

EXPANDING OPPORTUNITIES

The *FAPESP Annual Report* shows that the foundation increased its research funding in 2022 and sought to recover from losses caused by the pandemic

Fabício Marques

The São Paulo Research Foundation invested R\$1,182,639,805 in 20,709 research projects in 2022. This total amount was 16.7% higher than that in 2021, and the number of projects funded increased by 27.8%. The foundation's income totaled R\$2,214,740,885 in 2022, 24% above the previous year; there was a 12.6% increase in contributions from the São Paulo State Treasury, reaching R\$1,907,892,438, and a 235% increase from other sources, which amounted to R\$306,848,447. The precise balance is described in the *FAPESP Annual Report 2022*, which is available on the foundation's website, where annual funding data since 1962—when FAPESP began operating—are also available.

The foundation's income comes from 1% of the state of São Paulo's tax revenue, which is transferred monthly by the treasury as outlined in the São Paulo State Constitution, in addition to contributions from other sources, such as joint research investment agreements with institutions and companies. One of the highlights of 2022 was the investment in research for the advancement of knowledge—this category includes large-scale basic and applied research projects, such as thematic projects, Young Investigator Awards at emerging research institutions, and Research, Innovation, and Dissemination Centers (RIDCs)—which represented 53.5% of the foundation's disbursements. Funding in this area grew from R\$563.6 million in 2021 to R\$633 million in 2022. "This is the result of FAPESP's efforts to expand funding opportunities for young researchers through initiatives such as the Generation Project and Initial Project, or by increasing the duration of Young Investigator awards from 48 to 60 months, in addition to agreeing to 54 new thematic projects in the period," explained Marco Antonio Zago, president of the foundation's board of trustees, when presenting the report.

Investment in all fellowship types grew by more than 20% over the course of 2021, and the training of scientists and

ANNUAL FUNDING BY FAPESP (R\$)

R\$1.13 billion
2016

R\$1.05 billion
2017

R\$1.21 billion
2018

R\$1.25 billion
2019

FUNDING BY CATEGORY

A total of **53.5%** of the research focused on the advancement of knowledge (both basic and applied)

18% Training scientists and researchers

11% Research infrastructure

8.5% Research for innovation

7% Research on strategic themes

2% Research communication, identification, and assessment

FAPESP invested a total of **R\$ 1,182,639,805** in 20,709 research projects in 2022

researchers accounted for 18% of all FAPESP funding. The R\$130 million invested in the research infrastructure support category accounted for 11% of all funding, which was one percentage point above that accounted for in 2021. This increase was due to the three calls for proposals issued in 2022 for the acquisition of large, multiuser equipment, with expected investments of R\$450 million. In September 2023, another call was issued for the acquisition of small equipment, with expected investments of R\$200 million.

On other aspects, funding remained stable. This was the case with investments in research for innovation, which includes programs such as the Research Partnership for Technological Innovation (PITE) program, the Innovative Research in Small Businesses (PIPE) program, and Engineering Research Centers/Applied Research Centers (CPE/CPAs), which account for 8.5% of the total, in addition to funding through the Research on Strategic Themes program, which covers topics such as biodiversity, bioenergy, and climate change (7%), and disbursement in research communication, identification, and assessment (2%).

While the increase in funding reflects the country's post-pandemic recovery, some remnants of the global crisis, which led to the temporary closure of laboratories and a reduction in in-person activities at research institutes and universities, are still present in other indicators. Scientific output by researchers in the state of São Paulo fell from 30,600 articles published in 2021 to 25,100 in 2022; however, since the same decline was recorded across Brazil, the state maintained its proportion of the national total at 41.9%. There was also a decrease of approximately 40% in the number of new research proposals submitted to the foundation compared to that before the arrival of COVID-19.

