



2018 ANNUAL REPORT

Oncologie Onderzoekschool Amsterdam
- OOA -
Oncology Graduateschool Amsterdam





UNIVERSITEIT VAN AMSTERDAM



About the OOA

OOA is a large and successful joint graduate school of Amsterdam UMC (location AMC & VUmc) and NKI-AvL. The OOA, accredited by the KNAW for the period 2016 – 2021, is dedicated to the training and education of more than 800 PhD students working in the field of Oncology. Our mission is to provide education in oncology research in the widest sense at an excellent level, and ensure proper supervision for PhD students in the Amsterdam region. The strength of OOA comes from integration of basic, translational and clinical research of the participating institutes.

Our members are scientists-in-training who receive additional theoretical and practical education on various subjects related to cancer research. The main part of our educational program consist of a series of courses that cover specific topics in oncology and an annual retreat. Collaboration is encouraged between clinical, translational and fundamental researchers. Collaboration is also encouraged between researchers across the different institutes as well as (inter)nationally. In this way, the PhD students have the opportunity to conduct high-level research and attend courses that are organized by an outstanding faculty with excellent track records and high visibility in the international scientific literature.

OOA is one of the 23 Dutch research schools in the discipline ‘Life sciences and medicine’. It is the only accredited school specifically focusing on training in basic, translational and clinical cancer research. We have a very valuable collaboration with the Medical Genetics Centre South-West Netherlands (ErasmusMC and LUMC), the Graduate Schools of the RadboudUMC and the Utrecht Graduate School of Life Sciences (CTO; UMC Utrecht/ Utrecht University). Through these collaborations, the educational programmes are accessible to all PhD students in oncology of the participating graduate schools.

PhD students in 2018

Click [here](#) for more details

20% international

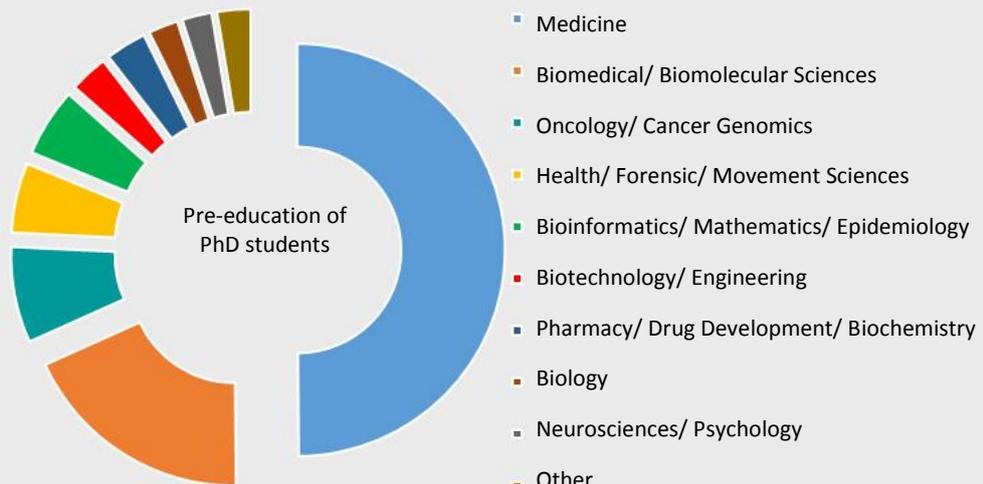
35% male, 65% female

25% of projects funded by the participating institutes

19% by public funds

37% by research contracts

19% financed by other funds



From the executive directors

From the belief that education is one of the most prominent cornerstones of society, the OOA is dedicated to the teaching of all PhD-students in the Amsterdam area working in the field of Oncology. The value of the OOA educational programme is testified by the large interest from PhD-students, even from outside the Amsterdam area, for our courses, workshops, symposiums, meet-the-expert sessions and the yearly PhD-student retreat. Next to oncology-related courses on a broad variety of subjects, the OOA is also dedicated to teaching transferrable skills, such as scientific writing, -presenting and -integrity. Especially during the yearly retreat students get trained in all skills – in a practical way - that a scientist needs throughout his/her career. This interest is continuously growing which gives us the enthusiasm to continuously expand and improve our course programme. This year the merger between AMC and VUmc was signed, starting a process that will increase the collaboration between the two academic institutes. The merger resulted in the establishment of the new institute Amsterdam University Medical Centers (UMC), with the ambition to continuously improve patient care, research and teaching. The start of Amsterdam UMC will also facilitate the teaching of our students at the graduate level.

