An innovative treatment for NASH

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Founder and President

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https://www.metabolys.com (under restructuration)

OVERVIEW

Treating Non Alcoholic SteatoHepatitis (NASH)

- NASH : the most common liver disease (350 M: global adult population) with severe complications
- Huge unmet medical need : no approved drug
- **MTBL0036 :** the most efficacious anti-NASH compound
- Planning to invest € ~ 20 M in development and R&D up to phase 2a before exit
- High and rapid (4 years) ROI (exit = out-licensing)
  - Upfront payment > $ 100 M
  - Total deal > $ 600 M
- € 8 M+ invested (non dilutive) / 100+ development years have resulted in:
  - 2 PCT patents with a large geographical coverage
  - Simple synthesis of MTBL0036
- A senior management and R&D team with + 150 years of drug development experience
- Targeted market in 7 MM: NASH with Diabetes (2019: $ 0.14 B ; 2029 : $ 12.0 B)
- Current financial needs: € ~ 5 M to complete the preclinical development (1 y)

NASH with Fibrosis

TEAM (1)

Management and R&D Team

G. Baverel
President,
DVM & PhD
Former Prof. & Head of INSERM unit

G. Moinet
CEO, PhD
former Head of medicinal chemistry, Merck Serono

M. El Hage
Business Developer, PhD & MBA

R. Nazaret
Research technician

B. Ferrier
PhD

A. Duplany
PhD

G. Martin
PhD
CNRS Researcher

INSERM Researchers

Biochemistry, Mol. Biol., Metabolomics

Board

F. Ballet, Paris
MD, PhD
Former Head of Sanofi R&D Center (Vitry-Sur-Seine)

G. Baverel
President,
DVM & PhD
Former Prof. & Head of INSERM unit

Recruitement needs (after fundraising)

- CEO
- CFO
- CMO
- Board members

TEAM (2)

