



Amsterdam Gastroenterology Endocrinology Metabolism (AGEM)
Amsterdam UMC

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www.academion.nl
info@academion.nl

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1. Foreword by the committee chair

Improving gastrointestinal, endocrine and metabolic health is of utmost importance to face the major societal and healthcare challenges, especially in the context of the growing and ageing population and the increasing pressure on the healthcare system. On one hand, we are facing a huge increase in non-communicable diseases, while also rare diseases warrant further insight, early diagnosis and specialised healthcare. The Amsterdam Gastroenterology Endocrinology Metabolism (AGEM) research institute of Amsterdam UMC performs research that promotes healthy nutrition and metabolism, prevents or cures gastrointestinal and inherited and acquired metabolic diseases and improves the outcome of the patients.

The present report concerns the evaluation of AGEM over the period 2017-2022 according to the Strategy Evaluation Protocol 2021-2027 as drawn and adopted by the Association of Universities in the Netherlands (VSNU), the Netherlands organisation for Scientific Research (NWO), and the royal Netherlands Academy of Arts and Sciences (KNAW) The main goal of the SEP is to evaluate a research unit in light of its own aims and strategy, and thereby to improve the quality and societal relevance.

The current evaluation was done by an independent committee, based on a self-assessment and a site visit. The assessment committee was very pleased with the open atmosphere in the discussions with the AGEM directors and research board, members of the various programs and career groups. We concluded that AGEM is doing excellent research with a strong link to the clinic, clear impact and well appreciated in the field. In addition, as a networking institute established after the merger of Academic Medical Center (AMC) and VU Medical Center (VUmc) in 2017, AGEM made great progress in creating an AGEM research community and stimulating multidisciplinary research.

Our recommendations should be read as opportunities to further strengthen the AGEM profile and branding and to support the AGEM research community.

Prof. Daisy Jonkers, chair

2. Procedure

2.1 Scope of the review

Amsterdam UMC asked a review committee of external peers to perform a review of the research conducted at Amsterdam Gastroenterology Endocrinology Metabolism (AGEM) over the period 2017-2022.

In accordance with the Strategy Evaluation Protocol 2021-2027 (SEP) for research reviews in the Netherlands, the committee was requested to carry out the assessment according to a number of guidelines. The assessment was to include a backward-looking and a forward-looking component. The committee was asked to judge the performance of the unit on the main assessment criteria specified in the SEP and to offer its written conclusions as well as recommendations based on considerations and arguments. The main assessment criteria are:

- Research Quality;
- Societal Relevance;
- Viability of the Unit.

During the evaluation of these criteria, the committee was asked to incorporate four specific aspects relating to how the unit organises and actually performs its research, its composition in terms of leadership and personnel, and how the unit is run on a daily basis. These aspects are:

- Open Science;
- PhD Policy and Training;
- Academic Culture;
- Human Resources Policy.

For more information on the criteria and categories of the Strategy Evaluation Protocol 2021-2027, see Appendix 1.

2.2 Composition of the committee

The composition of the committee was as follows:

- Prof. dr. Daisy Jonkers, Scientific Director of the NUTRIM research institute and Professor of Intestinal Health, Maastricht University;
- Melanie Modder MSc, PhD candidate, Leiden UMC;
- Prof. dr. Jörg Heeren, Department of Biochemistry and Molecular Cell Biology, UKE Hamburg;
- Jeroen van Kempen, chair of European Galactosaemia Society (EGS) and former chair of Galactosemie Vereniging Nederland (GVN);
- Prof. dr. Verena Keitel, Head of Dept. of Gastroenterology, Hepatology and Infectious Diseases, Otto-von-Guericke-Universität, Magdeburg;
- Prof. dr. Jens Mittag, Professor in Molecular Endocrinology at the Center of Brain, Behavior and Metabolism, University of Lübeck;
- Prof. dr. Chris Probert, Professor of Gastroenterology, University of Liverpool.

The committee was supported by dr. Fiona Schouten, who acted as project manager and secretary on behalf of Academion.

2.3 Independence

All members of the committee signed a statement of independence to guarantee an unbiased and independent assessment of the quality of the research performed by Amsterdam UMC. Personal or professional relationships between committee members and the research unit under review were reported and discussed at the start of the site visit amongst the committee members. The committee concluded that no specific risk in terms of bias or undue influence existed and that all members were sufficiently independent.

2.4 Data provided to the committee

The committee received the self-evaluation report from the units under review, including all the information required by the SEP.

The committee also received the following documents:

- The Terms of Reference;
- The SEP 2021-2027;
- Overview AGEM PhD Candidates;
- Experiences and challenges of AGEM.

2.5 Procedures followed by the committee

The committee proceeded according to the SEP 2021-2027. In its first online meeting, on 9 October 2023, the committee was briefed by Academion about research reviews according to the SEP 2021-2027. It agreed upon procedural matters and aspects of the review. All committee members independently formulated a preliminary evaluation of the units under review based on the written information that was provided before the site visit. In a second online meeting, on 23 November 2023, the committee discussed these preliminary evaluations and identified questions to be raised during the site visit.

The site visit took place on 28-30 November 2023 (see the schedule in Appendix 2). After the interviews, the committee discussed its findings and comments in order to allow the chair to present the preliminary findings and to provide the secretary with argumentation to draft a first version of the review report. The final review is based on both the documentation provided by AGEM and the information gathered during the interviews with management and representatives of the research unit during the site visit.

The draft report by the committee and secretary was presented to AGEM for factual corrections and comments. In close consultation with the chair and other committee members, the comments received were reviewed to draft the final report. The final report was presented to the Board of Amsterdam UMC and to the management of the research unit.

3. Research review of AGEM

3.1 About AGEM

The Amsterdam Gastroenterology, Endocrinology and Metabolism (AGEM) research institute unites the research at Amsterdam UMC involved at the intersection of nutrition, microbiome, digestion, endocrinology and metabolism. AGEM aims to improve gastrointestinal, endocrine and metabolic health and to connect its efforts to major societal and healthcare challenges, thereby preventing and reducing the burden of common and rare diseases.

AGEM consists of approximately 700 Amsterdam UMC researchers working in the fields of gastroenterology, endocrinology and metabolism. Until recently, its research is organized in four programmes: (1) regeneration and neoplasms of the digestive system; (2) digestive function and pathology; (3) endocrinology, metabolism and nutrition, and (4) inborn errors of metabolism. This organization was changed as the four programmes are replaced with three, on gastroenterology, endocrinology, and metabolism. AGEM was initiated in 2017 under the name Amsterdam Gastroenterology & Metabolism (AG&M). It was renamed in 2020 to include endocrinology more prominently and highlight the multidisciplinary nature of the research institute.

The creation of the institute coincided with the merger of Amsterdam's academic hospitals and medical faculties, Academic Medical Center (AMC) and VU Medical Center (VUmc), into the Amsterdam UMC. This merger was undertaken in 2017 and completed administratively per 1 January 2024. Previously, the two institutions organized their research in different ways: the AMC had a structure based on principal investigators (PIs) working in departments and grouped in divisions, while VUmc had five research institutes. In the merger, it was decided to combine these structures and to create three additional institutes to offer all Amsterdam MC researchers a place. These institutes, including AGEM, were created to enhance focus and stimulate interdisciplinary collaboration between departmental research groups as well as between faculties.

