

# COVID-19 SPECIAL

FAPESP's main actions to deal  
with the pandemic caused by  
the novel coronavirus

The logo features the FAPESP logo (a stylized 'F' with a square) followed by the text 'FAPESP COVID-19'. The text is in a bold, sans-serif font. The logo is centered between two horizontal lines. Above and below the logo are faint, stylized illustrations of coronavirus particles.

**FAPESP** COVID-19

ANNUAL REPORT FAPESP

20/20



# TABLE OF CONTENTS

- 🦠 SUPPORT FOR RESEARCH ON COVID-19, 4
  
- 🦠 FAPESP'S COMMUNIQUÉS AND REGULATIONS REGARDING COVID-19, 10
  
- 🦠 SMALL ENTERPRISES IN THE FIGHT AGAINST COVID-19 , 13
  
- 🦠 MAIN DISCOVERIES RELATING TO COVID-19 SUPPORTED AND PUBLICIZED BY FAPESP – Timeline , 17
  
- 🦠 SCIENCE DISSEMINATION IN THE PANDEMIC, 25
  - COVID-19 Website
  - Agência FAPESP*
  - Pesquisa FAPESP* magazine
  - Events
  - FAPESP in the media during the pandemic
  
- 🦠 SERVICES PROVIDED BY FAPESP TO THE SCIENTIFIC COMMUNITY AND THE SAFETY OF STAFF AND COLLABORATORS, 36

# SUPPORT FOR RESEARCH ON COVID-19

## CALL FOR FAST TRACK SUPPLEMENTS

[www.fapesp.br/14082](http://www.fapesp.br/14082)

FAPESP issued a call for research proposals entitled “Fast track supplements for projects against COVID-19”, offering **\$PPP 8.048 million** in supplemental funding for already supported researchers to redirect resources, personnel and materials from ongoing projects – Thematic and Young Investigator Projects, Research, Innovation and Dissemination Centers (RIDCs), and Engineering Research Centers (ERCs) – to research on SARS-CoV-2 and COVID-19. Sixty projects were selected, involving **143** researchers at **28** higher education and research institutions.

## CALL FOR RESEARCH PROPOSALS TO DEVELOP TECHNOLOGIES FOR PRODUCTS, SERVICES AND PROCESSES TO COMBAT COVID-19

[www.fapesp.br/14229](http://www.fapesp.br/14229)

FAPESP, in partnership with FINEP, the Brazilian Innovation Agency, an arm of the Ministry of Science, Technology and Innovation, offered a special funding line of **\$PPP 8.654 million** under the aegis of the PIPE-PAPPE Grant Program to support micro and small enterprises and startups interested in applying or scaling up innovative processes or products relating to COVID-19, such as diagnostic kits, mechanical ventilators, personal protective equipment for health workers, and digital technologies and artificial intelligence for health services or patient care. Six projects were selected in 2020.

## JOINT CALL FOR RESEARCH PROPOSALS BY FAPESP, THE MINISTRY OF HEALTH AND CNPQ – RESEARCH FOR THE SUS: PPSUS-SP SHARED HEALTHCARE MANAGEMENT

[www.fapesp.br/14383](http://www.fapesp.br/14383)

This call was designed to support research projects capable of promoting scientific and technological development and innovation to strengthen the SUS, Brazil’s national health service, in São Paulo State in the context of the COVID-19 pandemic. Eight projects were selected for funding via FAPESP’s Research on Public Policies for the SUS Program (PPSUS), accounting for total investment of **\$PPP 398,312**.

## EUROPEAN UNION CALL FOR RESEARCH PROPOSALS TO DEVELOP THERAPIES AND DIAGNOSTIC TECHNIQUES TO COMBAT INFECTION BY THE NOVEL CORONAVIRUS

[www.fapesp.br/9775](http://www.fapesp.br/9775)

FAPESP participated in an EU emergency call to identify innovative therapies for COVID-19 and effective and reliable early diagnosis systems relating to the disease. The call was issued jointly by the Innovative Medicines Initiative, the European Federation of Pharmaceutical Industries and Associations, and the National Council of State Research Funding Agencies (CONFAP). Researchers affiliated with universities and research institutions in São Paulo and several other Brazilian states could submit proposals.

## GENETIC SEQUENCING OF SARS-COV-2

<http://agencia.fapesp.br/32655>

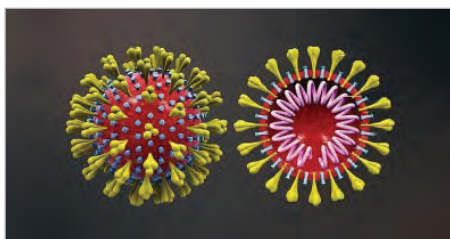


Imagem: Scientific Animations.com/Wikimedia Commons

Only two days after Latin America's first case of COVID-19 was confirmed in São Paulo City, researchers at Adolfo Lutz Institute (IAL), the University of São Paulo (USP) and Oxford University in the UK published the complete genome sequence of SARS-Cov-2. The researchers concerned are all affiliated with the Brazil-UK Center for Arbovirus Discovery, Diagnosis, Genomics and Epidemiology

(CADDE), which is supported by FAPESP via a Thematic Project, the UK Medical Research Council and the Newton Fund.

## PARTICIPATION IN PRODUCTION OF UN RESEARCH ROADMAP

<http://agencia.fapesp.br/33872>

FAPESP took part in a group of leaders of research funding agencies in 25 countries that contributed to production of the United Nations Research Roadmap for the COVID-19 Recovery, published in November 2020 with research priorities in strategic areas for building an equitable recovery, strengthening community resilience, and assuring progress toward the Sustainable Development Goals (SDGs). The Roadmap will serve as a compass for FAPESP's calls for proposals in 2021.



## COVID-19 DATA SHARING/BR

<https://agencia.fapesp.br/33522>

On June 18, 2020, in partnership with the University of São Paulo (USP), FAPESP implemented the first open-access repository in Brazil with anonymized data from patients tested for COVID-19. Its purpose is to enable sharing of patient data to support scientific research on the disease in various knowledge areas. Initially it contained demographic, clinical, laboratory and outcome data from all over the country contributed by Fleury Group (a private laboratory chain) and two leading private hospitals in São Paulo City, Syrian-Lebanese Hospital and Albert Einstein Jewish Hospital (HIAE). Since then it has been joined by Hospital das Clínicas, the hospital complex run by USP's Medical School (HC-FMUSP), and Beneficência Portuguesa de São Paulo (BP), the largest private hospital in Latin America. By end-2020, it held anonymized data from **485,000** patients, including approximately **47,000** outcome records, and more than **23 million** clinical examination and laboratory test records.

### ARBOVIRUS RESEARCH LEGACY

Scientists and companies in São Paulo State were able to respond rapidly to the challenges of the COVID-19 pandemic thanks to knowledge accumulated in decades of research. For more than 20 years FAPESP has supported projects on arboviruses, such as those that cause dengue, zika, chikungunya and yellow fever.

Between 2000 and 2007, for example, FAPESP sponsored the Virus Genetic Diversity Network (VGDN) comprising dozens of researchers and 18 laboratories, including four Biosafety Level 3+ (BSL3+) facilities – at the University of São Paulo's Institute of Biosciences (ICB-USP) and Ribeirão Preto campus, at São Paulo State University (UNESP) in São José do Rio Preto, and at Adolfo Lutz Institute (IAL).

The outcome was the production of a vast amount of solid knowledge about viruses, such as the dengue transmission rate, the evolution of the mosquito *Aedes aegypti*, and the development by Butantan Institute of a vaccine that is already in the clinical trial stage.

Thanks to this legacy, when the outbreak of zika occurred in 2015, FAPESP was able rapidly to organize the Zika Network, allocating additional funds for researchers to redirect projects to studies of the virus and fostering international cooperation via calls for proposals issued jointly with the US National Institutes of Health and the UK Medical Research Council, among other partners.



## EPICOID-19 BR

FAPESP supported the last phase of the largest survey of the prevalence of infection by SARS-CoV-2 conducted in Brazil. Initially, EPICOID-19 BR was coordinated by the Federal University of Pelotas (UFPEL) in Rio Grande do Sul, in four out of five phases. The first three were funded by the Health Ministry, and the fourth by Todos pela Saúde, an initiative led by private-sector bank Itaú Unibanco. The sample population for all five phases covered **133** cities (classed as hubs for administrative macroregions) and 25 census sectors, with ten households selected randomly in each sector. In the first four phases, one member of each household was tested for antibodies against SARS-CoV-2 (IgG and IgM) by a rapid serology test with **86.4%** and **99.6%** specificity. In the fifth phase, blood samples from all household members were submitted to immunoenzymatic analysis to identify antibodies with an accuracy rate exceeding **99%**. Participants also answered a questionnaire on sociodemographics (schooling, income, occupation etc.), as well as risk factors and exposure to the virus (comorbidities, commuting, frequency of shopping, receiving visitors etc). The results will be used to detect exposure patterns across cities, states and regions, broken down by age, gender, activity, education and income, in the first year of the pandemic in Brazil, and to define control strategies.

