

Indian Institute of Technology Guwahati
Guwahati-781039
Assam
India



Ref: II&SI/ToT/2023-24

Date: August 14, 2023

From: Dean, Industrial Interactions and Special Initiatives (II&SI) IIT Guwahati, Guwahati-781034 Phone : 03612582948, 03612582946, 03612582131 Email : hosiisi@iitg.ac.in , dhanjit@iitg.ac.in , doiisi@iitg.ac.in	To:
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NOTICE INVITING

EXPRESSION OF INTEREST (EOI) with Request-for-Proposal (RFP)

FOR

TRANSFER-OF-TECHNOLOGY (TOT)

OF

**THE FOLLOWING TECHNOLOGIES FROM THE CENTRE FOR NANOTECHNOLOGY
UNDER THE PROJECTS R&D/ NANO/P/DPB/09 – ICMR, Grant no. 5/3/8/20/2019-ITR and
R&D/NANO/P/HOC/01 – MeitY Project No. 5(1)/2022-NANO**

(i) ICMR, Grant no. 5/3/8/20/2019-ITR Government of India, entitled "POINT-OF-CARE OPTOPLASMONIC PATHOGEN SENSOR FOR THE RAPID DETECTION OF URINARY TRACT INFECTION" implemented at IIT Guwahati (NANO/P/DPB/09) from the Centre for Nanotechnology. (Indian Patent Application No. 202231046148)

(ii) MEITY, GRANT No. 5(1)/2022 – NANO Government of India, entitled "MICROFLUIDIC POC-IMMUNOSENSOR FOR NON-INVASIVE PLASMONIC DETECTION OF TEAR BIOMARKERS" implemented at IIT Guwahati (NANO/P/HOC/01) from the Centre for Nanotechnology. (Indian Patent Application No. Application No.201931028121 A)

Quotations for Transfer-of-Technologies (TOT) for the technologies summarized in the **ANNEXURE-I**, in a double bid as indicated in the CHECKLIST given below, in sealed covers, are hereby invited so as to reach the undersigned on or before **August 31st, 2023, 12 noon**.

INSTRUCTION TO BIDDERS:

The applications are invited for the purpose of Technology Transfer/commercialization from the organizations with relevant experience.

1. The information to be furnished for the technologies, which may require customization based on the technology/product/service/prototype, is given in the Annexure-I. Interested parties can submit the technical and financial bids against the EOIRFP along with the forms duly filled, in the formats provided with the EOIRFP, with all relevant supporting documents.
2. There will not be any pre-bid meeting. The requirements as envisaged by the grantee institution and the queries of the vendors to be addressed over emails, phones or visits to the contact,

Dean, Industrial Interactions and Special Initiatives (II&SI)
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Phone : 03612582948, 03612582946, 03612582131
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3. The bids against the EOIRFP's submitted should be sealed properly and marked "EOIRFP for TOT of product /technology/prototype" so as to reach the following address on or **before, 31st August 2023 till 12 noon**. The details of the contact person,

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The EOIRFP bids shall be opened on **1st September 2023 at 5 PM**

Institution may at its discretion--extend this deadline for the submission of EOIRFP by amending the EOIRFP documents, in which case all rights and obligations of Institutions and bidders previously subject to deadline will thereafter be subjected to the deadline as extended.

4. To assist in the examination, evaluation and comparison of EOIRFP, Institution at its discretion can ask the bidder for the clarification of its EOIRFP. The request for clarification and the response shall be in writing. However, no post submission of clarification at the initiative of the bidder shall be entertained. Authority reserves the right to visit the facilities of the bidders if required.
5. Bidders if they chose, may prior to submitting their EOIRFP, visit Institution with prior appointment.
6. Bidders may be called for making a presentation before the committee.
7. IIT Guwahati may visit bidder's facilities for the assessment.
8. The technical and financial bids are to be submitted by the by the bidders in a single envelope and together. However, inside the envelope, there should be two separate envelopes, one containing the technical bid and the other containing the price bid. The vendor should write clearly 'TECHNICAL BID' and 'PRICE BID' at the outside cover of these envelopes to distinguish them. During the evaluation by the TOT committee, as per GOI norms, the technical BIDS will be opened first. The BIDS from the technically qualified vendors will be evaluated for the financial BIDS. The decision of the TOT committee appointed for this entire evaluation process is deemed final.

