



Sea4Us

Discovering new marine leads
for unmet clinical needs

www.sea4us.pt
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Company Overview

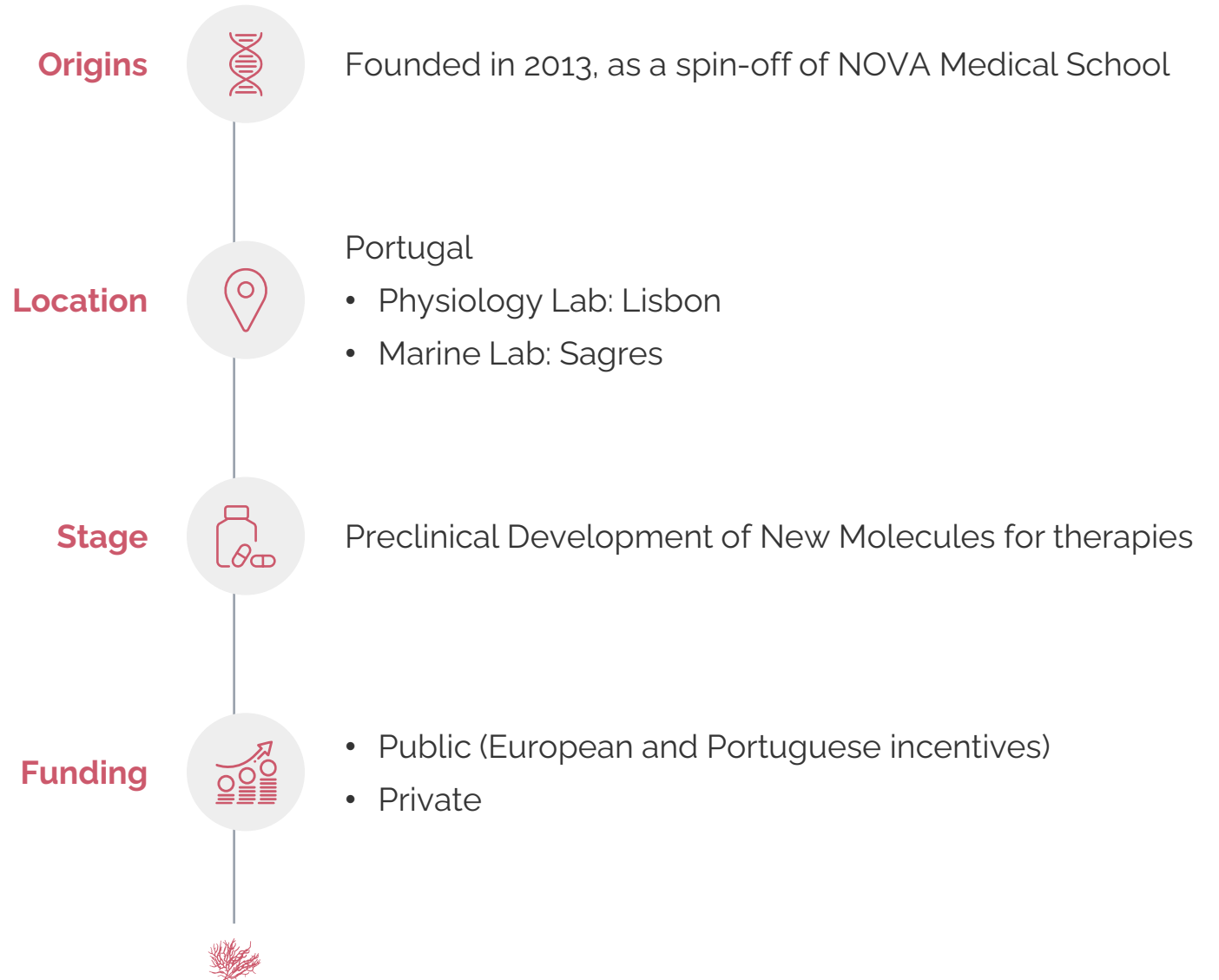
Sea4Us is a biotechnological company

focused on research and early development of novel pharmaceutical drugs from marine origin for unmet clinical needs.



