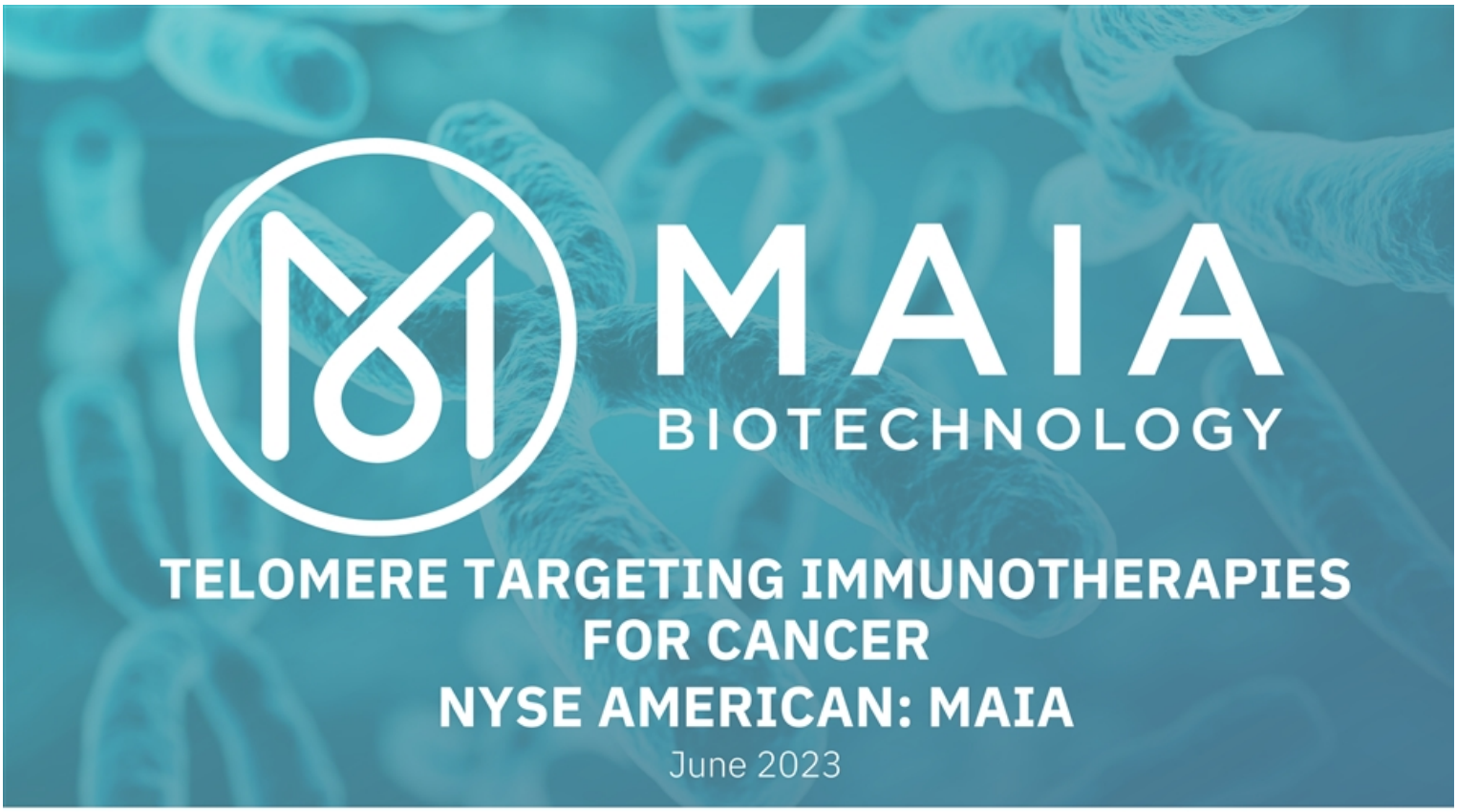
Issuer Free Writing Prospectus
Filed Pursuant to Rule 433
Registration Statement No. 333-272524
Dated June 9, 2023
(To Preliminary Prospectus dated June 8, 2023)

Free Writing Prospectus
MAIA Biotechnology, Inc.

