Report of the External Review Committee for the 2006 – 2011 evaluation of

GROW

School for Oncology and Developmental Biology

Maastricht, September 2012
Date of submission: November 5, 2012

Contents

1 Introduction

This report presents the results of the assessment of the research and the educational programmes (both Research Masters and PhD training programme) of GROW, conducted by an External Review Committee. The GROW School for Oncology and Developmental Biology is one of five Schools in the Faculty of Health, Medicine & Life Sciences embedded in the Maastricht University Medical Centre+.

The External Review Committee

The members of the External Review Committee ('ERC' or 'the Committee'), were appointed by the Executive Board of Maastricht University. The Committee included:

- Prof. J. Wolter Oosterhuis (Chair), Erasmus Medical Centre, Rotterdam, The Netherlands;
- Prof. Robert Hofstra; Erasmus Medical Centre, Rotterdam, The Netherlands;
- Prof. Bé Wieringa; Nijmegen Centre for Molecular Life Sciences, Radboud UMC, Nijmegen, The Netherlands;
- Prof. Kevin Harrington; Royal Marsden Hospital, London, United Kingdom;
- Prof. Mikko Hallman; University of Oulu, Oulu, Finland;
- Prof. Floor van Leeuwen; Netherlands Cancer Institute, Amsterdam, The Netherlands;
- Prof. Winald Gerritsen; Radboud UMC, Nijmegen, The Netherlands;

Secretary to the ERC

- Ingrid Leijs, MSc, CAPHRI School for Public Health and Primary Care, Maastricht UMC+, Maastricht, The Netherlands.

All members of the Committee signed a declaration and non-disclosure form to safeguard that: (a) they judge without bias, personal preference or personal interest, and (b) their judgement is made without undue influence from the institute, the Programme or other stakeholders.

Additional information on the committee members and their curriculum vitae can be found in Annex 1. The Committee was formally installed by the Dean of the Faculty of Health Medicine and Life Sciences on September 3rd, 2012.

Evaluation criteria, scope of the assessment and rating

The President of Maastricht University, Prof. M. Paul, has asked the committee 'to evaluate the school (GROW) carefully in accordance with the rules of the SEP'. Prof. Paul specifically called the committee's attention to some evaluation aspects: 'First, the evaluation of the

quality of the PhD educational courses of the school, because it is very likely that GROW may use the evaluation report for re-accreditation of GROW as a research school.' Secondly, the committee was asked to review also 'each Division and theme of GROW, and as far as possible the underlying Research Programmes of GROW'. (Annex 2).
The Dean of the Faculty of Health, Medicine and Life Sciences (FHML), Prof. A. Scherpbier, adds two specific questions to this (Annex 3):

1. Based on consistent performance below average, the director of GROW proposes to stop a number of programmes. This will disturb the balance between Developmental Biology and Oncology, yet at the same time it will increase the focus of the School. We would value your opinion on this development.
2. As a logical consequence of the foregoing, the structure of the Divisions requires updating. We would appreciate your opinion on the proposed new structure.

In their tasks, the Committee had to take into account the rules for assessment laid down in the Standard Evaluation Protocol. This protocol has been developed as an evaluation system for publicly funded research in the Netherlands and is approved by the Royal Academy of Arts and Sciences (KNAW), the Netherlands Foundation for Scientific Research (NWO) and the Association for Co-operating Dutch Universities (VSNU).

The Standard Evaluation Protocol (SEP) entails three main characteristics:

- Two levels of assessment: according to SEP, the assessment takes place at two levels of research organisation, i.e. the level of the research school GROW, and the level of the Divisions 1) Oncology and 2) Developmental Biology. However, the specific Terms of Reference mentioned above (Annexes 2 and 3), add a third level of assessment: the Programme level, consisting of 16 Programmes.
- Three vital tasks: The assessment regards the three vital tasks of GROW, i.e. producing results for the academic community, producing results that are relevant for society, and educating and training the next generation of researchers.
- Four main criteria: The assessment entails four main criteria, i.e. quality, productivity, relevance, and vitality & feasibility.

The evaluation report consists of two main parts:

- Assessment of the School level in terms of the four criteria, with a focus on policy and strategy, identifying the main issues of praise and criticism and putting forward recommendations for improvement. The emphasis here is on looking forward.
- Assessment of the Research Programmes according to the four criteria, with a focus on performance, both in terms of scientific achievements and of societal relevance. The committee may use qualitative and quantitative indicators and indications. In a summary for each of the Research Programmes the four main criteria are translated into a five-point scale: Excellent (5)/ Very good (4)/ Good (3)/ Satisfactory (2) / Unsatisfactory (1).

Preparation of the site visit

Prior to the three day site visit on September 3, 4 and 5, 2012, the Committee received the

following documentation:

- the Standard Evaluation Protocol 2009 -2015 for research assessment in the Netherlands;
- GROW's Self-evaluation Report 2006-2011 (following the format of the SEP, including documentation at both School-level and Division-level, SWOT analyses, tables with input and output data, etc.);
- GROW's Mid-term Self Evaluation Report 2005-2008;
- GROW's Annual Report 2009-2011.

Two days before the site visit, the committee asked the School for further detailed information at the level of the Research Programmes. After all, the information received by the committee (Self-Evaluation Reports and Annual Report) did not provide enough specific information on the Programme level for the committee-members to be able to found an opinion on the individual Programmes. Therefore the following additional information was delivered by the GROW Management Office:

- Table presenting the number of refereed articles with impact factor (SCI/SSCI) published between 2006 and 2011 by the Programme Leaders;
- List of publications (refereed publications with impact factor) of all GROW Programme Leaders, published in the last 6 years (2006 - 2011);
- Number of staff (tenured and non-tenured) and number of PhD-students (internal PhD candidates and external PhD-candidates) per Programme;
- PhD-graduations per Programme and per year, between 2006 and 2011
- Report of the Evaluation Committee chaired by Prof. P. Borst in 2000;
- A letter of ECOS (2006), in reaction to the reaccreditation of GROW as a Researchschool.

Upon arrival, the members of the committee received the following additional relevant information:

- A compilation of all posters presented at the 'poster viewing' on Tuesday 4 and Wednesday 5 September;
- A proposal for a Center of Excellence entitled 'EVA: Erfelijkheid, Voortplanting en Aanleg' *(EVA: heredity, reproduction and predisposition)*, submitted to the Executive Board of Maastricht UMC+ in May 2012;
- A proposal for a Center of Excellence entitled 'Maastricht UMC+ Comprehensive Cancer Center', submitted to the Executive Board of Maastricht UMC+ in May 2012;
- A proposal for a Center of Excellence entitled 'Radiotherapy Oncology. Focus on tumour micro-environment and lungcancer', submitted to the Executive Board of Maastricht UMC+ in May 2012.

Furthermore, on the first day of the site visit, when the committee met for the first time, it was concluded that one important piece of information was missing. Therefore the GROW Management Office was asked to provide additional information on grants received by each individual Programme. The GROW Management Office immediately delivered the following information:

- List of externally funded GROW research projects, classified according to Programme

and year (between 2006 and 2011), mentioning the funding organisation and grand total and indicating whether the grant is 'commercial' or 'non-commercial'.

Working procedure of the Committee

GROW consists of 16 research programmes. In order to guarantee optimal preparation and assessment by the Committee, the chair divided the Research Programmes among the committee members according to their expertise. Consequently, every single Programme was pre-assessed by at least two peers, before consensus opinion was formed by all committee members jointly. This way the Committee ensured that each Programme was assessed thoroughly.

Evaluation Scale

The Committee used the evaluation scale to evaluate the School on the following aspects: leadership, mission and goals, strategy and policy, adequacy of the resources, funding policies, facilities, academic reputation, societal relevance and balance of strength and weaknesses. With respect to the clusters the overall quality of the research Programme was rated. The ratings were on a scale of 1-5. In the box below the meaning of these scale values is given.

Extended description of the five point Scale

5 Excellent

Work that is at the forefront internationally, and which most likely will have an important and substantial impact in the field. Institute is considered an international leader.

4 Very good

Work that is internationally competitive and is expected to make a significant contribution; nationally speaking at the forefront in the field. Institute is considered international player, national leader.

3 Good

Work that is competitive at the national level and will probably make a valuable contribution in the international field. Institute is considered internationally visible and a national player.

2 Satisfactory

Work that is solid but not exciting, will add to our understanding and is in principle worthy of support. It is considered of less priority than work in the above categories. Institute is nationally visible.

1 Unsatisfactory

Work that is neither solid nor exciting, flawed in the scientific and or technical approach, repetitions of other work, etc. Work not worthy of pursuing.

2 Summary

Introduction
GROW focuses on research and teaching of (epi)genetic and cellular concepts, as well as (micro)environmental factors underlying normal and abnormal development. As such the basic mechanisms of embryogenesis and foetal growth, as well as those involved in the initiation and progression of neoplastic growth are subject of study within GROW. With a strong emphasis on translational research, scientists and clinicians within GROW aim at implementing this basic knowledge into innovative approaches for individualising prevention, patient diagnostics and treatment of cancer on the one hand, and diseases of reproduction and early development and hereditary diseases on the other.

GROW consists of two Divisions: Oncology and Developmental Biology. Both Divisions are divided into two themes. Altogether, the Divisions represent 16 Programmes. Two senior researchers act as Division Leaders in each Division: one clinical investigator and the other mainly involved in basic research.

The Division Oncology incorporates Research Programmes conducted within the Maastricht UMC+ and the MAASTRO Clinic. Research activities span the whole spectrum between basic molecular and epidemiological studies, via translational research to clinical and outcome research. The aims of this Division are on the one hand to gain insights into the basic biology of the cancer process, and on the other to develop new preventive, diagnostic and therapeutic strategies based on concepts developed in the laboratory. The development of new diagnostic tests and treatments involves the close collaboration between basic scientists and clinical researchers. The Division Oncology consists of two themes, i.e. Theme I Carcinogenesis and Prevention, and Theme II Clinical Oncology, which each consist of 5 Programmes.

The Division Developmental Biology incorporates Research Programmes conducted within basic and clinical departments at the Maastricht UMC+. Also within this Division research activities span the whole spectrum between basic molecular studies, via translational research to clinical and outcome research. The studies can be divided into two themes, i.e. Theme I Reproduction and Development, and Theme II (Epi)genetics of Reproduction and Development, which consist of 3 and 2 Programmes, respectively. The general aim of this Division is to gain insight into the basic biology of (human) development and is devoted to genetics of reproduction on the one hand, and pregnancy and early development on the other. In collaboration between basic and clinical researchers an important goal is to develop new diagnostic and therapeutic strategies for hereditary diseases and perinatal problems, often based on concepts developed in the laboratory, in animal models and in patient studies.

A major responsibility of the School is to ensure a stimulating environment for scientists to perform high quality research.

GROW currently has an annual budget of about 12 million Euros, of which about two-third is obtained from external granting agencies. Of the 169 full time equivalents (FTE) scientific personnel about a quarter consists of tenured senior staff, and about 100 PhD students (a considerable number of which as AIO, working in the hospital at the same time) prepare their thesis work at GROW. About 500 scientific papers are published annually, with an above world average citation score in their field, and about 20 PhD-theses are defended each year.

Since 2007, GROW is responsible for education at the Master and PhD level. The combination of Oncology and Developmental Biology as well as GROW's translational approach attracts many Master students from abroad. The Master Programme offers a solid base for the GROW PhD Programme, which has a strong tradition.

Overall conclusions and recommendations
Overall, the quality and productivity of GROW is high. Some elements of GROW can without any doubt be called 'outstanding'. The committee was impressed by the developments of the last 6 years, especially with regard to output quantity and quality (the number of publications in top 10% ranking journals has doubled for example). GROW has strong leadership, both at the School level and the Division level. The societal impact of GROW research is obvious.

GROW receives an overall score between very good and excellent, as borne out by the numerical scores presented in this report.

Recommendation 1:
Proceed with strategic reorganisation of GROW
The committee agrees in general with the strategic reorganisation of GROW as proposed in the Self Evaluation 2006 -2011 aiming at the improvement of the School's coherence and quality of research. The committee advises against renaming the school into 'the School for Oncology', as GROW is and will be more than 'just' a School for Oncology. The name 'GROW' is actually a good umbrella name for the School of which the opportunity of cross-fertilisation between Developmental Biology and Oncology is an asset, and a distinguishing feature.