## CLINICAL TRIALS OF CORONAVAC AND OXFORD/ASTRAZENECA VACCINES

<http://agencia.fapesp.br/33936>

In partnership with Todos pela Saúde, an initiative led by private-sector bank Itaú Unibanco, FAPESP supported the Phase 3 clinical trial of Coronavac, the COVID-19 vaccine developed by China's Sinovac Biotech and produced in Brazil by Butantan Institute. It allocated **\$PPP 14.063 million** via its Public Policy Research Program (PPP) to studies of immunogenicity and safety in high-risk patients, adolescents and children. The private-sector initiative is investing **\$PPP 21.635 million** in vaccine production facilities. FAPESP also allocated **\$PPP 3.678 million** to support the project (FAPESP grant 2020/08943-5) "Investigation of host-induced elements in response to immunization with ChAdOx1 nCoV-19 vaccine in a Phase 3 Clinical Trial", conducted by the Federal University of São Paulo's Medical School (EPM-UNIFESP).



Photo: São Paulo State Government

## SUPPORT FOR THE DEVELOPMENT OF OTHER COVID-19 VACCINES

Besides its support for the Phase 3 clinical trial of CoronaVac conducted by Butantan Institute, FAPESP funded **eight** research projects relating to the development of COVID-19 vaccines, four by the University of São Paulo (USP), two by Butantan Institute, and two by startups supported by the FAPESP Innovative Research in Small Business Program (PIPE).

**1** A team led by Jorge Elias Kalil Filho at USP's Medical School is developing a DNA vaccine to be delivered by nasal spray, combining part of the SARS-CoV-2 spike protein with T epitopes to induce a response by neutralizing antibodies and strong cellular immunity, including cytotoxic T CD8+ lymphocytes, which kill infected cells, and T CD4+ lymphocytes, which help produce antibodies and also kill infected cells. The protein formed by the mixture of these two components will be produced in cells by means of the recombinant DNA technology and carried by nanoparticles that adhere to nasal mucosa, triggering an immune response and preventing the virus from spreading throughout the respiratory tract. The team plans to begin trials in humans in 2022.

**2** Ricardo Tostes Gazzinelli, a researcher at USP's Ribeirão Preto Medical School (FMRP-USP), is developing a DNA vaccine based on influenza reverse genetics, in which a gene in the influenza virus is replaced by a gene that encodes the SARS-CoV-2 spike protein's receptor binding domain (RBD). The nonreplicating virus produced in this manner will infect nasal mucosa cells and express the SARS-CoV-2 spike protein as well as proteins proper to influenza virus. It will be unable to leave the cells and cause disease, but will nevertheless induce an immune response. The research team used reverse genetics to produce RBD-expressing influenza viruses and administered it nasally to mice. Immunogenicity testing showed that the viruses induced production of anti-RBD antibodies in bronchoalveolar lavage (BAL) and serum from the inoculated animals, as well as a strong response by specific T lymphocytes. More tests will be performed on immunized animals, and clinical trials are expected to begin in 2022.

**3** A research project led by Gustavo Cabral de Miranda at the same university's Institute of Biomedical Sciences (ICB-USP) uses virus-like particles (VLPs) with similar characteristics to those of viral peptides and proteins, such as the SARS-CoV-2 spike protein. To make sure they trigger an immune response, the VLPs are inoculated together with viral antigens. The group has developed different vaccine formulations and tested them in animals. One is based on the spike protein's RBD and so far appears capable of inducing an immune response that neutralizes the virus. The next stage will be development of a cell line that can be used to produce the protein on a large scale. The group expects to begin testing in humans in 2022.

**4** Also at ICB-USP, a project conducted as part of the postdoctoral research of Marianna Favaro is developing a vaccine based on self-assembling protein nanoparticles (SAPNs). The approach entails genetic modification of viral proteins so that they acquire the capacity to self-assemble in nanoparticles with a three-dimensional structure that closely resembles the morphology





<http://agencia.fapesp.br/36222>

of viruses and can therefore interact more effectively with the immune system. The strategy mimics characteristics of the virus that are naturally recognized by the immune system as signs of pathogens and activate an immune response. The project is currently in the preclinical trial stage.

**5**

Butantan Institute is working on two major vaccine projects besides CoronaVac.

One is led by Soraia Attie Calil Jorge and is developing a platform to produce VLPs against SARS-CoV-2. The researchers have built the vectors, inserted structural genes for SARS-CoV-2 into the genome of a baculovirus, and begun producing VLPs in cells before embarking on preclinical trials.

**6**

The other project under way at Butantan Institute is led by Luciana Cezar de Cerqueira Leite and combines two technologies based on bacterial outer membrane vesicles (OMVs) – nanoparticles that mimic an infection and efficiently activate the immune system – combined with SARS-CoV-2 proteins to induce a broad immune response involving both

antibodies and defense cells. The researchers are at the stage of producing the vaccine, and tests in mice will begin in the second half of 2021.

**7**

Imunotera Soluções Terapêuticas, a University of São Paulo spinoff supported by the FAPESP Innovative Research in Small Business Program (PIPE), is developing a DNA vaccine with Luana Raposo de Melo Moraes Aps as principal investigator. The strategy

focuses on designing target sequences that include the viral epitopes most easily recognized by T lymphocytes, which confer cellular immunity against SARS-CoV-2 by producing cytokines or directly killing infected cells. The researchers adapted an existing T-cell generating technology used to develop, also with the support of PIPE-FAPESP, a DNA vaccine and purified recombinant protein that activates the immune system against HPV-induced cervical cancer. The next stage will entail testing in animals.

**8**

The startup Invent Biotecnologia in Ribeirão Preto is using a vaccine platform based on an attenuated live bacterium, which briefly colonizes the lymphoid organs associated with the intestines, as well as secondary lymphoid organs in animals. The principal investigator is Marcel Montels Trevisani. “The platform has been used to prevent equine pneumonia caused by *Rhodococcus equi*, with patient applications in Brazil and elsewhere,” he explained. The timetable calls for animal testing to begin in August 2021.



Photo: Leo Ramos Chaves / Pesquisa FAPESP magazine

# FAPESP'S COMMUNIQUÉS AND REGULATIONS REGARDING COVID-19

## FAPESP COMMUNIQUÉ N° 1 TO RESEARCHERS ON COVID-19

[www.fapesp.br/14070](http://www.fapesp.br/14070)

FAPESP recommends special measures to protect the health of researchers, students, advisors and public servants.

## FAPESP COMMUNIQUÉ N° 2 ON COVID-19

[www.fapesp.br/14080](http://www.fapesp.br/14080)

In light of the restrictions put in place to contain the spread of the epidemic, FAPESP extends the time allowed for the presentation of accounts and the duration of grants and scholarships in Brazil. Imports of goods and new awards of grants and scholarships abroad are suspended.

## GENERAL COMMUNIQUÉ ON CALL ANSWERING

[www.fapesp.br/14095](http://www.fapesp.br/14095)

Owing to the growing severity of the COVID-19 epidemic, FAPESP will suspend its telephone call answering service on March 24, 2020. Only messages and requests sent via the *Converse com a FAPESP* (“Talk to Us”) electronic channels will be answered from then on.

## COMMUNIQUÉ ON THE SERVICE PROVIDED BY THE FUNDING RELEASE SECTOR

[www.fapesp.br/14083](http://www.fapesp.br/14083)

In light of the COVID-19 epidemic and continuing implementation of FAPESP's new Financial Administration System (SIAF) to release funds for Regular Research Grants, the Funding Release Sector will provide service solely via FAPESP's website from March 19, 2020.

## COMMUNIQUÉ ON RECEPTION OF GRANT CONTRACTS

[www.fapesp.br/14110](http://www.fapesp.br/14110)

Owing to the restrictive measures put in place to contain the spread of the COVID-19 pandemic, FAPESP will exceptionally accept digital signatures by grantees and executive officers of host institutions to Grant Contracts and Addenda to Grant Contracts.



## EXECUTIVE BOARD ORDINANCE N° 15

[www.fapesp.br/14127](http://www.fapesp.br/14127)

Ordinance governing exceptional temporary procedures for the awarding of research grants, scholarships and fellowships in the context of the COVID-19 pandemic, with related provisions.



## FAPESP COMMUNIQUÉ N° 3 – SUPPLEMENTARY INFORMATION ON THE PROCEDURES FOR CHANGING THE DURATION OF GRANTS FOR RESEARCH INTERNSHIPS ABROAD (RIA) AND RESEARCH FELLOWSHIPS ABROAD (RFA)

[www.fapesp.br/14142](http://www.fapesp.br/14142)

FAPESP is making best efforts to ensure that interruptions to internships abroad due to the COVID-19 pandemic do not cause unjustifiable harm to grantees, bearing in mind that its budget is funded entirely by the taxpayers of São Paulo State.