Advisors

C. Bailey, Bristol
MD, PhD
KOL diabetes

J. F. Hamel, Cambridge, USA, MIT
PhD, Boston ecosystem

D. Ricquier; Paris
PhD, Acad. Scicences
Mitochondrial metab.

A. Macey, Paris
Sci. Po. Paris, MBA (HEC), J. Hopkins
Director of Cabinet of the Reporter of Budget - National Assembly

H. Benameur, Lyon
PhD Pharma. Sciences
Former CSO at Lonza Pharma. Development

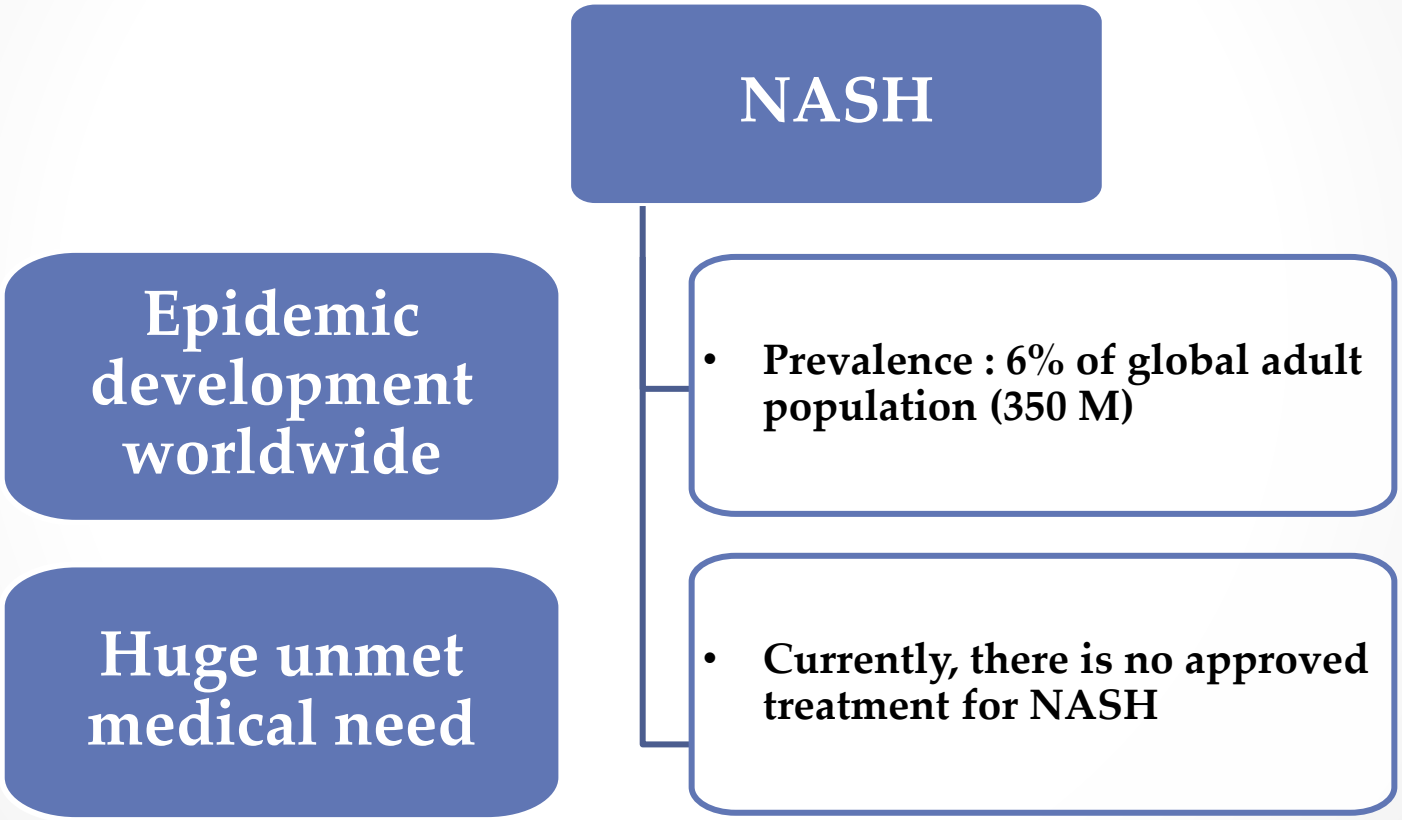
AWARDS

- Lyon Management School Foundation : training at Babson College
- OSEO contest (Research & Technology Ministry)
- Tremplin Entreprises (Senat – ESSEC)
- Seal of Excellence (European Commission)
- Invest Horizon Accelerator (European Commission)
- IPA4SME (European Commission)

MARKET OPPORTUNITY
Problem

ALARM: NAFLD — sounding the alarm on a silent epidemic

Jeffrey V. Lazarus et al. Nature Reviews | Gastroenterology & Hepatology -volume 17 | July 2020 | 377



MARKET OPPORTUNITY
Value proposition & ROI

- **Added value for customers: Pharmaceutical companies have expressed their interest**

- **Added value for patients:**
  - **Cure NASH**
  - **At least, prevent or slow the development of NASH complications**

- **High and rapid ROI (numerous out-licensing deals : upftont $ ~ 100 M ; total deal $ ~ 600 M)**