As a result of the merger, Amsterdam UMC research is now organized in a matrix with divisions and 8 research institutes spread over two locations. Amsterdam UMC has ten divisions, each headed by a division chair, and encompasses multiple departments and sub-departments. Each department/sub-department head has integral responsibility for patient care, education and research, as well as for management, finances and personnel. The research institutes cut across these divisions. Each institute covers the whole spectrum from basic biomedical research, through translational and clinical research to the assessment of innovations in actual clinical practice. Each institute has their own Board of Directors, a four-year project plan and an annual budget of around €550,000 to stimulate innovation based upon the specific project plan.

AGEM is currently located at both locations of Amsterdam UMC (the Meibergdreef or former AMC location, and the Boelelaan or former VUmc location). This division will be maintained, but the aim is to have the laboratory-based (basic/translational) research and the clinic on one location for every department. For example, Gastroenterology will concentrate at the Boelelaan and Endocrinology/Metabolism at the Meibergdreef. The AGEM researchers will therefore continue to work on both locations.

3.2 Mission, vision and strategy

AGEM unites the research at the Amsterdam UMC involved at the intersection of nutrition, microbiome, digestion, endocrinology and metabolism. It aims to contribute to improving gastrointestinal, endocrine and metabolic health, and reducing the burden of diseases such as pancreatitis, inflammatory bowel disease (IBD), thyroid disorders, diabetes mellitus and galactosemia. AGEM's mission is to perform research that promotes healthy nutrition and metabolism, prevents or cures gastrointestinal and inherited and acquired metabolic disease, and improves the outcomes for patients. The researchers of the AGEM institute closely collaborate with internal and external academic and commercial parties to perform research with an impact on the understanding and treatment of pathological processes. This impact is achieved at three levels:

1. Making discoveries that help unravel the fundamental mechanisms that maintain organ homeostasis in health and the way these are dysregulated in disease;
2. Translating the revolutionary advances made in biomedical research to healthcare or modern medicine;
3. Performing (pre)clinical research that truly improves our current pathways for disease prevention and cure.

AGEM aims to unite the Amsterdam UMC research on gastrointestinal, endocrine and metabolic health and disease into a single research organization. Upon its inception, the institute formulated 10 specific aims to achieve its mission:

1. Familiarize the researchers of the VUmc and AMC with each other and promote a spirit of common purpose;
2. Create an atmosphere of intellectual excitement and cross-fertilization that encourages researchers to expand their understanding of biology and disease processes, in order to make important contributions to modern medicine;
3. Identify key research questions for the coming decade in line with today's major societal and healthcare challenges, and actively work within the AGEM research programs to address these questions;
4. Promote and foster multidisciplinary research approaches within the institute between different research programs and amongst scientists from bench to bedside;
5. Focus on those areas of research where the full chain translational research is at an international top level;
6. Talent development: recruit and train the next generation of excellent researchers for research programs of AGEM;
7. Collaborate closely with colleagues at the top of our international academic field and develop stable partnerships with their institutes;
8. Provide an attractive platform for preclinical and clinical development for commercial entities active in our disease areas;
9. Increase quality of the Core Facilities required for the research at the highest international academic level;
10. Develop a branding & communication strategy, which is used to target the general public, patients, academic colleagues, charities and industry.

In 2019, the institute conducted a midterm review, which led to a sharpening of these objectives. The resulting five aims remain at the centre of AGEM's strategy also for the upcoming period (2023-2028):

1. Talent development and retention: recruit, train and retain the next generation of excellent researchers for research programs of AGEM;
2. Promote and foster multidisciplinary research approaches within the institute between different research programs and amongst scientists from bench to bedside;
3. Provide an attractive platform for preclinical and clinical development for external partners active in our disease areas, thereby strengthening partnerships to generate societal and healthcare impact;
4. Create a sense of belonging within the institute. This involves i) creating an atmosphere of intellectual excitement and cross-fertilization that encourages researchers to expand their understanding of biology and disease processes, in order to make important contributions to modern medicine, and ii) a safe, social and inclusive environment where individuals all contribute to team-science with their own strength;
5. Develop a branding & communication strategy, which is used to target the general public, patients, press, academic colleagues and charities. For this aim, AGEM focuses on those areas of research where the full chain of translational research is at an international top level and multiple PIs collaborate in teams.

The committee appreciates AGEM's strategy, mission, and aims, which reflect the network character of the institute. AGEM aims for provide added value to its researchers and their work through stimulating connectivity and cross-fertilization, which the committee finds all the more important in view of the merger between AMC and VUmc, given the limited managerial influence and in answer to the effects of the COVID pandemic. However, the committee points out that these aims are not formulated in a measurable way. As a result, AGEM cannot measure well whether they have been (partially) achieved. The committee advises formulating measurable aims so that their achievement can be better demonstrated.

The committee also concludes that AGEM's setup as a research institute across various departments creates a need for constant dialogue between the institute management and the heads of the various divisions and departments. The department heads bear responsibility for HR and hiring policies, as well as for research. As a result, they are crucial in the accomplishment of AGEM's strategies and aims. Currently, they have regular one-on-one meetings with AGEM management, but the committee thinks that they should be included as a group to discuss, and experience ownership of, AGEM's future development and positioning. Similarly, the committee feels that AGEM should have a more active position with regard to decisions on centralized facilities. In the chapter on viability, this will be discussed further.

3.3 Research Quality

AGEM research aims to unravel the fundamental mechanisms surrounding gastrointestinal, endocrine and metabolic health and to promote healthy nutrition and metabolism, prevent or cure gastrointestinal and inherited and acquired metabolic disease and improve the outcomes for patients. It reaches from basic biomedical research, through translational research to actual clinical practice. AGEM researchers therefore span a wide area of research and produce a diverse range of research output.

Over the past period, the 700-800 researchers registered at AGEM published around 1,500 peer-reviewed articles per year. Up to 20% of these publications have been ranked in the top 10% most cited in their field in the respective year. AGEM's researchers secured a stable amount of second to fourth stream funding, totalling between €16,000,000 and €32,000,000 per year. These grants include Dutch ZonMW or NWO grants (personal or otherwise, such as Top Consortia /TKI) as well as European grants such as Horizon and ERC.

AGEM frequently collaborates with other academic institutions, which often results in peer-reviewed publications as well as joint clinical trials. AGEM researchers are active and highly visible in the international community of biomedical and health sciences, acting in international consortia, receiving awards for their work, and participating in editorial boards, scientific organizations, and conferences.

The committee finds that AGEM's research quality can be considered excellent. AGEM studies typically combine the basic, clinical and translational aspects of research, so that understanding of the mechanisms underlying a disease is paired with insights into treatment or prevention and clinical application. In addition, AGEM research is often performed cooperatively across AGEM PIs and departments, as the documentation provided to the committee and discussions during the site visit made clear. The committee considers the multi- or interdisciplinary nature to be a distinctive and strong feature.

One example of successful multidisciplinary research is that on inflammatory bowel disease (IBD). This is a collaboration between the Departments of Surgery, Gastroenterology and Hepatology, Imaging, Paediatrics and the Tytgat Institute for Liver and Intestinal Research (also part of AGEM). The project contains fundamental IBD research that employs the Tytgat Institute's biobank containing IBD surgical resection material, and the central Amsterdam UMC biobank (Future-IBD)'s diagnostic biopsies, whole blood and serum. It also uses animal and T-cell driven colitis models. This resulted in the publication of basic science articles on basic mechanisms in IBD. However, the research on IBD also yielded translational and clinical innovations, such as the development of pharmacological and dietary intervention strategies. It also led to pharma trials and to providing early drug access to patients. Examples of scientific impact caused by Amsterdam IBD research are the use of biologics early in the disease course, and the introduction of 'early surgery' for limited Crohn's disease.