9. At any time before the submission of the bids against the EOIRFP, the IIT Guwahati may carry out amendments(s) to this EOIRFP document and/ or the schedule. The amendment will be made available on the website (Website details) and will be binding on them. The Authority may at its discretion extend the deadline for the submission of proposals.
10. The Authority reserves the right to accept or reject any application without assigning any reason thereof.
11. Bids that are incomplete in any respect or those that are not consistent with the requirements as specified in this document or those that do not adhere to formats, wherever specified may be considered non-responsive and may be liable for rejection and no further correspondences will be entertained with such bidders.
12. Canvassing in any form would disqualify the applicant.
13. The formats for the technical and price bids, vendor profile, submission format, and other details are available as enclosures with the advertised EOIRFP.
14. For any clarifications on the EOIRFP document, the following may be contacted through e-mail/FAX/Letter:

Details of the contact person

Dean, Industrial Interactions and Special Initiatives (II&SI)

IIT Guwahati, Guwahati-781034

Phone : 03612582948, 03612582946, 03612582131•

Email : hosiisi@iitg.ac.in, dhanjit@iitg.ac.in, doiisi@iitg.ac.in

Addendum

- There will be a onetime payment and royalty on net sales value of each technology which will fixed with Technology transfer agreement.
- If the onetime payment or royalty after negotiation is not acceptable, the same will be cancelled.
- Startup Companies need not possess a basic turnover. However, they need to possess financial support in the form of competitive grants.
- Bidders from the established companies (e.g. Pvt. Ltd. or Public Ltd.) may need to have a minimum turnover of Rs. 5 Cr. by the financial year 2022-2023.
- Startups/Companies quoting for both the technologies to be given preference.
- The applications to be received from different organizations will be evaluated by a committee at IIT Guwahati.

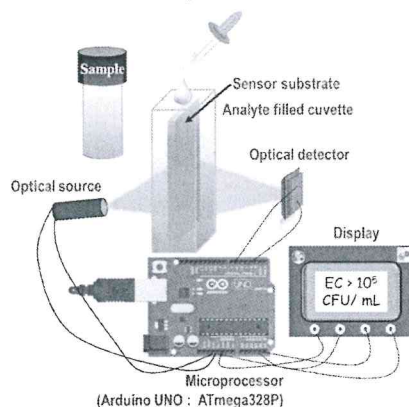
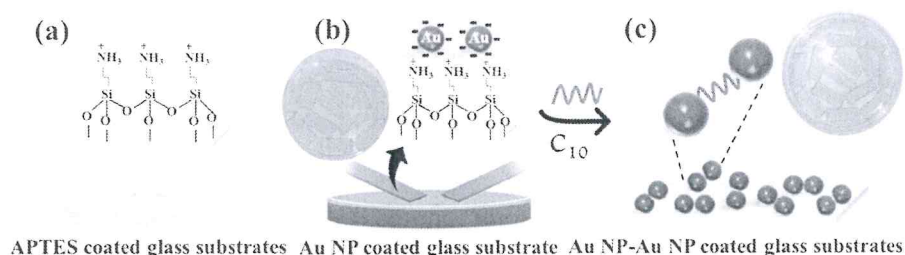


HoS (II&SI)

IIT Guwahati

Annexure – I

1. ICMR, Grant no. 5/3/8/20/2019-ITR Government of India, entitled “POINT-OF-CARE OPTOPLASMONIC PATHOGEN SENSOR FOR THE RAPID DETECTION OF URINARY TRACT INFECTION” implemented at IIT Guwahati (NANO/P/DPB/09) from the Centre for Nanotechnology. (Indian Patent Application No. 202231046148)

