

Amsterdam Institute for
Infection and Immunity

Facts & Figures 2019





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FROM OUR DIRECTORS

It is our pleasure to present the annual report of 2019 with the facts and figures of the Amsterdam institute for Infection and Immunity.

More than 1100 researchers are part of the institute, including more than 540 PhD students. The joint output is around 1300 papers and 90 PhD theses, which is excellent and makes us proud as a relative young research institute to have impact in our field. This is also shown by the many grants and prizes that our researchers have been awarded in 2019.

Our own director, Yvette van Kooyk, has received the NWO Spinoza Premium, the highest award in Dutch science for excellent and ground breaking research with international acclaim. Yvette unravelled mechanisms by which the immune system uses glycans to stimulate or inhibit immune cell communication, which she studies in cancer and inflammatory diseases.

Arnon Kater received the Consolidator Grant of the European Research Council (ERC). This grant is awarded to outstanding scientists so to further develop their own research programs in pursuit of groundbreaking discoveries. Arnon will investigate the possibility of using immune cells to combat a chronic form of leukaemia.

Also the MSCA COFUND grant of the EU for 20 PhD students for ARCAID Amsterdam Rheumatology Center for Autoimmune Diseases (with different PIs from All such as van Baarsen, Tas, van de Laken, Voskuyl, van Vollenhoven, Gibbs, Mebius, D'Haens, Nezhentsev etc.) is certainly worth to mention. ARCAID features an international, interdisciplinary and intersectoral approach to train a diverse group of 20 Early stage researchers (ESRs) to become the future leaders in autoimmune rheumatology research and creators of improved bench-to-bedside approaches.

Valorization is becoming more important every year and therefore we are proud that the Target2Cure consortium with researchers from the Amsterdam UMC (Geijtenbeek, Kootstra, Sanders, Ribeiro, van Gils, Pasternak and Berkhout) and Utrecht UMC (Nijhuis) together with various industrial partners were awarded a grant by the Aidsfonds and TKI-LSH Health Holland to identify and develop novel therapies to cure HIV-1.

This annual report is published of course in a very tough time when we are coping with a pandemic that has a huge impact on not only our health but also a tremendous social and economic impact. We know that many researchers from the Amsterdam UMC are involved in research to address these various problems and gain insight into not only COVID-19 but also its social aspects. As institute we aim to contribute to help young scientists in these uncertain times.

Yvette van Kooyk and Theo Geijtenbeek,
Directors of Amsterdam Institute for Infection and Immunity



RESEARCH BOARD

DIRECTORS



Theo Geijtenbeek



Yvette van Kooyk

PROGRAM LEADERS



Inflammatory Diseases



Derk Amsen



Bianca Blom



Conny van der Laken



Reina Mebius



Sander Tas



Infectious Diseases



Wilbert Bitter



Joppe Hovius



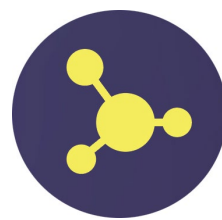
Maria Prins



Colin Russell



Marceline Tutu van Furth



Cancer Immunology



Marjolein van Egmond



Eric Eldering



Tanja de Gruijl



Rosalie Luiten



MANAGEMENT SUPPORT



Yvonne
Duiker



Tine
Sibbing

COMMITTEES

GRANT COMMITTEE

- Marceline Tutu van Furth (chair)
- Lisa van Baarsen
- Louis Ates
- Adriaan Bins
- Jeroen den Dunnen
- Klaas van Gisbergen
- Bram Goorhuis
- Joke den Haan
- Mette Hazenberg
- Martijn van der Kuip
- Thomas Rustemeyer
- Maarten Schim van der Loeff
- Maria Themeli
- Kees van 't Veer

PHD STUDENT COMMITTEE

- Rianne van Bentum
- Ivan Ramirez Moral
- Julia Eder
- Melissa van Gool
- (Pana)Giota Bouti
- Bram van Steen

POSTDOC COMMITTEE

- Adithya Sridhar
- Mara Stemerding
- Martijn Riool
- Rosa de Groot
- Thijs Crommentuijn
- Balthasar Heesters

ANNUAL MEETING COMMITTEE

- Derk Amsen
- Giota Bouti
- Martijn Riool
- Colin Russell
- Marceline Tutu van Furth
- Michele van Vugt

SCIENTIFIC MEETINGS

MEET AND GREET

- 6 February - Volkshotel Amsterdam

PHD STUDENT ACTIVITIES

- 17 October - Meet and Greet, Volkshotel Amsterdam
- 18 November - Free Run Clinic, Amsterdamse Bos

3TH ANNUAL SYMPOSIUM

- 25 June - De Rode Hoed Amsterdam

ALL SEMINARS

- 18 April - Infectious diseases @ VUmc
- 20 September - Cancer immunology @ AMC
- 17 December - Inflammatory diseases @ AMC

SYMPOSIUM

- 2 December - Spinoza Symposium: Glyco-Science and its Medical Implicatio



GRANTS PROVIDED BY All

POSTDOC GRANTS

€ 80.000 for a post doc to start or continue their research within All for 1 year with the aim to improve the chance on obtaining subsequent funding by working on their CV and data.