Recommendation 2:
Integrate (parts of) GROW and the Oncology Centre into 'The Maastricht Comprehensive Cancer Centre' and place research at the heart of the matter.
The committee endorses the ambitious plan to integrate (parts of) GROW and the Oncology Centre into 'The Maastricht Comprehensive Cancer Centre' (MCCC) and would like to stress that within the MCCC research should be at the heart of the matter. The GROW Departments that will be involved in the MCCC are: Epidemiology, Genetics and Cell Biology, Health Ethics and Society, and Toxicogenomics). Furthermore one should bear in mind that there is more oncology within Maastricht UMC+ than there is concentrated in GROW at the moment. Reallocation of surgical research is recommended; this could be very beneficial for GROW. Surgical oncology consists of

many different departments, such as neurosurgery, head & neck surgery, thoracic surgery, urology, gynaecology, etc. In order to establish a genuine comprehensive cancer centre with international ambitions, it is recommended to have multidisciplinary teams including surgery present their research lines more visible for people outside the Maastricht UMC+.

Recommendation 3:
Make sure MAASTRO remains an independent organisation and support the proton therapy facility
For the future, it is important to keep MAASTRO independent. MAASTRO has a flexible governance system, which is beyond all doubt one of the drivers of its success. As an independent organisation MAASTRO is more in control of their financial situation and work planning, both in terms of patient care and research. Furthermore, the committee advises the Board to stimulate and support the initiative to secure the proton therapy facility at GROW. Should MAASTRO be selected as a centre for the delivery of proton therapy in the Netherlands, this will undoubtedly allow the Programme to maintain and, indeed, extend its outstanding research activity. Furthermore, it would strengthen MAASTRO's reputation of being a 'Thought Leader in Radiation Oncology'.

Recommendation 4:
Develop ICT further within GROW, using a common approach across the whole School
The committee recommends a further development of ICT within the School and suggests a common approach be implemented across the whole School, along the lines of the MAASTRO ICT working methods. The committee is convinced the MAASTRO working methods are efficient and could set an example for the further development of ICT throughout the School. A common ICT approach is important in view of the aim to translate basic knowledge into clinical applications. The committee realises that ICT, as well as bio-informatics, knowledge engineering and the translational infrastructure could be quite a bottleneck. Furthermore it would be advisable to think about a core-facility for bio-informatics and consider involving the department of BIGCAT.

Recommendation 5:
Establish EVA, the Centre of Expertise for Reproduction Genetics and Early Development
The committee supports the initiative to establish EVA, the Centre of Expertise for Reproduction Genetics and Early Development. The committee agrees that EVA would enhance the already strong emphasis on translational research. Furthermore, the multidisciplinary approach, the inclusion of three officially recognised topclinical functions (PGD, IVF and NICU), the focus on integrated care and the participation of the departments of Heredity, Reproduction and Childcare make this proposal a unique approach to personalized, preventive, predictive and participating care in the area of reproduction and early development. The committee would like to stress, that it is important that the clinical facilities are supported by high-quality research. For that matter strong ties with the GROW Developmental Biology Programmes are crucial.

Recommendation 6:

Create a policy to further strengthen the active scouting of postdocs for prestigious grants
The committee strongly supports GROW's policy to actively scout postdocs as candidates for prestigious grants, such as a VENI, VIDI or VICI grants, the personal grants from the Innovational Research Incentives Scheme (NWO). The committee was impressed to learn how involved the Scientific Director is in early career planning of GROW's talented young researchers, and the attempt to create suitable opportunities for these researchers. The fact that the Scientific Director takes the time to speak to every PhD-student in the second year of his/her PhD trajectory gives clear evidence of this commitment. This already successful policy could be enhanced by creating a simple database, listing all postdoc researchers, their date of PhD graduation, number of publications, impact factor, first and last authorships, and experience abroad. Thus, postdocs can be approached timely to motivate them to apply for a NWO personal grant.

Recommendation 7:
Set up an internal scientific committee to review GROW's research policy in general and prestigious grant applications in particular.
The committee advises to set up an internal scientific review committee to preassess grant applications and advise the Scientific Director, either on request or on its own initiative, about the research policy of the school. Such scientific committee will be a crucial element of the quality assurance process, as its major task will be to safeguard the scientific quality of applications being submitted for prestigious research funding (especially for governmental organisations such as ZonMw and NWO Vernieuwingsimpuls, NWO-TOP, STW-TOP and EU projects).

Recommendation 8:
Keep a balance between the intake of PhD students on the one hand and the capacity/supervision of staff on the other.
GROW has a strong tradition in PhD training. In 2006 the ECOS subcommittee praised the wide focus of the PhD educational programme. GROW has organised its current Master and PhD educational programmes along the lines of this tried and tested success formula. One point of improvement GROW wants to introduce is a new computerised system, called ' PhD TRACK' to enable the monitoring of the progress of PhD-students. The committee is pleased to learn about the introduction of this new monitoring system. This is especially important for the relatively large group of external PhD students (especially in the clinical subjects), who on average take a longer time to finish their theses.
However, the committee would like to stress the importance of keeping a balance between the intake of PhD students on the one hand and the capacity/supervision on the other hand, as the increasing demands on research staff create a stressful sense of threat.

Recommendation 9:
Facilitate GROW's HRM strategy, provide support for its highly talented people and reallocate support in favour of a small number of high-potential research programmes.

The committee recognised in both Divisions of GROW some very talented people, who would need all the support possible. The committee is pleased to read in the Self Evaluation report that a HRM-strategy is in place and 'high potential senior investigators are stimulated to apply for VICI- or ERC grants. Furthermore high potential clinical researchers are funded in such a way that they can spend ample time on research and on writing grant applications'. Therefore the committee recommends that the Executive Board of Maastricht UMC+ and the Dean facilitate GROW's HRM strategy, part of which is to support highly talented people and reallocate support in favour of a small number of high-potential research programmes

Recommendation 10:
Appoint high level successors for Prof. Geraedts , Prof. Evers and Dr. Peeters
The committee would like to emphasise the importance of appointing high level successors of Prof. Geraedts and Prof. Evers, who will retire shortly, and Dr. Peeters, who recently left the University, in order to continue Maastricht's expertise in Fertility and Early Development, Clinical and Reproductive Genetics, and Maternal and Foetal Medicine. The academic importance of the work of the three Programme Leaders mentioned cannot be stressed enough. They have really built up the international name of Maastricht in this area.

Recommendation 11:
Invest in single cell research
Create a research group that can develop techniques to work on single cells using molecular biological, cell biological and cell physiological approaches. This initiative would also help to combine efforts between the Divisions of Developmental Biology and Oncology.

Recommendation 12:
In subsequent self evaluation studies it would be advisable to use the Programme level as the level of evaluation instead of the Division level.
When the committee was asked by the Dean to review the underlying Programme level as well as the Divisional and School level, additional information at the Programme level was needed. The committee found the information sent at the Programme level very useful and much more informative than the information on the Division level as was stipulated in the self evaluation report. The committee is of the opinion that in future reviews, the Programme level should be used as the level of evaluation instead of the Division level. A similar observation was made by the evaluation committee in 2005, chaired by prof. Borst who had indicated that the committee would have preferred to receive information on the level of the individual investigators, rather than on the level of the Division and groups. The current review committee has requested information on the level of the Programme Leaders and Programmes. Furthermore, the committee thinks it is important for the School to realise how complex the organisation seems in which GROW is embedded. The committee advises GROW to draw a schematic overview of the situation within Maastricht UMC+/ FHML for 'outsiders' to understand, including the possible collaboration between Schools.

Conclusion in assessment ratings

GROW School for Oncology and Developmental Biology	
QUALITY	4,0
PRODUCTIVITY	4,0
RELEVANCE	4,5
VITALITY and FEASIBILITY	4,5
GROW Division of Oncology	
QUALITY	4,5
PRODUCTIVITY	4,5
RELEVANCE	4,5
VITALITY and FEASIBILITY	4,5
GROW Division of Developmental Biology	
QUALITY	4,0
PRODUCTIVITY	4,0
RELEVANCE	4,0
VITALITY and FEASIBILITY	4,0

3 Assessment of GROW School for Oncology and Developmental Biology

QUALITY

A1 Quality and scientific relevance of the research

The Committee rated the quality and scientific relevance of the research output as very good to excellent (4,5)

Overall, the quality and scientific relevance of GROW is between very good and excellent. Some elements of GROW can without any doubt be called 'outstanding'. The committee was impressed by the developments of the last 6 years, especially with regard to output quantity and quality (the number of publications in top 10% ranking journals has doubled for example). The committee noted a substantial number of publications that are truly innovative and are published in highly ranked journals.

A2 Leadership

The Committee rated leadership as 5

GROW has strong leadership, both at the School level and the Division level. The committee is of the opinion, that the Scientific Director, Prof. Ramaekers, as a person provides excellent leadership, seems heart driven and passionate about GROW and very much in touch with GROW researchers at the shop floor. He has shown plenty of acumen and determination managing GROW, for example in his decision to put young talented staff members in charge of Research Programmes as a Programme Leader. It seems that GROW has undergone (and is perhaps still undergoing) a transition from the generation of the founding leaders to a new generation of Programme and Division Leaders, and a shift has been made from leader-centred management to a networking approach. GROW is going through a difficult patch at the moment, considering the fact that Maastricht UMC+ is working on its strategic planning for the future, which will have its consequences for GROW. Furthermore, two crucial Programme Leaders in the Division of Developmental Biology are on the verge of retiring and another Programme Leader has recently left. However, the committee feels confident that the Scientific Director can guide the School through this difficult time and is convinced that GROW will emerge stronger than before.

A3 Academic reputation (national/international)

The Committee rated academic reputation as 4

The academic reputation of GROW seems very high. Especially the Adaptive Radiation Oncology Programme and MAASTRO Clinic is world leading and may serve as a role model to academic centres for the successful translational approach and ability to

bridge both technological and biological advances.

A4 Resources (human resources, earning capacity and research facilities)

The Committee rated resources as 4,5

Resources and research facilities
GROW's unique core facilities, such as the linear accelerator, the PET CT simulator, the Genome Centre or the Lamb Intensive Care Unit Maastricht (LICUM), either managed exclusively by GROW or shared amongst Maastricht UMC+ Schools, are an important asset to the School, especially in view of attracting funding from prestigious funding organisations. The committee likes the fact that GROW shares facilities with other Schools and has decided to buy equipment together with CARIM. The excellent and beyond state-of-the-art facilities of the Radiation Oncology (ARO) Programme deserve to be mentioned here.

The large Netherlands Cohort Study (NLCS), a prospective cohort study initiated and maintained in Maastricht, is an important resource for the Programme 'Epidemiology and Prevention'. Part of this cohort study is the NLCS toenail collection, which comprises toenail clipping from 90.000 participants. The research group developed an efficient method to extract DNA from toenails which can be used for SNP analyses. This toenail collection, and the increasing (internationally unique) availability of tumour tissue blocks have convinced the committee that the research group will continue to deliver significant advances in the diet-cancer field in the next 5 years, focusing on the effect of diet-gene interactions on tumour subtypes rather than classical diet-cancer association studies.

ICT is important to the School, especially in view of the aim to translate basic knowledge into clinical applications. The ICT capacity, as well as bio-informatics, knowledge engineering and the translational infrastructure is a prerequisite factor for the further development of the School and for the establishment of the 'Maastricht UMC+ Comprehensive Cancer Centre.' The new tissue array system available at GROW seems to have enhanced the independence of the School: tissues do not have to leave the department any more.

A well functioning central animal facility is very important to GROW. As the committee understood, there are plans for a new animal facility. The fact that the Maastricht UMC+ board is planning to involve the users as much as possible in the planning of this new facility is very important to GROW.

GROW Management Office
The great efficiency of GROW secretariat and managerial staff deserves to be mentioned here as well. The accuracy and speed at which requested material was delivered, was phenomenal. Every question asked by the committee, no matter how complicated, or time-consuming was dealt with in a very short space of time and without any

complaints, although it was clear that many after-office hours were spent dealing with the request.

A5 PhD training

The Committee rated PhD training as very good to excellent (4,5)

The GROW PhD training programme is robust and of very good to excellent quality. The committee was impressed by the high quality and high level of enthusiasm and determination of the PhD-students that were present during the evaluation. The data, presented in the Self Evaluation Report show, that the success rate and efficiency of the GROW PhD candidates with an employee status is comparable or slightly better than that of the average FHML PhD student. Nearly half of the GROW PhD students are 'clinical' PhD students, who have patient care as their primary task, but combine this with a PhD trajectory. This group obviously needs more time to finish a PhD study and it is more difficult to monitor this group meticulously. The committee is pleased to learn that GROW has started as from 2011 onwards to register these 'clinical' or 'external' PhD students more accurately and furthermore will implement an improved computerised PhD Tracking system as of 2012.

