

Bureau

**International des
Poids et
Mesures**



CCQM Webinar on 'Ensuring the reliability of measurements in response to the COVID-19 pandemic'

25 March 2021 at 12h00 (UTC+1)

For the third in a series of CCQM Webinars dedicated to the reliability of measurements in response to the COVID-19 pandemic we have three invited presentations from external experts on their experiences in developing high-throughput tests, testing and sequencing for SARS-CoV-2 and the need for standards and controls.

Organizing Committee: J. Huggett (LGC), J. Melanson (NRC), B. Güttler (PTB), G. O'Connor (PTB), J. Campbell (LGC), R. Wielgosz (BIPM), S-R. Park (CIPM).

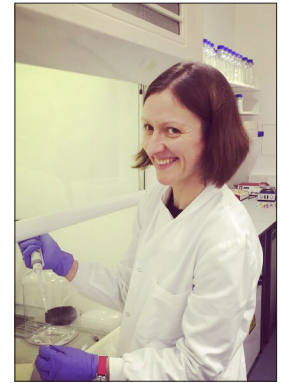
Webinar schedule

- 12:00-12:05 Webinar structure and guidance for panelists and attendees, R. Wielgosz
- 12:05-12:10 Welcome from CCQM President, S-R. Park
- 12:10-12:35 Setting up high throughput SARS-CoV-2 surveillance sequencing at the Sanger Institute, N. Park
- 12:35-12:40 Questions
- 12:40-13:05 Addressing the challenges of high-throughput SARS-CoV-2 RT-qPCR testing, J. Vandesompele
- 13:05-13:10 Questions
- 13:10-13:35 Developing novel high throughput tests for SARS-CoV-2 antigens and standardization challenges, T. Rose
- 13:35-13:40 Questions
- 13:40-14:00 Panel questions and discussion: Evolving needs of testing in response to the Covid-19 pandemic

Setting up high throughput SARS-CoV-2 surveillance sequencing at the Sanger Institute Naomi Park

Throughout the last year the Sanger Institute has rapidly initiated and scaled up sequencing of SARS-CoV-2 in response to the global pandemic, ramping up from 0 to 20,000 genomes generated per week during this time. The improvements in process and workflow to meet this scale will be discussed, alongside the challenges faced at each stage. The use of controls has been key from the start, during a period when the type of control material available was limited. Their application will be covered alongside future directions on how this may be improved.

Dr Naomi Park is a Senior Staff Scientist working within the DNA Pipelines R&D group at the Sanger Institute. The role of the group is to evaluate new technologies and molecular biology reagents, and to develop new sequencing applications and processes in response to Institute requirements. Ever since Naomi's PhD which involved PCR primer modifications to improve multiplexed PCR, she has continued to integrate this with sequencing at the Sanger Institute. Most recently this expertise has been fortuitous during the surveillance sequencing throughout the current pandemic.



Addressing the challenges of high-throughput SARS-CoV-2 RT-qPCR testing Jo Vandesompele

The challenges of establishing a high-throughput and scalable SARS-CoV-2 RT-qPCR testing system within Belgium will be presented with a focus on the needs for quality controls and standards.

Jo Vandesompele obtained a Master of Science in Bioscience Engineering (1997) and a PhD in Medical Genetics (2002). Since 2007, he is professor in Functional Cancer Genomics and Applied Bioinformatics at Ghent University. He is author of more than 250 scientific articles in international journals, including some pioneering publications in the domain of RNA quantification and non-coding RNA. He was one of the co-founders of the Cancer Research Institute Ghent (CRIG) and chairman of the first steering committee (2016-2019). Jo is also co-founder and Chief Scientific Officer at Biogazelle, a contract research organization that offers genomic services to the biotech and pharmaceutical industry.



Developing novel high throughput tests for SARS-CoV-2 antigens and standardization challenges Thierry Rose

The development of SARS-Cov-2 antigens and specific antibody concentration measurements from serum, rhino-pharyngeal swab or saliva using anti-IgG nanobodies as sensor coupled to a luciferase as reporter will be described. More than 170 000 laboratory tests have been performed using the technology as part of the Institut Pasteur's COVID Task Force, in a number of epidemiologic studies in France from nation-wide representative population, population living in precarious conditions or local clusters in Paris conurbation. The technology using bioluminescence is being adopted within the national reference center for respiratory viral infections, and the requirements for calibration and standardization will be presented as the method will be widely developed, allowing the setting of new infection or serology tests within a month.

Dr Thierry Rose is a biochemist/biophysicist, Group Leader for Innovation and Development of Immuno-Assays within the Immunology Department at the Institut Pasteur, Paris, France.

