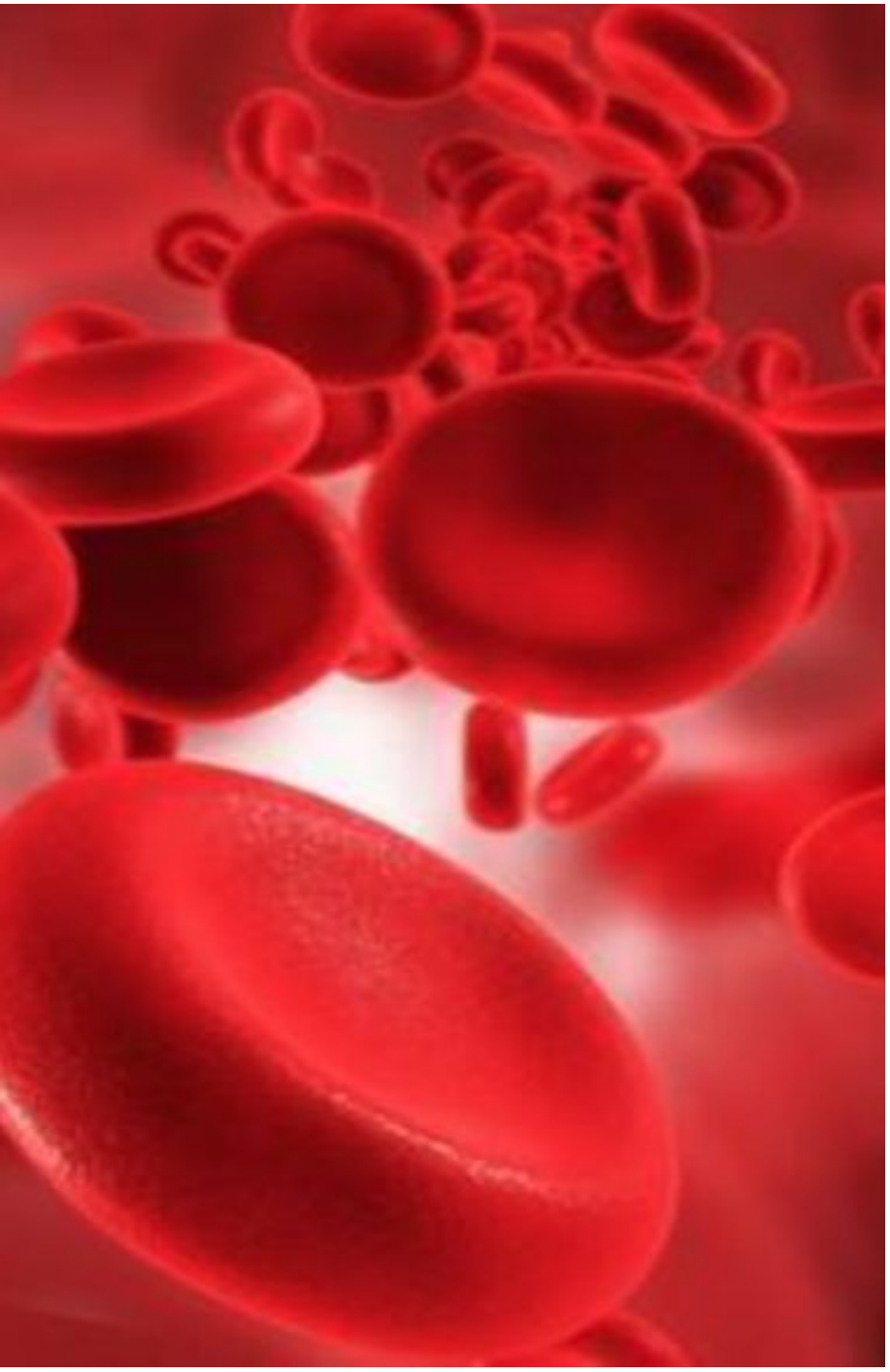

Hemoglobin Oxygen Therapeutics LLC

The world leader in life preserving oxygen carrying solutions

March 2021
Investor Presentation

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Mission Statement

To develop and commercialize the first and best in class technology platform for oxygen-carrying solutions addressing critical unmet medical needs in human and veterinary indications.

Company at a Glance

Delaware registered in 2014, technology is going back to 1990s with $1 billion invested

$20 million in equity financing to date

Acquired and developed the intellectual property for two Hemoglobin-Based Oxygen Carrier (HBOC) products :

- Hemopure (HBOC-201) for human use
- Oxyglobin (HBOC-301) for veterinary use

Existing collaborations in veterinary and human markets

Groundbreaking HBOC organ perfusion technology

Currently 12 employees

Production facility in Souderton, Pennsylvania

Highly experienced team

Zaf Zafirelis
Co-Founder & CEO

30 years of Biotech, Pharma, and Medical Device industries
More than 20 years CEO experience
Raised more than $100 million with successful exits

Joseph Rappold, MD
Chief Medical Officer

30 years of active service (US Navy) with 6 combat deployments commanding a variety of medical facilities. Professor of Surgery at Tufts University. Chief of Acute Care Surgery and Trauma Medical Director at Maine Medical Center.

Greg Dube, PhD
VP, Research & Development

30 years experience in drug R&D in large pharma and biotech firms.

Melissa Zafirelis
Director, Regulatory & Clinical Operations

Over 22 years multinational regulatory & clinical operations experience.

Igor Serov
Co-Founder & CFO

Over 20 years of investment banking experience

Brian Dawson
Senior Director, Process Development

25 years experience in development & commercialization of HbO2's products from pre-clinical research to product approval & marketing.

