

COVID-19 Bulletin

An RSB communication on the
bioscience behind the outbreak and
response

20 March 2020

A message from RSB Chief Executive Dr Mark Downs FRSB



Clinical practice and public health policy are essential in addressing the current pandemic. For these approaches to be effective, they must be underpinned by detailed understanding of the origin and biology of the virus and the mechanisms by which it spreads and causes disease, in addition to immune system response mechanisms. The Royal Society of Biology represents the full breadth of bioscience through a diverse membership tracking across many sub-disciplines.

This bulletin draws together current bioscience research and knowledge to help facilitate community understanding and response. It provides links to published news articles, publications and webpages.

The material presented is not intended to be comprehensive and is up to date as of the date of publication, giving just a glimpse of the huge efforts worldwide to understand SARS-CoV-2 and its effects. It is inevitable that some material will require specialist knowledge, but we hope it provides a useful snapshot for interested readers. Research outcomes and conclusions may evolve overtime, and readers should take action on the basis of medical advice and the latest advice from government, rather than necessarily relying solely on specific pieces of early research.

The RSB will endeavour to provide further such bulletins and updates if we receive positive feedback from our readers and community. In the meantime, from all of the RSB team - working remotely - we wish you and your community the very best. Thank you for your support. For further information and to get in touch and offer feedback, contact our policy team on: policy@rsb.org.uk.

Dr Mark Downs FRSB

This bulletin is divided into six main sections:

- 1. RSB news:** including key current updates from the RSB.
- 2. Research updates:** collating relevant research news and outputs under topic headings.
- 3. How else can the bioscience community help?** Listing current calls for resource and expertise.
- 4. Positive community news:** some examples of community impact aiding response to the pandemic.
- 5. Regularly updated information sources:** providing a collection of links to useful online information hubs.
- 6. A note on personal and community wellbeing:** linking to a short piece providing advice on maintaining good mental health through self-isolation and social distancing.

RSB news

RSB update regarding COVID-19

[School closures and Summer exam cancellations](#) – RSB news story summarises the announcements so far across the devolved education systems in England, Northern Ireland, Scotland and Wales.

For more current news, commentary and updates, visit the [RSB on Twitter](#), [The Biologist](#), and read our latest edition of the weekly [Science Policy Newsletter](#).

Research Updates

SARS-CoV-2 is a virus in the zoonotic coronavirus family. This novel virus, discovered in 2019, was previously unidentified in humans and causes the disease COVID-19, which has reached pandemic proportions in the global human population.

Science Media Centre Factsheet

SARS-CoV-2 virus characteristics

The species: [Severe acute respiratory syndrome-related coronavirus: classifying 2019-nCoV and naming it SARS-CoV-2](#)

The proximal origin of SARS-CoV-2

High Temperature and High Humidity Reduce the Transmission of COVID-19

New coronavirus stable for hours on surfaces

SARS-CoV-2 stability similar to original SARS virus.

Genomic epidemiology of novel coronavirus

Scientists are crowd-sourcing genomic information on SARS-CoV-2 strains from around the world to track the evolution and phylogenetic tree of the virus

Novel coronavirus structure reveals targets for vaccines and treatments

Why does the coronavirus spread so easily between people?

Researchers have identified microscopic features that could make the pathogen more infectious than the SARS virus — and serve as drug targets.

Pathogenicity and transmissibility of 2019-nCoV—A quick overview and comparison with other emerging viruses

[2015] A SARS-like cluster of circulating bat coronaviruses shows potential for human emergence

COVID-19 pathophysiology

Asymptomatic carrier state, acute respiratory disease, and pneumonia due to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2): Facts and myths

New analysis breaks down age-group risk for coronavirus - and shows millennials are not invincible

Epidemiology and public health response

The SARS-CoV-2 outbreak: what we know

Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand

Substantial undocumented infection facilitates the rapid dissemination of novel coronavirus (SARS-CoV2)

CoVID 19 Worldwide Growth Rates

Analysis of the COVID-19 Epidemic

Spatial and temporal spread of the infection modelled by the Laboratory for the Modelling of Biological and Socio-technical Systems under varying surveillance and containment scenarios

Exclusive: Here's How Fast the Coronavirus Could Infect Over 1 Million Americans

No evidence of COVID-19 transmission through food, says EFSA

There is currently “no evidence that food is a likely source or route of transmission” of the novel coronavirus, COVID-19, the European Food Safety Agency (EFSA) has concluded.