TECHNOLOGY

150+ development years of know how

2 PATENTS (large geographical coverage)

1. MTBL0036 + 4 back-ups
   - PCT (WO 2012/175715)

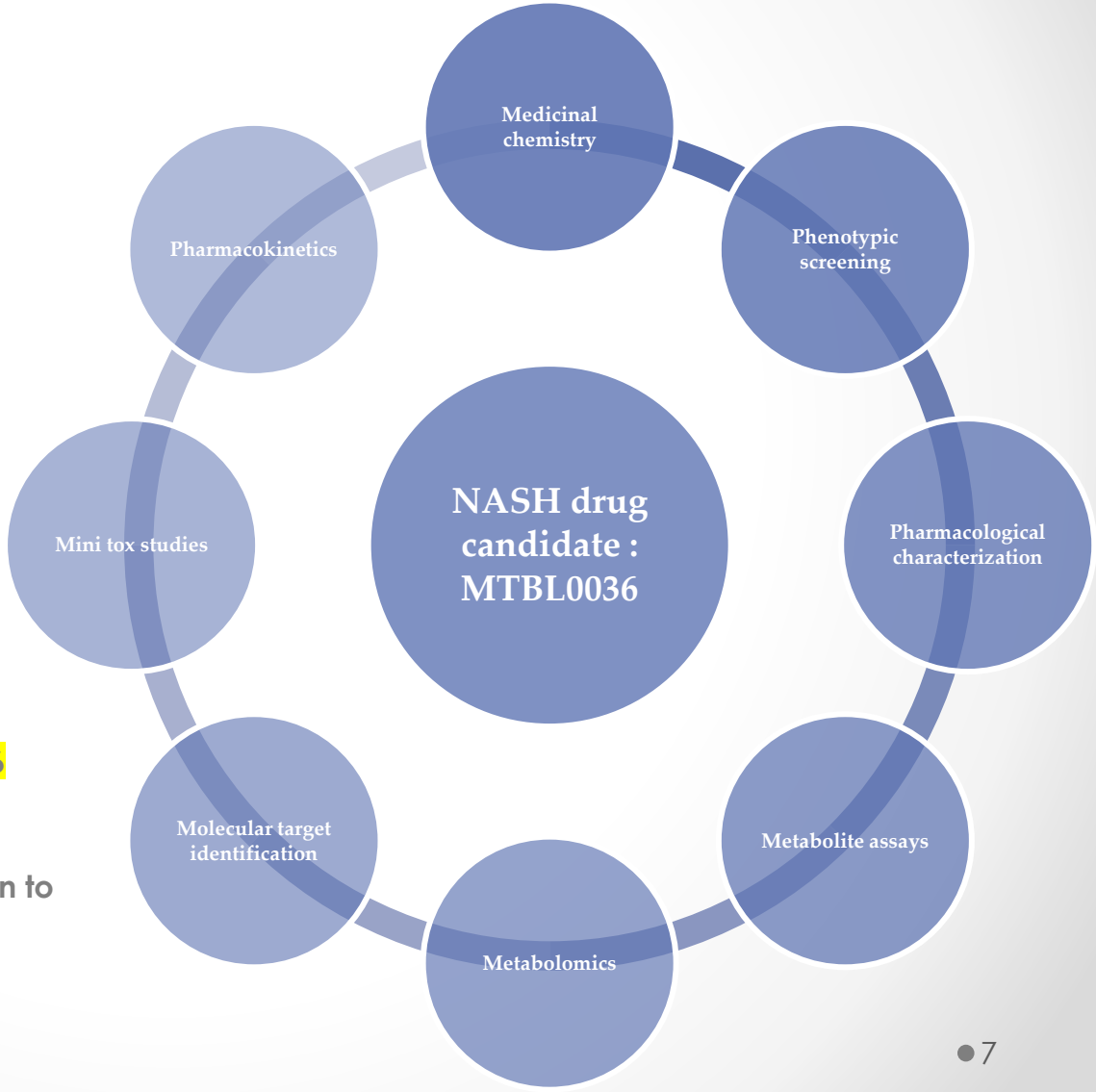
   Synthesis and diabetes

2. MTBL0036 + 2 back-ups
   - PCT (WO2018/024805)

   NASH

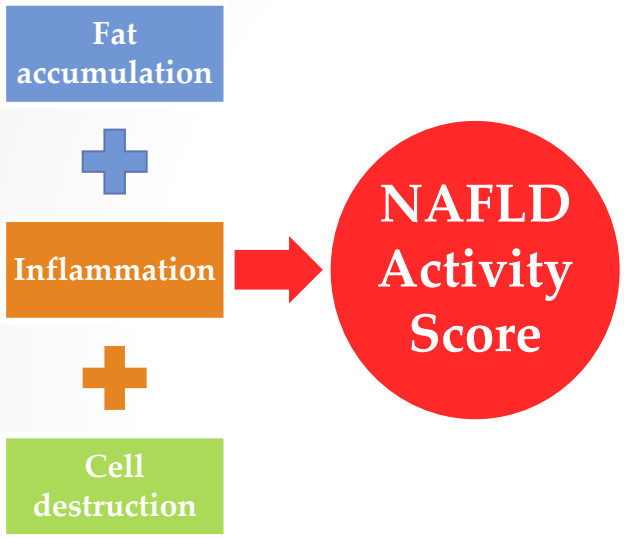
3. New PCT patent to be submitted (MTBL0036 synthesis in 2 steps)

