

# EOI FOR INCUBATION CENTRE

Mentored by  
CSIR – Central Drug Research Institute

Brief details

# Call for Expression of Interest for IncubationCentre

*Mentored by CSIR Central Drug Research Institute, Lucknow*

**CSIR-CDRI is establishing an Incubation Centre to incubate new technological / process / biotechnological ideas under the Council of Scientific & Industrial Research (CSIR OM No. 4/CMG/2006-TNBD)**

**Prospect: Entrepreneurship in the area of Pharmaceutical Sector in India is on the verge of explosive growth. This also throws new opportunities for the eco-system to take shape. Vision and policies of the Government has given new hopes to the aspiring entrepreneurs.**

#### **CSIR-CDRI Role:**

- ✓ Hosting & Mentoring the Incubatee
- ✓ Consultancy to pharmaceutical industry
- ✓ Attract and manage start-ups
- ✓ Facilitation for entrepreneurship and innovations
- ✓ Infrastructural support
- ✓ Consultancy in setting up of MSME's
- ✓ Policy initiatives for conducive growth of MSME's
- ✓ Linkage between knowledge and applications

#### **Opportunity for:**

- ✓ Pharmaceutical Companies
- ✓ Phytopharmaceutical companies
- ✓ Biopharmaceutical companies
  - Start-up companies
  - Innovators
  - MSMEs

#### **CSIR-CDRI Strengths:**

- ✓ Established Laboratories conducive for innovations
- ✓ State of the art equipment facilities
- ✓ Space for start-ups
- ✓ Expertise in the relevant area
- ✓ Knowledge bank

**Interested parties may contact along with their Proposal including Space requirement, Source of budget & Business Model. The responsibilities of the incubatee and TOR of incubation can be discussed based on the particular project needs**