It seems clear, that PhD training is a top-priority within GROW. The PhD students are offered a wide variety of discipline-specific professional courses on top of the general PhD courses organised by the faculty (statistics, writing and presentation skills, etc.). Furthermore they are invited to other GROW meetings (monthly research meetings, journal clubs, symposia and seminars) which will enhance the feeling of being part of a dynamic research institute. The appointment of established guest researchers, and especially the annual appointment of highly esteemed endowed Professors of Oncology within GROW at the 'TEFAF Oncology Chair ' has become an important aspect in the training of Master and PhD students, and furthermore it has proven to be very stimulating for the GROW research staff in general.

An initiative that caught the eye of the committee is a three day course on career possibilities, paying attention to the combination of science and social life and ethical aspects of a research career, which was organised for the first time in 2012. Part of the course was a moderated discussion with the TEFAF Oncology Chairholder, Prof. Harald zur Hausen, who was awarded the Nobel Prize for Medicine in 2008. This initiative will enhance GROW's policy to support professional development and scout for talent, as this will be a way to warm PhD students to the idea of applying for a personal grant (NWO or ERC) and pursuing a career in research. Similarly, the efforts taken to give PhD students the possibility to obtain experience abroad, in novel scientific environments, is pivotal for future grant applications and a successful HRM strategy.

PRODUCTIVITY

The Committee rated productivity as 4,0 / 4,5

The committee was impressed by the reported productivity of GROW between 2006 and 2011.

B1 Productivity strategy

GROW stimulates its researchers to publish in high-ranking journals by providing them with a direct financial incentive. This strategy has clearly paid off, judged by the increase of publications in top 10% ranking journals.

B2 Productivity (publications/output)

The productivity of GROW is high. The total publication output of GROW virtually doubled over the past six years (from a total of 322 in 2006 it grew to 592 in 2011). Not only the quantity of the output is high, the quality is very high as well. Approximately one-third of GROW publications rank in the top 10% journals, and an additional one-third of GROW papers is published in the top 10-25% ranking scientific journal. GROW has an active policy to stimulate its researchers to publish in journals with a high impact factor.

RELEVANCE

C1 Societal relevance (including valorisation)

The Committee rated relevance in research, society, and with respect to valorisation as 4,5

The societal impact of GROW research is apparent. The societal impact of the School's research is substantial and the research covers a whole range of topics, both in the field of Oncology and Developmental Biology, many of which generate societal value. Especially areas such as Preimplantation Genetic Diagnosis (PGD) and assisted reproduction, perinatal mortality, and cancer prevention and treatment have a very high influence on society.

VITALITY and FEASIBILITY

D1 Strategy

The Committee rated strategy as 4,5

The committee is confident that GROW, amidst all turmoil, is on the right track. The leadership is strong and the Programme and Division Leaders are involved in the decision making process. The strategy based on the SWOT analysis, described in the Self Evaluation report, seems to be the right way to go forward, but also leaves room for manoeuvre. Obviously, the School's strategy will be influenced by the developments in the organisation in which it is embedded (Maastricht UMC+). However, the committee

would advise GROW to anticipate future developments and always try to remain one step ahead of the planning at the FHML/ Maastricht UMC+.

As far as the strategic planning of the Division of Developmental Biology is concerned, a lot will depend on whether or not, and how soon, suitable successors will be found to replace Prof. Geraedts, Prof. Evers and Dr. Peeters.

Similarly, for the Division of Oncology the strategic planning will depend on whether or not GROW/ MAASTRO will get permission to start to develop the proton therapy in Maastricht.

D2 SWOT analysis

The Committee rated the SWOT analysis as 4,5

The SWOT analysis as presented in the Self Evaluation, for GROW as a whole and for both Divisions, seems to be a honest representation of the situation within the School. Nevertheless, having studied the SWOT analysis, and after an extensive review of GROW as a School, the committee does not arrive to exactly the same conclusions as the management of GROW did in the strategy paragraph A12 of the Self Evaluation. This became clear in chapter 2 of this document.

D3 Robustness and stability

The Committee rated robustness and stability as 4

At this point in time, GROW finds itself in a very dynamic situation. First of all, the Maastricht UMC+ is working on its strategic planning for the future on the long term and tries to find the best possible way to combine excellent patient care with excellent research and excellent education. This however will have its consequences for the five graduate schools embedded in Maastricht UMC+, of which GROW is one.
Secondly, there are two Programme Leaders in GROW, who are on the brink of retiring, and a lot will depend on who the successor(s) of both high level Programme Leaders will be.

GROW should tread carefully in its strategic planning, especially in a situation as dynamic as this. When implementing a new Division and Programme structure for GROW and re-orienting the research in the Developmental Biology, it is worth noting that the committee felt an increasing motivation among the research staff to hold on to the collaboration between the Divisions of Oncology and Developmental Biology, largely on account of the fact that there is increasing opportunity to study cancer through the developmental biology and vice versa.

4 Assessment of GROW Division

Theme I: Carcinogenesis and Prevention

Programme I.1: Cancer Genetics and Tumor Phenotype

QUALITY	3,5
PRODUCTIVITY	3,5
RELEVANCE	3,5
VITALITY AND FEASIBILITY	3,5

QUALITY
Research in this Programme was judged as having conventional character, with good to very good academic quality, but not forefront novelty. The Programme has a strong translational-descriptive character, aiming at the development of markers (antibodies against tumour antigens, cytogenetic chromosome-DNA markers) for use in pathological typing and diagnostic sub-classification of tumour types. Prof. Ramaekers and Prof. Speel , whose activities are physically separated in different departments, have a steady production of publications, with some decline in numbers over the most recent period (2009-2011). The impact quality of publications is good, but is not represented by papers of outstanding scientific importance in top journals. Research on f.e. chromosome stability in HPV-related head and neck cancers is good, but does not stand out in an international competitive field, and is considered 'not centrally positioned' in the areas of focus for the Oncology Division of GROW. Studies on neuroendocrine lung tumours may have a unique own niche. The group has a fairly large staff, and a relatively high number of PhD students. Leadership in this Programme is demonstrated by good consolidation of conventional approaches.

PRODUCTIVITY
The Programme had a steady publication record over the first half of the report period 2006-2011, with some decrease in production in the later half. As a significant part of this production is associated with first and last authorships on papers with good impact scores, other publications are clearly the product of collaborations with other teams from outside Maastricht. The number of PhD students is rather high, the record of successful PhD defences is good. The earning power, i.e. the programme's success in collecting extramural funding is on an average level for the field, with a total income of slightly over 1 Million Euros - and not many prestigious grants - for the entire report period. One should consider, however, that the field in which this Programme is active is not particularly trendy or directly relevant for therapy or prevention, and therefore does not offer a high level of funding opportunities.

RELEVANCE
The committee has no doubt that the generation of diagnostic markers that can serve in better sub-classification of tumour types and provide help in outcome prediction is

highly relevant. However, the (inter)national reach in application and therewith the rating score for the products of this Programme is strongly dependent on the uniqueness and importance of markers that have been developed up until now in the report period.

VITALITY and FEASIBILITY
The committee is convinced that continuation of the (conventional) Programme work will steadily add to the diagnostic performance of GROW, and in fact the entire Maastricht UMC+. Still, we recommend more visible planning of research to keep momentum, define focus areas, and lead the Programme into novel and promising directions, in keeping with the technological and scientific developments in translational sciences elsewhere. As a suggestion, and opportunity, together with genomics and epigenomics-oriented groups in GROW a discussion could be opened on the potential value of novel diagnostic markers (f.e. non-protein - regulatory - DNA elements from the intergenic genome). Within the next 5-6 year period, current Programme Leaders may reach the age for retirement. Maintenance of the current strength and translational character of the Programme seems important as bonds with the clinical areas within the Maastricht UMC+ are strong and excellent. A shift towards basic research in cancer-mechanistic topics is not recommended now as this area of research is (with exceptions) not particularly strongly developed within GROW, or within the (surrounding) departments.

RECOMMENDATIONS
1. The committee recommends the Programme Leader to find the unique niche of studies on neuroendocrine lung tumours or other tumours of central GROW interest and invest in this research area..
2. The committee recommends a more visible planning of research to keep momentum, define focus areas, and lead the Programme into novel and promising directions, in keeping with the technological and scientific developments in translational sciences elsewhere. As a suggestion, and opportunity , together with genomics and epigenomics-oriented groups in GROW a discussion could be opened on the potential value of novel diagnostic markers (f.e. non-protein - regulatory - DNA elements from the intergenic genome)

Programme I.2: Molecular epigenetics

QUALITY	4,5
PRODUCTIVITY	4,5
RELEVANCE	4,5
VITALITY AND FEASIBILITY	4,5

QUALITY
A relative small number of staff members with a rather high number of PhD students (11) is active within this programme. Focus is on DNA methylation, on significance of this epigenetic marking of DNA for cancer (mainly colon cancer) and as easily

detectable - and relatively stable - biomarker for cancer diagnosis via blood, serum or stool analyses. Part of the Programme is also devoted to basic studies into the same topic, aiming at obtaining better insight in the pathobiological significance of NDRG4, with the help of transgenic mouse models for colon cancer. Although in a very competitive area of science (epigenetics is at the centre of attention in the field of gene regulation and systems biology studies nowadays, in both the EU and in the USA) the group clearly has managed to create its own niche, with work that has a strong translational character. Overall the quality of the studies is high, as is illustrated by the appearance of Programme Leader Prof. van Engeland's name at prominent author positions on many papers in journals with high impact factors.

PRODUCTIVITY

Extramural grant support for the Programme led by van Engeland/Thyssen was very good-excellent in the first half of the report period, but somewhat in decline over the more recent past. Given the strong translational character of the work and based on the high scientific productivity within the programme, with ~50 publication in journals with impact categories > 7 and 4-7 the Committee expects that additional funding opportunities will be found in the future, including also support by industry and local funding organisations.

RELEVANCE

Overall, epigenetic study programmes are strongly represented at the MUMC and within GROW. Unlike some other programmes the Molecular Epigenetics Programme has managed to develop a strong translational character with international visibility. If the PI's who are active within this Programme manage to keep their focus on easily detectable diagnostic markers for colon cancer, one of the most frequent forms of cancer in modern Western society, coherence will remain and relevance will remain very high for a number of years to come.

VITALITY and FEASIBILITY

Still much work must be done to better appreciate the role and predictive value of DNA methylation in cancer development and progression, but the Committee considers this a challenge rather than a threat for this programme. The choice of DNA methylation as a biomarker for diagnosis and outcome prediction is excellent, as it is a relatively stable biological marker that remains detectable in a wide spectrum of easily accessible patient materials (blood, stool etc) and therefore offers high value in f.e. cohort studies. Regarding the biological studies on the role of NDRG4 with mouse models for colon cancer, the group enters a very competitive field, where more experience has to be gained to appear at the forefront and become really competitive. Joining forces with other groups with orientation on basic sciences and use of mouse models is recommended, but the group has already demonstrated excellent collaborative competence. Continuation of sufficient financial and infrastructural support is essential for solid long term planning for this vital programme.

RECOMMENDATIONS

1. The committee recommends to join forces with other groups with orientation on basic sciences and use of mouse models to gain more experience to appear at the forefront in this field and become really competitive.
2. The committee feels that this Programme deserves all possible support.

Programme I.3 Epidemiology and prevention

QUALITY	5
PRODUCTIVITY	5
RELEVANCE	4,5
VITALITY AND FEASIBILITY	5

QUALITY
Research in this Programme focuses on the associations between dietary factors and risks of various cancers. The success of this Programme is largely based on the unique resource of the large Netherlands Cohort Study (NLCS), initiated by Prof. Van den Brandt and Dr. Goldbohm in 1986. Apart from food frequency questionnaires from 120,000 men and women, the investigators also collected toenails from 90,000 participants. At the time, these were meant to assess Selenium status, but a few years ago the group developed an efficient method to extract DNA from toenails, opening up the road to large-scale studies of gene-diet/environment interactions. The NLCS toenail collection is the first one in a large epidemiologic cohort to be used for SNP analyses. NLCS diet and cancer studies have importantly contributed to current knowledge about the influence of diet on the development of cancer. Consequently, Prof. van den Brandt has become an important player on the international diet and cancer stage. He has shown strong leadership and innovative capabilities by increasingly exploiting the NLCS resource for translational research, in particular molecular and genetic epidemiology. Collection of tumour tissue blocks of cancers in NLCS participants has rendered NLCS an excellent resource for collaboration with other research groups in GROW, especially with Molecular Epigenetics (Prof. van Engeland), with a focus on the effect of diet-gene interactions on tumour subtypes. The Programme has a steady flow of high quality theses. Recently, a new research line has been started, focusing on the effects of lifestyle, especially diet and physical activity, on the survival of colon cancer. The committee was also favourably impressed by the qualities of the junior research team leaders such as Prof. Weijenberg. The Programme has been very successful in attracting grant funding, with about 5 M Euros acquired in the period 2006-2011.