Agues and wounds acquired in land are cured in the sea

Old southwest Portuguese fishermen's saying.



Concept Business Model

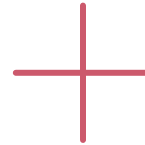


Sea4Us' DNA

Unique combination of Expertise

Marine biology

Marine molecules with medicinal effects



Neurophysiology

Ion channels involved in pathologies

Transform marine molecules into assets



Sea4Us Pipeline

Sea4Pain

Therapeutic area	Therapeutic indication	Discovery	Lead optimization	Preclinical development	IND application	Phase 1 clinical trials
CNS/Pain	Neuropathic Chronic pain					
CNS/Pain	Neuropathic Chronic pain					
CNC/CIPN	Chemotherapy Induced Peripheral Neuropathy					
Urology	Overactive Bladder					
Musculoskeletal Disorder	Osteoarthritis					
Immunology	Autoimmune Diseases					
Antimicrobial	Infectious Diseases					



Problem & Need

20% of the world's population suffer from chronic pain

Diseases in the origin of chronic pain:

- Arthritis
- Diabetes
- Migraine
- Cancer
- Low-back pain
- Fibromyalgia
- Limb trauma
- Shingles (...)



No adequate treatment

The drugs in the market:
Low efficacy / Adverse side effects / Addiction



High costs for NHS

Over \$635 billion are lost every year in the USA with similar figures in Europe. (salary losses, low productivity and health care costs)

Gaskin DJ, Richard P (2012) J Pain. 13(8):715-724

Eurostat <http://ec.europa.eu/eurostat/documents/2995521/7962764/1-30032017-AP-EN.pdf/.52/2017>



Opioids “pandemia”

There are more deaths due to overdose with opioids than those derived from all recreative drugs: Over 100.000 opioids overdose deaths in US in 2021



