

PhD: new methodologies for RSV infection and immunity (English)

Functieomschrijving

Are you an MSc graduate in viro-immunology and keen to help replace traditional animal testing? As a PhD researcher within a new European consortium, you will advance, standardize, and qualify a cutting-edge human cell-based model to evaluate RSV immunity. Working alongside leading scientists and regulators across Europe, you will deepen your expertise in advanced methodologies like single-cell RNA sequencing while shaping non-animal approaches in vaccine research. This role offers a clear path to complete your PhD thesis, publish high-impact literature, and build an international network at the intersection of science and public health.

Developing Advanced Human Epithelial Models for RSV

Traditionally, research into respiratory virus infection and immunity has relied on small animal models and in vitro cultures of immortalized cell lines. Bridging these experimental systems, differentiated primary human epithelial cell culture models are gaining ground, but their use in vaccine research remains limited due in part to a lack of immunological components and standardization of these models. We have recently developed a novel virus neutralization model for respiratory syncytial virus (RSV). This virus causes considerable morbidity and mortality in infants and older adults, and first-generation preventive strategies have recently become available. Our novel neutralization model builds upon the previously established air-liquid interface respiratory epithelial transwell model, which includes functional multiciliated and mucus-producing goblet cells.

Your responsibilities

Within a new European consortium, you will apply the RSV neutralization model as a use case to advance its standardization and qualification as a new approach methodology (NAM) in collaboration with regulatory partner institutes in the UK and Germany. In addition, you will dive deeper into the possibilities of this model to provide insights into population variability as well as viral escape mutants. With this project, you will contribute to the implementation of novel in vitro methodologies that will increase our understanding of antiviral mucosal immunity and reduce the need for animal experiments.

Your role will involve:

- Co-design of a standardization plan for the RSV neutralization model, in collaboration with (regulatory) consortium partners, including technical transfer of the model to partner sites.
- Performing extensive cell culture work including viral infections at BSL-2/ML-II biosafety level, aimed at standardization and further exploration of the RSV neutralization model.
- Various molecular biological and virological techniques, including (confocal) microscopy, virus titration, RT-qPCR, single-cell RNA sequencing and multiplex immunoassays.
- Systematic literature reviewing of available and ongoing studies related to the use of in vitro models of respiratory viral infection and immunity.
- Analyze and interpret data, publish in peer-reviewed scientific journals, present the results in the institute as well as at (inter-)national conferences and prepare a PhD thesis based on your findings.
- Participate in a team of virologists, immunologists, bioinformaticians and regulators at

RIVM and collaborating institutes to share and discuss the results of your studies.

About the RIVM department

The Center for Immunology of Infectious Diseases and Vaccines (IIV) at RIVM serves as the government's knowledge center in the field of immunology of infectious diseases and vaccines. The core mission of IIV is to provide information and advice on vaccine effectiveness, vaccination strategies, and immune responses to infectious diseases, supporting government policy and informing the public. Research at IIV focuses on optimizing the effectiveness and safety of current and future vaccination programs, immunosurveillance, age-related efficacy of immune responses, and identifying correlates of protection.

Within IIV, the Department of Immune Mechanisms - Immunological Models (IIM) employs immunological models to support the core mission of IIV. You will be part of IIM, an international, dynamic, and highly motivated team of approximately 20 scientists and technicians at various stages of our careers, united by a strong drive to advance immunological research for the benefit of public health. We combine expertise in virology, immunology, and bioinformatics, and we believe in the power of collaboration and teamwork.

About the PhD programme

The intended start date is February 1st, 2027. The PhD programme lasts four years. Your appointment is initially for one year. At the end of the first year, an evaluation takes place according to the standard procedure. If this evaluation is positive, the appointment will be extended by three years.

During the PhD research, your salary is set as follows according to Functiegebouw Rijk (FGR):

- First year: €3,333.81, according to scale 8, step 0.
- Second year: €3.741,48, according to scale 8, step 5.
- Third year: €3.984,50, according to scale 8, step 7.
- Fourth year: €4.132,76, according to scale 8, step 8.

