Supporting the NIH *Turn Discovery into Health*¹

PDB data and RCSB PDB Services expand fundamental scientific knowledge and improve health

### Tackling Our Biggest Health Challenges

**COVID-19**
Free access to ~3000 related PDB structures facilitated the discovery and development of safe and effective new drugs and vaccines²

**Cancer**
Mutation of the growth-controlling ras protein leads to many human cancers

**Diabetes**
Engineered insulins have been developed to improve treatment of diabetes

### Understanding the Healthy Mind

**Alzheimer’s Disease**
Alzheimer’s disease and prion diseases both involve unnatural aggregation of proteins into amyloid fibrils

**Mental Health**
Serotonin receptors control mood, emotion, and other behaviors, and are targets for important neuropsychiatric drugs

### Research for Healthy Living

**Obesity/Nutrition**
Problems with the appetite-controlling hormone leptin can lead to obesity

**Oral Health**
Bacteria use the enzyme glucansucrase to build sticky sugar chains that help them adhere to our teeth

**Vision**
All animals use the eye protein rhodopsin to detect light and see the outside world

### Access to Transformative Technologies

**Electron Microscopy**
Groundbreaking structures are being captured at extremely high resolution at NIH centers and around the world

cryoem.slac.stanford.edu

### The Promise of Precision Medicine

**Precision Oncology**
Our evolving understanding of cancer has led to the discovery of new approaches to cancer therapy that directly target mutant proteins in cancer cells

### Securing the Future of Biomedicine

**Tomorrow’s Scientists**
RCSB PDB capacity building and training resources support the next generation of NIH researchers

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**Value for NIH**

- PDB safeguards 3D biostucture data generated using NIH research funding, NIH-funded synchrotron beamlines, and Cryo-EM facilities supported by the NIH Common Fund  
  >$5.4 Billion worth of NIH data over the lifetime of the PDB

- PDB structures have contributed data to >1 million published research papers

- 2nd most heavily used online data resource after ClinicalTrials.gov for the NIH-funded researchers³

- Connects NIH-funded research and scientists with worldwide structural biology data from public and private sector research

- Links all relevant PDB structures to NIH Common Fund Resources

- Enables structure-guided discovery of new drugs and vaccines

- Ensures rigor and reproducibility across biomedical research

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**References**


  doi: 10.1056/NEJMp2213814

  doi: 10.1126/science.adf5167

  doi: 10.1371/journal.pone.0132735