



Sea4Us

Discovering new marine leads
for unmet clinical needs

www.sea4us.pt
info@sea4us.pt

Company Overview

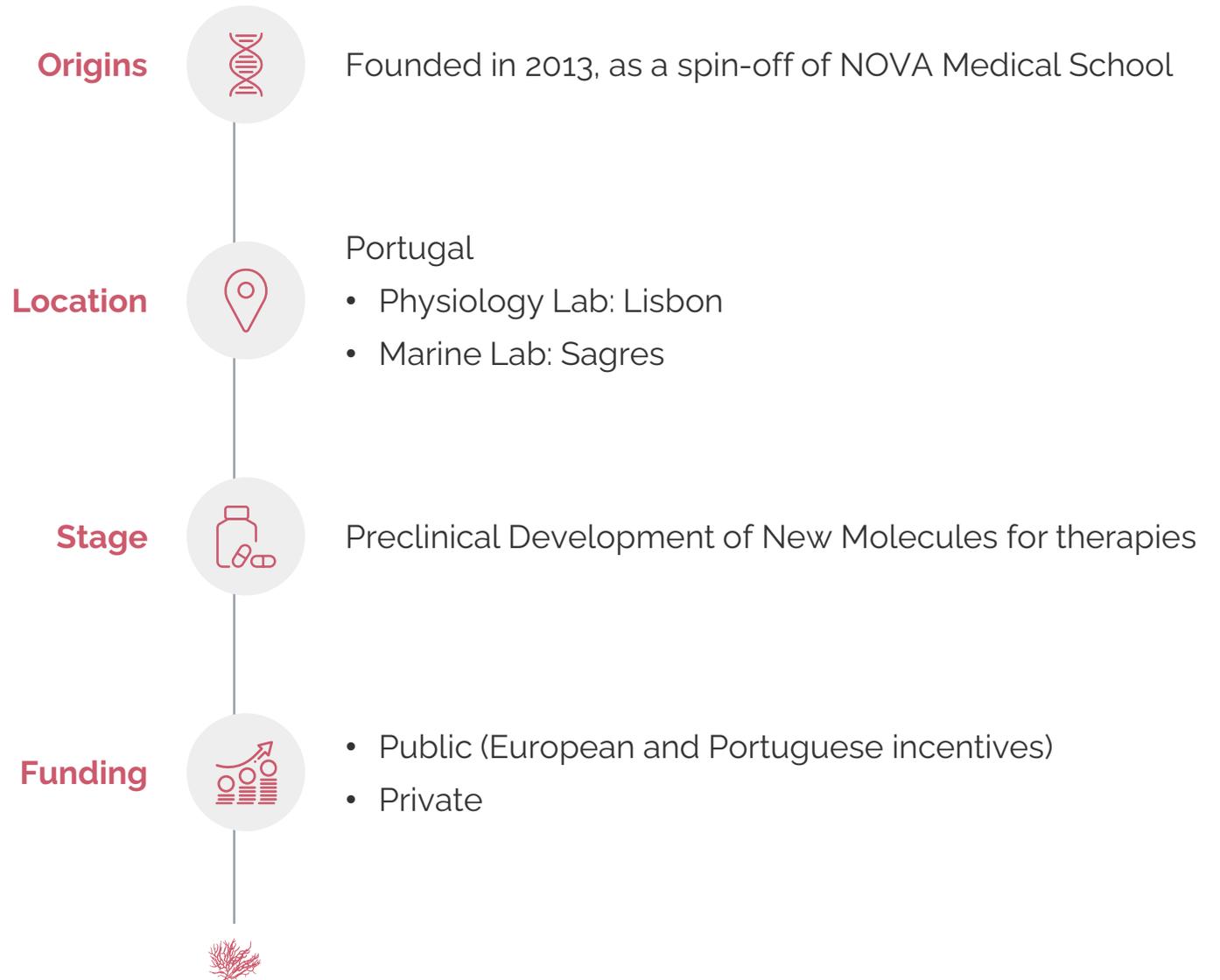
Sea4Us is a biotechnological company

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



June 25

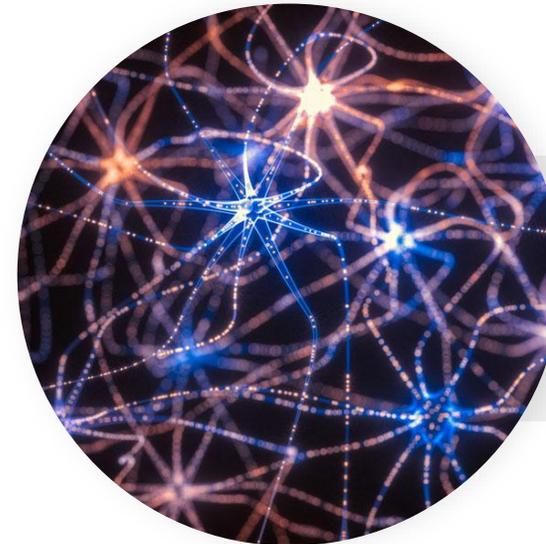
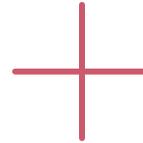


Sea4Us' DNA

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
[S#072]