**Eol to be submitted to**

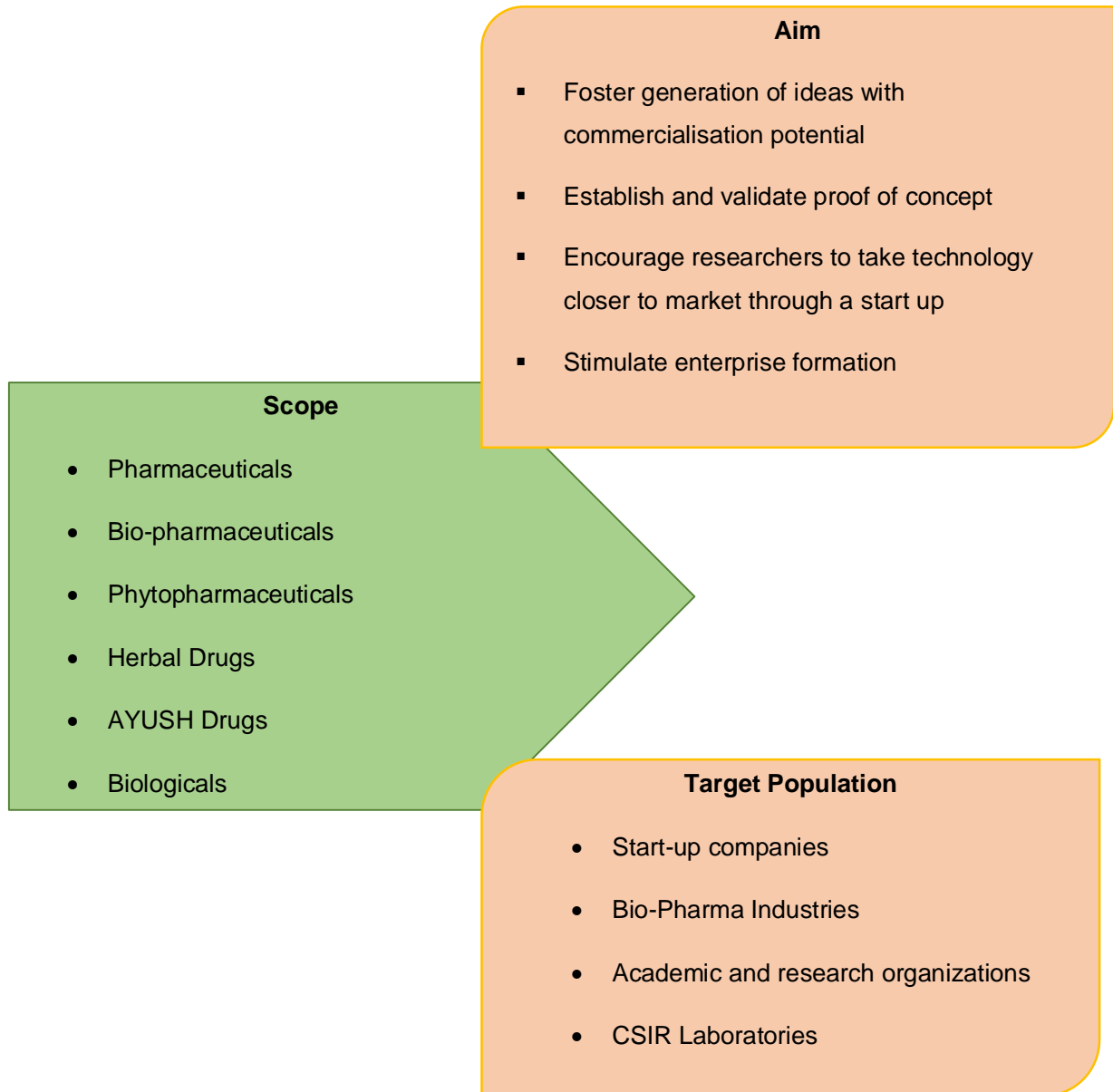
**Dr MadhuDikshit**

Director

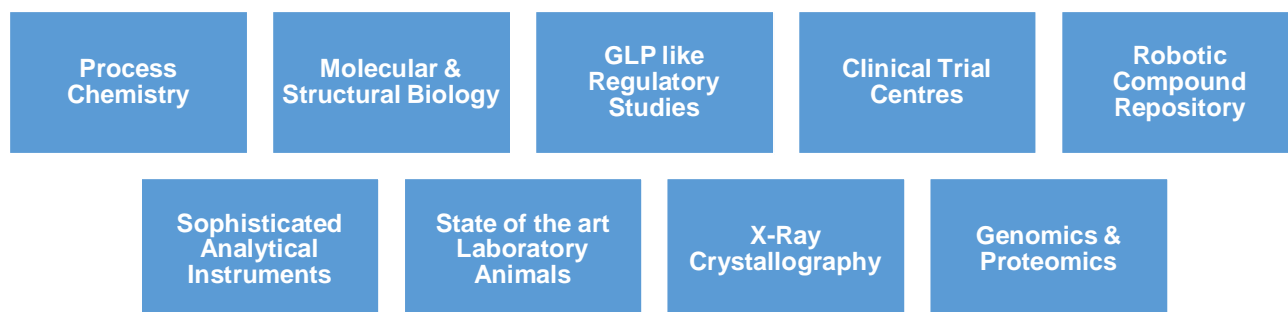
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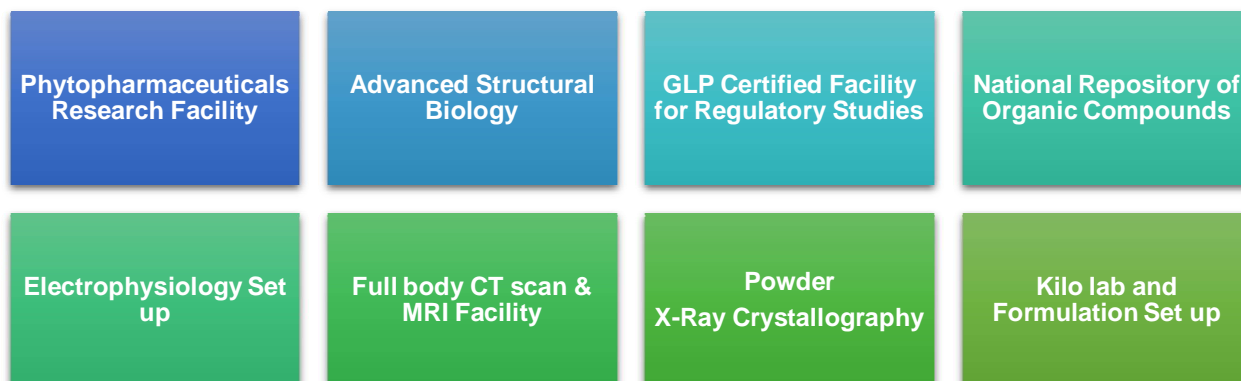
## Ensemble of Innovation Activities