## FAPESP EXECUTIVE BOARD COMMUNIQUÉ N° 4 TO RESEARCHERS ON THE RESCHEDULING OF IMPORTS

[www.fapesp.br/14204](http://www.fapesp.br/14204)

A decision informed by the impact of the fall in collection of state sales tax (ICMS) on FAPESP's budget, as well as local currency depreciation and the need to assure maintenance of research quality.



## FAPESP COMMUNIQUÉ N° 5 ON CHANGES TO THE GRANT ANALYSIS SYSTEM

[www.fapesp.br/14256](http://www.fapesp.br/14256)


This emergency provisional measure is designed to guarantee FAPESP's capacity to discharge the financial commitments assumed hitherto.



## FAPESP COMMUNIQUÉ N° 6 ON COVID-19

[www.fapesp.br/14333](http://www.fapesp.br/14333)

In light of the continuation of restrictive measures to contain the COVID-19 epidemic, FAPESP issues guidelines to the science and technology community in São Paulo regarding submission of proposals, reconsideration of budgets, extension of grants, and extra time to meet commitments.

 **FAPESP COMMUNIQUÉ N° 7 ON COVID-19 – APPLICATIONS FOR RESEARCH INTERNSHIPS ABROAD AND RESEARCH FELLOWSHIPS ABROAD (JULY 1, 2020)**

[www.fapesp.br/14334](http://www.fapesp.br/14334)

On this date (July 1, 2020), FAPESP will resume its analysis of applications for Scholarships for Research Internships Abroad (RIA) and Research Fellowships Abroad (RFA) solely in cases not subject to international travel restrictions and provided in-school activities have resumed in the foreign institutions concerned.

 **FAPESP COMMUNIQUÉ NO. 8 ON COVID-19**

[www.fapesp.br/14508](http://www.fapesp.br/14508)

In light of the COVID-19 pandemic, the postal workers' strike and questions sent to FAPESP, the Executive Board issues fresh guidelines to the science and technology community in São Paulo State.

# SMALL ENTERPRISES IN THE FIGHT AGAINST COVID-19

## PROJECTS SELECTED UNDER THE PIPE-PAPPE COVID-19 CALL

### BRAZILIAN FIRM REFINES MECHANICAL VENTILATOR TECHNOLOGY

(29 NEWS ITEMS)

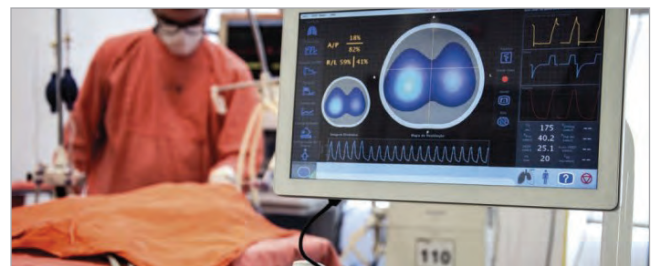
<https://pesquisaparinovacao.fapesp.br/1420>

Setup Automação e Controle de Processos, a firm based in Campinas (São Paulo State), developed two new portable ventilators that are more robust and easier to operate than existing models. One is designed for use in field hospitals, and the other for ICUs. They will be adaptable for use in complex surgeries on animals performed by vets. The firm is currently developing an automated test station for the calibration of ventilators of all kinds.

### TECHNOLOGY OPTIMIZES USE OF MECHANICAL VENTILATORS AND INTENSIVE CARE BEDS (17 NEWS ITEMS)

<https://agencia.fapesp.br/33000>

A monitoring system using electrical impedance tomography (EIT) developed by Timpel, a startup based on São Paulo, Brazil, could help increase the availability of mechanical ventilation and hence of intensive care beds for critical patients with COVID-19. The EIT technology, which was developed by the firm as part of a Thematic Project supported by FAPESP, is integrated with onboard software that enables healthcare staff to optimize the ventilation strategy for each patient, reducing the need for CT scans using X rays. The software was developed by Timpel with support from the PIPE program.



Electrical impedance tomography system developed by startup based in São Paulo minimizes complications associated with mechanical ventilation and is used in the treatment of COVID-19 by hospitals in Italy, Spain and the US.

### DIAGNOSIS AND MONITORING OF MUTATIONS IN SARS-COV-2

(FAPESP GRANT 2020/10241-6)

NGS Soluções Genômicas focuses on next-generation sequencing in its molecular biology strategies to develop tests to detect SARS-CoV-2, confirming RT-PCR testing. The methodology can also be used to detect other viruses, with specific strain discrimination in a single test, facilitating the monitoring of mutations.

## STARTUP HELPS CUT THE COST OF MOLECULAR TESTING TO DIAGNOSE COVID-19 (24 NEWS ITEMS)

<https://agencia.fapesp.br/33891>

Cellco Biotec, a startup based in São Carlos (São Paulo State), is developing an RT-qPCR test kit to diagnose COVID-19 by the multiplex method, in which all reactions take place in a single tube. The method enables samples from 96 people to be analyzed simultaneously per batch. The technique used in most labs can process samples from only 24 patients per batch.

## AFFORDABLE COVID-19 TEST IMPROVES ACCESS TO DIAGNOSIS (189 NEWS ITEMS)

<https://agencia.fapesp.br/35101>

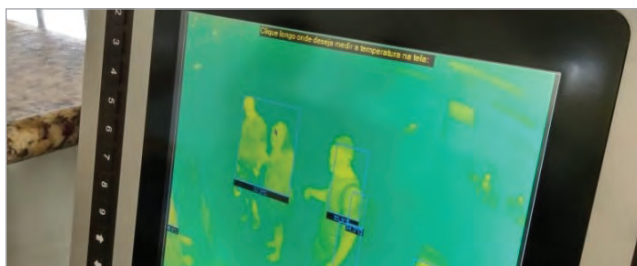
A test that detects antibodies to the novel coronavirus in 10 minutes and costs only a fifth of the market average was developed by researchers at the University of São Paulo's São Carlos Chemistry Institute (IQSC-USP) and Brazilian startup Biolinker with FAPESP's support. The device works similarly to the rapid tests available now in pharmacies. It should sell for 30 Brazilian Reais (now about 6 US Dollars) once it has been approved by ANVISA, the national health surveillance authority.

## MILITARY TECHNOLOGIES WILL HELP DETECT PEOPLE WITH SUSPECTED COVID-19 IN CROWDED PLACES (5 NEWS ITEMS)

<http://pesquisaparinovacao.fapesp.br/1419>

A monocular thermal scope developed for the Brazilian armed forces and a system that captures different wavelengths normally used by armored vehicle drivers in the army are being converted into a tool for combating COVID-19.

Currently sold for military purposes by Brazilian firm Opto Space & Defense, the technologies are being integrated and upgraded for use as a fever detection system in crowded areas.



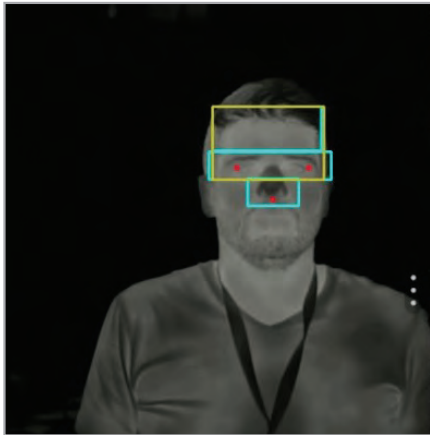
Smart visible and thermal spectrum imaging system to spot people with fever in schools, malls or offices (photo: Opto Space & Defense)

## FIRMS SUPPORTED BY PIPE THAT REDIRECTED RESEARCH PROJECTS TO HELP COMBAT COVID-19

### SYSTEM THAT DETECTS FEVER AT A DISTANCE (104 NEWS ITEMS)

<https://agencia.fapesp.br/33041>

Hoobox and Radsquare, artificial intelligence startups based in São Paulo State, developed a system called Fevver consisting of a thermal camera and facial recognition



AI-based technology developed to reduce the risk of coronavirus transmission (image: Hoobox).

algorithms that automatically scans the faces of people who enter the Albert Einstein Jewish Hospital (HIAE) and measures their temperature at a distance. If it detects a fever, it sends a smartphone alert to the duty nurse, who will quickly activate the hospital's triage protocol, isolating the person if necessary to avoid transmission of SARS-CoV-2 in the hospital environment. Both startups are supported by Eretz.bio, a healthcare startup incubator operated by the Albert Einstein Jewish-Brazilian Charitable Society (SBIBAE). The face recognition technology was developed by Hoobox with the support of FAPESP's Innovative Research in Small Business Program (PIPE) for

other applications and has now been adapted to meet requirements associated with the pandemic.