The OOA management team is composed of deans, coordinators and administrators from the participating institutes. It is important to mention that the management team is assisted by the PhD council, a team of 6 PhD-students, two from AMC, VUmc and NKI locations each. The council advises on e.g. course subjects, but also

organizes the yearly PhD-day, focused on teaching and social interactions. Furthermore, many faculty members of the participating institutes are involved in the teaching activities of the OOA.

Together we are doing our utmost to offer the highest level of graduate student education in the Amsterdam area.



Arjan Griffioen
Director, Dean location VUMC

Hein te Riele
Dean NKI

Marcel Spaargaren
Dean AMC

OOA TEAM

Executive directors

Prof. dr. Arjan W. Griffioen
Amsterdam UMC, VUmc

Prof. dr. Hein te Riele
NKI-AvL

Dr. Marcel Spaargaren
Amsterdam UMC, AMC

Coordination

Dr. Esther M. Ruhe
Amsterdam UMC, VUmc

Staff

Karin van der Heijden
Patty Lagerweij
Renske Muns
NKI-AvL

PhD student council

Robin Beekhof
Aafke Creemer
Iris van 't Erve
Sanne Neering
Robin van der Weide
Ramon van der Zee

Advisory board

Prof. dr. Eric Eldering
Prof. dr. Jan Paul Medema
Amsterdam UMC, AMC

Prof. dr. René H. Medema
Prof. dr. Titia K. Sixma
NKI-AvL

Prof. dr. Chris J.L.M. Meijer
Prof. dr. Tom Würdinger
Amsterdam UMC, VUmc

Faculty

OOA has 213 faculty members. Click [here](#) for a list of all members.



Research themes

THEME 1. EXPERIMENTAL BIOLOGY

The transformation of a normal cell into a malignant tumor cell requires multiple (epi)genetic alterations affecting genes that constitute cellular pathways. Studying the genes and proteins involved in these pathways results in better understanding of tumor development, progression and therapy resistance. Candidate markers are tested for their ability to detect cancer at an early stage and to predict its course and response to therapeutic interventions. Disease profiling is being improved using innovative research tools that include high-throughput methods for (epi)genetic, transcriptomic and proteomic analyses. At the cellular level, processes like cell-cell communication, differentiation, adhesion, migration, survival, proliferation and apoptosis are studied using e.g. advanced microscopy, which are complemented by mechanistic studies using e.g. structural biology. Advanced autochthonous mouse models and sophisticated xenotransplant models have been developed for the genetic dissection of cancer and testing of novel therapeutic strategies, including immunological interventions. Furthermore, the mechanisms of therapy resistance and metastasis are being investigated.

Viral oncogenesis projects focus on the role of human papilloma viruses and Epstein-Barr virus in the development of human cancer. Viral and host markers are being tested for their capability to assess the risk associated with the development of cancer.

THEME 2. EXPERIMENTAL CLINICAL RESEARCH

Improvements of clinical care are based on improved detection, development of innovative therapies and personalized treatment strategies. The emerging and rapidly growing fields of molecular imaging and genomics are providing new opportunities to study the biology of a malignancy in individual patients and thus allowing for the development of highly valuable indicators for diagnosis and prediction of disease outcome. Modern state-of-the-art techniques like MRI, SPECT, PET and PET/CT are enabling tumor imaging with high precision and unique molecular and biological information at the tissue level. Mouse models are being used to follow drug sensitivity in several types of cancer and for developing clinical strategies for imaging. Another important focus of research is targeted cancer therapy which should ensure optimal treatment benefits. Research include (pre)clinical evaluations of neoadjuvant treatment and the application of new molecular therapies and anti-angiogenic agents against novel targets in the tumor and its environment. The pharmacological optimization of cytotoxic drugs is an important line of research, as is the passage of drugs through the blood-brain barrier. Development of immunotherapies based on adoptive transfer and vaccination strategies are at the forefront of research. Another important research focus is quality of life for childhood and adult cancer patients.

