

**GOVERNMENT OF INDIA
SCIENCE AND TECHNOLOGY
LOK SABHA**

STARRED QUESTION NO:258
ANSWERED ON:18.08.2011
CENTRES OF EXCELLENCE IN BIOTECHNOLOGY
Singh Shri Radhey Mohan

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

- (a) whether centres of excellence in biotechnology and bioinformatics have been developed in various States of the country;
- (b) if so, the details thereof;
- (c) the budgetary allocation made for each institute to undertake various research activities during each of the last three years and the current year, Institute-wise; and
- (d) the areas where these centres achieved scientific excellence of international repute so far, institute-wise?

Answer

MINISTER FOR SCIENCE & TECHNOLOGY AND MINISTER FOR EARTH & SCIENCES (SHRI VILASRAO DESHMUKH)

(a) to (d) A statement is laid on the Table of the House.

GOVERNMENT OF INDIA

MINISTRY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF BIOTECHNOLOGY

STATEMENT IN RESPECT OF LOK SABHA STARRED QUESTION NO. 258 TO BE ANSWERED ON 18.08.2011 REGARDING CENTRES OF EXCELLENCE IN BIOTECHNOLOGY.

(a): Yes Sir, the Department of Biotechnology has established 20 Centres of Excellence in Biotechnology and 5 Centres of Excellence in Bioinformatics in the country. The Centres of Excellence have been established based on scientific and technical merit and not on geographical consideration. The specific goal of these centres is to enhance the innovative ability of the institutions and investigators with well developed research programme in specific areas of biotechnology.

(b) & (c): The details are enclosed at Annexure 'A'.

(d) These Centres of Excellence are carrying out research in advanced and cutting-edge areas of biotechnology and bioinformatics. These Centres have published research papers in various high impact factor journals of international repute and filed / obtained patents. The Centre for Stem Cell Research at Vellore has generated mouse induced pluripotent stem cells for the first time in India. Preclinical studies are being conducted for spinal cord injury, traumatic brain injury and inflammatory bowel disease. The Vaccine and Infectious Disease Research Centre at Translational Health Science and Technology Institute (THSTI), Gurgaon is at an advanced state Phase-III trial with rotavirus vaccine and making rapid progress on chikungunya vaccine. The Paediatric Biology Centre at THSTI, Gurgaon has been set up to bridge the gap between classical clinical and population epidemiology and working on Vitamin D as an immunomodulatory agent. At the Centre of Excellence in ICGEB, New Delhi, genome-wide analysis of host intracellular network that regulate survival of Mycobacterium tuberculosis has been carried out and a novel approach for tuberculosis chemotherapy has been developed. Antigens have been identified from Mycobacterium tuberculosis that can be used as a booster vaccine in adults. Rapid progress on malaria vaccine is being made, reaching human studies. At the Centre of Excellence in University of Hyderabad, a biomarker has been generated for tuberculosis disease end-point determination that will be chemically validated. At the Centre of Excellence in CDFD, Hyderabad, baculovirus resistant transgenic silkworms have been developed. The host encoded micro-RNAs target the virus and prevent their multiplication. The group has also participated in the 'International Consortium on mapping and development of sequence based databases'. At the Centre for Energy Biosciences, Mumbai, a pilot scale technology for production of ethanol from lignocellulosic agri-wastes has been developed and validated, and transferred to an industry. At the Centre of Excellence in NII, New Delhi, novel pathway for polybiotin synthesis has been discovered in M. tuberculosis. New potential anti-malarial agents have been designed, synthesized and tested, both in vitro and in vivo. At Centre of Excellence in IISc., Bangalore, the translation – replication switch in Hepatitis C virus has been successfully targeted with a small peptide to inhibit virus replication. A lead herbal extract has also been identified having anti-Hepatitis C viral activity without showing cytotoxicity. At Centre of Excellence in UDSC, New Delhi, the work has been carried out for identifying population specific Inflammatory Bowel Disorders (IBD) and Rheumatoid Arthritis (RA) risk conferring genome regions and thus enabling cross ethnicity fine mapping of disease loci, which is of

