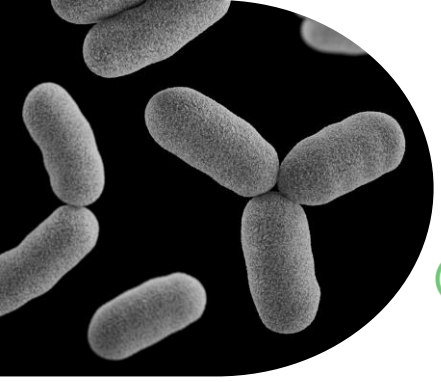


Antibacterial cyclic peptide (PLP-3)

ISGlobal Barcelona Institute for Global Health

Clínic Barcelona | Universitat de Barcelona

IRB Barcelona Institute for Research in Biomedicine

Partners

NIH NIAID

Market Opportunity

- Antibiotic resistance was responsible for **1.27 M deaths** worldwide in 2019. By **2050, 10 M people may die every year** from infections caused by multidrug resistant bacteria, becoming the number 1 cause of global deaths.
- It causes **2.5 M days of extra hospitalization** per year throughout the EU resulting in huge **costs of 900 M€.**
- The global Antibiotics Market Size is estimated at $63,2bn by 2027, with a **CAGR of 5.1%** from 2020 to 2027.

Intellectual Property

- **ISGlobal** (47 %), **Institute for Research in Biomedicine Barcelona** (40 %), **Barcelona Clinic Hospital** (7 %) and **University of Barcelona** (6 %) share joint ownership.
- **European patent application** submitted 27th of May 2022. **PCT** application filled in **May 2023**. No objections were raised in the EESR and ISR for all the claims.
- **National phase entry** in the USA and Europe.

Competitive Advantage

- **Novel cyclic peptide** designed and synthesized.
- **Antibacterial activity** against the most problematic **Gram-negative and Gram-positive** resistant strains, including *A. baumannii, P. aeruginosa, K. pneumoniae, S. Aureus and E. faecium*
- **Low *in vitro* toxicity** in human cells.
- Presence of the **disulfide bond** within the peptide backbone would facilitate metabolization thus **reducing nephrotoxicity** issues.
- Bactericidal and very **rapid killer**.

Technology

- **Potent Antibacterial**. The cyclic peptide possesses low Minimal Inhibitory Concentration (MIC_{50}) values:

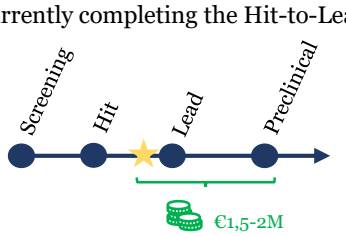
Microorganism (resistant strains)	MIC_{50}*	MIC_{90}*
Acinetobacter baumannii	1	2
Klebsiella pneumoniae	4	16
Pseudomonas aeruginosa	4	8
Staphylococcus aureus	4	8
Enterococcus faecium	2	2

*in µg/mL

- **Stable and active under physiological conditions.** No significant changes in antimicrobial activity of PLP-3 in the presence of human albumin were observed.
- **Toxicity in human cells.** IC_{50} values of ca. **227 µg/ml** for XTT assays indicating up to >100 folds over MIC values for strains of the tested bacterial species over cells. Maximum Tolerated Dose (MTD) via IV of 2,5 mg/kg.
- IC_{50} of **48 µg/ml** for haemolysis assays.

Development

- We are currently completing the Hit-to-Lead stage**:**



- Currently studying the **mechanism of action** through genomic mutant analysis, **biofilm activity,** and analyzing the **activity of three more analogs**.
- Assessing inhaled route. *In vivo* **cystic fibrosis model** planned for early 2025.
- **OUR ASK: CO-DEVELOPMENT, LICENSE AGREEMENT and/or INVESTMENT.**

Our Team

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