Introduction from the directors

We are proud to present you the first AI&II Newsletter, with a broad variety of information about our researchers. It gives you a glimpse of what is going on within our new research institute and what you can expect from us in the near future.

During the first six months of 2017, together with the program leaders, we took time to shape the foundation of AI&II. We have welcomed over 200 AI&II members during the official kick-off on March 8th with presentations from renowned researchers in the fields of our three research programs. It was at this meeting that we awarded the first work visit and travel grants to young researchers. We can look back on a very successful start!

We dedicated springtime to the first round of the Postdoc stipend awards. We have received many interesting and strong project proposals and after a selection procedure three awards were awarded. In the upcoming months Michaela Wenzel, Suzanne Bal and Tom Groot Kormelink will start with their AI&II Postdoc stipend projects. You can read more about these projects in the Grants awarded section.

At the start of June the first AI&II seminar on Inflammatory Diseases, took place at the premises of our partner organization Sanquin, with key note speaker Donna Farber from Columbia University, New York.

This fall the next two seminars will take place:
• Infectious Diseases on September 19th and Cancer Immunology on November 21st.
• The PhD retreat will take place in Heemskerk on October 5th and 6th.

The call for travel grants is still open and in September a new call for work visit grants will open.

We are currently working on our plans for 2018: a symposium and new stipend rounds may be expected.

Wishing you a good read and summer!

Theo Geijtenbeek & Yvette van Kooyk
Grants awarded and prizes received

Suzanne Bal (Spits group) and Tom Groot Kormelink (De Jong group), two researchers from EXIM received the AI&II Postdoc stipend in the inflammatory disease program. The project of Suzanne Bal will aim at the role of ILC2s in neutrophilic asthma. Tom Groot Kormelink will investigate the role of mast cells in DC maturation and DC-driven activation and polarization of naive T cells in humans. Read more...

Michaela Wenzel (Leendert Hamoen at the UvA) received the AI&II Postdoc stipend in the infectious disease program and will work in the group of Wilbert Bitter, microbiology department VUmc-O2. Her project title is Aiming at the interface – Challenging the Bacterial Cell Envelope with Antibiotics. Read more...

Charlotte Blokhuis (Department of Pediatric Infectious Diseases, AMC) received an ESPID 2017 travel grant (project Prevalence and patient characteristics of noninvasively measured liver fibrosis in perinatally HIV-1-infected children) and AI&II travel grant (Immuneactivation in pediatric HIV-associated central nervous system disease: associations to neuroimaging and cognitive outcomes).

Dieke van Dinther, PhD student at the MCBI (VUmc) in the group of Joke den Haan (and Yvette van Kooyk) won a PhD award at the Dutch Tumor Immunology meeting. With this price comes a trophy, the award and the registration to the SITCancer conference in National Harbour, MD, USA. Dieke’s research can be followed at https://www.instagram.com/dintheresting/

In May 2017, Niek de Vries (location AMC), together with Jeroen Guikema (Department of Pathology) and Antoine van Kampen (Department of Bioinformatics), received an ITN European Grant. With this research they aim to obtain more insight in the pathophysiology of responses in germinal centers among which in lymph nodes, and how these contribute to the development of rheumatoid arthritis.

In the same month Conny van der Laken (location VUMC) received a grant from Novartis to perform F-18-Fluoride PET-CT studies in ankylosing spondylitis and psoriatic arthritis patients to monitor effects of Secukinumab (anti-IL-17) on bone formation in the axial and peripheral skeleton.

The Annual European Congress of Rheumatology (EULAR) in Madrid took place from 14-17 June: The Amsterdam Rheumatology & Immunology Center (ARC) was very well represented with 16 oral presentations and 31 posters. Melissa van Tok (Location AMC) and Jesper Knoop (location Reade) won EULAR abstract awards.

Melissa van Tok received a European League against Rheumatology (EULAR) abstract award in basic science, for her abstract titled: “The initiation, but not the persistence, of experimental spondyloarthritis in HLA-B27/Huβ2m transgenic rats is crucially dependent on the IL-23 axis”.

