bYoRNA

Bioproduction of therapeutic mRNA in yeast for the generation of new RNA drugs

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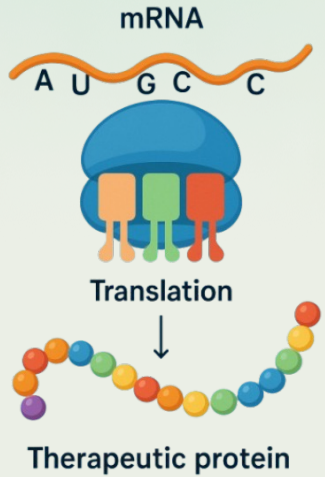
September 2025



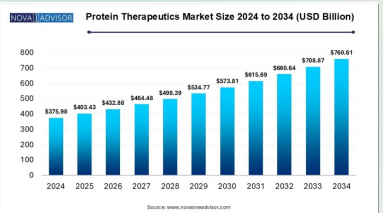
mRNA Therapies are a market game-changer

mRNA teaches the body to make its own medicines.

- Messenger RNA (mRNA) is a “blueprint” that tells cells how to make a given protein.
- Once administered, the body takes over and manufactures the right protein from the mRNA.
- Consequently, mRNA have the potential to improve protein-based therapies providing:
  - more efficacy
  - and less immunogenicity

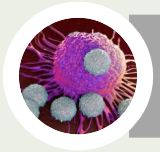


By 2034, therapeutic proteins are expected to dominate the pharmaceutical market — highlighting the immense market potential for mRNA-based therapies



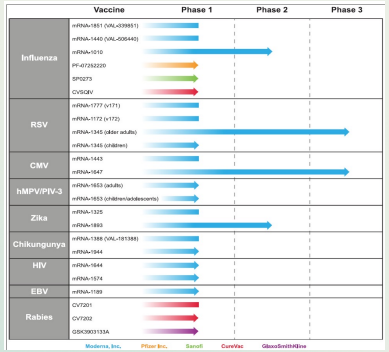
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Applications of mRNA therapies



Infectious diseases*

- Covid, RSV (approved)
- Flu, HIV, Zika…

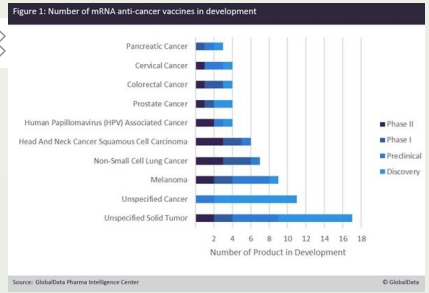


Rapid development
(duration /2 to /5)



Cancer**

- Pancreatic cancer
- Melanoma



Improved efficiency
(survival rate x2 to x5)

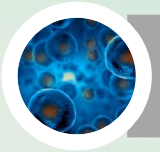


Gene therapy

- (Not so) rare diseases



Development cost
(standardized)



Regenerative medicine

- Diabetes
- Heart attack
- Ulcers
- Bone regeneration
- Alzheimer's and Parkinson's
- Aging

** Darin K Edwards and Andrea Carfi Current Opinion in Immunology 77(2022) 102214.*

***Globaldata 2023*

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Limitations of the current method of mRNA production – enzymatic synthesis “IVT”

Current IVT ("in vitro") technology will not produce all of tomorrow's mRNA.

Production by enzymatic synthesis

IVT mRNA is expensive, immunogenic and produces the wrong protein in 10 to 45% of cases.