Arkadiy Pitman
Senior Director, Statistics & Data Management

20 years of pharmaceutical & healthcare US experience with strong background in mathematics, statistics & logistics.

Fantao Meng
Director of Research and Development

Hemoglobin specialist with 20 years of research experience in developing hemoglobin-based oxygen carriers (HBOCs)

HbO2 Therapeutics

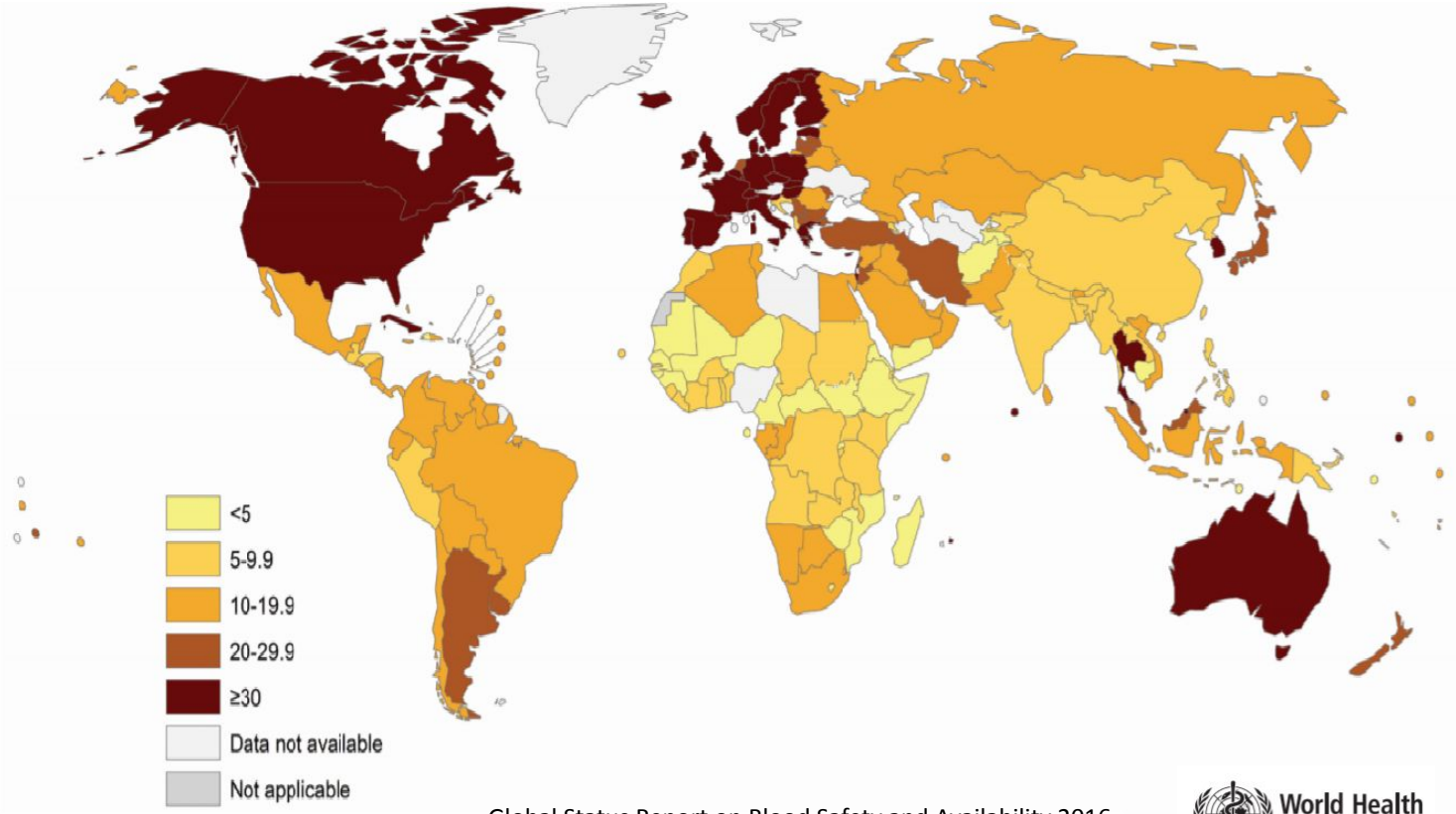
Hemopure and Oxyglobin

HBOCs with unique efficacy and safety profiles…

	Packed Red Blood Cells	Hemopure/Oxyglobin
STORAGE	Refrigerated	**Room temperature (2-30°)**
PREPARATION	Testing, typing, cross matching	**Ready to use - no reconstitution**
COMPATIBILITY	Type specific	**Universal**
SHELF-LIFE	42 days	**36 months**
PURITY	Tested and screened for known infectious agents	**Sterile pharmaceutical product**
RAW MATERIAL	Blood, limited availability	**Bovine hemoglobine : abundant, controlled source**
EFFECTIVENESS	Dependant on storage length	**Immediate oxygen delivery Same hemoglobin concentration as whole blood (13 g/dl)**

Worldwide blood shortage

- Shortages of blood donations, not reaching the critical threshold of 30 per 1000 population in many countries
- COVID-19 pandemic highlights the need for a product that can successfully substitute blood's oxygen carrying capacity in time of need
- Hemopure has received marketing authorizations for acute anemia in South Africa & Russia



Global Status Report on Blood Safety and Availability 2016

World Health Organization

Russia and South Africa alone cumulate a 3 millions blood units shortfall.
Blood shortage represents a $1 billion worldwide market per year.

HbO2 Therapeutics

Prehospital Trauma & Medical Readiness

- Strategic National Stockpiles
- Out-of-hospital / Ambulance services
- Remote locations / Military battlefield use

Prehospital trauma (military & civilian) and disaster preparedness in the US markets represent $500 million in revenue per year.