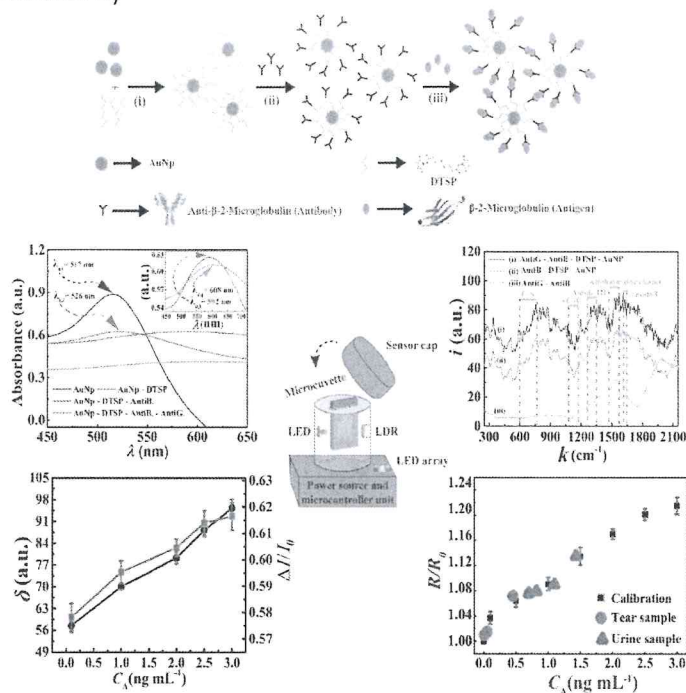


Early and easy detection of diseases, using point-of-care and inexpensive devices, not only provides option for early treatment but also reduces the risk of propagation. We describe here, the synthesis of gold nanotwins (Au NTs) on a solid and transparent glass substrate which has been employed for the selective optoplasmonic detection of bacteria in human urine for the point-of-care diagnosis of urinary tract infections (UTIs). For this purpose, initially a simple glass surface has been coated with Au NPs, with the help of the linker 3-aminopropyl-triethoxysilane – APTES. The surface has been linked further with another Au NP with the help of the 1,10-alkane-dithiol linker with two thiol ends, which eventually leads to the development of the optoplasmonic surface with Au NTs and an enhanced LSPR response. We have used DNA Aptamers for specific detection of bacteria in the urine. The enhancement in the LSPR response of glass substrates coated with Au NTs and the bacteria specific DNA aptamer has been further utilized for the selective and sensitive detection of UTIs. The results have been verified with the help of UV-visible spectroscopy to establish the utility of the proposed sensing methodology. An extensive interference study with other non-target bacterial species unveils the selectivity and specificity of the optoplasmonic sensors toward specific bacteria with a detection range of 5×10^3 to 10^7 CFU/mL. Intuitively, the method is more versatile in a sense that the sensor can be made specific to any other pathogens by simply changing the design of the aptamer. Finally, a low-cost, portable, and point-of-care optoplasmonic transduction setup is designed with a laser light illumination source, a sample holder, and a sensitive photodetector for the detection of UTIs in human urine.

Ref:

- Point-of-Care Biosensing of UTI employing Optoplasmonic Surfaces Embedded with Metal Nanotwins, Mitali Basak, Shirsendu Mitra, Mousumi Gogoi, Swapnil Sinha, Harshal B. Nemade, Dipankar Bandyopadhyay, ACS Appl. Bio Materials 5, 5321, 2022.
- Point-of-care Optoplasmonic pathogen sensor for the rapid detection of urinary tract infection, Mitali Basak, Shirsendu Mitra, Mousumi Gogoi, Swapnil Sinha, Utpal Mohan, Harshal B. Nemade, and Dipankar Bandyopadhyay, TEMP/E-1/52614/2022-KOL, Ref. No. 202231046148, Date of filing 12th August 2022;

