

24th March 2022

Global Tender Notification for the procurement of 'Gene Gun' at the Indian Institute of Science, Bangalore

(Last date of submission of tenders: noon, 8th April 2022)

GTE Approval No. IISc-GTE-2022-159

Dear Sir/Madam,

Please submit your bid valid for 90 days to supply the following equipment along with the terms and conditions and other vital information as required by us. Your response may please be addressed to The Chairman, Centre for Ecological Sciences, 3rd Floor, Biological Sciences Building, Indian Institute of Science, Bangalore 560012, Karnataka, India, to reach on or before noon, 8th April 2022.

The gene gun should be a convenient handheld device that provides rapid and direct transfection into a range of targets *in vivo*. The unit should use an adjustable low-pressure helium pulse to sweep DNA-, RNA-, or biomaterial-coated gold micro-carriers from the inner wall of a small plastic cartridge directly into target cells.

Should provide critical features as below:

- Should provide an easy-to-use, rapid, versatile gene delivery, independent of target cell type.
- Should facilitate both transient and stable expression.
- Requires only small amounts of DNA and cells; no carrier DNA is needed.
- Enables co-delivery of more than one plasmid.
- Allows the transfer of large DNA fragments.
- Targets intracellular gene delivery to many cells.
- Works for both *in vitro* and *in vivo* transformation.
- Delivers no extraneous genes or proteins.
- System should include helium pressure regulator, solenoid, spacer rods, micro-carrier launch assembly, target shelf, 5 macro-carrier holders, tubing, instructions.
- Transformation factors: Experimental conditions: *In vitro*, *ex vivo*, *in vivo* (plants).
- Sample location: Evacuated chamber.
- Target Area: Large (40 cm²).
- Target membrane structure: fragile to robust.
- Pressure range: 450-2200 psi.

Specifications:

- System should include the bombardment chamber (main unit), connective tubing for attachment to a vacuum source, and all components (helium regulator, solenoid valve, and connective tubing) necessary for attachment and delivery of high-pressure helium.
- The system technology should be of biolistic technology.
- The system should be capable of generating pressurized gas delivery with a handheld mechanism for delivering an instantaneous cold gas shock wave into an enclosure where the gas shock is released, contained, and vented.

- The system should utilize a pressurized gas delivery system that allows for helium pressure adjustment which translates the cold gas shock into the acceleration of microprojectiles coated with biological molecules for delivery into diverse target cells/tissue without killing the cell/tissue.
- The System should hold up to twelve samples held within a cartridge holder that is inserted into the gene gun, are able to be delivered in rapid succession in this manner.
- The system should employ a method for launching the biologically coated micro-carriers from within a cartridge that is held inside a handheld delivery device.
- The system discharge should be initiated by pressing the trigger buttons, which activates the main valve causing the pressurized helium to travel down the bore of the particle delivery device.
- The system pulse of Helium gas should sweep the micro-carriers from the inside wall of the cartridge, through a sealed barrable that cat as an acceleration chamber.
- The unique barrel design effectively baffles the gas shock wave to deflect some of the force of the cold gas shock waves away from the target cells with sufficient acceleration of microprojectiles coated with biological molecules for delivery into diverse target cells/tissue without killing the cell/ tissue this accomplished without the need of a vacuum allowing *in vivo* targeting of micro-carriers coated with a biological molecule with this device.
- Transformation Factors Experimental Conditions: *In situ, in vitro, in vivo, ex vivo*
- Sample location: External and exposed internal aspects of the target organism
- Target Area: 2 cm²
- Target membrane structure: *in vivo*
- Pressure range: 100-600 psi
- Maximum Current: 10 mA peak
- Voltage input: 9 V alkaline battery, replaceable
- Battery Life: 1,000 discharges in continuous use
- Gas Pressure: 600 psi maximum helium
- Safety relief pressure: 700+35 psi at the regular assembly
- Regulator adjustment: 800 psi limit maximum
- Discharges: 12 per cylinder, mechanical indexing
- Environmental Operating Conditions: 10-32 °C (50-90 °F); 30-80% humidity
- Environmental Storage Conditions: 0-60 °C (32-110 °F); 10-90% humidity
- Physical Construction: Super epoxy or polycarbonate
- Cylinder: Acetal
- Barrel liner: Ryton
- O-rings: Viton

Tubing Prep Station

- Maximum Current: 62 mA / 125 mA peak
- Voltage input: 220/240 V
- Input Frequency: 50/60 Hz
- Relief Pressure: 30+1.5 psi at regulator assembly
- Speed: 30 rpm nominal
- Tubing Fill: Manual
- Construction: Aluminum & acrylic

TERMS AND CONDITIONS FOR SUBMISSION OF BIDS

The quotations should be submitted in two bids system; i.e., Technical bid, and Commercial bid. The technical bid must include all the details of the technical specifications of the instrument along with terms and conditions masking only the price component. Bill of materials, brochures, technical datasheets, and any other document may be enclosed to help the evaluation of the technical bid.

1. The commercial bid must include the price of the instrument in Indian/Foreign currency indicating break up of:
 - i. Price (CIF, Bangalore). Applicable Custom Duty will be borne by the Institute.
 - ii. Installation, commissioning and training charges, including any incidental expenses, if any.
 - iii. Agency commission charges, if any.
2. Both the Technical and Commercial bid should be put in separate sealed envelopes, and put together in another cover stating “Gene Gun” and should reach us on or before 8th April 2022 to,
‘The Chairman, Centre for Ecological Sciences, 3rd Floor, Biological Sciences Building, Indian Institute of Science, Bangalore 560012, Karnataka, India’.
3. Warranty should be for a period of 3 years from the date of installation.
4. We prefer to make payment by Letter of Credit – 90% against presentation of documents and 10% after installation.
5. In addition to this, LC Amendments, Extension, Confirmation charges, if required, are to be borne by the beneficiary.
6. If the goods are found to be defective, they have to be replaced/rectified at the cost of the suppliers within 15 days from the date of receipt of written communication from us.
7. If there is any delay in replacement/rectification, the warranty period should be correspondingly extended.
8. Excise Duty exemption certificate can be provided by the Institute.
9. Conditional tenders will not be accepted.
10. The purchaser reserves the right to accept or reject any bid, and to annul bidding process and reject all bids at any time prior to award of contract, without thereby incurring any liability to the affected bidder or bidders.

Any further queries can be made to ksunagar@iisc.ac.in and copy mark to office.ces@iisc.ac.in.

Dr. Kartik Sunagar
Assistant Professor
Centre for Ecological Sciences
Indian Institute of Science,
Bangalore 560012.
(on behalf of purchase committee)