The institutes provide state-of-the-art research facilities. New initiatives are being launched and innovative technologies are developed and implemented. This often occurs in the context of research programmes in which PhD students are actively involved. Please [click here](#) for an overview of all facilities.

OOA research has an excellent (inter)national status, as demonstrated by the large number of research projects granted in open (inter)national calls, including several of the prestigious new grants. The faculty is strongly represented in the 'vernieuwingsimpuls', the Veni – Vidi - Vici grants for junior researchers and participated widely in numerous EU integrated projects and networks of excellence. Funding is also strongly supported by the Dutch science foundation (NWO) and the Dutch cancer society (KWF).



Educational Programme

OOA has a longstanding tradition of providing an education programme made up of high quality courses on a wide range of topics in oncology. This programme is supplemented by courses on transferable skills, work discussions, journal clubs, conferences and meetings that are actively organized by the participating institutes. Prominent international scientists visit the OOA research institutes within the context of existing or new research collaborations in which PhD students are also involved. In 2018, a total number of 52 international visitors/speakers were welcomed (please [click here](#) for the full list).

The main part of the OOA education programme consists of a series of courses that cover specific topics on oncology. Students make a selection from these courses, in compliance with their interest and background. This educational programme is flexible and focuses on cutting edge scientific topics and the core research activities of the OOA, covering diverse topics in oncology and new technologies that provide the students with the skills and expertise to apply these methods in their own research. Courses are typically given by senior staff members, i.e., full professors, as well as associate- and assistant professors. A highlight of the educational programme is the three-day annual PhD student retreat, which focuses entirely on the research conducted by the students themselves. Students present their work as a poster in the first year of their PhD and as an oral presentation in subsequent years. PhD students are also responsible for chairing sessions and participation in the peer review of presentations given by others to award the prizes for the best poster and oral presentations. The retreat aims to develop important skills in presentation and peer review but it also provides an overview of the research conducted within the OOA at an early stage of the student's career, contributing significantly to active networking between groups. To encourage this interaction, an abstract book outlining the research activities of all participating students is distributed. The retreat enables the students to learn about oncology research outside their immediate environment. Basic science students benefit from clinical science exposure and vice versa.

For on-the-job training, the PhD student gets support in his/her work from the project leader, post-docs and technicians, and this research is embedded in established research groups within the participating institutes. Adequate supervision is an important issue at the OOA institutes. The participating institutes each have their own system for PhD student registration and monitoring the progress of the research and training plan. The OOA strives to promote best practises.

COURSE ORGANIZERS

Dr. Carmen Ambarus
Dr. Judy van Beijnum
Dr. Jeroen Beliën
Prof. dr. Piet Borst
Dr. Lenny Brocks
Prof. dr. Vincent Christoffels
Joke van Diemen
Dr. Juan Garcia-Vallejo
Prof. dr. Arjan Griffioen
Dr. Michael Hauptmann
Karin van der Heijden
Dr. Ron Hoebe
Berend Hooibrink
Dr. Else Huijbers
Hans Janssen
Prof. dr. Connie Jimenez
Dr. Katarzyna Jozwiak
Marieke Koelink
Dr. Marleen Kok
Dr. Przemek Krawczyk
Patty Lagerweij
Per Larsen
Dr. Willemien Menke
Dr. Marjolijn Mertz
Anna Morra
Tom O'Toole
Daisy Picavet
Dr. Joyce Putters
Prof. dr. Eric Reits
Prof. dr. Hein te Riele
Sander Roberti
Dr. Esther Ruhe
Prof. dr. Bas van Steensel
Henk van Veen
Dr. Nicole van der Wel
Prof. dr. Jelle Wesseling
Prof. dr. Bauke Ylstra
John Zavrakidis
Dr. Wilbert Zwart

17 Educational activities organized throughout 2018

4.2 Average evaluation rate of our courses (1 – 5 point scale)

1.5 ECTS average number of credits per course

220 Total number of participants OOA retreat 2018

30 Average number of participants per course

Courses organized in 2018

March 12 – 16

Knowledge gaps in breast cancer

This course included a broad introduction to the field. How is breast cancer diagnosed? How is it treated? What are the successes? What are the challenges and limitations? Stepwise, we dived deeper into knowledge gaps to learn what fundamental and translational research needs to be done and how we ultimately can improve breast cancer survival.