- *Alexander Speer* (Medical Microbiology) - Inhibiting the ESX5 secretion system as a novel Strategy to combat tuberculosis
- *Doortje Heemskerk* (Medical Microbiology) - Unravelling cranial blood vessel pathology in a Mycobacterium marinum- zebrafish infection model
- *Louis Ates* (Experimental Immunology) - How mycobacterial virulence shapes protective and pathological immune responses
- *Vanessa Harris* (Experimental and Molecular Medicine) - Translating the intestinal microbiome to improve rotavirus vaccine immunogenicity
- *Marit Roemer* (Pathology) - Mechanism of action of immunotherapy using a preclinical human Hodgkin lymphoma model

WORK VISIT GRANTS

€ 5000 for an All PhD student or postdoc to work at another lab/hospital abroad.

- *Julia Eder* (Exim) - Nuffield Department of Medicine, University of Oxford
- *Yannouck van Lier* (Exim & Hematology) - Memorial Sloan Kettering Cancer Center, New York
- *Victoria Janes* (Medical Microbiology) - DTU Bioinformatik, Research group for Genomic Epidemiology and Department of bio and health informatics
- *Tjitske van Engelen* (CEMM) - Kasturba Medical College (KMC) hospital, Manipal, India
- *Yasmin de Wit* (Immunopathology/ Sanquin Research) - Universitätsklinik für Hämatologie und Hämatologisches Zentrallabor, Bern
- *Berke Gürkan* (CEMM) - bioMérieux, Lyon, France

TECHNICIAN GRANTS

€ 5000 for an All technician to work at another lab/hospital abroad.

- *Tanja Kaptein* (Experimental Immunology). Project: Implementing 3R's into the Amsterdam 3I's at the Medical University of Innsbruck
- *Marlous van den Braber* (Molecular Cell Biology & Immunology). Project: Using cytof to build an immune atlas for glioblastoma at Vanderbilt University Medical Center
- *Laura Kruijssen* (Molecular Cell Biology and Immunology). Project: Developing orthotopic PDAC models in immune competent mice at Tuveson Laboratory, NY, VS
- *Toni van Capel* (Experimental Immunology/Medical Biology). Project: Deep into the tissue: Imaging mass cytometry and high dimensional data analysis at Institute of Cellular Medicine, Newcastle University, UK
- *Nienke Haverkate* (Experimental Immunology). Project: Cross-reactivity of AML-specific antibodies with intestinal bacteria at Institute of Molecular Medicine, Uniklinik RWTH Aachen
- *Jasmin Ersöz* (Experimental and Molecular Medicine). Project: Learning tick rearing and breeding: bringing an Ixodes ricinus tick colony home at the Centers for Disease Control and Prevention. Atlanta, GA



TRAVEL GRANTS

€ 500 for an All PhD student to visit a conference.