## Existing Platform Technologies Development, Service & Training



## New Platform Technologies under Establishment Development, Service & Training



### What we do with this model!

- ✓ **Creation of a technology incubation and innovation platform**
- ✓ **Creation of co-working platform, in terms of laboratory and office infrastructure**
- ✓ **Creation of Networking Platform**
- ✓ **Creation of a digital platform to capture needs and ideas**
- ✓ **Creation of Skill-development platforms in cutting edge technologies**

## CSIR-Central Drug Research Institute, Lucknow

The CSIR-Central Drug Research Institute (CDRI), Lucknow, is a constituent laboratory of Council of Scientific and Industrial Research, a Society registered under the Societies Registration Act XXI of 1860 having its registered office at AnusandhanBhawan, 2 Rafi Marg, New Delhi-110 001.

Institute was inaugurated on 17<sup>th</sup> February, 1951, with a vision to strengthen and advance the field of biomedical research in India towards affordable healthcare for all. The Institute has made significant accomplishments in the pursuit of its. Today, CSIR-CDRI has evolved into a unique institution possessing end-to-end expertise in the domain of new drug development –its human resource and infrastructure today is second to none. The very latest techniques and methodologies are being employed at this institute for developing drugs, diagnostics and vaccines to combat diseases prevalent among mankind in general and the Indian population in particular. Possessing cutting edge knowledgebase, CDRI has the distinction of developing Thirteen out of Twenty new drugs developed so far in India and licensing of more than 80 process technologies. CDRI publishes over 300 papers every year and has an impressive patent portfolio, comprising 135 Indian and 211 foreign patents. Nurturing high quality human resource (over 80 PhDs awarded every year) with many of its alumni occupying important positions in R&D institutions, academia and pharma industry.

### Highlights of Accomplishments

13 New Drugs,  
>85 Process Technologies,  
211 in force patents across the globe,  
135 in force patents in India,  
>1500 Ph.D.'s,  
>2000 Sponsored Trainings  
>5000 Post Graduate Trainings,  
>10000 Research Publications,  
counting is on.....

The CSIR-CDRI products that have made a real impact in healthcare include Centchroman, a non-steroidal oral contraceptive for women, licensed to HLL Lifecare Ltd., Thiruvananthapuram (marketing it as Saheli); In the year 2016, Centchroman has been again included in the National Family Planning Program and is being distributed freely with a brand name Chhaya. Arteether, a fast acting blood schizontocide, licensed to Mumbai based Themis Medicare is being marketed as E-Mal. This drug has been part of the National Malaria Program.

CSIR-CDRI is currently involved in multifarious activities including new Drug development, Technologies, New knowledge and Intellectual space generation, High quality Human Resource development, Societal activities and also play a role in policy matters at various levels. However, major mandate of the Institute is new drug discovery and development for unmet medical needs.

### Charter

- Development of new drugs and diagnostics.
- Cellular and molecular studies to understand disease processes and reproductive physiology.
- Development of contraceptive agents and devices.
- Systematic evaluation of medicinal properties of natural products.
- Development of technology for drugs, intermediates and biologicals.
- Dissemination of information in the field of drug research, development and production.
- Consultancy and development of technical manpower.

