

Hemoglobin & Myoglobin by the Seat of Our Pants

Mechanisms of oxygen transport within organisms have presented evolutionary challenges. The present solutions preserved across much of the animal kingdom have involved the use of oxygen transport molecules such as hemoglobin, and storage complexes such as myoglobin. We will cover the basic structure of hemoglobin/myoglobin emphasizing coordination within the active *heme* complex, binding and dissociation of O₂, CO, and NO, as well as kinetics of binding and cooperativity.

In addition, we will discuss the method in which O₂, CO and NO bind to the Fe(II) center of hemoglobin and myoglobin. This will include experimental data that makes the structure of the *heme* quite evident. This data will also be supported by several theoretical examples, stemming mainly from molecular orbital diagrams of the bonding interactions between these molecules. The similarities and differences in the bonding of O₂, CO and NO will also be discussed.