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						

June 25



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

2021



4% CAGR¹

2030



Global non-opioid pain market

2021

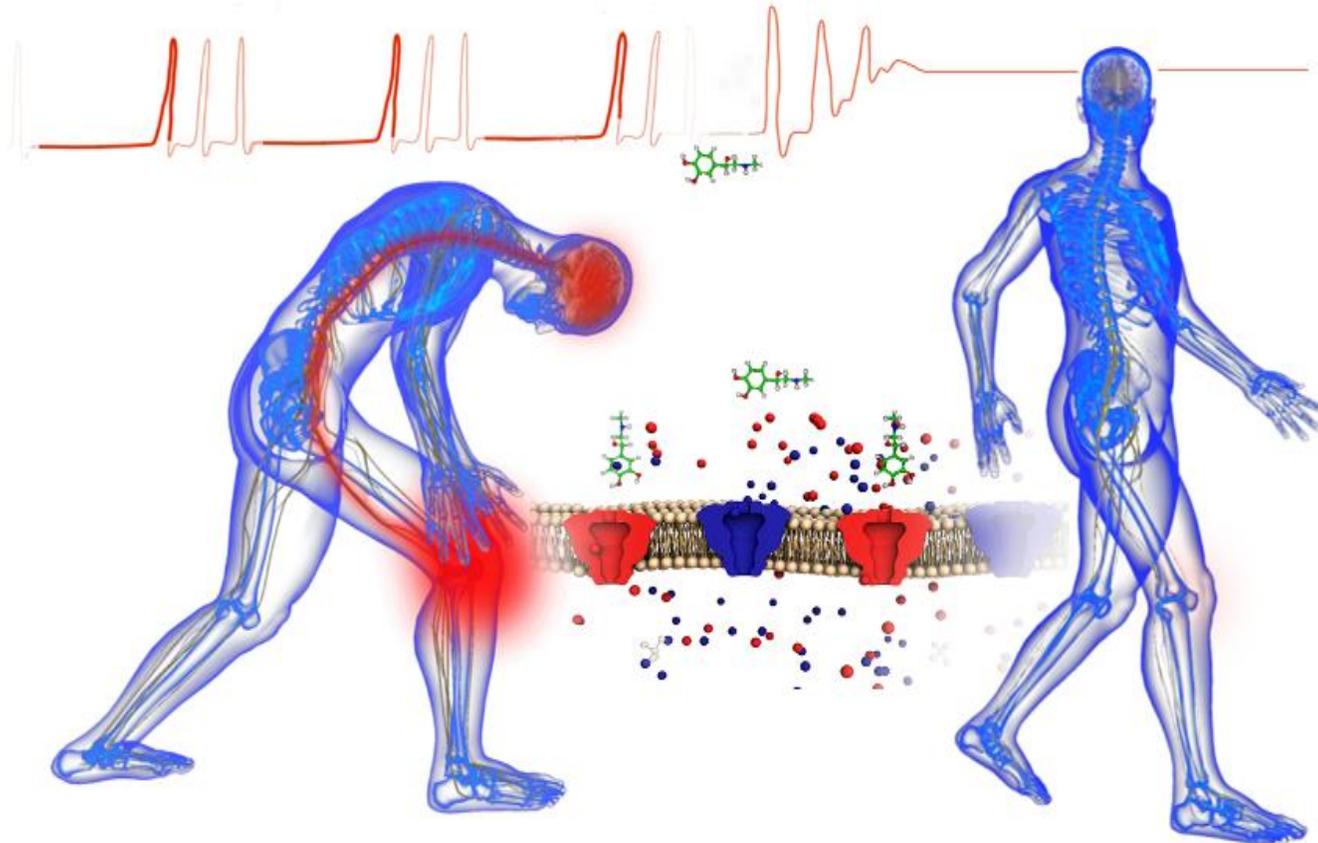


10.5% CAGR²

2030



Novel Mechanism of Action



PCT/IB2020/056918
WO2021109375



Specific

target outside the brain
(specific ion channel)



Targeted

modulatory effect on pain-sensing