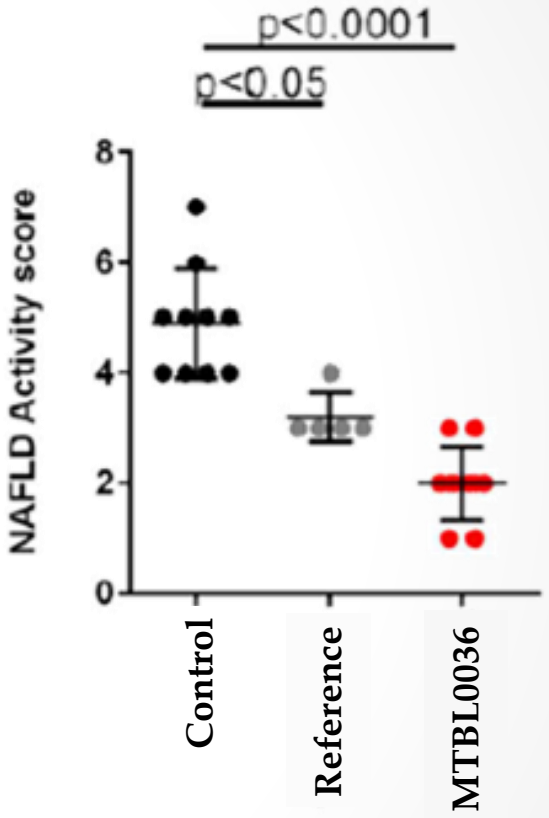
4. New PCT patent to be submitted : expansion to oncology (2 cpds of the portfolio)