Another example of ground-breaking research that is interdisciplinary and combines basic, translational and clinical aspects is that done by the Dutch Pancreatitis Study Group (DPSG). This Study Group involves the 30 largest hospitals in the Netherlands, including all 7 university medical centres, and is a collaboration of gastroenterologists, radiologists, interventional radiologists, and microbiologists. Researchers from the AGEM institute and Amsterdam UMC have a leading role in this Study Group. The DPSG acts as a world-leading research group in acute pancreatitis, having published a large number of practice-changing randomized trials. Research done by the DPSG led to insights and innovations including the abolishment of the use of probiotics in treatment of acute pancreatitis, since it increases mortality. It also led to the reduction of interventions in favour of less invasive treatment measures, reducing hospital stay and lowering mortality. The DPSG achieved numerous publications, including international guidelines in leading journals (BMJ, The Lancet, Gastroenterology).

Further examples of AGEM achievements are sex-specific newborn screening for adrenoleukodystrophy (ALD) as well as the improvement of neonatal screening for congenital adrenal hyperplasia (CAH) through second-tier testing. The ALD screening project was developed by the ALD Group at Amsterdam UMC with the National Institute for Public Health (RIVM), as a pilot study commissioned by the Ministry of Health, Welfare and Sport (VWS). This resulted in a national screening program for all male newborns per October 2023. The CAH screening, in collaboration with regional screening laboratories, RIVM, and others, has led to a reduction of false positive referrals after the implementation of a second-tier marker in the Dutch newborn screening program per October 2021. Here, basic and translational research directly lead to implementation in national healthcare practice.

A final example of scientific excellence is the discovery of SPRING, a previously uncharacterized gene impacting lipid metabolism mechanism. This discovery represents an important addition to the understanding of how lipid homeostasis is maintained and regulated. This basic scientific project is run in the department of Medical Biochemistry and is set to be further developed as therapeutic use and preclinical models are explored.

The committee concludes that AGEM research clearly achieves its goals of discovering fundamental mechanisms, the application of these insights to treatment and prevention, and the study of their effects in practice through clinical research. It finds that the cooperation between research departments, PIs and the clinic, as well as that with external partners, is of added value here, and a clear strength of AGEM. The committee praises the research quality at AGEM and expects that the network function of the AGEM institute, which enhances connectivity between its researchers, will contribute to maintaining and further improving this.

Given the importance of translational and clinical aspects as a distinguishing characteristic of AGEM research, the committee does have one concern regarding the current housing situation. The planned and partially executed laboratory moves in the wake of the merger are a good and necessary development to enable basic, translational and clinical researchers to collaborate easily. The relocations also lead to renovation and updating of equipment and labs, which is a positive effect of the merger. In the case of the Tytgat Institute for Liver and Intestinal Research, acceleration is needed in accomplishing such a relocation to secure the continuation of translational research. The current gap between clinicians on one location and researchers on the other actually hinders research, as the committee learnt during the site visit. A shuttle service going twice a day to transfer samples from one location to the other does not suffice to get samples from clinicians to researchers in a timely manner. The committee urges prioritizing the move rather than postponing it to end of 2027, as is currently scheduled. It is aware that this decision lies beyond the AGEM management and with the Board of Amsterdam UMC, going beyond the scope of this evaluation. However, due to the negative effects it detects on research practices at Tytgat Institute, the committee requests that this issue be taken into urgent consideration.

3.4 Societal Relevance

The translational and clinical orientation of AGEM research gives it clear societal relevance. The research conducted within AGEM has a significant impact on patients and patient care, and on the way diseases are treated and prevented, for instance through the uptake of research results in clinical guidelines worldwide. AGEM research is often used or referred to in policy documents, for instance on transgender research. Collaborations with international partners, such as the university medical centres of Leuven, Cambridge, Oxford, Harvard, Oslo, and Pisa, as well as national partners such as RIVM and the Ministry of VWS ensures that AGEM research is of direct relevance on a local, national and international level.

In addition, AGEM researchers are active in organizing conferences and webinars for healthcare providers, patients and the general public. AGEM's research regularly appears in the media as well as in patient organization magazines. AGEM researchers are frequently invited to speak at international conferences, seminars hosted by patient organizations, podcast episodes, etc. They also actively contribute to several websites and online webinars for patients with specific diseases. AGEM research resulted in several patents being filed, including one for a newborn screening method and mainly in the areas of metabolic/inherited disorders and IBD. In order to enhance this translation of science into innovative clinical and technological applications, AGEM has recently hired an institute-specific business developer to boost such developments.

Finally, AGEM enhances its societal relevance through participating in activities related to Amsterdam UMC's ambitions in this area for the upcoming years. In particular, AGEM is involved in and at the forefront of the Amsterdam UMC Food for Life (FFL) initiative. The FFL initiative aims to create a cross-cutting research line around food that unites all eight Amsterdam UMC research institutes, and covers food as medicine, food as part of care, food for prevention and food for planetary health. AGEM intends to play a strong part in FFL, not only to strengthen its visibility and external signature in the nutrition-health-disease domain, but also to enhance collaborations within AGEM and with other institutes, with substantial societal and healthcare impact as a result.

AGEM is also dedicated to sharing its research outcomes through *open science*. It strives to achieve as much open access (OA) as possible, and a significant proportion of its publications have been made available to the public (75% over the past period). The institute operates in line with the general policy on open science at Amsterdam UMC. This prescribes open access publishing of all scientific articles of which the corresponding author is working at Amsterdam UMC. For the reuse of data, it is a prerequisite that research data is stored in a Findable, Accessible, Interoperable and Reusable (FAIR) way. The Research Data Management department facilitates the creation of FAIR datasets by providing researchers with the tools and support for drawing up Data Management Plans. Amsterdam UMC researchers can use the open data repository DataverseNL to share metadata and publish their research FAIR data sets, open or under conditions for reuse. Amsterdam UMC has several online platforms to spread news and stories from Amsterdam UMC to the research community and the public. Its Research Grant Support provides advice to researchers about patient involvement in research proposals. AGEM is dedicated to following these guidelines as much as possible, without losing sight of the importance of protecting the privacy of patients and study participants.

The committee values the excellent societal relevance of AGEM research. It noted that much AGEM research is patient-driven, and also drawn from practice. This is for instance the case for the central role AGEM plays in the Dutch newborn screening program, and in research done on the sensation of itch in cholestatic liver disease, which the committee learned about during the site visit. Patients' discomforts here inspire research that combines investigations into treatment strategies with gaining fundamental insights into the mechanisms behind the symptom. The committee sees this link of basic and translational research to clinical practice as a strong and distinguishing feature contributing to AGEM's high societal relevance. The committee applauds the fact that a dedicated business developer is set to further boost technological and clinical innovations, which illustrates the increased importance that AGEM and Amsterdam UMC attach to societal impact of research. It is also pleased with the attention paid to open science within AGEM and Amsterdam UMC.