## FABRIC THAT ELIMINATES NOVEL CORONAVIRUS BY CONTACT

(802 NEWS ITEMS)

<https://agencia.fapesp.br/33568>

Researchers at Nanox, a São Paulo-based company, developed a fabric with a surface layer of silver nanoparticles that inactivates SARS-CoV-2. The material eliminated 99.9% of the viral load after two minutes of contact in laboratory tests. It was developed with the collaboration of researchers at the University of São Paulo's Biomedical Sciences Institute (ICB-USP), Spain's Jaume I University, and the Center for Research and Development of Functional Materials (CDMF), one of the Research, Innovation and Dissemination Centers (RIDCs) supported by FAPESP.

## MECHANICAL VENTILATORS FOR BRAZIL'S HEALTH MINISTRY

(20 NEWS ITEMS)

<https://agencia.fapesp.br/32996>

In April 2020, São Paulo-based Magnamed signed an agreement with Brazil's Health Ministry for the emergency supply of 6,500 mechanical ventilators by August. The portable ventilator is called OxyMag and was developed with the support of PIPE between 2006 and 2012. Forty per cent of the units produced by Magnamed are currently operating in intensive care units (ICUs). The solution was the first step in the firm's transformation from garage startup to a company that exports to more than 60 countries. It now has a plant in the US, and exports account for 40% of its sales revenue.

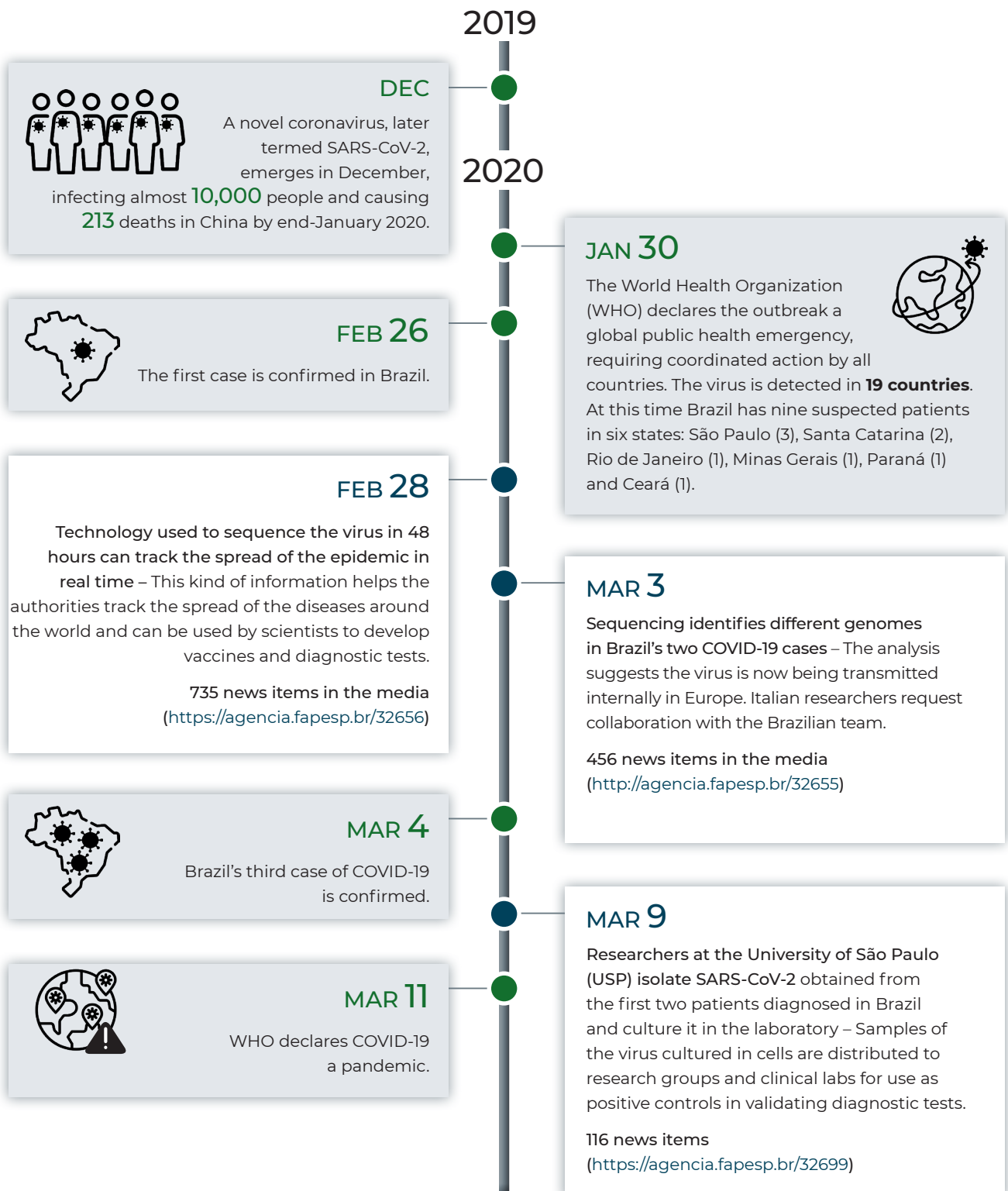
## TECHNOLOGY FOR REMOTE MONITORING OF PATIENTS WITH SUSPECTED COVID-19 (49 NEWS ITEMS)

<https://agencia.fapesp.br/33144>

A sleep apnea home diagnostic and monitoring system based on the Internet of Things can be used for the remote monitoring of individuals with suspected COVID-19 or mild symptoms of the disease. Developed by Biologix, a startup located in São Paulo State, the system can also be used to recommend transfer to a hospital if the patient's clinical signs worsen. A cordless portable sensor placed on the patient's index finger captures oxygen saturation and heart rate data, which is collected in real time by a free smartphone app. The program automatically sends the data to the cloud and to a control panel operated by the medical team responsible for monitoring each patient.



# MAIN DISCOVERIES RELATING TO COVID-19 SUPPORTED AND PUBLICIZED BY FAPESP – TIMELINE



2020




**MAR 12**  
 FAPESP Communiqué n° 1 to Researchers on COVID-19.  
<https://fapesp.br/14070>

**MAR 13**  
 Rio de Janeiro State and São Paulo State close schools.


**MAR 16**  
 The Heart Institute (InCor), part of the hospital complex run by the University of São Paulo's Medical School, announces that it is developing a COVID-19 vaccine using multiprotein structures known as virus-like particles (VLPs), which are easily recognized by the immune system.  
**590 news items** (<https://agencia.fapesp.br/32761>)

**MAR 17**  
 The government announces the first death from COVID-19 in Brazil.


**MAR 18**  
 FAPESP Communiqué n° 2 on COVID-19.  
<https://fapesp.br/14080>

**MAR 18**  
 Minimally invasive autopsies confirm deaths from COVID-19 in São Paulo – Technique developed by USP is used to confirm deaths from the disease and advance understanding of its biology.  
**80 news items** (<https://agencia.fapesp.br/32810>)





**MAR 20**  
 General communiqué on call answering.  
<https://fapesp.br/14095>

**MAR 20**  
 FAPESP announces funding for research to combat COVID-19.  
**165 news items** (<https://agencia.fapesp.br/32812>)




**MAR 21**  
 FAPESP encourages researchers it supports to re-direct projects to combat COVID-19.  
**35 news items** (<https://agencia.fapesp.br/32819>)

**MAR 23**  
 Communiqué about the services provided by the Funding Release Sector.  
<https://fapesp.br/14083>

**MAR 24**  
 Communiqué on reception of Grant Contracts.  
<https://fapesp.br/14110>



2020

**MAR 26**

54.8% of COVID-19 cases imported to Brazil by March 5 have come from Italy – Brazilian researchers made the discovery, in collaboration with colleagues in the UK, Canada and the US.

**228 news items** (<https://agencia.fapesp.br/32854>)

**MAR 27**

A study by USP could help researchers find out why COVID-19 mortality is higher among people with chronic health problems.



**45 news items**  
(<https://agencia.fapesp.br/32947>)



**APR 2**

FAPESP Executive Board issues Ordinance 15

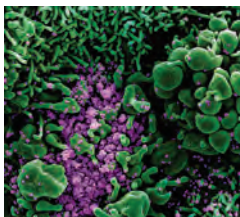
<https://fapesp.br/14127>

**APR 11**

FAPESP Communiqué n° 3  
Supplementary information on the procedures for changing the duration of grants for Research Internships Abroad (RIA) and Research Fellowships Abroad (RFA).



<https://fapesp.br/14142>



Apoptotic cell (green) strongly infected by SARS-CoV-2 (purple). Image: NIAID/Wikimedia Commons.

