



CATABOTS: Catalase powered nanobots for drug delivery across mucus barriers



CHALLENGE

There is a large unmet need in mucinous diseases to develop effective drug delivery approaches. Indeed, mucus, a defensive barrier that protects the underlying cells from pathogens and toxic compounds, hampers the local delivery of drugs, acting as a shielding membrane.

In mucinous tumors treatment, mucus has been associated with resistance to chemotherapies, leading to poor prognosis of affected patients.

The development of novel therapies with mucolytic capacities and improved drug delivery efficacies could benefit several pathologies associated with excessive production of mucus.



MARKET

Mucinous Adenocarcinomas are a **rare histological subtype of adenocarcinomas** where extracellular mucin comprises more than 50% of the tumor. It is a very uncommon type of cancer that is **poorly studied**.

PseudoMyxoma Peritonei (PMP), **affecting 3 people per million/year**, is considered the most mucinous tumour. Patients have very low prognostic with **5-year PFS rate as low as 48%**.

Catabots is targeting PMP as a market entry indication. Compared with current standard of care market we estimate a Total Addressable Market of 14bn€ and the first targeted market of 170M€ (low hypothesis).

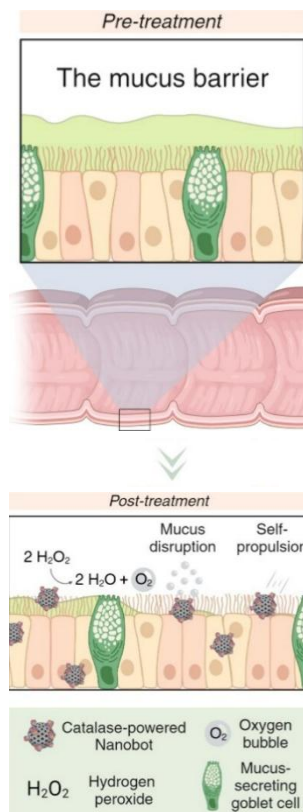


ASSET

Dr Samuel Sanchez and his team have developed self-propelled nanoparticles (catalase powered) with mucolytic capacities that act as drug carriers and that has been used for demonstrating an enhancement of current treatment's efficacy (Mitomycin C or KRAS inhibitors) in PMP preclinical models.

ASSET VALUE

- ❖ All-in-one drug delivery system able to overcome the mucus barrier and protect the drug from degradation
- ❖ Proven track record of overcoming the mucus barrier *in vitro*
- ❖ Minimally invasive approach
- ❖ Versatility that opens to other potential clinical indications



Team

Samuel Sanchez - Scientific Leader
Ines Abdessalem - Tech Transfer Manager
Eduardo Salas - Head of Tech Transfer

Stage of Development

- TRL 3 : PoC of Catabots ability to cross the mucus layer secreted by PMP patient-derived organoids (PDOs), Xenografts (PDX), and PDX-derived organoids
- Ongoing *in vivo* studies

Exploitation Plan

Licensing.
Open to technical co-development or investment for preclinical phase completion.

Intellectual Property Status

- Priority EP : EP23383129 (November 2023)
- National phases : EU, US, CH and JP.

USES

- Drug-delivery and treatment of mucinous diseases
- Proof of concept on PseudoMyxoma Peritonei