On September 23rd 2025, Hilde Herrema was appointed professor of Microbiomics in Metabolic Disease. Hilde Herrema is a medical biologist with molecular and systemic expertise on development of acquired metabolic diseases (i.e., obesity-associated diabetes and fatty liver disease) and the role of the gut microbiome therein.

She has a special interest in the role of bacteriophages in the gut ecosystem. Hilde is closely involved in several large initiatives, including a National Growth Fund, that aim to solve microbiome-related socio-economic problems using microbiome-based solutions.

Valorisation within AGEM

Amsterdam UMC is continuously advancing its knowledge and expertise across patient care, research, and education. Recently, valorisation has become the fourth pillar of the Amsterdam UMC mission. Valorisation refers to the process of translating knowledge and expertise into meaningful applications that benefit healthcare and society at large.

In line with the strategic plans from AGEM and Amsterdam UMC as a whole, AGEM wants to promote that the dissemination, translation, implementation and upscaling of scientific knowledge into practice will intertwine more systematically with all facets of research that takes place in the context of the AGEM research institute.



AGEM has created case studies of AGEM valorisation examples to highlight various initiatives that deserve a pedastal, and may inspire other AGEM researchers. In this edition of our annual report you will find the following case studies:

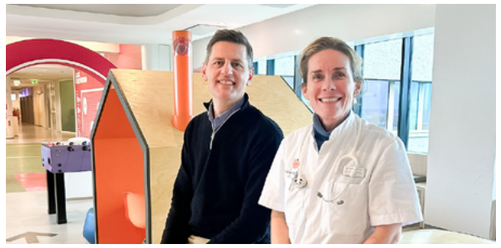
Emma Center for Personalized Medicine

Author: Daniël Warmerdam

Emma Center for Personalized Medicine

The Science

Innovative treatments such as gene therapies hold great promise for improving outcomes in patients with unmet medical needs.



The problem

- P High costs and risks of development
- P Market failure linked to small patient populations
- P Complex regulatory requirements
- P Unsustainable pricing models

Valorisation strategy

- V Developing a therapeutic platform for multiple rare genetic diseases
- V Engaging early with patients and regulators
- V Academic-led development to de-risk early-stage development
- V Initiating public-private partnerships
- V Implementing strategies to ensure patient access
- V Closely collaborating with the Amsterdam Valorisation Board and other institutional and external partners

The impact

Emma CPM is enabling sustainable development of genetic therapies for rare disease patients, with a pathway toward clinical application and improved access.

Amsterdam UMC

Amsterdam Gastroenterology Endocrinology Metabolism

Age specific reference intervals

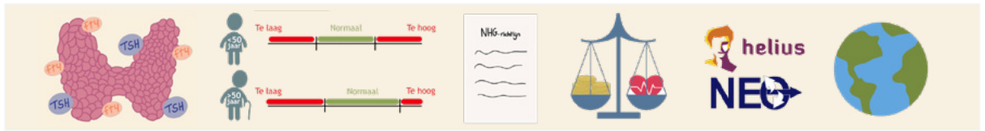
Author: Annemieke Heijboer

The Science

In a nationwide retrospective study, we established age-specific reference intervals for TSH and FT4 for the four most commonly used analytical methods. For this, we used millions of laboratory results from laboratories across the Netherlands.

The problem

- Many older adults are diagnosed with subclinical hypothyroidism.
- Levothyroxine is still frequently prescribed to older adults with subclinical hypothyroidism, despite limited proven clinical benefit.
- In almost one third of current levothyroxine users, medication could likely be safely discontinued.



Valorisation strategy

- Close collaboration with 13 Dutch hospitals and clinical chemistry laboratories.
- Integration of the age-specific reference intervals into the Dutch College of General Practitioners (NHG) guideline on thyroid disorders.
- Structural collaboration with large cohort studies to validate and further refine the outcomes.
- Making the reference intervals internationally available for all commonly used analytical methods to enable worldwide implementation.
- Performing cost-effectiveness analyses to quantify the impact on healthcare expenditure and the efficiency of diagnostics and treatment.