- *Bart Laan* (location AMC) - The International Forum on Quality and Safety in Healthcare, Glasgow, UK
- *Sijia Chen* (location AMC) - European Workshop for Rheumatology Research, Lyon, France
- *Melissa Stunnenberg* (location AMC) - Innate Immune Receptors, Taipei, Taiwan.
- *Lieke Brouwer* (location AMC) - European Society of Pediatric Infectious Diseases (ESPID), Ljubljana, Slovenia
- *Malon van den Hof* (location AMC) - International workshop on HIV and Hepatitis Observational Databases, Athens, Greece
- *Francesca Agliatoro* (Sanquin) - Atherosclerosis Gordon Research Seminar and Conference, Newport, USA
- *Myrthe Reiche* (location AMC) - Insights to Therapeutic Approaches in Atherosclerosis, Newry ME, USA
- *Panagiota Bouti* (Sanquin) - European Society of Clinical Investigation (ESCI), Coimbra, Portugal
- *Heleen Schuster* (location AMC) - Keystone Symposia on Molecular and Cellular Biology, Cape Town, South Afrika
- *Reza Nadafi* (location Vumc) - EMBO workshop, Mesenchymal cells in inflammation, immunity and cancer, Athens, Greece
- *Cornelis de Pijper* (location AMC) - 16th Conference of the International Society of Travel Medicine, Washington, USA
- *Lisa Willemsen* (location AMC) - Atherosclerosis Gordon Research Seminar and Conference, Newry, USA
- *Merlijn Kaaij* (location AMC) - Conference: EULAR, European League Against Rheumatism. Madrid, Spain
- *Loreto Parga Vidal* (Sanquin) - 19th International Congress of Mucosal Immunology, Brisbane, Australia
- *Felix Behr* (Sanquin) - 19th International Congress on Mucosal Immunology, Brisbane, Australia
- *David Schmidt* (Sanquin) - International Society for Thrombosis and Haemostasis, Melbourne, Australia
- *Joanna Grabowska* (location Vumc) - EMDS conference European Macrophage and Dendritic Cell Society, Marseille, France
- *Sanne de Bruin* (Sanquin) - Annual meeting of the American Association of Blood Banks, San Antonio, USA
- *Marije Wijnberge* (location AMC) - ESICM's annual congress, Berlijn, Germany
- *Benoit Nicolet* (Sanquin) - Multiomics to Mechanisms Challenges in Data Integration, Heidelberg, Germany
- *Dorian Stolk* (location Vumc) - CICON 2019, Paris, France
- *Paul van Amstel* (location AMC) - Trauma Conference, Orthopaedics and Paediatric Surgery, Cape Town, South Afrika
- *Lea Berkhout* (Sanquin) - Protein & Antibody Engineering Summit, Lisbon, Portugal
- *Jorn Gerritsma* (Sanquin) - ASH conference: 61st ASH Annual Meeting & Exposition, Orlando, USA
- *Jara de la Court* (location Vumc) - OPAT conference British Society of Antimicrobial Chemotherapy, Londen, UK
- *Sabrina Douiyeb* (location Vumc) - OPAT conference British Society of Antimicrobial Chemotherapy, Londen, UK



HIGHLIGHTS

A selection of highlights of 2019

Sterrenstage in the angiogenesis lab:

TV-personality Renate Gerschtanowitz visits the Angiogenesis Laboratory of Prof. Arjan Griffioen to help with the production of a vaccine against cancer. This vaccine is directed against the tumor vasculature and is designed for both therapy as well as prevention of cancer.

Monika Wolkers (Sanquin) and her research group have been selected to join the prestigious cancer institute **Oncode**. Monika will bring her longstanding expertise in T-cell biology into this nationwide academic partnership. Specifically, she focuses on post-transcriptional gene regulation in T-cells and how this affects anti-tumour effects of the immune system.

Glycotreat, a film from the group of *Yvette van Kooyk* that shows how cancer vaccines are designed to effectively use the immune system to attack cancer, was awarded for '**Best Dramatic Short Film**' at **Raw Science Film Festival in Los Angeles**. [Link](#).

Tom van der Poll (Internal Medicine) has been elected as **new member of the KNAW**.

The review article 'Fucosylated Antigens in Cancer: An Alliance Toward Tumor Progression, Metastasis, and Resistance to Chemotherapy' by *Thanos Blanas* was selected for a **special edition/eBook for World Cancer Day**, highlighting a selection of top articles published in *Frontiers in Oncology* in 2019.

Opening of a School of Spectral Cytometry at Amsterdam UMC:

Amsterdam UMC and Cytek Biosciences have signed a collaboration agreement to establish a School of Spectral Cytometry at the Microscopy and Cytometry Core Facility of the Amsterdam UMC - Location VUmc. Amsterdam UMC and Cytek Biosciences are proud of this new collaboration; the first of its kind in the world.

Sue Gibbs (Molecular cell biology and Immunology) received the **Klokhuis Science Award** for her research: Does spit help in case of burns.

Jonas Castelijns (Radiology and Nuclear Medicine) was honoured as **Ridder in de orde van de Nederlandse Leeuw** because of the great merits he has had in the development of cancer diagnosis, especially in the head-neck area. These have enabled better diagnosis and treatment of patients.

Tanja de Gruijl (Medical Oncology) is elected on the **Board of Directors of the Society for the Immunotherapy of Cancer (SITC)**. With over 2400 members, SITC is the prime professional society of scientists, clinicians, government representatives, and industry leaders from around the world advocating the science and application of cancer immunotherapy. Together with Drs. Alessandra Cesano and Stefani Spranger, Tanja has begun her 3-year term in January 2020.



AWARDS AND PRIZES

A selection of awards and prizes obtained in 2019.

Yvette van Kooyk received the **NWO Spinoza Prize**, the highest award in Dutch science for excellent and groundbreaking research with international acclaim. She unraveled the mechanism by which the immune system is disrupted during the development of cancer, autoimmune diseases, and infectious diseases such as AIDS. She discovered that certain sugar molecules called glycans can stimulate or actually inhibit communication between cells of the immune system.