global relevance. The work has been recognized internationally and the group has been invited to become a member of the International IBD Genetics Consortium. The Centre of Excellence in microbial biology at CDFD, Hyderabad has achieved scientific excellence of international repute in the areas of bacterial genetics and molecular and systems biology as evidenced by excellent research publications in international reputed journals. At Centre of Excellence in IISER, Pune, the genome of Indian isolate of Hydra species have been sequenced and characterized its transcriptome for the first time in the world.

The Centres of Excellence in Bioinformatics have developed open access software servers and databases for the scientific utility. These centres have published research papers in high impact factor international journals and produced quality Post-Graduates and PhDs to meet academia and industry requirements in bioinformatics area.

ANNEXURE - A

CENTER OF EXCELLENCE IN BIOTECHNOLOGY

Amount (Rs. in lakh)

S.No.	Title Specialization	Research Areas of	Name of Institution(s)	Budget	Allocation	made
		2008-09	2009-10	2010-11	2011-12	
1.	Vaccine and Infectious Disease Research Centre	Research on infectious diseases and pathogens.	Translational Health Science & Technology Institute (THSTI), Gurgaon, Haryana	1184.60	673.60	735.60 491.10
2.	Paediatric Biology Centre	Hypothesis driven research on the biological basis of childhood health and diseases.	Science & Technology Institute (THSTI), Gurgaon, Haryana	0.00	157.16	344.80 195.30
3.	Centre for Biodesign and in vitro Diagnostics	Implants & Devices and in vitro Diagnostics	Translational Health Science & Technology Institute (THSTI), Gurgaon, Haryana	0.00	0.00	407.39 635.72
4.	Centre for Molecular Medicine	Infectious disease, Cancer, Cell Therapy, Drug design	National Institute of Immunology (NII), New Delhi	0.00	0.00	323.67 299.97
5.	Centre for Stem Cell Research	Translational research to develop better understanding of certain human diseases and develop novel therapies for some of them	Christian Medical College, Vellore, Tamil Nadu with Institute for Stem Cell Science and Regenerative Medicine (InStem), Bangalore.	106.89	110.35	The Centre is now being integrated with Institute for
6.	Centre for Energy Biosciences	Chemical engineering and scale up of enzymatic fermentation processes for lignocellulosic agri-waste	Institute of Chemical Technology, Mumbai	1117.00	729.00	0.00 149.61
7.	Centre of Excellence for Novel paradigms of inhibitor design against key metabolic pathways to decimate infectious agents	Designing inhibition against infectious diseases (malaria and tuberculosis) agents.	National Institute of Immunology (NII), New Delhi	7.49	50.00	76.71 69.51