2. MEITY, GRANT No. 5(1)/2022 – NANO Government of India, entitled “MICROFLUIDIC POC-IMMUNOSENSOR FOR NON-INVASIVE PLASMONIC DETECTION OF TEAR BIOMARKERS” implemented at IIT Guwahati (NANO/P/HOC/01) from the Centre for Nanotechnology. (Indian Patent Application No. Application No.201931028121 A)



An optical based sensing system comprising microfluidic sensor preferably immunosensor is provided and developed for the point-of-care-testing (POCT) of preferably beta-2-microglobulin in human tear or urine. Said microfluidic immunosensor is composed of a suspension of gold nanoparticles (AuNP) coated with the antibody, anti-beta-2-microglobulin, through a linker DTSP, which shows a specific coloration due to the Plasmonic effects whereby a transparent glass microcuvette enable facile hosting of the suspension with the specific coloration. Dispensing an analyte, tear or urine loaded with the antigen beta-2-microglobulin, into this microcuvette promotes an easy mixing of the analyte with the suspension, which eventually leads to the attachment of antigen to the antibody coated on the AuNP. Subsequently, a Plasmonic variations in the color of the microfluidic sensor is observed. The variation in the frequency and intensity of color with the antigen loading in the analyte have been electronically detected by integrating a light emitting diode (LED) in one side of the microcuvette and a light dependent resistor (LDR) to the other side. The resistance of the LDR is found to monotonically vary with the frequency and intensity of the transmitted rays issuing out of the microcuvette when the antigen loading is varied in the analyte. The calibration thus obtained from the known samples has been employed to detect the unknown amount of beta-2-microglobulin in tear or urine to detect different stages of diabetic retinopathy.

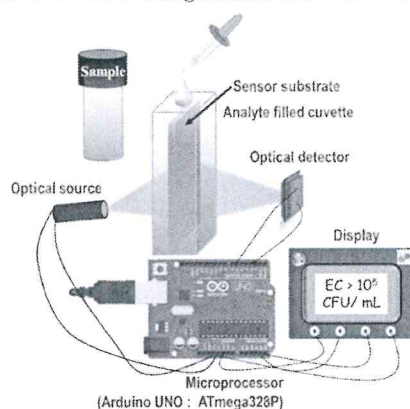
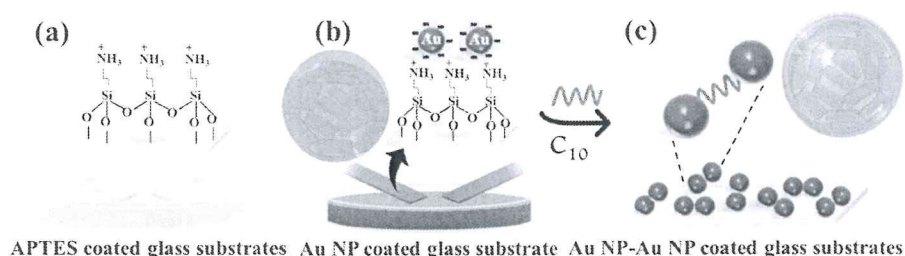
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- Microfluidic Immunosensor for Point-of-Care-Testing of Beta-2-Microglobulin in Tear, Surjendu Maity, Shubradip Ghosh, Tamanna Bhuyan, Dipankar Das, and Dipankar Bandyopadhyay, ACS Sustainable Chemistry and Engineering, 8, 9268, 2020.
- Indian patent: Microfluidic POC-immunosensor for non-invasive plasmonic detection of Tear biomarkers, Surjendu Maity, Shubradip Ghosh, Tamanna Bhuyan, Dipankar Das, and Dipankar Bandyopadhyay, TEMP/E-1/29690/2019-KOL, Patent Appl. No. 201931028121 A, Date of Filing 12th July 2019; Publication Date: 09/08/2019.