PRODUCT

MTBL0036 potently diminishes inflammation and cell destruction

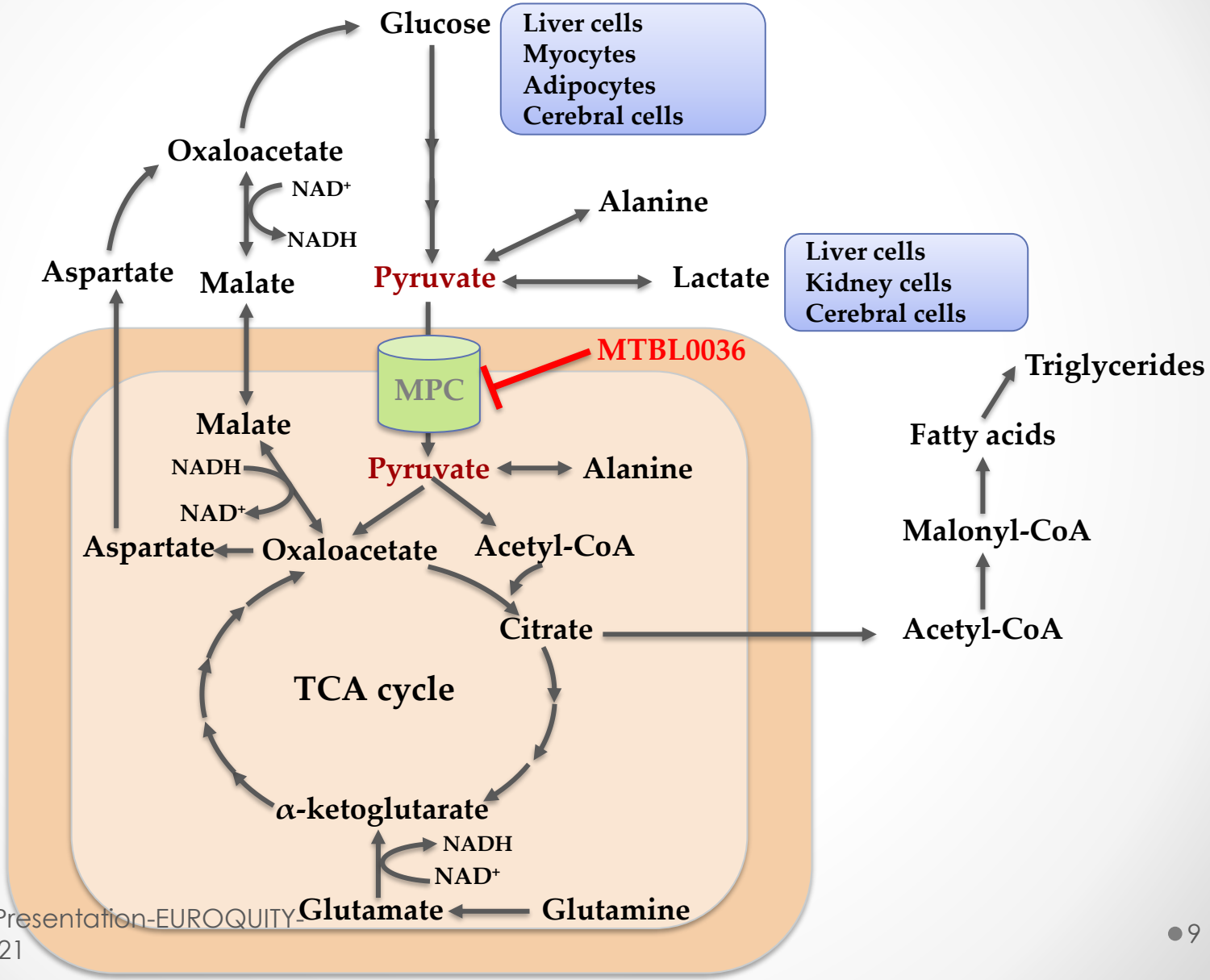




NAFLD Activity Score measures the severity of NASH

MTBL0036 is one of the most potent orally active anti-NASH candidates in development (experiments conducted at Stelic Inc., Tokyo) when tested in the STAM model, the most widely used animal model by pharmaceutical companies.

PRODUCT


Glucose
Liver cells
Myocytes
Adipocytes
Cerebral cells
Oxaloacetate
NAD+
NADH
Alanine
Aspartate
Malate
Pyruvate
Lactate
Liver cells
Kidney cells
Cerebral cells
MTBL0036
MPC
Triglycerides
Fatty acids
Malate
NADH
NAD+
Pyruvate
Alanine
Malonyl-CoA
Aspartate
Oxaloacetate
Acetyl-CoA
Citrate
Acetyl-CoA
TCA cycle
α-ketoglutarate
NADH
NAD+
Glutamate
Glutamine

PRODUCT
Competitive advantages

- **Molecular target : mitochondrial not nuclear**

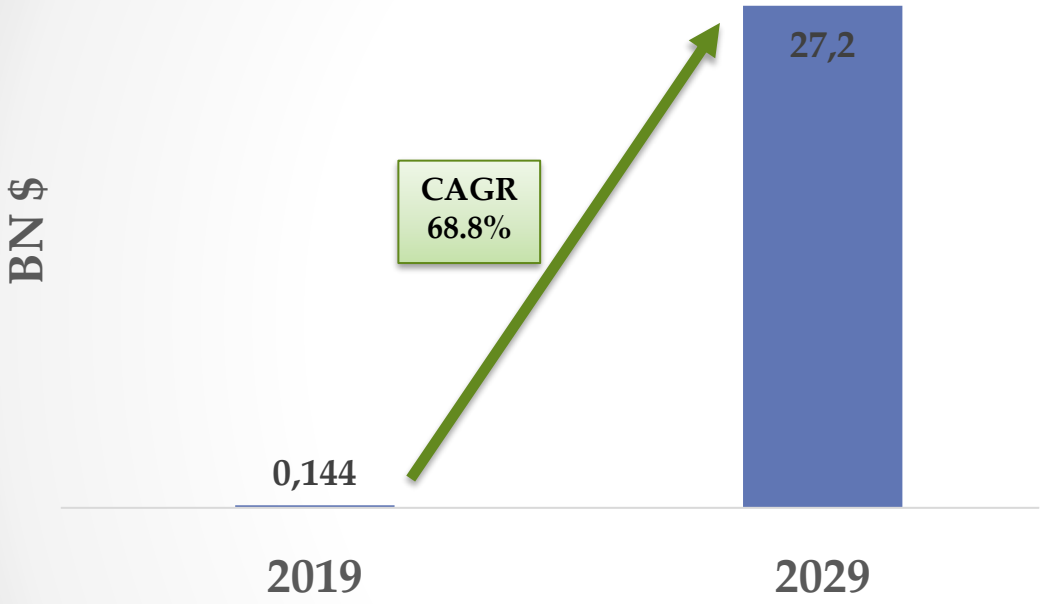
- **Safety**
  - **High safety margin (acute and sub-chronic toxicity studies)**
  - **Lipids :**
    - **HDL 10% ↑**
    - **LDL unchanged**
    - **Triglycerides 50% ↓**

