ANNUAL REPORT 2024

Oncologie Onderzoekschool Amsterdam

- OOA -

Oncology Graduateschool Amsterdam

OOA INSTITUTES

Amsterdam UMC

NETHERLANDS CANCER INSTITUTE
ANTONI VAN LEEUWENHOEK

UNIVERSITEIT VAN AMSTERDAM

VU VRIJE UNIVERSITEIT AMSTERDAM

About the OOA

The training of PhD candidates in oncology at Amsterdam UMC and the NKI-AvL is coordinated by the Oncology Graduate School Amsterdam (Onderzoekschool Oncologie Amsterdam – OOA). As one of the largest and most dynamic graduate schools in the Netherlands, the OOA supports over 1,000 PhD candidates from diverse national and international backgrounds, working at our two world-class research institutes.
Our mission is to provide a broad range of high-quality theoretical and practical courses in oncology, while ensuring excellent supervision and mentoring for all PhD candidates. The fruitful collaboration between the two institutes provides PhD candidates the unique opportunity to learn from – and work alongside – many internationally renowned scientists.
Please watch our video and check our website to get a closer look at what makes the OOA such a vibrant and inspiring academic community.

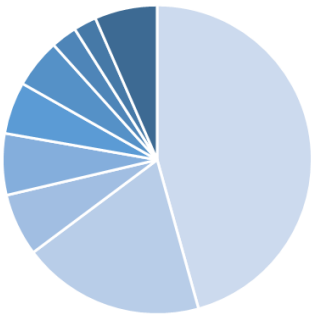
PhD candidates in 2024

Click here for an overview

51% Amsterdam UMC
49% NKI-AVL

70% Dutch
30% international

65% female
35% male



32% of projects funded by the participating institutes
13% by public funds
41% by research contracts
14% financed by other funds

From the executive team

2024 was a remarkable year for the oncology graduate school Amsterdam (OOA), marked by several milestones that reflect the strength and vitality of our community.

Our flagship event, the retreat in Renesse, drew a record number of participants, with the PhD council playing an instrumental role in shaping this edition. Their energy and input were truly invaluable. Also, after the farewell of Hein te Riele as NKI dean of OOA, we warmly welcomed Heinz Jacobs as a new dean for NKI

We were also proud to expand our outreach activities in 2024. With a series of masterclasses for high school students, we reached over 1,000 participants - an inspiring step toward engaging the next generation of scientists.

New collaborations were initiated with the graduate school for neuroscience (ONWAR), reinforcing connections between oncology and neuroscience. This partnership is especially timely and relevant in light of the ADORE concept and the development of the new RDC building, which will house both VUMC and AMC research oncology and neurology groups under one roof. This unification promises to spark even greater interdisciplinary collaborations.

Perhaps most importantly, in 2024 the OOA's portfolio of teaching activities continued to grow - both in number and in the dedication of those involved. It is truly heartwarming to witness the enthusiasm of our teachers and course organizers. Notably, nearly all our courses are now co-organized by researchers from both the NKI and Amsterdam UMC, reflecting a deepening spirit of cooperation.

With all these positive developments, it's clear that the OOA is living up to its mission. We are proud of what has been achieved and are confident that our collective impact will continue to grow. Rest assured, the OOA team remains fully committed to making this happen - with energy, passion, and gratitude for all who contribute to our shared success

On behalf of the OOA team,

Arjan Griffioen
OOA director
Chair

OOA team

Executive team
Prof. dr. Arjan W. Griffioen
Chair, Amsterdam UMC

Dr. Heinz Jacobs
Dean NKI-AVL

Dr. Marcel Spaargaren
Dean Amsterdam UMC

Coordination
Dr. Esther M. Ruhé
Amsterdam UMC

Staff
Sanjhana Bhusal
Evelien Bos
Sarah Stolk
Jolieke Weijmer

PhD student council
Ines Avenel, Barbara Barbosa, Emily Evans, Eve Ioannou, Maxime Kempers, Merel Lucassen, Ben Ooms, Charlotte Smith, Konstantina Strepi, Maud Schoot Uiterkamp, Britt van der Swaan

Faculty
OOA has over 200 faculty members. Click here for a list of all members.

