Lab 4: Protein Structure Visualization

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Part 1. Identifying proteins from PDB

1E9R: Images 1 and 2

4AT1: Image 3

1AON: Images 4 and 5

1BL8: Images 6 and 7

1MSL (2OAR): Image 8

2POR: Image 11

2JK2: Image 9

1ID1: Image 10

2WFH: Image 12

3CEQ: Image 13

Part 2. Active site images of Human Carbonic Anhydrase II

Human Carbonic Anhydrase II

PDB ID: 1MOO

EC Number: 4.2.1.1

CAS link

This anhydrase is present in humans. It plays a major role in maintaining acid-base equilibrium in blood by converting carbonic acid to water and carbon dioxide. This type of enzyme has very high activity, and is usually limited by the diffusion of its substrates. Neighboring the third histidine residue mentioned in Figure 2 is a water molecule forms the final position necessary to sequester the zinc ion. This water molecule is also polarized by the presence of the zinc ion. Not pictured in the second figure is a fourth histidine residue that accepts a proton from water. Source

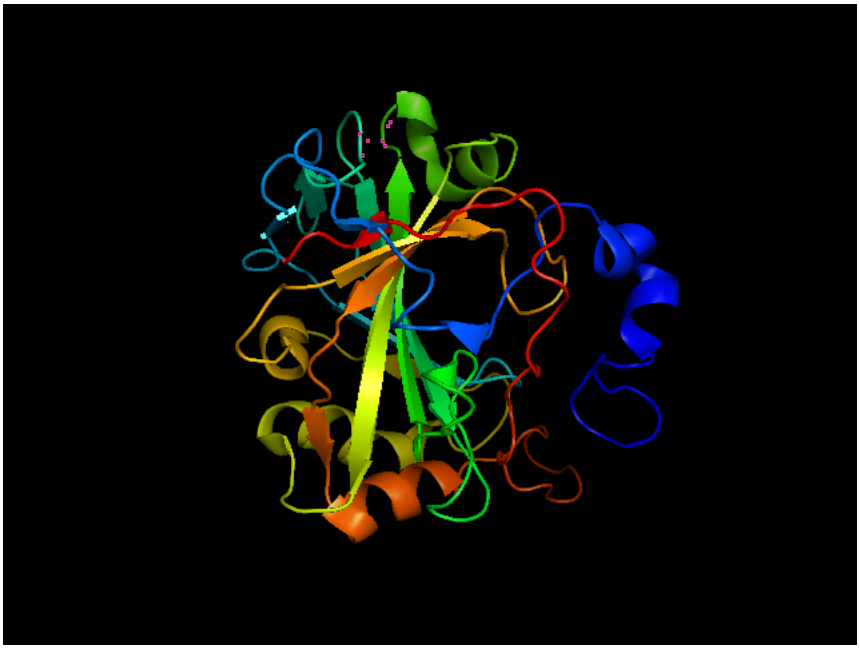

Figure 1: An overview image of the structure of 1MOO. 1MOO is a Human Carbonic Anhydrase

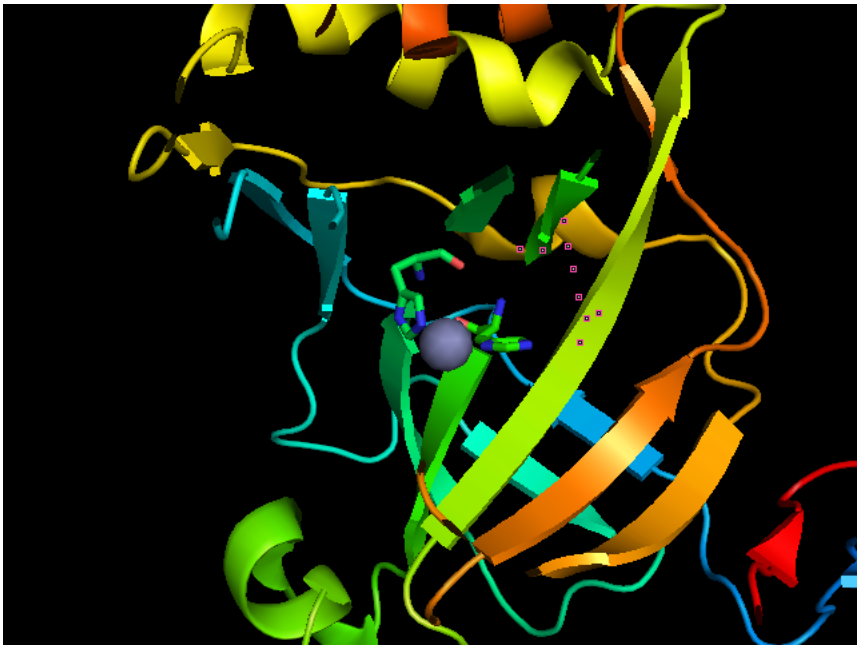

Figure 2: This image highlights the active site region, and cofactor sites of Human Carbonic Anhydrase II. The grey sphere represents the zinc cofactor located at the active site. The residues in "stick" representation are two of the three hitidine residues that hold the zinc ion in place at the active site.