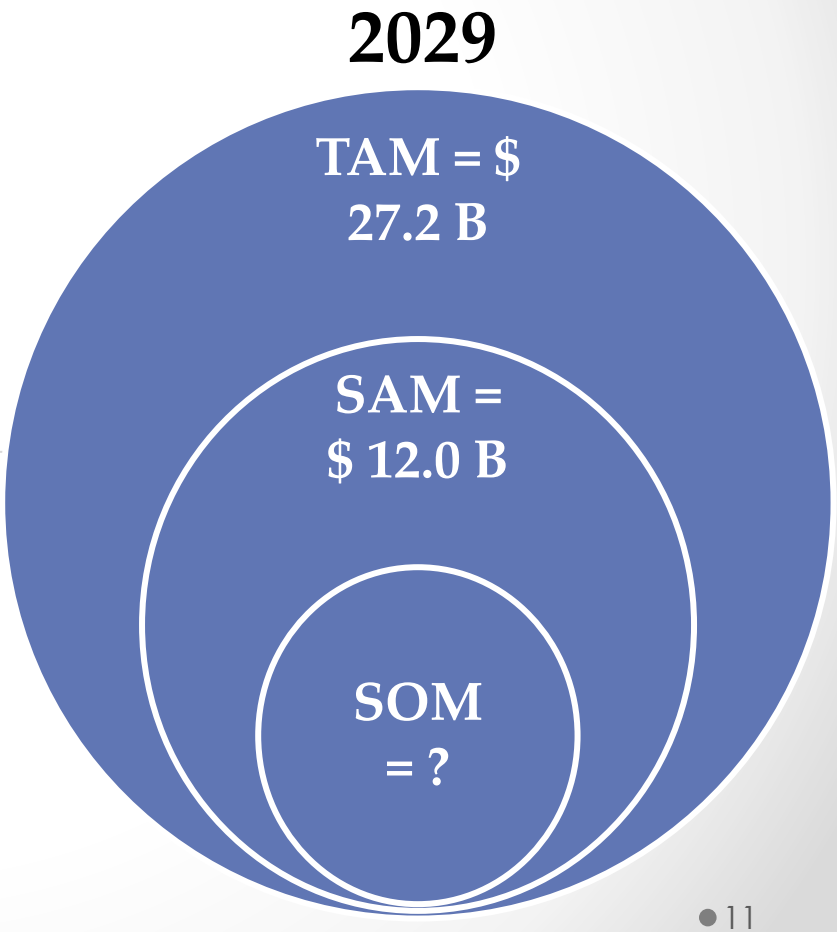
- **Efficacy**
  - **MTBL0036 alone : one of the most efficacious (preclinical data)**
  - **Possible combination**
  - **Additivity with metformin**

- **Oral administration**

MARKET ANALYSIS

(7 Major Markets)





Source: Non-Alcoholic Steatohepatitis (NASH) – Opportunity Analysis and Forecasts to 2029 – Global data – Nov 2020

