Parc Científic de Barcelona
UNIVERSITAT DE BARCELONA

PRESS RELEASE

The PCB's scientific community joins the fight against SARS-CoV-2

- **Different organisations in the Barcelona Science Park are working with national and international institutions to develop vaccines, treatments and diagnostic methods for COVID-19**

- **The PCB will ensure that public centres and businesses can continue with their research projects by providing the resources and services they need.**

Barcelona, 26 March 2020. In response to the health emergency caused by SARS-CoV-2, research centres and biotech businesses in the Barcelona Science Park (Parc Científic de Barcelona, PCB) are leading scientific progress in the treatment, vaccination and diagnosis of the novel coronavirus.

The PCB scientific community is stepping up its efforts to develop treatment solutions to combat COVID-19 through different projects in partnership with national and international research centres from all over the world.

New antiviral drugs

One of the first Catalan research institutions to step up in the fight against COVID-19 was the Institute for Bioengineering of Catalonia (IBEC). In conjunction with leading international institutions, for weeks now, its Pluripotency for organ regeneration group, led by Núria Montserrat, has been exploring molecular mechanisms that block the replication of SARS-CoV to prevent the virus from infecting other cells.

More specifically, the IBEC team is working on renal organoids, or mini-kidneys, which mimic the structure and function of a real organ (the kidney is one of the main organs affected by COVID-19) to identify new pathways and targets to slow down the progression of coronavirus.

Several projects involving PCB organisations geared towards furthering our knowledge of the new coronavirus have been selected in government calls, including the one announced by the European Commission on 30 January as part of the Horizon 2020 programme. The resolution, published on 6 March, ramped up the initial budget from €10 million to €47.5 million in view of the magnitude of the pandemic.

The Institute for Research in Biomedicine (IRB Barcelona) is one of eight Spanish research centres (five of which are Catalan) involved in the 17 projects selected in this EC call for proposals to research the development of new vaccines, rapid tests, new treatments and monitoring methods to curb and control the spread of the Wuhan coronavirus or SARS-CoV-2.

IRB Barcelona's Structural Bioinformatics and Network Biology lab, headed by Patrick Aloy, is participating in one of these projects with other research facilities. The project, called RiPCoN, will perform a computational study of the interactions between coronavirus and human cells in order to identify drugs (already marketed or in the clinical trial phase) which can curtail the spread of the virus.

Meanwhile, the Nostrum Biodiscovery (NBD) company is working with the Barcelona Supercomputing Center-National Supercomputing Centre (BSC-CNS) on another project selected in this EC call for proposals named EXSCALATE4CoV (E4C), which seeks to bring cutting-edge supercomputing into play to drive the smart design of in silico drugs for COVID-19.

NBD is using its ChemistriX proprietary virtual compound library to identify new chemical inhibitors of 3C, the main SARS-CoV-2 protease, as a therapeutic target for developing new treatments against the virus. When this enzyme is blocked, COVID-19 cannot replicate efficiently. The findings will be shared freely with the EXSCALATE4CoV (E4C) project and other consortia in which the BSC-CNS is involved to fight SARS-CoV-2.

PharmaMar, also based in the Barcelona Science Park, is working with the National Centre for Biotechnology (CNB-CSIC) to research an antiviral treatment. The results of in vitro studies of Aplidin® (plitidepsin), an anti-tumour drug developed by PharmaMar for multiple myeloma, on the human coronavirus 229E (which has a very similar multiplication and propagation mechanism to COVID-19) have been encouraging.

The trials, conducted at CNB-CSIC by Dr Luis Enjuanes, Dr Isabel Solá and Dr Sonia Zúñiga, confirm the hypothesis that the therapeutic target of Aplidin®, namely EF1A, is crucial to the multiplication and spread of the virus. PharmaMar is in contact with the regulatory authorities to begin studies in patients infected with SARS-CoV-2.

Bioingenium, a Contract Research Organisation (CRO) specialising in the development of recombinant proteins, is working to produce proteins to be used as targets for new drugs to treat COVID-19.

Rapid diagnostic tests

Qiagen has developed the QIAstat-Dx Respiratory 2019-nCoV Panel for the rapid detection of SARS-CoV-2. This point of care molecular diagnostic kit differentiates between COVID-19 and 21 other bacterial and viral respiratory pathogens in about one hour in order to diagnose people infected by the novel coronavirus.

In 2018, the New York Nasdaq-listed Dutch group Qiagen acquired Stat-Dx, a company incubated in the Barcelona Science Park which now occupies over 1,500 m^2. Research and production of the COVID-19 diagnostic kits is centralised in this Park-based facility. Qiagen has already obtained CE-IVD marking to market these kits in Europe and is awaiting a marketing authorisation from the Food and Drug Administration (FDA).

Endor Technologies is also working on the diagnosis of the novel coronavirus. It is putting together a European project to develop a diagnostic kit using nanoparticles to replace the current Polymerase Chain Reaction (PCr) technique and thus develop faster methods for detecting the viruses.

Other PCB community contributions

Vesismin Health specialises in infection control in the hospital setting. It is developing and producing antiseptics against SARS-CoV-2 such as hydroalcoholic gel and 4% chlorhexidine soapy gel in spite of the numerous problems it is having to contend with in the supply of raw materials and packaging.

All its products for hygiene in the patient's immediate environment have been tested in times compatible with surface drying according to the EN 14476 Standard and also for their virucidal activity against enveloped viruses at least, which means that they are effective against pathogens such as coronavirus. The most convenient and fastest surface disinfectants are wipes and sprays.

The University of Barcelona's Microbial Biotechnology and host-pathogen interaction research group is based at the PCB and is led by Antonio Juárez. It is making its experience, equipment and scientific and technical staff available to the health authorities. The laboratory specialises in the qPCR method currently used for detecting coronavirus.

The Park itself is donating all the Personal Protective Equipment (PPE) it can. To date, it has supplied the Hospital Clínic de Barcelona with 10,000 caps, 10,000 masks, 45,500 pairs of gloves, 900 gowns, 12,000 shoe covers and 80 comprehensive protection Tyvek coveralls.

"Since many companies and research groups in the PCB are working on projects related to COVID-19, and as a critical scientific and technological infrastructure, the Park is dedicating its resources and efforts to ensuring that these organisations can operate effectively throughout the health emergency," said Maria Terrades, CEO of the Barcelona Science Park.

Parc Científic de Barcelona
UNIVERSITAT DE BARCELONA

■ About Barcelona Science Park

Barcelona Science Park is one of Europe's leading ecosystems in scientific, technological and business innovation in life science and health. Built by the University of Barcelona in 1997, it was Spain's first science park.

With a surface area covering 100,000 m^2, the PCB houses a highly dynamic community comprising 110 public and private companies and nearly 3,000 researchers, entrepreneurs and professionals (54% are women) who largely work in emerging life science areas (biomedicine, biotechnology, tecmed, eHealth, etc.).

One of the values that sets the PCB apart is the wide range of scientific and technological services available for R&D&I, both for businesses based at the park, as well as for external national and international research groups and companies. These services are complemented by a PCB community revitalisation programme, which seeks to increase interaction among its members and with the innovation ecosystem.

Among its strategic lines, Barcelona Science Park also offers the organisation of scientific publication activities to make research more accessible to citizens, promote dialogue between the general public and the researchers, and to encourage young people to pursue a career in science. As part of the Research in Society Programme, it currently organises more than 100 activities per year in which 5,000 people take part.

More information:
Azucena Berea • Press Officer • Barcelona Science Park • +34 93 403 46 62 • aberea@pcb.ub.cat