

## Expression of interest in collaborating as a partner on Horizon Europe calls

*On behalf of Laboratory Medical Immunology of the Radboud University Medical Center (Radboudumc) and the Institute for Behavioral Studies of Radboud University, we would like to express interest to cooperate as a partner in the following areas of Horizon Europe. More information about researcher and institute can be found below. For questions or remarks, please email [collaborate@ru.nl](mailto:collaborate@ru.nl).*

**Cluster:** 1. Health

### Horizon Europe calls and topics:

[Staying healthy \(Single stage, 2022\) \(HORIZON-HLTH-2022-STAYHLTH-02\)](#) Deadline: 21-04-2022

### What we could offer as a partner:

- Extensive expertise in the set up of large population-based studies.
- Experience with strong interdisciplinary collaborations
- Expertise with complex systems perspectives in computing a real-life biopsychosocial model in which relations between inflammation makers (e.g., IL-6, TNFa), psychological factors (e.g., cognitions, decision-making), and social factors (e.g., quality of social relations, loneliness) are included.
- Many years of expertise and extensive expertise on translational diagnostic research in the field of chronic inflammatory diseases and infectious diseases with a focus on monitoring the immune system. Furthermore, the dynamics of inflammation is studied with novel technologies to better understand reaction cascades but also to improve personalized healthcare and targeted therapy.

### Relevance of expertise of previous research:

The Radboud campus, which includes the Radboud University, the Radboud University Medical Center (Radboudumc), and the Max Planck Institute for Psycholinguistics, has chosen “Healthy Brain” as their collaborative research theme as of 2017. Within this Healthy Brain initiative, we are establishing the large cohort study (the Healthy Brain Study; HBS) that will strengthen existing and engage new collaborations around the Healthy Brain theme by a team science approach. The HBS design is the result of an orchestrated cross-campus process over 22 months in which 250 scientists from all classical faculties were involved and were challenged to look past the horizons of their disciplines in a few plenary meetings and several smaller working groups. The HBS is an interdisciplinary, longitudinal, cohort study based on multidimensional, dynamic assessments in both the laboratory and the real world. The HBS is examining a population-based sample of 1,000 healthy participants (age 30-39), who perform repeated assessments at three different time points within one year, starting at varying time points. The unique feature of the HBS is that it combines in-depth phenotyping of a large range of cognitive, affective, behavioral, and social dimensions with a biological sampling of the brain and body-related processes. This enables the extraction of a detailed bio-social fingerprint for each participant in the cohort. Such a detailed fingerprint is currently not available. The HBS resource will contribute to a better understanding of the human brain functioning in the real world at the individual level.

The Behavioural Science Institute (BSI) is part of the Faculty of Social Sciences. BSI is a multidisciplinary behavioural research institute where researchers collaborate across the boundaries of psychology, educational science and communication science. It has seven research programmes covering three main research themes: (1) development and learning, (2) psychopathology, health and well-being, and 3) social processes and communication. BSI conducts applied/translational research as well as fundamental research. The involved researchers are both working within the psychopathology, health and well-being theme and have ample expertise in longitudinal studies, associating

biomarkers with human behavior, identifying risk and resilience factors for transitions from health to disease and also take into account how individuals' social contexts play a role in this. Currently, these researchers are using complex systems perspectives in computing a real-life biopsychosocial model in which relations between inflammation makers (e.g., IL-6, TNFa), psychological factors (e.g., cognitions, decision-making), and social factors (e.g., quality of social relations, loneliness) will be included.

Within the Laboratory of Medical Immunology of the Radboud University Medical Center, we are working on translational diagnostic research in the field of chronic inflammatory diseases (e.g. Psoriasis, Atopic dermatitis, Psoriatic arthritis, IBD and Scleroderma) and infectious diseases we are monitoring the immune system by studying immune cell composition and function as well as circulating immune mediators (antibodies, cytokines, chemokines etcetera) to stratify patients, optimize selection of therapy and monitor therapy responses to establish personalized prevention measures (immune profiles) to improve health outcomes. Based on this background we participate in a large EU IMI funded partnership ([Immuniverse](#)). To further understand the dynamics of immune responses we work in close collaboration with European partners on the development of generic technology that allows continuous sensing of a wide range of biomolecular parameters which could revolutionise patient monitoring and enable truly personalised therapy within the CONSENSE project (<https://www.consense-itn.eu/>). The ambition of CONSENSE is to provide a game change in continuous biomolecular sensing by combining advanced molecular engineering with tailored optical detection technologies to yield generic, affinity-based biosensing technologies. CONSENSE will focus on the construction of biomolecular nanoswitches that translate molecular binding into robust and well-defined conformational changes at length scales that can be detected by selected optical detection methods, providing unique possibilities to distinguish between specific and nonspecific binding. **CONSENSE** brings together internationally leading pioneers in biomolecular switch engineering with research groups that have an excellent track record in biosensor development using advanced optical approaches, including two high-tech companies that have spun out from these groups.

**[Fill out researcher name]:** *short description of the researcher with a link to personal RU- page or LinkedIn)*

## ***Maaike Verhagen***

Maaike Verhagen is associate professor within the Developmental Psychopathology group of the Behavioural Science Institute. She conducted many molecular genetic studies in relation to various forms of psychopathology and loneliness and is currently interested in social relations, emotional processes, and internalizing problems in adolescents. Within those research projects the unifying theme is micro-social processes in relation social inclusion and various forms of psychopathology among adolescents. Her approach is interdisciplinary, combining developmental processes with genetics and other biomarkers, using a variety of methods (e.g., observational, longitudinal, questionnaires). Her previous work was supported by NWO (Veni grant).