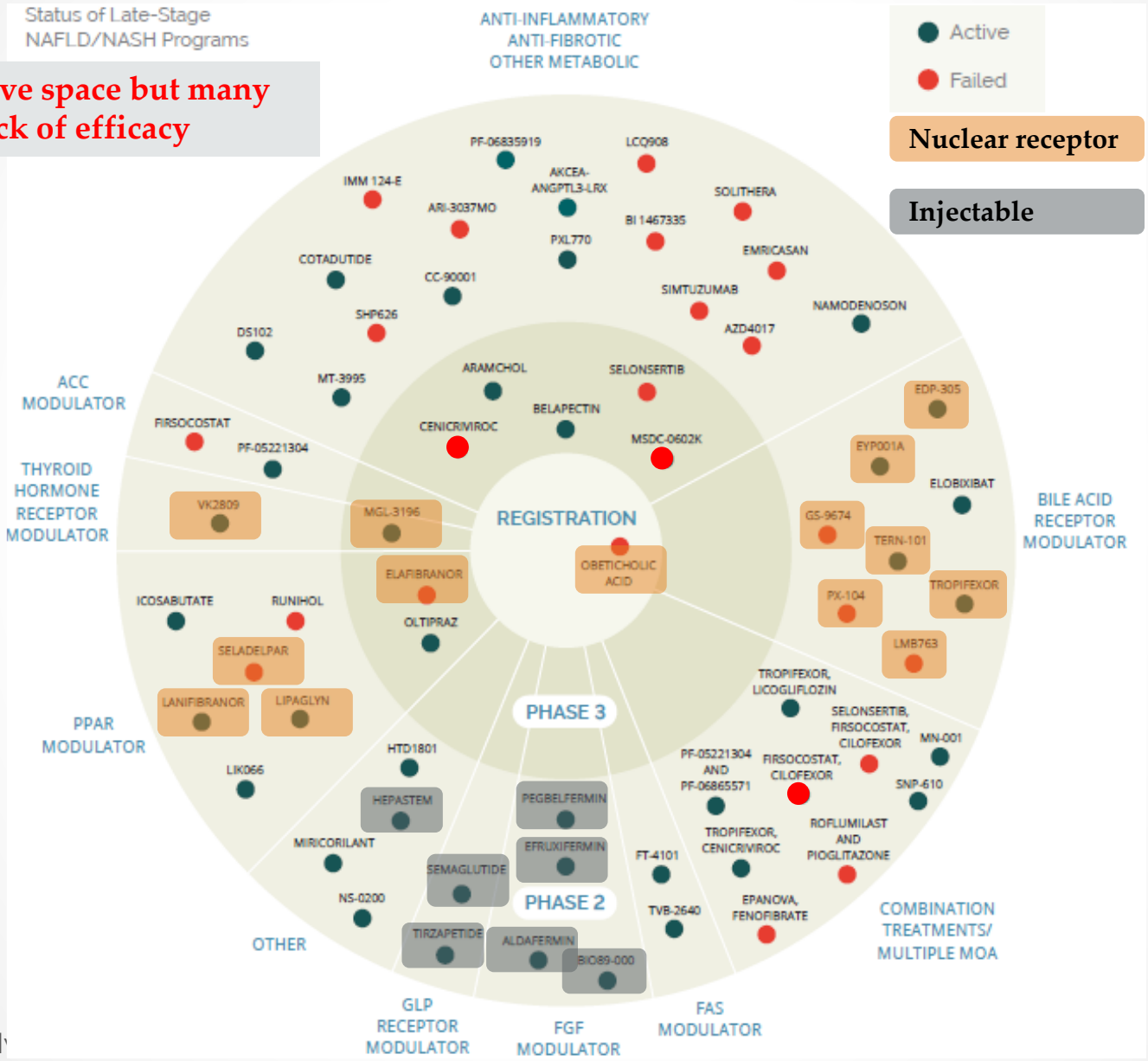
GO TO MARKET

Out-licensing to a pharmaceutical company after phase 2a (clinical proof of concept)