Market & Opportunity

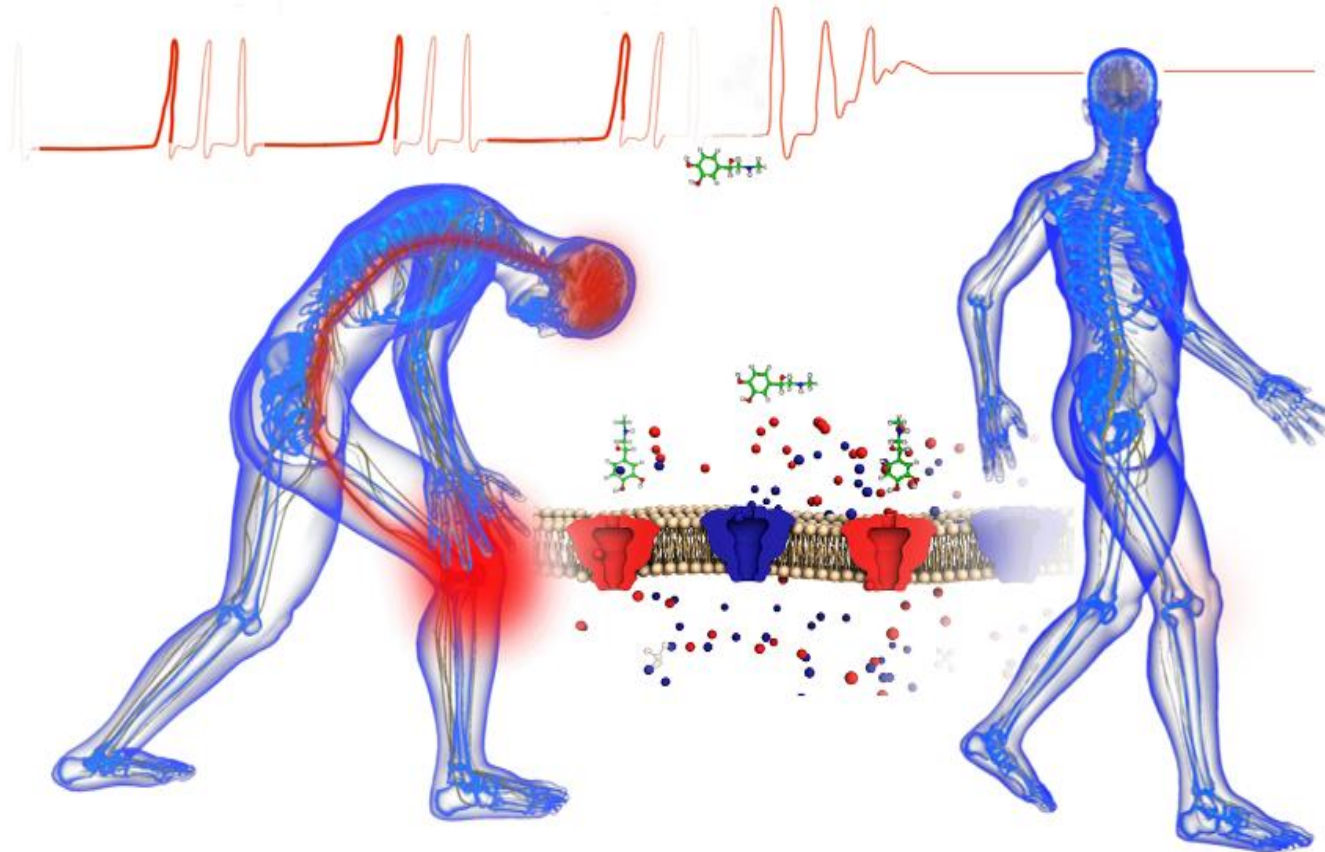
Global pain management drugs market



Global non-opioid pain market



Novel Mechanism of Action



PCT/IB2020/056918
WO2021109375



Specific

target outside the brain
(K⁺ channel subtype, Kv)



Targeted

modulatory effect on pain-sensing
neurons



Effective

deletion of peripheric hyperexcitability



Normal

brain function not affected (no addition)

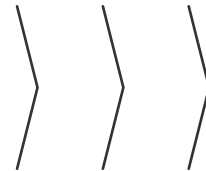


Disruptive Innovation

First in class analgesic:

Target key potassium channels in pain-sensing neurons **outside** the spinal cord and brain (dorsal root ganglia and trigeminal ganglia).

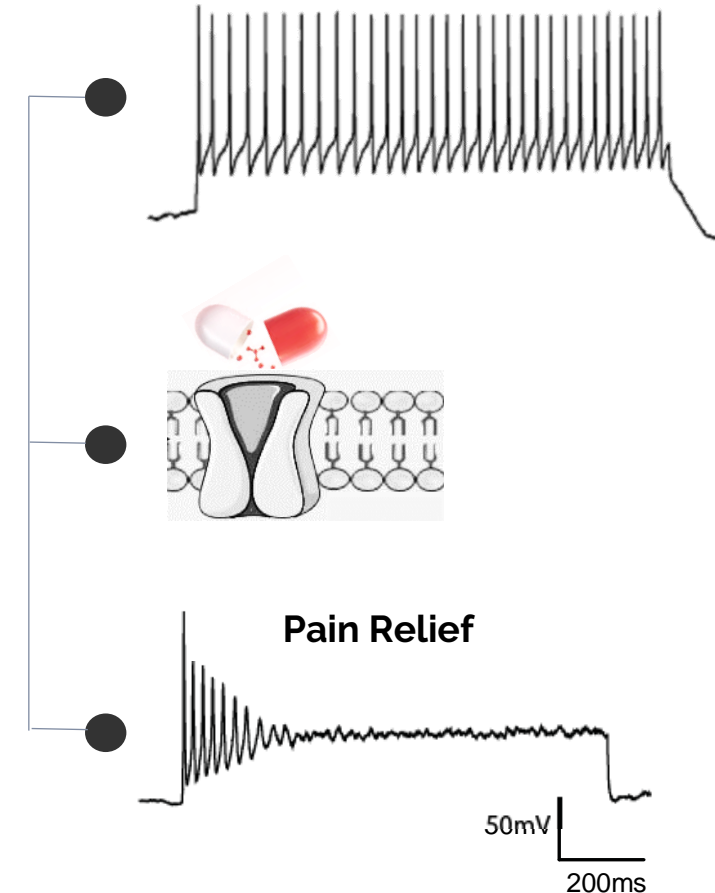
“**switches off**” peripheral pain signaling, blocking the brain’s perception of pain, without affecting brain functioning.