> **The OOA is the glue for all oncology PhD students in Amsterdam and allows for meaningful scientific and social interactions through the provision of courses and events related to science and personal development.**
> *- Chavelli Kensen, OOA PhD councilmember*

Research themes

THEME 1. BASIC ONCOLOGY

The transformation of a normal cell into a malignant cancer cell requires multiple (epi)genetic alterations affecting genes that constitute pathways governing the proliferation and behaviour of cells. Studying the genes and proteins involved in these pathways results in better understanding of tumor development, progression and therapy resistance and may yield markers that can be used 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 molecular 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. Viral and host markers are being tested for their capability to assess the risk associated with the development of cancer.

THEME 2. CLINICAL RESEARCH

Improvements of clinical care are based on improved detection and 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 enable 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 optimizing the benefits of targeted cancer therapy. Research includes (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 immune checkpoint blockades, adoptive transfer and vaccination strategies, as well as identification of predictor response to these therapies are at the forefront of research. Another important research focus is quality of life of long-term survivors of childhood and adult cancer.

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 Dutch science foundation (NWO) ‘vernieuwingsimpuls’, the Veni, Vidi and 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 cancer society (KWF).

PhD training and supervision

To prepare PhD candidates for a successful career inside or outside academia, we aim to provide them all the same solid foundation. All PhD candidates have to complete a uniform training and supervision plan. This plan contains a number of mandatory activities, supplemented by education and activities that can be tailored to each candidate's own interest and needs.

At the start of their PhD training, all PhD candidates must make an initial training plan in consultation with their supervisor. During the course of the PhD trajectory, the plan can be adjusted where necessary. We monitor this process and provide advice if needed. At the end of the PhD program, we review the training and award an educational certificate when all criteria are met.
This procedure, which is described on our website and included in our Starters Package, is brought to the attention of all starting PhD candidates as soon as they are registered at the OOA.

For on-the-job training, OOA PhD candidates receive support from their supervisor/project leader, post-docs and technicians. Their research is embedded within established research groups led by more than 200 faculty members, many being prominent leaders in the scientific community with excellent track records in oncology research, as testified by their contributions to international scientific literature and conferences, memberships in scientific steering committees, and honourees of prestigious scientific grants and awards. These supervisors guarantee a superb environment for research and education in research. They are supported by the research skills, scientific knowledge and enthusiasm of staff members and promising junior investigators who help maintain high mentoring standards for our PhD candidates.

Adequate supervision is an extremely important topic of interest and attention for OOA. In general, when embarking on a PhD track, the PhD candidate and the supervisor (promotor) will agree on a research plan, the PhD curriculum. The promotor is responsible for providing the PhD candidates with supervision, guidance and feedback. In most cases, a daily supervisor is appointed to continuously assess the progress of the PhD project and performance of the PhD candidate. Within Amsterdam UMC and NKI-AvL, various training courses are offered for both junior and senior supervisors.

Training requirements

- 30 ECTS total (1 ECTS = 28 hours)
- Mandatory 2 ECTS 'Ethics and Integrity in Science' course
- ≥ 8 ECTS professional knowledge and general skills courses
- ≥ 1 scientific conference
- Additional courses and activities, writing articles, teaching, retreats, group meetings, etc.

Educational Program

We have a tradition of almost 30 years offering educational programs with courses covering a wide range of topics. To provide a solid foundation in the many aspects of oncology, we offer the Basic Oncology course to all first-year PhD candidates. Once familiar with the basic principles, PhD candidates can choose specialized courses. Our professional knowledge courses focus on cutting-edge scientific topics and the core research activities at the associated institutes, covering specific tumor types and topics within oncology, as well as new groundbreaking technologies which will provide the students with the right skills and expertise to apply these methods in their own research. A subset of our courses is also aimed at the mental health of PhD candidates. We highly value the translation of basic research findings into clinical applications, and vice versa. We therefore stimulate cooperation and integration of fundamental and clinical researchers. Our 3-day annual retreat is a unique event that fosters collaboration and expands our candidates' awareness of cutting-edge oncology research outside their environment.

