Structural biology as a scientific discipline was born in 1958 with Sir John Kendrew’s groundbreaking atomic level three-dimensional (3D) structure of myoglobin, the protein responsible for storing oxygen in our muscles and making it available whenever we need to move.

By the early 1970’s, researchers had produced more than a dozen 3D structures of other biologically and medically important proteins. They found themselves sitting on a goldmine of information that was very difficult to share in the pre-internet era. The computer files for these structures were huge, and extremely challenging for individual structural biologists to share with many thousands of interested researchers around the globe.

Creation of the open-access PDB archive in 1971 solved this problem. Depositors freely contribute their computer files to the PDB, which in turns distributes them to interested users without cost and without limitations on usage.

As PDB enters 2021, the archive contains and supports online access to >175,000 of biomacromolecular structures determined via macromolecular crystallography, Nuclear Magnetic Resonance spectroscopy, and 3D Electron Microscopy by researchers from around the world.

Visits WWPDB.ORG/PDB50 AND RCSB.ORG/PDB50 FOR COMPLETE INFORMATION.
PROTEIN DATA BANK: CELEBRATING 50 YEARS OF ENABLING BREAKTHROUGHS IN RESEARCH AND EDUCATION

The PDB archive is managed by the Worldwide Protein Data Bank (wwPDB), a consortium of organizations that act as deposition, data processing, and distribution centers in America (RCSB PDB), Europe (PDBe), and Asia (PDBj).

Through RCSB.org, RCSB PDB provides access to the PDB data along with tools for search, visualization, and analysis. Structural data on RCSB.org are also enriched through integration of related information from other scientific resources. PDB-101 maintains educational resources for students and non-experts (pdb101.rcsb.org).

PEOPLE BEHIND THE PDB
An international collaboration of scientists and educators work behind the scenes, carefully curating data and developing tools to facilitate use of these important data.

PDB ARCHIVE:
>175,000 STRUCTURES OF PROTEINS, DNA, AND RNA
- Grows at the rate of nearly 10% per year
- Used to download > 2 million structure data files per day
- Manages “Big Data” as global Public Good

PDB STRUCTURES:
- Enable research in subject areas from Agriculture to Zoology
- Contributed data to >1 million published research papers
- Used by >400 biological data resources

THE COST TO REPLICATE THE CONTENTS OF THE PDB ARCHIVE IS ESTIMATED AT $18 BILLION

RCSB.ORG AND PDB DATA IMPACT:
Each year, RCSB.org serves millions of researchers, scientists, educators, students, curious public, medical professionals, patients, patient advocates as well as pharmaceutical and biotechnology companies heavily impacting:
- Basic and applied research
- Patent applications
- Discovery of lifesaving drugs
- Innovations that can lead to new product development and company formation
- STEAM education: PDB-101 provides curricula and online tools for teachers and students

IN SUPPORTING RESEARCH AND EDUCATION, RCSB PDB GENERATES RETURN ON INVESTMENT OF ~1,500 TIMES FEDERAL FUNDING

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