

R3: RNA Readiness and Response Meeting

Oct 1, 8:00 am – 5:00 pm, The Royal College of Physicians, 11 St Andrews Pl, London NW1 4LE

What if a distributed network of standardized biofoundries could produce diverse RNA vaccines and therapeutics addressing unmet, local medical need — as well as surge capacity in the advent of a pandemic? The Wellcome Leap R3 program took a page from semiconductor industry transformation in the 1980's to democratize access to RNA manufacturing and enable economically sustainable pandemic preparedness.

This meeting will cover R3 advances and demonstrations in:

Standardized, Multiproduct RNA Manufacturing Technology

- No tech transfer: same process & equipment
 - from discovery (1-10 mg) / clinical (1 g)
 - to pandemic response (1Kg/ day)
- No revalidation: up to 100 products/ day
- Easily deployable:
 - GMP bulk drug product in < 35 m²

Demonstrated on diverse Vaccines and Therapeutic products

- RNA products targeting 30X dose-reduction and 100X cost-reduction vs. state of the art
- Bi-specific T cell engager vs. Multiple Myeloma and Inhaled mAbs against SARS-COV-2
 - saRNA, taRNA and mRNA vaccines against Rabies, SARS-COV-2, Flu and *S. Aureus*

Accessible through Design and Manufacturability in-silico tools

- In-silico design tools for >5X dose reduction
- AI model for manufacturability verification with >90% accuracy
- A Brokerage platform to enable a vibrant, self-sustaining RNA Ecosystem and economically sustainable pandemic preparedness.

1 Billion vaccine doses, or 100 different products, manufactured in a day in a standard 35 m² GMP suite

Duccio Medini
R3 Program Director
Wellcome Leap



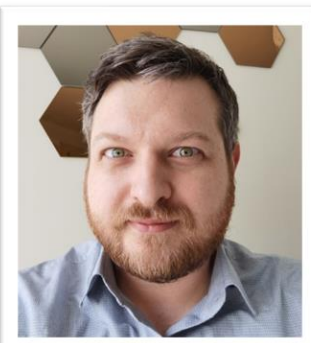
R3 RNA
READINESS +
RESPONSE

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Agenda - R3 Meeting, 1-Oct-2024 – London @Royal College of Physicians

Duration	Start time	End time	Topic	Lead	Organization
0:30	8:00 AM	8:30 AM	Reception	All	
0:20	8:30 AM	8:50 AM	TBC	Duccio Medini	Wellcome Leap
0:20	8:50 AM	9:10 AM	Controlling therapeutic mRNA parameters through sequence design	Tobias von der Haar	University of Kent
0:30	9:10 AM	9:40 AM	Optimising RNA manufacturability with Deep Learning	Roland Huber, Giorgio Ciano	A*STAR, TLS
0:20	9:40 AM	10:00 AM	Optimizing Dose & Schedule for mRNA Tx Using QSP and PBPK Mathematical Models	Luca Marchetti	University of Trento
0:30	10:00 AM	10:30 AM	R3 Portal	Kevin LeShane, Brennan Sellner	Lattice Automation, BioForge
0:25	10:30 AM	11:00 AM	Mid-morning Break	All	
0:20	11:00 AM	11:20 AM	A novel trans-amplifying RNA replicon system - opportunities and challenges	Konrad Stadler	Vaxelaron
0:20	11:20 AM	11:40 AM	Developing circular RNAs as vaccines	Yue Wan	A*STAR
0:20	11:40 AM	12:00 PM	Ionizable Amphiphilic Janus Dendrimers (IAJD) as a Novel Platform for Vaccine and Therapeutic Delivery	Elena Atochina-Vasserman	Uni Pennsylvania
0:20	11:55 AM	12:15 PM	Intradermal delivery of saRNA LNPs using Microarray Patches	Gunilla Jacobson	Stanford University
1:00	12:15 PM	1:15 PM	Lunch	All	
0:20	1:15 PM	1:35 PM	Enzymatic DNA Synthesis enables Accelerated mRNA Discovery and Production	Rebecca Ryan	DNA Script
0:20	1:35 PM	1:55 PM	Intensified, continuous & digitalised production of high-quality mRNA medicines at low cost	Zoltán Kis	Sheffield University
0:20	1:55 PM	2:15 PM	Accelerating RNA-LNP Drug Development: From Discovery to Manufacturing on a Single Platform	Sagar Yadavali/Daeyeon Lee	InfiniFluidics/Uni Pennsylvania
0:20	2:15 PM	2:35 PM	Biofoundry-in-A-Box(TM): Modular microfactories, powering global RNA production network	Harris Makatsoris	Centillion
0:20	2:35 PM	2:55 PM	Bringing the RiboFlow system to industrial use	Sander van Asbeck	RiboPro
0:25	2:55 PM	3:20 PM	Afternoon Break	All	
0:20	3:20 PM	3:40 PM	Using RNA to deliver encoding bispecific T cell engagers for immunotherapy	Eric Smith	Dana Farber Cancer Institute
0:20	3:40 PM	4:00 PM	Inhaled mRNA-encoded O07 antibody against SARS-CoV-2	Phil Santangelo, Samuele Stazzoni	Emory University, TLS
0:20	4:00 PM	4:20 PM	A vaccine against S aureus using mRNA	John Fraser	University of Auckland
0:20	4:20 PM	4:40 PM	Self-Amplifying RNA Rabies Vaccine as a Disease X platform	Robin Shattock	Imperial College London
0:20	4:40 PM	5:00 PM	An saRNA vaccine for SARS-CoV-2	Kenta Matsuda	VLP Therapeutics
0:10	5:00 PM	5:10 PM	Conclusions	Duccio Medini	Wellcome Leap