Ellen van der Schoot (Sanquin) received the **ISBT (International Society of Blood Transfusion) award**. She was honored for her contribution in research in transfusion medicine in the field of blood group genetics and fetal RhD typing, her support to the ISBT Young Investigator activities and her merits as Scientific Secretary for the ISBT from 2015 to 2018. She received the award from ISBT President Martin Olsson.

Edgar Peters received a prize at the C3 Limb Salvage and Advanced Wound Care (Orlando) as a **Recognition of Contribution to Vascular Surgery and Venous Interventions**.

Ronald van Vollenhoven received the prestigious **Jan van Breemen medal** during the NVR autumn meeting in Papendaal.

Erik de Bakker (Plastic, Reconstructive and Hand Surgery) received the **Labrat price for best experimental research** for his project Systemic cytokine profile predicts the formation of hypertrophic

scars after surgery, on the spring meeting of the Nederlandse Vereniging voor Plastische Chirurgie (NVPC days).

Lynn van Olst (Molecular Cell Biology) received the **Best oral presentation award** at the MS Research Days. The title of her presentation was: Cortical microglia in progressive MS acquire a unique phenotype in response to chronic meningeal inflammation.

Sue Gibbs (MCBI) and the Helpathon team received the **LUSH prize**. The Lush prize offers a global prize fund to support initiatives to end or replace animal testing.

Jaap Bonjer (Chirurgie) received **Impact Award Life Sciences** for the establishment of the Amsterdam Skills Centre for Health Sciences (ASC).

Kim Jeucken (Rheumatology and Clinical Immunology/Experimental Immunology) received an award for **best oral presentation** at the annual meeting of the Dutch Society for Rheumatology.

Elske Hoornenborg (Dept. of Infectious Diseases, GGD Amsterdam) received the **ZonMw 'parelprijs'** for her AMPrEP project, which is of great value to science and society because of the innovative, usable result. This project investigated the applicability of PrEP, a pill that prevents HIV and is part of the H-TEAM. The AMPrEP project led to important international publications and guidelines, and provided input for the Health Council's advice on preventive use of HIV inhibitors, which in turn led to the national PrEP program that started in August 2019.



GRANTS

A selection of grants obtained in 2019.

Aidsfonds projects on HIV Cure

- **Small grant:** *Godelieve de Bree*: Viro-immunological correlates of 18 years' post-treatment control in an HLA-B44 positive patient intermittently treated during acute HIV infection.
- **Aidsfonds and ZonMW grant:** *Godelieve de Bree and Theo Geijtenbeek*, jointly with UMC Utrecht and Erasmus MC. The three hospitals have joined forces in the field of scientific knowledge, clinical expertise and patient involvement to accelerate HIV healing.

American National Institutes of Health

- *Ben Berkhout and Elena Herrera Carrillo* (Laboratory of Experimental Virology). The money is intended for research at the 'HIV reservoir', which is formed by the immune cells in which the viruses accumulate, and for dismantling that reservoir by means of 'CRISPR-Cas technology'.

Amsterdam UMC TKI-PPP grant.

For the first time the TKI grant procedures from AMC and VUmc will be combined with Health-Holland grants.

- *Theo Geijtenbeek* (Experimental Immunology) was granted for his HIV-1 Target2Cure proposal (Health Holland, Aidsfonds, AMC) by Health Holland to develop novel treatments to cure HIV-1 to the consortium (Teunis Geijtenbeek, Neeltje Kootstra, Marit van Gils, Rogier Sanders, Carla Ribeiro, Alexander Nabatov, Ben Berkhout and Monique Nijhuis (Utrecht UMC)).

ERC

- **Advanced Grant:** *Sergey Nejentsev* and his research group. This money is earmarked for their search for new treatments for tuberculosis. "New treatment options are badly needed to win the war against this bacterium".
- **Consolidator Grant:** *Arnon Kater* (Translational Hematology). With this grant of two million euros, Kater will research the possibility of using

immune cells to combat a chronic form of leukemia.

