

NIHR Southampton and Infection

Robert Read

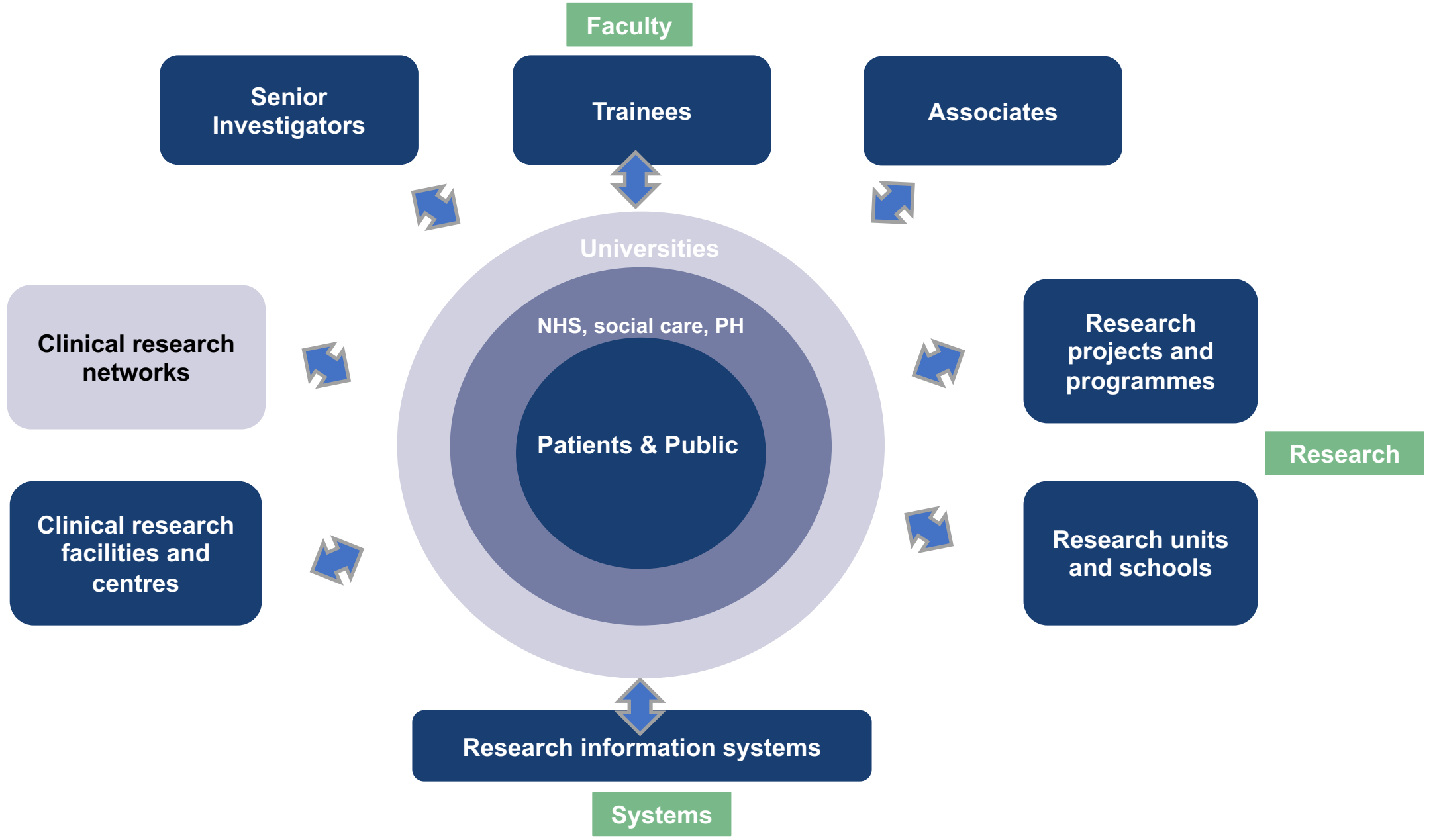
Professor of Infectious Diseases, Director **Biomedical Research Centre**

And

Saul Faust

Professor of Paediatric ID and Immunology, Director **Clinical Research Facility**