**APR 11**

Study identifies potential target for treatment of COVID-19 – Researchers at UNESP and UNICAMP found that expression of the gene TRIB3 was diminished in lung epithelial cells in men aged more than 60, such cells being preferential targets for SARS-CoV-2. Compounds capable of reversing the process could be tested against the virus.

**213 news items**  
(<https://agencia.fapesp.br/33050>)

**APR 15**

Butantan Institute to develop antibodies for treatment of COVID-19  
Researchers selected neutralizing monoclonal antibodies from B cells in patients who recovered from COVID-19 to extract proteins that could be used to block replication of the virus.

**545 news items**  
(<https://agencia.fapesp.br/33052>)



**APR 22**

First deaths in care homes.

**APR 29**

Study by UNICAMP confirms that SARS-CoV-2 can infect human neurons – Infection and elevation of viral load in nerve cells were confirmed by RT-PCR testing.



**440 news items**  
(<https://agencia.fapesp.br/33146>)



**APR 30**

FAPESP Communiqué n° 4 to Researchers on rescheduling of imports.  
(<https://fapesp.br/14204>)

2020

**MAY 4**

Researchers at Butantan Institute combine biotech techniques to formulate COVID-19 vaccine – The aim is to stimulate the organism to develop different kinds of immune response to the virus.

**325 news items** (<https://agencia.fapesp.br/33145>)

**MAY 6**

FAPESP extends deadline for submission of proposals to PIPE COVID-19 call.



**31 news items** (<https://agencia.fapesp.br/33095>)



**MAY 9**

Number of deaths reaches **10,000**; **156,000** confirmed cases..

**MAY 11**

Study by UNIFESP shows that anticoagulant drug heparin achieves 70% reduction in infection of cells by novel coronavirus – The drug combats clotting in the lungs and also appears to stop SARS-CoV-2 invading cells.

**581 news items** (<https://agencia.fapesp.br/33200>)

**MAY 12**

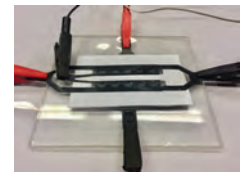
Study by UNICAMP shows lockdown will be unavoidable São Paulo if social isolation rate does not rise.

**308 news items** (<https://agencia.fapesp.br/33147>)

**MAY 13**

Researchers at UFSCar develop rapid test to detect COVID-19

Device uses electrochemical sensor to detect at least three viral genome sequences in saliva.



Device detects parts of viral RNA in saliva of infected individuals (photo: UFSCar)

**303 news items** (<https://agencia.fapesp.br/33298>)

**MAY 21**

FAPESP holds 1<sup>st</sup> COVID-19 Webinar

Reproduction number, government, response and limited testing: international experiences.



**21 news items and 9,500 YouTube views** ([https://www.youtube.com/watch?v=\\_1u\\_yworTco&t=10s](https://www.youtube.com/watch?v=_1u_yworTco&t=10s))

**MAY 25**

Researchers discover mechanism that makes COVID-19 more severe in diabetics Elevated blood sugar is captured by monocytes and serves as a source of energy for replication by SARS-CoV-2.

**185 news items** (<https://agencia.fapesp.br/33296>)

**MAY 26**

Gene editing tool developed by USP could help block infection by novel coronavirus – Researchers create a system to simulate mutations in the gene that encodes the protein ACE2.

**145 news items** (<https://agencia.fapesp.br/33352>)



2020



**MAY 26**

FAPESP Communiqué n° 5 on changes to the system that analyzes applications for grants and scholarships.

<https://fapesp.br/14256>

**JUN 4**

FAPESP holds 2<sup>nd</sup> COVID-19 Webinar Focusing maths of COVID-19 on South America.

**5 news items and 2,114 YouTube views** (<https://www.youtube.com/watch?v=yaC4x4xZk5Y>)




**JUN 11**

Butantan Institute and Sinovac announce partnership for Phase 3 clinical trials of Coronavac – a candidate COVID-19 vaccine, in Brazil.

**JUN 17**

FAPESP creates COVID-19 Data Sharing/BR, a repository of clinical information for use in research on the disease – The open-access platform holds anonymized patient data uploaded by hospitals and clinical laboratories.

**170 news items** (<https://agencia.fapesp.br/33522>)



**JUL 1**

FAPESP Communiqué n° 6 on COVID-19.

<https://fapesp.br/14333>

**JUN 1**

Scientists at UNESP develop COVID-19 accelerometer – Online app monitors in real time the tendency for the disease to spread faster or slower in over 200 countries and territories.


**174 news items** (<https://agencia.fapesp.br/33407>)

**JUN 5**

Researchers at InCor start testing a potential COVID-19 vaccine in mice.

**204 news items** (<https://agencia.fapesp.br/33405>)

**JUN 15**




Study by USP proves that COVID-19 had already begun spreading in Brazil when social distancing orders and mobility restrictions were introduced.

**323 news items** (<https://agencia.fapesp.br/33776>)


**JUN 19**

1 million confirmed cases in Brazil.



**JUL 1**

FAPESP Communiqué n° 7 on COVID-19 – Applications for Research Internships Abroad (RIA) and Research Fellowships Abroad (RFA).



<https://fapesp.br/14334>

2020



**JUL 1<sup>ST</sup>**

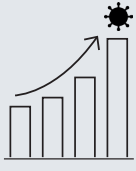
FAPESP holds 3<sup>rd</sup> COVID-19 Webinar – Contact tracing and lockdown easing plan.

**11 news items and 2,700 YouTube views**  
(<https://www.youtube.com/watch?v=GOGHwblWTjo>)

**JUL 13**

Study by UNICAMP suggests adipose tissue can serve as reservoir for novel coronavirus – Obese people tend to have a higher viral load.

**336 news items** (<https://agencia.fapesp.br/33729>)



**JUL 25**

First wave of COVID-19 peaks  
In the 30th epidemiological week of 2020, Brazil had the largest number of weekly deaths since the pandemic began: **7,677**

**JUL 28**

Researchers at USP make a live recording of blood clots forming in COVID-19 patients.

**280 news items**  
(<https://agencia.fapesp.br/33909>)

<https://covid19.fapesp.br/en>

**AGO**

Launch of COVID-19 Website.



**AGO 3**

Artificial intelligence used to diagnose COVID-19 in 20 minutes and predict risk of complications – System uses algorithms to recognize characteristic pattern of molecules in patient blood plasma.

**130 news items**  
(<https://agencia.fapesp.br/34022>)



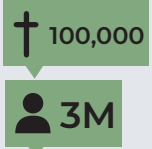
**AGO 5**

FAPESP holds 4<sup>th</sup> COVID-19 Webinar – Open Data under the COVID-19 Pandemic.

**9 news items and 1,600 YouTube views**  
(<https://www.youtube.com/watch?v=IPVFMWQlg0&t=8s>)

**AGO 8**

Brazil reaches 100,000 deaths and 3 million confirmed cases.



**AGO 17**

Study by USP shows that anti-inflammatory drug colchicine accelerates hospitalized COVID-19 patient recovery.

**208 news items** (<https://agencia.fapesp.br/33958>)

**AGO 21**

CoronaVac vaccine, being tested by Butantan Institute, to receive BRL 82.5 million from FAPESP and Todos pela Saúde.

**66 news items** (<https://agencia.fapesp.br/33936>)



2020

**AUG 28**

Researchers at USP develop test to diagnose COVID-19 in saliva – The test is based on RT-LAMP, a molecular technique used to diagnose infectious diseases such as dengue, chikungunya, hepatitis A and zika.

**63 news items** (<https://agencia.fapesp.br/34135>)

**SEP 2**

FAPESP holds 5<sup>th</sup> COVID-19 Webinar – COVID-19 Economic Recovery Strategies: basic income



**15 news items and 809 YouTube views** (<https://www.youtube.com/watch?v=tuGclAhiEjU>)

**SEP 15**

Adhesive plastic film protects surfaces by inactivating novel coronavirus – Material developed by Nanox contains silver-silica nanoparticles and disinfects by contact.

**228 news items** (<https://pesquisaparinovacao.fapesp.br/1595>)

**SEP 21**

Gastroesophageal reflux may increase risk of death from COVID-19, study by USP shows Stomach acid appears to increase expression in tissue of ACE2, the gene that encodes the protein to which SARS-CoV-2 binds in order to invade human cells.

**113 news items** (<https://agencia.fapesp.br/34468>)



**SEP 23**

With 66% of its population infected, Manaus may have reached herd immunity.

**743 news items** (<https://agencia.fapesp.br/34291>)

**SEP 24**

FAPESP Communiqué n° 8 on COVID-19.



<https://fapesp.br/14508>

**SEP 24**

Two anti-inflammatory compounds found capable of accelerating recovery from COVID-19 Studies by USP suggest monoclonal antibody eculizumab and experimental drug AMY-101 can combat exacerbated inflammatory response to virus.