HbO2 Therapeutics

BNO

Blood Is Not An Option

- Blood disorders including Sickle Cell disease, Hemolytic Anemia, etc.
- Rare blood types
- Religious objectors (refuse blood transfusion).

160,000 patients with blood disorders need transfusions per year in US and Europe, which represents $400 million in revenue per year. Religious objectors represent another $149 million in annual revenue in the United States alone.

HbO2 Therapeutics

Blood shortage, a similar issue in veterinary markets

- 2 million canine transfusions are needed annually in US and in Europe
- Veterinary product is approved in US and EU
- 30 different species has been successfully treated with Oxyglobin
- Only up to 25% of veterinary transfusion blood supplies are covered by blood banks
- 84% of US veterinarians are dissatisfied with current options

The US and European canine markets represent $550 million in revenue.

HbO2 Therapeutics

Organ Transplantation: Another Worldwide Shortage

- There is a constant demand for donated organs
- Organ eligibility criteria are extremely severe
- The ability to extend the life of organs ex-vivo and to assess their compatibility and health can dramatically improve the supply for transplantations
- The perfusion process allows doctors to assess reconditioning and viability of organs, limbs and tissues prior to transplantation both at room temperature and body temperature (37°C)

The transplantation market amounts to $137 million per year.

HbO2 Therapeutics

➥ Additional indications include…

- Ischemia indications including
  - ✔ Minimization of infarct size (STEMI - ST-Elevation myocardial infarction)
  - ✔ Resuscitation from sudden cardiac arrest
  - ✔ Minimization of tissue loss in Limb ischemia / PAD claudication
- Antidote for carbon-monoxide and cyanide poisoning
- Oncology with solid tumors
- Burn victims and plastic surgery
- Perfusion of
  - ✔ Limbs prior to transplantation
  - ✔ Brain cells for diagnostic purposes

The average potential US market size in each of these new indications is $500m.

Robust Pipeline

Product	Indication	Pre-Clinical	Proof of Concept	Pivotal	Approval	Marketing
Veterinary						
Oxyglobin	Anemia - Canine	✓	✓	✓	✓	✓
Oxyglobin	Anemia - Feline, Equine	✓	✓			**Off-label use**
Oxyglobin	Anemia - Zoological Species	✓	✓			**Off-label use**
Human						
Hemopure	Acute Anemia (S.Africa/Russia)	✓	✓	✓	✓	**2022/23**
Hemopure	Acute Anemia - Blood not an Option	✓	✓	✓	**2023 EU/US**	
Hemopure	Acute Anemia - Pre-hospital Trauma	✓	✓	**on-going**	**2023/24**	
ZK1	Organ Perfusion for Transplantation	✓	✓	✓	**2022 EU**	
ZK1	Limb / Flap Perfusion	✓	✓	**2025**		
HBOC-201	Smoke inhalation antidote	✓	✓	**2022**		
Hemopure	FDP reconstitution	✓	✓	**2024/25**		
HBOC-201	Solid tumor treatment	✓	**2021**			
HBOC-201	Ischemia	✓	✓	**2026**		

Strong value creating recent progress

- US Department of Defense signed and sponsored Hemopure trial for pre-hospital trauma
- Groningen liver transplantation trial finalized with 100% success
- Patent filed for HBOC/Freeze Dried Plasma combination
- Collaboration signed with Department of Defense and Teleflex on Hemopure use as a reconstitution agent for FDP
- Yale University brain perfusion study with Hemopure published in Nature
- Publication of high dose Hemopure case series
- Patent filed for smoke inhalation antidote
- Publication of an article supporting use of Hemopure in emergency preparedness including pandemics such as COVID-19

Strong value creating milestones

- FDA submission for Hemopure Phase 3 pivotal BNO clinical trial
- Start of hand transplant study
- Submission of the IDE for the kidney perfusion trial
- Oncology collaboration for the treatment of refractory solid tumors
- Completion of production facility
- Filing of CE Mark for perfusion solution
- cGMP facility validation by US & EU regulators
- Oxyglobin market launch
- Hemopure market launch in South Africa

Major academic & health centers collaborations

Expanded access program hospitals

Over 300 peer-reviewed publications


Pretransplant sequential hypo- and normothermic machine perfusion of suboptimal livers donated after circulatory death using a hemoglobin-based oxygen carrier perfusion solution

Therapie einer extremen Anämie mit vernetztem Rinderhamoglobin

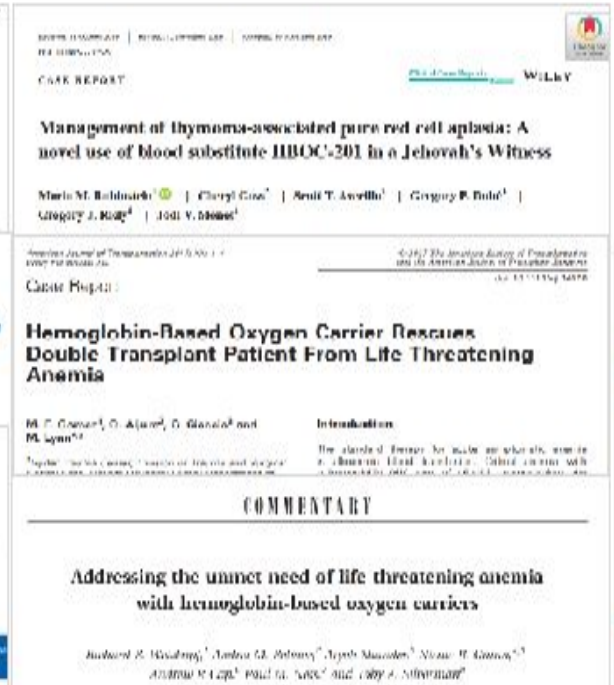
Fallbericht mit Literaturübersicht

Restoration of brain circulation and cellular functions hours post-mortem

Consult QD

Hemopure Saves the Life of a Patient With Severe Hemorrhage

Case highlights the utility of a blood substitute product when blood transfusions are not an option