NIHR



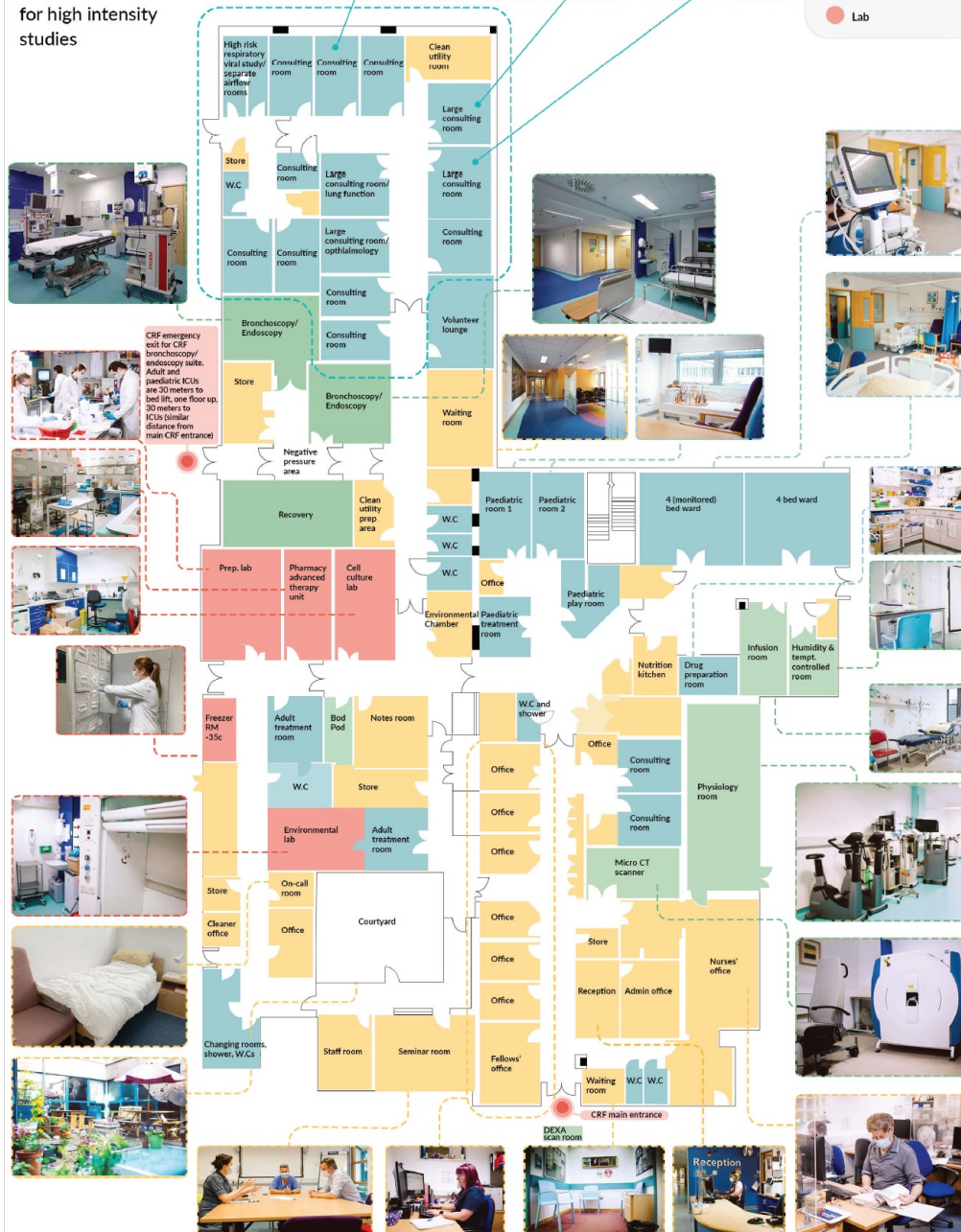
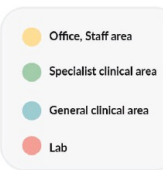
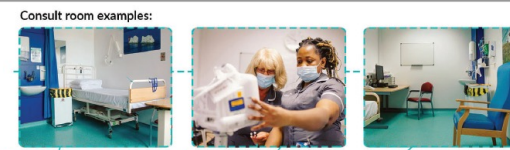
Southampton NIHR Clinical Research Facility

