



Press Release

Basque research and technology, committed to the COVID-19 health alert

- The collaborative research and technology centres that are part of the BRTA alliance are involved in various scientific and technological initiatives aimed at reducing the impact of the SARS-CoV-2 emergency.
- These organisations are working on producing diagnostic tests, breathing devices, work protocols and artificial intelligence solutions to ensure safety at work, among other projects.
- Rikardo Bueno, managing director of the BRTA: “From the very beginning, BRTA centres have shown their willingness to put their knowledge and creativity at the service of our community in response to COVID-19”.

(Mendaro, April 14, 2020) - With the aim of putting scientific and technological research in the Basque Country at the service of the community, the cooperative research and technology centres that make up the Basque Research and Technology Alliance (BRTA) are working in collaboration with the industrial sector, the health authorities and the various public administrations on different projects to reduce the impact of the health crisis caused by COVID-19.

Under the coordination of BRTA, the needs that have arisen in the health sector have been identified and cooperation between the various technology centres has been strengthened, synergies have been created and collaboration has been encouraged in the scientific and research activity of the various actors, in order to provide an effective response to these needs.

In short, it is an alliance of research centres that are deploying their scientific and technological capital at the service of the Basque health system in order to respond as efficiently as possible to the different challenges and needs that the pandemic is posing. This work is being carried out with the cooperation of various laboratories in the Basque science and technology ecosystem brought together as part of the BRTA, as well as with contributions from other players and the business community.

“From the very beginning, BRTA centres have shown their willingness to put their knowledge and creativity at the service of our community in response to COVID-19” said Rikardo Bueno, managing director of the BRTA.



In this sense, Bueno believes that the strength of the centres “has made it possible to provide solutions to alleviate the lack of healthcare equipment, carry out more virus testing, ensure the activity of the primary sector and facilitate a guaranteed return to daily activity”.

“Many of these contributions have been made in a coordinated manner in collaboration between the alliance's centres, other actors, such as companies in the Basque health cluster, and other industrial or service businesses. The university and the health system have also contributed, with support from the Basque Government and the SPRI group”, Rikardo Bueno went on.

BRTA centres have been offering their support in five main operational areas: 1) the field of biosciences to develop analyses, viral transport media and treatments, 2) ventilators and other respiratory solutions, 3) Big Data and artificial intelligence, 4) the loan of facilities and equipment and 5) food safety.

Biosciences for developing analyses, viral transport media and treatments

In the field of analytical testing, the [NEIKER](#) technology centre is involved in developing a rapid test to detect the presence of the coronavirus. For the purposes of this project, the organisation is making its facilities and technological capacities available with the aim of developing a rapid, easy and cost-effective detection test that can obtain results in less than an hour and that has a high level of sensitivity and specificity. NEIKER's role also consists of providing technical assistance in the development process, which will take place at its Biological Containment Level 3 (BCL-3) facilities in Derio. The team of specialists from the NEIKER Animal Health Department and Laboratories is providing its expertise in the field of immune response and molecular biology in order to optimise the performance of the technique.

The company, which is a member of the BRTA, is also defining the implementation of real-time PCR tests, using a protocol from the Pasteur Institute. This solution could be useful in the event of a shortage of commercial kits.

Meanwhile, the [TECNALIA](#) technology centre is also working on developing rapid diagnostic tests using real-time PCR. The company is also collaborating in the manufacture, development and quality control of medication to prevent and treat the disease, which is currently in the clinical trial phase.

The [CEIT](#) technology centre, together with TECNALIA and under the coordination of CIC biomaGUNE, is working on preparing viral transport media for the samples taken from patients. These systems are made up of a combination of antibiotics prepared in the laboratory, which are used to safely transport the samples from the hospital to the analytical laboratories.