- **Proof of Concept (PoC) grant:** *Yvette van Kooyk* (Molecular Cell Biology and Immunology) received her award for her follow-up study of her ERC Advanced-Glycotreat, in which she uncovered the power of sugar profiles expressed on tumors to suppress the immune response.
- **Proof of Concept (PoC) grant:** *Noam Zelcer* (Molecular Regulation of Metabolism, Medical Biochemistry) focuses on the use of in silico modelling to identify IDOL inhibitors (a protein) as a possible therapy for cardiovascular and metabolic diseases.
- **Proof of Concept (PoC) grant:** *Esther Lutgens* (Experimental vascular immunopathology, Medical Biochemistry) has developed a compound that can inhibit arteriosclerosis in mice by inhibiting inflammation (CD40-TRAF6 inhibition). She will now investigate whether these compounds are suitable for humans.
- **Horizon grant:** *Katja Wolthers*: Organoids for Virus Research - An innovative training-ETN programme - OrganoVIR. OrganoVIR (Organoids for Virus Research) will train young researchers (ESRs) in the field of organoids and virology. Within this ETN programme, organoids will be used for the first time to study human viral infections in their natural environment.

European Union grant

- ARCAID -Amsterdam Rheumatology Center for AutoImmune Diseases (including van Borsele, Tas, vd Laken, Voskuyl, van Vollenhoven, Gibbs, Mebius, D'Haens, etc.). Concerns MSCA COFUND grant from EU for 20 PhD students.
- A large consortium of industry and universities, including Amsterdam UMC, in which *Martin Grobusch* is involved, will test a new, promising drug against malaria: Artemisinin Combination Therapy (ACT). This is



taking place in four African countries: Burkino Faso, Gabon, Mali and Niger. A great boost for World Malaria Day on Thursday 25 April.

- *Bert Windhorst* (Radiopharmaceutical Chemistry) to investigate the effectiveness of immunotherapy. With the development of 'tracing substances', it can be determined whether immunotherapy is promising for a patient.

Hollis Brownstein Research Grant from the Leukemia Research Foundation for innovation in immunotherapy:

- *Yongsoo Kim* (Pathology - Tumor Genome Analysis Core), for the research 'A computational framework to model cellular interactions in the tumor micro-environment of B-cell lymphomas'.
- The two Hematology departments of Amsterdam UMC for their joint research into immune profiling. For years, the two departments have been working closely together in clinical research and patient care; this is the first time they are going to conduct more basic scientific research together.

LSBR grant (Landstein Foundation for Blood Transfusion Research):

- *Tom van der Poll* (Infectious diseases): Role of platelet glucose metabolism in hemostasis and inflammation.
- *Gestur Vidarsson* (Sanquin - Experimental Immunohematology): Mechanistic dissection of clinically relevant allo-antibodies.
- *Mette Hazenberg* (Hematology) together with Voermans, Blom and Dolstra: Innate lymphoid cells to the barriers in allogeneic hematopoietic cell transplantation patients.

LSBR-fellowship

- *Alexander Vlaar* (Intensive care) for his research into the pathophysiology of transfusion associated circulatory overload (TACO), the main cause of transfusion-related mortality. The ultimate goal is prevention and the development of treatment strategies.

KWF grant (Dutch Cancer Society)

- *Marjolein van Egmond* ((Molecular Cell Biology and Immunology).): How can

we stimulate our own immune system to attack cancer cells?

- *Joke den Haan* ((Molecular Cell Biology and Immunology): Development of a flexible vaccine to stimulate the immune response against melanoma.
- *Mette Hazenberg* (Hematology) together with *Hergen Spits* and *Bianca Blom* (Exp Immunology): Antibodies derived from cured AML patients: origin and development into therapeutics.
- *Connie Jimenez* (Laboratory Medical Oncology): The phosphoproteome, key to derailed kinases in intestinal tumours and customized therapy.
- *Yvette van Kooyk*: How do we change the immune-suppressive tumor microenvironment of pancreatic cancer?
- *Sandra van Vliet* (Molecular Cell Biology and Immunology). The role of tumour sialylation on anti-tumour immunity in colorectal cancer.

NWO VENI grants

- *Mathieu Claireaux* (Medical Microbiology): Improve immune responses in HIV vaccination to obtain protection. Rare patients develop super-antibodies that can block nearly all HIV viruses, these super-antibodies are very difficult to induce by vaccination. These cells are specialized immune cells that regulate antibody production. These exceptional patients will teach us which cell responses are needed to get super-antibodies through vaccination.
- *Vanessa Harris* (Global Health/ Infectious diseases): Better protection against rotavirus with intestinal bacteria. Rotavirus the most common cause of serious, life-threatening diarrhea in young children. Rotavirus vaccines can prevent the disease, but work less well in low-income countries in Asia and Africa. This research tests whether bacteria in children's intestines (microbiome) can be used to improve rotavirus vaccine performance.
- *Marit Roemer* (Pathology). Mechanism of action of immunotherapy in Hodgkin lymphoma. Immunotherapy is a new, promising form of cancer treatment that stimulates immune responses against cancer cells. Encouraging results are seen in



Hodgkin lymphoma, but little is known about the mechanism of action. I aim to investigate this, since this is crucial to identify those patients who will benefit from immunotherapy.