neurons



Effective

deletion of peripheric hyperexcitability



Normal

brain function not affected (no addition)

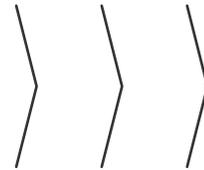


Disruptive Innovation

First in class analgesic:

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

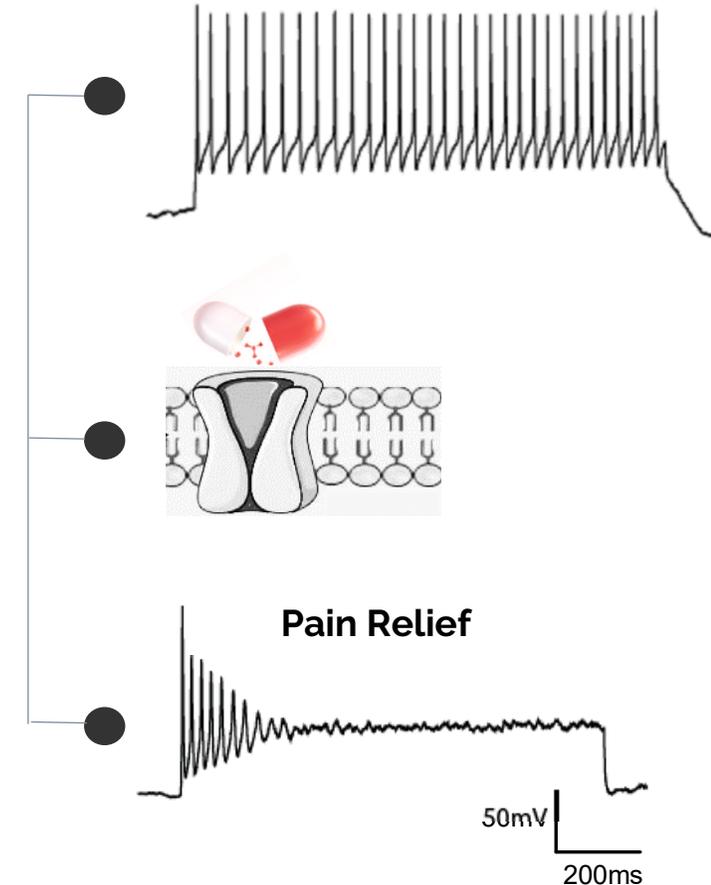
“**switches off**” peripheral pain signaling, blocking the brain’s perception of pain, without affecting brain functioning.