As a recommendation, the committee points out that AGEM researchers are well-connected to patient organizations, often sitting on their boards or presenting and sharing research data. However, a more concerted effort to collaborate with these organizations could be beneficial to both the researchers and the patients and patient organizations. By not letting such contacts depend on the individual PIs and by including patients from the start in designing and executing new research, the patient perspective could enhance both the effectiveness and the societal impact of research. The committee advises designing structural ways of including patient organizations in research. It understood that currently, Amsterdam UMC is developing policies for collaboration with external (societal) stakeholders and patient involvement in research. The committee advises AGEM to not only await such positive developments, but to take a proactive role in organizing structural and early collaboration with such organizations.

The committee understood from AGEM researchers that open science and societal impact are seen as important within the organization, but that data sharing is sometimes experienced as difficult to organize. This has to do with the fact that general research support (such as legal and GDPR support) has been centralized in the merger, but is seen as understaffed and much in demand. Depending on the department they belong to and the specific facilities this offers, researchers can count on more or less support. However, many struggle with the demands placed on them by data sharing and management in spite of the support structures in place. The committee recommends investigating if researchers could be further supported in these endeavours and/or given the means to dedicate time to this important aspect of doing research. While the committee understands that this is an issue that goes beyond AGEM as an institute, it recommends addressing this both at the level of the institute for supporting AGEM researchers, and at the level of Amsterdam UMC for structural and centralized solutions.

Regarding AGEM's interaction with and through the media, the committee thinks that more can be done to enhance the institute's strategy here and to increase its visibility as AGEM. The institute can still be more active in sharing its good work, both on its website and through press contacts. Innovations, discoveries, policy impact and clinical guidelines should be presented to a wider audience in order to strengthen AGEM's visibility and thereby its societal impact. For instance, the committee points out that the contribution to neonatal screening directly impacts Dutch society. This presents AGEM with a good opportunity to advertise its successes and become better known to other researchers and the general public. While Amsterdam UMC is already a well-known brand, AGEM should work on developing its own visibility and external profiling.

Finally, the committee is pleased to see that AGEM researchers have decided to take on a leading role in the Amsterdam UMC-wide Food for Life project. It considers this very well suited to AGEM's expertise. The Food for Life project could strengthen AGEM's position as a new institute within the organization and create opportunities for further multi- and interdisciplinary collaborations within and outside Amsterdam UMC. One promising new direction is the collaboration on prevention with the Amsterdam Public Health institute, a fellow Amsterdam UMC institute. The committee encourages AGEM to build upon this promising new initiative.

3.5 Viability

Future strategy

Per 1 January 2024, AGEM faces a change of directorship and the formal completion of the merger between the two hospitals and medical faculties. In practice, the merger will take more time to be thoroughly completed, and various departments and PI groups are still awaiting a move towards a new location, in line with the ambition of Amsterdam UMC to have the laboratory-based (basic/translational) research and the clinic on one location for every department. In view of these developments, AGEM has decided to retain its strategic aims in the upcoming years (see also under 'Mission, vision and strategy').

1. Talent development and retention: recruit, train and retain the next generation of excellent researchers for research programs of AGEM;
2. Promote and foster multidisciplinary research approaches within the institute between different research programs and amongst scientists from bench to bedside;
3. Provide an attractive platform for preclinical and clinical development for external partners active in our disease areas, thereby strengthening partnerships to generate societal and healthcare impact;
4. Create a sense of belonging within the institute. This involves i) creating an atmosphere of intellectual excitement and cross-fertilization that encourages researchers to expand their

understanding of biology and disease processes, in order to make important contributions to modern medicine, and ii) a safe, social and inclusive environment where individuals all contribute to team-science with their own strength;

5. Develop a branding & communication strategy, which is used to target the general public, patients, press, academic colleagues and charities. For this aim, AGEM focuses on those areas of research where the full chain of translational research is at an international top level and multiple PIs collaborate in teams.

At the same time, the institute has formulated three focus points underlying these 5 strategic aims:

1. More focus on PI levels to stimulate involvement and interdisciplinarity within AGEM;
2. Strengthen and further define AGEM talent policy;
3. National and international positioning.

The institute intends to focus especially on these three points, while continuing to advance towards its five aims. The committee agrees with the chosen strategy, ensuring continuity as the organizational changes are finalized. It finds that the three focal points touch upon foremost challenges regarding AGEM's viability, which will be discussed below. As mentioned before, the aims and strategy of AGEM are not formulated in a concrete and measurable way. This also goes for the three focal points. The committee recommends formulating targets that are concrete enough to enable measurement of progress.

Positioning and financial structure

As a network institute, AGEM does not control hiring strategies or financial aspects of research. The institute does not benefit from research or PhD completion grants gained by its individual researchers. Instead, AGEM receives a fixed annual budget of around €550.000 (see Appendix 1). This pays for a limited number of support staff members as well as the grants, activities organized, and other costs. The AGEM management currently consists of non-paid positions filled by prominent AGEM researchers. Furthermore, e.g. PhD-training and education, research grant support, and core facilities are centralised as part of Amsterdam UMC, with a limited and/or advisory role for AGEM board members board.

In view of these restrictions, the committee praises AGEM for all that it has accomplished over the past period in connecting researchers and stimulating synergy in research. However, the committee also considers the limited, non-structural funding of AGEM a threat to its future viability. It is difficult for AGEM to determine a viable strategy concerning its research direction without the finances to act upon it or the mandate to influence this direction. In order to ameliorate this situation, the committee gathers that a clear assessment of financial streams between divisions and departments should be made by the Amsterdam UMC Board. The committee learnt that at present, much is unclear about these streams, for instance the financial reward for finished PhD students, which seems to vary between divisions. This leads to a lack of transparency and possibly to differences between divisions and departments that could negatively affect AGEM as an overarching institute. As soon as clarity is provided, discussions and decisions on the financing of institutes such as AGEM can be held in a fruitful manner. As mentioned earlier, the committee thinks it important that AGEM management is involved in such discussions.

As a result of AGEM's positioning, it is difficult for the institute to steer the direction of research or ensure that certain focal points are addressed by all researchers. This means that AGEM's aim to strengthen its national and international positioning in the research landscape (focus point 3) cannot be achieved through direct actions by AGEM, for instance through the hiring of specific expertise. AGEM is currently planning to identify

the specific research areas in which it holds a leading role, in order to offer an attractive profile for collaborative partners. It is seeking strategic alliances with other institutes, such as Wageningen University for nutrition research and Amsterdam Public Health for prevention research. The committee stresses its appreciation for seeking collaborations in relevant fields, while maintaining focus on AGEM's own strengths. Furthermore, AGEM has recently been more involved in strategic hiring decisions, albeit at a relatively late stage in the hiring process. The committee applauds these efforts to strengthen AGEM's profile and positioning, but an earlier involvement in Amsterdam UMC strategic recruitment decisions would be beneficial for AGEM's strategic development.

The committee points out that enhancing the profile and branding of AGEM as a top-quality research institute requires attention: due to its recent creation, it is not yet a household name. The committee appreciates the fact that AGEM has recently simplified its profile: it is moving from four research topics to the three fields represented in its name. The committee recommends investing in AGEM's visibility by claiming successes and sharing results more proactively than is currently the case. One way of promoting AGEM would be the creation of a database of its people, listing their expertise, knowledge and the technologies they work with. This makes AGEM specialists easy to find for outsiders seeking collaboration or expertise, and strengthens its external profiling. What is more, it would also be insightful for people working at AGEM. When looking to use a new technique, AGEM scientists could easily look up which in-house experts they can contact to learn from and work with.