The course program is dynamic: new advances in cancer research, educational needs expressed by OOA candidates and former course evaluations influence the course content. The PhD council recently conducted a survey among all PhD candidates, enabling us to address the specific needs expressed by the individual PhD candidates. Our education program not only teaches substantive knowledge, but also promotes cooperation and provides support, advice and inspiration.
Courses are typically organized by the OOA executive team and/or a team of principal investigators (PIs) invited by the executive team. Because more than 200 oncology PIs are affiliated with Amsterdam UMC or NKI-AVL, we have the opportunity to offer a very broad range of course topics. All courses are evaluated by the participating candidates. Course organizers discuss these evaluations with the OOA executive team and take action accordingly.

We closely collaborate with the Amsterdam UMC Doctoral School, which provides training in general/soft skills. Thanks to the co-existence of the OOA and the Doctoral School, Amsterdam UMC PhD candidates have the unique opportunity to follow a supplementary educational program. In addition to the local educational activities, PhD candidates are also encouraged to apply for externally organized courses, including those organized by our partner schools Medical Genetics Centre South-West Netherlands and the Utrecht Clinical and Translational PhD program. PhD candidates from these schools are also invited to attend OOA courses.

COURSE ORGANIZERS

Ines Avenel
Roderick Beijersbergen
Jeroen Belien
Anton Berns
Sanjhana Bhusal
Maarten Bijlsma
Evelien Bos
Bram van der Broek
Noelle Commandeur
Suzanne Corsetto
Amalie Dick
Donner
Emily Evans
Arjan Griffioen
Rolf Harkes
Else Huijbers
Karin van der Heijden
Eve Ioannou
Heinz Jacobs
Maxime Kempers
Patty Lagerweij
Rodrigo Leite Olivera
Merel Lucassen
Marjolijn Mertz
Ben Ooms
Eric Reits
Esther Ruhe
Marjanka Schmidt
Charlotte Smith
Marcel Spaargaren
Bas van Steensel
Sarah Stolk
Konstantina Strepi
Britt van der Swaan
Rieneke van der Ven
Nicole van der Wel

18 Educational activities organized throughout 2024

753 Total number of course participants

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

165 Course organizers and teachers

1.3 average credits per activity

Courses organized in 2024

Annual Retreat – 2.0 ECTS

October 9 - 11

This 3-day retreat focused entirely on research conducted by the PhD candidates themselves. They not only presented their work, they were also in charge of chairing sessions and discussions. The retreat trained important skills and provided an overview of research conducted within OOA, contributing to the interaction between the students. The retreat is considered stimulating both scientifically as well as socially.

2x Basic Microscopy - 1.5 ECTS

April 22 - 26, November 4 – 8

This one-week course taught the application of a range of imaging possibilities. These were presented in lectures, discussions and hands-on demonstrations. The projects of the attendants were discussed in relation to the demonstrated techniques, allowing exchange of ideas with participants and microscopy experts and operators.

Basic Oncology – 2.0 ECTS

May 13 - 17

This course provided an overview of oncology-related topics, with an emphasis on recent advances relevant to the pathogenesis and treatment of cancer. The course was designed for all first/second year PhD candidates, to provide them a solid base in oncology already at an early stage.

Being Able To Work With Your Challenges – 0.3 ECTS

May 22

This workshop was organized for PhD candidates who experience stress or are in moments not happy and satisfied in doing their work. Participants were helped to look at things differently, from a broader perspective and with ownership. They looked into stress and how to make it work for instead of against them. They worked with their own challenges and difficult situations and use them as a chance to become more self-aware, find out what they really want and make that happen.

