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Eurecat's capabilities to help address COVID-19

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Materials and device development capabilities

1. Integrated design and development of medical devices, drawing on its expertise and extensive experience in plastic, metal, composite and fabric materials or a combination of them and their processing to take the developed and tested product to approval and the market.

2. Testing fabric materials for sanitary applications. This includes tests for UNE-EN 14683:2019: Medical face masks.

3. Development of firmware for medical devices and equipment plus capabilities in printed electronics and software which can be implemented in the devices (apps, backend, etc.) especially in IoT solutions.

Digital capabilities in data processing, AI and platform development

Long track record of working with leading hospitals including Hospital Clínic de Barcelona and Hospital Vall d'Hebron de Barcelona. Experience in projects related to infectious processes with analysis of data from ICU patients at risk of infectious processes and sepsis, including intensive ICU monitoring data as well as clinical and epidemiological data enriched with biological data from patients sequenced in our Centre for Omic Sciences, in order to build models and tools to aid clinical detection in the prognosis and prediction of complications, readmissions and mortality.

4. Developing applications and platforms for managing and analysing medical data: proven experience in data analytics for life sciences (clinical, epidemiological, biological, medical imaging and physiological and biometric sensor data). Application of statistical and bioinformatics techniques, machine learning and artificial intelligence across the entire data lifecycle (acquisition, healing, pre-processing, statistical characterisation and development and validation of predictive models based on Deep Learning or other AI techniques).

5. Data analysis capabilities as coordinators of the CIDAI (Centre for Innovation in Data Tech and Artificial Intelligence).

6. Proprietary computing cluster (CPUs + GPUs) which allows for complex and computationally-intensive big data and AI projects. Data analytics for establishing mobility patterns.

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Biotech capabilities

Eurecat's Biotech Area, which includes the Centre for Omic Sciences (a joint unit with Rovira i Virgili University) and its Nutrition and Health Unit. The Centre for Omic Sciences is a Unique Scientific and Technical Infrastructure (ICTS) equipped with all the latest technology for metabolomics, proteomics, transcriptomics and genomics. It has enormous experience in searching for biomarkers and integrating the data derived in a range of omic technologies.

7. Extensive experience in real-time PCR studies Complete equipment for diagnosing COVID-19 using real-time PCR. It has three PCR preparation cabinets, two real-time PCR devices, three thermal cyclers, a Sanger sequencer and three next generation sequencing units.

8. Extensive experience in metabolomics studies. It could assist with the search for new biomarkers in nasal swab samples from patients using a metabolomic approach (GC-MS and LC-MS). This would be research alongside PCR diagnosis and could make it possible to find prognostic biomarkers as is the case in other infectious diseases.

9. The Nutrition and Health Unit has all the reagents and infrastructure needed to conduct the microbial cleanliness trials required in the tests to validate fabric facemasks for sanitary use.

Talent training capabilities

10. Good practices and advice on telecommuting.
11. Online training content in various technological fields.