**118 news items** (<https://agencia.fapesp.br/34570>)

**OCT 1**

Study by UNICAMP shows that SARS-CoV-2 uses a similar strategy to HIV to infect defense cells – Both viruses affect T CD4+ cells, which coordinate the adaptive immune response.

**101 news items** (<https://agencia.fapesp.br/34469>)



**OCT 15**

Study by UNICAMP, USP, IDOR and UFRJ proves that novel coronavirus affects brain and details effects on nerve cells – Research shows SARS-CoV-2 infecting and replicating in astrocytes, potentially reducing viability of neurons. .

**574 news items** (<https://agencia.fapesp.br/34404>)

**NOV 4**

FAPESP holds 6<sup>th</sup> COVID-19 Webinar – Values-Based Behavior under COVID-19.



**13 news items and 930 YouTube views** (<https://www.youtube.com/watch?v=VgnF-wkPgul&t=7s>)

2020



NOV 23

COVID-19 hospitalizations are 34% lower among physically active people, study by USP shows.

103 news items (<https://agencia.fapesp.br/34841>)



DEC 1

Saliva-based COVID-19 test developed by USP – Method is an alternative to RT-PCR test and complies with guidelines issued by ANVISA.

Developed at Human Genome and Stem Cell Research Center (photo: HUG-CELL)

186 news items (<https://agencia.fapesp.br/34718>)



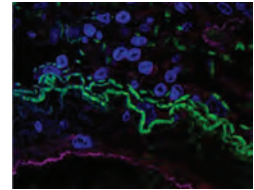
DEC 14

FAPESP holds 7<sup>th</sup> COVID-19 Webinar – Facing the challenges on vaccine distribution.

28 news items and 637 YouTube views (<https://www.youtube.com/watch?v=bZbo-Og3aQU&t=2s>)

NOV 25

Study by USP describes immune system mechanism that triggers cytokine storm typical of COVID-19 – Inflammasome participates in activation of inflammatory process that can damage several organs and even lead to death.



Lung tissue from a patient who died after contracting COVID-19. Red dots: active inflammasome cells (puncta). Green: collagen fibers. Blue: lung cell nuclei. Pink: epithelial cells (image: Keyla S. G. de Sá/FMRP-USP)

43 news items (<https://agencia.fapesp.br/34732>)

DEC 31

Brazil has had 194,976 deaths and 7,675,781 confirmed cases of COVID-19 since the start of the pandemic.

† 194,976

👤 7,675,781



## SCIENTIFIC DISSEMINATION IN THE PANDEMIC

### COVID-19 WEBSITE

<https://covid19.fapesp.br/en>

In July 2020, FAPESP launched a website with information about research and development projects in new technologies to combat the disease, news articles and videos on the results of these investigations, and access to the schedule and archive of its COVID-19 webinars, comunicués, ordinances and calls for proposals, among other initiatives relating to the disease and SARS-CoV-2. Since its creation, the website has recorded **9,781** hits and **21,225** page views.

### AGÊNCIA FAPESP



#### BULLETIN AND NEWS WEBSITE

In 2020, Agência FAPESP published **228** news articles about research supported by FAPESP relating to SARS-CoV-2 and COVID-19. Many of these articles were published in real time on Agência FAPESP's website, even before they circulated in the daily bulletin, and distributed to the media.

The website recorded **4.5 million** hits in the period March-December 2020, for an increase of **37%** year over year. Its contents were reproduced in **19,477** news items published by media outlets in Brazil (**16,311**) and other countries (**3,166**).

#### The ten most-read news items published by Agência FAPESP during the COVID-19 pandemic

Article	Published on	Page views
Amazonas data reinforces theory that collective immunity to SARS-CoV-2 could be reached sooner than predicted	Aug 6 <sup>th</sup> 2020	131,021
Study proves that novel coronavirus affects the brain and details its effects on nerve cells	Oct 15 <sup>th</sup> 2020	128,217
Experts recommend ways to combat pandemic in the second half of this year	July 16 <sup>th</sup> 2020	125,580
Exercise hormone can modulate genes associated with replication by novel coronavirus, study suggests	Aug 11 <sup>th</sup> 2020	122,878
COVID-19 should be treated as a thrombotic disease, Brazilian physician says	May 15 <sup>th</sup> 2020	121,660
São Paulo firm develops fabric that eliminates novel coronavirus by contact	June 17 <sup>th</sup> 2020	121,239
Protein in blood of COVID-19 patients may indicate progression and severity of the disease	Oct 1 <sup>st</sup> 2020	103,483
Anti-inflammatory drug colchicine accelerates recovery of hospitalized COVID-19 patients	Aug 17 <sup>th</sup> 2020	83,919
Researchers discover mechanism that makes COVID-19 more severe in diabetics	May 25 <sup>th</sup> 2020	81,901
Study suggests adipose tissue can serve as reservoir for novel coronavirus	July 13 <sup>th</sup> 2020	78,893

## PARTNERSHIP BETWEEN AGÊNCIA FAPESP AND BUTANTAN INSTITUTE CHANNEL

Agência FAPESP and Butantan Institute's YouTube channel held four webinars on aspects of the COVID-19 pandemic between July and September 2020. They were viewed **56,500** times. Dissemination of the research results discussed by the experts who took part led to publication of **1,071** news items by media outlets (**1,009** in Brazil and **62** in other countries).

## FIELD DIARY SERIES (*DIÁRIO DE CAMPO*)



Agência FAPESP produced the Field Diary series in five chapters, comprising videos, photos and texts by Marcelo Urbano Ferreira and Marly Augusto Cardoso, researchers at the University of São Paulo (USP) in Brazil, recounting their ten-day expedition to Mâncio Lima, a small town in the state of Acre near the border with Peru. The aim was to collect material and investigate the dynamics of transmission of COVID-19 in the local population. A teaser, trailer and the complete series were posted to social media in October 2020. An abridged version of the series was broadcast by TV Cultura. The videos (in Portuguese, some with English subtitles) registered **2,337** views on YouTube and **2,820** on Facebook.

## VIDEO REPORTAGE

The **18** films about COVID-19 exhibited by Agência FAPESP **562,462** views on its YouTube channel and **66,445** on Facebook. The most viewed on both social media were “Coronavirus is produced in laboratory by researchers at USP” (498,594 views), “Autopsies could help treat severe cases of COVID-19” (53,610), “Researchers record formation of blood clots in COVID-19 patients” (16,157), and “COVID-19 should be treated as a thrombotic disease” (12,089).

## CIÊNCIA SP



This is another Agencia FAPESP channel, where **24** videos relating to COVID-19 were watched **48,923** times on YouTube and **34,800** on Facebook. The most viewed on both were “Technology for mechanical ventilators” (13,909 views), “Reusable mask against novel coronavirus” (13,850), “Keep coronavirus away from food” (9,123), and “Coronavac vaccine” (6,359).



## AGÊNCIA FAPESP ON SOCIAL MEDIA

COVID-19 was the most frequent focus for Agência FAPESP’s top-performing posts on Facebook, Twitter and Instagram in terms of both engagements and views in 2020.

Coverage of the pandemic also boosted the number of followers, particularly on Twitter and Instagram, and diversified the profiles mentioning Agência FAPESP on social media (see the chapter on this topic for more details).



@agfapesp

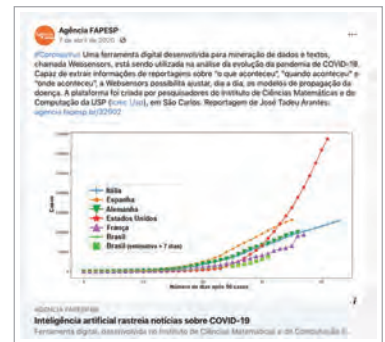
On **Facebook**, nine of the top ten posts in total engagements were about COVID-19. The standouts were: “Technology that sequenced coronavirus in 48 hours can be used to monitor epidemic in real time” (28,454 interactions); “Brazilian scientists are developing a vaccine against the novel coronavirus” (21,469); and “Sequencing identifies different genomes in the two Brazilian cases of COVID-19” (19,608). Based on readership, seven of the top-performing posts were about COVID-19, including “Artificial intelligence tracks news stories on COVID-19” (viewed by 131,739 users); “Coronavirus is produced in lab by researchers at USP” (video viewed by 103,465 people, and watched for at least 3 seconds by 47,209); and “FAPESP Communiqué to Researchers on COVID-19” (54,923).



@AgenciaFAPESP

On **Twitter**, a post entitled “Two novel viruses identified in patients with suspected dengue” had the most total interactions (23,118) and views (207,292). The post went viral via a cascade of chain messages on SARS-CoV-2, giving rise to thousands of engagements, with memes and animated GIFs.