8. Centre of Excellence for Understanding molecular University of Delhi 56.44 63.64 53.08 31.76
Development of high throughput basis of heterosis South Campus (UDSC),
approaches to understand in rice. New Delhi
molecular basis of heterosis
in rice for precision
breeding
9. Centre of Excellence for Creating Diversity a). International Crop 71.40 76.84 39.44 160.55
high-throughput allele Array Technology (DART) Research Institute
determination for molecular platform for crops and for the Semi-Arid-
breeding identifying molecular Tropics (ICRISAT),
markers for abiotic Patancheru, A.P.
resistance in crops
for breeding purpose. b). Acharya NG Ranga 0.00 0.00 0.00 13.28
Agricultural University,
Hyderabad, A.P.
- c). Indian Agricultural 0.00 0.00 0.00 12.69
Research Institute
(IARI), New Delhi
- d). Indian Institute 0.00 0.00 0.00 14.41
of Pulses Research
(IIPR), Kanpur, U.P.
10. Centre of Excellence (COE) Develop baculovirus a). Centre for DNA 5.62 78.21 136.80 120.46
for genetics and genomics resistant silkworms, Fingerprinting and
of silkmoths identify novel genes Diagnostics (CDFD),
for disease resistance. Hyderabad, A.P.
- b). Andhra Pradesh 0.00 3.13 3.18 0.50
State Sericulture
Research and Development
Institute (APSSRDI),
Hindupur, Andhra Pradesh
- c). Seribiotech 0.00 0.00 1.33 3.40
Research Laboratory
(SBRL), Bangalore,
Karnataka
11. A Virtual Centre of Excellence Identify host factors a). International 55.12 60.32 56.98 64.92
(COE) for Coordinated Research for survival of tuber- Centre for Genetic
on Tuberculosis: Development culosis pathogen, Engineering & Bio-
of Alternate Strategies identify novel vaccine technology (ICGEB),
agents. New Delhi
- b). UDSC, New Delhi 48.92 47.58 0.00 44.62
- c). Acharya Narendra 8.98 0.00 0.00 0.00
Dev College (ANDC),
New Delhi
- d). Sri Venkateswara 8.50 0.00 0.00 0.00
College (SVC),
New Delhi
- e). National Jalma 2.16 1.92 0.00 1.42
Institute for Leprosy
and other Mycobacterial
Diseases (NJIL), Agra,
Uttar Pradesh

12. A Virtual Centre of Excellence Basic studies on a). Indian Institute of Science (IISc.), Bangalore, Karnataka 30.29 63.41 0.00 0.00
 in Tuberculosis Research cellular process of Science (IISc.),
 involved in trans-cription, recomb-
 ination, protein b). Birla Institute of Technology & Science 3.95 4.34 4.90 0.00
 biosynthesis and cell division in Myco- (BITS), Pilani, Rajasthan
 bacterium tuberculosis.
 c). The Foundation for Medical Research, Mumbai, Maharashtra 24.08 30.95 27.40 0.00
13. Centre of Excellence for Isolation, expression, All India Institute of Medical Sciences 183.80 56.51 19.87 38.92
 Stem Cell Research: Basic long-term preservation and Translational and manufacturing of (AIIMS), New Delhi
 stem cells for pre-clinical and clinical trials.
14. Centre of Excellence for Basic studies on a). CDFD, Hyderabad, Andhra Pradesh 0.00 45.89 89.13 91.68
 Microbial Biology physiology of E. coli with reference to cell
 division, gene b). Centre for Cellular expression, replication and Molecular Biology 0.00 10.40 9.11 9.11
 and genome fidelity. (CCMB), Hyderabad, Andhra Pradesh
15. Centre of Excellence for To design and develop a). Indian Institute of Science, Bangalore, Karnataka 62.40 31.00 44.17 4.63
 Research on Hepatitis C Virus anti-virals against Hepatitis C virus, to identify and validate
 novel targets for b). ICGEB, New Delhi 11.29 11.17 0.00 0.00
 anti-viral therapeutics.
 c). UDSC, New Delhi 11.94 9.44 0.00 0.00
- d). Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), Navi Mumbai, Maharashtra 11.18 0.00 11.06 10.82
- e). Centre for Liver Research and Diagnostics (CLRD), Hyderabad, Andhra Pradesh 2.50 0.00 2.50 2.50
16. Centre of Excellence in Genome wide a). UDSC, New Delhi 377.19 291.79 24.94 25.89
 Genome Science and Predictive association studies for Medicine rheumatoid arthritis b). National Institute of Immunology (NII), New Delhi 6.89 5.37 0.00 5.90
 and ulcerative colitis using high density arrays.
 c). University of Delhi, Delhi 3.28 0.00 0.00 3.29
- d). Indian Agricultural Statistics Research Institute (IASRI), New Delhi 4.34 1.79 2.96 3.60
- e). AIIMS, New Delhi 4.14 3.27 0.00 6.77
- f). Dayanand Medical College & Hospital 4.14 0.00 4.14 4.38

(DMCH), Ludhiana,
Punjab

g). SVC, New Delhi 15.15 3.78 0.00 5.46

17. Centre of Excellence on Fine genetic analysis a). UDSC, New Delhi 470.45 0.00 42.40 32.96
Genome Mapping and Molecular and gene identification
Breeding of Brassicas for complex yield b). University of 27.66 0.00 12.29 15.70
components for Delhi, Delhi
improvement of mustard,
mapping of disease
resistant loci in
mustard for
Alternaria blight,
white rust and stem
rot.