### Thrust Areas of Research

- Malaria & other Parasitic Diseases (Malaria, Filariasis, Leishmaniasis)
- Reproductive Health Research, Diabetes & Energy Metabolism (Anti-fertility, Osteoporosis, Diabetes, Breast Cancer)
- Tuberculosis and Microbial Infections
- CVS, CNS and Related disorders (Thrombosis, Dyslipidaemia, Obesity, Inflammation, Dementia, Hypertension)
- Cancer and Related Areas

### State of the Art Facilities

- New Drug Discovery Facilities for Infectious, Parasitic, Life Style Diseases, Reproductive Health & Cancer
- Pre-Clinical Regulatory Facilities for Drug Development
- Bioinformatics and Computational Facility
- National Repository of Organic Compounds
- National Laboratory Animal Centre
- Knowledge Resource Centre
- Clinical Trial Centers (PGIMER, Chandigarh, KGMU, Lucknow, KEM, Mumbai)

### State of the Art Equipments

- Kilolab
- Nuclear Magnetic Resonance Spectrometers
- Mass Spectrometers
- X-ray Crystallography
- Flow Cytometers
- Microscopes: Electron, Confocal, Intravital & Atomic Force
- Oxymax Comprehensive Lab Animal Monitoring System (CLAMS)
- Micro-CT & Echo MRI
- *In vivo* Animal Imaging System
- Micro-ultrasound Imaging System
- Seahorse Extracellular Flux Analyzer

- Label Free Interaction Lab (Biacore)

### Successful Track Record of New Drug Discovery and Development by CSIR-CDRI

|    | Drug/Product                                      | Use                        | Licensee & year of license   |
|----|---|----------------------------|--|
| 1  | $\alpha \beta$ - Arteether                        | Antimalarial               | Themis Medicare Ltd., Mumbai (1997)  |
| 2  | Centchroman                                       | Contraceptive & DUB        | HLL Lifecare Ltd., Thiruvananthapuram (1990)<br>Torrent Pharma. Ltd., Ahmedabad (1991) |
| 3  | Bacosides Enriched Standardized Extract of Bacopa | Memory improvement         | Lumen Marketing Co. Chennai (2002)   |
| 4  | Standardized Extract of <i>Dalbergiasissoo</i>    | Fracture Healing           | Pharmanza Herbal Pvt. Ltd., Gujarat (2015)   |
| 5  | Centimizone                                       | Anti-thyroid               | Unichem Lab. Ltd., Mumbai (1972)   |
| 6  | Elubaquin   | Anti-relapse anti-malarial | Nicholas Piramal India Ltd., Mumbai (1999)   |
| 7  | Centpropazine                                     | Antidepressant             | Merind Ltd., Mumbai (1996)   |
| 8  | Chandonium Iodide                                 | Neuromuscular blocker      | Ranbaxy Labs Ltd., New Delhi (1987)<br>Cipla Ltd., Mumbai (1995)                       |
| 9  | Consap  | Spermicidal cream          | HLL Lifecare Ltd., Thiruvananthapuram (2004)   |
| 10 | Centbutindole                                     | Neuroleptic                | Chemosyn Pvt. Ltd., Mumbai (1987)<br>Merind Ltd., Mumbai (1997)                        |
| 11 | Centbucridine                                     | Local anaesthetic          | Themis Chemical Ltd., Mumbai (1987)  |
| 12 | Gugulipid   | Hypolipidemic              | Cipla Ltd., Mumbai (1987)<br>Nicholas Piramal India Ltd., Mumbai (2000)                |
| 13 | Isaptent  | Cervical dilatation        | Unichem Lab. Ltd., Mumbai (1972)   |

CDRI has the distinction of developing Thirteen out of Twenty new drugs developed so far in India

