

COVID-19 Bulletin

An RSB communication on the
bioscience behind the outbreak and
response

20 April 2020

The third edition of the RSB COVID-19 bulletin highlights a selection of the bioscience research and news of the last fortnight. It cannot be comprehensive and gives just a glimpse of the huge worldwide effort to understand SARS-CoV-2 and its effects.

We can all contribute to the response to COVID-19 by engaging with sound science, countering misinformation and increasing awareness. We hope this bulletin is helpful in this.

Views or opinions presented are those of the original author(s) and do not necessarily represent the views of the Royal Society of Biology; medical and government advice should be consulted regarding personal wellbeing decisions.

For further information and to get in touch, contact our policy team via: policy@rsb.org.uk.

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. Other regularly updated information sources:** providing a collection of links to useful online information hubs.
- 6. A note on personal and community wellbeing:** linking to advice on maintaining good mental health through self-isolation and social distancing.

RSB news

[Main RSB webpage on COVID-19](#)

The RSB is working to adapt and ensure our services are delivered to the greatest extent possible whilst also taking into account Public Health England and Government advice during the pandemic. We regularly update this webpage with relevant information about our activities, initiatives and community support.

[RSB launches new Policy Resource Library for the biosciences](#)

The RSB has launched a free, innovative new library of policy resources for the biosciences, providing easy search and access to more than 800 published documents, including our recent outputs on COVID-19.

Education during COVID-19

Our education policy team is working with government, awarding bodies and policy partners to provide advice and support to teachers, parents and students. These pages will be updated regularly over the coming weeks.

Advice for students and parents during COVID-19 pandemic

Students should first take advice from their school on what to complete while at home. We have published further advice for students age 5 -19 that want to do more and parents looking for science activities to carry out at home, along with links to resources and how to access our online Gopher Science Lab training now free for parents to access for six months.

UK government and awarding bodies announcements

Exam boards and regulating bodies have published further details on how grades will be awarded for the 2020 cohorts, and begun providing support and resource for teachers facilitating at home learning. We are regularly engaging with partners and policymakers and will update this education announcements during COVID-19 pandemic page to keep teachers, schools and Universities fully informed.

Impact of Covid-19 disruptions on schools and higher education institutions

An inquiry by the education select committee is open until end of May, considering the implementation of the critical workers policy, fairness of qualification arrangements and progression to next stages of education, and financial implications of closures for Higher Education Institutions. If you plan to submit evidence, please let us know by emailing consultation@rsb.org.uk.

Closes: 31 May 2020

UK Science, Research and Technology Capability and Influence in Global Disease Outbreaks

The Science and Technology Committee will inquire formally into the place of UK research, science and technology in the national and global response to the COVID-19 pandemic, and what lessons should be learned for the future. The RSB response to this consultation is currently in draft. Please contact consultation@rsb.org.uk for more information and if you would like to contribute.

Closes: 31 July 2020

"It's about being 'about right' now, rather than perfectly right too late"

The Biologist has conducted a series of Q&As with life scientists working on emergency COVID-19 projects.

The series explores how the bioscience community has sprung into action to help understand, track, and treat COVID-19 – from the UK's largest research institute, to a lab in a shipping container.

Find interviews with Sir Paul Nurse, Professor Paul Freemont and others [here](#).

Contact tom.ireland@rsb.org.uk if you would like to be featured or have any information to contribute to this series.

For more current news, commentary and updates, visit the [RSB on Twitter](#), [LinkedIn](#), [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 level in the global human population.

[Scientific Advisory Group for Emergencies \(SAGE\): Coronavirus \(COVID-19\) response](#)

The Scientific Advisory Group for Emergencies (SAGE) provides scientific and technical advice to support government decision makers during emergencies. Here you can find a range of its statements and supporting evidence. The page is updated on a regular basis with the latest available evidence provided to SAGE.

[UK Parliament POST: Covid-19](#)

The Parliamentary Office of Science and Technology (POST) has produced a series of 'rapid response' articles on topics including potential COVID-19 vaccines and school closures.

SARS-CoV-2 virus characteristics

[Bad News Wrapped in Protein: Inside the Coronavirus Genome](#)

[Structure of M^{Pro} from COVID-19 virus and discovery of its inhibitors](#)

[A SARS-CoV-2-Human Protein-Protein Interaction Map Reveals Drug Targets and Potential Drug-Repurposing](#)

[ACE2 fragment as a decoy for novel SARS-Cov-2 virus](#)

COVID-19 pathophysiology

[How does coronavirus kill? Clinicians trace a ferocious rampage through the body, from brain to toes](#)

[Opinion: Who Is Immune to the Coronavirus?](#)

Important decisions about this question are being made, as they must be, based on only glimmers of data.