CASE REPORT

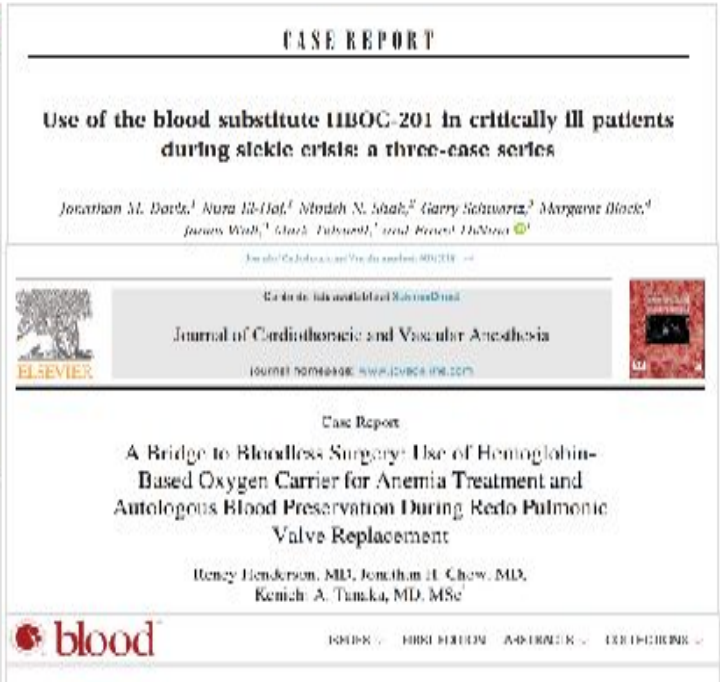
Management of thymoma-associated pure red cell aplasia: A novel use of blood substitute HBOC-201 in a Jehovah's Witness

Hemoglobin-Based Oxygen Carrier Rescues Double Transplant Patient From Life Threatening Anemia

COMMENTARY

Addressing the unmet need of life threatening anemia with hemoglobin-based oxygen carriers

A case study of 10 patients administered HBOC-201 in high doses over a prolonged period: outcomes during severe anemia when transfusion is not an option


CASE REPORT

Use of the blood substitute HBOC-201 in critically ill patients during sickle crisis: a three-case series

Journal of Cardiothoracic and Vascular Anesthesia

Case Report

A Bridge to Bloodless Surgery: Use of Hemoglobin-Based Oxygen Carrier for Anemia Treatment and Autologous Blood Preservation During Redo Pulmonic Valve Replacement

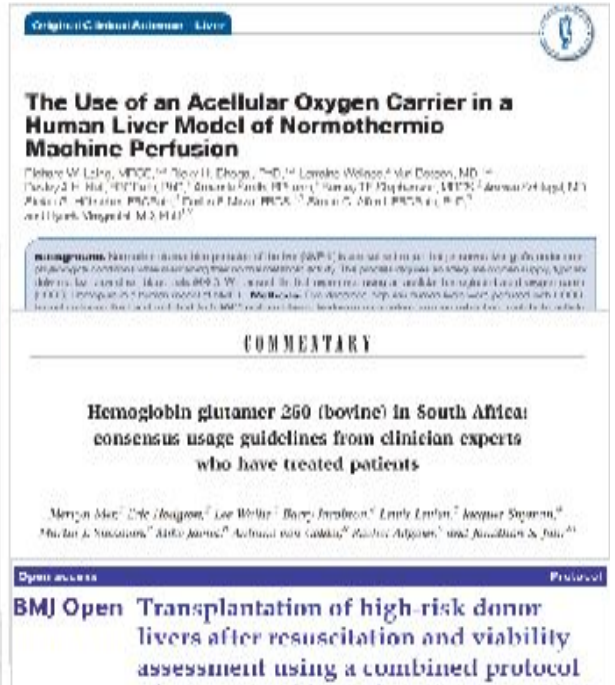
blood

Use of a Hemoglobin Substitute (HBOC-201) to Treat Acute Anemia in a Leukemic Patient with Anti-Vel Antibodies

ESA Paper

Transplantation of High-risk Donor Livers After Ex Situ Resuscitation and Assessment Using Combined Hypo- and Normothermic Machine Perfusion

A Prospective Clinical Trial


The Use of an Acellular Oxygen Carrier in a Human Liver Model of Normothermic Machine Perfusion