In terms of total engagements, half the top ten tweets in the year were about COVID-19, including “Technology that sequenced

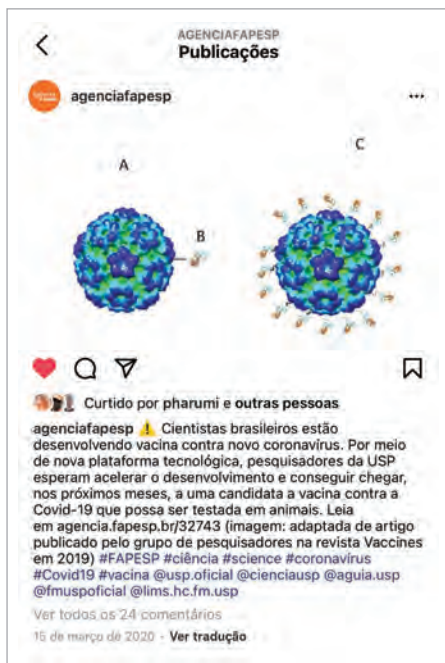


coronavirus in 48 hours can be used to monitor epidemic in real time” (10,208 interactions); “Brazilian scientists are developing a vaccine against the novel coronavirus” (761); and “54.8% of COVID-19 cases imported to Brazil by March 5 came from Italy” (638). The first two were also among the ten most-viewed tweets in the year, with 175,287 and 15,339 views respectively.



@agfapesp

On Instagram, posts about coronavirus accounted for five of the top ten in terms of interactions and six in terms of reach. The most popular were “Saliva-based COVID-19 test developed by USP is now available” (1,750 engagements and 14,100 accounts reached) and “Brazilian scientists are developing a novel vaccine against COVID-19” (1,598 and 10,400).





## PESQUISA FAPESP MAGAZINE

### COVERAGE OF COVID-19 ON THE WEBSITE

<https://revistapesquisa.fapesp.br/en/keywords/coronavirus-en-2>

In 2020, the magazine's website published **236** articles directly about the pandemic. In April and May, for example, it published **84** (42 per month). Altogether, it published **137** news items, **9** interviews, **32** notes and **58** researcher testimonials in the section “Research during Lockdown”, created specially for the pandemic.

A keyword was created to group together all the content relating to COVID-19, comprising news stories, notes, testimonials, videos, podcasts and photo galleries (**458** items published in 2020, with some repetition, such as news stories with online and print versions, interviews extracted from podcasts, and complete radio programs).

### GUIDE TO COVID-19

This is a regularly updated section with infographics, maps, tables, a glossary, and a Q&A about the disease. It was viewed **38,550** times in 2020, with ups and downs but fairly stable over time.

### NEWS HIGHLIGHTS

Early in the pandemic, the lack of mechanical ventilators was one of the biggest problems faced by health services. Four reports were published on this topic, three in April and one in July: “Vital ventilators”, “Improving healthcare management isn't enough”, “In the palm of the hand”, and “USP finishes developing mechanical ventilators”.

The most-viewed article in 2020, published in March, was “Similarities between Spanish flu and COVID-19”, in which three historians compared the two pandemics, with almost 190,000 clicks (see table below).

In May, COVID-19 was already known to cause a range of problems in the organism, which motivated an article titled “A frightening disease”, published first in the print magazine. In September, the topic was again in the spotlight with “The effects of COVID-19”, featured on the cover of the print magazine that month and soon afterward posted to the website.

The magazine's coverage of the humanities and S&T policy also contributed significantly to its coverage of the pandemic in 2020. Examples include “Health beyond medication” (April), “Historic vulnerability” (April), “Delicate return” (July), “When the source (of income) dries up” (July), “The weight of inequality” (July), and “Healthy spaces” (October).



Published in July 17<sup>th</sup> 2020,  
by Yuri Vasconcelos.

## RESEARCH DURING LOCKDOWN

The section focuses on the personal and professional challenges of working during the pandemic, covering a broad academic spectrum from novices to researchers with a well-established career, and a range of knowledge areas. The testimonials are widely read as soon as they are published (with more than **5,000** views in a single day in three cases), but then are no longer viewed, possibly owing to Google’s indexing algorithm. One was viewed almost **30,000** times during the year, two between **10,000** and **20,000** times, and six more than **4,000** times.

### The ten most-read articles among those produced in 2020 were about COVID-19

Page views – total for website (100%): 7,758,022 | clicks on home page: 315,307 (4,06%)

News	Clicks	%
Similarities between Spanish flu and COVID-19	189,891	2.45
The second wave of coronavirus	46,591	0.60
A guide to coronavirus	38,550	0.50
“When I saw the results, I thought ‘This virus is going to infect everyone’”	28,564	0.37
First cases in Italy went unnoticed for weeks	27,975	0.36
Challenges of isolation	27,582	0.35
Pregnant women and babies tend to have mild symptoms of COVID-19	27,546	0.36
The other coronaviruses	27,299	0.35
Butantan Institute develops serum against coronavirus	22,524	0.29
The damage done by coronavirus	21,980	0.28

## COVERAGE OF COVID-19 IN THE PRINT MAGAZINE

Part of what was produced in the form of news stories, interviews, notes and testimonials for the website section “Research during Lockdown” was published later in the print magazine. All texts produced for the print magazine were posted to the website.

Of the **236** texts about COVID-19 published online in 2020 (137 news stories, 9 interviews, 32 notes and 58 testimonials), **74** were also carried by the print edition, albeit often abridged. In some cases, the text was first published online, while on others it appeared online as soon as the print magazine came out.

Twelve issues of the print magazine were published in 2020. COVID-19 was featured on seven covers, the last three (August, September and December) being the most significant.



A peculiarity of the covers about the pandemic in 2020 was the difficulty of using photos that represented what the magazine wanted to express. Only one of the seven covers featured a straightforward photo (April). Another displayed a stylized image of coronavirus (May), and a third used a collage of photos. Four covers displayed illustrations created by artists who had been invited by the editors to produce work for this purpose.

Several news stories used graphics by designers and the work of artists to illustrate difficult topics. The magazine’s designers were also frequently called upon to help in this regard. Selected examples are reproduced below.

JUN 2020



JUL 2020



AUG 2020



## MEDIA ATTENTION

In 2020, articles originally published in Pesquisa FAPESP were re-published at least **406** times in scientific journals, newsletters, magazines and newspapers, and on news sites (e.g. UOL, Nexo, Veja, MSN), besides being mentioned in doctoral theses and scientific articles.

VIDEOS: **six** videos relating to the pandemic were produced in 2020 – two specifically about COVID-19 and four more broadly about the pandemic:

- *Os efeitos da COVID-19 no corpo* / The effects of COVID-19 on the body (Jun. 8, 2020), **54,626** views and **164** comments on YouTube (Apr. 8, 2021); **8,642** views on Facebook.
- *O que desmatamento tem a ver com novas pandemias?* / What does deforestation have to do with future pandemics? (Aug. 7, 2020), **17,674** views and **29** comments on YouTube (Apr. 8, 2021); **27,068** views on Facebook.
- *Para além da sala de aula.* / Beyond the classroom (Sep. 3, 2020, Aug. 31, 2020), **13,154** views and **24** comments on YouTube (Apr. 8, 2021); **4,001** views on Facebook.
- *Como prever o espalhamento de uma doença* / How to predict the spread of a disease (Jul. 6, 2020), **4,693** views and **23** comments on YouTube (Apr. 8, 2021); **7,189** views on Facebook.
- *As técnicas na busca pela vacina contra a COVID-19* / The techniques being used to produce a COVID-19 vaccine (Aug. 31, 2020), **3,449** views and 11 comments on YouTube (Apr. 8, 2021); **5,553** views on Facebook.
- *Como a arquitetura pode auxiliar no combate a epidemias* / How architecture can help combat epidemics (Dec. 21, 2020), **2,229** views and **18** comments on YouTube (Apr. 8, 2021); **1,861** views on Facebook.

In November 2020, the video “Para além da sala de aula” was selected by the jury as best in the medium-length category at the show “Science and the Pandemic”, organized by the Brazilian Society for the Advancement of Science (SBPC) (<https://revistapesquisa.fapesp.br/mostra-destaca-video-de-pesquisa-fapesp-sobre-ensino-remoto>).



Video *Os efeitos da COVID-19 no corpo* (The effects of COVID-19 on the body), published in <https://www.youtube.com/watch?v=yX7JikJBzg8>





## PODCASTS



In 2020, 45 entirely new radio programs were produced in partnership with Radio USP. For 30 consecutive weeks (April-October), the radio program and Pesquisa Brasil podcast produced by Pesquisa FAPESP focused solely on the pandemic. Ninety interviews via Skype were recorded with researchers in several disciplines, from public health to engineering, psychology and political science, discussing the results of scientific studies and public policy relating to COVID-19 and lockdown. The decision to focus on the pandemic and disseminate knowledge on the hottest topic of the times had a positive impact on the program's audience ratings.