Details of the Technologies and Qualification Criteria of Bidders for TOT

A. Details of the Technologies

1. ICMR, Grant no. 5/3/8/20/2019-ITR Government of India, entitled "POINT-OF-CARE OPTOPLASMONIC PATHOGEN SENSOR FOR THE RAPID DETECTION OF URINARY TRACT INFECTION" implemented at IIT Guwahati (NANO/P/DPB/09) from the Centre for Nanotechnology. (Indian Patent Application No. 202231046148)

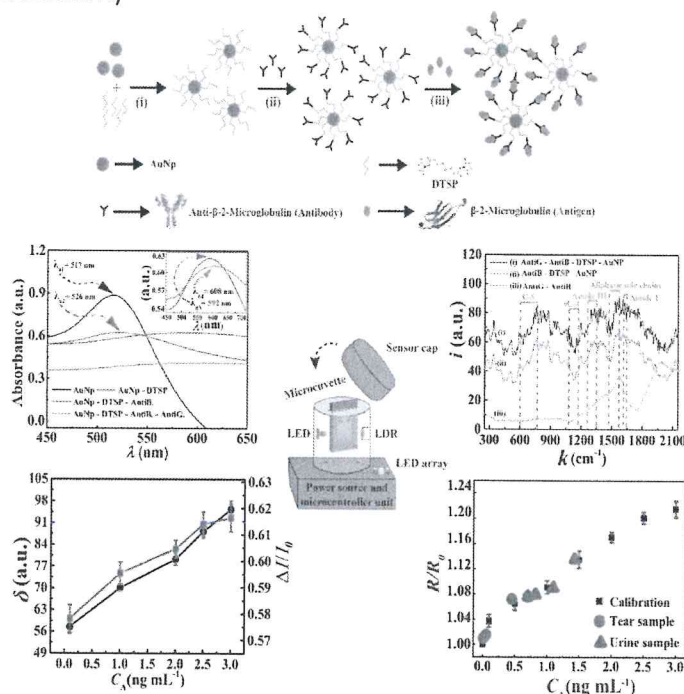


Early and easy detection of diseases, using point-of-care and inexpensive devices, not only provides option for early treatment but also reduces the risk of propagation. We describe here, the synthesis of gold nanotwins (Au NTs) on a solid and transparent glass substrate which has been employed for the selective optoplasmonic detection of bacteria in human urine for the point-of-care diagnosis of urinary tract infections (UTIs). For this purpose, initially a simple glass surface has been coated with Au NPs, with the help of the linker 3-aminopropyl-triethoxysilane – APTES. The surface has been linked further with another Au NP with the help of the 1,10-alkane-dithiol linker with two thiol ends, which eventually leads to the development of the optoplasmonic surface with Au NTs and an enhanced LSPR response. We have used DNA Aptamers for specific detection of bacteria in the urine. The enhancement in the LSPR response of glass substrates coated with Au NTs and the bacteria specific DNA aptamer has been further utilized for the selective and sensitive detection of UTIs. The results have been verified with the help of UV-visible spectroscopy to establish the utility of the proposed sensing methodology. An extensive interference study with other non-target bacterial species unveils the selectivity and specificity of the optoplasmonic sensors toward specific bacteria with a detection range of 5×10^3 to 10^7 CFU/mL. Intuitively, the method is more versatile in a sense that the sensor can be made specific to any other pathogens by simply changing the design of the aptamer. Finally, a low-cost, portable, and point-of-care optoplasmonic transduction setup is designed with a laser light illumination source, a sample holder, and a sensitive photodetector for the detection of UTIs in human urine.

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2. Technical Requirements of Commercial Agency to Technically Qualify for TOT

IIT Guwahati invites competent industrial partners for commercialization of the above listed devices through transfer of technology. The technology will be transferred on non-exclusive basis. The financial bid for the TOT to be submitted by the commercial agency and the financial part will be finalized based on mutual agreement between the PI,s at IIT Guwahati and the commercial partner.

