**Technical specifications**

**PURPOSE AND SUBJECT MATTER OF THE PUBLIC CONTRACT**

The purpose of the purchase is to acquire a bioprinter, which is a device that allows robotic manipulation of various types of living objects (cells, spheroids, organoids) and combines this manipulation with 3D printing using a wide range of "inks" for 3D bioprinting. The device is placed in a dedicated sealed box, which ensures that all manipulations are carried out in a sterile environment. All manipulations in the device are carried out by a six-axis robotic arm.

The subject of the delivery is a new and fully functional device, including complete installation, commissioning and training of personnel at the place of delivery.

The Participant's Bid must meet all the requirements and parameters specified by the Contracting Authority below. In the case of parameters defined by a minimum or maximum level or range of values, the participant's bid shall comply with at least the required level.

**MINIMUM TECHNICAL PARAMETERS**

|  |  |
| --- | --- |
| **Parameter** | **Parameter offered by the vendor** |
| Producer | *(Supplier to specify manufacturer)* |
| Type/Model | *(Supplier shall specify type and model)* |

|  |  |
| --- | --- |
| **Basic features:** | |
| A device that allows manipulation with cells, organoids and liquids / semi-solid gels, and allows their organization in 3D space | The supplier will state YES/NO |
| Laminar box providing a sterile environment | The supplier will state YES/NO |
| Control computer including control software | The supplier will state YES/NO |
| Enables automation of the movement of the handling tool in 3D space | The supplier will state YES/NO |
| Compatibility with standard cell culture plates (plate outer dimensions 86 x 128 mm) | The supplier will state YES/NO |

|  |  |
| --- | --- |
| **Requirements for handling cells and organoids:** | |
| Handles low-viscosity liquids (pipetting of culture media, cell suspensions and organoids in media) | The supplier will state YES/NO |
| Facilitates manipulation of viscous polymers for 3D culture and work with organoids (Matrigel, collagen, gelatin, cell and organoid suspensions) | The supplier will state YES/NO |
| Pipetting tool using standard single-use pipette tips (for volumes of 10, 200, 1000 uL) | The supplier will state YES/NO |
| Printbed for culture plate / printed object with temperature control (minimum temperature range from +10°C to +50°C) | The supplier will state YES/NO |

|  |  |
| --- | --- |
| **Requirements for 3D bioprinting:** | |
| Extrusion bioprinting | The supplier will state YES/NO |
| Multi-axis (six-axis) print arm movement allowing to tilt the printhead | The supplier will state YES/NO |
| Multi-material printing and the ability to change printheads during printing | The supplier will state YES/NO |
| Temperature-controlled printhead (minimum temperature range from +15°C to +37°C) | The supplier will state YES/NO |
| Dual-channel coaxial print head (core-shell) | The supplier will state YES/NO |
| Printhead with UV illuminator (~405 nm) for photocrosslinkable materials | The supplier will state YES/NO |
| Compatibility with syringe barrels and cartridges (for 3, 5, 10, 30 mL volumes) and luer lock dispensing tips | The supplier will state YES/NO |
| 3D scanning capabilities for in-situ printing into custom microfluidic chips, bioreactors, animal models | The supplier will state YES/NO |
| Build volume minimum 20 × 20 × 15 cm (dimensions x, y, z) | The supplier will state YES/NO |

|  |  |
| --- | --- |
| **Software requirements:** | |
| Software enabling basic 3D modeling | The supplier will state YES/NO |
| Software for converting data from a 3D model to a print format | The supplier will state YES/NO |
| Import of models in STL format | The supplier will state YES/NO |
| Compatibility with formats used in medicine – CT, MRI scans | The supplier will state YES/NO |
| Automation of manipulations and printing process | The supplier will state YES/NO |

***\* The supplier will state YES/NO and fill in the required information. The supplier is obliged to attach his own technical specification or his own description of the equipment to the technical specification specified in this table.***