Epidemiology and public health response

[Special report: The simulations driving the world's response to COVID-19](#)

How epidemiologists rushed to model the coronavirus pandemic.

[Lockdown is working, suggests latest data from symptom tracker app](#)

The latest data analysis shows the rate of new symptoms being reported nationally has significantly slowed in the past few days.

[Life under lockdown: coronavirus in the UK](#)

A major [new survey](#) of the UK public by King's College London in partnership with Ipsos MORI shows there is strong understanding of the realities of Covid-19 and support for the government's measures – but there also remain widespread misperceptions, and many are struggling with life under "lockdown".

[Aerosol and Surface Distribution of Severe Acute Respiratory Syndrome Coronavirus 2 in Hospital Wards, Wuhan, China, 2020](#)

[Respiratory virus shedding in exhaled breath and efficacy of face masks](#)

Face masks cannot stop healthy people getting Covid-19, says WHO

Organisation's evidence review shows wearing mask outside does not prevent infection.

You may be able to spread coronavirus just by breathing, new report finds

Failure to publish data on BAME deaths could put more lives at risk, MPs warn

Government agrees to inquiry into why patients from ethnic minorities seem worse affected by Covid-19.

Men are much more likely to die from coronavirus - but why?

Trend has been replicated in all nations, but scientists cannot yet fathom the cause.

Risk Prediction and Assessment: Duration, Infections, and Death Toll of the COVID-19 and Its Impact on China's Economy

Risk Management Analysis for Novel Coronavirus in Wuhan, China

Informing management of lockdowns and a phased return to normality: a Solution Scan of non-pharmaceutical options to reduce SARS-CoV-2 transmission

This work is a collaboration between BioRISC (the Biosecurity Research Initiative at St Catharine's College, Cambridge), Conservation Evidence based in the Department of Zoology, University of Cambridge and the Centre for the Study of Existential Risk.

Covid-19: how do you lift a lockdown?

Following the decision to end Wuhan's lockdown this week, Hannah Devlin speaks to Dr Adam Kurcharski about the various aspects of lifting restrictive measures, including the importance of the timing and the role that testing could play.

The Tony Blair Institute for Global Change has produced a paper on: A Sustainable Exit Strategy: Managing Uncertainty, Minimising Harm

The British Society for Genetic Medicine (BSGM) Guidance on Shielding for vulnerable patients

A German Exception? Why the Country's Coronavirus Death Rate Is Low

The pandemic has hit Germany hard, with more than 100,000 people infected. But the percentage of fatal cases has been remarkably low compared to those in many neighboring countries.

Air pollution may be 'key contributor' to Covid-19 deaths – study

Research shows almost 80% of deaths across four countries were in most polluted regions.

Testing and ongoing surveillance

Guidance on coronavirus (COVID-19) tests and testing kits

Initial specifications for tests and testing kits and advice for members of the public.

WHO lists two COVID-19 tests for emergency use

Nature: Biomedical Engineering: Humanity tested.

The world needs mass at-home serological testing for antibodies elicited by SARS-CoV-2, and rapid and frequent point-of-care testing for the presence of the virus' RNA in selected populations.

[Trouble in testing land](#)

Professor Sir John Bell explores the challenges of antibody testing for Covid-19, noting that no tests to date have performed well.

[COVID-19: guidance for sampling and for diagnostic laboratories](#)

Information for clinical diagnostic laboratories regarding safety, sampling and packaging specimens associated with COVID-19.

[Analytical sensitivity and efficiency comparisons of SARS-COV-2 qRT-PCR assays](#)

[How sewage could reveal true scale of coronavirus outbreak](#)

Wastewater testing could also be used as an early-warning sign if the virus returns.

Prophylaxis and treatment

[Research Program on COVID-19/SARS-COV-2](#)

A description of the approaches that provide the best opportunities to prevent and treat COVID-19/SARS-COV-2, by the Rockefeller University.

[Plasma from coronavirus survivors found to help severely ill patients](#)

Blood transfusion studies by teams in China report striking improvements.

[Decoy ACE2 receptors could be promising COVID-19 infection-preventing drug](#)

Recombinant angiotensin converting enzymes (ACE2) reduced infection and viral growth in cell cultures and organoids by acting as a decoy for SARS-CoV-2.