- Heart of one of the 10 largest hospitals in the UK serving a regional population >3 million
- Clinical ward with administration area and laboratory facilities



Main CRF
(1,748m² of 2,007m²)

27 bed spaces/outpatient consult beds/rooms for high intensity studies



- 14 outpatient-style consulting rooms (13 temperature controlled, **two with negative pressure air circulation**)
- infusion room
- humidity/temperature-controlled room
- 4 bed adult high- + 4 bed low-dependency ward
- paediatric area with 2 multipurpose in/outpatient cubicles, dedicated play area and paediatric treatment room.
- Treatment room with clean-room ventilation
- 3 NHS Trust specification resuscitation trolleys
- Waiting areas; patient lounge (TV/internet access) that meets MHRA Phase I standards for overnight stays.
- Single sex toilet facilities for volunteers according to NHS policies, shower facilities for overnight stays

Specialist laboratories

Mass Spec Lab (orange)

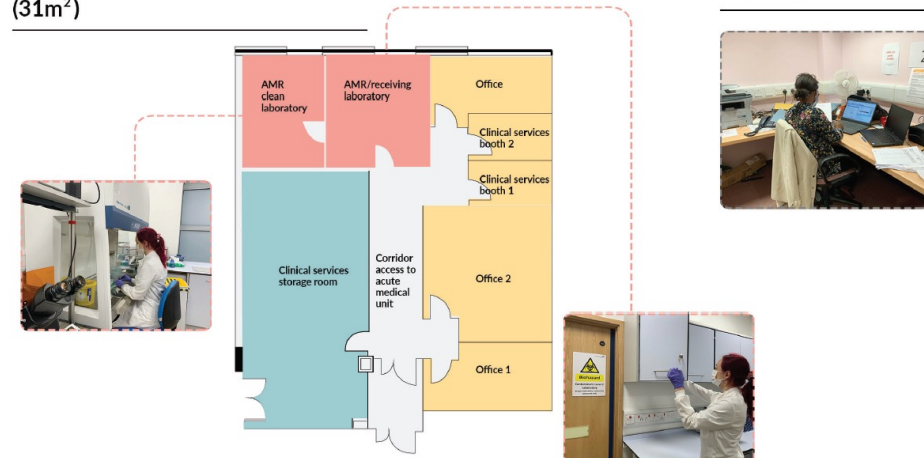
Mass spec lab (228m²)



NIHR Antimicrobial Resistance Laboratory

Floor space only includes the 2 lab spaces in red.

(31m²)