This free writing prospectus relates to the proposed public offering of shares of common stock, par value $0.0001 of MAIA Biotechnology, Inc. (the "Company"), which are being registered on a Registration Statement on Form S-1, as amended (No. 333-272524) (the "Registration Statement"). This free writing prospectus should be read together with the preliminary prospectus dated June 8, 2023 included in that Registration Statement, which can be accessed through the following link:

https://www.sec.gov/ix?doc=/Archives/edgar/data/1878313/000119312523163582/d476138ds1.htm

We have filed the Registration Statement with the Securities and Exchange Commission (the "SEC") for the offering to which this communication relates. Before you invest, you should read the preliminary prospectus in the Registration Statement (including the risk factors described therein) and other documents we have filed with the SEC for more complete information about our Company and this offering. You may access these documents for free by visiting EDGAR on the SEC Web site at http://www.sec.gov. Alternatively, we or any underwriter participating in the offering will arrange to send you the prospectus if you contact ThinkEquity, Prospectus Department, 17 State Street, 41st Floor, New York, New York 10004, telephone: (877) 436-3673 or e-mail: prospectus@think-equity.com.


MAIA
BIOTECHNOLOGY
TELOMERE TARGETING IMMUNOTHERAPIES
FOR CANCER
NYSE AMERICAN: MAIA
June 2023

FREE WRITING PROSPECTUS

This presentation highlights basic information about us and the proposed offering. Because it is a summary, it does not contain all of the information that you should consider before investing. We have filed a registration statement (including a prospectus) with the SEC for the offering to which this presentation relates. The registration statement has not yet become effective. Before you invest, you should read the prospectus in the registration statement (including the risk factors described therein) and other documents we have filed with the SEC for more complete information about us and the offering.

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This presentation shall not constitute an offer to sell, or the solicitation of an offer to buy, nor will there be any sale of these securities in any state or other jurisdiction in which such offer, solicitation or sale would be unlawful prior to the registration or qualification under the securities laws of such state or jurisdiction. The offering will only be made by means of a prospectus pursuant to a registration statement that is filed with the SEC after such registration statement becomes effective.