Cost

15 to 50K€ per g

(100 to 1,000x more than protein drugs)



Quality and length

Short, fragmented, negative side effects

100+ fold less efficient for new RNA therapies (saRNA , CRISPR+)

Supply chain

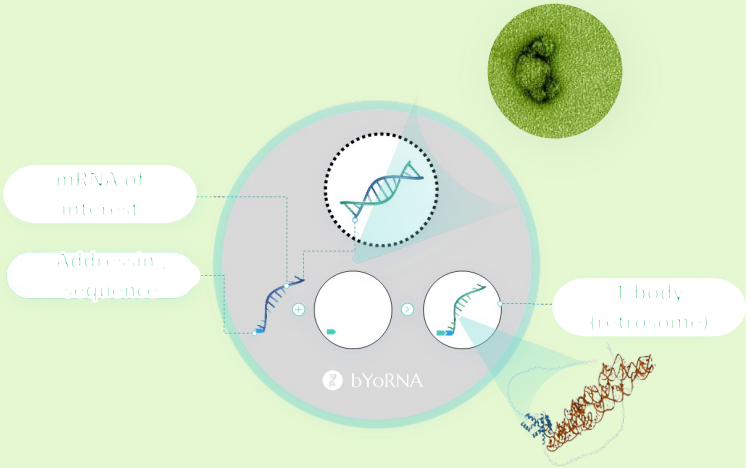
Bottlenecks in key raw materials (enzymes, plasmids) which represent 75% of the mRNA production cost



Our disruptive technology will solve IVT issues

The patented bYoRNA technology enables **the in vivo production of the mRNA of interest in yeast through fermentation**. The mRNA of interest is sequestered with intracellular structures called retrosomes or T-bodies, which protect it from degradation, before being purified.

bYoRNA Technology Principle (exclusive licence to CNRS patent):



bYoRNA Technology Enables:

- **BETTER QUALITY**
  - **Long, near-human mRNAs**
  - **Reduced immunogenicity**
  - **Better integrity of the final protein (reduced *frameshifting*)**
- **OPTIMIZED MANUFACTURING**
  - **Significant reduction in production costs**
  - **Streamlining of the supply chain**
  - **Local manufacturing to support production sovereignty**

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bYoRNA, founded in 2022, has a team of 10 people

bYoRNA

Founders and Management



Pascal Viguié
CEO, co- founder

- Engineer (Polytechnique), MSc in nanomedicine (Oxford)
- Creation and sale of a first company (€30M)
- Leader or key investor in several start-ups



Thierry Ziegler, PhD
CTO & COO, co- founder

- Bioprocess engineer
- Implementation of GMP facilities
- Bioprocess development
- Development and production of biomedicines



Chantal Pichon, PhD
Advisor, co- founder

- Professor at the University of Orléans and at the Charité University Hospital in Berlin.
- RNA vaccine pioneer and RNA expert with over 200 publications
- Director of the INSERM mRNA ART
- Inventor of the patent.

Strategic Advisors & Investors



Yves-Loïc MARTIN
Founder, Eurofins
(listed on EURONEXT)