Based at the Bizkaia Science and Technology Park, the [GAIKER](#) technology centre is developing an ultra-sensitive rapid kit as an alternative to PCR tests for detecting SARS-CoV-2. The centre is also involved, in collaboration with CIC bioGUNE and NEIKER, in developing two different technologies for detecting antibodies by means of an overexpression of the viral immunogenic antigen, which are easy to use and apply. They



are also working with InnovatekBi Krea to develop new fabrics and formulas for manufacturing highly effective, durable masks.

In parallel to these R&D projects, GAIKER is advising private companies and public administrations on the criteria required to use the different types of diagnostic technologies, and evaluating commercial diagnostic kits for COVID-19 that are available on the international market. GAIKER is also being consulted on the antimicrobial and biocompatibility testing of masks for health certification and approval, as well as on the types of materials used to manufacture swabs and other health equipment for taking samples for virological diagnosis.

Lastly, GAIKER's technical and research team may also be involved in preparing and dosing viral transport media for COVID-19 samples, and carrying out PCR analyses for diagnosing this disease.

Likewise, the [CIC biomaGUNE](#) Centre for Cooperative Research in Biomaterials, based at the Gipuzkoa Science and Technology Park, has made its laboratories and a team of 7 people available to Osakidetza to prepare more than 3000 units of viral transport tubes for COVID-19 samples per day.

The organisation has also sent more than 16 urgent research proposals to prevent, diagnose, treat and monitor the disease, which are currently under evaluation.

The [CIC bioGUNE](#) Centre for Cooperative Research in Biosciences, based at the Bizkaia Science and Technology Park, is carrying out a project aimed at validating and developing rapid serological diagnostic techniques for the SARS-CoV-2 virus. It is also working on assessing and validating various laboratory procedures for automated RNA extraction from human samples and procedures for detecting RNA in the virus using PCR.

The organisation is also involved in an initiative focused on pinpointing risk groups for SARS-CoV-2 within the workforce and identifying factors that could help to develop immunity to SARS-CoV-2.

The fourth project that this organisation is involved in is aimed at applying new computational methods to characterise the immune response that defines this pathology and proposing strategies and treatments that are capable of moderating the severe inflammatory cascade that this disease causes in some patients.

CIC bioGUNE is working on these initiatives with Atlas Molecular Pharma, NEIKER, GAIKER, Bioef, Osakidetza, Grupo Arquimea and the University of Deusto.

Meanwhile, the [CIC nanoGUNE](#) Nanoscience Research Centre has begun work on a research project to create an anti-viral medication that will prevent the virus from entering cells. This project was launched in collaboration with UPV/EHU, DIPIC, the Andalusian Earth Sciences Institute (IACT, CSIC-UGR), IIS Biodonostia, the National Centre for Biotechnology (Centro Nacional de Biotecnología, CNB), and biomaGUNE.

Ventilators and ventilation solutions



In order to respond to the need for respiratory solutions, TECNALIA is carrying out various actions to support industry in the manufacture of ventilators in collaboration with Hersill, a leading manufacturer in the Spanish market, by providing solutions to increase the company's production capacity and solving the problems related to supplying some of the components. To this end, it has expanded its collaboration network with companies that are supporting them with the manufacture of critical components.

In the meantime, [CIC biomaGUNE](#) is working in collaboration with Numiotech on the transformation and large-scale production of a mechanical veterinary ventilator which can be used for patients affected by the pneumonia and respiratory complications caused by COVID-19. To develop this project, the organisation is in contact with the Spanish Agency for Medicine and Healthcare Products, Getafe Hospital, the Jiménez Díaz Foundation and Osakidetza, through Biodonostia.

The [TEKNIKER](#) technology centre is involved in designing, developing and manufacturing a ventilation device for patients. Specifically, the Eibar-based company is working on creating a solution that will allow manual resuscitators (known as 'Ambu bags') to be automatically operated to perform the functions of a ventilator. An 'Ambu bag' is a handheld device that provides positive pressure ventilation to people who are not breathing properly. The possibility of automating the manner in which these devices operate will make it possible to have ventilators which could play a vital role at this time, even though they are more of a home-made solution.