A point of concern for the committee is that AGEM is not involved in decisions concerning the accessibility of core facilities and their pricing. Amsterdam UMC Core Facilities are not organized centrally, but within the various departments. The governance and financial structure of the facilities, which include amongst others the Core Facilities for Genomics, Metabolomics, Microscopy and Cytometry, and Human Induced Pluripotent Stem Cells, has been adapted recently, so that income and costs are more clearly separated from departmental finances. Virtually all core facilities now work with a system of user fees to (partially) cover costs. The committee learnt from researchers that this newly introduced fee system is experienced as a complication, especially since it has not been factored into running projects and grant applications. What is more, the fact that facilities are available to both Amsterdam UMC and outside parties (who pay a higher price) means their accessibility is reduced. In addition, the committee learnt during the site visit that PIs often struggle to find personnel to run their facilities. Due to the direct impact on AGEM research and practice, the committee thinks that the Amsterdam UMC should include AGEM's management in strategic decisions surrounding these core facilities.

HR policy and talent management

AGEM does not directly employ any staff, but it does contribute to HR and talent managing among its members. A central role in achieving this are the AGEM grants. The AGEM Talent Development Grant, for example, is specifically designed to support exceptionally talented researchers who have obtained a PhD degree within the last eight years. The grant provides funding for researchers who want to establish their own research line or further develop their existing research line. The AGEM Innovation Grant was designed to stimulate collaboration between disciplines.

Per 2022, the AGEM institute started drafting an Amsterdam UMC-wide mentoring program in collaboration with the seven other research institutes of Amsterdam UMC. This program will provide researchers with mentorship and guidance as they navigate their careers. AGEM also has an advisory role with regard to Amsterdam UMC talent policy and recruitment. This role is reflected in the institute's participation in nominating individuals and teams for local and international awards, in supporting promotions from

assistant to associate or full professorships and in recruiting talent through such means as the Amsterdam UMC fellowship. Finally, AGEM recently established Young AGEM, a board comprising early- to mid-career researchers who offer advice and support to the AGEM research board.

Beyond these AGEM activities, the institute partakes in Amsterdam UMC options and activities regarding talent management. Amsterdam UMC has a Committee for Talent and Appointments (CTA) that has been assigned by the Executive Board to shape the talent policies of scientific staff and to provide advice to the Deans of the Medical Faculties of the VU and the UvA on the appointment of mid-career and top level academics. The CTA also provides advice on the implementation of Recognition and Rewards (R&R), which advocates a broader evaluation of academic staff, in line with the current national and international discussion on this topic. The goal of the CTA is to make appointment policies of Amsterdam UMC more transparent for talents from within as well as from outside of Amsterdam UMC. Currently, the CTA is broadening its scope towards talented researchers in different stages of their careers by developing postdoc policies and providing advice on starter grants for assistant professors and nurses with aspirations in research. The AGEM board currently has an advisory role in the CTA. The committee feels that it would be helpful if AGEM would be involved in a more early stage and/or more active role here.

In addition, Amsterdam UMC has several incentive arrangements to stimulate research excellence. The Research Grant Support office helps to stimulate, retain or attract researchers at mid- and high-career level to obtain prestigious (inter-)national and EU research grants. The Research Policy Office is involved in the development of research policy advice and offers support to Amsterdam UMC researchers.

Furthermore, a digital postdoc portal is being launched to support postdocs in making career advancement, by offering information, courses and coaching. Amsterdam UMC offers up to four Postdoc Career Bridging grants per year to young researchers. The Amsterdam UMC Postdoc Network deploys activities to attract attention to the specific needs of postdocs, among others by organizing courses on scientific and transferable skills and networking events, thereby stimulating professional and career development. For talented senior postdocs or mid-career level researchers, an Amsterdam UMC Fellowship exists, consisting of one 5-year Fellowship per year to set up an own research group.

As part of its HR approach, AGEM strives for diversity and inclusion. As a network institute that does not employ any staff, AGEM does not have diversity promoting practices integrated into its structure. Instead, the responsibility for promoting diversity lies within Amsterdam UMC's divisions and departments. Despite this fact, the AGEM institute strives to promote diversity in whatever ways it can. For instance, it places a strong emphasis on selecting lecturers from diverse backgrounds for symposia and events.

The AGEM institute adheres to the Human Resources policies set by Amsterdam UMC. These include a Gender Equality Plan as part of the broader 'Action Plan for 2021 and after'. To strengthen gender equality and diversity, Amsterdam UMC has dedicated resources and expertise to promoting equal opportunities for women and people from underrepresented groups, such as a Diversity & Inclusion (D&I) Office, Principal D&I investigators and educators. Amsterdam UMC offers several workshops and trainings to raise awareness and help employees integrate diversity in their own teams and collaborations. To help female researchers progress to higher levels on the career ladder, part of the Aspasia Grant of the Dutch Research Council (NWO) funds have been transferred to the Women in Science Fund, financially supporting young female scientists to go on international work visits.

The committee discussed HR policies and practices with various AGEM stakeholders. It learnt that the grants provided by AGEM are highly appreciated and effective, allowing early and mid-career researchers to move on in their career and/or bridge the time between appointments. Career trajectories are sufficiently transparent, as are the criteria for tenure track positions. The creation of Young AGEM is appreciated by junior and mid-career researchers since it allows them to form an official sounding-board as AGEM stakeholders, and also offers them the opportunity to meet their peers and exchange experiences. The committee is pleased with the attention paid to HR and talent management, including diversity and inclusion. It recognizes that AGEM has no direct impact here, but appreciates the many Amsterdam UMC initiatives in this area.

The committee urges AGEM to develop a clear career pathway for a limited number of young scientists who are interested in a career that combines clinical work and research (also in line with R&R). The committee interviewed young scientists who struggled with this combination, since a choice for either direction is traditionally expected of them. The committee points out that such young talents are actually perfectly placed to realize the link between (basic/translational) research and clinic that characterizes AGEM research. It would therefore be prudent to encourage these young scientists in combining the two careers, so that they are retained for the organization. The committee therefore recommends investing in an advanced clinician scientist program which allows identifying a limited number of such young talents and ensuring that they have protected research time. This could for instance be done by a paired rotation system, where two clinical scientists share one clinical position and spend the rest of their time on research. The clinical science program should include a transparent selection method and a clear setup, so that all those involved know, and can commit to, what is expected. The committee suggests looking for additional funding within AGEM's various departments, since they would benefit from the setup.

Academic culture

The AGEM institute serves researchers working in various divisions and departments of Amsterdam UMC. It is committed to fostering an environment that is open, safe, and inclusive, welcoming individuals from all backgrounds, ages, and walks of life. To facilitate effective communication, the institute exclusively uses English as the primary language of communication. Additionally, news items from Amsterdam UMC that are originally in Dutch are regularly translated to ensure that non-Dutch speaking AGEM researchers can understand them. AGEM also aims to include all of its stakeholders in decision-making and strategy; the recent establishment of Young AGEM is a clear example.

Upon discussing academic culture with AGEM researchers, the committee found that they are generally happy with the open and transparent culture of AGEM. AGEM as a network institute contributes to an atmosphere of collaboration and transparency. However, all AGEM members are aware that merging the two cultures of VU and AMC into one is an ongoing process that requires constant attention. Differences in approach, or a lack of awareness of what goes on beyond the own department, are still realities that need to be dealt with. AGEM is therefore important in bringing together the researchers belonging to it in order to enhance collaboration, connectivity and quality of research.