PCT/IB2020/056915

WO2021019373, **Granted in the US**

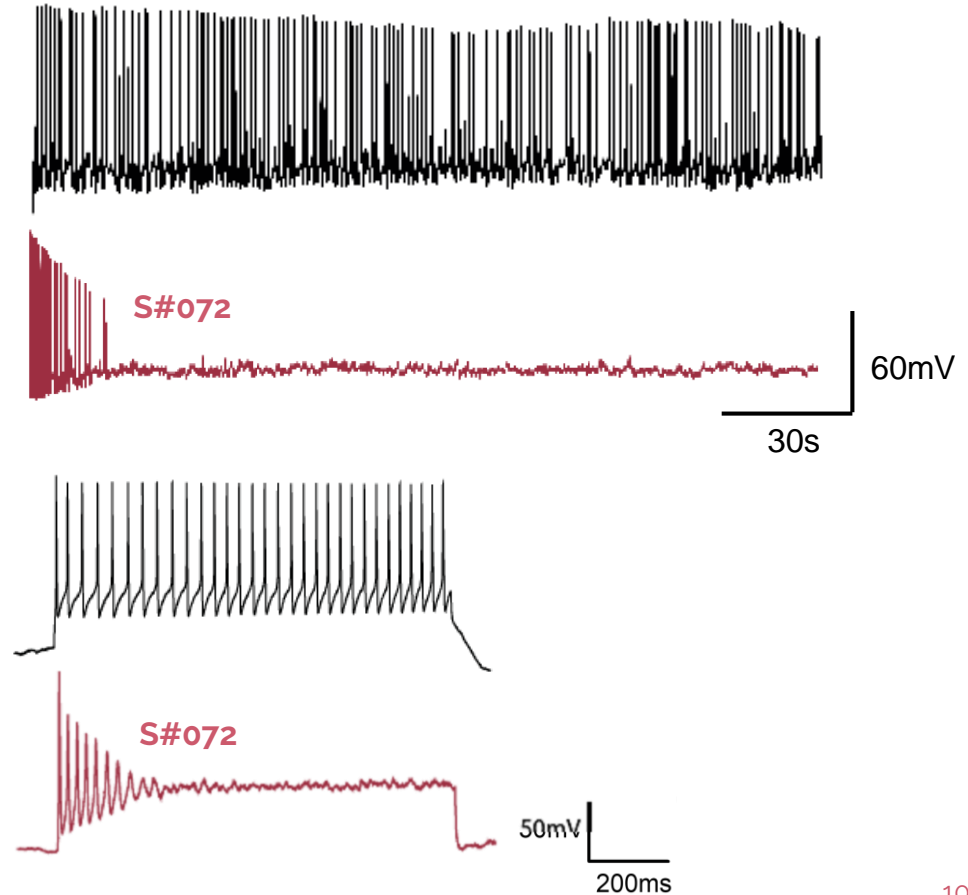
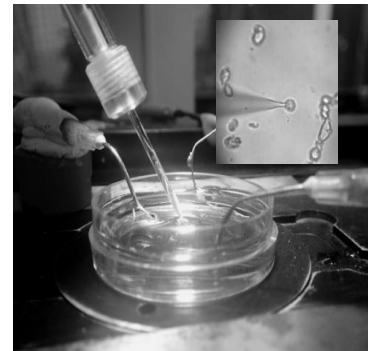
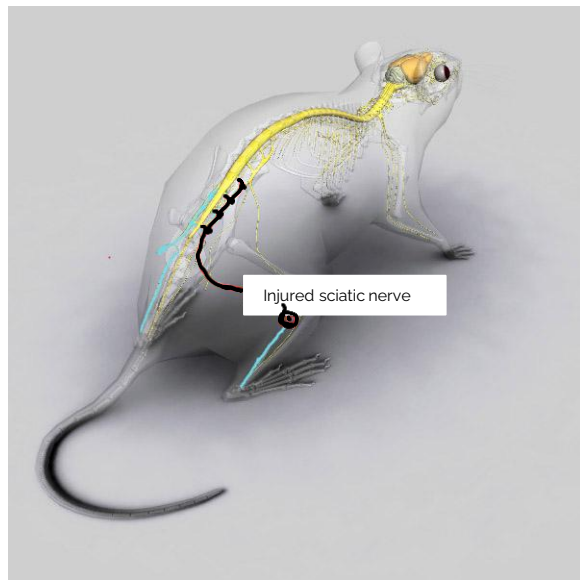
Currently in Patent Prosecution Highway (Europe and Japan)