The project includes the participation of companies such as Wanbat, Cisco, Omron, Martinena, Icus, Ingeteam, Haku, Licuit and Eper.

In Arrasate, the [IKERLAN](#) technology centre is also working on a study to test the feasibility of producing mechatronic emergency breathing devices in the Basque Country. This project is being carried out by involving the complete component supply, manufacturing, assembly, certification and approval cycle, taking advantage of the capacities of the existing health sector companies in the Basque Country and combining them with IKERLAN's experience in developing new mechatronic products.

Big Data and artificial intelligence to the rescue of health

In the field of information and communication technologies, IKERLAN, TECNALIA and VICOMTECH are undertaking a project that consists of creating a technological application based on data analysis and artificial intelligence so that both companies and institutions can manage the safe resumption of on-site work activities at the end of the lockdown and maximise people's protection.

The aim of this initiative is to ensure a gradual and safe return to normality through the use of models that will make it possible to assess the risk of spreading the disease.

The application will be deployed and validated at the BRTA centres, but it will also be available to the Department of Economic Development and Infrastructures of the Basque Government, as a tool to help companies in the Basque Country resume their activities.



In addition to collaborating on initiatives involving the clinical monitoring of patients and formulas for the safe resumption of economic activity in conjunction with IKERLAN and TECNALIA, the [VICOMTECH](#) technology centre is supporting a number of business initiatives.

In the area of monitoring and tracking, the technology centre is working on artificial intelligence solutions to make more accurate predictions regarding the risk of transmission, taking into account factors such as symptoms, clinical variables, history and evolution.

From a socio-economic point of view, the technology centre is working on Big Data solutions to link epidemiological aspects with others in the social, economic and labour fields with the aim of preventing future crises and defining scenarios for a safe return to work.

Loan of facilities and equipment

The NEIKER technology centre has carried out an inventory of the infrastructures available to support the health network, loaned equipment to Cruces University Hospital and 1,000 safety suits (PPE) to Osakidetza.

In addition, CEIT, together with Masmóvil and Matia Fundazioa, is working on providing infrastructure for the Lamourous senior citizens' centre, to enhance communication between family members and the people living in these facilities.

The primary sector, an essential function

In the field of food safety, the [AZTI](#) technology centre, which specialises in the sea and food value chains, has been involved in defining and implementing a strategy based on the methodology of analysing risks and identifying priority actions to ensure the food supply, working in collaboration with the Regional Ministry of Agriculture, Fisheries and Food of the Basque Government and companies representing the entire value chain.

The organisation has also drawn up a prevention and action protocol for the fishing fleet, agricultural and livestock farms and the food industry, which has been distributed to the primary sector agents involved. The document has been adapted by other Autonomous Communities, and also by the Ministry of Agriculture, Fisheries and Food.

Lastly, given the slowdown in sales of the HORECA channel, and the increase in retail and local shop consumption, the technology centre is monitoring the evolution of commodity prices on a daily basis in order to be able to gauge the economic impact of the crisis on the main food production sectors in the Basque Country and make recommendations on the most appropriate measures to alleviate the impact.

About BRTA

BRTA is an alliance made up of 4 collaborative research centres (CIC bioGUNE, CIC nanoGUNE, CIC biomaGUNE and CIC energiGUNE) and 12 technology centres



(Azterlan, Azti, Ceit, Cidetec, Gaiker, Ideko, Ikerlan, Lortek, Neiker, Tecnalia, Tekniker and Vicometch) that aim to develop advanced technological solutions for the Basque business fabric.

With the support of the Basque Government, the SPRI Group and the Provincial Councils of the three regions, the alliance aims to promote collaboration between the centres that make up the alliance, and strengthen the conditions for creating and transmitting knowledge to companies, with the intention of contributing to their competitiveness and promoting Basque scientific and technological capabilities abroad.

BRTA centres have a workforce of 3,500 professionals, are responsible for 22% of the Basque Country's R&D investment, have an annual turnover of over 300 million euros and produce 100 European and international patents per year.

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