COMMENTARY

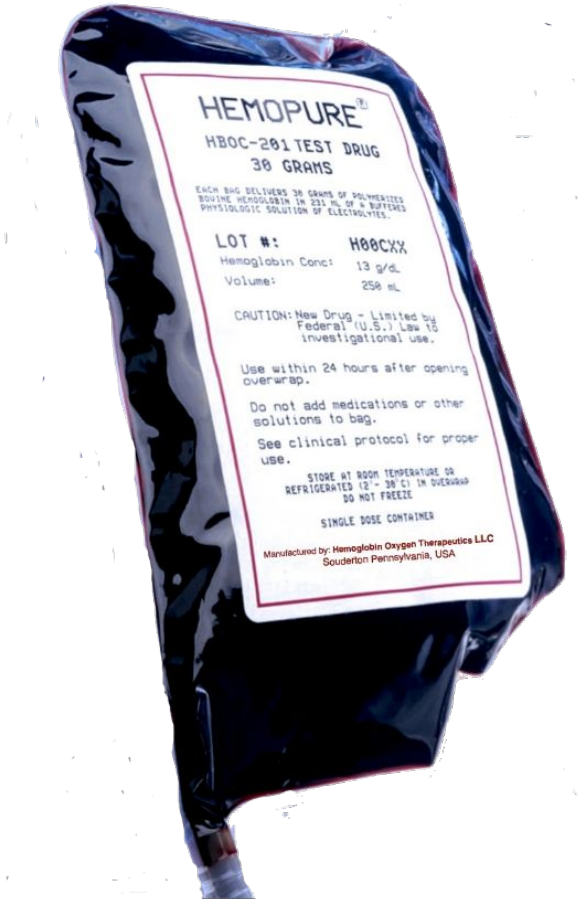
Hemoglobin glutamer 250 (bovine) in South Africa: consensus usage guidelines from clinician experts who have treated patients

BMJ Open Transplantation of high-risk donor livers after resuscitation and viability assessment using a combined protocol of oxygenated hypothermic, rewarming and normothermic machine perfusion: study protocol for a prospective, single-arm study (DHOPE-COR-NMP trial)

Bloodless reperfusion with the oxygen carrier HBOC-201 in acute myocardial infarction: a novel platform for cardioprotective probes delivery

Characteristics of Hemopure

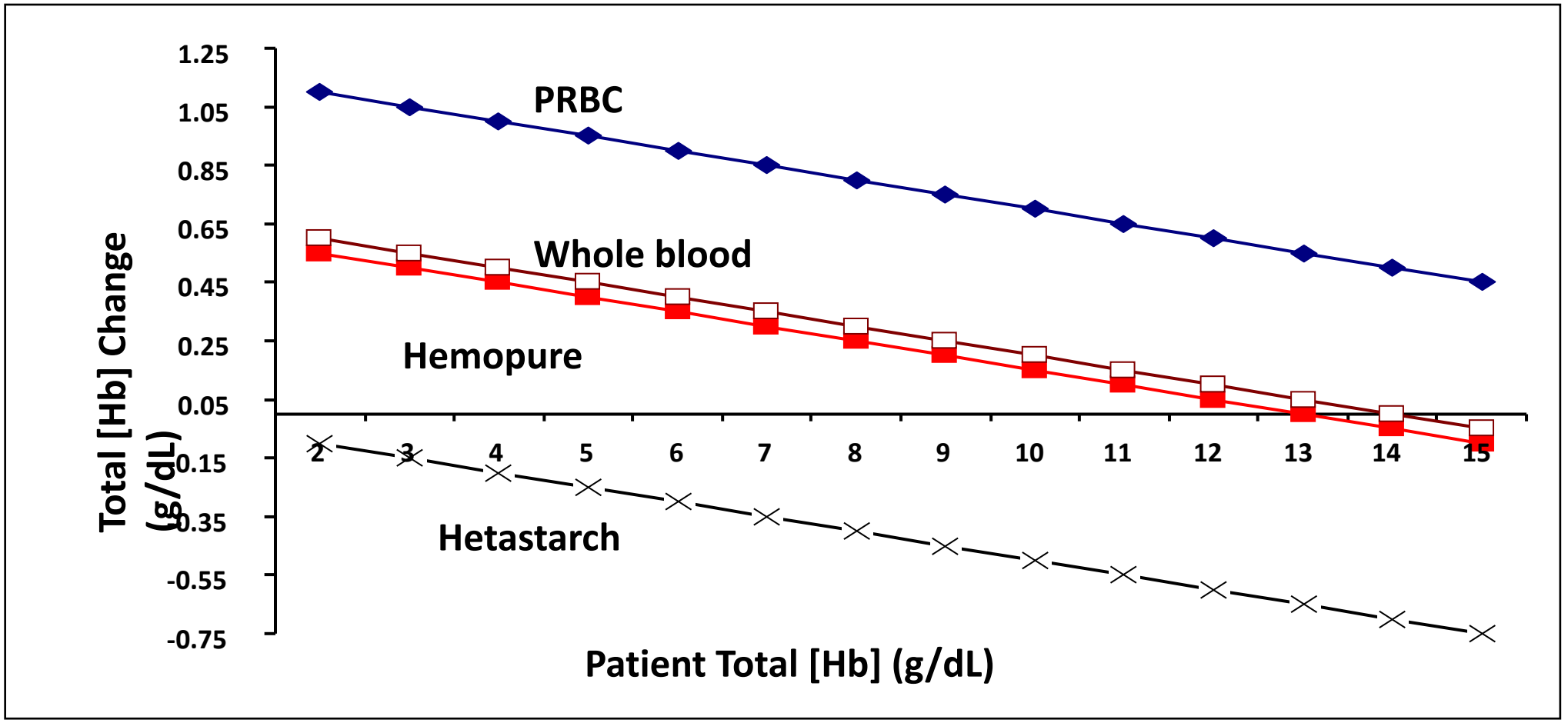
- Hb concentration 13 g/dL
- Plasma half-life ~ 19 hours
- Size = ~ 1 million < RBC
- Stable for 3 years at 2-30 °C
- Iso-osmotic, iso-oncotic
- P50 = 40 mm Hg
- Colloid (COP ~ to 6% albumin)
- Viscosity = 2.1 cP (~4 cP for RBC)