Disruptive Innovation

S#072

Safe & effective treatment for chronic pain



PCT/IB2020/056915

WO2021019373, **Granted in the US**

Currently in Patent Prosecution Highway
(Europe and Japan)

Disruptive Innovation

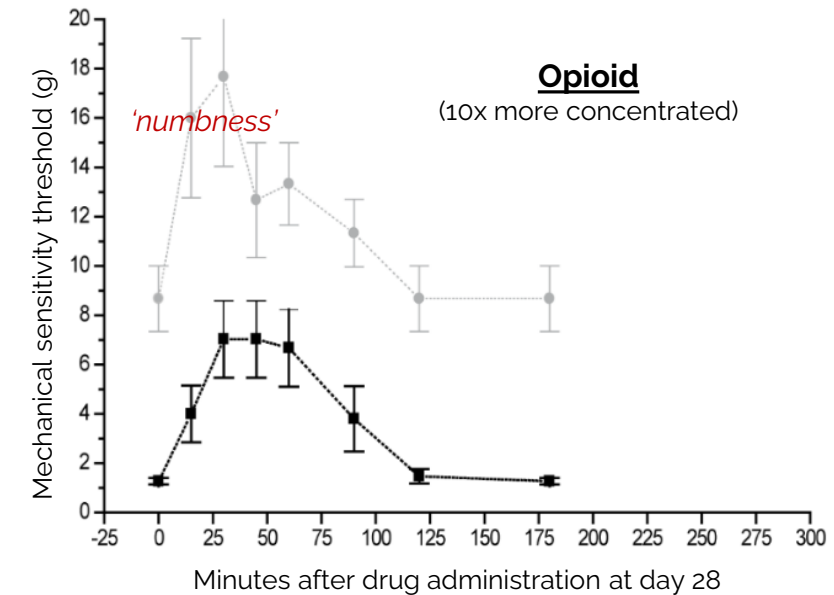
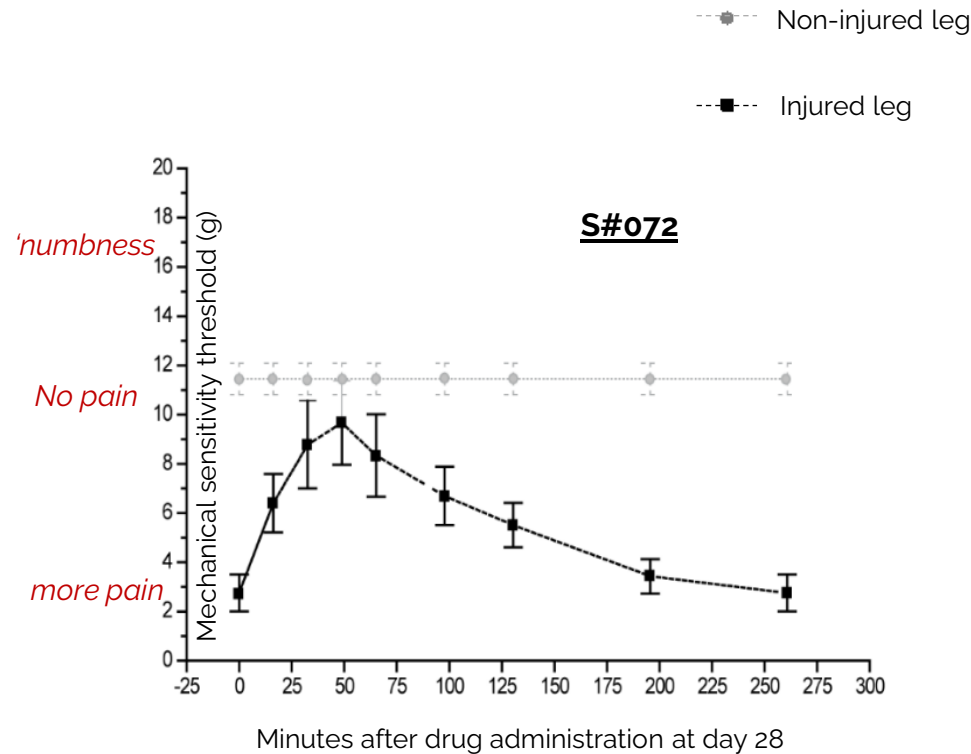
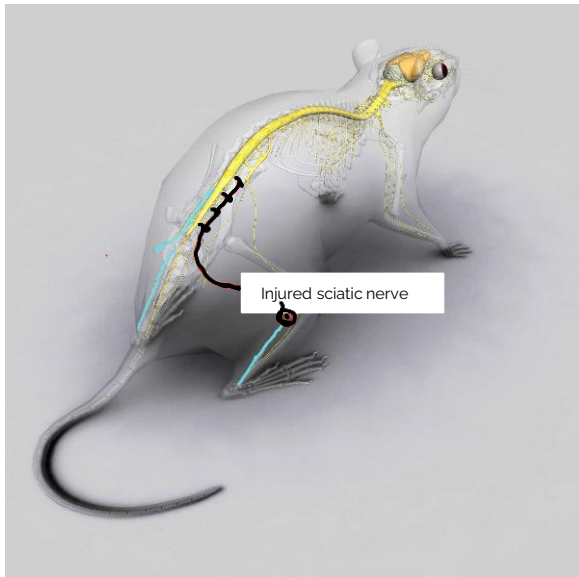
Oral and IV administration