PRODUCTIVITY
The Programme has had an outstanding publication record over the period 2006-2011. This includes a very large number of primary research publications in the best epidemiologic and cancer journals and sometimes even in higher impact journals, with at least 13 first- or last author publications in journals with impact factor >6 (Am J Clin Nutrition, Gut, Gastroenterology, Journal of the National Cancer Institute). Participation in the international Pooling Project has led to many collaborative publications in very high impact journals.

RELEVANCE
The Committee rated this aspect of the Programme as very good/excellent, since diet-cancer research may have important implications for cancer prevention, which has a very high societal health relevance.

VITALITY and FEASIBILITY
The Committee is convinced that the Programme based on the NLCS resource will continue to deliver significant advances in the diet-cancer field in the next 5 years, especially with the availability of DNA from toenails and the increasing (internationally unique) availability of tumour tissue blocks (planned in a large recently obtained grant (BBMRI)). Importantly, research in the Programme is increasingly focusing on the effect of diet-gene interactions on tumour subtypes rather than classical diet-cancer association studies. In view of the excellent earning capacity of both programmes, further intensive collaboration with Molecular Epigenetics is expected to provide important insights into cancer development processes. Further collaborations in Maastricht UMC+, also outside GROW, e.g. with (molecular) pathology and molecular biology/carcinogenesis would further strengthen the Programme and will contribute to novel hypotheses to be tested using the NLCS resource. Molecular epidemiology needs large sample sizes and this excellent Programme should enable Prof. van den Brandt to take leadership in international collaborative studies in this relatively new field.
The new research line focusing on the role of diet/obesity in cancer survivorship studies has great potential. This research line should be encouraged to expand in the next 5 years, also in view of the fact that in the (more distant) future NLCS will lose some of its value due to ageing of the cohort. It should be encouraged that, in collaboration with clinical researchers, the survivorship work will be developed into intervention studies in the near future.

RECOMMENDATION
1. The committee recommends expanding collaborations with Molecular Epigenetics, and to investigate the possibilities for further intensive collaborations in Maastricht UMC+, also outside GROW, e.g. with (molecular) pathology and molecular biology/carcinogenesis in order to strengthen the Programme even further. International collaborative studies in this field could be pursued.
2. Encourage the new research line focusing on the role of diet/obesity in cancer survivorship studies to expand over the next 5 years
3. Encourage the survivorship work to be developed into intervention studies in collaboration with clinical researchers in the near future

Programme I.4 Tumour hypoxia and microenvironment

QUALITY	4,5
PRODUCTIVITY	4,5
RELEVANCE	4,5
VITALITY AND FEASIBILITY	5

QUALITY

The research was judged as highly original with significant scientific importance. This achievement is truly remarkable, not least because of the departure of Professor Wouters and his replacement by Professor Vooijs (after an interval of approximately 2 years) during this period. Wouters was an outstanding leader who established an international reputation for excellent research in the fields of radiobiology and hypoxia. The arrival of Vooijs represents a change in direction of the Programme with greater focus on the role of Notch signalling. In a relatively short space of time, he has demonstrated strong leadership skills and has established himself on the national and international stage. Over the period assessed, this Programme was very successful in attracting grant funding, despite a hiatus of approximately 2 years around the time of Wouters' departure. There is a robust PhD training programme with significant focus on translational studies. As such, it complements very well the clinical work in the Adaptive Radiation Oncology programme.

PRODUCTIVITY

The Programme has had an impressive publication record over the period 2006-2011. This includes a significant number of primary research papers in journals with impact factor >6 (J. Clin. Oncol., J. Clin. Investig., EMBO J., Cancer Res.). There has also been a large number of primary research and review articles in the highest ranking journals in the field (eg Radiother. Oncol., Int. J. Radiat. Oncol. Biol. Phys., Eur J. Cancer, Ann Oncol.). The record of successful PhD defences is influenced by the recent arrival of Vooijs who has not recorded any completed theses in Maastricht during this period. However, the committee was impressed by the quality of the current PhD students and the projects they are undertaking.

RELEVANCE

The Committee rated relevance in research, society, and with respect to valorisation as 4.5. In doing so, the committee recognised the very significant potential impact that this research Programme is likely to have on treatment delivery and outcome. This work has/will have local, national and international reach. The Research Programme has very strong potential for valorisation.

VITALITY and FEASIBILITY

The committee was extremely impressed by Professor Vooijs' future research plans and those of other team leaders within the programme. As such, the programme, which is underpinned by robust grant funding, is likely to deliver significant advances in translational science in the next 5 years. The committee identified this Research Programme as a high priority for re-deployment of core-funded fte positions within GROW.

RECOMMENDATION

1. The committee identified this Research Programme as a high priority for re-deployment of core-funded fte positions within GROW.

Programme I.5 Toxicogenomics

QUALITY	4,5
PRODUCTIVITY	3,5
RELEVANCE	5
VITALITY AND FEASIBILITY	5

QUALITY
Research in this Programme is on hazards of toxic compounds and health risks for humans upon exposure to these compounds. In the Programme there is strong emphasis on the use of genomics-based approaches for help in reliable identification of classifiers and in genotoxicity prediction. Research in this Programme was judged by the Committee as state-of-the art in the field and the combination of toxicology and genomics gives the leaders of the Programme international recognition, and this Programme its "Maastricht UMC+ -own" identity. The Programme has a high societal appeal, outstanding earning power (> 20 M€ value in extramural projects), is attractive for industry, and has very good to excellent academic quality. Based on the info for 2011 only (i.e. the year when Toxicogenomics became integrated in GROW) the committee rated the number of publications as good, but with average impact for the field of Oncology and good-but-not-excellent academic value. Importantly, studies in the Programme are not uniquely concentrated on the identification of toxins with carcinogenic potential. Several of the (moderate/high-throughput) animal and cell-based tests that have been developed or adapted are equally well - or better - suited to reveal other effects on cell growth, including differentiation and proliferation behaviour. This Programme therefore fits into both Divisions of GROW (and probably equally well in other Maastricht UMC+ schools, like NUTRIM). Leadership in this Programme is demonstrated by consolidation of quality and focus on the shaping of an e-science environment.

PRODUCTIVITY
The Programme has a fairly large staff, with high-number of non-tenured personnel and PhD students. The Programme had a good publication record over the report period 2006-2011, most of which was realised in the first four years outside GROW (18 publications in 2011). A good proportion of this production is associated with first and last authorships by staff members, including Prof. Kleinjans, but mostly on papers with only good-to-average impact scores. Even though the Committee has taken into account that the current group of workers in the Programme is of fairly large size, and the Programme fits in areas with ample funding opportunities and large-size grants, its members judge the success of the leadership in collecting money from industry, and in obtaining prestigious grants (FP7 EU f.e.) and other support as very impressive.

RELEVANCE

The Committee rated this aspect of the Programme as excellent (5), indicating that toxicogenomics has very high societal-health relevance. Deliverables of this Programme will contribute considerably to prevention of health problems by avoidance of exposure, and can also help food- and fuel-industry to optimise their products. Again, the committee considers this Programme as equally relevant for both the areas of GROW, Oncology and Growth and Development.

VITALITY and FEASIBILITY
The committee is convinced that combining toxicological and genetic expertise will gradually help to create excellence in research and testing-performance. Ultimately, this will help the Programme in further growth of own "corporate identity" within GROW and the MUMC, and also as a partner in consortium programmes at the (inter)national level. Maintenance of the current strength in bioinformatics, with further centralisation of e-science within GROW and the MUMC, and strengthening of ICT capacity is a prerequisite factor for further development of the programme. EU and national partnerships are already at very good level. There are also opportunities to tighten the links to basic research in cell-cycle traverse and epigenetics.

RECOMMENDATION:
1. The committee would advise the Programme to maintain the current strength in bioinformatics, centralise e-science further within GROW and Maastricht UMC+, and strengthen ICT capacity, as this is a prerequisite factor for further development of the programme.
2. Investigate opportunities to tighten the links to basic research in cell-cycle traverse and epigenetics.

Theme II: Clinical Oncology

Programme II.1: Adaptive Radiation Oncology

QUALITY	5
PRODUCTIVITY	5
RELEVANCE	5
VITALITY AND FEASIBILITY	5

QUALITY
The Programme displays clear evidence of a highly original approach to research with a real focus on translational science. The research has broad scope and bridges both technological and biological advances, but is able to provide a true sense that there is an overarching theme of patient benefit running through the work. In large part, this is due to the inspirational leadership of Professor Lambin who has done an outstanding job of building a world-class Research Programme within a relatively short period of time. The committee also recognised the very high standard of the junior research team leaders. The quality of the Programme is reflected in its enjoying a very strong

international reputation for quality, innovation and leadership. In turn, this is recognised by a very strong record of having attracted research funding from a range of national, international and commercial sources. This grant funding has allowed the Adaptive Radiation Oncology (ARO) Programme to establish beyond state-of-the-art facilities and to use these to conduct outstanding research work. The committee was impressed by the active and highly successful PhD training programme that operates within the ARO programme.

PRODUCTIVITY
The Programme has had an outstanding publication record over the period 2006-2011. This includes a very large number of primary research and review articles in the highest ranking journals in the field (eg Radiother. Oncol., Int. J. Radiat. Oncol. Biol. Phys., Eur J. Cancer, Ann Oncol.) as well as significant papers in journals with impact factor >8 (J. Clin. Oncol., EMBO J., J. Clin. Investig., PNAS USA). The Programme has an outstanding record of successful PhD defences (21 in the last 5 years), reflecting an active and successful research environment.

RELEVANCE
The Committee rated relevance in research, society, and with respect to valorisation as excellent (5). The Programme has had a huge impact on the quality of radiotherapy delivery at a local, national and international level. Professor Lambin has established a number of collaborative ventures that have substantial potential for valorisation.

VITALITY and FEASIBILITY
The committee recognised the fact that this Research Programme has a world-leading position which is likely to strengthen in the coming years. The flexibility of the governance system within MAASTRO was recognised as one of the main drivers of this success and the committee encourages maintenance of this arrangement going forwards. The committee identified this Research Programme as a high priority for re-deployment of core-funded fte positions within GROW. The committee recognised a potential threat to the position of the Adaptive Radiation Oncology Programme should it fail to be selected as a centre for the delivery of proton therapy in the Netherlands. The committee encourages support for this bid which will undoubtedly allow the Programme to maintain and, indeed, extend its outstanding research activity.

RECOMMENDATION:
1. The committee encourages maintenance of the flexible governance system of MAASTRO as this is one of the main drivers of its success (see recommendation 3, chapter 2)
2. The committee encourages support for the bid to be selected as a centre for the delivery of proton therapy in the Netherlands, which will undoubtedly allow the Programme to maintain and, indeed, extend its outstanding research activity (see recommendation 3, chapter 2) .

Programme II.2: Medical Oncology

QUALITY	4
PRODUCTIVITY	4
RELEVANCE	4,5
VITALITY AND FEASIBILITY	4

QUALITY
Originally, Haematology and Medical Oncology were one department. Under the leadership of Prof. Tjan-Heijnen (since 2009 in GROW) a department of Medical Oncology was established. The focus of research is breast cancer research with the emphasis on prognostic factors and cost-effectiveness. An impressive number of PhD students (N=18) have been recruited. The Programme Leader has a good national reputation and her international standing is making steadily progress. The committee was surprised to learn that all this has been achieved with a very small research staff of 1,6 fte.

PRODUCTIVITY
The Programme has been awarded several peer reviewed grants from funding agencies such as KWF, Pink Ribbon, and ZonMW. They have published in very good journals underscoring the importance of this line of research. The highlight was the publication of De Boer et al in New Eng J Med in 2009. Prof. Tjan-Heijnen has proven her leadership capacities by being the principal investigator in large national studies.

RELEVANCE
The committee gave a very high score for relevance since the outcome of these studies will affect the daily practice of breast cancer care. The Programme has found a very nice research niche and it has been built towards a very solid research programme.

VITALITY and FEASIBILITY
The committee has recognised the leading role of the breast cancer research project and is confident that the Programme will also prosper in the near future.
A point of attention is that the Programme is built around one outstanding leader. This makes the Programme vulnerable. Cancer consists of many different tumour types. Although the department has done a great job in focusing on one research programme, more attention should be paid to other tumour types, cq research subjects. This will be necessary to play a leading role regionally and nationally in the next five years.

The Programme has interacted successfully with other research groups around the subject of breast cancer research. One could envision that the Department/Programme could benefit from the excellent research and referring networks already established by other departments (such as MAASTRO Clinics and Haematology) within Maastricht UMC+.

RECOMMENDATIONS:

1. The committee would advise to investigate possibilities to pay more attention to other tumour types, cq research subjects. This will be necessary to play a leading role regionally and nationally in the next five years.
2. The committee recommends exploring possibilities to interact with other Maastricht UMC+ departments, such as MAASTRO Clinics and Haematology, with the aim to benefit from the excellent research and referring networks already established by said departments.