To compensate for the reduction in spontaneous demands for funding, several initiatives have sought to increase investment in medium- and long-term projects, with the aim of stimulating the state's research and innovation sector. FAPESP

FUNDING BY FIELD

26.2% Health

14.2% Biology

10.2% Interdisciplinary

10.2% Engineering

9.3% Human & social sciences

6.4% Chemistry

6.3% Agronomy & veterinary science

5.3% Physics

4.4% Computer science & engineering

3.1% Geosciences

2.0% Mathematics & statistics

1.1% Astronomy & space science

0.7% Architecture & urban planning

0.5% Economics & administration

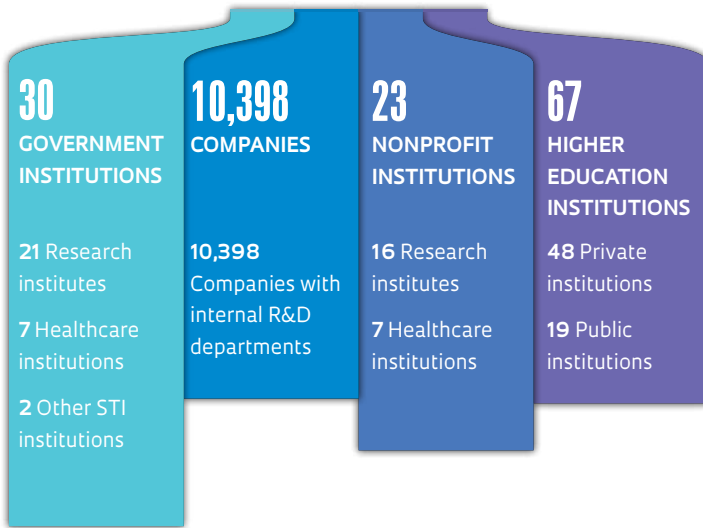
SOURCE: FAPESP ANNUAL REPORT 2022

R\$0.97 billion
2020

R\$1.01 billion
2021

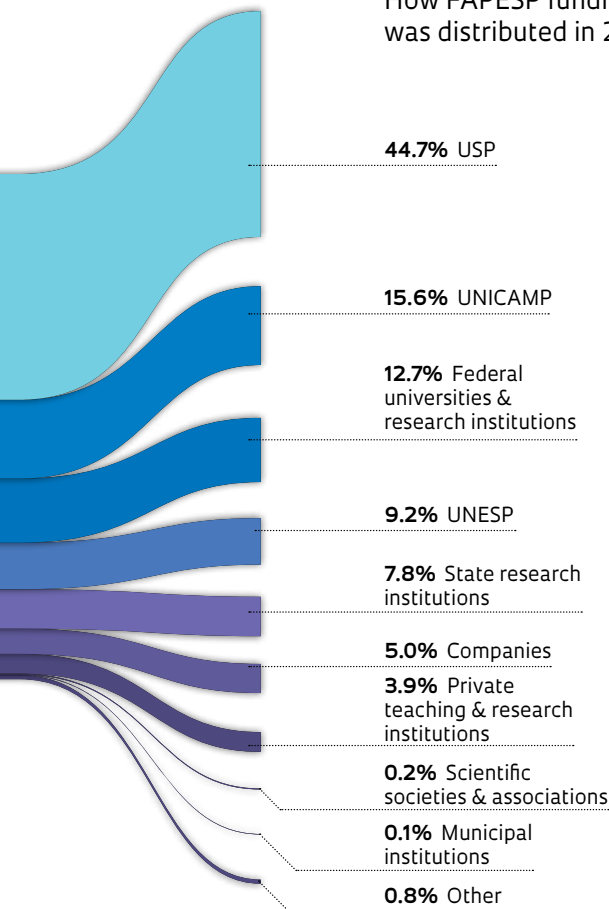
R\$1.18 billion
2022

SÃO PAULO STI SYSTEM



INVESTMENT BY INSTITUTION

How FAPESP funding was distributed in 2022



SOURCE FAPESP ANNUAL REPORT 2022

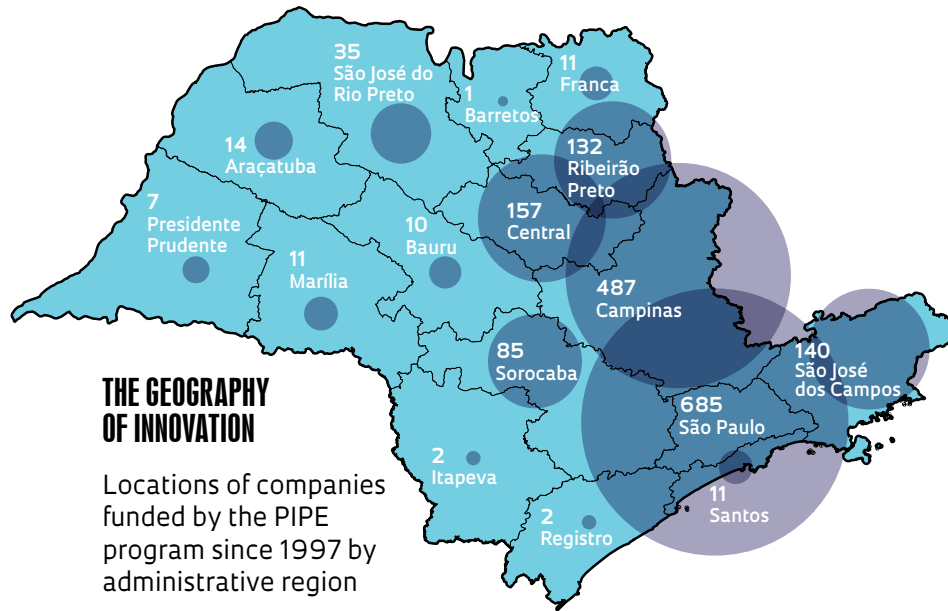
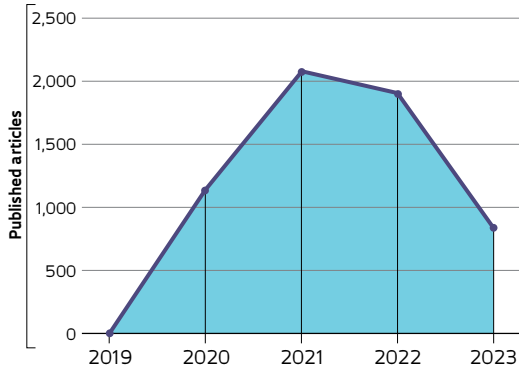
announced in 2022 the results of a call for another 17 new Science for Development Centers (CCDs) to supplement the 11 that already exist, which have the purpose of linking scientists from different state research institutes and universities with managers at public agencies through projects that aim to solve specific problems with social or economic relevance in São Paulo. “We have huge problems in various state departments, and this is a way for us to listen to public managers, align research topics, and issue calls for proposals that address the problems these departments are facing in managing public policies,” explained Carlos Américo Pacheco, president of FAPESP’s executive board, when announcing the chosen proposals. The new centers will carry out research on topics such as biopharmaceuticals, innovation in urban public policy, technological innovation for health emergencies, human and animal diseases, and vaccine improvement.

In 2022, three new CPE/CPAs opened for operations. The first is headquartered at the University of São Paulo (USP) and focuses on offshore innovations in partnership with Shell; the second is headquartered at the University of Campinas (UNICAMP) and focuses on improving molecular plants together with the Brazilian Agricultural Research Corporation (EMBRAPA); and the third is headquartered at the Sociedade Beneficente Israelita Albert Einstein and studies immuno-oncology in cooperation with GSK. The latter is the third center that has been established jointly by FAPESP and GSK. One of the other two centers has been functioning at the Butantan Institute since 2015, with the aim of investigating molecular targets for the treatment of inflammatory diseases. The other, which is based at the Federal University of São Carlos (UFSCar), focuses on the development of sustainable chemical products and processes for new medicines.