March 15

Meet-the-expert A Pandey

The Pandey lab at Johns Hopkins is a systems biology lab that combines molecular biology, computational biology, analytical chemistry and with various –omics technologies, including genomics and proteomics, to understand signalling pathways and to identify therapeutic targets and biomarkers in cancers.

March 26

How to be(come) a successful grant applicant

Raising external funding is essential to perform your own independent research in an academic setting. As a PhD student, it is important to be aware of the fact that they should already actively work on their CV during their PhD in order to be a competitive grant applicant in the future. In this workshop, applicants learnt what they already can do during their PhD.

April 9 - 13

Mouse morphology, genetics & function

Animal experiments, using mice and rats especially, are an important part of many PhD projects. Better understanding of the mouse anatomy, histology, pathology, genetics, wellbeing, and a proper perspective of the difference of rodent versus human physiology can

improve the quality of these experiments substantially.

Course participants were introduced into various aspects of research with rodents.

April 16 – 20

In the footsteps of Antoni van Leeuwenhoek – basic microscopy

During this course, application of a wide range of imaging possibilities within the microscopy centers at the locations NKI-AvL, VUmc and AMC were explained. The course included lectures, discussions and hands-on demonstrations. The individual research projects of the attending participants were discussed in relation to the demonstrated techniques, allowing exchange of ideas with fellow participants and microscopy experts and operators.

April 18 and 24

Getting your manuscript out for review and your work the attention it deserves

This workshop provided an overview of the key concepts authors need to negotiate when writing a paper. Participants could bring ten word summaries of their current work so they could develop it in interaction with the instructor from soundbites to persuasive storylines. They were welcomed to bring content to be shaped into the three tools for getting manuscripts out for review.

May 25

OOA PhD day

The OOA PhD day 2018 was primarily focussed on supporting all OOA PhD students to further develop their transferable skills. This day included workshops on time and stress management, presenting skills, mindfulness, working with Adobe and thesis printing, followed by drinks to further support active networking between all PhD students of the OOA institutes.

September 14

Theatre Skills for Presenters

During this workshop participants learnt what it takes to make every phrase, glance and gesture support their performance on stage regardless of the size of the audience. They discovered why audiences lose their attention and what they can do to prevent that from happening. And that subtle changes in performance have tremendous impact on the audience.

September 20 & 21

Histopathology of Human tumors

Aim was to give an introduction in the histology of malignant tumors and their precursor lesions. Microscopical structures, growth patterns, grading and staging systems, and different cell types present in selected tumor types (based on preference of the participants) were explained and discussed by pathologists.

October 10-12

Annual Graduate Student Retreat

Each year OOA organizes a retreat for all PhD students participating in the OOA. The retreat primarily aims to develop important skills in presentation and peer review and to stimulate communication between the different participating institutes and divisions. The retreat is generally highly appreciated and considered stimulating both scientifically as well as socially.

October 15 - 19

In the footsteps of Antoni van Leeuwenhoek – basic microscopy

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participants were discussed in relation to the demonstrated techniques, allowing exchange of ideas with fellow participants and microscopy experts and operators.

October 29 – November 9

BioBusiness

This course showed how to start a company based on own research results, or patenting own research data. When scientific discoveries are developed for commercial application, success of entry into the market is dependent on many factors. Among these are intellectual property, indication selection, (pre)clinical testing and financial aspects. These aspects were covered during the course.

November 13-17

Basic Medical Statistics / SPSS

This course explained statistical techniques for the evaluation of biomedical data. It provided an introduction into design aspects, methods of summarizing and presenting data, estimation, confidence intervals and hypothesis testing, including multivariable regression methods for the assessment of association. The emphasis will be on practical application and interpretation. An optional half-day introduction to SPSS was given for those not familiar with this program.

November 22

Masterclass with prof. Piccart

Important cancer discoveries in the lab reach their full potential when they are transferred to the clinic, but the work does not stop there: which patient truly benefits from the new therapy? What are the "resistance" mechanisms? How can they be overcome? This class outlined the challenges faced by translational research teams with specific examples.

November 23

Ethics and integrity in science

Each scientist deals with dilemmas in the field of research integrity. About the extremes of the spectrum is little

discussion. However, it is less clear for a wide range of questionable research practices. There are many dilemmas for which the answer is not easy to give and can raise doubts about how to behave in specific situations. During this course, a range of these issues were discussed.