The ToT package from the commercial agency should contain the following:

1. Documents for design and fabrication plans
2. Processing details
3. Product development specifications
4. Test plans and procedures
5. Field Trials
6. Manufacturing Plans
7. Sales Strategy
8. Profit and Equity Shares with the Investigators
9. Plans for Further Research & Development at IIT Guwahati
10. Plans for further investment on the Research & Developments at IIT Guwahati
11. Any other financial benefit plans with the Investigators

IIT Guwahati is to train the engineers of the ToT partner during different stages of the transfer of technology.

Who can apply?

Industries/Start Ups with experience in manufacturing or assembling of Health Care prototypes, Health Care Product Design, and Marketing/Sales can approach IIT Guwahati. Example cases of such prior compilations should be provided with the Technical BID against the EOI-RFP. Professionally managed Companies and Corporates are also welcome to apply for the technology. The IIT Guwahati based startups are encouraged to bid and may get preference upon submission of a competent proposal. The proposed committee of experts for TOT, constituted by the IIT Guwahati, ICMR, and MeitY, Govt. of India, is to assess the capabilities and strengths of the industry before finalizing the technology partners. The decision of the TOT committee appointed for this entire evaluation process is deemed final.

How to apply?

Interested companies may send the proposals against the EOI-RFP with the following details:

- (i) A Separate Technical bid containing the following matters, in the attached format
 - (1) Documents for design and fabrication plans
 - (2) Processing details
 - (3) Product development specifications
 - (4) Test plans and procedures
 - (5) Field Trials

- (6) Manufacturing Plans
- (7) Sales Strategy
- (8) Any Other Matter

(ii) A Separate Financial Bid containing the following matters, in the attached format

- (1) Valuation of Each Technology
- (2) One-time purchase value for each Technology during TOT
- (3) Payment and Payment Modes for each Technology (Before, during, and after TOT)
- (4) Profit and Equity Shares with the Investigators
- (5) Investment layouts for the Research & Development related to the technologies transferred at IIT Guwahati
- (6) Investment layouts for future Research & Developments at IIT Guwahati
- (7) Any other financial benefit plans with the Investigators
- (8) Other Pricing Details and Strategies

(iii) Profile of the Bidder and Company, in the attached format.

(iv) All necessary supporting documents of the claims made in the previous points and the bid.

(v) Any Other Matter

The proposal should arrive in the contact,

Dean, Industrial Interactions and Special Initiatives (II&SI)

IIT Guwahati, Guwahati-781034

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Email : hosiisi@iitg.ac.in, dhanjit@iitg.ac.in, doiisi@iitg.ac.in

General:

The industry willing to take technology for commercial exploitation will be required to enter into a TOT agreement with IIT Guwahati as per the terms and conditions approved by the competent authority in the ICMR and MeitY, as per the attached prescribed format.

Format for Technical Bid Submission

*Please furnish the details of the followings with images and schemes for each technology mentioned in the EOI-RFP

**Annexures can be added if additional details need to be furnished

Sl. No	Activity	Details
1	Documents for design and fabrication plans	
2	Processing details	
3	Product development specifications	
4	Test plans and procedures	
5	Field Trials	
6	Manufacturing Plans	

7	Sales Strategy	
8	All the Documents/Certificates related to Company (e.g. copies of incorporation, income tax details for past financial years, awards, grants, SME/MSME/Startup certificates, CIN, TAN, PAN, TIN, and others necessary to establish)	
9	Any Other matter	

Format for Price Bid Submission

*Please furnish the details of the followings with images and schemes for each technology mentioned in the EOI-RFP

**Annexures can be added if additional details need to be furnished

Sl. No	Activity	Details
1	Financial Evaluation of Each Technology	
2	One time purchase value for each Technology during TOT	
3	Payment and Payment Modes for each Technology (Before, during, and after TOT)	
4	Profit and Equity Shares with the Investigators	
5	Investment layouts for the Research & Development related to the technologies transferred at IIT Guwahati	
6	Investment layouts for future Research & Developments at IIT Guwahati	