How to apply and more information

You can address your application to IIM manager Jørgen de Jonge. Do you have any questions before applying? Please contact project leader Puck van Kasteren (+316 311 423 91), she is more than happy to answer your questions. We look forward to hearing from you.

In the event of substantial interest in this vacancy, we may invite a larger group of candidates for a short 15-minute online interview, including a brief pitch and two or three predefined questions

Functie-eisen

Your profile

To be successful in this position, you bring the following knowledge and experience:

- An MSc in biomedical sciences, biology, medicine, or a related discipline, preferably focused on infection and immunity.
- Background in infection and immunity or a related field, preferably with previous experience in cell culture work and virological methods (such as titration or neutralization assays).
- Strong analytical capacity to systematically review literature, interpret multifaceted datasets, and translate findings into rigorous scientific publications and your PhD thesis.

- High autonomy and initiative to independently plan, drive, and adapt your daily research activities.
- Clear communication skills in English, allowing you to articulate research outcomes effectively to diverse audiences.
- A collaborative mindset to align naturally with an international, multidisciplinary team of scientists, regulators, and laboratory technicians.

Bij het RIVM hebben we één van de beste cao's van Nederland, namelijk die van de Rijksoverheid. Naast een goed salaris hebben we aantrekkelijke arbeidsvoorwaarden zoals een Individueel Keuzebudget van 16.5 % van je bruto jaarsalaris waarover je zelf de regie hebt. Je kunt iedere maand een deel laten uitbetalen of extra vrije dagen kopen of verkopen. Daarnaast bieden we fiscale voordelen om bijvoorbeeld je studieschuld af te lossen. Ook zijn we een mantelzorgvriendelijke organisatie. Meer weten? Lees er meer over onder de kop 'overige arbeidsvoorwaarden'.

Bijzonderheden

Vragen we in de vacaturetekst om een motivatiebrief en kun je wat hulp gebruiken om deze te schrijven? Lees dan deze 4 tips voor een goede motivatiebrief.

Informatie over solliciteren bij het RIVM:

- Wij begrijpen dat AI een handig hulpmiddel is voor jouw motivatiebrief en cv. We willen je adviseren om het enkel als hulpmiddel te gebruiken en vooral ook jouw unieke ik terug te laten komen in deze documenten.
- Bij je indiensttreding vragen we altijd om een Verklaring Omtrent Gedrag (VOG).
- Als je solliciteert als 'van-werk-naar-werkkandidaat' of als 'herplaatsingskandidaat', stuur dan een kopie van je aanwijzingsbrief mee.
- Werk je nu via een uitzend- detacheringsbureau bij de Rijksoverheid, vermeld dit dan in je brief.
- Het RIVM zet zich in om medewerkers in dienst te nemen die onder de doelgroep van de Wet Banenafpraak vallen. Meer informatie hierover vind je op de website van de Rijksoverheid.
- Bij het RIVM ben je welkom zoals je bent. Wij zijn ervan overtuigd dat diversiteit in een team de samenwerking en de uitkomst sterker maakt. Daarnaast wordt betrokkenheid van medewerkers bij medezeggenschap gewaardeerd.
- Wij volgen de Recruiter Code en gaan zorgvuldig met je persoonsgegevens om.
- Voor een volledig beeld van de zakelijke achtergrond van sollicitanten raadplegen we soms LinkedIn.
- Deze vacature gaat offline na de sluitingsdatum, vergeet dus niet om de tekst te downloaden en op te slaan. Het kan zijn dat na deze datum deze vacature nog (onbedoeld) vindbaar is op diverse jobboards. De sluitingsdatum op werkenvoornederland.nl is leidend.
- Het kan voorkomen dat de sollicitatiepagina niet werkt, het kan aan de browser liggen. Probeer in dat geval de sollicitatiepagina in een andere browser te openen.
- Wij maken geen gebruik van bureaus voor deze vacature. Mochten wij uiteindelijk hulp inschakelen, dan nemen wij hiervoor zelf contact op met bureaus.