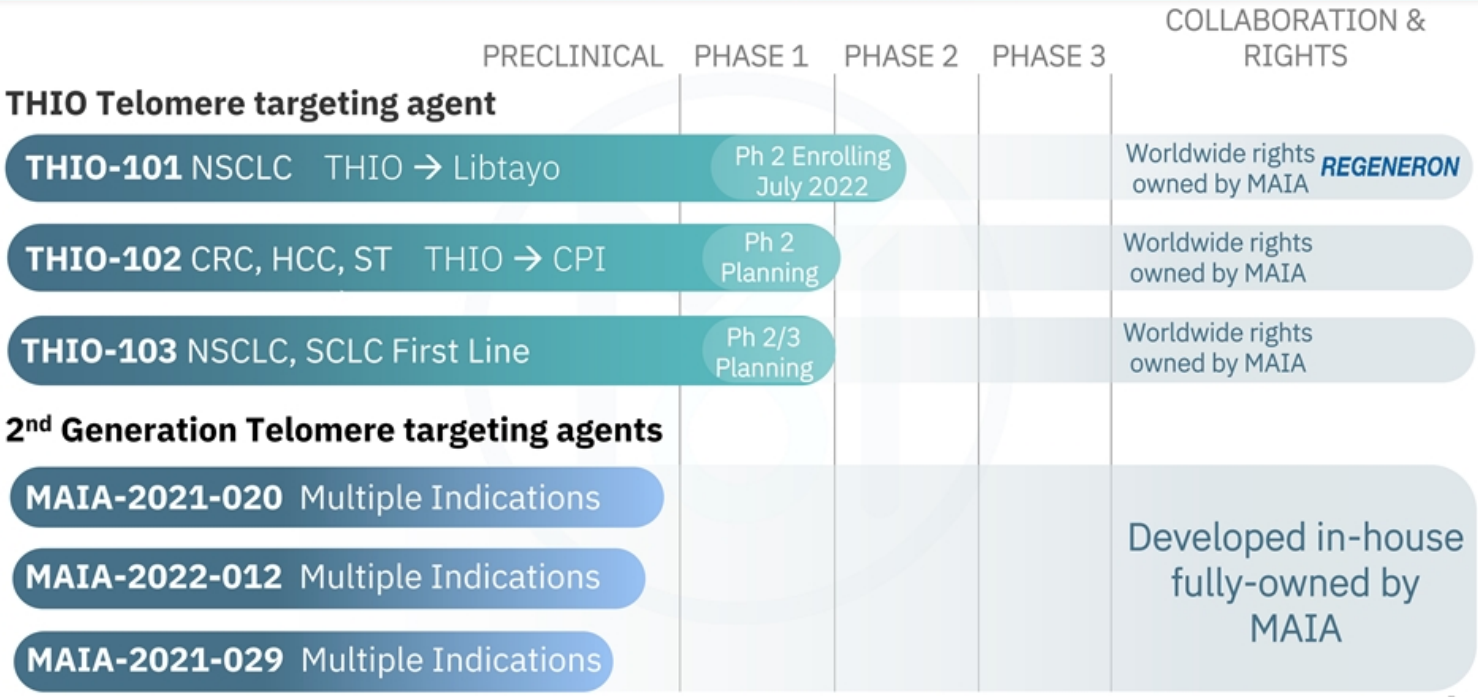
FORWARD-LOOKING STATEMENTS

All statements in this presentation, other than those relating to historical facts, are "forward-looking statements." These forward-looking statements may include, but are not limited to, statements relating to our objectives, plans, and strategies; statements that contain projections of results of operations or of financial condition; statements relating to the industry and government policies and regulations relating to our industry; and all statements (other than statements of historical facts) that address activities, events, or developments that we intend, expect, project, believe, or anticipate will or may occur in the future. Forward-looking statements are not guarantees of future performance and are subject to risks and uncertainties. We have based these forward-looking statements on assumptions and assessments made by our management in light of their experience and their perception of historical trends, current conditions, expected future developments, and other factors they believe to be appropriate. Important factors that could cause actual results, developments, and business decisions to differ materially from those anticipated in these forward-looking statements include, among other things: the overall global economic environment; general market, political, and economic conditions in the countries in which we operate: projected capital expenditures and liquidity; changes in our strategy; government regulations and approvals; the application of certain service license; and litigation and regulatory proceedings. The Company has filed a registration statement on Form S-1, as may be amended (Registration No.: 333-272524). Before you invest, you should carefully read the registration statement, including the factors described in the "RISK FACTORS" section of the Registration Statement and other documents that we have filed, and will subsequently file, with the Securities and Exchange Commission to better understand the risks and uncertainties inherent in our business and industry and for more complete information about us and the offering. You may get these documents for free by visiting EDGAR on the Commission's website at www.sec.gov. We caution you that forward-looking statements are not guarantees of future performance and that our actual results of operations, financial condition and liquidity, and the development of the industry in which we operate may differ materially from the forward-looking statements contained in this presentation as a result of, among other factors, the factors referenced in the "Risk Factors" section of the Registration Statement. In addition, even if our results of operations, financial condition and liquidity, and the development of the industry in which we operate are consistent with the forward-looking statements contained in this presentation, they may not be predictive of results or developments in future periods. This presentation shall not constitute an offer to sell or the solicitation of an offer to sell or the solicitation of an offer to buy any of our securities nor shall there be any sale of securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such jurisdiction. Any offering of securities can only be made in compliance with applicable securities laws. You should read carefully the factors described in the "Risk Factors" section of the Registration Statement to better understand the risks and uncertainties inherent in our business and underlying any forward-looking statements. These statements are only current predictions and are subject to known and unknown risks, uncertainties, and other factors that may cause our or our industry's actual results, levels of activity, performance, or achievements to be materially different from those anticipated by the forward-looking statements. You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance, or achievements. Except as required by law, we are under no duty to update or revise any of the forward-looking statements, whether as a result of new information, future events or otherwise, after the date of this prospectus. These forward-looking statements speak only as of the date of this presentation, and we assume no obligation to update or revise these forward-looking statements for any reason.