18. Virtual Centre of Excellence To understand the a). University of 339.34 0.00 27.42 15.29
on multidisciplinary approaches pathogenesis of Hyderabad, Hyderabad,
aimed at interventions against Mycobacterium Andhra Pradesh
Mycobacterium tuberculosis tuberculosis along
with developing novel b). Institute of Life 95.19 0.00 35.57 44.19
therapeutic targets Sciences (ILS),
and inhibitors. Hyderabad, Andhra Pr.

c). CDFD, Hyderabad, 52.81 0.00 6.57 20.10
Andhra Pradesh

d). National Institute 5.50 0.00 4.35 1.38
of Nutrition, Hyderabad,
Andhra Pradesh

e). LEPRA- Blue Peter 24.56 0.00 15.21 15.41
Research Center (BPRC),
Hyderabad, Andhra Pr.

f). Bhagwan Mahavir 29.36 0.00 9.86 8.86
Hospital & Research
Centre, Hyderabad,
Andhra Pradesh

19. Centre of Excellence on Utilize the a). National Centre 0.00 200.63 0.00 63.44
Computational and System computational biology for Biological Sciences,
Biology tools to understand Bangalore, Karnataka
protein-protein
interaction and their b). Indian Institute 0.00 20.49 0.00 8.49
role in particular of Science, Bangalore,
biological process. Karnataka

20. Virtual Centre of Genome sequencing of a). Indian Institute 0.00 275.08 51.58 68.80
Excellence on Epigenetics Hydra and to of Science Education
investigate genetic, and Research (IISER),
biochemical, molecular Pune, Maharashtra
and computational
approaches. b). CCMB, Hyderabad, 0.00 130.98 0.00 57.44
Andhra Pradesh

c). Agharkar Research 0.00 87.66 0.00 20.66
Institute (ARI), Pune,
Maharashtra

d). CDFD, Hyderabad, 0.00 14.37 0.00 14.37
Andhra Pradesh

e). Tata Institute of 0.00 22.21 0.00 2.21
Fundamental Research
(TIFR), Mumbai,
Maharashtra

CENTER OF EXCELLENCE IN BIOINFORMATICS

Amount (Rs. in lakh)

S.No.	Title Specialization	Research Areas of	Name of Institution(s)	Budget	Allocation	made
		2008-09	2009-10	2010-11	2011-12	
1.	Centre of Excellence in Bioinformatics and Molecular Engineering	Genome Analysis, Genetic Engineering and Molecular Engineering	Bose Institute, Kolkata, West Bengal	23.00	38.00	22.35 47.00
2.	Centre of Excellence in Bioinformatics	Structural Bio- informatics, Structural Biology, Structural & Functional Genomics.	Indian Institute of Science, Bangalore, Karnataka	33.71	0.00	23.10 47.00
3.	Centre of Excellence in Bioinformatics	Computational Genomics	Jawaharlal Nehru University, New Delhi	46.50	27.20	11.65 47.00
4.	Centre of Excellence in Bioinformatics	Genetic Engineering & Fungal Biotechnology.	Madurai Kamraj University, Madurai, Tamil Nadu	36.60	38.30	6.39 47.00
5.	Centre of Excellence in Bioinformatics	Molecular Modeling & Chemo-Informatics.	University of Pune, Pune, Maharashtra	33.00	8.66	21.55 47.00