PCT/IB2020/056915

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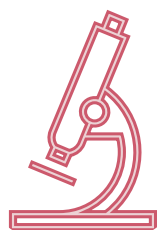
Currently in Patent Prosecution Highway
(Europe and Japan)



Results from CCI model: S#072 decreased sensitivity to mechanical stimuli (i.e., reduces pain) only in the injured paw, effect that contrasts with opioids that also affects the uninjured paw (becomes 'numbed')



Product Profile



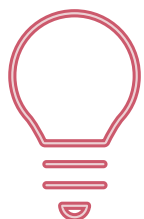
Novel Mode of Action

(specific K⁺ channels in pain-sensing neurons)



High Efficacy

(in vivo efficacy in 6 chronic pain animal models^{*})



Patented Small Molecule

(and family of analogues)



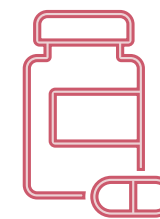
No Toxicity

(various in silico, in vitro, ex vivo and in vivo assays)



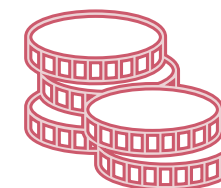
Good Drug-Like Features

(adequate solid-state, stable and resistant API)



Easy Administration

(flexible route of administration: **oral** and IV)