One of the challenges AGEM faces in achieving this connectivity and synergy among researchers is a consequence of its positioning within Amsterdam UMC. Due to the financial structuring of this organization, researchers are employed by the departments they primarily belong to. These departments are often composed of scientists belonging to other institutes as well as AGEM. As a result, the sense of belonging to AGEM does not come automatically to its researchers, whose primary allegiance may lie with their department.

In the face of this challenge, AGEM offers its community of researchers a number of benefits and activities that contribute to community-building. AGEM offers various types of internal grants annually, e.g. the talent development grant and the innovation grant. In 2020, AGEM introduced additional grants for one year only, explicitly designed to promote clinical research. Furthermore, AGEM organizes symposia and lectures, a 'Best Publication Battle' for junior researchers, and an annual retreat for AGEM PhD candidates. AGEM also offers an international student fellowship aimed at attracting (bio)medical students for a research internship which often leads to a follow-up PhD degree.

The committee found during the site visit that AGEM's activities in creating a community are clearly bearing fruit: the participants were positive on the institute. Particularly the younger scientists, often grant recipients, felt part of the AGEM community. However, AGEM has less of a natural connection with the senior researchers, and particularly the Principal Investigators (PIs). Currently, the AGEM directorate holds regular individual interviews with PIs in order to get them involved with AGEM strategy. The committee thinks that more could and should be done to motivate the PIs to come together, meet up and collaborate. AGEM is well-positioned to organize this, and has named this as its first focus point for the upcoming period. The committee fully supports this. It suggests organizing a senior staff event in parallel to the PhD retreat as a first initiative to boost interdisciplinary synergy among PIs.

Regarding research integrity, AGEM staff actively raise awareness during its regular face-to-face meetings with department heads and Principal Investigators. Additionally, the institute organizes the Responsible Research Dinner Debate. This event brings together researchers from different career stages, ranging from PhD candidates to Principal Investigators, to have open discussions about scientific integrity and responsible research practices within their departments and research groups. As a result of these discussions, various departments have implemented initiatives to promote scientific integrity, such as the Tytgat Institute of Liver and Intestinal Research (group sessions with Dilemma Games) and the Endocrine Laboratory (monthly meetings of technicians, PhD and master students to discuss research and ethical issues).

Aside from these AGEM-specific initiatives, AGEM is committed to Amsterdam UMC policies and measures to ensure openness, (social) safety, inclusivity and research integrity. In the Amsterdam UMC, the office of the ombudsman is responsible for the social safety policy and the complaints procedure. Regarding research integrity, Amsterdam UMC aims to provide an academic culture in which researchers are stimulated and supported to perform research to the highest ethical standards. Elaborating on the European and the Netherlands Code of Conduct for Research Integrity, that articulate broad values and principles characterizing research integrity, the Amsterdam UMC Research Code defines local guidelines and expectations for researchers when conducting research at Amsterdam UMC.

Amsterdam UMC has several independent confidential counsellors, including counsellors specifically for PhD candidates, who focus on research integrity. Next to confidential counsellors for undesirable behaviour and integrity, there are specific counsellors for any employee or external party involved in research at Amsterdam UMC who has a question about research integrity or suspects research misconduct. These confidential counsellors can mediate and advise on whether or not to file a complaint. Moreover, the confidential counsellors provide research integrity training. This is also part of the PhD trajectory, and is offered by the department of Ethics, Law and Humanities as well as the Research Policy Office of Research Support.

Medical research involving human subjects, human material or laboratory animals has to be carried out according to national law and regulations. Within Amsterdam UMC, dedicated ethical committees review

research protocols to ensure human and animal safety, as well as research quality. All medical scientific research in which human participants are subjected to (medical) procedures or are required to follow rules of behaviour falls under the Medical Research Involving Human Subjects Act (WMO). The Amsterdam UMC MREC (Medical Research Ethics Committee) has to approve research subject to WMO. All Amsterdam UMC clinical investigators performing WMO research are obliged to follow the Basic Course on Regulations and Organization of Clinical Trials. Amsterdam UMC employees other than clinical researchers who are involved in clinical research are obliged to follow a Good Clinical Practice course. For all other research with humans, such as research with medical data or interviews, there is a dedicated review board under the responsibility of the MREC that assesses all research proposals (including research involving setting-up a biobank or conducting research with material from an existing biobank) according to predefined ethical and legal criteria.

The Experiments on Animals Act stipulates that animal experiments can only be conducted after authorization by the national Central Authority for Scientific Procedures on Animals (CCD). For each research proposal using laboratory animals, a 'Article 9 officer' from the department has to apply for a project license at the CCD. Project permission is based on ethical assessment by an independent local committee of experts known as the Animal Experiments Committee (DEC). The DEC focuses on protecting laboratory animals and weighs the degree of animal discomfort caused by the procedures and decides if this is proportional to the scientific and/or social benefits of the study.

The committee concludes that research integrity receives much attention within AGEM as well as within Amsterdam UMC at large, which it considers a positive fact. The current practices are in line with regulations and standard practices. Much of this is organized at a central Amsterdam UMC level, which creates transparency and ensures that all researchers are similarly versed in research integrity and ethics. The committee applauds the attention paid to instructing researchers on ethical issues by Amsterdam UMC. It also appreciates the ongoing dialogue on this topic within AGEM, and the different shapes this takes in the various departments. Since every specialism has its own practices and points of attention regarding research integrity and/or working with human or animal subjects or materials, it is logical that there are different initiatives to promote scientific integrity in the various departments. The regular discussions between AGEM management and department leaders ensure that this receives adequate attention throughout the institute. The committee learnt during the site visit that researchers experience applying for ethics approval to be burdensome administratively and financially, and it recognizes that lean processes would benefit the researchers.

PhD policy and training

AGEM does not directly employ PhD candidates, who are enrolled in the various departments. However, the institute has implemented various initiatives to support the academic and personal growth of PhD candidates and ensure their well-being. One prominent example is the annual AGEM retreat, which is organized mainly by PhD candidates. The retreat offers a platform for all PhD candidates to present their research, thereby providing a comprehensive overview of the full width of research conducted within the institute. This retreat aims to bring researchers together to explore, exchange and learn from each other's research. Furthermore, the institute conducts a highly regarded PhD candidate course to provide information to new and current PhD candidates in the areas of gastroenterology, endocrinology, and metabolism. This course covers essential topics that may fall outside the scope of their own research and also provides practical information and hands-on practice with broader academic skills. Each year, AGEM also organizes the Best Publication Battle, in which talented PhD candidates and junior postdocs get the

opportunity to pitch their publication in a high-impact journal, thereby competing for the honoree prize of 'Best AGEM publication' of that year.

Beyond these AGEM-specific activities, PhD training is done at a central level by the Amsterdam Doctoral School of Amsterdam UMC. Distinct doctorate regulations apply for the UvA and VU PhD candidates. Due to these different university regulations the rules on training also differ. For VU PhD candidates, a training of 30 EC is mandatory, while for UvA PhD candidates this is recommended rather than imposed. In order to streamline PhD education, the Amsterdam UMC executive committee has determined that all PhD theses must contain a portfolio of education of about 30 EC.

PhD candidates can always contact one of the Amsterdam Doctoral School PhD advisors when they need coaching or a confidential consultation. Besides services for PhD candidates, the Doctoral School offers services to their supervisors. Specially designated Doctoral School employees can be contacted for information and confidential consultations. The Doctoral School offers trainings on general academic skills (writing, presenting, personal development, research ethics, scientific integrity, scientific methods), research skills (broadening and deepening of scientific understanding) and social (personal) competences. The Doctoral School strives to develop guidance towards the job market and career prospects in the near future. Research institutes also organize trainings and activities on their research focus.

