



Ligand Searching

Search for ligands associated with PDB structures using RCSB PDB (rcsb.org), or perform component-based searches with LigandExpo (ligand-expo.rcsb.org).

Finding ligands associated with macromolecular structures on RCSB PDB rcsb.org

The **LIGAND SEARCH TOOL** can be used to search by the ligand's Chemical Component Dictionary ID or name; SMILES string, InChI or InChI Key; chemical formula; molecular weight; and chemical substructure or similarity.

ADVANCED SEARCH supports the searches from the Ligand Search tool plus additional searches by chemical component type, binding affinity, sub-component, and more. These types of searches can be combined and even amended with searches for the associated structures.

TOP SEARCH BAR, available on every page, supports searches by ligand ID or name.

These searches will return a **LIGAND SUMMARY PAGE** that contains an overview of the chemical component, 2D and 3D images, links to other resources, and links to related ligands and PDB entries.

Performing component-based searches with **LIGAND EXPO** ligand-expo.rcsb.org

Browse tables of components that contain modified amino acids and nucleotides, popular drugs (trade and generic names), and common ring systems

Review related information in chemical dictionaries and resource files (chemical details, geometry, atom nomenclature, and more)

ID	View Options	Description
IBP	Chemical details Coordinates files	Name: ibuprofen Synonyms: RCSB REL 2-(4-isobutylphenyl)propanoic acid (2S)-2-[4-(2-methylpropyl)phenyl]propanoic acid (2S)-2-[4-(2-methylpropyl)phenyl]propanoic acid SMILES: CC(C)C(C)C(=O)C1=CC=CC=C1C(=O)O Formula: C13 H18 O2
IZP	Chemical details Coordinates files	Name: (2R)-2-[4-(2-methylpropyl)phenyl]propanoic acid Synonyms: RCSB REL (-)-ibuprofen (2R)-2-[4-(2-methylpropyl)phenyl]propanoic acid (2R)-2-[4-(2-methylpropyl)phenyl]propanoic acid SMILES: CC(C)C(C)C(=O)C1=CC=CC=C1C(=O)O Formula: C13 H18 O2
S1S	Chemical details Coordinates files	Name: 2-[4-[(9S,10S,14S,2)-18-(2-amino-2-oxoethyl)-9-(carboxymethyl)-14-(naphthalen-1-ylmethyl)-8,17,20-trioxo-7,15,19-triazaspiro[5.14]icos-11-en-10-yl]phenyl]malonic acid Synonyms: RCSB REL (4-[(9S,10S,11S,14S,18R)-18-(2-amino-2-oxoethyl)-9-(carboxymethyl)-14-(naphthalen-1-ylmethyl)-8,17,20-trioxo-7,15,19-triazaspiro[5.14]icos-11-en-10-yl]phenyl]malonic acid 2-[4-[(9S,10S,11S,14S)-18-(2-amino-2-oxoethyl)-9-

Download model and ideal coordinates of chemical components

View all instances of a component in released PDB entries

CHEMICAL COMPONENT DICTIONARY

The Chemical Component Dictionary (CCD) is used by the wwPDB (wwpdb.org) to archive the chemical and structural information about all of the small molecules found within PDB structure entries.

WHEN DEPOSITING A STRUCTURE WITH A LIGAND WITH wwPDB DEPOSITION TOOL...

Search Ligand Expo for a chemical component that matches your ligand

- If a match is found, use the corresponding 3-character code for the ligand in your coordinates; if the ligand is new, a new 3-character code will be assigned for it during wwPDB annotation
- During deposition, upload the chemical name, formula, and/or an image file showing its chemical configuration into the Ligand Information section