PCT/IB2020/056915

WO2021019373, **Granted in the US**

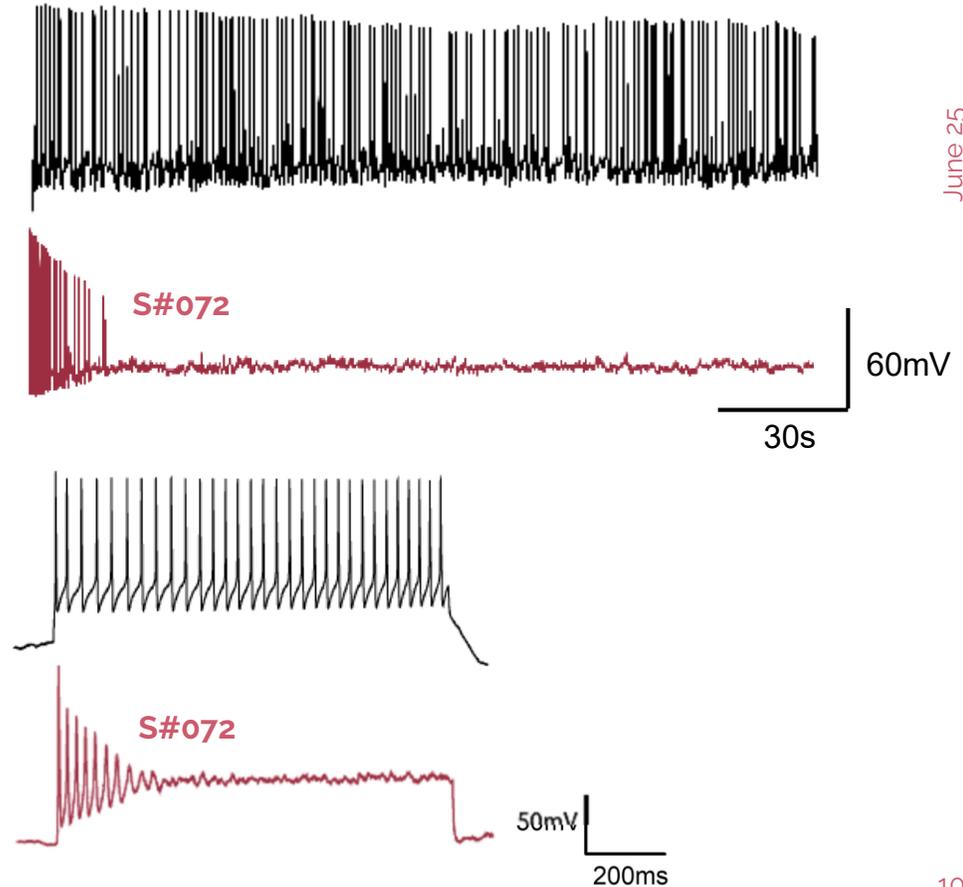
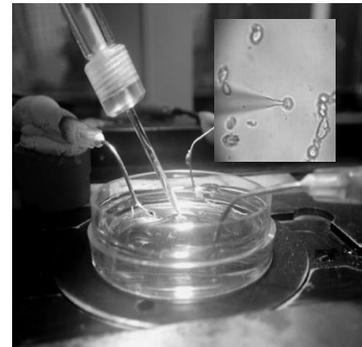
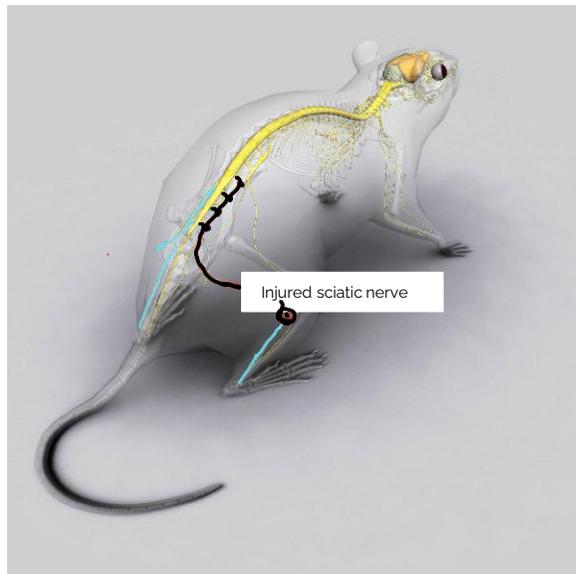
Currently in Patent Prosecution Highway (Europe and Japan)