- *Marleen van de Sande* (Rheumatology and Clinical Immunology). Already active disease before signs and symptoms? Despite advances in treatment options in chronic inflammation of the spine, deformity is not halted. Possibly, because inflammation and deformity starts in a phase before the disease is diagnosed. The researcher will study this phase to identify novel treatment targets that halt deformity.

ZonMW Top grant:

- *Theo Geijtenbeek* (Experimental Immunology) and his group together

with *Dr. K. Strijbis* (Utrecht University): Identifying the molecular mechanisms triggered by vaginal and gut microbiota that enhance HIV-1 susceptibility. They will investigate the difference in sensitivity to the HIV virus between different people and the role that bacteria play in it. The expertise of both research groups is highly complementary and is important for the success of this project.

- *Joke den Haan* (Molecular Cell Biology and Immunology) Ganglioside-containing liposomes as a strategy for cancer vaccination. She will work with her group on an optimal vaccination strategy to activate the immune system of cancer patients. They will do this together with the research group of Prof. Dr. Gert Storm.

FUNDING OF PROJECTS STARTED IN 2019

Location VUmc: about € 9.500.000

Location AMC: about € 21.000.000

Total amount of funding: about € 30.500.000



ANNUAL FIGURES

Scientific core staff	316
Other scientific staff	174
PhD students	546
Technicians	80
Total # researchers	1116

	Cancer Immunology	Infectious Diseases	Inflammatory Diseases	Total
Refereed articles	125	509	677	1311
Non-refereed articles	10	29	45	83
Books, chapters	1	8	5	14
Professional publication ¹	2	10	20	32
Other research output ²	11	8	28	44
PhD theses	6	43	42	91

¹ Publications about results of scientific research aimed at professionally interested people

² Contributions in non-scientific journals and newspapers

Note: joint publications location VUmc - AMC: 33



TOP PUBLICATIONS

- JULIET Investigators, Schuster, SJ, Bishop, MR, Tam, CS, Waller, EK, Borchmann, P, McGuirk, JP, Jäger, U, Jaglowski, S, Andreadis, C, Westin, JR, Fleury, I, Bachanova, V, Foley, SR, Ho, PJ, Mielke, S, Magenau, JM, Holte, H, Pantano, S, Pacaud, LB, Awasthi, R, Chu, J, Anak, Ö, Salles, G, Maziarz, RT, Study group members AMC, , Kersten, MJJ, Biemond, BJ, Burger, P, Claessen, M-JJAG, Hazenberg, MD, Kater, AP, Kemper, EM, Nur, E, Spiering, M, Tonino, SH, Voermans, C & Zeerleder, SS 2019, 'Tisagenlecleucel in adult relapsed or refractory diffuse large B-cell lymphoma', *New England journal of medicine*, vol. 380, no. 1, pp. 45-56. <https://doi.org/10.1056/NEJMoa1804980>
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NEW PROFESSOR APPOINTMENT

- *Hans van der Vliet*, appointed Professor of Medical Oncology, in particular 'The development of new immunotherapy strategies' as of December 1, 2019

PHD GRADUATIONS IN 2019



- Baardman, J. 'Metabolic orchestration of macrophages in disease'
- Barendregt, A. 'Markers of inflammation: Measuring disease activity in juvenile idiopathic arthritis using imaging and immunological biomarkers'
- Belegri, E. 'Diet-induced hypothalamic inflammation, cellular stress and the acute phase response'
- Biesbroek, PS. 'Inflammation and Cardiovascular Disease: Evaluation by CMR and Histology'
- Boshuizen, M. 'Modulating iron metabolism in anemia of inflammation in the critically ill'
- Braster, Q. 'Neutrophil-derived mediators in cardiometabolic inflammation'
- Brinkman, P. 'Biomedical engineering for breathomics: towards clinical application in respiratory diseases: Biomarkers, instruments and technology readiness levels'
- Bruggeman, CW. 'Expression and function of Fc-gamma receptors: Binding of immunoglobulin G and its glycoforms'
- Bruijnen, STG. 'Positron Emission Tomography for early diagnosis and therapy monitoring of Rheumatoid Arthritis and Ankylosing Spondylitis'
- Coumou, H. 'Diagnostic and prognostic markers in adult-onset asthma'
- de Beer, FM. 'Pulmonary complement activation in ventilator induced lung injury and ARDS'
- Derada Troletti, C, 'nEUROinflammation in multiple sclerosis: from blood-brain barrier dysfunction to resolution'
- Eijlers, AJC. 'Cortical Disruption in Multiple Sclerosis: How accumulating pathology and functional network changes may explain cognitive decline'
- Farzan, N. 'Precision medicine in childhood asthma: The role of genetic variations in treatment response'
- Geerman, SC. 'Localization, phenotype and function of CD8+ T cells in the bone marrow'
- Hagens, MHJ. 'Novel imaging markers for neuroinflammation in multiple sclerosis'
- Hansen, IS. 'Fc receptor activation controls cytokine expression by human antigen-presenting cells'
- Hashimoto, S. 'Comprehensive treatment of patients with glucocorticoid-dependent severe asthma'
- Ingelse, SA. 'Less is more: Fluids in critically ill children with acute respiratory failure'
- Jansen-Koopman, ADM. 'Biological risk factors and sleep-related risk factors of type 2 diabetes mellitus: To refine characterization of high risk subjects and to identify novel risk factors'
- Korkmaz, HI. 'The local and systemic inflammatory responses after burn'
- Kusters, PJH. 'Evaluating the therapeutic potential of CD40 in low-grade chronic inflammation'