Dr. Uwe Gottschalk
Bioproduction expert

Scientific Committee



Prof. Chantal Pichon, PhD
Founder scientist
Expert mRNA

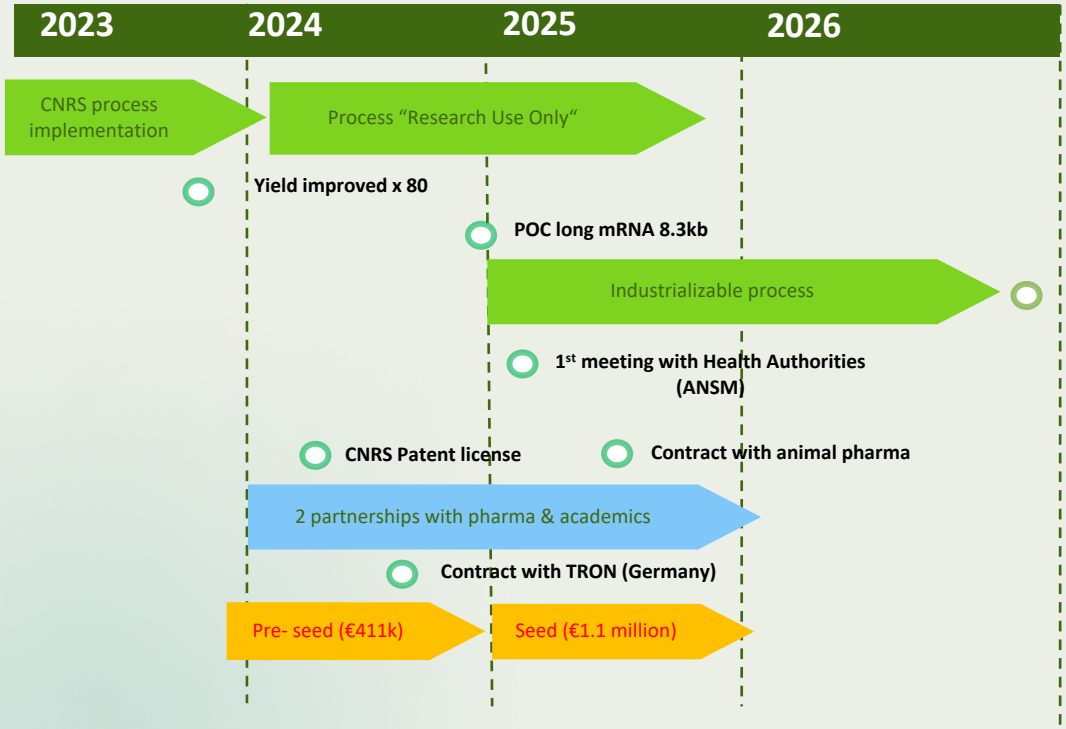


Prof. Jeff Coller, PhD

Yeast and mRNA

Achievements & IP

In addition to the funds already raised



Patent

Issued (CNRS-Univ. of Orléans)
Exclusive worldwide license for bYoRNA

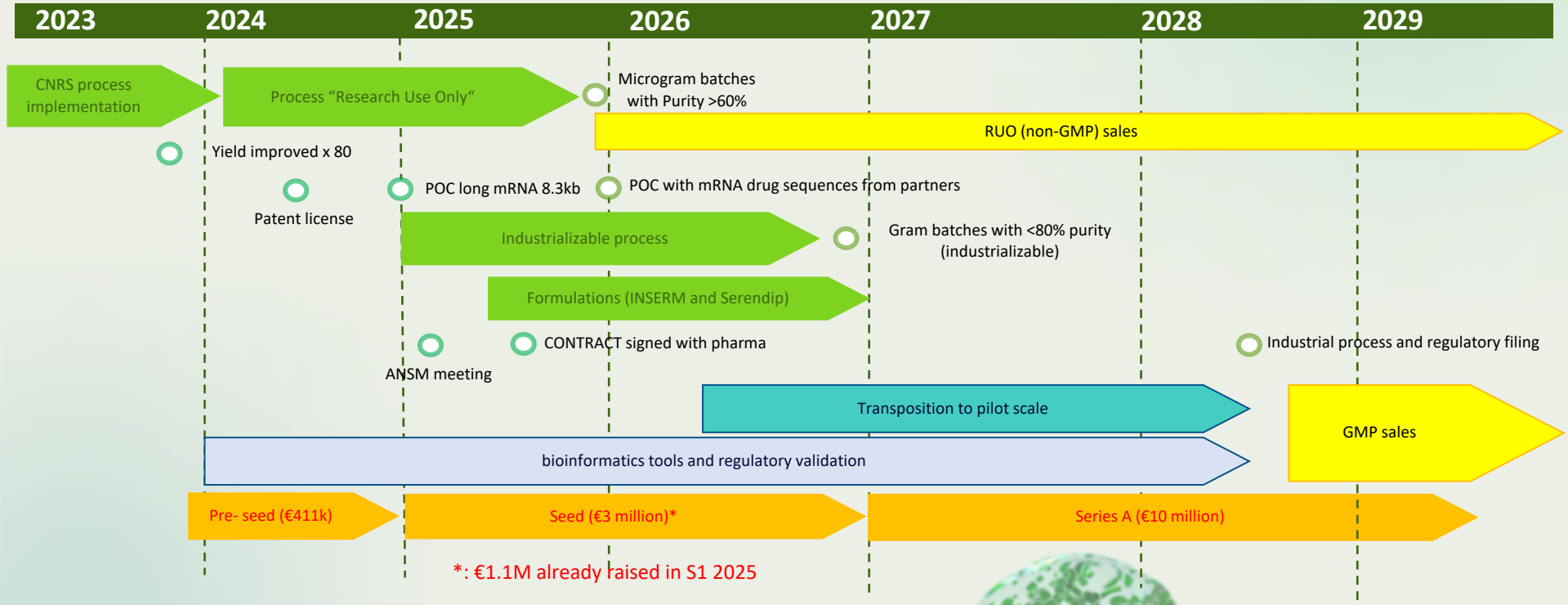
RNA production by recombinant virus-like particles in yeast.

