

SPECIFICATION SHEET

**SUPPLY, INSTALLATION AND STARTING-UP OF AN
ULTRACENTRIFUGE THROUGH AN OPEN PROCEDURE NOT
SUBJECT TO HARMONIZED REGULATION**

FILE NUMBER: 2024.SU.018

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CLAUSE 1. Object of the contract

The purpose of this contract is the supply, installation and commissioning of an "ultracentrifuge equipped with three distinct rotors and associated tools, tailored for distinct protein biochemistry applications" for the Biology Lab facility of ICFO.

The types of items supplied are linked to the CPV (Common Public Procurement Vocabulary), **38000000-5** Laboratory, optical and precision equipment (except glasses).

CLAUSE 2. Needs to satisfy

The required ultracentrifuge is a high-speed centrifuge machine, currently not available at ICFO, that will allow to perform routinely protocols associated, especially, to the isolation and characterization of proteins and pigment-protein complexes. The required ultracentrifuge must operate up to a Relative Centrifugal Force (RCF) of 694,000 g. It also has a cooling system to set the temperature as low as 0°C. Such elevated speed and cooling are strictly necessary to separate photosynthetic complexes isolated from organisms such as plants, and to separate pigment-binding proteins from free pigments after for example in vitro reconstitutions, with necessary RCF of at least 200000 g, while avoiding protein degradation with a necessary temperature not higher than 4°C. Given the different volumes of sample obtained via protocols such as protein reconstitution and protein isolation from different organism, the different requirements in separation, and different protocols, 3 distinct rotors each with a complete set of tools required to use them, are necessary.

The system should include:

- Speed of capable of reaching 90000 RPM and 694000 g of RCF.
- The ultracentrifuge should have at least 10 profiles of acceleration and 11 of deceleration
- A cooling system to set the temperature as low as 0°C
- An air-cooled thermoelectric motor free of CFCs and ODCs and that can incorporate sterilizing filters of pharmaceutical grade HEPA type, to make it biosafe.
- IVD certificate to be able to work now or in the future with patient samples

CLAUSE 3. Technical requirements

3.1. Requirements for the Ultracentrifuge with associated rotors, tools, warranty and service provided

The equipment, service and warranty to be offered must include at least the following:

- An ultracentrifuge equipped with a large LCD full touch screen intrinsic to the equipment (connections to screens external to the centrifuge will not be allowed) that facilitates the work of the operator and whose size is approximately 15 inches.
- The ultracentrifuge must incorporate a DRIC (Dynamic Rotor Inertia Check) security system and a security system using an overspeed disk and rotor identity control based on parameters taken from the real centrifugation status.
- Speed control: +/- 2 rpm of the selected speed (above 1000 rpm).
- Temperature: programmable from 0 to 40 °C in 1 °C increments.
- Temperature Control: +/-0.5 °C of the programmed temperature.
- Regenerative Braking: with energy return.
- Cooling of the spinning system: by Air.
- Thermoelectric refrigeration system free of CFCs and ODCs.
- Quietest ultracentrifugation system on the market, <51dBA

- The equipment must accept voltage variations in the electrical supply in the range 180 to 264V and to intelligently manage voltage drops up to 85 V.
- Must be able to restart the experiment in case of power failure and complete it according to the programmed values.
- Energy regeneration system during braking to reduce the energy consumption of the equipment.
- Included with the ultracentrifuge, a titanium Swinging-Bucket rotor fully compatible with the ultracentrifuge and capable of reaching a speed of at least 60,000 RPM and 485,000 x G RCF with a capacity of at least 6 tubes of 4ml total volume (at least 24ml of total rotor capacity) and a pelleting efficiency K factor of 45.
- Included with the ultracentrifuge, a titanium Swinging-Bucket rotor fully compatible with the ultracentrifuge and capable of reaching a speed of at least 40,000 RPM and 285,000 x G of RCF with a capacity of at least 6 tubes of 14ml total volume (at least 84ml of total rotor capacity) and a pelleting efficiency K factor of 137.
- Included with the ultracentrifuge, a fixed-angle titanium rotor fully compatible with the ultracentrifuge and capable of reaching a speed of at least 70,000 RPM and 504,000 x G RCF with a capacity of at least 8 tubes of 39ml volume will be included with the ultracentrifuge. total (at least 312ml of total rotor capacity) and a pelleting efficiency K factor of 44.
- Compatibility certified by the manufacturer between rotors and ultracentrifuge
- A complete set of tools, tubes, adaptors, and racks to operate for all the rotors.
- Installation.
- Warranty of 3 years with total service.
- Training in person to researchers at ICFO to operate the whole equipment, online material and customer service to help us in case we need additional training or to answer our doubts in the future.

CLAUSE 4. Power distribution and safety

The system should be configured for EU (Spain) power grid (voltage, sockets, etc.) and be CE marked.

The system will be fully protected against unexpected power cuts and, in that case, will be fully safe for the operators. A quick and easy turning on of the system has to be possible after a power cut.

CLAUSE 5. System layout and services

The proposal will include a complete set of pictures, drawings and layouts of the system, including dimensions, location and details of the different components.

CLAUSE 6. Transport, installation and start-up

- The proposal will include transportation to ICFO's facilities and all export/import and customs duties. DAP incoterms will apply.
- The machines will be placed in the selected location by ICFO. Contract winner will cover all costs, organization and coordination of machine placement, including any required specialized equipment or vehicle, and any required component dis-assembly and re-assembly for systems unloading and transportation inside the building to the target lab location.
- Onsite system starts up included followed by the acceptance tests specified below.
- System training to ICFO personnel included.

CLAUSE 7. Acceptance test

Contract winner will install and carry the necessary test to verify that the technical requirements above mentioned are met and the correct functioning of the equipment. A service report, a list of all the specifics of the equipment provided, and acceptance test will be provided by the contract winner and signed by our institute, certifying from that moment the start of the warranty period.

CLAUSE 8. Warranty and Follow-on Support

3 YEARS Full Warranty on all parts and components of the system irrespective of the manufacturer. The warranty will include the replacement of any faulty or damaged part(s) during normal use of the system, no matter the manufacturer of the component(s). It will cover any cost related with the disassembly, transportation, reparation and re-assembly of the damaged component(s), including all travelling and living costs of the required service engineer(s). An on-site repair, or a justified alternative to reduce the system down time to the minimum, will always be the first service option. A team of properly qualified and skilled service engineers will have to be available. The technical service team must be based in Europe and should provide, free of charge, annual preventive maintenance on all acquired products and annual curative visits on all products. Commitment include priority assistance on working days. Also, preventive maintenance including travel, materials and labour are included. Labour in preventive maintenance inspections is included without limit.

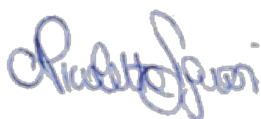
CLAUSE 9. Delivery and Installation Time

The system must be delivered and installed at ICFO within a maximum period of 1 month. Delivery time is defined as the time elapsed since the signature of the contract until the system delivery at ICFO facilities. It includes the manufacture of the system, the transportation, the installation and the acceptance test at ICFO's premises.

CLAUSE 10. Target price

- The target price for the system is 114.000,00 € (VAT excluded).
- Payment terms:
 - 20% upon drawing signing,
 - 30% once 80% of major materials are available and system assembly commences,
 - 40% upon delivery,
 - 10% after installation training and acceptance.

Castelldefels, on the date of its digital signature



Prof. Dr. Nicoletta Liguori
Head of the Photon Harvesting in Plants and Biomolecules group