At the start of the PhD trajectory, the PhD candidate mandatory files a Training Plan (also including a paragraph on supervision) to be evaluated and monitored by the PhD supervisors up to the moment of graduation. By pre-establishing a balanced Training Plan, the candidates are required to consider the skills they want to learn early on in their PhD trajectory. At the end of the process, their portfolio is assessed compared to the initial plan (VUmc) and/or (part of it) is added to the thesis (AMC and VUmc). A mentoring programme is currently being planned for all PhD candidates in Amsterdam UMC (as well as early career scientists).

Since AGEM does not directly employ PhD candidates, it does not have specific data on PhD success. However, the completion rates over the past period that it does have (see appendix 3) suggest that PhD students clearly take longer than the allotted period (usually 4 years) to complete their PhD, taking on average between 5,08 and 5,69 years to do so. The committee discussed PhD training and support with AGEM PhD students. They told the committee that the support structures suffice, and that they are happy with the guidance they receive. PhD students also know where to go when they encounter issues. The AGEM retreat is mentioned by all as a positive initiative that impacts their development. Here, they encounter peers from other AGEM departments, allowing them to develop a broader view of the research done at the institute and to compare notes with fellow PhD candidates. PhD candidates pointed out to the committee that they are satisfied with the guidance they receive from their advisors. At the same time, they mention that guidance depends on the specific supervisor, and that the amount of guidance received can therefore vary.

The committee recommends harmonization of PhD trajectories within the organization, both between universities (VU and UvA) and between departments. This ensures equal treatment of all PhD candidates and creates clarity as for what is expected of a PhD candidate. Such harmonization should specify the support that may be expected and include standardized milestones and meetings, such as a yearly mentor meeting. By streamlining the trajectory and creating clear expectations, the committee also expects the completion rates to improve. The committee also advises AGEM to expand its AGEM-specific course and create a core curriculum of techniques from all three of AGEM's themes attended by all of AGEM's PhD students. In this manner, the institute produces 'AGEM' PhD candidates with a specific skillset and a common profile, which

can be used in branding the institute further and establishing “AGEM PhD” as a seal of approval and quality. Finally, the committee recommends creating an alumni network in order to have a clear overview of where its alumni end up, and to use the network for helping the PhD candidates take further steps in their careers.

4. Executive summary & recommendations

4.1 Executive summary

The Amsterdam Gastroenterology Endocrinology Metabolism (AGEM) institutes unites the research at the Amsterdam UMC involved at the intersection of nutrition, microbiology, digestion, endocrinology and metabolism. AGEM research distinguishes itself through its combination of basic biomedical research, translational research and actual clinical practice, and through its interdisciplinary and collaborative approach. The committee finds that this yields excellent research with a direct impact on treatment and clinical practice, and with clear societal relevance and impact. AGEM is a young network institute founded to enhance the synergy and connectivity between its researchers. The committee considers AGEM well placed to contribute to maintaining and improving the excellent research done at AGEM. In addition, the institute plays an important role in the integration of researchers and research groups after the merger of AMC and VUMc into Amsterdam UMC, and contributes to stimulating research talent by offering grants and activities to its members.

As a network institute, AGEM's main challenges are its limited resources and influence on matters that impact research quality and future directions. The committee would like to see this changed in future, with AGEM management being offered a seat at the table when it comes to decisions on HR, hiring, and core facilities, all of which impact AGEM's research quality and community. AGEM should also enhance its position both within and outside the Amsterdam UMC by communicating clearly on its achievements and successes and by connecting and involving its senior scientists. Finally, AGEM should rear its own talents through a clinical science program for talents looking to combine the two, and by creating a distinct profile for all of its PhD candidates through shared courses and similar experiences.

4.2 Recommendations

- Formulate the future strategy in a concrete manner in order to be able to measure progress.
- Prioritize joining the clinicians and researchers belonging to the same research area, in line with the importance of the nexus between basic, translational and clinical research within AGEM. This is especially urgent for the Tytgat Institute.
- Design structural ways of including patient organizations in AGEM research.
- Investigate if researchers could be further supported and/or given the means to dedicate time to data sharing and management.
- Invest in a branding and communication strategy to advertise AGEM's successes and become better known to other researchers and the general public.
- Continue taking up an active and prominent role in the Amsterdam UMC-wide Food for Life project in order to strengthen AGEM's position as a new institute within the organization and create opportunities for further multi- and interdisciplinary collaborations within and outside Amsterdam UMC, while maintaining their own focus.
- Gain active involvement in all strategic discussions and decisions surrounding AGEM, such as its hiring policy and practice, and the availability and pricing of its core facilities. Clarify Amsterdam UMC financial flows to facilitate such discussions and decisions. This should also include an active and constant dialogue with department heads.
- Invest in involving the Principal Investigators to get actively involved in AGEM, for instance by organizing a senior staff event in parallel to the PhD retreat.

- Introduce an advanced clinician scientist program, which allows identifying a limited number of young talents combining clinic and research, ensuring that they have protected research time. This could for instance be done by a paired rotation system, where two clinical scientists could share one clinical position and spend the rest of their time on research.
- Harmonize PhD trajectories within AGEM, both between universities (VU and UvA) and between departments and invest in an AGEM curriculum for PhD students.
- Create an overview of where alumni end up as a useful network for AGEM PhD candidates.

Appendix 1: The SEP 2021-2027 Criteria and Categories

The committee was requested to assess the quality of research conducted by the UHS as well as to offer recommendations in order to improve the quality of research and the strategy of the UHS. The committee was requested to carry out the assessment according to the guidelines specified in the Strategy Evaluation Protocol. The evaluation included a backward-looking and a forward-looking component. Specifically, the committee was asked to judge the performance of the unit on the main assessment criteria and offer its written conclusions as well as recommendations based on considerations and arguments. The main assessment criteria are:

- 1) **Research Quality:** the quality of the unit's research over the past six-year period is assessed in its international, national or – where appropriate – regional context. The assessment committee does so by assessing a research unit in light of its own aims and strategy. Central in this assessment are the contributions to the body of scientific knowledge. The assessment committee reflects on the quality and scientific relevance of the research. Moreover, the academic reputation and leadership within the field is assessed. The committee's assessment is grounded in a narrative argument and supported by evidence of the scientific achievements of the unit in the context of the national or international research field, as appropriate to the specific claims made in the narrative.
- 2) **Societal Relevance:** the societal relevance of the unit's research in terms of impact, public engagement and uptake of the unit's research is assessed in economic, social, cultural, educational or any other terms that may be relevant. Societal impact may often take longer to become apparent. Societal impact that became evident in the past six years may therefore well be due to research done by the unit long before. The assessment committee reflects on societal relevance by assessing a research unit's accomplishments in light of its own aims and strategy. The assessment committee also reflects, where applicable, on the teaching-research nexus. The assessment is grounded in a narrative argument that describes the key research findings and their implications, while it also includes evidence for the societal relevance in terms of impact and engagement of the research unit.
- 3) **Viability of the Unit:** the extent to which the research unit's goals for the coming six-year period remain scientifically and societally relevant is assessed. It is also assessed whether its aims and strategy as well as the foresight of its leadership and its overall management are optimal to attain these goals. Finally, it is assessed whether the plans and resources are adequate to implement this strategy. The assessment committee also reflects on the viability of the research unit in relation to the expected developments in the field and societal developments as well as on the wider institutional context of the research unit

During the evaluation of these criteria, the assessment committee was asked to incorporate four specific aspects. These aspects were included, as they are becoming increasingly important in the current scientific context and help to shape the past as well as future quality of the research unit. These four aspects relate to how the unit organises and actually performs its research, how it is composed in terms of leadership and personnel, and how the unit is being run on a daily basis. These aspects are as follows:

- 4) **Open Science:** availability of research output, reuse of data, involvement of societal stakeholders;
- 5) **PhD Policy and Training:** supervision and instruction of PhD candidates;
- 6) **Academic Culture:** openness, (social) safety and inclusivity; and research integrity;
- 7) **Human Resources Policy:** diversity and talent management.