Jesper Knoop received a prize for his poster entitled “Factors related to analgesic use in patients with knee and/or hip osteoarthritis referred to an outpatient center: results from the Amsterdam osteoarthritis cohort”.

Read more...
Katja Wolthers (Laboratory of Clinical Virology, Dept. of Medical Microbiology AMC, AMC PI) received a grant from ZonMW’s Meer Kennis Minder Dieren Programme. This project is in collaboration with the Dept. of Pediatric Infectious Diseases, Emma’s Children Hospital, AMC, the Veterinary Faculty of the University of Utrecht, the KU Leuven, and the Hubrecht Institute, and will focus on the development of human 3D cell culture models to study human virus infections. Recently developed human 3D cell culture models form relevant alternatives to study host pathogen interactions. Using these human 3D cell culture models, the project aims to identify and further characterize viral and host factors determining susceptibility for infection, with a primary focus on enterovirus infections (EV71 and EV68). Furthermore the project aims to provide a proof-of-principle that antiviral testing on human 3D cell cultures is possible. By providing human 3D cell culture models as more relevant alternatives to animal testing, this project will greatly boost a mind shift in the field of virology research and antiviral drug testing towards the use of animal free models.

On May 24, 2017 Jeroen van Heijst (EXIM) was awarded a NWO Vidi grant for his project entitled ‘Dissecting Programmed TCR Downregulation as a New Inhibitory Mechanism of T cell Immunity’. The project aims to elucidate a new mode of T cell inhibition that operates via the sustained downregulation of T cell antigen receptor expression. Unravelling the molecular basis of this inhibitory mechanism is anticipated to yield novel targets to therapeutically enhance T cell responses during chronic infections and cancer.

Martijn Riool (Dept. Medical Microbiology, AMC) has obtained a student grant to present his latest work (short oral presentation & poster) at the 4th Stevens Conference on Bacteria-Material Interactions in Hoboken (NJ), USA.

Sophie Dusoswa, PhD student at the Immune System CytOMICs group headed by Juan J. Garcia Vallejo (MCBI) will be performing part of her research project in close collaboration with the groups of Xandra Breakefield and Marike Broekman at Harvard/Massachusetts General Hospital. Xandra Breakefield is a world expert in the field of exosomes in glioblastoma and Sophie will be investigating the mechanisms of regulation of brain cancer glycosylation through this potential mechanism. Sophie has obtained several short-term grants to fund this project, amongst them from AI&II and CCA.

Sandra van Vliet (MCBI, VUMC) has received an NWO Aspasia grant, to promote women in science.

On June 8th Yvette van Kooyk (MCBI, VUMC) was appointed as new member of the Koninklijke Nederlandse Akademie van Wetenschappen.

Read more
**New Arrivals (PI’s, Postdocs & PhD’s)**

The following new PhD students have recently started to work at the Department of Pediatric Infectious Diseases (AMC) under supervision of PI Dasja Pajkrt:

**Malon van den Hof** on a project entitled *Long term neurological and retinal outcomes of perinatally hiv-infected children, a case-control cohort study (NOVICE 2 study)*.

**Marleen ter Haar** on a project entitled *Long-term Psychosocial, cognitive and sexual development of perinatally hiv-infected children, a case-control cohort study (NOVICE-PsyCos study)*.

**Lieke Brouwer** on a project entitled *Prevalence and impact of pediatric enterovirus and human parechovirus infection worldwide*. She will also be supervised by Katja Wolters (Laboratory of Clinical Virology, AMC). During her PhD she will focus on molecular and sero-epidemiology of human parechovirus type 3 as well as on the development of antiviral testing against HPeV3. She will also take part in the AIROPico network ([www.airopico.eu](http://www.airopico.eu)) as an exchange fellow to develop fast diagnostic tests for human picornaviruses.

**Michelle Nagtegaal** on a project entitled *Optimizing treatment adherence in chronically ill adolescents and young adults*.