### Important Process Development and Technology Transfer

| Generics                         | Therapeutic Use           | Licensee & year of license   |
|----------------------------------|---------------------------|--|
| <b>Artemether</b>                | Antimalarial drug         | IPCA Labs (1995)   |
| <b>Acyclovir</b>                 | Antiviral drug            | Ranbaxy (1996)   |
| <b>Sumatriptan succinate</b>     | 5-HT <sub>1</sub> agonist | CIPLA (1993)   |
| <b>Primaquine diphosphate</b>    | Antimalarial              | Nicholas Piramal and IDL (1994)  |
| <b>Mefloquine</b>                | Antimalarial              | Wockhardt (1997)   |
| <b>Paracetamol</b>               | Analgesic                 | Duphar-Interfran (1973); & 10 other companies                                |
| <b>L-Ephedrine hydrochloride</b> | Anti-nasal congestion     | Unichem Laboratories Ltd, (1976); B V M Pharma Ltd, 2013 & 6 Other companies |
| <b>Indomethacin</b>              | Anti-inflammatory         | Kembiotic (1965); IDPL (1976)  |
| <b>Ibuprofen</b>                 | Anti-inflammatory         | Astra IDL Limited (1984)   |
| <b>Clofazimine</b>               | Antibacterial             | IDL Chemicals LTD (1979)   |
| <b>Sulphamethoxazole</b>         | Antibacterial agent       | Dolphin Laboratories Pvt Ltd, Kolkata (1977)                                 |
| <b>Bivalirudin</b>               | Thrombin inhibitor        | Biocon Ltd. (2010)   |

So far, CSIR-CDRI has licensed more than 80 process technologies to the Industries, leading to affordability and accessibility of life saving drugs to the Indian population

# CSIR – CDRI Incubation Centre

## Ensemble of Innovation Activities

### Aims & Objectives

To setup an incubation centre that will serve as an incubation hub for start-ups in *Health & Pharmaceuticals, Bio-technology, other emerging areas of social/ national importance, Education and development of manpower/skill training.*

CSIR-CDRI is a leader in developing technologies related to various aspects of drug-discovery. An NIH/ NSAIDS study suggests that small-scale start-ups are more inclined to take up commercial collaborations in neglected disease areas as smaller profit margins are not limiting for them. The proposed incubation centre will be leveraged to develop synergistic linkages between pharmaceutical start-ups / local entrepreneurs/ and CSIR-CDRI spin-offs.

### Scope

Pharmaceuticals, Bio-pharmaceuticals, Phytopharmaceuticals, Herbals, Bio-technology, other emerging areas of social/ national importance, Education, skill development

### Details of built up area along with details of area to be provided for each

The incubation centre is centrally located in the heart of Lucknow, the capital city of Uttar Pradesh in the old-campus of CSIR-CDRI, a premier drug research institute. The city has many research institutes like CSIR-CDRI, IITR, NBRI, CIMAP, Hospitals and medical research centres like KGMU, SGPGI, etc. This will provide extensive linkages for pharmaceutical start-ups and entrepreneurs. With proper incentives like the present incubator proposal, there is a good potential for development in these under-represented areas of our country. CSIR-CDRI is offering a space of about 10000 sq feet for the establishment of the incubator/innovation hub.

### Details of proposed tenancy

1. Number of incubatees (individual/group) to be admitted: 3-5 at any time will be mentored (first-cum-first-served basis)
2. Number of incubatees expected to be graduated year wise: about 2 incubatees from year 3 onwards
3. Number of new products/technologies developed/innovations to be commercialized: at least 3 products/ technologies
4. Number of events (training programs / workshops / seminar / conference)related to entrepreneurship: At least 2 programs will be organised each year

### Selection and exit policy for incubates

#### Transparent selection criteria and the mechanism

1. Local entrepreneurs: Motivation, Available expertise, capability. Will be selected after shortlisting following wide publicity through clear guidelines with respect to the specific area of commercialisation



2. Start-up companies: Motivation, Available expertise, capability. Will be selected after shortlisting following wide publicity through clear guidelines with respect to the specific area of commercialisation
3. Branch of Existing Firm
4. Spin-off from University or R&D Centre: Spin-offs from CSIR-CDRI, associated CSIR local labs and universities will be encouraged following wide publicity.
5. Bottom of the Pyramid- Grass Root and Inclusive Growth: Where capital investment is not high and can be incentivized appropriately for motivated individuals with expertise.

