Marine biological resources

HEMYLO

LYOPHILISING A UNIVERSAL OXYGEN CARRIER

Blood shortages are estimated to total 100 million litres a year, with this figure rising by 1% to 3% annually. Aside from voluntary blood donations, there is currently no alternative to make up for this shortfall. Blood is, however, essential for any condition linked to insufficient oxygenation (CVA, haemorrhagic shock, oxygenating transplants, oxygenating wounds, etc.). Therapeutic and technological applications need to be urgently developed, particularly for equipping emergency vehicles.

The HEMLYO project is aimed at perfecting a lyophilisation process, which would lead to the marketing of a universal and non-serotyped oxygen carrier. This unique technology, called HEMARINA, offers naturally extracellular haemoglobin extracted from marine worms. The haemoglobin is of a high molecular weight, functions across a broad temperature range (4°C to 37°C) and does not require a cofactor. It acts entirely autonomously, fixing oxygen from the surrounding environment and distributing it to the organs that need it.

The development of the first lyophilised HBOC will be of major significance in the health field:

- Rapid use without the need for controlled storage (ambulance equipment for emergency aid)
- No need to thaw and therefore a ready-to-use HBOC for acute emergencies
- No vasoconstrictor or hypertensive effect, as observed with first-generation HBOCs
- Lyophilised adaptation of the following 2 major applications:
- HEMO2life®: additive for organ-preservation solution
- HEMOXYCarrier®: red blood-cell substitute.

Partners

Companies

Hemarina, Morlaix [Project Developer]
LYOFAL, Salon de Provence

Research center

UBO, Laboratoire physiologie ORPHY, Brest

Funders

- Conseil régional de Bretagne
- FEDER

Labelisation

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Overall budget

1 183 K€