

**GOVERNMENT OF INDIA  
MINISTRY OF SCIENCE AND TECHNOLOGY  
DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH**

**LOK SABHA**

**UNSTARRED QUESTION NO. 6381  
(TO BE ANSWERED ON 12.04.2017)**

**CENTRAL DRUG RESEARCH INSTITUTE**

**6381. KUNWAR HARIBANSH SINGH:  
SHRI SUDHEER GUPTA:  
DR. SUNIL BALIRAM GAIWAD:  
SHRI S.R. VIJAYAKUMAR:  
SHRI GAJANAN KIRTIKAR:  
SHRI T. RADHAKRISHNAN:**

**Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:**

- (a) the number of Central Drug Research Institutes in the country at present, State/UT-wise;**
- (b) the details of the funds sanctioned, allocated and utilised by these institutes during each of the last three years and the current year, institute-wise;**
- (c) the details of the performance of the said institutes so far, institute-wise;**
- (d) whether the Government has given any target to these institutes to develop next generation drugs and if so, the details thereof;**
- (e) whether any collaboration has been made with foreign countries regarding above institutes and if so, the details thereof; and**
- (f) the steps taken/being taken by the Government to increase the performance of these institutes?**

**ANSWER**

**MINISTER OF STATE FOR SCIENCE AND TECHNOLOGY AND EARTH SCIENCES  
(SHRI Y.S. CHOWDARY)**

- (a) The Council of Scientific & Industrial Research (CSIR) has a constituent laboratory namely Central Drug Research Institute (CDRI) located at Lucknow, Uttar Pradesh.**
- (b) The details of funds sanctioned, allocated and utilized by CSIR – Central Drug Research Institute, Lucknow :**

**(Rs. in crore)**

<b>Financial Year</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>
<b>Funds allocated / utilized</b>	<b>179.789</b>	<b>179.161</b>	<b>159.161 (under finalization)</b>	<b>Under process</b>

- (c) Details of the performance of CSIR-CDRI are in Annexure-I.**

- (d) CSIR-CDRI is focused to meet the aspirations of the Nation. To exploit the wide ranging opportunities and be the flag bearer, Institute is currently focusing on New Chemical Entities, Natural Products, Re-purposing of Approved Drugs, and Biologics to meet the challenges of unmet medical need as well as drug resistance in the drugs currently in market. CSIR-CDRI's commitments to National Missions is as follows:**
- Technologies, Products and Service for Make in India, Innovate in India and Swasthya Bharat Mission**
  - Be a catalytic agent to evolve India into Samarth Bharat-Sashakt Bharat**
  - Achieve global standards**
  - Cater to aspirations of common man and develop technologies beneficial to the poor**
  - Bring confidence to society about relevance of lab in terms of Social impact**
- (e) Details about the collaboration with foreign countries are in Annexure-II.**
- (f) The steps taken/being taken by the Government to increase the performance of CSIR-CDRI are in Annexure-III.**

**Lok Sabha Unstarred Question No.6381 on “Central Drug Research Institute”****The details of the performance of CSIR-CDRI so far:**

CSIR-Central Drug Research Institute (CDRI), Lucknow is Seventh in the laboratories that were established in India right after its independence. Formally inaugurated on 17 Feb 1951, CSIR-CDRI is a multidisciplinary research laboratory consisting of scientific personnel of various areas of biomedical sciences. It has the infrastructure and expertise to develop a drug right from the concept stage to the commercialization. The Institute’s latest techniques and services are employed for developing drugs, diagnostics and vaccines to combat diseases prevalent among mankind in general and Indian population in particular. Since its establishment the Institute has provided leadership on all fronts of drug R&D, namely, development of new molecules, novel products, cost-effective indigenous process know how for Institute’s candidate drugs and generic drugs/drug intermediates, quality research manpower and trainings in use of sophisticated tools and techniques in drug research. Besides, the Institute has played a critical role in putting the country on the international scene in drug R&D by advancing the knowledge frontier. With a newly set up state of the art drug research laboratory, Institute is poised for a huge leap in the biomedical research landscape in the country with international relevance. Highlights of CSIR-CDRI accomplishments are as below:

- 13 New Drugs,
- >85 Process Technologies,
- 211 patents in force across the globe,
- 135 patents in force in India,
- >1500 Ph.D.’s,
- >2000 Sponsored Trainings
- >5000 Post Graduate Trainings,
- >10000 Research Publications,
- 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 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.
- Successful Track Record of New Drug Discovery and Development by CSIR-CDRI:

