

[54] HEMOGLOBIN PREPARATION WITH INCREASED OXYGEN RELEASE

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[21] Appl. No.: 789,759

[22] Filed: Apr. 21, 1977

[30] Foreign Application Priority Data

Apr. 23, 1976 [DE] Fed. Rep. of Germany ..... 2617822  
Mar. 31, 1977 [DE] Fed. Rep. of Germany ..... 2617882

[51] Int. Cl.<sup>2</sup> ..... C07C 103/52

[52] U.S. Cl. .... 260/112.5 R; 260/112 B

[58] Field of Search ..... 260/112.5 R, 112 B

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[57] ABSTRACT

Hemoglobin preparation suited for intravenous injection with increased oxygen release in relation to erythrocytes or hemoglobin solution, comprising a substantially pyrogen-free condensation product of hemoglobin and pyridoxal phosphate having a retention time in the blood vessel from about 2 to 9 hours. It is produced by washing human erythrocytes at least four times with a weakly alkaline solution, then hemolyzing and treating the material with a cation exchange resin in the H+ form until the pH value has dropped to about 5 to 5.5, separating the material from resin and any precipitated stroma, diluting the material to a hemoglobin concentration of about 5 to 9%, adjusting the pH to about 7 to 9, displacing any oxygen therein, and adding about 0.25 to 1.25 g of pyridoxal-5-phosphate per liter of hemoglobin solution of 5 to 9% concentration. To increase the retention time still further there can be included the further steps of treating the solution with a borohydride and then with a dialdehyde thereby to cross-link the hemoglobin molecules in said erythrocytes, and separating uncross-linked hemoglobin from the residual solution of the desired cross-linked hemoglobin.

13 Claims, 6 Drawing Figures