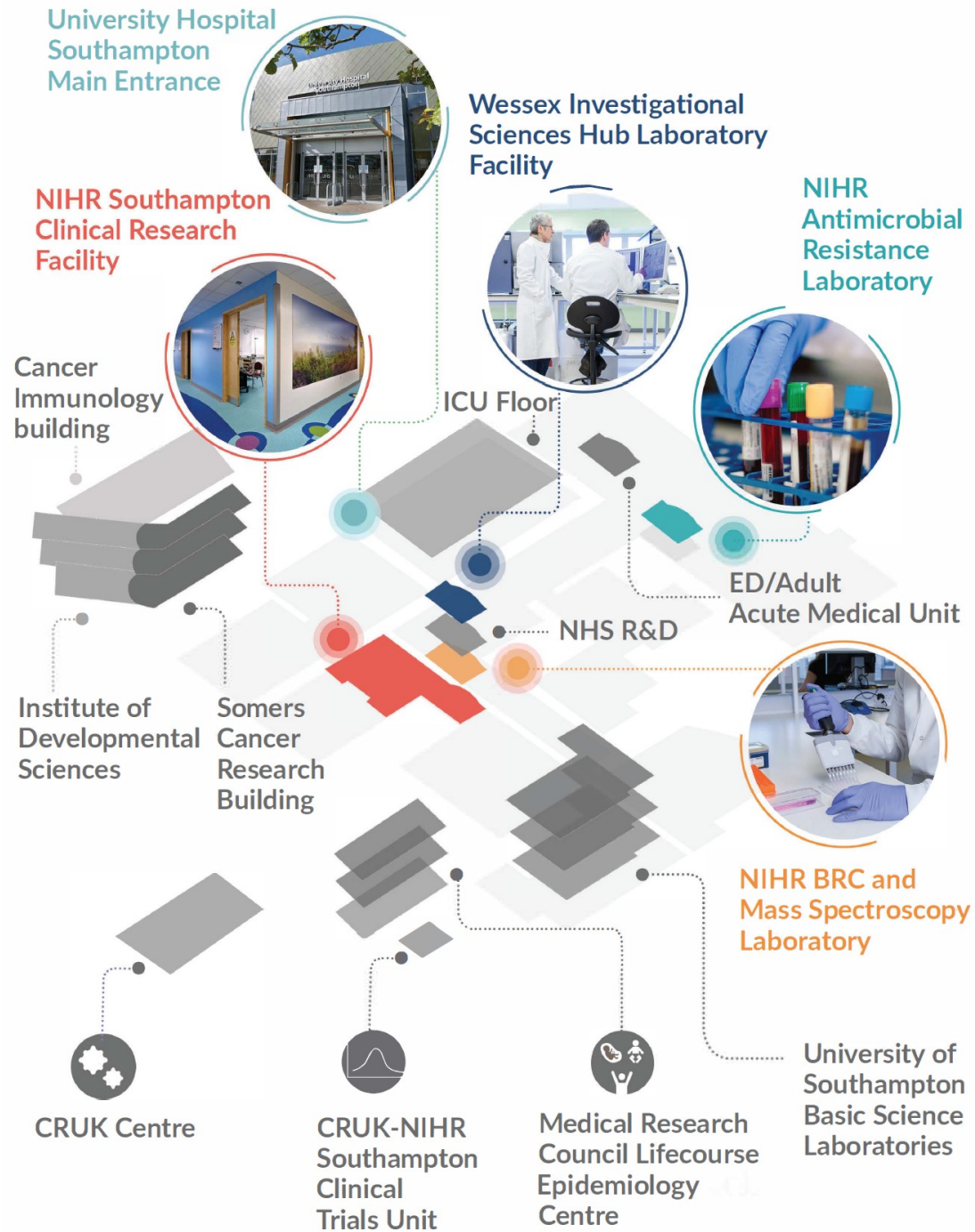
Level E - room for monitors



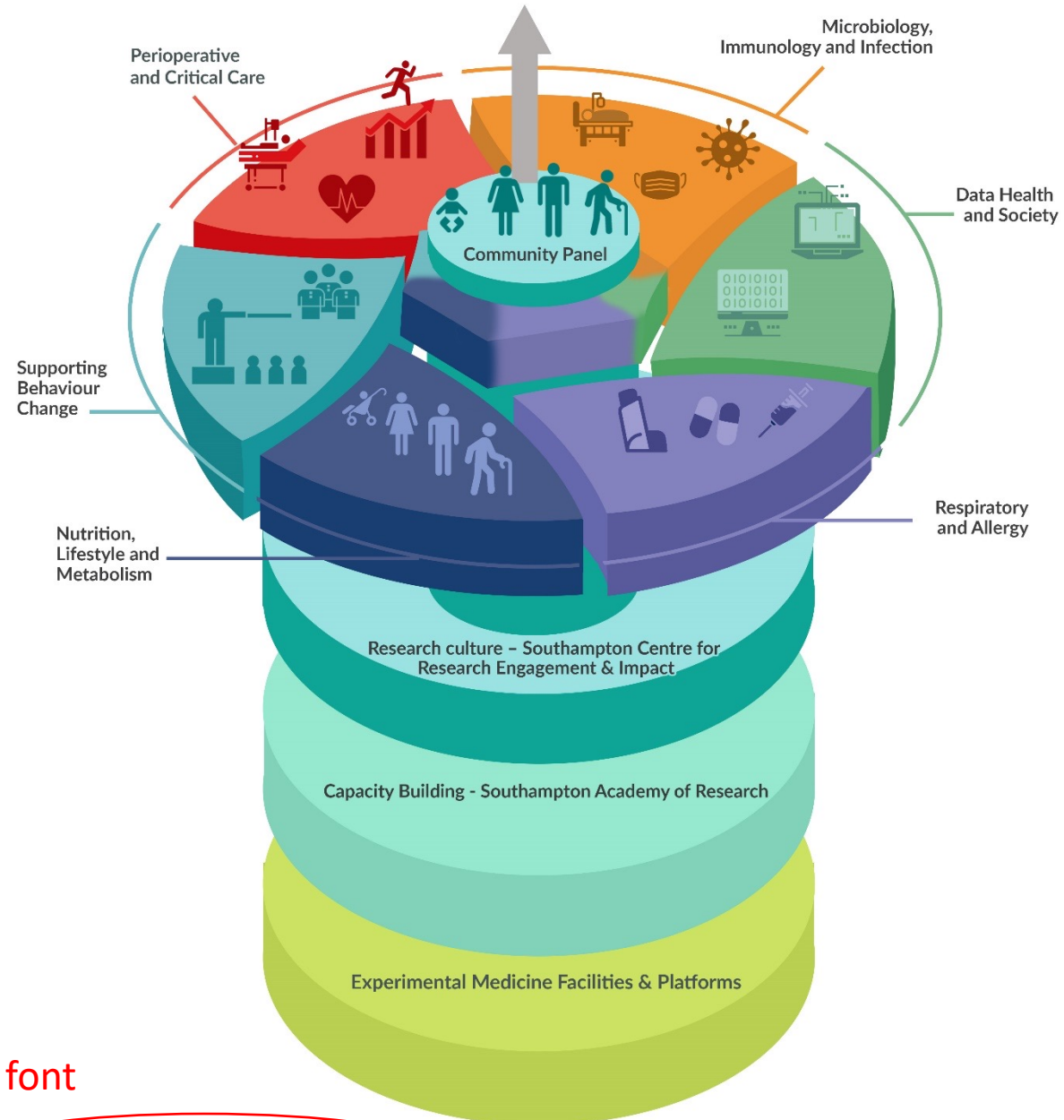
AMR Lab 2020 (red)

The CRF is right in the middle of the hospital

Close to intensive care for the highest risk studies



People & Communities resilient to injury, illness and the impacts of ageing across the lifecycle