HbO2 Therapeutics

Relative Efficacy to Increase Total Hb

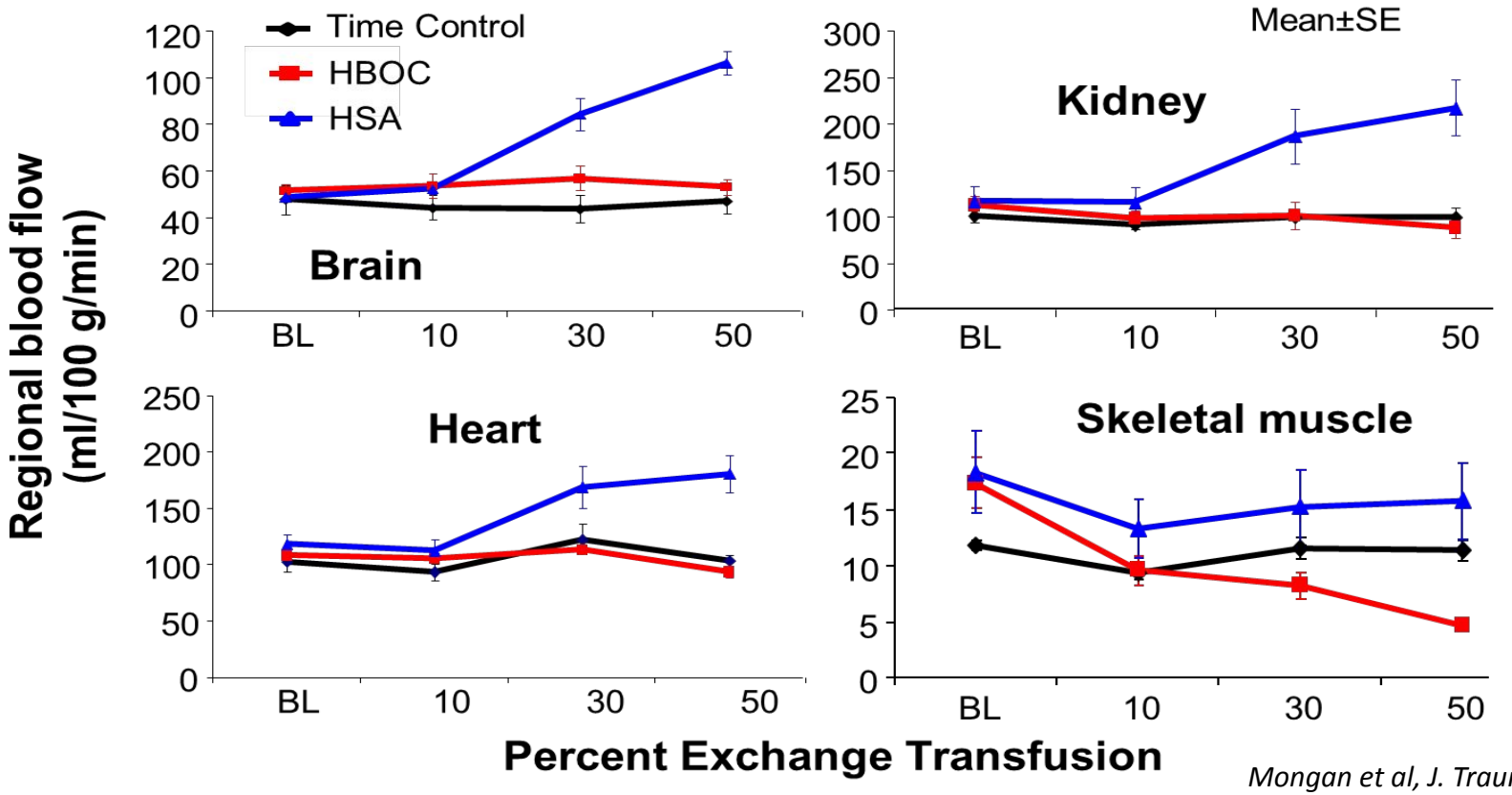
Impact of 250 mL : PRBCs > whole blood, > Hemopure, > hetastarch



