PRESS RELEASE

SENER is working with the Severo Ochoa Center for Molecular Biology (CSIC-UAM) to detect the SARS-CoV2 virus in enclosed spaces

SENER, responsible for the innovative RESPIRA® system to improve ventilation inside facilities, has signed a contract with the CSIC, and specifically with the Severo Ochoa Center for Molecular Biology, to use the capabilities of the RESPIRA® control system to verify how ventilation affects the risk of contagion in enclosed spaces and to detect SARS-CoV2 in air samples.

Madrid (Spain), December 16, 2020 - The SENER engineering and technology group and the Spanish Council for Scientific Research (CSIC) have signed a partnership agreement to jointly develop a **project to identify the risk of contagion from SARS-CoV2 in enclosed spaces**.

Under this agreement, SENER is providing its RESPIRA® artificial intelligence system, which can be used to dynamically control ventilation in enclosed spaces. The Severo Ochoa Center for Molecular Biology (CBMSO, CSIC-UAM) is providing its equipment for capturing airborne viruses and microorganisms, as well as its procedure for identifying SARS-CoV2 in filters using optimized PCR methods.

This collaboration between SENER and the CBMSO (CSIC-UAM) started in October, sponsored by the Deputy Office for Knowledge Transfer (VATC in its Spanish Acronym) of the CSIC. Since then, teams of engineers and scientists from both entities have been working together to produce an **effective control system that reduces the risk of contagion from Covid-19 in enclosed spaces,** which will be compared against measurements taken by the CBMSO (CSIC-UAM). If the system is shown to work correctly, it could be installed in spaces where large numbers of people congregate, such as airports, stations, public transport vehicles, shopping centers, sports stadiums, auditoriums, schools, hospitals, museums, exhibition centers, etc.

RESPIRA® is an artificial intelligence platform that is capable of improving the air quality inside an enclosed structure by defining several criteria and reading parameters in real time, such as the indoor temperature, humidity and air quality, and the efficiency of electrical consumption. These data are used by a dynamic algorithm to predict the environmental conditions (depending on the weather forecast, the service to be provided and other factors) and then apply a mode of operation to the ventilation units in order to ensure the air quality and lower the heat index, while also minimizing electricity consumption inside the structure.

SENER's Innovation Director, Òscar Julià, says that "RESPIRA® applies smart ventilation control to maximize the supply of fresh, outside air to enclosed, complex spaces, such as shopping centers, airports, train stations and hospitals, reducing the risk of proliferation of microorganisms. In this regard, this collaboration with the CBMSO (CSIC-UAM) is going a step further in detecting the SARS-CoV2 virus in the air. As a result, we hope to be able to offer the users of these facilities a system to guarantee a safer space with the lowest possible risk of contagion."

And he added: "At SENER, we view the digital transformation as integrating new technologies into the environment, the ultimate goal being to make them available to society. We are looking for sustainable and environmentally friendly innovations that can improve people's lives. RESPIRA® is an example of how an Artificial Intelligence solution can help mitigate the impact of this pandemic."

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For Antonio Alcamí, a CSIC researcher involved in the project: "This collaboration is an opportunity to complement the system developed by SENER and the methods for detecting airborne SARS-CoV2 that we have optimized at the CSIC in order to reduce the risk of contagion and improve our health."

The CBMSO (CSIC-UAM) has developed an air sampling system that can capture microorganisms and viruses, including SARS-CoV2, and it has optimized an advanced PCR method (PCR digital droplet) to quantify the exact number of virus particles present in the air at any given time.

For Ángela Ribeiro, Deputy Vice-President of the CSIC Knowledge Transfer: "The CSIC has once again shown its strong commitment to the effective transfer of the quality work carried out in its centers and institutes. In this case, we looked for the appropriate framework to establish an important public-private partnership that is already starting to yield results."

About SENER

SENER is a private engineering and technology business group founded in 1956. Its aim is to offer its clients the most advanced technological solutions and to achieve international recognition based on its independence and commitment to innovation and quality. The SENER Group has 2,350 professionals in offices in five continents and the group's operating revenue exceeded 433 million Euros (2019 data).

SENER brings together its own Aerospace and Engineering activities with industrial holdings in companies working in the field of Energy. SENER Aeroespacial has more than 50 years of experience and it is a first-rate international supplier in Space, Defense and Science. SENER Engineering has become a leading company worldwide in Infrastructure, Energy and Marine.

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About the Severo Ochoa Center for Molecular Biology

The CBMSO is a joint center of the CSIC and the Autonomous University of Madrid that is dedicated to biomedical research. It has been a leading center since the early days of molecular biology. The research projects carried out there cover many aspects of biomedicine, including neurobiology, developmental biology, genomics, immunology, inflammation, microbiology and virology. The CBMSO has biosafety level P3 laboratories for working with SARS-CoV2, and has been involved in numerous Covid19 research projects since the start of the pandemic.

About the CSIC and the VATC

The Spanish Council for Scientific Research (CSIC) is the largest public research body in Spain. One of the goals of the CSIC is to bring scientific and technological capabilities and achievements closer to every national and international socio-economic sector, so they can enhance the social, economic and cultural well-being of society as a whole. Along these lines, the Office of Knowledge Transfer manages strategic relations with agents in the production sector, the scientific and technical research contracts signed with other entities, and it advises on the preparation and management of CSIC-Corporate projects and on financing them through public and private funds.

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