



India's First Comprehensive Cancer Multi-Omics Data Portal

[Source: BS](#)

Why in News?

Recently, the [Indian Cancer Genome Atlas \(ICGA\)](#) has launched **India's first comprehensive cancer multi-omics data portal** as a repository for the country's cancer genomics.

- This will provide **open access to clinically correlated data** from **Indian cancer patients**.

Indian Cancer Genome Atlas (ICGA)

- It is a national initiative **mapping cancer genomics, transcriptomics, and proteomics** in India, operating as a **not-for-profit organisation** supported by **public, private, and philanthropic collaboration**.
- It engages over 50 clinicians, researchers, and data analysts to enhance cancer diagnosis and treatment in India while contributing to the global understanding of cancer biology.

What are the Key Features of Comprehensive Cancer Multi-omics Data Portal?

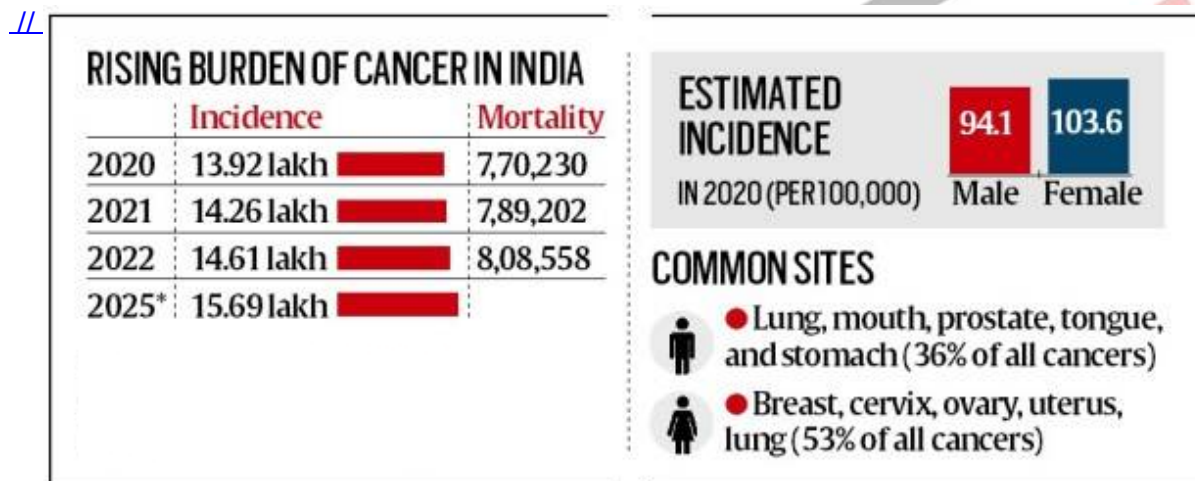
- **Objective:**
 - The goal is **to create Indian-specific cancer datasets** to enable personalised cancer treatment protocols tailored to Indian populations, addressing **molecular-level differences between Indian and Western cancer patients**.
- **Key Features of the Portal:**
 - **Multi-Omics Data:** It provides **genomic, transcriptomic, and proteomic data** for **breast cancer**, starting with 50 patients and plans to expand to over 500.
 - It will offer data that includes **Deoxyribonucleic Acid (DNA), Ribonucleic Acid (RNA), and protein profiles** of **breast cancer** patients, integrated with clinical outcomes.
 - Later, the dataset will be expanded to **lung cancer** patients and other cancers as well.
 - **cBioPortal Integration:** It is built on the internationally recognised **cBioPortal** platform facilitating **seamless integration with global cancer research efforts**.
 - It also invites researchers worldwide to contribute and expand the platform, fostering collaborative cancer research.
 - **Free Access:** It offers ethical data-sharing practices under **Biotech-PRIDE (Promotion of Research and Innovation through Data Exchange) guidelines**, promoting collaboration within the scientific community.

Multi-omics

- **Multi-omics** is a holistic approach to biology that combines data from multiple "omics" fields to gain a more comprehensive understanding of biological processes.
- These fields include:
 - **Genomics:** Study of the complete set of **DNA** (including all of its genes).
 - **Transcriptomics:** Study of a complete set of **RNA** molecules expressed in a cell, tissue, or organism.
 - **Epigenomics:** Study of epigenetic changes, or changes in gene expression that don't alter the DNA sequence
 - **Proteomics:** Study of the interactions, function, composition, and structures of proteins and their cellular activities

State of Cancer Burden in India

- Globally, in 2022, there were an **estimated 20 million new cancer cases** and **9.7 million deaths**.
- In 2022, India recorded 1,413,316 new cancer cases, with a slight majority of female patients.
 - **Breast cancer** was the most prevalent, representing **13.6% of all cases** and **over 26% among women**.
 - Other significant cancers included **lip and oral cavity cancers, cervical and uterine cancers, lung cancer,** and **esophageal cancers**.



Read More: [Rising Cancer Concerns](#).

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q1. 'Mission Indradhanush' launched by the Government of India pertains to (2016)

- (a) Immunization of children and pregnant women
- (b) Construction of smart cities across the country
- (c) India's own search for the Earth-like planets in outer space
- (d) New Educational Policy

Ans: (a)

Q. With reference to the treatment of cancerous tumours, a tool called cyberknife has been making the news. In this context, which one of the following statements is not correct? (2010)

- (a) It is a robotic image guided system

- (b) It delivers an extremely precise dose of radiation
- (c) It has the capability of achieving sub-millimetre accuracy
- (d) It can map the spread of tumour in the body

Ans: (d)

Q. 'RNA interference (RNAi)' technology has gained popularity in the last few years. Why? (2019)

1. It is used in developing gene-silencing therapies.
2. It can be used in developing therapies for the treatment of cancer.
3. It can be used to develop hormone replacement therapies.
4. It can be used to produce crop plants that are resistant to viral pathogens.

Select the correct answer using the code given below.

- (a) 1, 2 and 4
- (b) 2 and 3
- (c) 1 and 3
- (d) 1 and 4 only

Ans: (a)

PDF Reference URL: <https://www.drishtiias.com/printpdf/india-s-first-comprehensive-cancer-multi-omics-data-portal>