Larger font

Fig. 1. NIHR Southampton Biomedical research Centre Structure

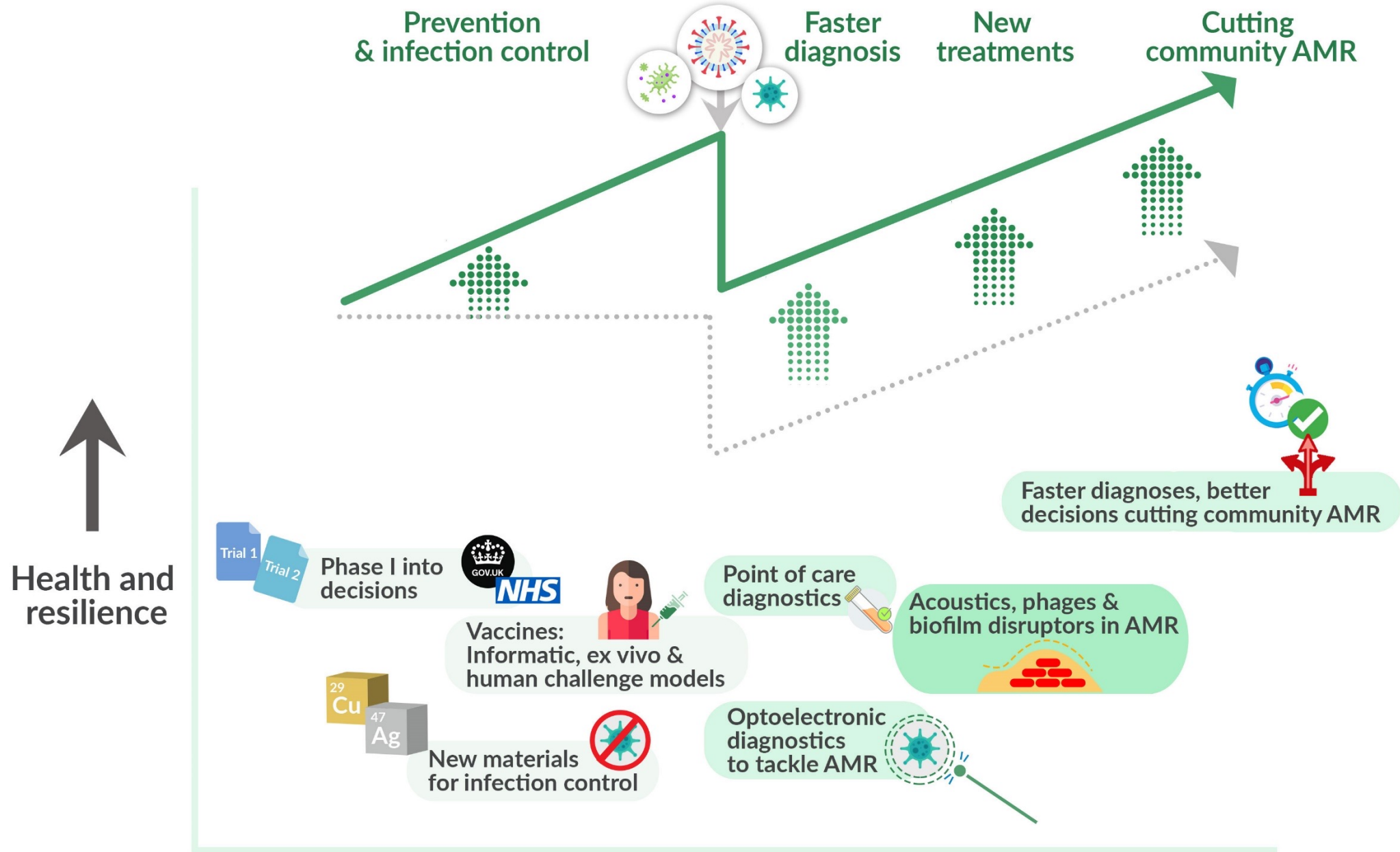


Fig. 6. Microbiology, Immunity and Infection theme schematic

MII Theme – Assets and connections

**University Hospital
Southampton**
Department of Infection

**University of
Southampton**

**PUBLIC HEALTH
ENGLAND –
PORTON DOWN**

**CLINICAL
RESEARCH
FACILITY**

**NIHR
ANTIMICROBIAL
RESISTANCE
RESEARCH
LABORATORY**

**NATIONAL BIOFILM
INNOVATION
CENTRE**

**DSTL-
PORTON**

INDUSTRY

RESEARCH THEME

- Metrics (Immunology, Microbiology)
- 2017-2021 £40-80m
- 2017-2021 600 publications

Microbial Science: Research Areas

- **RESEARCH AREA 1; Antimicrobial Resistance Reduction**
- **RESEARCH AREA 2; Vaccine Discovery and Evaluation**
- **RESEARCH AREA 3; Engineering Solutions for Diagnosis and Infection Control**
- **RESEARCH AREA 4; Experimental Interventions in the community**

NIHR Southampton Antimicrobial Resistance Laboratory (£2.8m)

University of Southampton/UHS partnership



Robert Read
Saul Faust
Tristan Clark
Jeremy Webb
Hywel Morgan
James Wilkinson



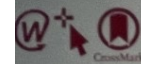
'a state-of-the-art laboratory within a newly built area adjacent to the University Hospital Southampton (UHS) acute medical service linked to the NIHR Clinical Research Facility...where clinicians, basic scientists and engineers will interact'

Over-arching strategy:

- Development and testing of rapid and point of care diagnostics
 - for antibiotic avoidance
- Search for novel therapies
 - Non-antibiotic



Level E, adjacent to Acute Medical Unit,
University Hospital Southampton



Clinical impact of molecular point-of-care testing for suspected COVID-19 in hospital (COV-19POC): a prospective, interventional, non-randomised, controlled study

