



**EDCTP**

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**ImmunoCoV - Host immune responses to SARS-CoV-2:  
correlating kinetics with the natural history of infection  
Reference: RIA2020EF-3042**

**EDCTP COVID-19 Webinar**

Zoom, 18-19 Mar 2021

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# Rationale and objectives

Kinetics of the immune response help understand sero-epidemiology, & are associated with Covid-19 pathogenesis/immunity, & those of the African population will be unique

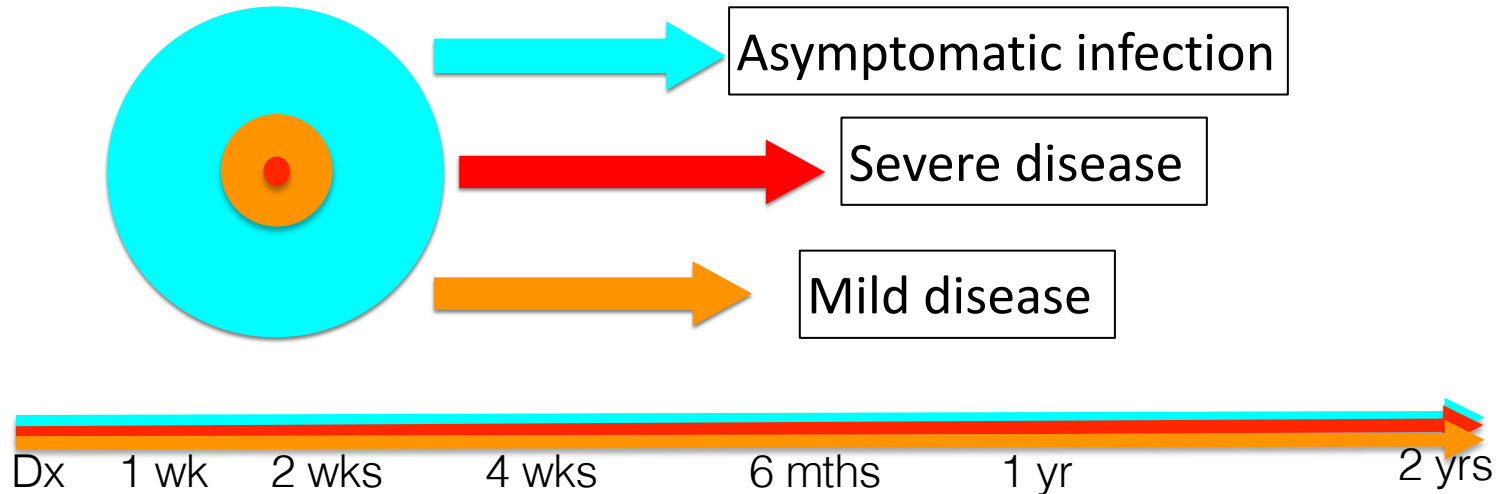
- Validate serological and cellular assays (IgG, IgM?, IgA)
- Determine kinetics of antibody and cellular/cytokine responses to SARS-CoV-2
- Measure their correlations with viral length of viral shedding, clinical symptoms and immunity
- Isolate & characterise monoclonal antibodies in individuals with high levels of neutralising antibodies

# Study design (longitudinal, over 2 years)

ImmunoCoV: Sampling framework								
	Day of PCR diagnosis	Day 7	Day 14	Day 28	Day 180	Day 360	Day 720	*Discharge/ study withdrawal
Heparin blood sample (ml)	20	20	20	20	20	20	20	20
Antibody/cytokine detection	x	x	x	x	x	x	x	x
Cellular assays	x	x	x	x	x	x	x	x
Vitamin D measurement	x	x	x	x	x	x	x	x
EDTA blood sample (ml)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
haematology	x	x	x	x	x	x	x	x
RNA sequencing	x	x	x	x	x	x	x	x
Chemistry	x							x
Pathogen screening	x							
Total blood volume	22	22	22	22	22	22	22	22
Nasal swab	1							
Oral pharyngeal swab	1	1	1	1	1	1	1	1
PCR diagnosis	x	x	x	x	x	x	x	x
Sequencing	x	x	x	x	x	x	x	x
Antibody detection	x	x	x	x	x	x	x	x
Stool sample	1							1
PCR diagnosis	x							x
Pathogen detection	x							
Induced sputum		x	x	x				



# Knowledge gaps



- interpreting sero-surveillance data
- why some become severely ill while others remain asymptomatic
- longevity of immunity
- longevity of virus shedding
- role of various immunodeficiencies
- compare African vs European samples



# Preliminary findings or Experience to share

## Challenges of implementing a study in the midst of a pandemic

- Delays in regulatory approvals
  - Scientific & Ethic reviews
  - Government permits
  - Risk assessment by institutional security and safety committees
- Changing fréquences of Covid-19 cases
- Working around changing government policies:
  - Isolation centres to for self-isolation at home
    - Severly sick patients easy to receruit from hospital wards (so far >20)
    - Mildly sick and asymptomatics more challenging:
      - Working with clinicians/upper respiratory tract clinics to identify potential parcipants
      - Recruiting newly diagnosed individuals and collecting their samples from home until they turn negative
  - Rapid Response Team stopped longitudinal follow-ups to test individuals until they are negative
    - We have take up the role for study participants

# Preliminary findings or Experience to share

- ImmunoCoV - recruitment and longitudinal sampling ongoing
- Other sample sets
  - Clinical residual samples for > 50 patients from a Biorepository protocol



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# Publications and other communications

- Publications coming soon!
  - Measure correlations between serological measures and disease severity – clinical residual samples
  - ImmunoCoV prospective samples – immune kinetics in an African population
    - Detailed cellular functions in selected participants