The impact

Age-specific reference intervals for thyroid hormones are applied in diagnostics and are included in the NHG guideline. As a result, fewer older adults are incorrectly diagnosed with subclinical hypothyroidism. This leads to less unnecessary levothyroxine treatment, less anxiety and uncertainty for patients, reduced overdiagnosis, and lower healthcare costs.

AGEM Numbers and Facts 2025

The ARREST consortium - The human liver as research model

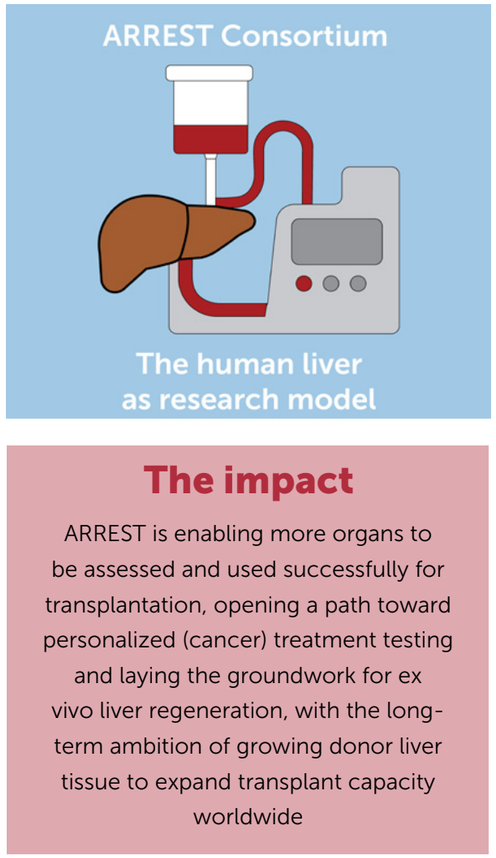
Stan van de Graaf, Joris Erdmann

The Science

Keeping resected and donor livers alive and functioning outside the body, creating (the closest available model to) a living human liver for both transplantation and research

The problem

- Liver disease research has relied on imperfect models such as pig livers, cell lines, mouse models, organoids, etc
- Donor organs are scarce
- Remaining liver tissue after tumor removal/resection must take over full function quickly
- Patients face long waits to learn whether a given (chemo)therapy is working



Valorisation strategy

- Building a six-year multi-center platform across Rotterdam, Groningen, Leiden, Utrecht and Amsterdam
- Using residual tissue that would otherwise be discarded
- Testing (tumor-specific) drug responses and mechanical therapies ex vivo before treating patients
- Working to stimulate liver regeneration on the pump
- Embedding patient organisations (NLV, VKS, Metakids, MDKL foundation) in the consortium board
- Sharing the technology openly once developed

The impact

ARREST is enabling more organs to be assessed and used successfully for transplantation, opening a path toward personalized (cancer) treatment testing and laying the groundwork for ex vivo liver regeneration, with the long-term ambition of growing donor liver tissue to expand transplant capacity worldwide

Amsterdam UMC

Amsterdam Gastroenterology Endocrinology Metabolism

WeSleep - Improving sleep in hospitalized patients

Author: Dirk Jan Stenvers

The problem

Poor sleep is common in hospitals and can hinder patient recovery and wellbeing.

The Science

- (S) A multicomponent sleep improvement intervention was tested in a cluster randomized trial.
- (S) The protocol included delayed care, sleep hygiene, earplugs and eye masks.
- (S) Patients reported significantly better sleep quality with the intervention.
- (S) Study shows real-world value of practical, non-pharmacological sleep strategies.