Disruptive Innovation

S#072

Safe & effective treatment for chronic pain



June 25



Disruptive Innovation

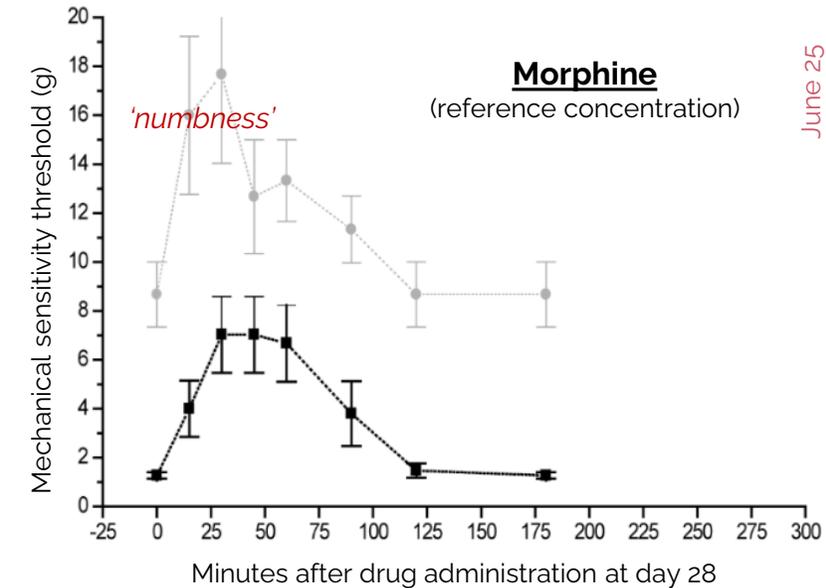
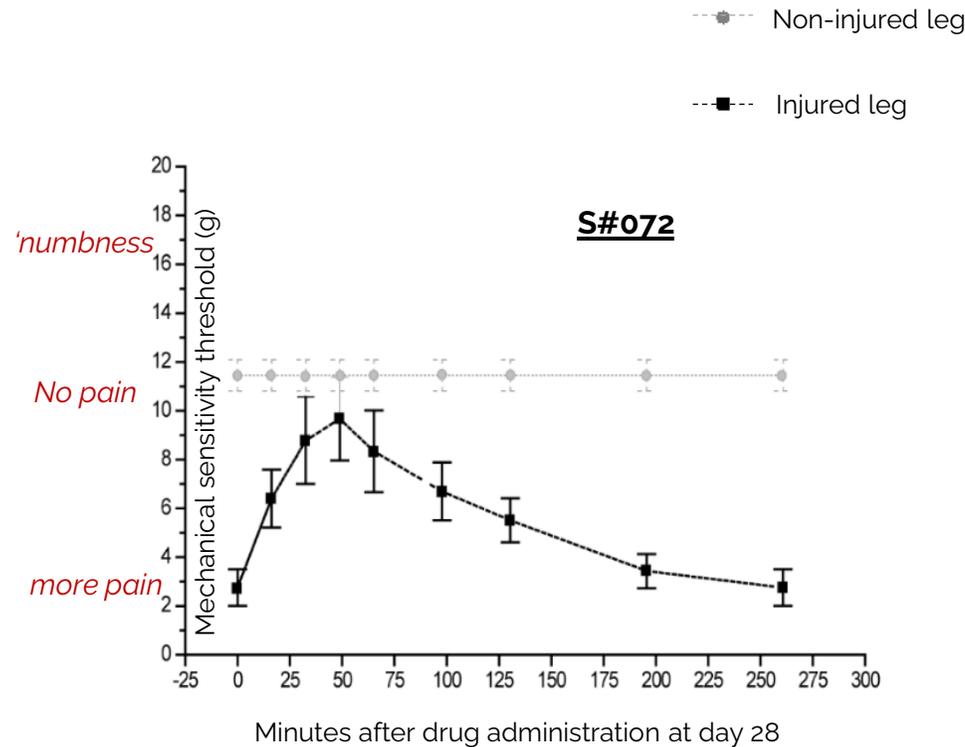
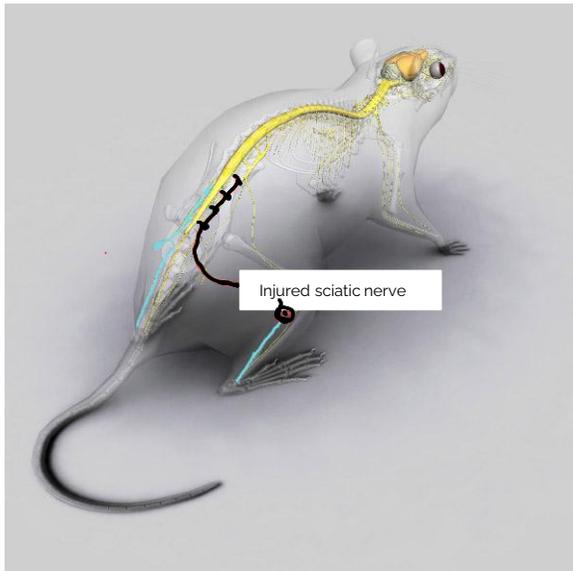
Better than Standard of Care



