Proc. Indian Acad. Sci. (Chem. Sci.), Vol. 106, No. 3, June 1994, p. 763.

Micelle-induced release of heme-NO from nitric oxide complex of myoglobin

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Interaction of nitric oxide (NO) with heme proteins is currently of considerable interest because of its unique role in neuronal communication processes. It has been proposed that the heme complex of NO (heme-NO) activates soluble guanyl cyclase (GC) to produce secondary neurotransmitter such as cyclic GMP from GTP, NO-hemeproteins are also known to activate GC at physiological conditions, where the heme-NO species has been shown to be transferred from the heme protein to GC. However, the mechanism of release of heme-NO from the hemeprotein *in vivo* is still not clearly understood.

We have shown that cleavage of the heme-proximal histidine bond and the subsequent release of heme-NO complex from MbNO can be achieved at physiological pH by aqueous detergent micelles such as cetyl trimethyl ammonium bromide (CTAB) and sodium dodecyl sulphate (SDS). It was further shown that the resulting heme-NO is encapsulated inside the aqueous micellar cavity. Comparing the action of different micelles, it was proposed that hydrophobic interaction plays a dominant role in this process. These observations have close resemblance to the MbNO-induced GC activation process observed under physiological conditions.

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