Binding at one such site leads to a movement of these groups within the subunit and subsequent changes in the bonding at the interface between subunits.

In the T state the α_1FG5 Val (93) is H-bonded to Tyr 140 of the same subunit and β_2FG5 Val (98) is H-bonded to Tyr 145.

Movement of the proximal His and Val FG5 causes these H-bonds to break.

This change weakens the H-bonds and salt bonds that connect FG corners of one subunit with C helices of another subunit.

This in turn leads to small changes in the structures of the other subunits that enhances O_2 binding.

The effect of the binding of a small molecule at one site on the binding at another site is called an allosteric change.

Other allosteric effector molecules for Hb are H^+, CO_2, and biphosphoglycerate.

The H^+ and CO_2 concentrations are greater in the tissues than in the lungs due to aerobic metabolism as indicated below

Protonation of the C-terminal His 146 in the β subunit, at lower pH, changes the structure of the subunit to the deoxy form that causes oxyHb to release O_2.

CO_2 combines with the N-terminal amino groups of the α and β chains to form a carbamate that stabilizes the protein in the deoxy state

Binding of 2,3-bisphosphoglycerate also lowers O_2 affinity by binding to groups that stabilize the deoxy state.