Conference on Cancer Vaccines and Anti-Cancer Immunotherapy

September 4 – 1.0 ECTS

During the international conference, top-notch (inter)national speakers were invited to address the latest developments on cancer vaccines, CAR T cell therapy and other anti-cancer immunotherapies. Next to science, the venue or the hidden church allowed to mix some other culture into the art.

CRISPR genome editing

November 25 – 29 – 1.5 ECTS

CRISPR is transforming biomedical research by enabling precise genomic modifications across various cell types and organisms. its applications span from basic research to clinical settings. During the course, the participants learnt about the fundamental concepts, experimental design and therapeutical applications of CRISPR. Through lectures and interactive discussions with (inter)national experts, the steps required to use common CRISPR applications were demystified. Assignments provided practical experience with different CRISPR tools.

6x Ethics and Integrity – 2.0 ECTS

February 19, March 4, April 8, June 3, September 30, October 21

Each scientist sometimes faces dilemmas. While the extremes of the spectrum - falsifying and fabricating data and plagiarism - are clearly very serious scientific misconducts, a wide range of research practices are in the “grey zone”. These issues were addressed during this course including an overview of all available resources and counselors. The course consisted of three separate parts: an interactive workshop, an online module and writing an essay & discussing this essay with the supervisor.

Histopathology of Human Tumors – 0.6 ECTS

March 14 and 15

The aim of this two-day course was to give an introduction in the histology of malignant tumors and their precursor lesions. Structures, growth patterns, grading and staging and cell types present in selected tumor types were explained and discussed by pathologists.

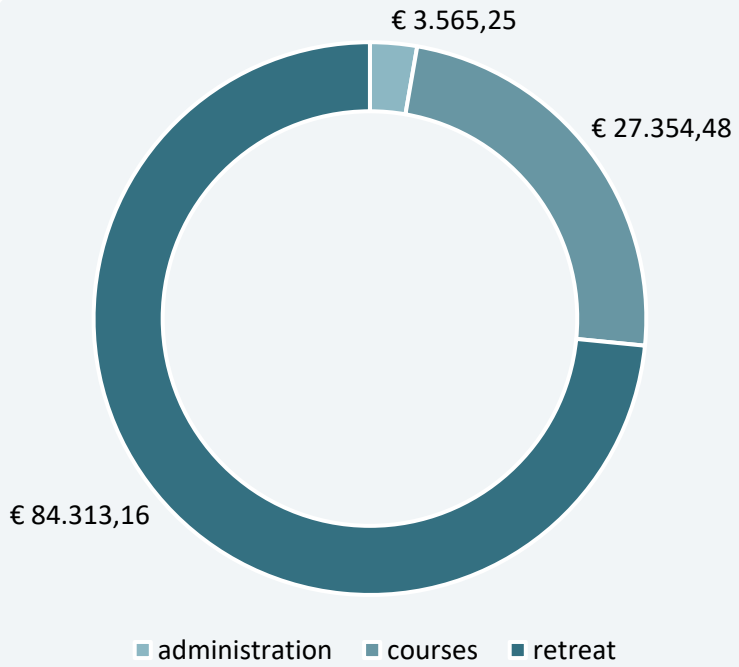
ImageJ/Fiji - 0.6 ECTS
March 26, April 9 and 16
ImageJ is a public domain image processing and analysis program. The main objective of this course was to give the microscopy user a global understanding of the huge potential of the program. We went through all functionalities of the basic package and present specific tools for use in (cell) biology. We also reviewed concepts and principles of image processing in general, in order to set a theoretical background.

Indesign thesis printing – 0.1 ECTS
March 20
This workshop was organized for all PhD candidates interested in designing their thesis. InDesign is a desktop publishing software application for creating layouts. PhD students can use InDesign for creating their thesis.

The workshop included hands-on practical workshop with a presentation & exercises

Intervision Group – 1.0 ECTS
2023-2024
Intervision groups are small groups of professionals working in similar fields, who meet on a regular basis to gain insight into
the problems they encounter at work. The participants try not to come up with solutions, but by asking questions, encourage the case provider to gain insight into
his own case and how to take action on this. Important elements were to learn from the experience and ideas of colleague PhD candidates and to discuss problems without any hierarchical differences.