EP3601545B1 – active until 2038

US12006525B2 - active until 2041

Technical Roadmap & Financing

In addition to the funds already raised (€1.5M dilutive and €1.5M non-dilutive), **bYoRNA plans to raise €7–10M in 2026**.



*: €1.1M already raised in S1 2025

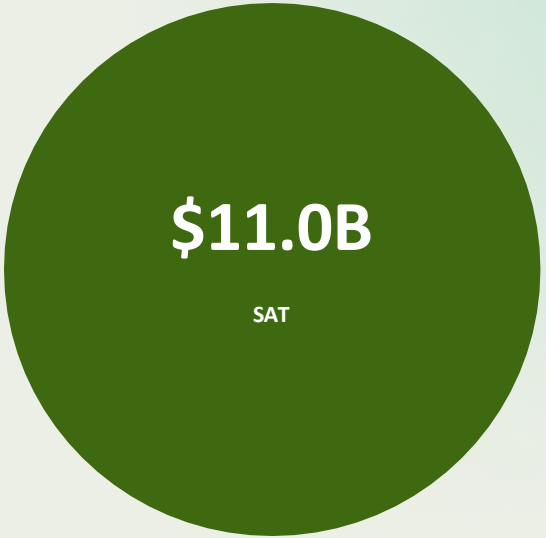
The fast-growing market of mRNA production

bYoRNA

(source: Trilink /Maravai, leading player in mRNA production)

