

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

UNSTARRED QUESTION NO:6484

ANSWERED ON:05.05.2010

HUMAN GENOME

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

- (a) whether Indian scientists successfully decoded the human genome in the country without any external assistance ;
- (b) if so, the details thereof;
- (c) whether the project is of immense importance in preventing the occurrence of diseases and making the treatment cheaper and affordable; and
- (d) if so, the details thereof ?

Answer

MINISTER OF THE STATE (INDEPENDENT CHARGE) IN THE MINISTRY OF SCIENCE AND TECHNOLOGY AND EARTH SCIENCES (PRITHVIRAJ CHAVAN)

(a) Yes Madam.

(b) The scientists at the Institute of Genomics and Integrative Biology (IGIB) a constituent laboratory of Council of Scientific and Industrial Research (CSIR), has sequenced the genome of an anonymous healthy Indian citizen. The team at IGIB generated over 51 Gigabases of data using next generation sequencing instruments. The genome assembly and mapping to the reference human genome was made possible with the CSIR supercomputing facility at IGIB. The sequencing of the human genome would enable CSIR to understand the variations in the genome of the individual. Studies on genetic diseases in the past few decades have revealed an enormous wealth of information on the association between these variants and pre-disposition to diseases. The present Indian genome reveals a large number of hitherto unknown variations in the genome. Understanding the functional role of variations would serve as a starting point to explore for disease associated variations.

(c) Yes Madam.

(d) Susceptibility to diseases in an individual can be predicted in a population, based on the differences in nucleotide sequences (genetic code) of various disease associated genes between healthy individuals and patients. The prediction of susceptibility to a disease helps in early diagnosis and allows the affected individuals to take timely preventive measures and precautions. This helps in cost effective management of the disease by allowing him/her to make life style changes so that the onset of the symptoms and severity of the disease can be delayed / avoided.