Programme II.3 Diagnostic Imaging and Surgical Oncology

QUALITY	4
PRODUCTIVITY	4
RELEVANCE	4,5
VITALITY AND FEASIBILITY	4

QUALITY
This Programme could be considered as a spider in the web of clinical research. The departments Radiology and Surgical Oncology have built a very good Programme around rectal cancer imaging and treatment. The Beets team has established a strong reputation in the field of diagnosis and treatment of rectal carcinoma, which is illustrated by many invited lectures, very good publications, many awards from their peers. They play a leadership role in this field of research.

PRODUCTIVITY
The Programme has been awarded several peer reviewed grants from funding agencies such as ZonMW. The number of publications is very good. Papers are published in Journals which are considered to be very good in the field of imaging and surgery.

RELEVANCE
The committee gave a very high score for the relevance of this research since this Programme really illustrates the significance of a close collaboration between a surgical team and an imaging team. They set the standards for future treatments of rectal cancer.

VITALITY and FEASIBILITY
The committee is very pleased by the results of this research line and is confident that the team will continue to play a significant role now and in the future.

We hope that the rectal cancer research line is a stimulus to set up more research teams between diagnostic imaging and surgical oncology. Surgical Oncology consists of many different departments, such as neurosurgery head & neck surgery, thoracic surgery, urology, gynaecology etc. For a proper Cancer Centre with international ambitions, it would be great if multidisciplinary teams present their research lines more visible for people outside the Maastricht UMC+.

RECOMMENDATION:

1. The committee recommends to investigate possibilities to set up more research teams between diagnostic imaging and surgical oncology. Also in terms of PR, it would be good if multidisciplinary teams could present their research lines more visible for people outside the Maastricht UMC+.

Programme II.4 Hematology/Cell therapy

QUALITY	4
PRODUCTIVITY	4,5
RELEVANCE	4
VITALITY AND FEASIBILITY	4

QUALITY

This Programme has established an active and successful bone marrow transplantation programme within the period of this assessment. In addition, the research activity involves a number of original ideas or refinements of pre-existing ideas. In particular, the plan to use NK cell therapy is judged to be particularly attractive. Similarly, refinements in preparation of dendritic cells for vaccine approaches represent an important field of research. The inability to translate these approaches to the clinic currently represents a deficiency in this programme, but the research group has invested a lot in the infrastructure for clinical studies and is on the brink to start them. Prof. Bos shows good leadership skills and has developed a national and international profile. The Programme has attracted strong levels of research funding, but not, as yet, sufficient to permit large scale clinical translation of some of the more innovative research themes.

PRODUCTIVITY

The Programme has published a number of high impact factor papers in *Blood* and *Cancer Res*. In addition, there have been a large number of papers in journals of low/intermediate impact factor. During the period of assessment, there have been 6 successful PhD defences. This represents a reasonable performance for this small team, but it is of concern that 3 of these defences were in 2006.

RELEVANCE

The Committee rated relevance in research, societal impact, and with respect to valorisation as very good (4). In doing so, the committee recognised the very significant local/regional importance of the establishment of a bone marrow transplantation service that ranks 3rd in the Netherlands. In addition, Professor Bos has played a key role in establishing the Limburg Charity Programme that is supporting important research projects across the whole of GROW.

VITALITY and FEASIBILITY

The clinical bone marrow transplantation service represents a very strong ongoing

component of this Programme that will continue to deliver local/regional benefits in this Topclinical Function. In addition, it will provide opportunities to lead and participate in important clinical trial activity. Areas of significant concern include the need to establish partnerships to allow translation of research ideas to the clinic and the importance of maintaining a strong base of active PhD research studentships.

RECOMMENDATIONS:

1. The committee feels that the Haematology Research Programme should be supported for taking their preclinical research to the clinic.
2. The committee recommends establishing partnerships to allow translation of research ideas to the clinic
3. The committee advises maintaining a strong base of active PhD research studentships.

Programme II.5 Skin Diseases

QUALITY	4,5
PRODUCTIVITY	4,5
RELEVANCE	4,5
VITALITY AND FEASIBILITY	5

QUALITY

The Programme Leader, Prof. Van Steensel, is young, and already strongly involved in international collaborations in search of the genetic basis of skin diseases, which have resulted in co-authorships of a series of high impact papers. He has chosen to work in depth on the Birt-Hogg-Dubé (BHD) syndrome, a dominantly inherited disorder characterized by skin tumours, lung cysts and a predisposition for renal cancer. It is caused by mutations in the gene encoding FLCN, a highly conserved protein of unknown function. The protein localises in motile cilia, and the centriole. The present working hypothesis is that BHD syndrome is a ciliopathy. The group has embarked on mechanistic studies, still in a descriptive stage, using FLCN knockdown zebrafish as model. The committee was impressed by the originality of the research. The Programme Leader combines clinical acumen and in depth knowledge of molecular biology.

The group has been successful in acquiring external funding (1.75 million euros, including two grants from the Dutch Cancer Foundation), and consists at present of six fte, of whom four on external money.

PRODUCTIVITY

Over the past six years the group has produced 70 papers (Van Steensel being first and last author of respectively 14 and 24 out of 70; 6 were in journals with IF > 10, of which 2 co-authorships in Nature Genetics); 10 PhD students defended their theses.

RELEVANCE

The impact factor of the journals in which the group has published attests to the scientific relevance of the research.

As for societal impact, the research is highly relevant for the, admittedly small, group of patients with BHD syndrome. Recognition of the disease allows diagnosis of renal cancer in an early, curable stage.

VITALITY and FEASIBILITY
Van Steensel has made significant contributions to the investigation of the genetic basis of (rare) skin diseases. In his future plans he turns to the most common of cancers: basal and squamous cell carcinoma of the skin. He is planning a high throughput search for (epi)genetic markers predicting which patients with a sun-damaged skin will go on to develop skin cancer. On the therapeutic side he has promising preliminary data suggesting that locally applied Cox-2 inhibitors might be a very effective and cheap treatment of basal cell carcinoma of the skin. This observation needs further investigation in clinical trials.
The committee feels that it would be advantageous for GROW to invest more in this very talented, original researcher. The Programme could use better facilities and should be placed more in the centre.

RECOMMENDATIONS:
1. The committee feels that it would be advantageous for GROW to invest more in this very talented, original researcher. The Programme could use better facilities and should be placed more in the centre of Maastricht research activities.(recommendation 8, chapter 2)

Overall conclusions GROW Division Oncology

GROW Division of Oncology	
QUALITY	4,5
PRODUCTIVITY	4,5
RELEVANCE	4,5
VITALITY and FEASIBILITY	4,5

QUALITY
The quality of Oncology Division's Programmes is extremely high evidenced in the overall scores of the Programmes which range between very good and excellent, indicating amongst others an impressive publication and citation record. MAASTRO absolutely stands out, pioneering world-leading research with several other excellent groups as well. These include Epidemiology, a highly organised group, leading an innovative large epidemiological cohort study which is currently used for translational research. The high level of PhD registration and graduation, accompanied by the nature of research and thesis foci are also important high quality indicators. The Oncology Division's quality strength is rooted in strong and effective leadership of the Programmes and the overall Division, exemplified by the work in Adaptive Radiation

Oncology, Molecular Epigenetics, Tumour Hypoxia and Microenvironment, and Medical Oncology.

PRODUCTIVITY

The publication output of the Division Oncology has doubled over the past six years (from a total of 202 in 2006 it grew to 399 in 2011). It thus kept pace with the increase in the total number of research staff in this Division which also doubled over the past six years (from a total of 67 in 2006 it grew to 134 researchers in 2011). Enhanced productivity is, however, evidenced in the Division as a whole by the numbers of PhD's undertaken, and even more in the high levels of successful theses defences. Similarly the Division has attracted a very high level of extramural grant support.

RELEVANCE

The relevance of GROW's research in the Division of Oncology is defined by its local, national and international reach which overall, with some very minor exceptions, is extremely high. As per the scoring, Programmes have clearly been chosen, developed and delivered with relevance in mind. Toxicogenomics and Adaptive Radiation Oncology clearly warrant special commendation.

VITALITY and FEASIBILITY

Vitality is strongly linked to relevance. As per the relevance assessment it is clear that all Oncology Division's Programmes have been and are extremely relevant. It is perhaps worth noting the comment for Cancer Genetics and Tumour Phenotype vis. the need for " ....more visible planning of research to keep momentum, define focus areas, and lead the Programme into novel and promising directions, in keeping with the technological and scientific developments in translational sciences elsewhere". Reallocation of support would clearly be needed for some programmes, such as 'Medical Oncology' (Vivian Tjan), 'Molecular Epigenetics' (Manon van Engeland) and 'Skin Diseases' (Maurice van Steensel). Further it is important to keep in mind that when creating a proper cancer centre it is critical to include various clinical departments, not only medical oncology.

5 Assessment of GROW Division Developmental Biology

Theme I: Reproduction and Development

Programme I.1: Fertility and Early Development

QUALITY	4
PRODUCTIVITY	4
RELEVANCE	4,5
VITALITY AND FEASIBILITY	NO SCORE

QUALITY
The Programme consists of two areas: the largest, for which the leader, Prof. Evers, is internationally renowned, concerns female fertility and assisted reproduction, the smaller is on endometriosis.
The group has studied a wide variety of determinants of female fertility, combined with investigations into the technology and economical aspects assisted reproduction. An intriguing recent observation concerns the influence of IVG culture medium on fetal and postnatal growth.
Endometriosis research has recently focused on developing a non-invasive test for the diagnosis of endometriosis based on contrast-enhanced MRI. In a mouse model endometriosis could be visualised due to extravasation of the contrast-agent. The method is ready for testing in patients.
The group had modest external funding (0.32 million euros over the past six years), and consists of 2 fte tenured staff, and 1 fte on external money.

PRODUCTIVITY
Over the past six years the group has produced 40 papers (Evers being first and last author of respectively 2 and 14 out of 40 publications; 9 were in journals with IF > 7, i.p. Human Reproduction Update); 12 PhD students defended their theses.

RELEVANCE
Most of the research, including the reviews and meta-analyses published in the top journals of the field, has clinical impact at an international level. The results of IVF, in fact the best in the Netherlands, are the basis for the PGD-Programme in Maastricht.

VITALITY and FEASIBILITY
The Committee has abstained from rating viability and feasibility, since the future of this Programme very much depends on finding a suitable successor for Evers who will soon be retiring. It is very important that the successful IVF Programme is continued in the future. In this context the committee fully supports the proposal for the Centre of Expertise, EVA, to which this Programme makes essential contributions. No matter how the Programme is positioned, it remains very important that there is a strong connection between top referral care and research.

RECOMMENDATION:

1. It is very important that the successful IVF Programme is continued in the future. In this context the committee fully supports the proposal for the Centre of Expertise, EVA, to which this Programme makes essential contributions.
2. Appoint a suitable high-level successor of Prof. Evers, in order to continue Maastricht's longstanding international reputation in the area of fertility and early development.

Programme I.2: Maternal and Fetal Medicine

QUALITY	3,5
PRODUCTIVITY	3,5
RELEVANCE	4
VITALITY AND FEASIBILITY	3,5

QUALITY

This very small Programme under the leadership of Dr. Peeters has been steadily producing relevant data on the epidemiology, clinical features and treatment of preeclampsia. The present non-translational research is relevant in this field of perinatal medicine and the PI has local international reputation. It concerns solid research, but there are no ground-breaking innovations. A significant part of publications appears in the best obstetric journals. Outside funding is limited and Dr Peeters has left the University. This Programme was represented by Dr. Spaanderman in the poster session. Dr. Spaanderman is an active researcher in the same field.

PRODUCTIVITY

The productivity is good considering the fact that Dr. Peeters was the only listed investigator, support 0.2. He was last author in 70% of all listed publications. The Programme produced five PhDs.

RELEVANCE

The research deals with pre-eclampsia which is a basic cause of 30% of preterm births and the major cause of intrauterine growth retardation. Preeclampsia is a significant risk factor of perinatal death, life-long neurological handicap and metabolic syndrome in later life. The group has not made major breakthroughs in research recently.

VITALITY and FEASIBILITY

Dr. Peeters was not available during the review. The vitality of the Programme is low at present . Collaboration with CARIM may be beneficial. Collaboration of the present and the Foetus and Newborn Programmes would be synergistic.

RECOMMENDATION:

1. The committee advises the Programme to consider collaborating with the Foetus and Newborn Programme and/or CARIM, the School for Cardiovascular diseases.