Valorisation strategy

- (V) Concrete roadmap published: Improving sleep in hospitalized patients
- (V) This roadmap includes implementation strategy, facilitators and barriers

The impact

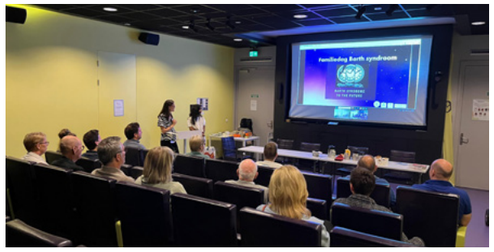
- (I) **Clinician education:** publication European journal of Internal Medicine (The effects of sleep improving interventions in medical hospital wards)
- (I) **Covered in NEJM clinician:** Improving Hospital Sleep Beyond the ICU
- (I) **Public education:** BNR interview - Hoe de biologische klok het herstel van patiënten in het ziekenhuis beïnvloedt
- (I) Follow up implementation grant application, to apply the lessons learned to intensive care departments

Barth syndrome Center of Expertise

Author: Priscilla Thakoerdien

The Science

Barth syndrome is a **rare inherited metabolic disease**, first described in Amsterdam UMC by prof Barth It is caused by a mutation in the X-linked *TAFAZZIN* gene and results in a **multisystemic disorder** characterized by cardiomyopathy, neutropenia, skeletal myopathy and fatigue. This potential lethal disorder affects primarily boys.



The problem

- (P) Ultra-rare: 11 individuals in the Netherlands (1:140000 to 1:300000 globally)
- (P) Multisystemic disorder with a high unexplained heterogeneity in presentation and disease course
- (P) Unmet medical needs: survival and reduction of disease burden
- (P) Challenging clinical research

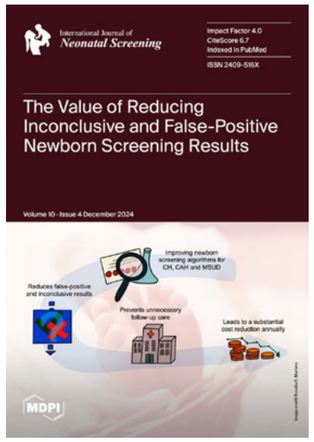
Valorisation strategy

- (V) Expert team: uniting research and clinical care
- (V) Centralizing care in **VWS Center of expertise (ECZA)**
- (V) **Inside out:** from lab to clinic patient-derived iPSC and cardiac organoids & upcoming NR-clinical trial
- (V) **Outside in:** industry sponsored trial to accelerate access to novel therapies
- (V) **Alliances** with (inter)national patient organisations to incorporate patient perspective in research
- (V) Accessible **care pathway** for professionals & patients
- (V) **Education** at bachelor and master biomedical sciences and personalized medicine

The impact

Barth syndrome Center of Expertise unites patients, researchers, clinicians and private partners, creating a sustainable foundation to accelerate new therapies, implement innovative research and care for Barth syndrome and potentially other rare metabolic diseases.

Did you know that...



... the graphical abstract of AGEM researcher Rosalie Martens appeared on the cover of the International Journal of Neonatal Screening?

... AGEM researchers, Andrew Li Yim and Mohammed Ghiboub have been awarded the prestigious Litwin IBD Pioneers grant from the Crohn's & Colitis Foundation (USA)?

... at Amsterdam UMC both the Kinderbuikcentrum of the Emma Children's Hospital and Tytgat Institute (Joep Derikx and Wouter de Jonge) will be involved in demonstrating the accuracy of SMART implants in preclinical models and clinical applications.

... AGEM director Anita Boelen received the NVE-Novo Nordisk Award 2025 for 30 years of groundbreaking research in thyroid hormones?

... 12 major Amsterdam-based organizations, including Amsterdam UMC (among others AGEM PI Hinke Kruizenga) are committing to working towards a healthier, more sustainable and fairer food system in the city of Amsterdam?

... AGEM director Nanne de Boer featured in the NRC podcast Onbehaarde Apen?

... AGEM PI Stan de Graaf received the Distinguished Hepatologist Award at the Dutch Digestive Disease Days?

... Ulrich Beuers, now emeritus professor and former AGEM PI, received the Recognition Award at #EASLCongress 2025, which honors his outstanding contributions to hepatology and the European Association for the Study of the Liver, EASL?

