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MAKING A BIGGER IMPACT WITH BRAZILIAN RESEARCH

A conversation with **CARLOS HENRIQUE DE BRITO CRUZ**, science director at the São Paulo Research Foundation, FAPESP



The state of São Paulo is the leading region for research in Brazil. Scientists in São Paulo author 43 percent of the country's scientific papers published in international journals. The main research universities in Brazil are in the state of São Paulo, in addition to a network of federally, state and privately funded mission-oriented research institutes. The publicly funded São Paulo Research Foundation (FAPESP) is aiming to increase the impact of scientific work in the region in three dimensions: scientific, social, and economic. This strategy includes attracting promising international researchers and increasing research collaborations with outstanding research groups in Brazil and abroad, as well as with industry.

How active is the research environment in São Paulo?

São Paulo is the state that contributes the largest chunk of Brazil's GDP — one third of it. It has more than 15,000 companies that perform research and development and almost 150 research institutions and universities. In total the system has 70,000 researchers. Most of those, 39,000, work in the business sector, 27,000 work in universities and 4,000 work in mission-oriented public and private research institutes. Last year, 7,300 PhDs graduated from universities in the state, which is 34 percent of the total number of PhDs that graduate in Brazil every year.

What role does FAPESP play in the research ecosystem?

FAPESP is funded by taxpayers and has the mission to develop research in the state by supporting projects led by principal investigators associated with organizations in São Paulo. The way the Foundation is funded is rather singular. The state constitution has an article saying that one percent of the state's monthly revenues belong to the Foundation. This is a very stable and predictable funding system that has allowed us to work with a large degree of

autonomy and stability.

How do you spend this money to support research?

First of all, all proposals are peer reviewed. We want to increase the number of researchers in the state by bringing young researchers, both Brazilian and foreign, to start their scientific career here in São Paulo. FAPESP's Young Investigator Award is offered to scientists who, after a PhD, have had at least two years of professional experience with a renowned research group outside Brazil. They can request funding for a five-year grant for equipment, consumables, fellowships for students, plus a fellowship for the principal investigator to start a research laboratory in São Paulo. The value of the grant depends on the field, but it could be from US\$300,000 to \$2 million.

Is there a particular field preferred?

No. The programme is open to all fields of research, including but not limited to philosophy, literature, sociology, the arts, biochemistry, astrophysics, engineering, chemical engineering, health sciences, and biology. We tend to have a larger number of candidates in the health and physical sciences.

LAST YEAR WE APPROVED MORE THAN ONE SMALL-BUSINESS GRANT EVERY BUSINESS DAY.

How much do you distribute?

Last year we spent \$530 million purchase parity dollars. We analyzed 26,000 proposals and we approved 11,000, a 40 percent success rate.

How else do you support research?

We have centres that are funded with 11-year grants. There are 17 of these, dealing with cancer and human genome, inflammation, cellular therapy, functional materials, optics and photonics, mathematics in industry, metropolitan studies, violence, and others. We also have Engineering Research Centres. FAPESP and a company match funds for a centre hosted in a university. These have 10-year contracts so they can do really complex things — big things that will be internationally relevant for the partnering company and for science.

What do those centers focus on?

We have a centre at the University of São Paulo in collaboration with Shell on innovation in natural gas, and another centre with Shell that

focuses on energy storage and computational materials science. A centre in collaboration with Peugeot Citroën from France focuses on biofuel and automobile engines. The centre with GSK focuses on the discovery of new drug molecules.

Do you also work with small businesses?

We have a large programme facilitating research and development in small businesses, which is very similar to the Small Business Innovation Research grant programme of the NSF, for the company to perform research that will make it more competitive. Last year we approved more than one small-business grant every business day.

What's your goal with all these efforts?

We want to have more and better research done in São Paulo. We also want to have the business sector engaging in bolder research. We would like academia to create high-impact ideas in science and businesses to be involved with research that will lead to internationally impactful products or services.



YOUNG INVESTIGATORS AWARDS AND POSTDOC opportunities

The São Paulo Research Foundation (FAPESP), one of the leading Brazilian agencies dedicated to the support of research, offers funding schemes to bring researchers from abroad to excellence centers in São Paulo (Brazilian citizenship is not a requirement).

YOUNG INVESTIGATORS AWARDS (YIA)

This program offers a 4 years grant (extendable to a 5th year) supporting equipment, consumables, and scholarships (including a scholarship for the PI; see www.fapesp.br/yia). A continuing 5-year grant (YIA II) can be requested after successful completion of the first 5 years. It is open to scientists who have had a few years of post-doctoral experience in an internationally competitive research group outside Brazil and demonstrated research leadership capabilities to lead the creation of new research group in the state of São Paulo, Brazil. Interested candidates can contact FAPESP at yia@fapesp.br.

Recently approved grants are at www.bv.fapesp.br/en/2/younginvestigators-grants-4-year-grants

POST-DOCTORAL FELLOWSHIPS

Program is open to researchers with a recent doctorate degree and a successful research track record. There are two entry points: (1) open positions are announced at www.fapesp.br/opportunidades; (2) candidates can also contact directly a prospective supervisor in higher education and research institutions in São Paulo. Norms for the Post-doctoral Fellowships Program are at www.fapesp.br/en/postdoc. A sample of recently approved proposals is at www.bv.fapesp.br/37960.

in Brazil

MORE INFORMATION

www.fapesp.br/yia

www.fapesp.br/en/postdoc