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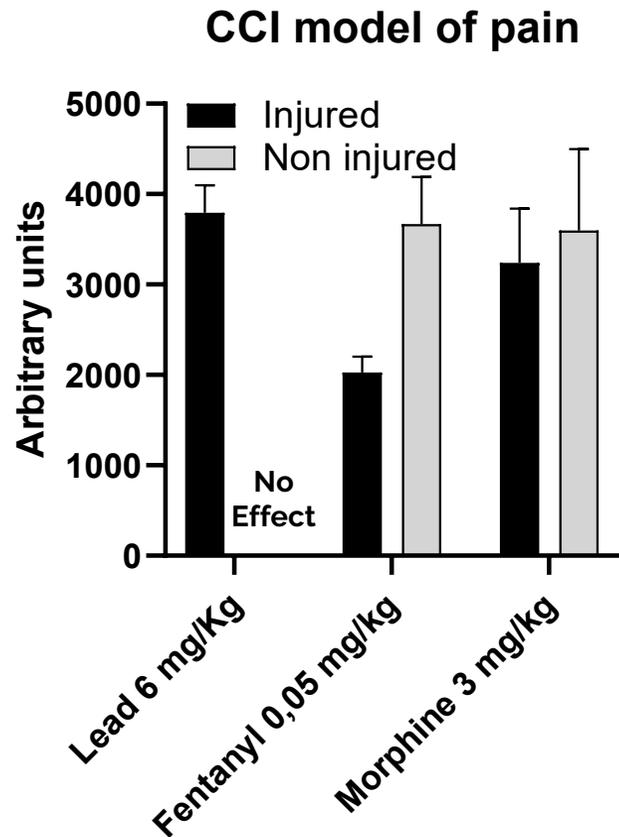
Results from CCI model: S#072 decreased sensitivity to mechanical stimuli (i.e., reduces pain) only in the injured paw, effect that contrasts with opioids that also affects the uninjured paw (becomes 'numbed')



Product Profile

S#072

Better than Standard of Care



Analgesic responses with fentanyl, morphine and gabapentin happen with a cost: dramatic reduction of sensorial sensitivity in the organism (i.e. in non-injured areas)