... MDL residents and AGEM researchers Sofie Bosch and Jonathan van der Meer received a Gastrostart grant of €10,000 each from the Dutch Society of Gastroenterology (Nederlandse Vereniging voor Gastro-enterologie (NVGE))?

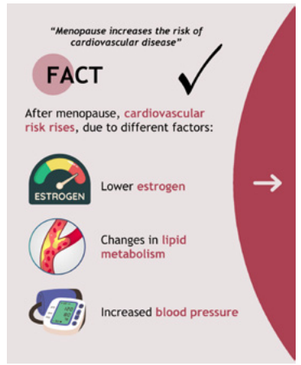
... AGEM researchers, Oliver Chen, Bram Hulst, Anne van der Spek, and Barbara Verhaar, have been awarded a NWO Veni grant for their projects "Hoe onze afweer de verkeerde kant op wordt gestuurd bij ernstige virale infecties", "Ketonen voor Nieren", "De ziekte van Graves: welke rol spelen de darmbacteriën?" and "De zoute darm: over de interactie tussen natriumhuishouding en darmflora", respectively?

... the Endocrinology Laboratory has become the first diagnostics laboratory at Amsterdam UMC to achieve the bronze LEAF certificate?

... a NWO Vidi grant has been awarded to Tim de Meij for his project "Versterking van de Darmbarrière: De Kracht van Microben"?

... AGEM gave seven AGEM post docs the opportunity to follow the EMBO post doc or leadership course in 2025?

... AGEM Principal Investigator Jeroen den Dunnen has been awarded a NWO Vici grant for his project "ARISE: Auto-immuniteit als sleutel tot het ontrafelen en behandelen van post-acute infectiesyndromen"?



... menopause increases the risk of cardiovascular disease?

... Sarah Siegelaar, Vincenzo Sorrentino, Jurriaan Tuynman and Michiel van Wijk were appointed as (AGEM) PI?

Future perspectives

Looking ahead to 2026, de Boer and Boelen describe it, above all, as a balance year. 2026 is halfway through the SEP period, which is the moment to look back at what's come out of it so far and ask some honest questions: are we doing this well? Well enough? Is the direction still the right one? "I think that's an important theme for this year," de Boer says.

Part of that balance comes from the director's curriculum itself. The core problems the research institute directors identified together are now meant to actually get resolved in 2026. Boelen is hopeful about what that could unlock: better integration of the research institutes within the divisions and departments, and simply more power, more ability to get things done. "I hope that's how it goes," she says. "I don't know if it will, but I hope it does."

Asked about new collaborations they're already excited about, the Synergy Grant comes up immediately. For Boelen, it's tied to something bigger: the cross-collaboration feeling that AGEM has been honing and building, and a more concrete sense of what a research institutes actually is - what it's there to do.