Programme I.3 Fetus and Newborn

QUALITY	4
PRODUCTIVITY	4,5
RELEVANCE	4,5
VITALITY AND FEASIBILITY	4

QUALITY

The present Research Programme represents both clinical and transitional approaches aiming to clarify mechanisms and consequences of abnormal perinatal transition. In translational research predominantly animal models are used with additional focus on specific, novel proteins involved in regulation of the innate immunity. The team is internationally well known. Prof. Zimmermann or Prof. Kramer are listed as first or last author in 42% of publications and they have a leading role in both clinically and experimentally oriented teams. The overall focus is on inflammatory mediators, microbes and pathogenesis of the life-threatening diseases in preterm infants and foetuses. In this field, the Programme Leader is a well-known researcher in the international arena. Prof. Kramer is a senior investigator in a famous international network on experimental perinatology.
The group has an active PhD programme, and the external funding is moderately high. On the basis of the information that was given it is difficult to evaluate the quality of the PhD programme. The leadership of the groups is strong and the Programme deals with the same topic using both translational and clinical approaches.

PRODUCTIVITY

Prof. Zimmermann and Prof. Kramer list altogether 95 peer reviewed publications with known impact factor. The mean IF of listed publications is 4.06, with 10th percentile range of 5.5-52.5 . The highest IF of the paediatric journals is 5.44. Altogether 14 theses have been defended during 2006-2011. Considering the funds and personnel available and the cost-requiring experiments performed, the productivity is excellent.

RELEVANCE

The studies are highly relevant scientifically. They aim to clarify the molecular pathogenesis and the proper treatment of life-threatening diseases in the premature child and of diseases that decrease the quality of life from newborn infant to old age. This is likely to have a significant influence on the quality of life from childhood to old age. The team has expertise in the immune system and host responses that likely play a central role in pathogenesis and in defining new treatment practices. This could have a big influence on survival and on the quality life. The Programme is dynamic and capable of delivering significant and relevant results.

VITALITY and FEASIBILITY

The Programme Leader has managed to grow and improve the quality of the team despite difficulties in external funding. The successful recruitment of dr. Kramer is demonstrating excellent leadership. The group has shown some evidence to move their research towards studies of neuroprotection. This requires a balance between focus and the available capacity. There is little doubt that the team will maintain its vitality and remain among leaders in the field. They have a good network of collaboration.

RECOMMENDATION
The committee strongly supports the continuation of the Programme and proposes further focusing on environmental insults during the perinatal period and the consequences of these insults for the rest of the life.

Programme I.4 Ethics

QUALITY	4,5
PRODUCTIVITY	4,5
RELEVANCE	5
VITALITY AND FEASIBILITY	5

QUALITY
This Programme has a very strong and visible leader, Prof. de Wert, with a remarkable output, considering the small staff and the field of research. Research focuses on ethical issues in assisted reproductive technology and genetics, especially pre-implantation genetic diagnosis, and prenatal screening. The aim of the Ethics Programme is to stimulate ethic reflections on normative aspects of relevant developments in the clinic and the lab, in order to contribute to better guidance, both in the clinic and at the level of society. The group has demonstrated excellent collaborative competence and a broad interest in ethical issues with a high societal impact. There are excellent and very fruitful collaborations with other Research Programmes in GROW, such as Fertility and Early Development and Clinical and Reproductive Genetics. Prof. de Wert has an excellent national and international reputation, which is evident from his activities in the European Society for Human Reproduction (Ethical Council) and the Dutch Health Council (e.g., report with ethical exploration of the “thousand-dollar genome”).

PRODUCTIVITY
Over the period 2006-2011, the Programme has shown increasing productivity, with an output that is unusually high for the field of Ethics. Many papers are co-authored by staff from other GROW research programmes, especially Fertility and Early Development and Clinical and Reproductive Genetics. Recently there have been two high impact papers in Nature Review Genetics (IF 38.075).

RELEVANCE
The Committee rated this aspect of the Programme as excellent, because of the huge impact of the research on national and international forums discussing ethical issues surrounding various assisted reproductive technologies, genetics, especially pre-implantation genetic diagnosis, and prenatal screening. Societal relevance is very high because the Programme truly has practice-changing influence.

VITALITY and FEASIBILITY
The Committee is convinced that this Programme can maintain its strong position in the next 5 years. Currently, the Ethics Programme has very fruitful collaborations with Fertility and Early Development and Clinical and Reproductive Genetics. Since there is going to be a change of leadership in the latter programmes in the near future, it is crucially important for GROW leadership to safeguard that Ethics continues to be well embedded in potential new directions of these research programmes. Similarly, we trust that ethics will be sufficiently embedded in the proposed Centre of Excellence EVA: the Centre of Expertise for Reproduction Genetics and Early Development. Funding in the field of Ethics research is increasingly difficult to obtain; consequently GROW leadership must safeguard that the already small staff has sufficient opportunity to conduct research, also without external funding, which is necessary for the Maastricht Ethics group to maintain its strong leadership position in the field.
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RECOMMENDATION:
1. The committee has identified this Research Programme as a high priority for re-deployment of core funded fte positions and would advise the Maastricht UMC+ Board to offer this Programme the possibility to get an intramurally funded PhD student

Theme II: (Epi)genetics of Reproduction and Development

Programme II.1: Clinical and Reproductive Genetics

QUALITY	3,5
PRODUCTIVITY	3,5
RELEVANCE	4,5
VITALITY AND FEASIBILITY	NO SCORE

QUALITY
The Committee's quality score is the average for a rather divergent set of genetic activities. A relatively low number of principal investigators (PIs Prof. Geraedts, Prof. Smeets and Prof. Gomez-Garcia, and now also Prof. de Die) , but a reasonably large number of staff members and PhD students (13) is active in this programme. Focus of research and diagnostic activities in the group of Prof. Geraedts is centred on PGD, a translational-oriented field of science that was introduced in the Netherlands under his

guidance and supervision. Prof. Geraedts' group played a major role in creating public awareness about PGD in Europe, and with regard to diagnostic performance his group belongs to the European top. The scientific output is good, with moderately high production and average impact scores. We have to realise however, that the fields of reproductive and developmental genetics are particular difficult areas for high production in academic research and for attracting large sums of funding. The scientific focus of Prof. Smeets group is centred around mitochondrial genomics, an area of genetics in which this group has created (inter)national visibility with an own research niche, with use of innovative technical approaches in mito DNA studies and well integrated use of bioinformatics. For this group we notice a good to very good productivity in publications and in the attraction of funding. New opportunities in merging mito-genomics and cancer studies are currently being explored within GROW and offer prospects for future consolidation. The emphasis of Prof. Gomez-Garcia is on cancer genomics, based on participation in patient-cohort studies, which has yielded a good number of co-authorships, including co-author positions on high-impact papers, but relatively few principal authorships on self-initiated studies.

PRODUCTIVITY

The committee scores the publication productivity of the entire group, based on the number of papers, the impact factor of journals, and the number of first/last-principal author positions on these publications, as good-average. Productivity scores differ, however, between individual PI groups (see above). A rather high number of PhDstudents is active in this programme. The funding situation is good, but the picture (total income from -extramural- grants is ~1.8 Million Euros) is dominated by one or few rather large grants. The level of overall productivity for this Programme is fairly constantly maintained over the report period, which is rather remarkable, because trends and hypes have strong influence in the scientific area of reproductive/developmental genetics, as well as metabolic and cancer genetics.

RELEVANCE

The PGD activities within this Programme have received strong international recognition. Clearly, they have very high relevance for prevention and health care, especially now, in times that the costs of human health are central in the political discussion, nation-wide and EU-wide. The other genetics and genomics activities within this Programme have relevance in their own right. The Committee sees a bright future, if tighter bonds to cancer studies, or to general clinical genetic activities can be established within GROW, or in collaboration with other research schools within the MUMC.

VITALITY and FEASIBILITY

As was the case with Programme I.1 (Fertility and early development), the vitality and feasibility of future research within this Programme depends largely on finding a good successor for Prof. Geraedts, who will retire soon. The Committee has decided not to score this aspect of the assessment, but realises that the activities in the fields of mito-genetics and cancer-genetics can have a bright future if appropriately integrated in

larger Programmes within GROW. In the search for new chair-holders, there might be a unique opportunity here to have a fresh look (or even combine) both top clinical care programmes: 'Fertility and early development' (Hans Evers) and 'clinical and reproductive genetics' (Joep Geraedts). In fact, the Committee sees many new opportunities, as research could team up with new activities in gene therapy or serve in other Maastricht Programmes that aim at better disease prevention - or early intervention - overall. Important herein, is to make a distinction between research and diagnostic performance: It is the research line (Geraedts) that needs to find new embedding or impulses. Planning as now disclosed for the new centre of expertise, EVA, will no doubt provide unique opportunities for the Maastricht UMC+, and will not only help in preserving the nowadays well established name and contents of this programme, but also serve in sculpturing new research directions. Wise decisions for future organisation will ultimately therewith also safeguard the related (and crucially important) clinical-diagnostic activities.

RECOMMENDATIONS:

1. The Committee recommends to explore possibilities to link this research to cancer studies, or to general clinical genetic activities within GROW, or explore possibilities for collaboration with other research schools within the Maastricht UMC+. Furthermore the committee advises the board to consider possible new opportunities, as research could team up with new activities in gene therapy or serve in other Maastricht Programmes that aim at better disease prevention - or early intervention – overall.
2. Appoint a suitable high-level successor of Prof. Geraedts, in order to continue Maastricht's longstanding international reputation in the area of Clinical and Reproductive Genetics.

Programme II.2: Epigenetics and Regenerative Medicine

QUALITY	3
PRODUCTIVITY	3
RELEVANCE	3
VITALITY AND FEASIBILITY	3,5

QUALITY

This Programme focuses on a rather holistic theme: Epigenetic mechanisms underlying physiological, adaptive cellular responses during differentiation, development and disease. Scientific attention is drawn to very divergent topics like X-inactivation in mental retardation, active and passive role of epigenetic programming in regenerative biology (chondrogenesis as example), signalling pathways that program chromatin state (and the role of polycomb complex, therein) in a broad range of diseases, and - perhaps most specific - epigenetic mechanisms involved in (re)programming of cancer cells under hypoxic conditions. A somewhat recurrent and therefore one of the best recognizable topics is polycomb biology. Only a relatively small staff is active in this

entire programme, and the diversification strategy that is now used to allocate attention to the different elements of research is clearly the reason that there is not enough critical mass for any in depth study. The Committee concludes that - unlike most of the other Programmes within GROW - this Programme lacks clear direct translational value. Although we met scientists with broad general knowledge of molecular life sciences, the Committee failed to identify strong directive leadership.

PRODUCTIVITY
With only 2 staff members and 4 PhD students the Programme has published a 7 (Voncken) and 16 (Frints) papers, but none with high impact factors. The committee would like to stimulate both Voncken and Frints to work on 'last authorships' , which is important for group leaders. Earning power for grants was good, but strongest in the 2006-2009 years of the evaluation period, with dr. Frints being most constantly successful throughout, and a prestigious grant in 2010.

RELEVANCE
Basic mechanistic studies, f.e. on polycomb role, appear not very well visible amongst the international output. The contribution of the Voncken group to publication output , grant income or GROW science policy is not visible enough either. The MPLA work of Dr Frints as proposed for non-invasive prenatal diagnosis, although rated as good by the Committee, is still experimental and many other and newer techniques are currently taking the niche in the (inter)national field.

VITALITY and FEASIBILITY
The committee recommends entirely new planning of programme topics, with more inter-programme coherence and focus, and with better use of interdepartmental and transdisciplinary collaboration. (Re)orientation on new opportunities that could emerge if forces are joined with other GROW groups working on epigenetics and cancer, not epigenetics and developmental biology, is thereby strongly advised. Without new scientific planning, further strengthening of research management, and without finding new partnership to allow translation of research ideas this Programme has no optimal life expectancy.

Overall conclusions GROW Division Developmental Biology

QUALITY	4,0
PRODUCTIVITY	4,0
RELEVANCE	4,0
VITALITY AND FEASIBILITY	4,0

QUALITY
The overall score of the quality of the Division Developmental Biology again ranges between good and excellent. Further there is evidence of a strong critical mass of researchers including in some Programmes developing PhD programmes. On the whole

this Division seems slightly less strong than the Division of oncology, although some elements are truly excellent, such as Programme I.4 Ethics. The committee thinks that it is important that IVF, PGD etc. would be kept in place. EVA is a good vehicle to do this. The committee would support the idea of this Centre of Expertise. In the past Maastricht has built up quite a reputation in this field and it is important to maintain this international reputation. It is important to combine the top clinical functions with research to maintain the academic quality and to advance the area.

PRODUCTIVITY

Productivity as evidenced by the publication record is reasonably impressive. Programmes differ in actual publication output and quality, but generally this is a productive Division. Phd registrations and theses defences are also generally good although again some Programmes are better than others. So too, there are several examples where external funding has been attracted to programmes.