Nathan J Brendish*, Stephen Poole*, Vasanth V Naidu, Christopher T Mansbridge, Nicholas J Norton, Helen Wheeler, Laura Presland, Stephen Kidd, Nicholas J Cortes, Florina Borca, Hang Phan, Gavin Babbage, Benoit Visseaux, Sean Ewings, Tristan W Clark

Summary

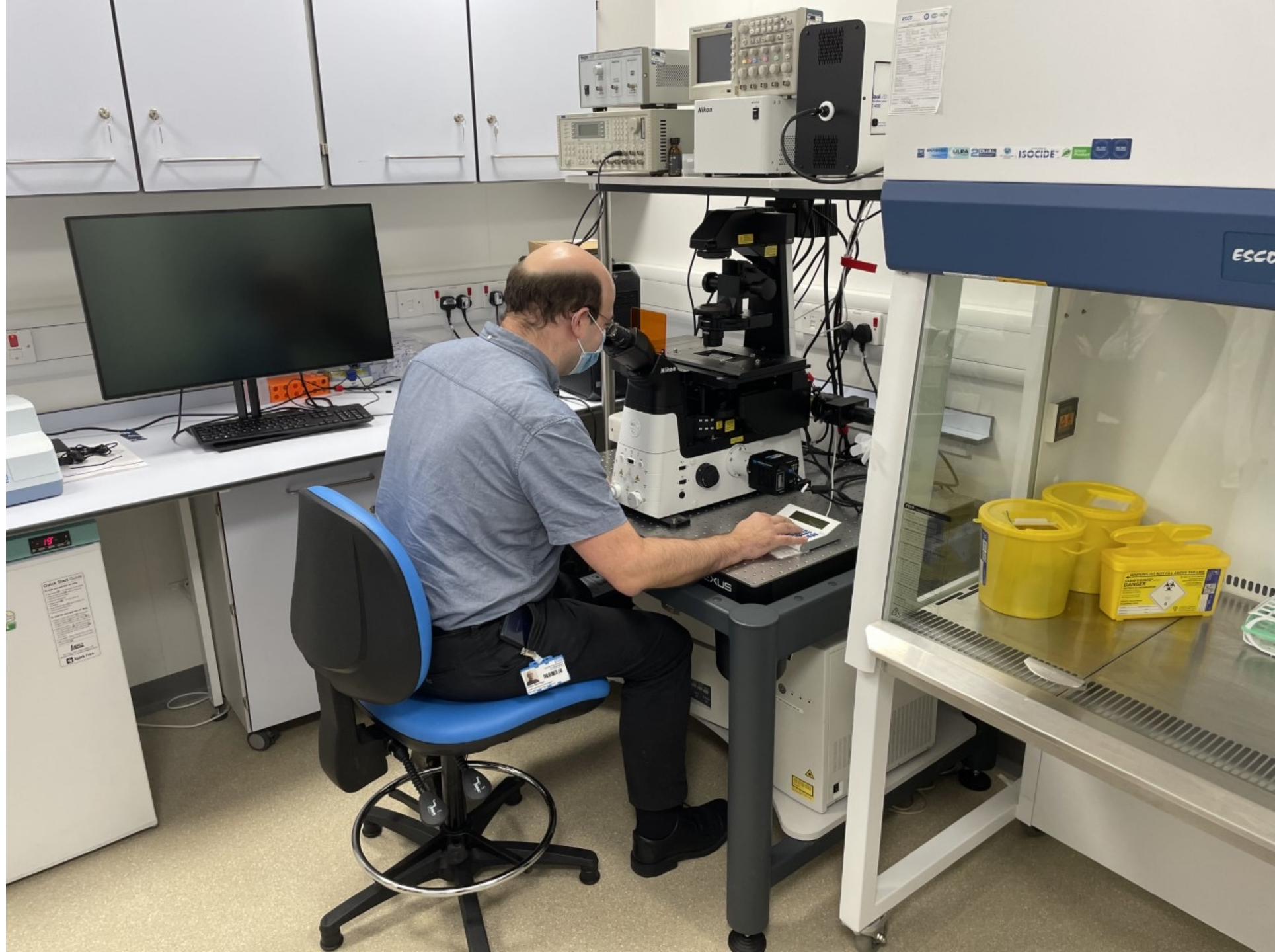
Lancet Respir Med 2020;
8: 1192-200
Published Online
October 8, 2020
[https://doi.org/10.1016/S2213-2600\(20\)30454-9](https://doi.org/10.1016/S2213-2600(20)30454-9)
See Comment page 1161