How will country-based mitigation measures influence the course of the COVID-19 epidemic?

Mass testing, school closings, lockdowns: Countries pick tactics in 'war' against coronavirus

Testing and ongoing surveillance

Development and Clinical Application of A Rapid IgM-IgG Combined Antibody Test for SARS-CoV-2 Infection Diagnosis

Why the CDC botched its coronavirus testing

The first testing kits from the Centers for Disease Control had a simple fault, and red tape prevented other labs from creating their own.

Prophylaxis and treatment

[WHO] Clinical management of severe acute respiratory infection when novel coronavirus (2019-nCoV) infection is suspected: interim guidance, 28 January 2020

ISIN Position Statement on Nutrition, Immunity and COVID-19

Experimental lung drug to be tested on UK coronavirus patients

Biotech firm Synairgen will trial SNG001 inhaler on 100 people in race to find cure

Hundreds of Scientists Scramble to Find a Coronavirus Treatment

In an ambitious international collaboration, researchers have "mapped" proteins in the coronavirus and identified 50 drugs to test against it.

Coronavirus vaccines: five key questions as trials begin

Some experts warn that accelerated testing will involve some risky trade-offs.

NIH clinical trial of investigational vaccine for COVID-19 begins

Trials to begin on Covid-19 vaccine in UK next month

Researchers hope to conduct animal tests next week and safety trials as early as next month

How else can the bioscience community help?

Coronavirus: PM urges industry to help make NHS ventilators

BIA Webinar: What can our community do to support the global effort on COVID-19?

UCL Coronavirus Response Fund

Contact RSB to discuss bioscience community issues or actions via policy@rsb.org.uk

Positive community news

The hunt for a coronavirus cure is showing how science can change for the better

Mologic awarded c.£1 million by UK government to develop rapid diagnostic test for COVID-19

ICC-WHO Joint Statement: An unprecedented private sector call to action to tackle COVID-19

Elsevier gives full access to COVID-19 research and data

Global leader in research publishing and information analytics, Elsevier, has opened access to all its COVID-19 research and data.

Publishers make coronavirus (COVID-19) content freely available and reusable

Podcast Extra: Coronavirus - science in the pandemic

Nick Howe investigates how researchers around the world are answering the call for science.

Regularly updated information sources

[\[NHS\] Overview - Coronavirus \(COVID-19\)](#)

[Coronavirus \(COVID-19\): UK government response](#)

[WHO information page](#)

[London School of Hygiene and Tropical Medicine COVID-19 information page](#)

[\[Royal Society\] Sharing research data and findings relevant to the novel coronavirus \(nCoV\) outbreak](#)

Updated collection of research papers curated by the Royal Society

[The Lancet COVID-19 resource centre](#)

[\[NEJM\] Coronavirus \(Covid-19\)](#)

A collection of articles and other resources on the Coronavirus (Covid-19) outbreak, including clinical reports, management guidelines, and commentary.

[\[JAMA\] Coronavirus Disease 2019 \(COVID-19\)](#)

Check back here for updates on COVID-19 diagnosis and treatment

[IDSA COVID-19 resource centre](#)

[\[Nature\] Coronavirus latest: Italy death toll overtakes China's](#)

Updates on the respiratory illness that has infected tens of thousands of people and killed several thousand.

[\[AAAS Science Magazine\] Coronavirus: Research, Commentary, and News](#)

[\[BBC\] Coronavirus: What next in the UK coronavirus fight?](#)

A note on personal and community wellbeing

[Coronavirus: how to manage your mental health during self-isolation](#)

As the government announces further social distancing measures, how should people maintain good mental health in long periods of self-isolation?



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