According to Kantar Ibope, the number of listeners per program was as follows (Radio USP FM + Radio USP web):

Períod	Sep-Nov 2019	Sep-Nov 2020
1 p.m. Friday	4,067	6,200
6 p.m. Saturday (repeat)	1,647	5,098

## IMAGE GALLERY

Photographic essays can portray aspects of the pandemic that are not conveyed so powerfully by the magazine's news stories. Four were published in 2020:

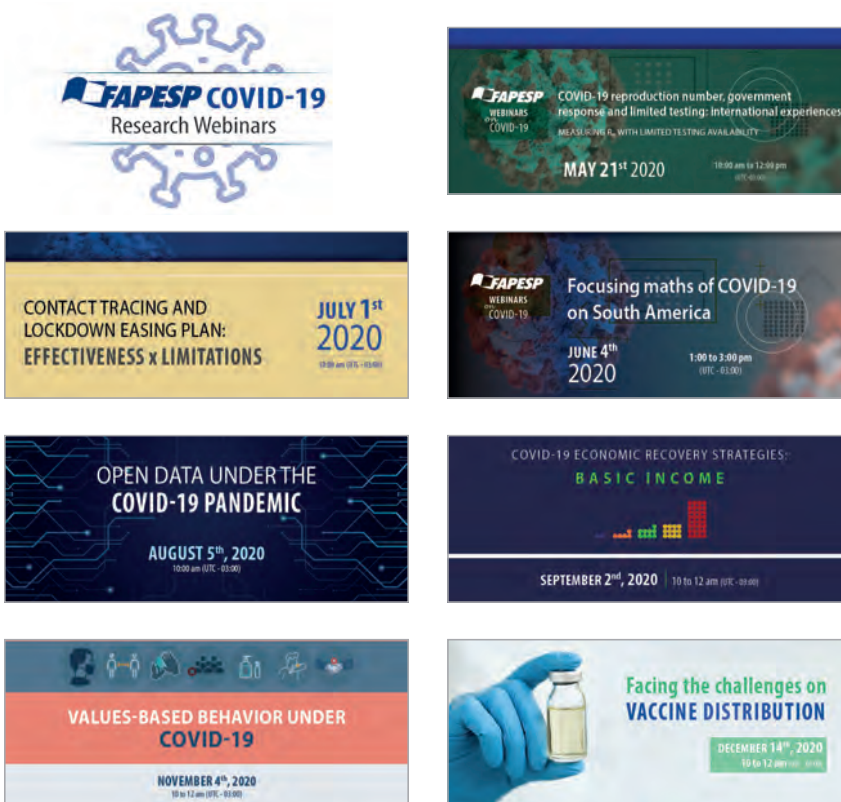
- *Megalópole adormecida* / Sleeping megalopolis (Apr. 8, 2020): empty spaces in São Paulo.
- *Lembranças de uma cidade recolhida* / Memories of a city sheltering in place (Jun. 30, 2020): black-and-white pictures with dramatic views of the empty city published just as everyday activities were returning.
- *#FiqueEmCasa* / #StayAtHome (Jul. 28, 2020): portraits of mask wearers in São Paulo's streets. People who had to go out were mainly nonwhite, justifying citation of a study by a group led by urbanist Raquel Rolnik (FAU-USP) on how bus and train routes contributed strongly to the worsening of the pandemic in the city.
- *A reconquista das ruas* / Reconquering the streets (Sep. 9, 2020): contrasts between protected and populous spaces in São Paulo and Rio de Janeiro.

 **EVENTS**

**COVID-19 RESEARCH WEBINARS**

<https://covid19.fapesp.br/en>

FAPESP organized a series of webinars in which researchers from Brazil and other countries discussed discoveries and results of studies relating to the advancement of knowledge about COVID-19. Seven such webinars were held between May and December 2020, with 1,569 live participants; the recordings were watched by **18,276** people. The Brazilian media published **102** news items on the topics discussed in the webinars. Their titles were: COVID-19 - Reproduction number, government, response and limited testing: international experiences; Focusing maths of COVID-19 on South America; Contact tracing and lockdown easing plan; Open Data under the COVID-19 Pandemic; COVID-19 Economic Recovery Strategies: basic income; Values-Based Behavior under COVID-19; Facing the challenges of vaccine distribution.



**FIRST VIRTUAL PRESS CONFERENCE**

FAPESP held its first online press conference on June 17, 2020, to announce the creation of COVID-19 Data Sharing/BR. The number of participants was **188**. The launch was reported by **170** media outlets.



## FAPESP IN THE MEDIA DURING THE PANDEMIC

Dissemination of research and technological innovations developed with FAPESP's support and focusing on SARS CoV-2 and COVID-19 resulted in the publication of **25,195** news items in Brazilian media (21,739) and media abroad (3,456). The most widely read items are listed below.

### Research on COVID-19 publicized by FAPESP and with the highest visibility in Brazilian media

Article	N° of news
Technology that sequenced coronavirus in 48 hours can be used to track the epidemic in real time	721
São Paulo-based company develops fabric that eliminates coronavirus by contact	597
Brazilian scientists are developing a vaccine against the novel coronavirus	563
Butantan Institute's labs are to develop antibodies to treat COVID-19	539
Study by UNICAMP, USP, IDOR and UFRJ proves that coronavirus affects the brain and details its effects on nerve cells	435
Study by UNICAMP confirms that coronavirus can infect human neurons	434
Sequencing identifies different genomes in two Brazilian cases of COVID-19	399
With 66% of its population infected, Manaus may have reached herd immunity	358
Webinar on candidate COVID-19 vaccines developed by Sinovac and Oxford/AstraZeneca undergoing trials in Brazil	353
Study suggests adipose tissue can serve as reservoir for coronavirus	334

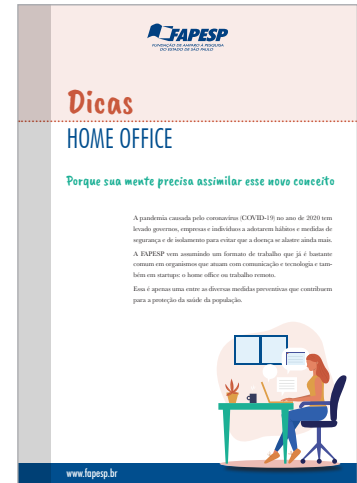
### Research on COVID-19 publicized by FAPESP and with the highest visibility in international media

Article	N° of news
With SARS-CoV-2 prevalence of 66%, Amazonia's largest city may have reached herd immunity	388
Use of anticoagulant medication leads to 70% reduction in cell infection by novel coronavirus	337
São Paulo-based company develops fabric that eliminates novel coronavirus by contact	230
Plastic film used to protect foods and surfaces inactivates novel coronavirus	194
Study proves that novel coronavirus harms brain and details its effects on nerve cells	139
Brasil: tecnologia que secuencia el coronavirus permite monitorear la epidemia em tempo real	69
Adipose tissue may be the source of inflammatory factors that aggravate COVID-19	65
Two complete genome sequence for coronavirus in Brazil were published	62
COVID-19 had already spread in Brazil when measures to contain it were implemented	38
Brazilian scientists are developing a vaccine against the new coronavirus	34

# SERVICES PROVIDED BY FAPESP TO THE SCIENTIFIC COMMUNITY AND THE SAFETY OF STAFF AND COLLABORATORS

On June 2, 2020, FAPESP set up a staff committee to plan a return to in-office activities, even if only partial, as soon as the São Paulo State Government lifted social isolation measures and mobility restrictions. In line with the guidelines established by Executive Board Ordinance 14/2020 and the public health protocols issued by the Ministry of Health and the São Paulo State Government, the committee suggested the implementation of health measures and procedures designed to assure staff workplace safety.

Based on these suggestions, the Executive Board implemented a number of measures relating to health and safety, including social distancing, personal hygiene, interpersonal precautions, office sanitization, health guidance and monitoring, communication, and a selective return to in-office working. It produced a document detailing the measures (“Orientações para evitar a transmissão e propagação do coronavírus na FAPESP”), for distribution to all staff members. It also acquired personal protective equipment and devices to increase the protection of staff, collaborators and researchers while on FAPESP’s premises, such as acrylic shields for countertops and desks, pedal waste bins, and hand sanitizer, among others.



Guide to working from home



Guidelines and protocols for a possible return from the period of quarantine: Guidelines to avoid transmission and propagation of coronavirus in FAPESP, Health protocols, Duties of line managers, Specific protocols – guidelines for each type of space, Guidelines for the Plan to Resume In-Office Working.



Signage in FAPESP's head offices: Hand sanitizer totem, shoe sanitizer mat, social distancing floor decals, maximum people capacity posters, COVID-19 prevention posters for different space, totem for body temperature scan, totem with general guidance on prevention.