- Meinderts, SM. 'When it's not a match: Cellular and genetic factors in alloantibody-mediated red blood cell clearance'
- Michailidou, I. 'Complement in multiple sclerosis'
- Nijmeijer, SWR. 'Cervical dystonia: Muscle selection for botulinum toxin treatment'
- Overbeek, JA. 'Type 2 diabetes, its pharmacological treatment and associations with cancer: (Pharmaco)epidemiological studies based on data from the PHARMO DIAMANT cohort'
- Sabogal Pinos, YS. 'The damaging and protective features of eosinophils in healthy individuals and patients with chronic inflammatory respiratory diseases'
- Schmidt, C. 'Diabetes-distress: a burden for patients with diabetes: Prevalence, consequences and clinical implications'
- Schouten, LRA. 'The impact of age on the acute respiratory distress syndrome: From bedside to bench and back'
- Seewann - Gaitatzis, A. 'MRI and histopathology in multiple sclerosis'
- Sestito, C. 'Blood cell-derived human tissue Transglutaminase (TG2) in multiple sclerosis: -Implications for the pathogenesis and clinical outcome-'
- Soltanipoor, M. 'Irritant contact dermatitis: A strategy for prevention in Dutch health care workers'
- Sperna Weiland, NH. 'Cerebral haemodynamics during anaesthesia'
- Strik, AS. 'Personalized treatment with anti-TNF agents in inflammatory bowel disease'
- ter Horst, E. 'Clinical and experimental observations on the inflammatory response following a myocardial infarction'
- Tsang-A-Sjoe, MWP. 'Systemic lupus erythematosus: pathophysiological and clinical aspects'
- Turk, SA. 'The evolution of early arthritis and cardiovascular risk'
- van Beers-Tas, MH. 'Psychological and biological features influencing the risk for rheumatoid arthritis'
- van Mens, LJJ. 'Towards clinical remission in psoriatic arthritis'
- van Tok, MN. 'Preclinical studies of spondyloarthritis: Development of two novel disease models and pharmacologic targeting of the IL-17 pathway'
- Wattjes, MP. 'The role of MRI in pharmacovigilance of natalizumab-treated MS patients: a "known unknown"?'
- Wiebenga, OT. 'Advanced neuroimaging of therapy effects in multiple sclerosis: Exploring the short-term effects of natalizumab Including MR spectroscopy, diffusion tensor imaging, functional MRI and cognition'
- Wieringa, TH. 'To thrive or just survive: Towards personalized care for type 2 diabetes with the help of decision aids and patient-reported outcomes'
- Willemze, RA. 'Connecting innervation and intestinal inflammation'



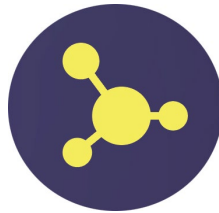
- Achterbergh, R. 'Nutritional conditioning: The effect of a short-term high fat diet on hepatic drug metabolism'
- Ahmed Ali, U. 'Advances in epidemiology and management of chronic pancreatitis'
- Bannister-Tyrrell, M. 'Micro-epidemiology of malaria in pre-elimination settings'
- Belard, SM. 'Tuberculosis in South and Central Africa: Understanding epidemiology - Improving diagnosis and management'