### **Transparent exit strategy and mechanism**

If the co-development of a technology does not reach commercialization levels in 3 years, the incubatee will be exited/ or a different technology will be the focus. Also if the technology being mentored/ codeveloped reaches preset / defined levels for commercialisation, then the incubatee will be encouraged to branch off independently (weaned off)

1. Setting a maximum time limit of 3 years
2. Incentives to exit: Formation of a viable entrepreneurial unit will be a strong incentive to exit, it is envisaged that the process will be gradual (weaning off) as opposed to immediate cut-off. The incubatee will be further incentivised with continued ancillary support like advertisement on the websites, business plan advice, patent space identification support, etc.
3. Non-performance of the incubatees: performance of incubatees will be reviewed transparently with domain experts every 6 months. If the incubatee does not exhibit required motivation, application of technology, etc, for 3 reviewing periods (18 months), then the incubatee will be offloaded from the program.

### **Fields of activity**

- a) CSIR-CDRI has many proof-of-concept molecules (Chemical starting points) in diverse disease areas with viable validated assays and expertise to implement them. These will be taken up with incubatees/ start-ups interested in focused chemistry programs with suitable incentives available under the proposed incubator
- b) CSIR-CDRI has a modern robotic storage and retrieval facility for small-molecule compounds (facility is already proven and is ~3 yrs old). This will be used to enable more discovery and translational initiatives by making available large specific compound libraries to jump-start new drug discovery initiatives.
- c) Available in CDRI: Highly qualified chemists, biologists, computational/structural biologists, co-crystal expert, PK/PD, toxicology, animal facility, etc. - expertise that can be leveraged to mentor incubatees
- d) CSIR-CDRI has many biological products like proteins, specially designed vectors, etc from various sources. Potential uses include commercialization of biological analysis tools, novel research reagents, development of biotherapeutics/ biosimilars, etc. by interested start-ups.

- e) CSIR-CDRI will train startups in advanced discovery technologies and facilitate their usage. This will expand the use of modern discovery methods among Indian start-ups. New start-ups cannot afford such facilities.
- f) CDRI will provide access to cutting-edge libraries of molecules for testing against specific interests of the industry partner - the libraries will be purchased by CDRI under the scheme and will be specific eg. kinase libraries, fragment libraries, etc.
- g) CSIR-CDRI will provide High-end computational facility and software support for analysis of interactions, predictions, quicker evaluations of systems based predictions, polymorphs, lattice stability, etc to facilitate quick development - Specific hardware and software will be procured under the scheme.
- h) CSIR-CDRI will hire about 6 staff at the post-doc/ junior scientist level and 1 administrative assistant, under the scheme and will train them for facilitating day-to-day operations.
- i) CSIR-CDRI will offer ready lab space with basic facilities and furniture for Chemistry lab with expert help on consultancy basis to resolve issues, Biology Culture lab with facilities for basic work on bacteria, Discovery lab and facilities for carrying out identified assays of interest and pilot purification studies, Computational lab for high end analysis and predictions, Office facility with internet facility that will allow for conferences using software like 'Skype', facilities for printing, documentation etc.
- j) Expert mentorship and management team: CSIR-CDRI will provide advice and consultancy on business angles, patentability, scientific inputs, etc. as discussed by start-ups. Clear exit policies will be in place.

**Interested parties may contact along with their Proposal including Space requirement, Source of budget & Business Model. The responsibilities of the incubatee and TOR of incubation can be discussed based on the particular project needs**

**EoI to be submitted to**

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