Cost-Effective Production

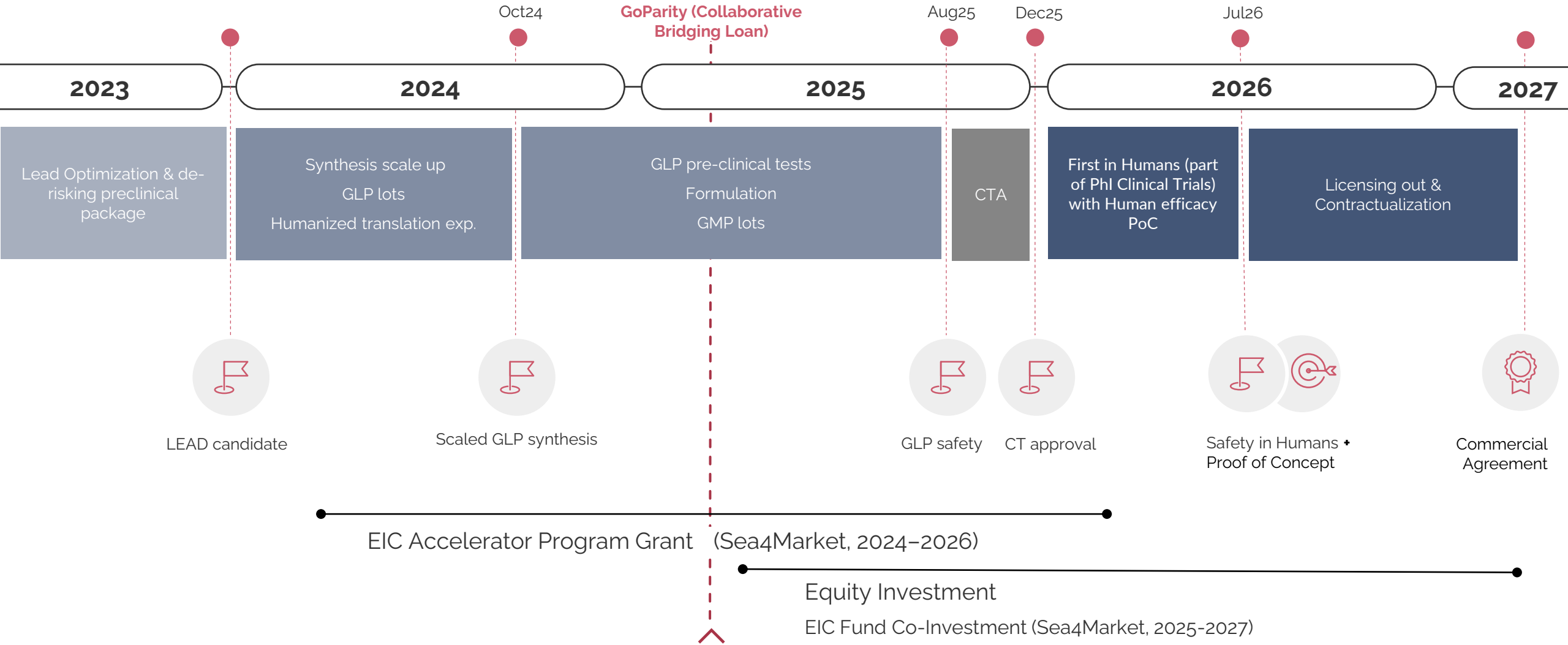
(convenient and economic chemical synthesis route)

^{*} Monoarthritic inflammatory pain; Post-operative trauma; Orofacial pain (trigeminal neuralgia, orphan disease); Painful diabetic neuropathy; Chemotherapy-induced peripheral neuropathy; Visceral Pain /IBD



Roadmap

Path to tests in humans



Sea4Us Team

Senior Management team



Pedro A. Lima, PhD
Co-founder, President of Board of Directors ; CEO



Tânia Ferreira, PhD
COO, Business Development & Innovation



Nuno Leitão, MSc
Co-founder, Board of Directors; CFO



André Bastos, PhD
Co-founder, Board of Directors; CTO



Maria Cabeleira, MSc
RDI System Manager /Quality & Compliance Officer

Science Management team



Eduardo Moura, PhD
Translational Manager / Senior Pharmacologist



Marília Silva, PhD
Project Manager / Senior Bioengineer



Beatriz Szwarc MSc
Head of Animal Research / Senior Scientist



Raquel Barros, PhD
Project Manager / Senior Chem. & formulation eng.



Diego Hartmann, PhD
Head of Biotechnology / Senior Scientist



Silvia Lino, PhD
Head of Data Management / Senior Scientist

Administrative & Office team



Zara Marques, MsC
Financial controller



Fernanda Barcelos, MsC
Office manager

Science team



Ana Abreu MSc



Patrícia Sequeira PhD



Tomás Barros MsC



Ana Chegão PhD



Ana Bernardo MsC



Michal Babiarz MsC



Daniel Vargem

Scientific Expertise / Areas

Cell and In vivo Electrophysiology, Animal Behavior , Pharmacology, Biochemistry, Biotechnology, Chemistry, Molecular Biology and Marine Biology





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Sea4Market

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Lisb@20²⁰

PORTUGAL
2020



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