**Dirkje de Blauw** on a project entitled *Viral meningo-encephalitis in childhood, clinical impact and outcome*.

**Clara Guarch** will start September 1st with her PhD project within the PRINT-AID Horizon 2020 ITN Training Network, at the Department of Medical Microbiology at the AMC. She will focus on the *in vivo* evaluation of antimicrobial peptide-based formulations on 3D-printed femur implants. This project is supervised by Bas Zaat.

**Jan Verhoeff** started as PhD student on the 1st of June at the MCBI, in the Immune System CytOMICs group lead by Juan J. Garcia Vallejo. The project will focus in the usage of mass cytometry for the identification of immunotherapy-related biomarkers in pancreas and brain cancer.

**Natalya Yeremenko** has been appointed as PI at the AMC. She works in the Amsterdam Rheumatology & Immunology Center (ARC), the Department of Clinical Immunology and Rheumatology at AMC, and in EXIM. Her research deals with the regulation of autoimmune inflammation.
PhD thesis defences

2017-06-27  Esther A.N. Engelhard
“Outpatient HIV care in the Netherlands”. Promotores are prof. dr. S.E. Geerlings (AMC) and prof. dr. K. Brinkman (AMC); co-promotores are dr. C. Smit (AMC) and prof. dr. P. Reiss (AMC).

2017-09-13  Charlotte Blokhuis
“Keeping an eye on the brain of perinatally hiv-infected children”. Promotores are prof. dr. T.W. Kuijpers (Pediatric Immunology, AMC) and prof. dr. P. Reiss (Department of Global Health and Amsterdam Institute of Global Health and Development, AMC; HIV Monitoring Foundation, Amsterdam, Department of Internal Medicine, Div. of Infectious Diseases, AMC), copromotor is dr. D. Pajkr (Pediatric Infectious Diseases, AMC).

2017-09-27  Martijn Riool
“Novel antibacterial strategies to combat biomaterial-associated infection”. Promotor is prof. dr. M.D. de Jong (Medical Microbiology, AMC), copromotor is dr. S.A.J. Zaat (Medical Microbiology, AMC).

2017-10-20  Esmée Ruizendaal
“Detection and treatment of malaria in pregnancy: antimicrobial resistance, community screening and biomarkers”. Promotor is prof. dr. M.D. de Jong (Medical Microbiology, AMC), co-promotor is dr. P.F. Mens (Medical Microbiology, AMC).
Publication Highlights

The publication of Nathalie van Leeuwen-Kerkhoff was recently accepted by J Leucocyte Biology;

"Transcriptional profiling reveals functional dichotomy between human slan+ non-classical monocytes and myeloid dendritic cells"
Nathalie van Leeuwen-Kerkhoff, Kristina Lundberg, Theresia Westers, Shahram Kordasti, Hetty Bontkes, Tanja de Gruijl, Malin Lindstedt, and Arjan van de Loosdrecht
This research reveals genomic and functional differences between slan+ cells, formerly known as a dendritic cell subset, and conventional dendritic cell subsets in healthy human peripheral blood.
This is the result of a very fruitful collaboration between the departments of Hematology and MCBI (both VUMC) with Kings’ London, UK and Lund University, Sweden.

Geurt Stokman and PI Jaklien Leemans (both from the Department of Pathology, AMC) and colleagues investigated the role of NLRX1, a receptor of the innate immune system that is ubiquitously expressed and localized in mitochondria, in mitochondrial dysfunction implicated in oxidative stress in acute and chronic kidney disease. Using a chimeric mouse model for renal ischemia-reperfusion injury, they found that NLRX1 protects against mortality, mitochondrial damage, and epithelial cell apoptosis in an oxidative stress–dependent fashion. It was concluded from the study that although the protein was first implicated in immune regulation, NLRX1 function extends to the control of mitochondrial activity and prevention of oxidative stress and apoptosis in tissue injury.