HbO2 Therapeutics

Vital Organ Blood Flow

- MAP responds to Hemopure; ↑ 10 – 20 mmHg
- Vital organ blood flow maintained



Mongan et al, J. Trauma 67:51-60, 2009

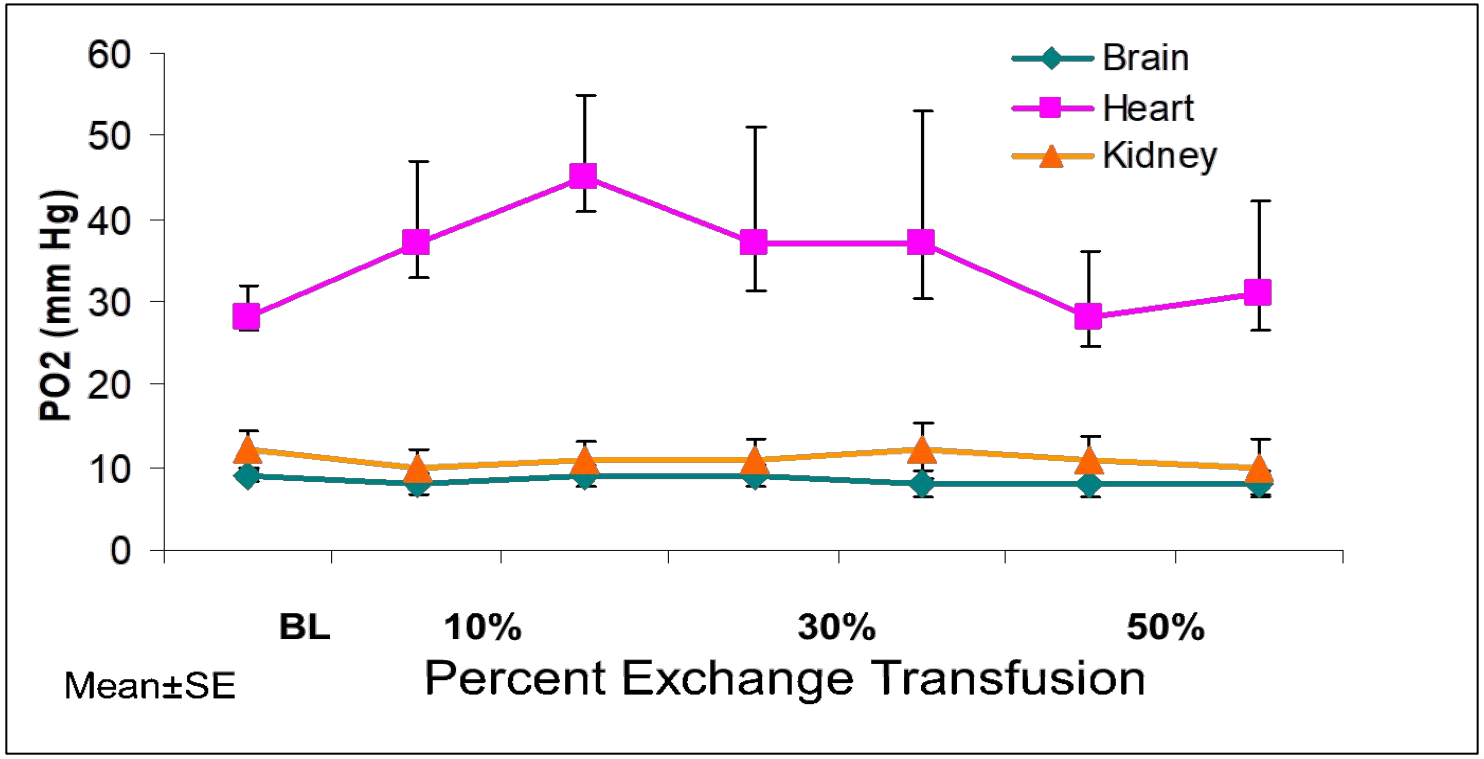
HbO2 Therapeutics

Tissue Oxygenation
Vital Organ Oxygenation Maintained

Model

- Hemodilution carried out in 3 stages: 10%, 30%, 50%
- Organ-specific tissue PO_2 determination via EPR imaging

Results



Muir et al Shock v35, 597-603, 2011

HbO2 Therapeutics

Expanded Access Real World Clinical Experience Representative Cases

Three sickle cell patients in crisis: RBCs refused/unavailable

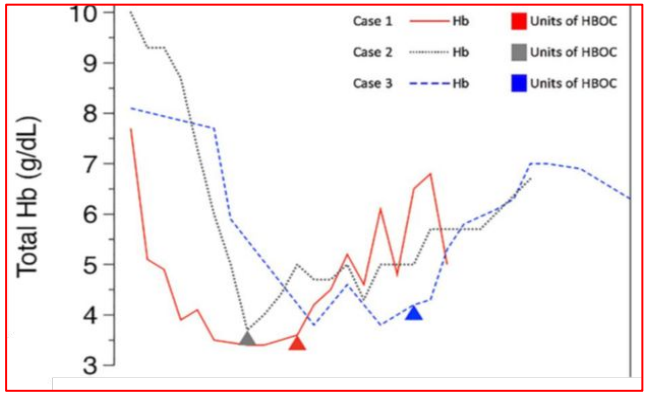
- Hb nadirs 3.5 - 4.0 g/dL
- Febrile, MOF, neurologic dysfunction.
- Hemopure administered: 6, 23, and 27 Units
- Full recoveries

Kidney – Pancreas transplant: RBCs refused

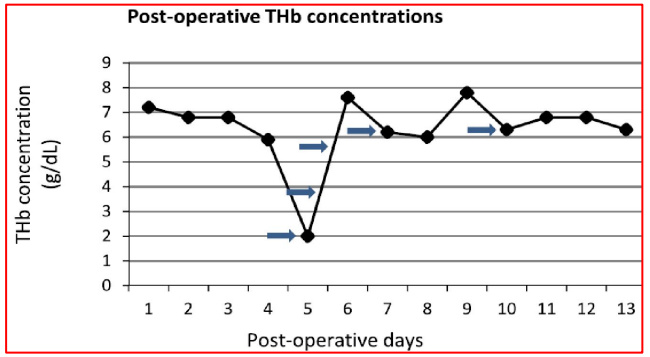
- Hb Nadir 2.0 g/dL
- Tachycardia, tachypnea.
- Hemopure administered: 12 units.
- Full recovery

Autoimmune Hemolytic Anemia: RBCs refused

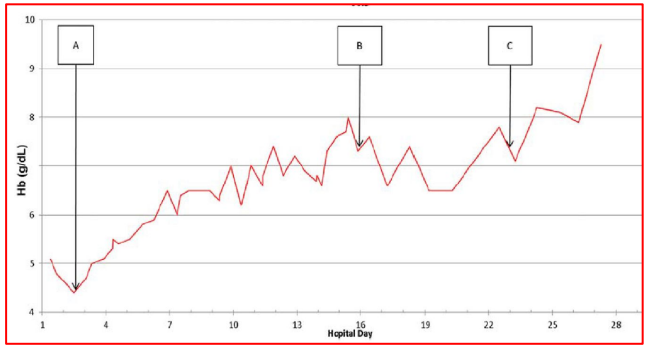
- Hb nadir 4.6 g/dL
- Elevated lactate
- Hemopure administered: 27 units.
- Full recovery



