

Heme oxygenase (EC 1.14.99.3)

Overview: Heme oxygenase [heme, hydrogen-donor : oxygen oxidoreductase (α -methene-oxidizing, hydroxylating)] converts heme into biliverdin and carbon monoxide, utilizing NADPH as cofactor.

Nomenclature	Heme oxygenase 1	Heme oxygenase 2
Preferred abbreviation	HO1	HO2
Other names	Inducible form, hsp32	Constitutive form
Ensembl ID	ENSG00000100292	ENSG00000103415

The existence of a third non-catalytic version of heme oxygenase, HO3, has been proposed, although this has been suggested to be a pseudogene (Hayashi *et al.*, 2004).

Further Reading

Abraham NG, Kappas A (2008). Pharmacological and clinical aspects of heme oxygenase. *Pharmacol Rev* **60**: 79–127.
Bilban M, Haschemi A, Wegiel B *et al.* (2008). Heme oxygenase and carbon monoxide initiate homeostatic signaling. *J Mol Med* **86**: 267–279.
Dulak J, Deshane J, Jozkowicz A, Agarwal A (2008). Heme oxygenase-1 and carbon monoxide in vascular pathobiology: focus on angiogenesis. *Circulation* **117**: 231–241.
Syapin PJ (2008). Regulation of haeme oxygenase-1 for treatment of neuroinflammation and brain disorders. *Br J Pharmacol* **155**: 623–640.
Zhu Y, Silverman RB (2008). Revisiting heme mechanisms. A perspective on the mechanisms of nitric oxide synthase (NOS), Heme oxygenase (HO), and cytochrome P450s (CYP450s). *Biochemistry* **47**: 2231–2243.

References

Hayashi S *et al.* (2004). *Gene* **336**: 241–250.