RCSB PDB: Enabling Breakthroughs in Scientific and Biomedical Research and Education

Protein Data Bank (PDB) was established as the 1st open access digital data resource in all of biology and medicine. It is today a leading global resource for experimental data central to scientific discovery.

Through an internet information portal and downloadable data archive, the PDB provides access to 3D structure data for large biological molecules (proteins, DNA, and RNA). These are the molecules of life, found in all organisms on the planet.

Knowing the 3D structure of a biological macromolecule is essential for understanding its role in human and animal health and disease, its function in plants and food and energy production, and its importance to other topics related to global prosperity and sustainability.

RCSB PDB operates the US data center for the global PDB archive, and makes PDB data available at no charge to all data consumers without limitations on usage.

THE PDB ARCHIVE
- Grows at the rate of nearly 10% per year
- Used to download > 2 million structure data files per day
- Managed by International collaboration US-Asia-Europe
- Manages “Big Data” as global Public Good
- Provides data critical to AI/ML development

THE PDB Archive CONTAINS >1 TB OF STRUCTURE DATA FOR PROTEINS, DNA, AND RNA

PDB DATA
- Enable research in subject areas from Agriculture to Zoology
- Contributed data to >1 million published research papers
- Used by >475 biological data resources

PDB DATA IMPACT
- Basic and applied research
- Patent applications
- Discovery of lifesaving drugs
- Innovations that can lead to new product development and company formation
- Training, Outreach, and Education: PDB-101 materials illustrate how PDB data help explain fundamental biology, biomedicine, energy sciences, and biotechnology

MILLIONS OF DATA CONSUMERS WORLDWIDE SERVED EVERY YEAR

Researchers, scientists, educators, students, curious public, medical professionals, patients, and patient advocates

Private sector, including pharmaceutical and biotechnology companies

RETURN ON INVESTMENT
Generates return on investment of more than 1,500 times federal funding

Managed by Rutgers, UC San Diego, SDSC, UCSF

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