In CPEs, companies establish long-term collaborations with scientists from universities or research institutes that last for periods of approximately five to 10 years. Such research is co-funded equally by FAPESP and the partner company, while the institutions contribute through the provision of infrastructure and the payment of salaries to researchers and technicians. “For every R\$10 that FAPESP puts into one of these centers, the company puts in another R\$10 or more to amplify the results of the investment,” explains neuroscientist Luiz Eugênio Mello, who was the scientific director of FAPESP in 2022 (see Pesquisa FAPESP issue no. 327). “In sectors where research and development resources are incentivized—in the oil and gas industry, for example—we do not do one-to-one partnerships, but two-to-one, three-to-one, or four-to-one partnerships. And this money always goes to a science and technology institution in the state of São Paulo, to be used for reagents, equipment, or scholarships.” Another three CPEs were created in 2022, with research set to begin in 2023. The Smartness CPE, which will conduct research into networks and services, will be based on UNICAMP and in partnership with Ericsson. The Engineering Research Center for Future Air Mobility (CPE-MAF) will bring together researchers from EMBRAER and the Aeronautics Technological Institute (ITA). The Braskem CPE will involve a partnership between UNICAMP and other institutions, with the aim of studying the use of plasticulture in agriculture.

ARTICLES ABOUT COVID-19

Papers related to the novel coronavirus published by researchers from São Paulo



THE GEOGRAPHY OF INNOVATION

Locations of companies funded by the PIPE program since 1997 by administrative region

The PIPE program, which has invested in research at 1,853 micro, small, and medium-sized technology companies in 163 municipalities of São Paulo since 1997, agreed to fund 578 new projects at 224 innovative companies in 2022. Some of the projects were selected through calls issued in partnership with the São Paulo State Sanitation Company (SABESP), the Brazilian Support Service for Micro and Small Businesses (SEBRAE), and the Brazilian Funding Authority for Studies and Projects (FINEP). For the first time, FAPESP took part in the Centelha Program, which is an initiative run jointly by the Ministry of Science, Technology, and Innovation (MCTI) and FINEP, in partnership with the National Council of State Research Funding Agencies (CONFAP) and the Florianópolis-based CERTI Foundation (which stands for Reference Center for Innovative Technologies in Portuguese). The objective of the program is to support young entrepreneurs who are interested in transforming innovative ideas into new businesses.

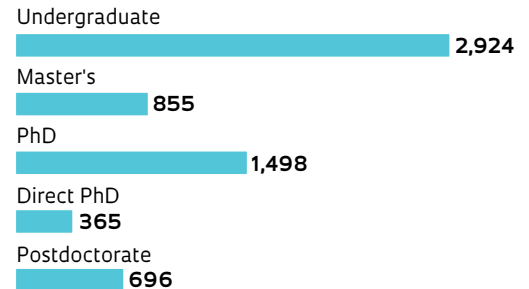
The foundation was also responsible for the national coordination of the Amazônia +10 Initiative, which is a partnership involving state research funding agencies (FAPs) under the leadership of CONFAP, which aims to stimulate collaborative and interdisciplinary research, with a focus on sustainable development of the Amazon. The first call for proposals received applications from more than 500 scientists from 20 Brazilian states. Thirty-nine proposals were selected from 18 states and the Federal District, with a total of R\$41.9 million invested by FAPs.

In May 2022, at a ceremony marking FAPESP's 60th anniversary, the foundation announced new research investments totaling R\$990 million. The celebrations officially began in 2021 with seventeen FAPESP 60 Years Conferences, two FAPESP 60 Years Schools offering 120 postdoctoral fellowships to researchers across Brazil, and two books being announced for release in 2022, namely, *FAPESP 60 anos: Ciência, cultura e desenvolvimento* (FAPESP 60 years: Science, culture, and development) and *FAPESP 60 anos: A ciência no desenvolvimento nacional* (FAPESP 60 years: Science in national development), both of which were edited by the São Paulo State Science Academy (ACIESP). ■

TRAINING SCIENTISTS AND RESEARCHERS

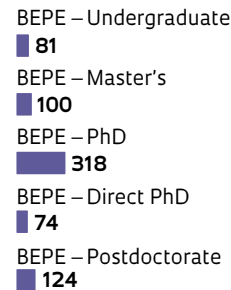
Number of FAPESP-funded fellowships undertaken in 2022

FELLOWSHIPS IN BRAZIL

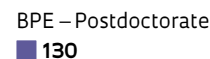


FELLOWSHIPS ABROAD

Research internships abroad (BEPE)



Research fellowships abroad (BPE)



TOTAL: 7,165