

How to 3D-Print Proteins

Step 1:

Download UCSF Chimera:

<http://www.cgl.ucsf.edu/chimera/download.html>

Step 2:

Find a desired protein on **RCSB Protein Databank:**

<http://www.rcsb.org/pdb/home/home.do>

Step 3:

Obtain the 4-digit PDB-ID of your desired protein

Example:

The screenshot shows the RCSB Protein Databank search results page. The first result is highlighted with a red circle and a red arrow pointing to the 'PDB-ID' label. The second result is also visible. The third result is partially visible at the bottom. The page includes filters, view options, and detailed information for each entry, such as release date, experiment type, and citation.

Step 4:

Download the protein in .pdb format

Go to the 'Download Files' tab and enter your 4-digit PDB-ID

Uncheck 'mmCIF Format', and check 'PDB Format'

Step 5:

Open UCSF Chimera and load your PDB file

Step 6:

Under the 'Actions' tab, select 'hide' for both Ribbon and Atoms/Bonds

Step 7:

In the 'Surface' tab, select 'show'

Step 8:

Under 'File' select 'Export Scene' and change the file type to [.stl]

Step 9:

Open your new STL protein file, and print it out! (I suggest using Rafts & Supports)

Note: Printing directly from this file will yield a print that is essentially 100% infill. All cavities and structures inside of the protein will print as well. See the link below to learn how to import .stl files in SolidWorks so that you can modify the file and make prints faster:

<http://www.swtuts.com/?p=427>