



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Heme Transfer Reactions: An Important Prerequisite for Synthetic Oxygen Carriers

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Abstract: Electronic changes of iron- and metal free porphyrins are reviewed in light of their importance to modify the ferri/ferro reduction potential and energy dissipation between ligated carbon monoxide and the porphyrin chelate. Substitutions at positions 2 and 4 are effective ways to exercise this influence. Other measures include exposure to water and modifications of axial ligation, including the 'three-ligand' case. These measures will also influence the stability of recombined heme-protein entities, as apparent from the kinetics of heme-transfer from a modified donor protein to apomyoglobin, but the stability appears to be related to the bulkiness of 2,4-substitutional groups rather than to electron availability. It is suggested that the altered stability is a secondary effect from enhanced exposure to water in the crevice.

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