Roland Huber
A*STAR



Giorgio Ciano
TLS Foundation



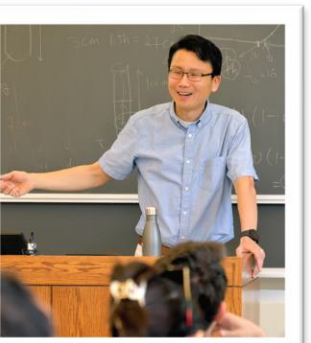
Tobias von der Haar
Kent University



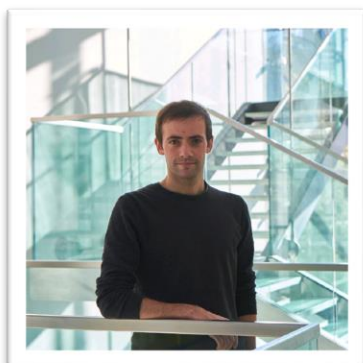
Gunilla Jacobson
Stanford University



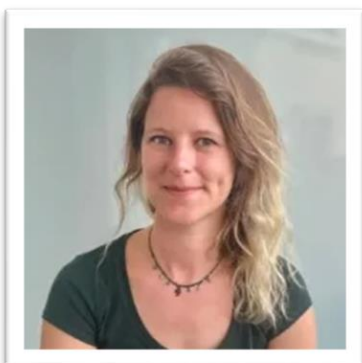
Luca Marchetti
University of Trento



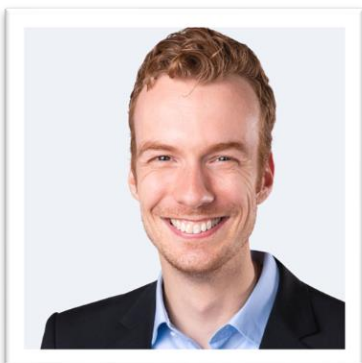
Daeyeon Lee
University of Pennsylvania



Samuele Stazzoni
TLS Foundation



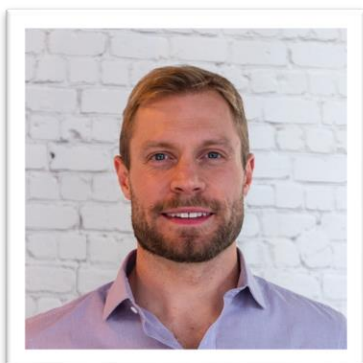
Rebecca Ryan
DNA Script



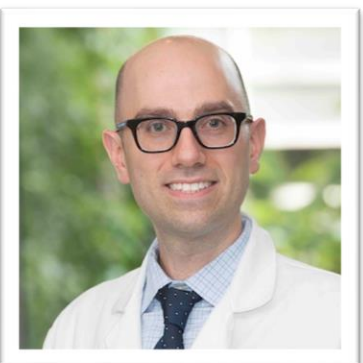
Sander van Asbeck
RiboPro



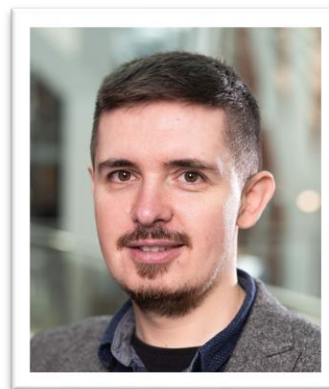
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John Fraser
University of Auckland



Yue Wan
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