November 30 & December 6

ImageJ / Fiji

ImageJ or FIJI is a public domain image processing and analysis program. The main objective of this course was to give the microscopy user a global understanding of the huge potential of the program. We will go through all functionalities of the basic package and present specific tools for use in (cell) biology. During the course we will also review concepts and principles of image processing in general, in order to set a theoretical background.

December 6 -14

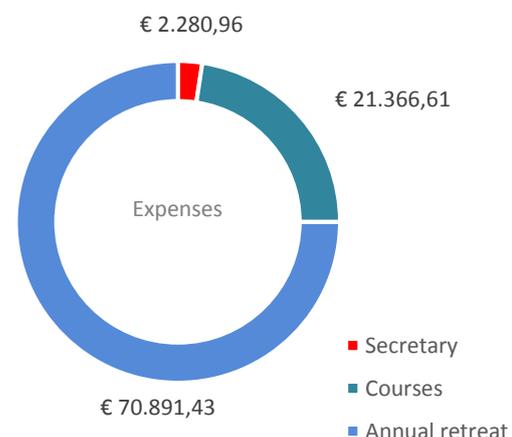
O2Flow Cytometry

This comprehensive course covered the fundamentals of flow cytometry analysis and sorting, as well as mass cytometry in a lecture format supplemented by practical lab and data analysis sessions. The course was designed to gain in depth knowledge on general technical aspects of the different types of cytometers available in the market and how the different components and their configuration influence data acquisition.

The annual costs of the teaching programme and administrative costs are financed by the participating institutes.

The institutes also provide administrative support:

AMC: 0.15 FTE administration
 NKI-AVL: 0.60 FTE administration
 VUmc: 1.05 FTE coordination and administration



Publications

The OOA institutes published 1648 papers in 2018. For a full list of all 2018 publications, please [click here](#). Highlights of papers published by the OOA PhD students themselves include:

Liselotte Boevé et al. (VUmc) Effect on Survival of Androgen Deprivation Therapy Alone Compared to Androgen Deprivation Therapy Combined with Concurrent Radiation Therapy to the Prostate in Patients with Primary Bone Metastatic Prostate Cancer in a Prospective Randomised Clinical Trial: Data from the HORRAD Trial', *European Urology* 75(3); 410-418.

Julia Boshuizen et al (NKI). Cooperative targeting of melanoma heterogeneity with an AXL antibody- drug conjugate and BRAF/MEK inhibitors. *Nature Med.* 2018 ;24(2):203.

Judith Bosschieter et al. (VUmc) Value of an Immediate Intravesical Instillation of Mitomycin C in Patients with Non-muscle-invasive Bladder Cancer: A Prospective Multicentre Randomised Study in 2243 patients', *European Urology* 74(3); 369-375.

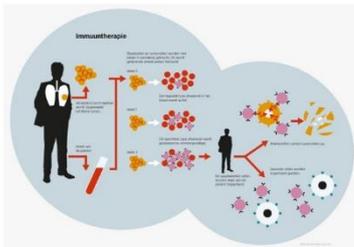
Eva Brinkman et al. (NKI) Kinetics and fidelity of the repair of Cas9-induced double-strand DNA breaks. *Mol Cell* 2018;70:801-813.

Emil ter Veer et al. (AMC) Consensus statement on mandatory measurements in pancreatic cancer trials (COMM-PACT) for systemic treatment of unresectable disease', *Lancet Oncology* 19(3);e151-e160.

Jasper Vleugels, et al. (AMC) Effects of Training and Feedback on Accuracy of Predicting Rectosigmoid Neoplastic Lesions and Selection of Surveillance Intervals by Endoscopists Performing Optical Diagnosis of Diminutive Polyps', *Gastroenterology* 154(6); 1682-1693.

Trouw

Reden voor optimisme over immuuntherapie tegen kanker



Het Parool

VU-onderzoek: 'Effect prik baarmoederhalskanker breder'



de Volkskrant

Aantal levend geboren kinderen bij kankerpatiënten neemt toe, aantal vroeggeboortes daalt



NIEUWE TECHNIEK BESTRALING KANKERPATIENTEN

OPEN HUIS



Hoe olifanten zichzelf tegen kanker beschermen

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