RELEVANCE

Relevance as defined by orientation and impact is generally good with 'Ethics' absolutely standing out as a leader both in its field and for the institution as a whole. Its local, national and international reach is impressive.

VITALITY and FEASIBILITY

Although there are some exceptions, it is clear that Developmental Biology Division's Programmes have been and are relevant. The committee though is aware of the fact that there are many key leaders on the brink of retiring. It is thus very important for the future of the Programmes involved, that the leadership is replaced as a part of a succession strategy. The Programmes are dependent on strong leadership. The vitality and feasibility of Programmes I.1 (Fertility and early development) and II.1 (Clinical and Reproductive Genetics) really depend largely on finding a good successor for Prof. Geraedts and Prof. Evers respectively. There might be a unique opportunity here to have a fresh look (or even combine) both top clinical care programmes.

ANNEX 1 Short Curriculum Vitae Members ERC GROW 2012

Prof. J. Wolter Oosterhuis (1946) is Professor of Pathology at the Erasmus Medical Centre Rotterdam, the Netherlands. He was trained as a medical doctor (1972) and pathologist (1976) at Groningen University. He moved to Rotterdam in 1990 to become the scientific director of the Daniel den Hoed Cancer Centre. From 1998 -2011 he was Head of the Department of Pathology — part of the Josephine Nefkens Institute — of the Erasmus University Medical Center Rotterdam, the Netherlands. His main research interests are the pathobiology and therapy resistance of gonadal and extra-gonadal germ-cell tumours. He was the scientific director of the postgraduate school Molecular Medicine of the Erasmus Medical Center between 1994 and 2007. Currently he is the scientific director of the Daniel den Hoed Foundation, and Chairman of the Scientific Advisory Board of the same foundation. He is a member of numerous scientific committees and boards in the broader scientific area of pathology and (paediatric) oncology, and participates in committees on the interface between the academic world and health care. In 2011 he received the prestigious KWF Muntendamprijs for his outstanding work in the area of pathology and for his ability to build bridges between oncological patient care and scientific research. In the same year he was named Officer in the Order of Oranje-Nassau. He has supervised 34 PhD-students successfully to graduation.
Prof. Oosterhuis has written over 400 publications. His H-index is 51.

Prof. Robert Hofstra (1962) is Professor of Human Genetics. He was trained at Groningen University and received his PhD degree in 1995, the title of his thesis being 'the *RET* gene and its associated diseases'. He became a full professor of Human Developmental Genetics and head of the R&D group of the Department of Genetics at UMC Groningen in 2005. In February 2012 he moved to Rotterdam and became the Head of the Department of Clinical Genetics at the Erasmus Medical Centre, Rotterdam**.**
His own research group consists of 2 assistant professors, 13 PhD students and 3 technicians, working on grants from ZonMW, MDLS, NHS, Hong Kong/Groningen collaboration fund and the Ubbo Emmius Science Foundation.
The main research objectives of Prof. Hofstra are to identify and characterize genes and mutations in genes contributing to inherited diseases and cancer and to understand how these mutant genes contribute to disease development. Most of the work in his group is focused on Hirschsprung disease (HSCR), Hereditary Non-Polyposis Colorectal Cancer (HNPCC). The focus of the research has shifted from monogenic to polygenic diseases. The work performed in his group includes all kind of molecular genetic techniques including micro-array analysis (both expression profiling and high density genotyping) deep sequencing and all kinds of protein analyses. He played a pivotal role in identifying several human disease-associated genes, and has also been involved in several studies aiming to identify modifying genes involved in polygenic Hirschsprung disease. Identifying the functional consequences of mutations and variations might help us understand whether variants contribute to the development of a disease and/or to phenotypic differences. Prof.

Hofstra is the President of the Dutch Society of Human Genetics (DSHG) since 2006.
He has published in highly rated journals such as Nature, Nature Genetics (6x), PNAS (2x), American Journal of Human Genetics (9x), Gastroenterology (2x), and Trends in Genetics and Endocrine Reviews. He has been an author on 198 peer-reviewed publications and has supervised 22 PhD students. His H-index is 44.

Prof. Bé Wieringa (1951) is Professor of Cell Biology and Head of the Department of Cell Biology at the Radboud University Nijmegen Medical Centre. He has been serving as Professor of Cell Biology since 1990 and was first Chairman of the Board of Scientific Directors of the Nijmegen Centre for Molecular Life Sciences (NCMLS), between 2001-2004. He was trained in Biochemistry (PhD in 1980) in Groningen (NL) and has been working in the areas of molecular biology, vaccine development and molecular genetics successively at the ETH in Zürich, Switzerland, the RIVM, Bilthoven, the Netherlands and at the Human Genetics Dept. in Nijmegen, prior to his appointment at Cell Biology. His current research interest is focused on the role of intracellular ATP-NAD(P)(H) supply and distribution on viability and growth control in early transformed tumor cells and on the reciprocal coupling between energy-redox metabolism and actin-driven morphodynamics in muscle cells, macrophages and tumor cells. In these studies reverse genetics, sophisticated microscopy, and molecular cell biological methodology is used for visualization of dynamic events that control cell growth, physiology, and motility in 2D and 3D. Another line of interest involves the use of cell and animal models to study the molecular and cellular etiology of Myotonic Dystrophy Type 1, a trinucleotide repeat expansion disorder. With this line of research he aims to provide therapeutic help for the multisystemic problems that are associated with this frequent inheritable neuromuscular disorder.
Prof. Wieringa has now supervised 34 PhD students successfully to graduation. He has published mostly primary research articles (in Cell, Science, Nature, Nature Genetics, EMBO J, PNAS) but also, book chapters, letters and notes. 266 publications are recorded in the ISI Web of Science. Two of his publications were cited over 800 times. His current H-index is 52.

Prof. Kevin Joseph Harrington (1963) is Team Leader of the Targeted Therapy Laboratory (Section of Cell and Molecular Biology) at Institute of Cancer Research (ICR), and Professor in Biological Cancer Therapies and Honorary Consultant in Clinical Oncology at Head and Neck Unit, Skin and Melanoma Unit at the Royal Marsden Hospital in London. Prof Kevin Harrington specialises in developing new treatments using viruses that selectively destroy cancer cells. He studied medicine at St Bartholomew's Hospital, London and began focusing on head and neck cancer while a PhD student at Hammersmith Hospital. He completed post doctoral research in molecular medicine at the Mayo Clinic, Minnesota, before joining the ICR in 2001 as Targeted Therapy Team Leader. He is currently working with a range of viruses (reovirus, herpes simplex virus, vaccinia virus) that are able to grow in - and kill - cancerous, but not normal, cells. Much of Prof Harrington's laboratory work is immediately translated into clinical trials at The Royal Marsden, most often in patients with head and neck cancers and melanomas. Prof Harrington is a Fellow of the Royal College of Physicians and a Fellow of the Royal College

of Radiologists.
He has published 302 peer-reviewed articles and 42 book chapters and has edited 3 books. He has supervised 14 PhD/MD theses. His H-index is 28.

Prof. Mikko Hallman (1945) is Professor of Paediatrics and Chairman of the Department of Paediatrics at the University of Oulu, and Project Leader at the Biocentre in Oulu, Finland. He was trained as a medical doctor at the University of Helsinki in 1972 and specialised in paediatrics in 1977. He has worked as an Assistant Professor and later as an Associate Professor of Paediatrics at the University of California in San Diego between 1978 and 1982 and then moved back to Finland to become a specialist in Neonatology at the department of Obstetrics and Gynaecology of the University of Helsinki. Between 1985 and 1989 he was the Chief of the Division of Neonatology of the same department of Obstetrics and Gynaecology. In 1989 he moved again to the United States to become a professor of Paediatrics at the University of California in Irvine. From 1997 onwards he has taken up his current position at the University of Oulu in Finland.
Prof. Hallman has more than 300 international publications to his name, 1 book, 56 book chapters and short articles and more than 250 published abstracts. He has supervised 22 PhD students successfully to graduation. His H-index is 37.

Prof. Flora van Leeuwen (1956) is Professor of Cancer Epidemiology at the EMGO+ Institute, VUMC, and Division Leaderof the Division of Psychosocial Research and Epidemiology of the Netherlands Cancer Institute. She has studied at Wageningen Agricultural University, where she graduated cum laude in 1981 (MSc in Human Nutrition). In the same year she became head of the Department of Tumor Documentation, Clinical Trials and Epidemiology of the Netherlands Cancer Institute in Amsterdam, with the specific task to start an Epidemiology Group in this institute. In 1982-1983 she was awarded a research training fellowship by the International Agency for Research on Cancer. This period was spent to obtain a MSc degree in Epidemiology at the Department of Epidemiology of the School of Public Health of the University of Alabama in Birmingham, USA). In the period 1983-1986, the Epidemiology Group of the Netherlands Cancer Institute quickly expanded, and in 1986 she became head of a separate Subsection on Cancer Epidemiology. From 1989-2010, she also served as a consulting epidemiologist to the Comprehensive Cancer Center of Amsterdam. In 1994 she obtained her PhD degree (cum laude) at the VU University in Amsterdam (Thesis: Second malignancies as a sequel to cancer treatment) and in 1998 she obtained a Chair in Cancer Epidemiology at the Faculty of Medicine from the VU University in Amsterdam.
Her research group is currently concentrating on two principal research lines: the etiology of breast, ovarian and endometrial cancer, and the long-term health consequences of the treatment of cancer, particularly in terms of the risk of developing second malignancy, cardiovascular disease, and subfertility.
In 1997 Flora van Leeuwen received the KWF Muntendam Award for her outstanding work, and in 2010 she was awarded the Queen Wilhelmina Research Prize for her work on late effects of cancer treatment. She is a member of the Dutch Health Council and the Review Board of the Dutch Cancer Society and has served on numerous other review boards and steering committees.

She has received approximately 40 research grants, mainly from prestigious high impact funding organizations, such as NWO, NIH, Dutch Cancer Society and the EU. Her total number of publications is 233. She has supervised 15 PhD students. Her H-index is 53.

Prof. Winald Gerritsen (1955) is professor of Tumorimmunology, especially uro-oncology at the Department of Medical Oncology, Radboud UMC in Nijmegen. He has a background in translational research with a special interest in tumorimmunology and prostate cancer. Following his medical training at the University of Nijmegen, Prof. Gerritsen achieved his PhD in 1989 on bone marrow transplantation at the Medical School of the Erasmus University of Rotterdam. From 1989 till 1991 he worked as a special fellow at Memorial Sloan Kettering Cancer Center in New York, after which he held several positions at respectively the University Hospital Utrecht, The Netherlands Cancer Institute / Antoni van Leeuwenhoek Hospital and the VU Medical Center. He moved to Nijmegen in 2012. He is a visiting professor at Oxford University (2012).
Prof. Gerritsen has chaired the Dutch Society of Gene Therapy and became honorary member of the society. He has served as chairman of the commission of clinical research of the Dutch Cancer Society (KWF). He chaired the commission of biotherapy of the National Translational Cancer Research Network, UK and is a member of the Cancer Research UK Immunotherapy Quinquennial Review Committee. He is also member of the Royal Holland Society of Sciences and Humanities and has a Adjunct professorship at John Hopkins University.
He has 112 scientific publications. His H-index is 32. He supervised 13 PhD students

Ingrid Leijs, MSc. (1963) works as a policy advisor at the CAPHRI School for Public Health and Primary Care, since March 2011. Her work comprises the writing of various CAPHRI policy documents, contributing to the development of prestigious project-proposals or structural reports, and facilitating the implementation, evaluation and revision of (aspects of) the CAPHRI research policy. She works closely together with the CAPHRI Scientific Director, participates in the CAPHRI Board and offers strategic advice. She has worked as a policy advisor in the area of research at the Faculty of Health, Medicine and Life Sciences of Maastricht University since 2005. She has studied Health Sciences at the same university and graduated in 1986. She started her career as the coordinator of the department of health education at the municipal health department of West-Friesland in Hoorn, between 1986 and 1990. For most of her professional life however she worked as an international project manager in several positions at Maastricht University, both at the central level and the faculty level (1990-2005). Being interested in development cooperation she worked on several projects in the southern hemisphere, most importantly in El Salvador and India. She has managed two international research projects, financed by the EU: one in the area of smoking prevention and one in the area of nursing codes. In 1997 she has worked for the whole year at the department of 'Medicina Preventiva' at the University of Oviedo in Spain. She is fluent in English and Spanish. Ingrid is the secretary to the External Review Committee.