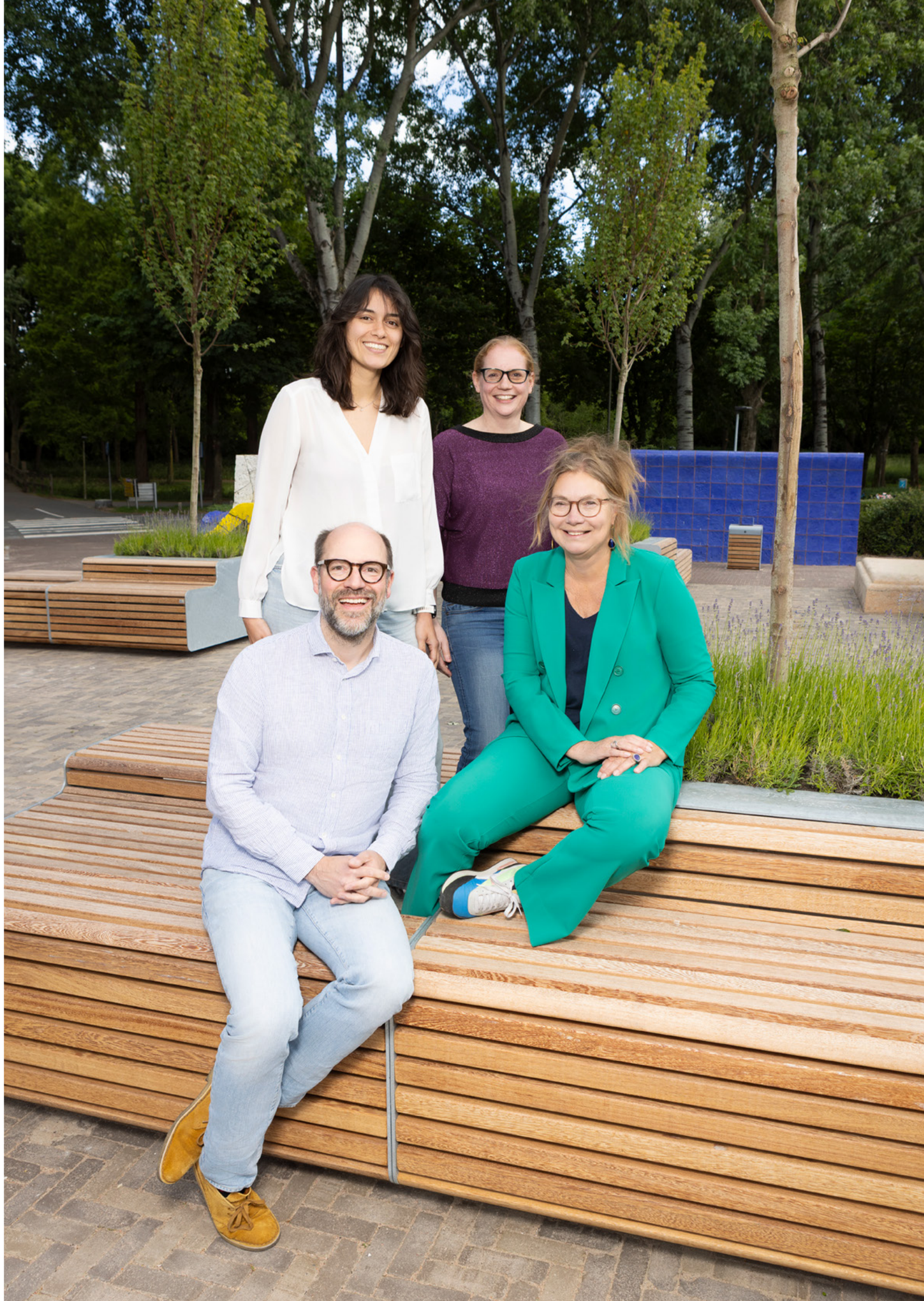
For researchers themselves, neither director expects much to change day to day. "I don't think so, not really," Boelen says. The merger of the UvA and VU doctoral schools, for instance, is moving forward, but most researchers on the floor won't notice much difference. "Small things," de Boer says. The things researchers actually care about, their day-to-day work, aren't going to shift overnight.

The challenges for 2026 are more structural. Boelen names the position of business developers within a research institute. "That's something that requires strategic thinking and hard work," she says. De Boer is glad to see the broader Valorisation conversation shifting, toward valorisation as impact, not just money. Beyond that, the redistribution of institute funding and the wider geopolitical uncertainties are mentioned as possible 2026 challenges.

If de Boer could leave researchers with one mindset for the year ahead, it's simple: do what you enjoy. "Have courage," he says. What he admires most about young researchers is their energy, the fact that they haven't yet been worn down by the system. "They're not cynical," he says. "They're up for it. They don't have limits in their heads. They're fully charged batteries." His hope is that they stay exactly that way.

Asked what would make 2026 a successful year, the answer comes easily: as much laughter as in 2025. But Boelen is quick to name a real challenge underneath that too: keeping the various organizational groups that make up AGEM engaged. Doing this is something de Boer and Boelen know they'll need to keep working at in 2026.

Nanne de Boer, AGEM director
Anita Boelen, AGEM director
Eva Dirkx-Beuling, AGEM policy officer
Valentina Bravo, AGEM policy officer



Amsterdam UMC

Amsterdam Gastroenterology Endocrinology Metabolism