Davis et al, Transfusion, v58, 132-137, 2017



Gomez et al, Am J Transplant, v17, 1941-1944, 2017



Epperla et al, Transfusion, v56, 1801-1806, 2016

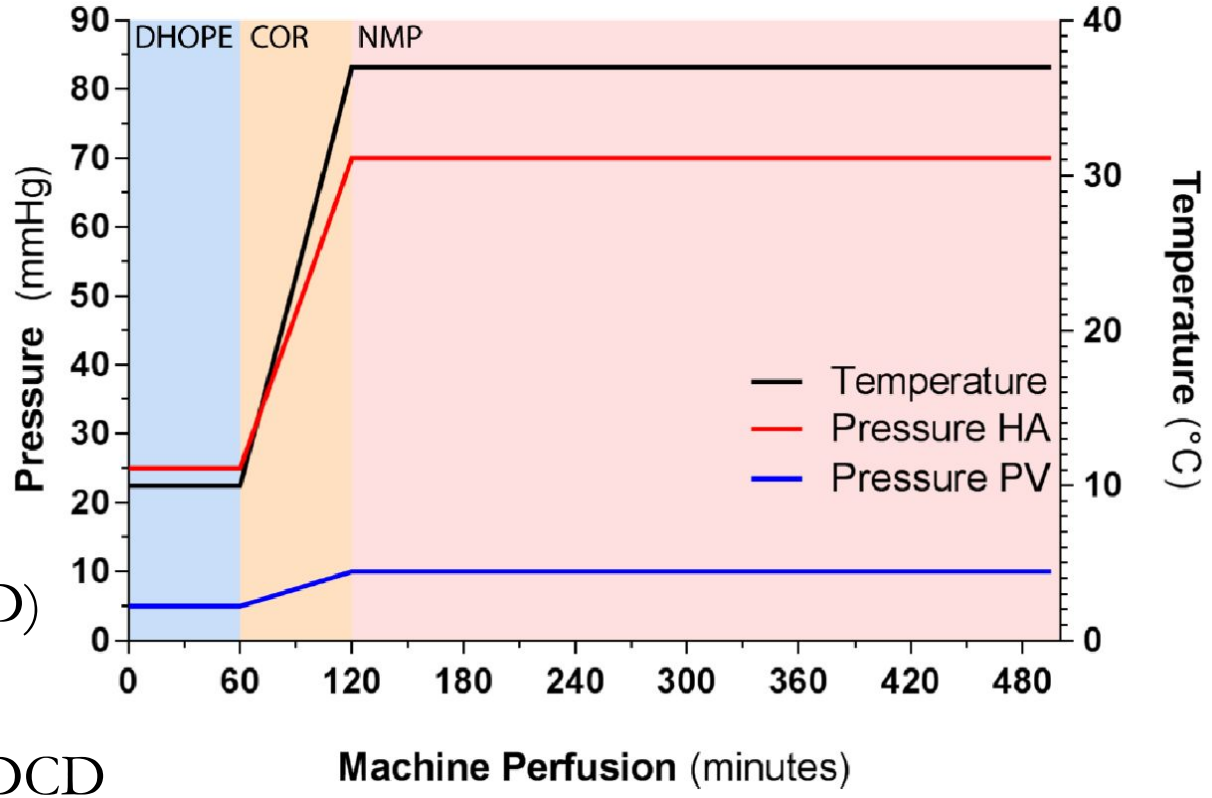
HbO2 Therapeutics

Ex-situ Perfusion prior to Transplantation

Transplantation of high-risk donor livers after ex situ resuscitation and assessment using combined hypo- and normothermic machine perfusion: a prospective clinical trial

Declined livers (ECD = high-risk)

DHOPE = dual hypothermic oxygenated machine perfusion (4°C - 12°C).
COR = controlled oxygenated rewarming.
NMP = normothermic machine perfusion (37°C)



Post-operative results

- 12-mo Graft survival: 100% (≥ std DCD & DBD)
- Peak ALT & AST: << std DBD & DCD
- DHOP-COR-NMP: ↑ donor livers 20% vs. std DCD & DBD

Van Leeuwen et al, Ann Surg, 2019
de Vries Y, et al. BMJ Open 2019

HbO2 Therapeutics

Manufacturing capacities

The manufacturing process involves two stages:

Stage I Sourcing of bovine blood → Extraction of hemoglobin → First stage of purification

Stage II Second stage of purification → Polymerization → Fractionation

Fractionation → Oxyglobin
Fractionation → Hemopure

- Facility building is fully constructed
- Stage I is in place and operational ($20m replacement value)
- Stage II – all equipment is acquired and waiting for installation ($70m replacement value)
- Production facility fully operational in 9 months
- Expansion capacity is secured on an adjacent plot

Certification from US and EU regulators is expected in 18 months

HbO2 Therapeutics

Cash positive in 2023 with $50m investment

$20m commitment secured

Year	2022 $m	2023 $m	2024 $m	2025 $m	2026 $m	2027 $m
Total Revenues	0.8	26.9	50.9	118.4	157.5	211
EBITDA	**-16.6**	**8.9**	**29.1**	**93.4**	**125.3**	**168.9**
Free Cash-Flow	-26.9	4.8	25.0	68.8	93.5	94.2

HbO2 Therapeutics

Why invest in HBO2 ?

Strengths	• Innovative products with superior competitive advantages • Highly experienced team • Existing approvals in both animal and human markets • Distribution agreement for veterinary market • Near term profitability and net cash flow
Opportunities	• Cash efficient plan to achieve market approvals and products launches • Multi-billion dollar potential markets • Potential additional indications • Easy expansion into new geographical areas