

Define these terms (10 points)

Induced fit:

Flexible interaction between ligand and protein induces a conformational change in the protein, which results in increased ligand binding affinity.

Allosteric modulation

Binding of an effector molecule to a protein modifies the physical properties of the protein, for example causing a structural change in the protein that enable the protein to bind ligands more or less tightly, or causing a structural change that enables an enzyme to be more or less active.

Sequential model for allostery

Each subunit can exist in two conformations. Binding of an effector causes a conformational change to the subunit, from the T to the R state, which destabilizes neighbouring subunits. The neighbouring destabilized subunits then have intermediate properties between the T and R state.

Holoenzyme

Enzyme with tightly bound or covalently attached cofactor. Holo enzymes are active enzymes.

Specificity constant

k_{cat}/K_M from michealis-menten equation. This ration constant provides information on the difference in energy between the free E and S and the TS for the rate determining step.