	<b>Drug/Product</b>	<b>Use</b>	<b>Licensee &amp; year of license</b>
1	$\alpha \beta$ - Arteether	Antimalarial	Themis Medicare Ltd., Mumbai (1997)
2	Centchroman	Contraceptive & DUB	HLL Lifecare Ltd., Thiruvananthapuram (1990) Torrent Pharma. Ltd., Ahmedabad (1991)
3	Bacosides Enriched Standardized Extract of Bacopa	Memory improvement	Lumen Marketing Co. Chennai (2002)
4	Standardized Extract of <i>Dalbergia sissoo</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) Cipla Ltd., Mumbai (1995)
9	Consap	Spermicidal cream	HLL Lifecare Ltd., Thiruvananthapuram (2004)
10	Centbutindole	Neuroleptic	Chemosyn Pvt. Ltd., Mumbai (1987) Merind Ltd., Mumbai (1997)
11	Centbucridine	Local anaesthetic	Themis Chemical Ltd., Mumbai (1987)
12	Gugulipid	Hypolipidemic	Cipla Ltd., Mumbai (1987) Nicholas Piramal India Ltd., Mumbai (2000)
13	Isaptent	Cervical dilatation	Unichem Lab. Ltd., Mumbai (1972)

- Important Process Development and Technology Transfer:

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

Title	Numbers
Padma Shri	4
Shanti Swarup Bhatnagar Prize	7
CSIR Technology Award for Innovation:	3
JC Bose National Fellowship	3
Fellow of Indian Academy of Sciences	10
Fellow of Indian National Academy of Sciences	23
Fellow of National Academy of Sciences, India	30
CSIR Young Scientist Awards	9
INSA Medal for Young Scientists	11

## Lok Sabha Unstarred Question No.6381 on “Central Drug Research Institute”

Collaboration with foreign countries

CSIR-CDRI is collaborating with many international agencies since inception towards achieving its mandate. Some of the collaborations in the recent past include:

Country	Collaborating Research Institute	Research Activity	Year of Collaboration and Duration of Collaboration
USA	Advance Research Products, LLC, 608, 21 <sup>st</sup> Avenue, Paterson, NJ 07513, USA	In vitro Screening of ARP compounds	2016-18
USA	Pennsylvania State University, University Park, USA	To investigate whether Lipocalin 2 (in mice) NGAL9 (in human) is a part of DNA decoration along with MPO, elastase etc in neutrophil extracellular traps (NETs)	2016-18
Brazil	Federal University of Goiás, Brazil	Deciphering the roles of secreted proteases in host Mycobacterium tuberculosis interaction: Implications for novel drug discovery and vaccine development	2016-20
France	Laboratoire de Chimie de Coordination du CNRS, France	Original biocompatible phosphorus dendrimers as a new strategy to tackle pulmonary tuberculosis.	2015-18
Spain	IRB, Barcelona, Spain and CSIR-CDRI Lucknow	Collaboration for understanding organellar translation initiation and stop codon recognition as well as design and evaluation of specific inhibitors	2012 - 2015
USA	Kemxtree LLC 1370 Hamilton Street Somerset, NJ 08873	Discovery and Development of Novel Bone Anabolic agents for accelerated fracture healing (Tripartite)	2014
JAPAN	University of Tokyo Toho University School of Medicine	This was an exploratory project on the circadian modifications in cancer progression 2011 Sept-2014 Sept that investigated the role of circadian proteins involved in cancer pathogenesis.	2011 - 2014
Germany	Institute of Pharmacy, Freie University of Berlin, Germany	PK –PD modeling using NONMEM for drug development	2013
USA	Tufts Medical Centre, Boston, MA	Screening of a series of 4-amino quinoline derivatives for identifying more potent and/or functionally altered ligands	2013
UK	The University of Cambridge of the Old Schools, University of Cambridge	To investigate the ability of the specified CSIR-CDRI compounds to inhibit the interaction of human platelets with the collagen receptor GPVI	2013
Spain Germany	Biologia Molecular (CBMSO) Ministry of Science and Innovation, Spain Centro de Spain Goethe University BMBF Germany	To identify nitroxidative stress -related vascular and inflammatory damage present in diabetic models	2011 – 2013
EU	7 institutes from India, Europe and Australia	This was a large collaborative project completed in 2013 that investigated translation mechanisms and their inhibition in the malaria parasite. An international team of researchers with complementary expertise (including Dr. Saman Habib from CSIR-CDRI) worked to decipher organellar translation mechanisms.	2009 - 2012
Geneva	DNDi, Geneva	Exchange of expertise and facilities	2008-2012
France	European Synchrotron Radiation Facility (ESRF), Grenoble France,	Essential for protein crystallography studies	2007 onwards

**Lok Sabha Unstarred Question No.6381 on “Central Drug Research Institute”**

**The steps taken/being taken by the Government to increase the performance of these institutes**

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. The major mandate of the Institute is new drug discovery and development for unmet medical needs and the thrust areas of research are:

- 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
- Safety & Clinical Development

CSIR-CDRI is equipped with necessary facilities for drug research under one roof i.e. from synthesis, screening, development studies, process up-scaling to clinical studies. To remain at par with international excellence in the domain of activity, Institute facilities are persistently upgraded to benefit its ongoing drug discovery and development programs as well as open for external users including other Government Institutes, Academic Centres and Industries.

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