Background The management of the COVID-19 pandemic is hampered by long delays associated with centralised laboratory PCR testing. In hospitals, these delays lead to poor patient flow and nosocomial transmission. Rapid, accurate tests are therefore urgently needed in preparation for the next wave of the pandemic.

*Contributed equally

Methods We did a prospective, interventional, non-randomised, controlled study of molecular point-of-care testing in patients aged 18 years or older presenting with suspected COVID-19 to the emergency department or other acute areas of Southampton General Hospital during the first wave of the pandemic in the UK. Nose and throat swab samples taken at admission from patients in the point-of-care testing group were tested with the QIAstat-Dx Respiratory SARS-CoV-2 Panel. Samples taken from patients in a contemporaneous control group were tested by

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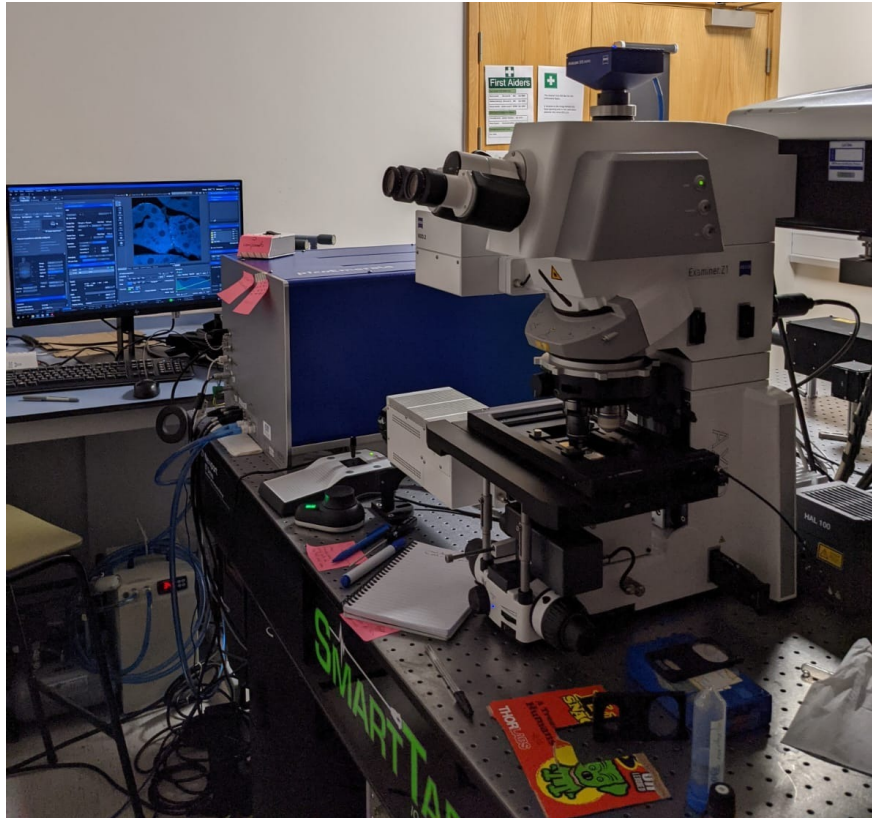


New microscopy equipment for AMR lab

Zeiss High resolution multimodal imaging system

Coherent anti-Stokes Raman Scattering
6-channel, label free readouts
Airyscan detector.

Location: Level C instrument room, IDS building (SGH)



Renishaw Automated Raman micro-spectrometer

Raman spectroscopy for label-free optical fingerprinting.
Microscope-top incubator available for live studies

Location: Cat 2 instrument room, Microbiology Lab, B85 (Highfield)



Nano-analysis.....

Zetasizer Ultra (Dynamic Light Scattering)



Nanosight (Nanoparticle Tracking Analysis)