The following companies have expressed their interest

COMPETITOR ANALYSIS

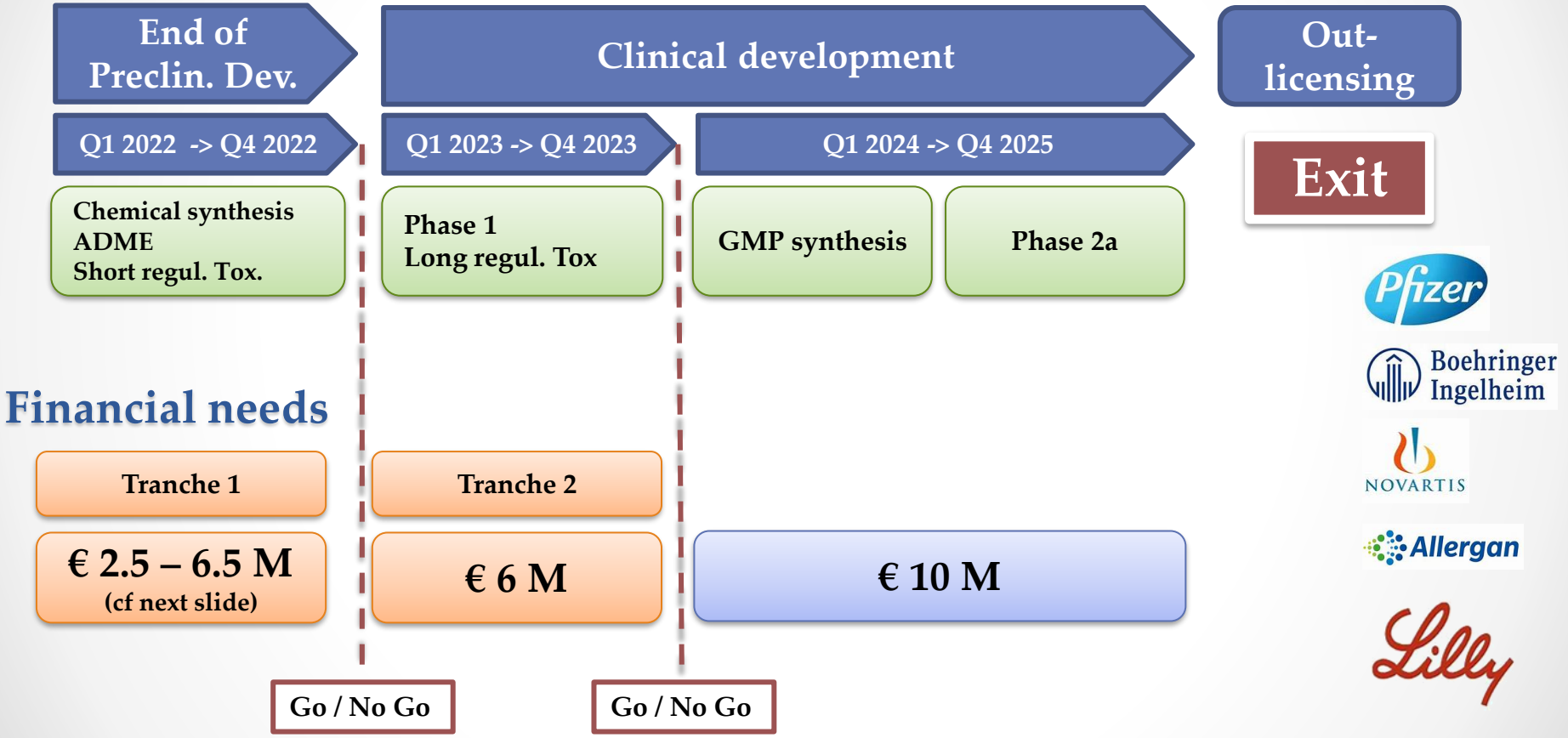
Very competitive space but many failures and lack of efficacy



COMPETITOR ANALYSIS (most advanced compounds)

Candidate	Receptor	% decrease in NAFLD Activity Score (industry animal model)	Adverse effects (clinical trial)	Route of administration	Development stage	Benefit / Risk
MTBL0036	Mitochondrial	59%	?	oral	Preclinical	
Semaglutide	Cell membrane	-	GI disorders	Subcutaneous	Phase 3	
Lanifibranor	Nuclear	-	Weight gain	oral	Phase 3	
Resmetirom	Nuclear	-	?	oral	Phase 3	
Tropifexor	Nuclear	37%	Prurit LDL ↑	oral	Phase 2	
Ocaliva	Nuclear	23%	Prurit LDL ↑	oral	Phase 3	

FINANCIAL PLAN



Current Financial Needs to obtain the IND (Euros) (Q1 2022 - Q4 2022)

	Option 1	Option 2
MTBL0036 synthesis	540 000	1 420 000
Formulation, ADME	650 000	650 000
Short term regul. tox. (de-risked)	750 000	750 000
Long term regul. tox.	-	1 550 000
R&D	-	515 000
Salaries	200 000	700 000
Operating expenses	360 000	360 000
Debt (conv. notes)	-	550 000
Total	**2 500 000**	**6 495 000**