7	Any other financial benefit plans with the Investigators	
8	Other Pricing Details and Strategies	

Questionnaire

ToT Requested for: _____

1	Name of the Company	
2	Name & designation of the Contact Person	
3	Address with telephone No. & Email ID	
4	Website address	
5	Products / Service handled by the Company	
6	Annual turn-over for the last three years (Enclose Audited balance sheets)	
7	Details of Income Tax registration, Sales Tax registration, Service Tax registration, Excise Duty registration	
8	PAN Number	
9	Available Technical Manpower (Engineers, Skilled, Semi-Skilled, Non-Skilled)	Manufacturing: Testing: Service Support: Marketing:
10	Manufacturing and Testing Facility (Infrastructure with equipments)	
11	ISO Certification / In-house QA	
12	Presence in the Country	
13	Any other Matter	

Guidelines for Technology Transfer

The following details should be submitted along with EOI-RFP.

Part-A

A.	Company Profile
1.	Name of the Organization: Website
2.	Name of the Contact Person: Name: Address: Telephone: Fax: E-Mail:
3.	Year of Incorporation
4.	Type of Organization a. Public Sector/ Limited/ Private Limited/ Partnership/ Proprietary/Society/ Any other b. Whether 'Foreign Equity Participation (Please give name of foreign equity participant and percentage thereof) c. Names of Directors of the Board/Proprietors d. Name and address of NRI(s), if any
5.	Category of the firm: Large/Medium/Small scale unit
6.	Address of the Registered Office:
7.	Number of Offices with addresses (Excluding Registered Office: India Abroad
8.	Certificate of registration as a manufacturing unit
9.	Permanent Account Number
10.	Sales Tax Number/ VAT
11.	Status of ISO9001/ISO13485 Certification

Technical Collaborations:

B.	ESSENTIAL REQUIREMENTS (Certificates to be attached)
1.	The organization must be a reputed firm/company/SME/start-up/R&D company in health care for 2 years incorporated in India. The alumni from IIT Guwahati having a competitive start up grant in Health Care may be preferred.
2.	The turnover is to be supported by financial statements of accounts/ Annual reports duly certified by a Chartered accountant/ Balance sheets of last 3 years/Income tax returns for the last 3 years period.
3.	Company profile, giving details of current activities and management/ personnel structure including evidence of incorporation. The company should be registered and ISO 9001/ISO13485 or equivalent certified.
4.	Details of absorption of technology for a product/ knowhow that has been taken up on production scale in the past may also be given
5.	<p>The manpower strength (Technical: Mechanical, Electrical, Electronics, Software & Non-Technical etc.) at various levels to be furnished</p> <p>Technical:</p> <p>a. B.E./ B.TECH/PhD</p> <p>b. DIPLOMA</p> <p>c. SKILLED TECHNICIANS</p> <p>d. UNSKILLED</p> <p>Non-Technical:</p>
6.	The list of machine tools /equipments/software's/facilities available related with work to be furnished.
7.	The in-house technological expertise available to be furnished
8.	The list of equipments available for inspection and quality control to be furnished.
9.	The industry should have adequate space for undertaking this work. Available space- Covered & Open to be furnished.
10.	List of products/technologies worked with as regular activity in the last three years. Give the list of products/technologies with general specifications and the customers.
11.	List of PSUs/ Govt. customers – with contact detail (Address, Telephone . no., Contact Person)
12.	The details of sales, marketing and maintenance network to be furnished
13.	The list of technical collaborations for various ongoing products may be furnished
14.	The bidder shall provide details of the sub-vendors in case they propose to employ for Part-work.

C.	Expression of Interest: Spell out the extent of interest
D.	The ToT will be done stage-wise: The preferred stages may be furnished.
E.	The ToT fee, equity, and royalty, payment schedule

I hereby declare that the above information is true to the best of my knowledge.

Signature with Name & Seal:

Place:

Date:

