

The oxygen-binding properties of hemocyanin from the mollusk *Concholepas concholepas*

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© 2017 Elsevier B.V. Hemocyanins have highly conserved copper-containing active sites that bind oxygen. However, structural differences among the hemocyanins of various mollusks may affect their physicochemical properties. Here, we studied the oxygen-binding cooperativity and affinity of *Concholepas concholepas* hemocyanin (CCH) and its two isolated subunits over a wide range of temperatures and pH values. Considering the differences in the quaternary structures of CCH and keyhole limpet hemocyanin (KLH), we hypothesized that the heterododecameric CCH has different oxygen-binding parameters than the homododecameric KLH. A novel modification of the polarographic method was applied in which rat liver submitochondrial particles containing cytochrome c oxidase were introduced to totally deplete oxygen of the test solution using ascorbate as the electron donor. This method was both sensitive and reproducible. The results showed that CCH, like other hemocyanins, exhibits cooperativity, showing