ANNEX 2 Assignment letter of the Executive Board

Maastricht University

To the chairman and members of the External Review Committee of the School for Oncology & Developmental Biology, Maastricht UMC+, Maastricht University, the Netherlands

Copy to the Dean of FHML, the scientific director of GROW, and the secretary of the ERC

Executive Board

your reference	*our reference*	*direct line*	*Maastricht*
	2012.10.0434-ED	+31 43 3883110	05.05.2012

Subject: External evaluation of research of the School for Oncology & Developmental Biology (GROW) at Maastricht, the Netherlands

Dear Sir, dear Madam,

In consultation with Prof.Dr. A.J.J.A. Scherpbier, vice-chairman of the Board of Directors of the Maastricht University Medical Center (Maastricht UMC+) and Dean of the Faculty of Health, Medicine and Life Sciences (FHML), we have decided to carry out an external evaluation of the research of the School for Oncology & Developmental Biology (GROW) in 2012 in accordance with the rules of the *Standard Evaluation Protocol 2009 – 2015, Protocol for research assessment in the Netherlands* (SEP, see also www.knaw.nl/SEP).
This procedure includes self-evaluation documents, produced by the school (in accordance with chapter 5 of the SEP), and assessment by an external peer evaluation committee (External Review Committee, ERC). The committee shall visit the school, the FHML and the Maastricht UMC+ as part of the assessment.
The school has invited you to be members of this committee. In consultation with the Maastricht UMC+ Board of Directors we are very pleased to appoint you members of the External Review Committee of GROW.

The committee consists of:

- Prof.Dr. J.W. Oosterhuis (Dept. of Pathology, Erasmus Medical Centre Rotterdam, the Netherlands, chairman);
- Prof.Dr. R.M.W. Hofstra (Dept. of Clinical Genetics, Erasmus Medical Centre Rotterdam, the Netherlands);
- Prof.Dr. B. Wieringa (Dept. of Cell Biology, Nijmegen Centre for Molecular Life Sciences, the Netherlands);
- Prof.Dr.Ir. F.E. van Leeuwen (the Netherlands Cancer Institute, Amsterdam, the Netherlands);
- Prof.Dr. K.J. Harrington (Head and Neck Unit, Royal Marsden Hospital London, U.K.);
- Prof.Dr. N.M.K. Hallman (Dept. of Pediatrics, University of Oulu, Finland)

Groei & Ontwikkeling
ingekomen: 2012.019
reg.nr.:
behandeling: 10-5-12
kopie:
archiefcode: ECOS

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Maastricht University

We do not have any doubt of your impartiality as a peer reviewer. Nevertheless, to avoid future discussions about potential conflicts of interest we will ask you to sign a declaration to this effect, which will be given to you by the secretary of the committee, Mrs I. Leijs (Maastricht University, Office of the FHML, the Netherlands).

In August 2012, you will receive the self-evaluation documents and the programme of the site visit. It may be possible that the Dean of the FHML will ask you to pay special attention to certain elements of these documents.

The formal inauguration ceremony will be performed by the vice-chairman of Maastricht UMC$^+$ Board of Directors and Dean of the FHML, Prof.Dr. A.J.J.A. Scherpbier, at the beginning of your site visit in September 2012.

We will ask you to evaluate the school carefully in accordance with the rules of the SEP. We call your attention to some evaluation aspects. First, the evaluation of the quality of the PhD educational courses of the school (see chapter 3.2 of the SEP, under Criterion 1), because it is very likely that GROW may use your evaluation report for re-accreditation of GROW as a research school (see the KNAW protocol for re-accreditation of research schools, www.knaw.nl/ECOS). Secondly, we ask you to review also each division and theme of GROW, and as far as possible the underlying research programmes of GROW (see chapter 6.2 of the SEP, under Part 2).
The secretary of the committee will assist you.

We kindly ask you to report your findings in an evaluation report and to present the draft of this report to the Dean of the FHML and to us, within two months after your site visit.
Please note that you are to support your findings on quality, productivity, relevance, and vitality and feasibility in words, also in numerical grades (in accordance with the scale in chapter 3.4 of the SEP).

The evaluation report is to be published. If necessary, you may write a confidential management letter to the Dean of the FHML and to us.

All costs relating your activities in the evaluation shall be met by us. You may consult the secretary of your committee, Mrs I. Leijs, for a list of standard rates.

We hope that you will enjoy your visit to Maastricht.

Yours sincerely,
on behalf of Maastricht University,

Prof.Dr. M. Paul
President

ANNEX 3 Assignment letter Dean FHML

Maastricht UMC+
Raad van Bestuur

To: The Chairman and members of the External Review Committee of the school for Oncology & Developmental Biology

Your reference	Our reference	Direct line	Maastricht
	12.1193	+31 (0)43-38 71329	29-08-2012

Subject: **External evaluation of research of the School for Oncology & Developmental Biology (GROW)**

Secretariat
T +31 (0)43 38 71329
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Visiting address
P. Debyelaan 25
6229 HX Maastricht

Postal address
P.O. Box 616
6200 MD Maastricht
The Netherlands

Dear Prof. Oosterhuis,

As already mentioned in the letter sent by the Executive Board (reference 2012.10.0434-ED; date: 05.05.2012), the Executive Board of Maastricht UMC+ would like to ask you to pay special attention to certain elements in the self-evaluation. Therefore we have formulated the following specific questions.

Based on consistent performance below average, the director of GROW proposes to stop a number of programs. This will disturb the balance between Developmental Biology and Oncology, yet at the same time it will increase the focus of the School. We would value your opinion on this development.

As a logical consequence of the foregoing, the structure of the Divisions requires updating. We would appreciate your opinion on the proposed new structure.

Yours sincerely,
on behalf of the Executive Board Maastricht UMC+,

Prof.Dr. A.J.J.A. Scherpbier,
dean/vice-chairman

Maastricht University academisch ziekenhuis Maastricht azM

PROGRAMME ERC GROW 2012
September 3-5, 2012

Location NH-Hotel, Forum 110, Maastricht

Monday, September 3, 2012

Afternoon	Arrival members external review committee in Maasticht
16.00-18.00	Closed session of the External Review Committee
18.00	Departure to Chateau St. Gerlach, Houthem/Valkenburg
18.30 - 19.00	Installation external review committee members by Prof. Dr. Albert Scherpbier, dean of the Faculty of Health, Medicine and Life Sciences (FHML) and Drs. Guy Peeters, Chairman Maastricht UMC+
	Committee Members: Prof. dr. J. Wolter Oosterhuis; ErasmusMC, Rotterdam (Chair of the review committee) Prof. dr. Robert Hofstra; ErasmusMC, Rotterdam Prof. dr. Be Wieringa; Nijmegen Centre for Molecular Life Sciences Prof. dr. Kevin Harrington; Royal Marsden Hospital, London Prof. dr. Mikko Hallman; University of Oulu, Oulu, Finland Prof. dr. Floor van Leeuwen; Netherlands Cancer Institute, Amsterdam Prof. dr. Winald Gerritsen; Radboud UMC, Nijmegen Drs. Ingrid Leijs; Maastricht University (Secretary to the review committee)
19.00 –22.30	Welcome Dinner at Chateau St. Gerlach Invitees: Prof. dr. Albert Scherpbier, dean FHML Drs. Guy Peeters, chairman Maastricht UMC+ Prof. dr. Jos Smits, pro-dean research FHML Drs. Winnie Bosch, director FHML Prof. dr. Frans Ramaekers, scientific director GROW Prof. dr. Manon van Engeland, Division LeaderOncology Prof. dr. Joep Geraedts, Division LeaderDevelopmental Biology Prof. dr. Philippe Lambin, Division LeaderOncology Prof. dr. Luc Zimmermann, Division LeaderDevelopmental Biology
22.30	Taxi to NH-Hotel

Tuesday, September 4, 2012

Location: NH-Hotel, Forum 110, Maastricht

09.00 – 9.30	Closed session on working procedure and reporting
09.30 – 12.45	Public morning session Chair : Prof. dr. Wolter Oosterhuis
09.30 – 10.00	Introduction to GROW by Prof. dr. Frans Ramaekers
10.00 – 10.30	Discussion
10.30 – 10.45	Coffee break
10.45 – 11.15	Introduction to the Division of Oncology by Prof. dr. Manon van Engeland
11.15 – 11.45	Discussion
11.45 – 12.15	Introduction to the Division of Developmental Biology by Prof. dr. Joep Geraedts
12.15 – 12.45	Discussion
12.45 – 14.00	Lunch break at NH Hotel : discussion with director and Divisionleaders
14.15 – 16.00	Poster viewing per Scientific Programme (first session), and discussion with Programme Leaders, PhD students and senior staff.
16.00 – 16.15	Coffee break
16.15 – 17.45	Site visits at Maastricht University Medical Centre and discussions with scientific staff, technical staff, and PhD students. Please indicate selection of sites to be visited by individual committee members. - Genomics Center at the Dept. of Genetics & Cell Biology. Discussions with Prof. dr. Bert Smeets c.s. - IVF Unit at the Dept. of Gynecology & Obstetrics. Discussions dr. John Dumoulin and Prof. dr. Joep Geraedts c.s - Animal radiation and imaging facilities at the Dept. of Radiotherapy. Discussions with Prof. dr. Marc Vooijs, dr. Jan Thijs, dr. K Rouschop and dr. Ludwig Dubois - Presentation of Physics Research and Knowledge Engineering at MAASTRO clinic. Discussions with Prof. dr. Philippe Lambin, Prof. dr. Frank Verhaegen, dr. Guido Lammering and dr. André Dekker.

	- Microscopy Unit of the FHML. Discussions with dr. Frans Verheyen and Prof. dr. Marc van Zandvoort c.s. - Presentation of the Netherlands Cohort Study. Discussions with Prof. dr. Piet van de Brandt, dr. Matthy Weijenberg c.s. - Presentation of the Bone Marrow Stem Cell Transplantation Unit. Discussions with Prof. dr. Gerard Bos, Prof. dr. Harry Schouten, Prof. dr. Marcel Tilanus c.s.
17.45 – 18.30	Closed session of the External Review Committee. Reflection on the Programmeand preliminary conclusions
19.15	Taxis from NH Hotel to Restaurant Au Coin des Bons Enfants
19.30 – 22.30	Informal dinner with Programme Leaders Invitees: Prof. dr. Frans Ramaekers Prof. dr. Manon van Engeland Prof. dr. Jos Kleinjans Prof. dr. Piet van den Brandt Prof. dr. Vivianne Tjan-Heijnen Prof. dr. Boris Kramer Prof. dr. Gerard Bos Prof. dr. Maurice van Steensel Prof. dr. Regina Beets-Tan Prof. dr. Philippe Lambin Prof. dr. Marc Vooijs Prof. dr. Hans Evers Prof. dr. Guido de Wert Prof. dr. Joep Geraedts Prof. dr. Luc Zimmermann Prof. dr. Jan Nijhuis Dr. Willem Voncken

Wednesday, September 5, 2012

Location : NH-Hotel, Forum 110, Maastricht

9.00 – 10.00	Clinical implications of GROW research. Meeting with the Board of the Maastricht UMC+, Drs. Guy Peeters and Prof. Dr. Albert Scherpbier, the scientific director of GROW, Prof. Dr. Frans Ramaekers, the director of the Maastricht Oncology Center, Dr. Gerard Beets, and the representative of the director of the RVE Heredity, Reproduction and Childcare, Prof. Dr. Luc Zimmermann.
10.00 – 11.30	Poster viewing per Scientific Programme (second session), and discussion with Programme Leaders, PhD students and senior staff.
11.30 – 11.45	Coffee break
11.45 – 12.30	Presentation of the Master Programme and PhD Programme, including talent scouting and career perspectives.
12.30 – 14.00	Lunch break at NH Hotel and discussion with: Coordinators Master Programme Dr. Willem Voncken and Dr. Jos Broers and two master students. Coordinators of PhD Programme Dr. Ton Hopman and Dr. Theo de Kok, the PhD representative Drs. Jennifer Collins and two PhD students.
14.00 – 17.00	Closed session of External Review Committee. Discussion and formulation of preliminary conclusions.
17.15 – 18.00	Closed session: Presentation of preliminary conclusions of External Review Committee by Prof. dr. Wolter Oosterhuis. Present : Prof. dr. Albert Scherpbier, dean FHML Drs. Guy Peeters, chairman Maastricht UMC+ Prof. dr. Jos Smits, pro-dean research FHML Drs. Winnie Bosch, director FHML Prof. dr. Frans Ramaekers, scientific director GROW Prof. dr. Manon van Engeland, Division LeaderOncology Prof. dr. Joep Gereadts, Division LeaderDevelopmental Biology Prof. dr. Philippe Lambin, Division LeaderOncology Prof. dr. Luc Zimmermann, Division LeaderDevelopmental Biology
18.00	End of programme / Informal get-together
19.00	Dinner