The EULAR recommendations for the treatment of rheumatoid arthritis, considered by many to be the most authoritative recommendations in this field, were published in June. Two AI&II researchers were among the authors (Robert Landewé and Ronald van Vollenhoven). Smolen et al, Ann Rheum Dis. 2017 Jun;76(6):960-977. doi: 10.1136/annrheumdis-2016-210715
Work in progress

Right Dose, Right Now
Using Big Data for Personalised Drug Dosing

The Right Dose, Right Now (RDRN) is part of the Right Data, Right Now platform which aims to encourage clinicians and researchers to avail of the large amounts of routinely collected clinical patient data to actually use this for better patient care. The RDRN international consortium aims to combine the fields of intensive care medicine, infectious diseases, pharmacometrics and information technology to improve drug dosing at the bedside.

Read more...

Shaping adaptive immune responses in arthritis: the importance of innate immune cell-derived extracellular vesicles
In the current project three research groups, Esther de Jong (Dept. of Experimental Immunology, AMC), Sander Tas (Dept. of Clinical Immunology & Rheumatology, AMC) and Marca Wauben (Dept. Biochemistry & Cell Biology, Faculty of Veterinary Medicine, UU) will join forces. The complementary knowledge and technologies of this project team create an unique scientific environment and excellent infrastructure which forms a strong research base for the PhD student who will perform experiments at both locations (AMC and UU).

Read more...

ESTHER DE JONG AND SANDER TAS
Media reporting on AI&II research

https://www.nemokennislink.nl/publicaties/bliksem-gaat-voetproblemen-van-mensen-met-diabetes-te-lijft: Link to an interview (in Dutch) with Edgar Peters on a research project, currently run at the department of internal medicine together with the department of rehabilitation medicine at VUmc. The project is called: Cold atmospheric plasma in diabetic foot wounds, a safety study to the application of ambient air plasma to diabetic foot wounds with end points safety and bacterial growth.

Upcoming seminars, symposia & congresses

4 July 2017  12:30-13:30

“Single Molecule Sequencing for human genome variation: from repeat expansions to whole chromosome rearrangements”. Matthew Hestand (Dept. of Clinical Genetics, VUmc, formerly KU Leuven). Read more.

13 July 2017, 17.00-18:00
“Meet the Expert” Seminar, O | 2 Auditorium (VUmc).Britta Engelhardt (Theodor Kocher Institute, University of Bern) “Brain Barriers – Gates or Fences for Immune Cell Trafficking into the CNS?” “Meet the Expert” seminars are free and open to anyone interested. Seminars are organized by the dept. of Molecular Cell Biology and Immunology, VUmc. For more information contact: Gijs Kooij, g.kooij@vumc.nl.

13 September 2017
The Amsterdam Rheumatology and Immunology Center ARC organizes anARC morning on the theme: systemic sclerosis. Carlo Montecucchi will be international guest speaker and several of our own researchers will give shorter presentations.

19 September 2017
AI&II Seminar Infectious Diseases

28 September 2017
Symposium “Medical device-associated infection: Clinical problems and Future solutions”. Dept. of Medical Microbiology, AMC. More information: Bas Zaat (s.a.zaat@amc.uva.nl) and Martijn Riool (m.riool@amc.uva.nl).

October 5-6 2017
AI&II PhD retreat

21 November 2017
AI&II Seminar Cancer Immunology

13 April 2018
Amsterdam Rheumatology & Immunology Center (ARC) Spring Symposium.
Other activities

Currently an AI&II PhD committee, representing all AI&II PhD students from both VUmc and AMC, is being established.

The committee will have the following goals:
• Improve collaboration between AI&II PhD students
• Inform & advise PhD students about rules, regulations and events
• Represent all PhD students during various meetings

The specification of these tasks will be further discussed. Are you a PhD student interested in taking place in the committee? Then please contact Marieke Heineke at m.heineke@vumc.nl.

Open calls

The AI&II travel grant: € 500,- to visit a congress.

A new round of the AI&II work visit call will open in September.

If you have input for our Newsletter, please send it to info@amsterdam-infection-and-immunity.org