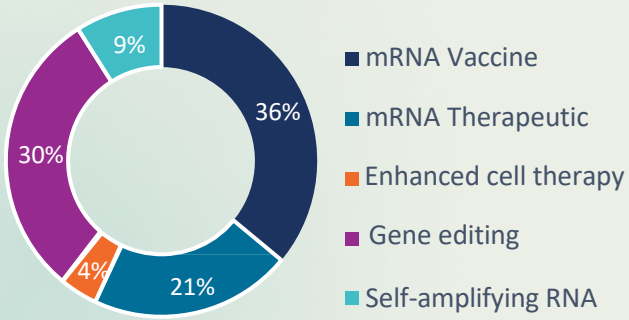
2023

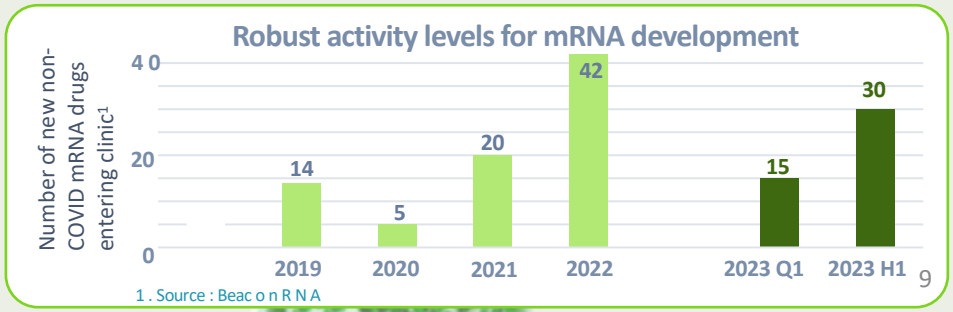
14.0 %
CAGR



2028E

Programs by modalities





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Competition and positioning

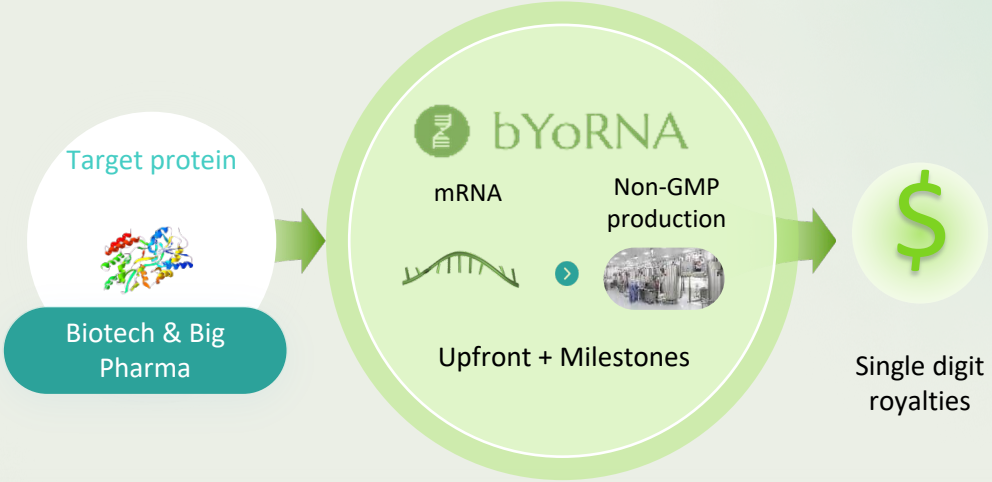
Some competitors use IVT for mRNA production, with all the **technical and economic limitations that this implies**.

Others attempt an *in vivo* approach but are limited by the organisms used as well as the patent exploited by bYoRNA .

	In vitro		In vivo	
	dillico, Quantom Biosciences, NUTCRACHER	tebubio, TriLink BIOTECHNOLOGIES	SENSIBLE BIOTECHNOLOGIES	bYoRNA
Efficacy	✓	✓	✓	✓
Immunogenicity	✗	✗	✗	✓
Price	✗	✗	✓	✓
Supply chain	✗	✗	✓	✓
Strategy	**automatization**	**enzymes**	**bioinformatics**	**Fermentation and bioinformatics**

Business model (pre-clinical->market)

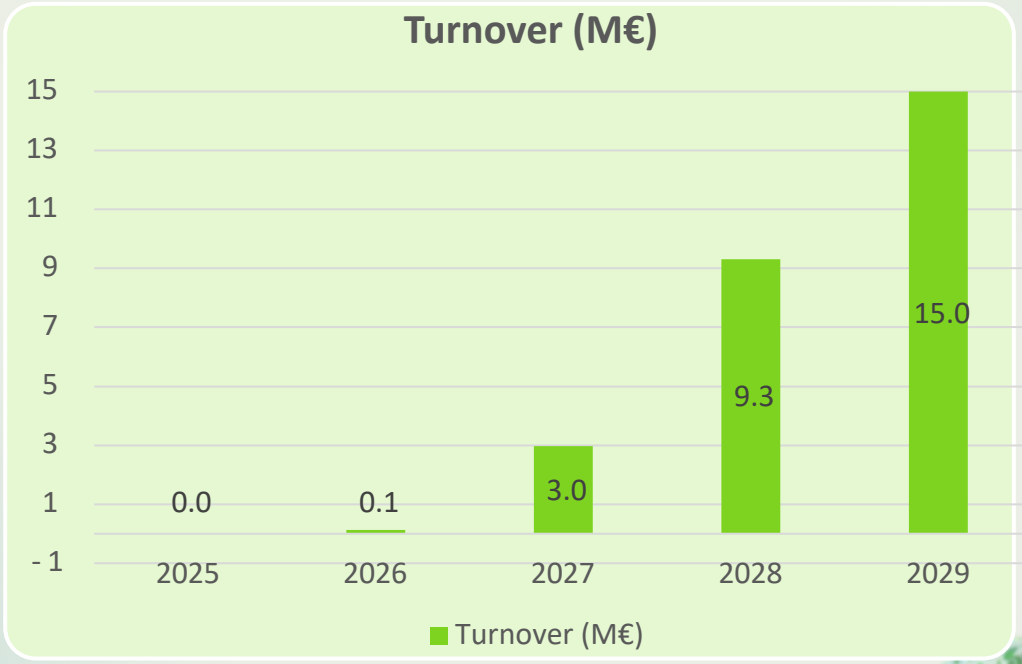
We have already signed a first contract with a big pharma.