PhD day
May 8
This year the PhD day started with a fantastic keynote workshop by Jorg Damen, who taught our PhDs on how to be clear in their communication, while maintaining a good relationship. The day continued with a variety of unique workshops including How to talk like TED, Science and Social Media, Burnout prevention, Imposter syndrome and Graphical Abstract. At the end of the day, we were very honoured to host our keynote speaker, Bart Noordam, who showed our PhDs how to manage their supervisors.



Finances

The annual costs of the educational program and administrative costs are financed by Amsterdam UMC and NKI-AvL. In addition, the participating institutes provide administrative support. Thanks to the contributions of the participating institutes, all OOA PhD candidates can join our activities and courses free of charge.

Administrative support:
NKI-AvL: 0.8FTE administration
Amsterdam UMC: 1.3FTE coordination & administration

Publications

A total number of 114 theses were published and defended throughout 2024 and 2151 peer reviewed papers on oncology were published by AmsterdamUMC and/or NKI-AVL researchers. Six selected top papers published by the OOA PhD students are:

Alberto Gil-Jimenez *et al*. Spatial relationships in the urothelial and head and neck tumor microenvironment predict response to combination immune checkpoint inhibitors. **Nature Communications**. 2024;15(1):2538.

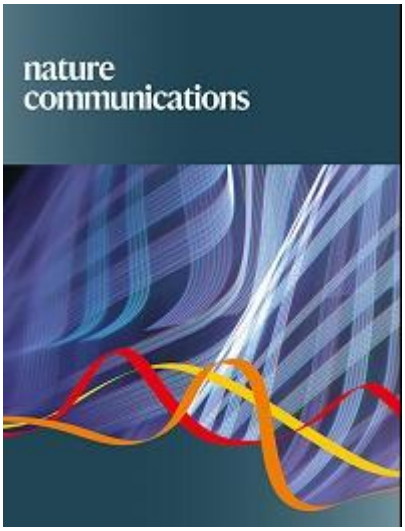
Sanne-Marije JA Hazen *et al*. Abandonment of Routine Radiotherapy for Nonlocally Advanced Rectal Cancer and Oncological Outcomes. **JAMA oncology**. 2024:10(2);202.

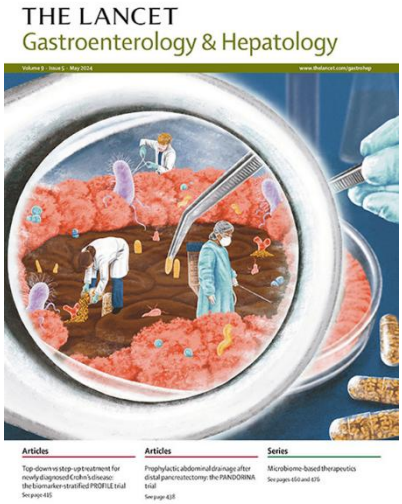
Tara Muijlwijk *et al*. Hallmarks of a genomically distinct subclass of head and neck cancer, Nature communications. 2024:15(1): 9060.

Florentine EF Timmer *et al*. MRI-guided stereotactic ablative body radiotherapy versus CT-guided percutaneous irreversible electroporation for locally advanced pancreatic cancer (CROSSFIRE): a single-centre, open-label, randomised phase 2 trial. **The Lancet Gastroenterology and Hepatology**. 2024:9(5);448.

Karlijn Verkerk *et al.* Cemiplimab in locally advanced or metastatic cutaneous squamous cell carcinoma: prospective real-world data from the DRUG Access Protocol. **Lancet Regional Health Eur**. 2024;39:100875.

Zeliha Yalçin *et al*. UBE2D3 facilitates NHEJ by orchestrating ATM signalling through multi-level control of RNF168. **Nature Communications**. 2024;15(1):5032.





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