

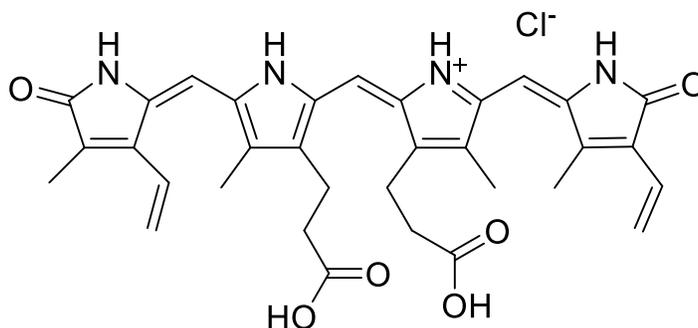
## Biliverdin Hydrochloride

Catalog number: F-H100

Molecular Formula:  $C_{33}H_{35}ClN_4O_6$

MW: 619.2

CAS: 55482-27-4



Solubility: DMF, pyridine and basic solutions > pH 9.0

**Storage and Handling:** Biliverdin Hydrochloride is stable for at least one year when stored as a solid, protected from moisture, at  $-20^{\circ}\text{C}$ . Protect from light.

**Background:** Biliverdin Hydrochloride is produced from the oxidation of heme in a reaction catalyzed by the enzyme heme oxygenase<sup>1</sup>. Heme oxygenase has been implicated in tumor cell resistance to chemotherapy<sup>2</sup>, reduction of free radical formation<sup>3</sup>, reduction of inflammation<sup>4</sup> and has been associated with vascular repair<sup>4</sup>. *In vivo* biliverdin is reduced to bilirubin. Biliverdin Hydrochloride is soluble in basic aqueous solutions (pH > 9 for initial dissolution) and soluble down to pH 7 once in solution as well as methanol and ethanol if made slightly basic.

**References:** 1. Seta, F.; Bellner, L.; Rezzani, R.; Regan, R. F.; Dunn, M. W.; Abraham, N. G.; Gronert, K.; Laniado-Schwartzman, M. Heme oxygenase-2 is a critical determinant for execution of an acute inflammatory and reparative response. *Am J Pathol* 2006, 169,1612-23.

2. Jozkowicz, A.; Was, H.; Dulak, J. Heme oxygenase-1 in tumors: is it a false friend? *Antioxid Redox Signal* 2007, 9,2099-117.

3. Abraham, N. G.; Kappas, A. Heme oxygenase and the cardiovascular-renal system. *Free Radic Biol Med* 2005, 39, 1-25.

4. Kim, D. H.; Burgess, A. P.; Li, M.; Tsenovoy, P. L.; Addabbo, F.; McClung, J. A.; Puri, N.; Abraham, N. G. Heme oxygenase-mediated increases in adiponectin decrease fat content and inflammatory cytokines, TNF and IL-6, in Zucker rats and reduce adipogenesis in human mesenchymal stem cells. *J Pharmacol Exp Ther* 2008.

**Hazardous Properties and Cautions:** The toxicological and pharmacological properties of this compound are not fully known. For further information see the MSDS on request. This product is manufactured and shipped only in small quantities, intended for research and development in a laboratory utilizing prudent procedures for handling chemicals of unknown toxicity, under the supervision of persons technically qualified to evaluate potential risks and authorized to enforce appropriate health and safety measures. As with all research chemicals, precautions should be taken to avoid unnecessary exposures or risks.

**Warranty and Disclaimer:** Echelon warrants the product conforms to the specifications stated herein. In the event of nonconformity, Echelon will replace products or refund purchase price, at its sole option, and Echelon shall not be responsible for any other loss or damage, whether known or foreseeable to Echelon. No other warranties apply, express or implied, including but not limited to warranty of fitness for any purpose or implied warranty of merchantability. Purchaser is solely responsible for all consequences of its use of the product and Echelon assumes no responsibility therefore, including success of purchaser's research and development, or health or safety of any uses of the product.

