

2nd World Congress on

Bio Summit & Molecular Biology Expo

October 10-12, 2016 Dubai, UAE

Potential of camel-derived hemoglobin oxygen carriers as a blood substitute

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The quest for producing a blood substitute is the result of an incessant demand not only for routine surgery and accidents but also in cases of mass civilian casualties during natural disasters, terrorism and wars. The risks of allogenic blood transfusion are multiple and include infections transmission (HIV and Hepatitis B and C), delayed postoperative healing, transfusion reactions, transfusion-related lung injury, immunodilution and potential risk of cancer recurrence. Blood primarily functions transport oxygen to tissues. This function performed by hemoglobin (Hb), a protein encapsulated inside the red blood cells (RBCs) that is capable of binding and releasing oxygen. Hb-based oxygen carriers HBOCs are being developed as substitute to replace the oxygen-carrying functions of erythrocytes and thereby lessen the demand of donor blood during surgery and trauma situations. Artificial blood substitutes present several advantages over the use of donor blood for blood transfusions because they have no antigenic blood groups on their surface, no possibility for transmitting infections; they have a longer storage lifetime and are cost efficient. Bovine and human Hb forms the bases of many different types of (HBOCs) ranging from chemically modified Hbs, including cross-linked, polymerized, polymerized conjugated to particle encapsulated.

Biography

Mohamed Mostafa Shokry has completed his PhD from Cairo University, Egypt. He is a Professor Emeritus of Veterinary Surgery & Anesthesia in Cairo University, Egypt. He has published more than 75 papers in scientific journals and has published many library books.

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