[Decoy protein injection could stop COVID-19](#)

[Nature Reviews; Drug Discovery: The COVID-19 vaccine development landscape](#)

[COVID-19 vaccine development pipeline](#)

This tracker, developed by the Vaccine Centre at the London School of Hygiene & Tropical Medicine, will follow COVID-19 vaccine candidates as they progress through the development pipeline.

[Coronavirus vaccine: when will we have one?](#)

While the official 12- to 18-month timeframe still stands, experimental Covid-19 inoculations for high-risk groups could be rolled out much earlier.

[Coronavirus Information | IUPHAR/BPS Guide to Pharmacology](#)

Given the novelty of SARS-CoV-2 infection (COVID-19), and the lack of proven therapies, a wide variety of strategies are being employed to combat this worldwide epidemic.

How else can the bioscience community help?

[Help the government increase coronavirus \(COVID-19\) testing capacity](#)

The government wants help from businesses to increase testing capacity in the UK as part of its strategy to protect the NHS and save lives.

[How you can help with COVID-19](#)

An RSB webpage collating routes through which individuals can offer their help to support the

national effort to respond to the spread of COVID-19.

[COVID-19 resources from the community](#)

An RSB webpage with links to the COVID-19 initiatives of our partner bioscience organisations. This page is being updated regularly and if you would like to suggest additional content please [send us an email](#).

[BIA action and guidance on COVID-19](#)

This site provides key information on the COVID-19 situation for BIA member companies and the life sciences sector. [BIA's] aim is to help businesses during this difficult time and also highlight important work across our sector that is helping to tackle the outbreak.

[The COVID-19 host genetics initiative](#)

This initiative brings together the human genetics community to generate, share and analyze data to learn the genetic determinants of COVID-19 susceptibility, severity and outcomes. Such discoveries could help to generate hypotheses for drug repurposing, identify individuals at unusually high or low risk, and contribute to global knowledge of the biology of SARS-CoV-2 infection and disease.

[SARS-CoV-2 diagnostic pipeline](#)

FIND (the Foundation for Innovative New Diagnostics) are collating an overview of all SARS-CoV-2 tests commercially available or in development for the diagnosis of COVID-19.

[Free Virtual Partnering Event: 20 April - 6 May 2020](#)

[#PartneringAgainstCovid19](#)

To support the fight against COVID-19 and accelerate global collaboration, Lyonbiopole, Evaluate Ltd. and Inova are organizing a free Virtual Partnering Event for organizations with solutions for COVID-19 testing, treatment and prevention.

[Urgent funding gaps in the global response to coronavirus \(COVID-19\)](#)

At least \$8 billion of new funding is needed for the global response to coronavirus (COVID-19), according to the Wellcome Trust.

[COVID-19 Rapid Response Rolling Call](#)

Building on the initial calls of their Initiative, DHSC, through the NIHR, and UKRI are jointly launching a rolling call for proposals for rapid research into COVID-19. As this is a rolling call there is currently no fixed end date to the call, we are open to applications and will aim to review complete proposals within 4 weeks of submission.

[UN Governance Lab Call for Action: COVID-19 living repository for Data Collaboratives](#)

This website provides a space for the global statistical community to share guidance, actions, tools and best practices during the global COVID-19 crisis.

[Use of Open Government Data to address COVID-19 Outbreak](#)

Call for evidence: The OECD Secretariat, through the Digital Government and Data Unit, is calling for evidence on the release and use of Open Government Data (OGD) in response to the COVID-19 outbreak. We would like to hear from you about what data are being released and how different actors (such as entrepreneurs, media, researchers, CSOs, and the public sector) are innovating with them to support countries' policies and actions.

[Opinion: 'Today our researchers are helping to beat COVID-19 so that 'tomorrow' we can get back to beating cancer'](#)

Global MediXchange for Combating COVID-19 (GMCC)

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

Positive community news

#WeAreTogether: A campaign to showcase all the ways universities are helping the fight against the Covid-19 pandemic.

Coronavirus: Plasma treatment to be trialled

Canada begins clinical trial of experimental COVID-19 treatment using plasma from recovered individuals

Behind the Johns Hopkins University coronavirus dashboard
How a spur-of-the-moment decision went viral.

New app collects the sounds of COVID-19

A new app, which will be used to collect data to develop machine learning algorithms that could automatically detect whether a person is suffering from COVID-19 based on the sound of their voice, their breathing and coughing, has been launched by researchers at the University of Cambridge.