- Bigogo, GM. 'Population based disease surveillance in Kenya: The epidemiology of selected infectious diseases'
- Bijleveld, YA. 'Effect of hypothermia on the pharmacokinetics of antibiotics in neonates'
- Bil, JP. 'HIV, hepatitis B & C, and sexually transmitted infections: Innovations in prevention and testing'
- Birnie, E. 'Digging for melioidosis: New insights into the epidemiology and pathophysiology'
- Brals, D. 'Maternal and child health in sub-Saharan Africa within the context of a health system intervention'
- Caris, MG. 'IMAGINE: IMproving Adherence to Guidelines in Infectious diseases through Nudging and Education'
- Cranendonk, DR. 'inflammellulitis'
- de Porto, APNA. 'The role of Bruton's tyrosine kinase and the spleen in host defense against bacterial pathogens: Two essential gears in the immune clockwork'
- dos Reis Matos, T. 'Skin resident T cells: Implications for immune homeostasis and disease'
- Eck Hauer, A. 'Tiny Microbes, Big Data: Gut Microbiota Profiling for Clinical Diagnostics'
- Gao, Z. 'Optimized expression of small therapeutic RNAs'
- García-Basteiro, AL. 'Improving tuberculosis mortality estimates: An evaluation of data sources, strategies and new diagnostics in a high tuberculosis and HIV burden setting'
- Gras, LAJ. 'Trends in setpoint plasma HIV-1 concentration and CD4 cell count before and after introduction of effective antiretroviral treatment in the ATHENA national observational cohort'
- Huibers, M. 'HIV-infection in sub-Saharan Africa: From quantity to quality of care'
- Inzaule, SC. 'Towards achieving the third "90" of the 90-90-90 global HIV targets in sub-Saharan Africa: Adherence, drug resistance and molecular diagnostics'
- Kallen, MC. 'Antibiotic stewardship: Measuring and improving antibiotic use in hospitals'
- Kiemde, F. 'Febrile diseases in young children in Burkina Faso: Etiologies and the value of rapid diagnostic test in primary healthcare settings'
- Kityo, MC. 'Emerging HIV drug resistance in sub-Saharan Africa: Effects on treatment outcomes'
- Koetsveld, J. 'Other tick-borne diseases in the limelight'
- Mason, LMK. 'Beyond skin deep: Exploring interactions between Borrelia and the host immune system'
- Merat, S. 'Protective antibody responses against HCV E1E2 in high-risk populations'
- Nannan Panday, RS. 'Optimizing sepsis care: from early recognition to life after sepsis'
- Perlee, D. 'Modulation of innate immunity during endotoxemia and gram-negative infection'
- Polman, NJ. 'HPV-based cervical screening: Challenges and future perspectives'
- Sikkens, JJ. 'The role of behaviour in antimicrobial prescribing: Are we only human after all?'
- Singer, M. 'Bacterial interactions in the female genital tract: A triangle affair between pathogens, microbiota, and host'
- Sprokholt, JK. 'Dengue virus infection of dendritic cells: Sensing viral replication during inflammation and immunity'
- van Aalst, M. 'Infection prevention by vaccinations in immunocompromised patients'
- van Beek, AE. 'Factor H family proteins in health and infectious disease'
- van der Lubbe, J. 'Broadly protective influenza vaccines paving the road towards the clinic'
- van der Poel, NA. 'Orbital and intracranial complications of common infections of the head and neck: Current insights and changing views',
- van der Weele, PSJ. 'Molecular characterization of HPV infection: Evaluation of vaccine effects, viral diversity and variant development'
- van Elsland, SL. 'Home-based treatment of children with HIV infection or tuberculous meningitis in South Africa'
- van Ess, EF. 'Tracing tubal factor infertility: Using clinical and serological factors for prediction of Chlamydia trachomatis induced TFI'



- van Oort, PMP. 'Éxhaled breath analysis for the diagnosis of pneumonia'
- van Rooijen, MS. 'Strategies for clinical and public health management of sexually transmitted infections'
- van Zoest, R. 'Ageing with HIV: From pathogenesis to policy'
- Vermeij, JD. 'Preventive antibiotic therapy in patients with acute stroke'
- Vujadinovic, M. 'Advances in the design of adenoviral vectored vaccines'
- Westendorp, WF. 'Preventive antibiotic therapy in acute stroke'
- Wijburg, MT. 'JC virus associated complications of natalizumab treatment in multiple sclerosis: The other side of the coin'



- Cornelissen, LAM. 'Tumor-associated glycan structures: friend or foe in immunity to cancer?'
- Huijts, CM. 'Translational studies on the therapeutic control of regulatory T cells in renal cell cancer: suppressing the suppressors'
- Jauw, YWS. '89Zr-immuno-PET: Towards a clinical tool to guide antibody-based therapy in cancer'
- Leeksa, AC. 'Making sense of genomic complexity and nonsense-RNA in hematologic malignancies'
- van Dinther, D. 'Interplay of CD169+ macrophages and dendritic cells: a game of give and take to induce anti-tumor T cell immunity'
- Wentink, MQ. 'Immunotherapy and combined treatment approaches to angiogenesis inhibition'