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Stamler

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(54) **NO-MODIFIED HEMOGLOBINS AND USES THEREFORE**

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This patent is subject to a terminal disclaimer.

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Related U.S. Application Data

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(52) **U.S. Cl.** **514/6**; 514/832; 530/385

(58) **Field of Search** 514/6, 832; 530/385, 530/324

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(57) **ABSTRACT**

S-nitrosohemoglobin (SNO-Hb) can be formed by reaction of Hb with S-nitrosothiol and by other methods described herein which do not result in oxidation of the heme Fe. Other methods can be used which are not specific only for thiol groups, but which nitrosate Hb more extensively, and may produce polynitrosated metHb as a product or intermediate product of the method. SNO-Hb in its various forms and combinations thereof (oxy, deoxy, met; specifically S-nitrosylated, or nitrosated or nitrated to various extents) can be administered to an animal or human where it is desired to oxygenate, to scavenge free radicals, or to release NO^+ groups to tissues. Thiols and/or NO donating agents can also be administered to enhance the transfer of NO^+ groups. Examples of conditions to be treated by SNO-Hbs or other nitrosated or nitrated forms of Hb include ischemic injury, hypertension, angina, reperfusion injury and inflammation, and disorders characterized by thrombosis. Further embodiments of the invention are methods for assessing oxygen delivery to the tissues-of a mammal by measuring SNO-Hb and nitrosylhemoglobin in blood.

1 Claim, 33 Drawing Sheets