Appendix 2: Programme of the site visit

Tuesday 28 November 2023 – Committee introduction

18:00 – 21:00 Meet & Greet dinner (committee + AGEM directors / staff)

Wednesday 29 November 2023 – Site visit day 1 – AMC location

08:30 – 09:30 Kickoff / preparation | closed session (committee only)

09:30 – 10:15 Session 1 – AGEM General

10:15 – 10:30 Coffee break

10:30 – 11:00 Session 2 – Talent development

11:00 – 11:30 Session 3 – PhD policy and training

11:30 – 11:45 Coffee break

11:45 – 12:30 Session 4 – Societal relevance

12:30 – 13:30 Lunch Vrijzaal

13:30 – 14:30 Walking tour AMC labs

14:30 – 15:15 Session 5 – Endocrinology

15:15 – 15:30 Coffee break Rembrandtzaal

15:30 – 16:15 Session 6 - Metabolism Rembrandtzaal

16:15 – 16:30 Coffee break Rembrandtzaal

16:30 – 17:30 Wrap-up day 1 | closed session (committee only)

Thursday 30 November 2023 – Site visit day 2 – VUmc location

09:00 – 09:45 Session 7 – Gastroenterology

09:45 – 10:00 Coffee break

10:00 – 10:45 Walking tour VUmc

10:45 – 11:45 Consensus meeting part 1 | closed session (committee only)

11:45 – 12:15 Feedback meeting with directors and policy officers

12:15 – 13:15 Lunch

13:15 – 15:15 Consensus meeting part 2 | closed session (committee only)

15:15 – 16:00 Closure (incl. recap of visit by committee chair)

Appendix 3: Quantitative data

The Strategy Evaluation Protocol requires every self-evaluation report to include quantitative information on the input of research staff, funding and PhD candidates. However, due to the matrix structure of Amsterdam UMC, these aspects are centrally organized. Additionally, for multiple organisational reasons, not all researchers and publications have been affiliated to a research institute yet. Therefore, the numbers of researchers and publications presented in the self-evaluation report are likely to be an underrepresentation of reality. These numbers are therefore meant to give an indication of the order of magnitude of certain aspects, rather than as an exact truth.

Table A5 Number of researchers registered at the AGEM institute, 2017-2022.

	2017	2018	2019	2020	2021	2022
Principal Investigators*	88	90	91	93	99	101
PhD students**	495	443	470	416	432	415
Other researchers***	289	262	228	293	221	214
Total****	872	795	789	802	752	730

* Based on official Amsterdam UMC Principal Investigator registration

** Based on the AGEM institute's own registration system as well as Hora Finita (registration system for VUmc PhD students)

*** Based on the Research Information Systems Pure VUmc and Pure AMC in each respective year. Registration of research institute affiliation was done by the researchers themselves, by representatives of the department of the researcher, by personnel from the Medical Library AMC or by the policy officer of the AGEM research institute. Researchers affiliated with AGEM registered in the VUmc and AMC Pure instances have been combined and deduplicated. In 2020, the rule was introduced that each researcher could be affiliated to a maximum of 2 research institutes, to prevent long affiliations. This could be the reason for the decrease in number of researcher in 2020/2021.

**** The numbers presented here are an estimation of the total number of researchers registered and/or affiliated at the AGEM institute. Due to the self-registration aspect of the Pure registration system and the fact that one central Doctoral School registration system has been launched only in 2023, these numbers are likely to be an underrepresentation of reality. Therefore, the numbers presented here are solely meant to give an indication of the order of magnitude of the institute over time.

Table A6 Funding AGEM institute 2017-2022. The institute has a budget of approximately EUR 550.000 each year. Main expenditures are the AGEM grants, lectures and symposia and personnel costs (AGEM staff).

Funding AGEM institute	2017	2018	2019	2020	2021	2022
AMC	250.000	308.500	308.500	308.500	308.500	305.415
VUmc	250.0000	250.000	250.000	250.000	253.789	251.251
Total	500.000	558.500	558.500	558.500	562.289	556.666

Table A7 Total funding AGEM research in EUR for the second until fourth funding stream, 2017-2022.

Funding stream	2017	2018	2019	2020	2021	2022
2	2.726.159	5.020.955	5.524.833	1.635.670	3.852.350	4.149.495
	1.196.589	3.989.612	2.918.739	129.702	2.573.323	160.962
	3.922.748 (16)	9.010.567 (20)	8.443.572 (21)	1.765.372 (16)	6.425.673 (18)	4.310.457 (9)
3	4.663.433	5.523.132	6.172.802	5.235.684	2.029.801	4.303.070
	2.892.864	3.043.653	4.366.619	2.829.899	536.853	8.273.349
	7.556.297 (19)	8.566.785 (32)	10.539.421 (22)	8.065.583 (24)	2.566.654 (21)	12.576.419 (24)
4	7.573.802	14.053.234	4.758.711	3.484.397	9.455.223	1.973.092
	3.255.643	1.066.988	4.210.452	2.687.687	4.419.472	1.450.403
	10.829.445 (22)	15.120.222 (28)	8.969.163 (28)	6.172.084 (22)	13.874.695 (27)	3.423.495 (20)
Total	22.308.490 (57)	32.697.574 (80)	27.952.156 (71)	16.003.039 (40)	17.073.912 (66)	20.310.371 (53)

The table includes funding information for each Principal Investigator affiliated to AGEM, even if PIs are affiliated to more than 1 institute and their funding is registered at another institute. In blue, all funding that is registered at AGEM. In green, the funding from PIs who are affiliated to AGEM but their funding is registered at their second research institute. In bold, the totals of these two. The numbers in brackets are the number of PIs who have received this funding. Due to the large variety in size of the grants, the fact that these numbers also include consortium grants partially granted to Amsterdam UMC, and the COVID-19 pandemic in 2020 - 2021, there is some variety in the total funding over time. Nonetheless, the number of PIs who have received grants remains relatively stable over time (with the exception of 2020).

PhD Candidates: estimated numbers and completion rates

2020-2022

Average number of years = 5,41 (n=174)

Average number of years VU candidates = 5,54 (n=34)

Average number of years UvA candidates = 5,37 (n=140)

2020

Average number of years = 5,49 (n=43)

Average number of years VU candidates = 6,02 (n=9)

Average number of years UvA candidates = 5,36 (n=35)

2021

Average number of years = 5,08 (n=67)

Average number of years VU candidates = 5,58 (n=14)

Average number of years UvA candidates = 4,95 (n=53)

2022

Average number of years = 5,69 (n=63)

Average number of years VU candidates = 5,86 (n=11)

Average number of years UvA candidates = 5,65 (n=52)