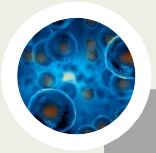
- **Revenues by licencing to biotech and pharma to support the development of their mRNA-based therapeutics**
- **Level of royalties associated to expected improvement in mRNA integrity by bYoRNA's technology**

Revenue forecast

bYoRNA technology is raising significant interest from various players (biotech to pharma) and we have **already signed contracts with several potential customers** .



Exit strategy: IPO or buyout



Listed companies

3 RNA firms worth

>$10 Bn



Buyouts

4 buyouts in S1 25

>$1 Bn

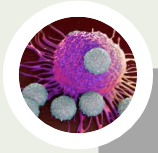
H1 2025: a record semester for RNA



License agreements

5 License Agreements

>$1Bn



Fundraising

6 Fundraising

> $50M

bYoRNA is closing a 3M€ seed

(out of which 2.2M€ is secured from current investors)

Targeted Milestones

- First €1M in revenues
- Sign licensing contract (total €10M opportunity)
- Reach GMP-grade RNA quality
- Secure €5M+ of public subsidies
  - €0.9M French BPI 0% loan
  - €2.1M French tender ("Innovation in bioproduction ")
  - €2.5M European EIC Transition grant

Use of funds

- Develop non-GMP sales pipeline
- Scale-up process to pilot
- Expand lab facilities to accomodate customer studies
- Recruit bioinformatic team to utilize proprietary RNA data sets to design optimal RNA drugs

bYoRNA





Pascal Viguié
CEO

pascal@byorna.bio

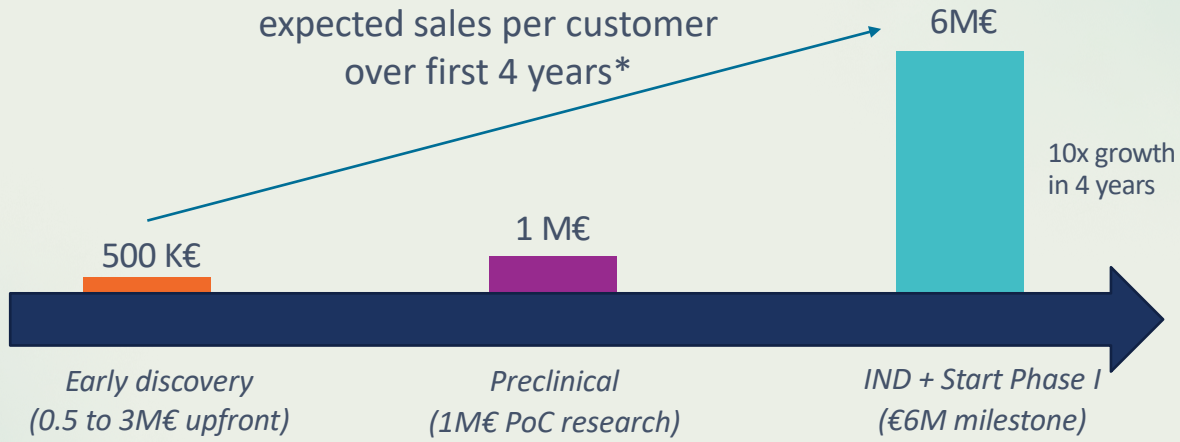


Thierry Ziegler
CTO/COO

thierry@byorna.bio

Business model for our pre-clinical customers

Expected sales to our customers will scale up from Discovery to Clinics



**Figures consistent with historical data from Trilink , the industry leader.*

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