*Publications:*

[https://scholar.google.nl/citations?hl=nl&user=Drw4KUMAAAAJ&sortby=pubdate&view\\_op=list\\_works](https://scholar.google.nl/citations?hl=nl&user=Drw4KUMAAAAJ&sortby=pubdate&view_op=list_works)

## ***Maartje Luijten***

Maartje Luijten works as assistant professor at the Developmental Psychopathology group of the Behavioural Science Institute, Radboud University in Nijmegen. Her program of research lies in neuroscience of substance use and addiction in adults and youth, conducting (longitudinal) neuroimaging studies to test the validity of influential addiction models. Maartje is interested in high-risk groups and the vulnerability to develop (nicotine) dependence

to provide input for intervention and prevention programs.

Her research is funded by collaborative and personal grants from the Netherlands Organisation for Scientific Research (NWO), the Dutch Cancer Society and a small charity fund. She is also member of the implementation team of the Healthy Brain Cohort, which is a collaboration between the Radboud University, Radboudumc and Max Planck Institute for Psycholinguistic.

Publications:

<https://scholar.google.nl/citations?hl=nl&user=n77SEZgAAAAJ>

## **Lucy Overbeek**

Lucy Overbeek is projectmanager of the Healthy Brain Study: <https://www.healthybrainstudy.nl/home>

## **Guillén Fernández**

Guillén Fernández is professor for cognitive neuroscience. He studies the brain basis of memory, emotion, and their interaction. He applies an interdisciplinary approach integrating cognitive neuroimaging, genetics, pharmacology and diverse clinical disciplines. His research is fundamental in nature, but with an explicit aim to improve education by neuroscientific insight in learning processes and to enable personalized care in psychiatry by providing mechanistic insight in stress-related pathophysiology. Guillén Fernández is fellow of the Royal Dutch Academy of Art and Sciences (KNAW), the Academia Europaea and the Memory Disorder Research Society. He received the Richard-Jung Award of the German Society for Clinical Neurophysiology, the Vici Award of the Dutch Organization for Scientific Research (NWO), the Radboud Science Award, and an Advanced Investigator Grant from the European Research Council (ERC).

Publications:

<https://scholar.google.nl/citations?user=YAe5ICoAAAAJ&hl=nl>:

## **Hans J.P.M. Koenen**

Hans Koenen is working as assistant professor within the Laboratory of Medical Immunology focussing on immune regulation and phenotypic/functional single cell immune profiling in peripheral blood and affected tissues in humans during health, disease and therapeutic intervention, with emphasis on human (regulatory) T-cell biology and plasticity. The research includes development of in vitro and ex vivo immune monitoring assays to measure phenotype, function and states (e.g. anergy, tolerance, exhaustion) of the human immune cells. Currently, collaborating with clinical, industrial, medical immunology, clinical chemistry, pharmacology and bio-informatics research partners, I am heading our Lab's immune profiling and innovation team. This team applies high-dimensional single cell flow cytometry (e.g. phosflow, effector function) and proteome analysis of soluble immune mediators to establish immune system fingerprints to provide better patient stratification, therapy prediction/selection and monitoring of disease/therapy status as well as better understanding of immune mediated diseases and improved therapy design.

Publications:

<https://scholar.google.com/citations?hl=nl&user=mS1TV1MAAAAJ>

## **Marien I. de Jonge**

Marien de Jonge, is associate professor, head of the Laboratory of Medical Immunology of the Radboud University Medical Center in Nijmegen. Since 2017 he is chairman of the Royal Netherlands Society for Microbiology. He has more than 20 years of experience in both academic research and industrial R&D in the Netherlands and abroad. He



worked for 2,5 years as post-doctoral fellow at Institut Pasteur, for 4,5 years as R&D project leader at MSD and since 2011 at Radboudumc.

Marien de Jonge's main research interest is focused on mucosal immune responses, aiming at the improvement of prevention, diagnosis and treatment respiratory tract infections. His group studies mucosal immune responses and correlates of protection against the respiratory pathogens and explores novel strategies for mucosal antigen-adjuvant delivery for the development of intranasal and intradermal vaccines and innovative diagnostic strategies to distinguish viral from bacterial infections. His research is funded by large consortium grants from IMI and Bill and Melinda Gates Foundation, NWO-TTW, Horizon2020 and Eurostars.

Publications:

<https://scholar.google.com/citations?hl=nl&user=8gWGTpoAAAAJ>

## **Radboud University:**

Radboud University is an international university located in Nijmegen, the Netherlands. Founded in 1923, Radboud has a strong tradition of high-quality and internationally accredited education and research. We are ranked in the top 1% of universities worldwide, and host over 15 research institutes on campus, many of which are world leading in their field. We are renowned for our green campus and impact oriented approach to research, and educate over 24,000 students, with 1 in 9 students coming from abroad.

Radboud University is an experienced coordinator and participant in EU Framework Programmes for research and innovation. As a formerly merged entity with RadboudUMC, we have jointly secured funding for over 292 projects under Horizon 2020. We belong to the top 5 Dutch institutions receiving the highest net EU contribution from the H2020 programme, and are among the top 30 H2020 and ERC grantees in Europe. As the University is invested in creating research impact at European level, we are equipped with the resources and infrastructure to make international collaborative research projects a success.

**For more information or questions:** [collaborate@ru.nl](mailto:collaborate@ru.nl).