Other regularly updated information sources

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

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

[Public Health England \(PHE\) Coronavirus \(COVID-19\) advice](#)

[BBC] [Live updates of the coronavirus pandemic](#)

[BBC] [Coronavirus: A visual guide to the pandemic](#)

[WHO information page](#)

[WHO Coronavirus disease \(COVID-2019\) situation reports](#)

[Coronavirus disease \(COVID-19\) Situation Dashboard](#)

[Coronavirus disease \(COVID-19\) advice for the public: Myth busters](#)

[World Organisation for Animal Health \(OIE\) questions and answers on the 2019 Coronavirus Disease \(COVID-19\)](#)

[OECD Country policy tracker](#)

[What are countries doing to contain the spread of the coronavirus? How are countries helping](#)

people, small businesses and the economy to weather the crisis and beyond? This Country Policy Tracker helps you to navigate the global response.

[United Nations Coronavirus global health emergency information page](#)

[United Nations Department of Economic and Social Affairs Statistics • COVID-19 response](#)

This website provides a space for the global statistical community to share guidance, actions, tools and best practices to ensure the operational continuity of data programmes by National Statistical Offices, and to address issues of open and timely access to critical data needed by governments and all sectors of society to respond to the global COVID-19 crisis.

[European Centre for Disease Prevention and Control \(ECDC\) Q & A on COVID-19](#)

[Coronavirus COVID-19 Global Cases by Johns Hopkins CSSE](#)

[US Institute for Health Metrics and Evaluation COVID-19 projections](#)

[COVID-19 #CoronaVirus Infographic Datapack: Infographics describing different aspects of the pandemic.](#)

[MRC Centre for Global Infectious Disease Analysis](#)

[UKRI Coronavirus Hub](#)

The UKRI Coronavirus Hub gives you the latest information on the vital work of UKRI and our community in response to the crisis, what grants and awards we have made, and our continuing call to fund your ideas to limit the outbreak and protect life.

[UKRI Coronavirus: the science explained](#)

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

[Science Media Centre Covid -19 output page](#)

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

[LSHTM Viral Podcast](#)

[CSaP Science, Policy and Pandemics Podcast](#)

The Centre for Science and Policy at the University of Cambridge is proud to present CSaP's Science & Policy Podcast. Join us each week as our host, Dr Rob Doubleday, leads evidence-based discussions about the pressing challenges facing policymakers.

[COVID-19 activity across Edinburgh Infectious Diseases group](#)

News stories and other information about the efforts in Edinburgh to tackle the COVID-19 pandemic.

[Usher Institute COVID-19 webinars](#)

[University of Glasgow CVR Research Response to COVID-19](#)

[COVID-19 research at UCL](#)

[KCL Policy Institute Coronavirus analysis series](#)

[The UK Clinical Virology Network: Journal Watch](#)

[British Pharmacological Society Sector News on COVID-19](#)

[Infection Prevention Society COVID-19 Advice and Guidance](#)

[The Microbiology Society collection of free to access research on Coronaviruses](#)

[British Society for Haematology COVID-19 updates](#)

[FEMS Expert update on the SARS-CoV2 coronavirus causing the COVID-19 outbreak](#)

[British Infection Association COVID-19 updates](#)

[The Academy of Medical Sciences Coronavirus information hub](#)

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

Updated collection of research papers curated by the Royal Society.

[LitCovid](#)

Keep up with the latest coronavirus research. LitCovid is a curated literature hub for tracking up-to-date scientific information about the 2019 novel Coronavirus.

[Oxford COVID-19 Government Response Tracker](#)

Governments are taking a wide range of measures in response to the COVID-19 outbreak. The Oxford COVID-19 Government Response Tracker (OxCGRT) aims to track and compare government responses to the coronavirus outbreak worldwide rigorously and consistently.

[\[NEJM\] 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: China death toll jumps dramatically](#)

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](#)

[RCVS Knowledge COVID-19 Resources](#)

[\[ONS\] Office for National Statistics Coronavirus \(COVID-19\) roundup](#)

Catch up on the latest data and analysis related to the coronavirus (COVID-19) pandemic and its impact on our economy and society.

Full Fact: Facts on Coronavirus

Get the facts you need straight to your inbox.

A note on personal and community wellbeing

Safely conducting essential research in the face of COVID-19

Staying at home is not an option for scientists working on potential vaccines or caring for research animals.

Here is why you might be feeling tired while on lockdown



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Please note: This bulletin includes links to external articles or other resources. Views or opinions presented there are those of the original author(s) and do not necessarily represent the views of the Royal Society of Biology.

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