Such effect is never observed with S#072



Product Profile

S#072



Novel Mode of Action

specific ion channels in pain-sensing neurons



High Efficacy

in vivo efficacy in 7 medical indications*



Patented Small Molecule

and family of analogues



No Toxicity

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



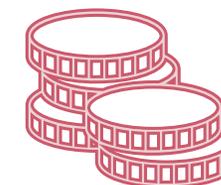
Good Drug-Like Features

adequate solid-state, stable and resistant API



Easy Administration

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



Cost-Effective Production

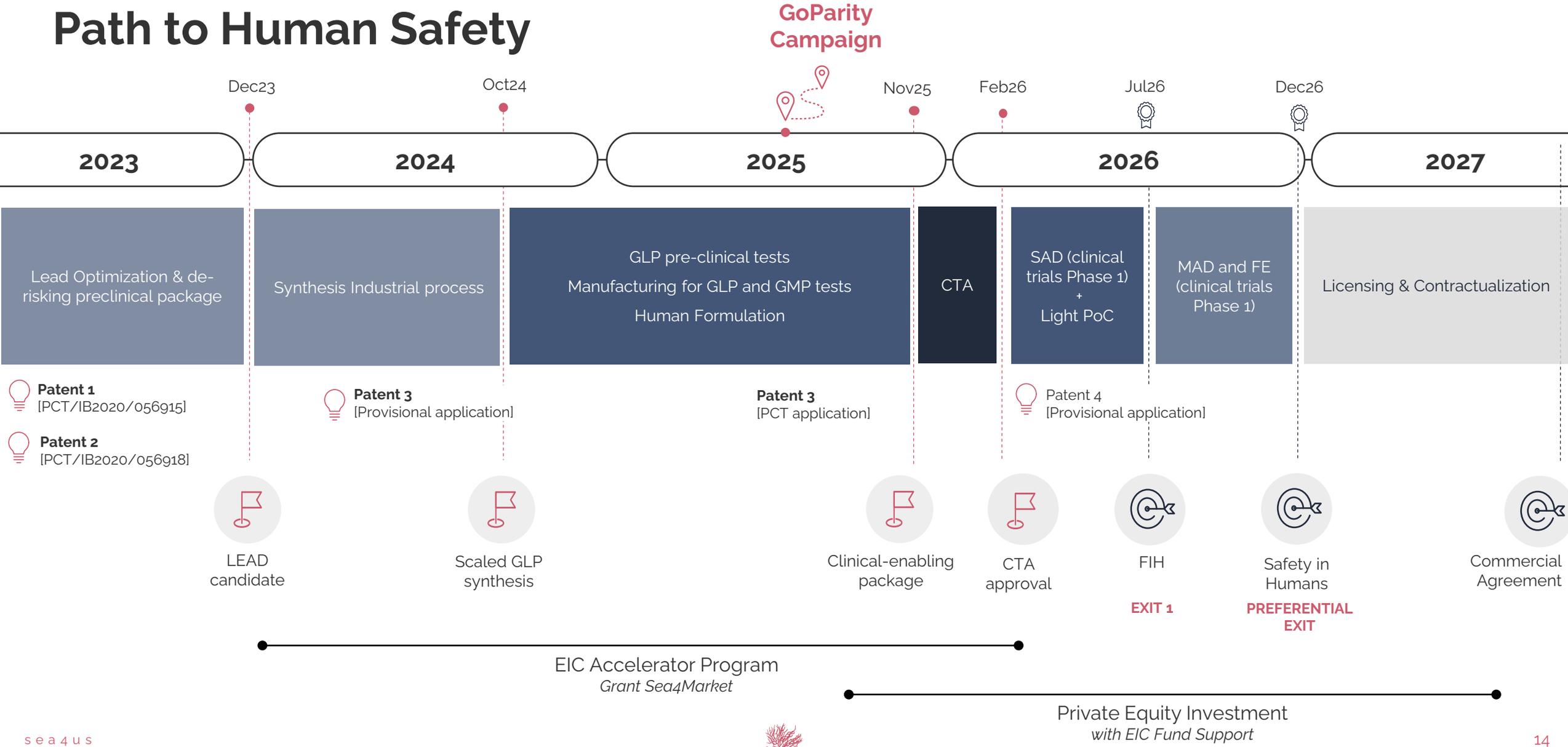
convenient and economic chemical synthesis route

* Chronic pain animal models: *Monoarthritic inflammatory pain; Post-operative trauma; Orofacial pain (trigeminal neuralgia, orphan disease); Painful diabetic neuropathy; Chemotherapy-induced peripheral neuropathy; Visceral Pain /IBD, Osteoarthritis*



Roadmap

Path to Human Safety



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



Miria Oliveira



Ana Chegão, PhD



Ana Bernardo, MsC



Daniel Vargem

Scientific Areas of Expertise

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



Advisory Board



Antonio Dinis

Head of Pharma Business and External Affairs; Hovione



Beatriz Lima

Regulatory Affairs; U. of Lisbon



Bene Farmacêutica

Pharmaceutical company specializing in pain



David Prole

Pharmacology Expert; U. of Cambridge



Euan Brown

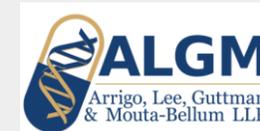
Ion Channels and Physiology Expert; U. Herriot-Watt

Strategic Partners



Strategic Drug Development plan for Sea4Us' lead candidate

Interdisciplinary consultancy with Regulatory, CMC, Toxicity, Translational, Pain Management and Clinical Trials



Strategic Patent-Attorney Office

Located in downtown Washington, D.C.; highest quality legal services for all of chemical and biotechnology intellectual property needs.

Bernard Guay, BG Consulting Pharma Development

40 years' experience in the pharmaceutical industry with over 20 successful out/in licensing deals, including analgesics





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for unmet clinical needs

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Sea4Market

101145231

Co-funded by:



Cofinanciado pela
União Europeia



Lisb@20²⁰



EU H2020 Grant
Agreement 815852

Iceland
Liechtenstein
Norway grants