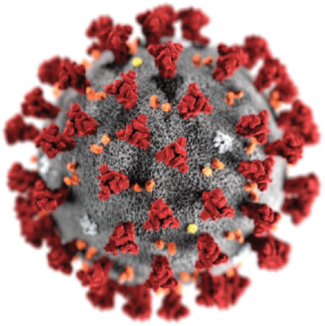

Research Infrastructures and COVID-19 Research

ACCELERATE is funded by the European Union Framework Programme for Research and Innovation Horizon 2020, under grant agreement 731112

Research Infrastructures and COVID-19 Research

Responses to the questionnaire

ALBA Synchrotron

ALBA is the Spanish Synchrotron Light Source, a research infrastructure open to researchers of Spain, Europe, and the whole world. Eight fully operating beamlines, equipped with twelve end stations, serve a large international community working in biology, materials science, chemistry, and device physics and development. With our long-standing experience in providing beamtime, lab support, data handling and scientific collaboration to proprietary and general users we cover the wide field from characterization challenges for product development to understand the underlying processes, As member of LEAPS, the League of European Accelerator-based Photon Sources our tools and experts are fully integrated into the European research network.

SERVICE/S IMPLEMENTED

Focusing on our social responsibilities, ALBA has closed all other activities and concentrates its resources and services on battling the research challenges given by the COVID-19 pandemic. Depending on demand, we will bring ALBA from a “sleeping status”, to a reduced operation mode; our “COVID-19 Rapid Access” guarantees the proprietary and general user fast and secure access to MX, full-field soft X-ray microscopy, IR-spectro-microscopy and high resolution powder diffraction. On demand, we will also activate any other beamline or instrument within a two-week planning phase.

- **What stage in COVID-19 intervention your RI is addressing?**

• Near-atomic structural determination of Covid19-related proteins such as SARS-CoV-2 proteins, enzyme targets, membrane receptor complexes, antibody- and RNA-protein complexes etc.
• Crystallization screening
• Fragment screening as part of drug-discovery campaigns towards Covid-19 treatments.
• In-situ crystallization plate diffraction screening
• Imaging of the SARS-CoV-2 infection effects at the cellular level
• Drug effect of infection at the cellular level
• Study of the changes of the infected cells by measuring the protein/lipid and phosphate/lipid ratios
• Characterization of the changes in the IR spectra for cells transfected with Coronavirus proteins, which would allow monitoring the effect of drugs or vaccines on infected cells.
• Structure and phase determination for drug development, characterization, and reliability investigations.

- **Instruments/databases involved:**

Macromolecular Crystallography (https://www.cells.es/en/beamlines/bl13-xaloc)

Soft X-ray Full-Field Transmission Microscope (https://www.cells.es/en/beamlines/en/beamlines/bl09-mistral) IR spectroscopy (https://www.cells.es/en/beamlines/en/beamlines/bl01-miras) Powder Diffraction (https://www.cells.es/en/beamlines/en/beamlines/bl04-mspd)

- **How is the proposal submitted?**

Through the user office (see https://www.cells.es/en/en/users/call-information)

- **Who evaluates the proposal?**

ALBA internal panel, led by Scientific Director

- **Is the submission continuous, or linked to a deadline?**

Continuous

- **What is the estimated time from the submission to the access / service provision?**

Our optimized process guarantees less than two-day delay from submission of the proposal or signing the quote to be awarded beamtime. Depending on the complexity of the experiment and sample preparation, we guaranty beamtime access between 4 to 14 days after proposal or signed quotation is received.

CHARACTERISTICS OF THE ACCESS

Restrictions: No restriction except that the experiment is related to COVID-19 research and has passed peer, technical and safety review

In the case of analytical facilities, modality of access allowed: Remote and on-site access

Comment for remote access only: ALBA Synchrotron

Analytical Facilities: If on-site access is allowed, is mobility support available?	YES
All RIs: Is the access free for non-proprietary research?	YES
All RIs: Is commercial access available at reduced prices?	NO
Analytical Facilities: Are there limitations regarding the type of samples?	YES
Analytical Facilities: Are there special requirements for shipment of the samples?	YES
Analytical Facilities: Are there specific requirements regarding the preparation or handling of the samples?	YES

Additional comments related to the questions above: Maximum biosafety level allowed: 2+ in biolab preparation
Standard safety regulations apply to shipment as well as preparation and handling of samples

ACCESSIBILITY OF THE PUBLICATION AND DATA

Is there any requirement to publish in open access journals?	NO
Is the data generated associated to metadata and is it publicly available?	YES
If yes, what is the embargo period?	Usually 3 years
Where is the data or metadata published? (e.g. in the institution's catalogue, in other open data repositories, etc).	In the institution’s catalogue
Do you have further comments about data or metadata?	no