INVESTMENT OVERVIEW

- Telomere-Targeting Agents:
  - THIO in clinic
  - Advancing pipeline
- Efficacy
- Safety
- FDA: 2 Orphan Drug Designations (HCC and SCLC)
- REGN: Clinical Supply Agreement
- Phase 2 Go-to-Market Accelerated Approval THIO-101 trial in NSCLC underway
  - Enrolling in AUS and EU
  - On track to open sites in US in 2023
  - Upcoming Milestones: Safety, ORR, DoR
- Phase 2 Go-to-Market Accelerated Approval THIO-102 basket/umbrella trial in 2023
- Phase 2/3 Confirmatory/Expansion THIO-103 basket trial in 2023

ROBUST PIPELINE



SCIENCE OVERVIEW

THIO (6-thio-dG)

Telomere Targeting Agent

- Small molecule (penetrates blood-brain barrier)
- Eligible for NCE marketing exclusivity
- Dual MoA: telomere targeting + immunogenic
- Complete Response with No Recurrence in vivo in Lung, Colorectal, Liver, Melanoma, Brain Cancer (GBM, DIPG, MB), etc
- FDA Orphan Drug Designations: HCC and SCLC

Next Generation

Telomere Targeting Candidates

- Similar MoA
- Structures: evolution of THIO; other new structures
- Objective: advance to pre-IND development one agent every 12 months

MISSION AND APPROACH

Population aged >80 expected to triple by 2050

142 million

2020

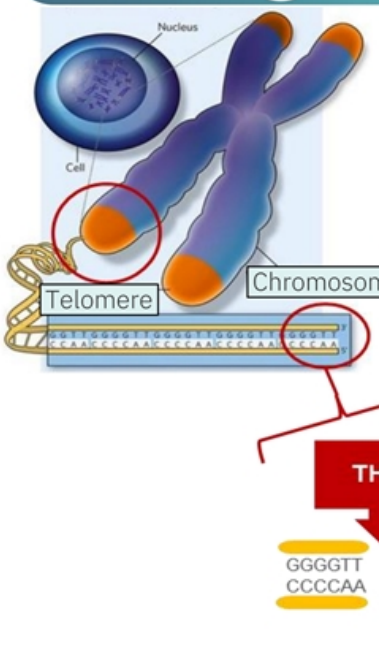
426 million

2050


MAIA
BIOTECHNOLOGY
THIO is the only direct telomere targeting agent currently in clinical development
9

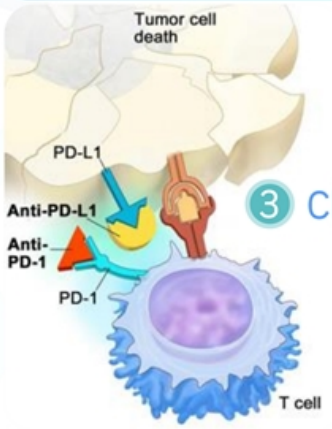
THIO - MECHANISMS OF ACTION

THIO → CPIs



THIO has a dual MoA:

1. Telomere targeting
2. Immunogenic effect
3. Checkpoint Inhibitors



LIBTAYO® (cemiplimab) | KEYTRUDA® (pembrolizumab) | TECENTRIQ® (atezolizumab) | OPDIVO® (nivolumab) | IMFINZI® (durvalumab)

REGENERON | MERCK | Genentech | Bristol Myers Squibb | AstraZeneca

★ Partnership with REGN for NSCLC

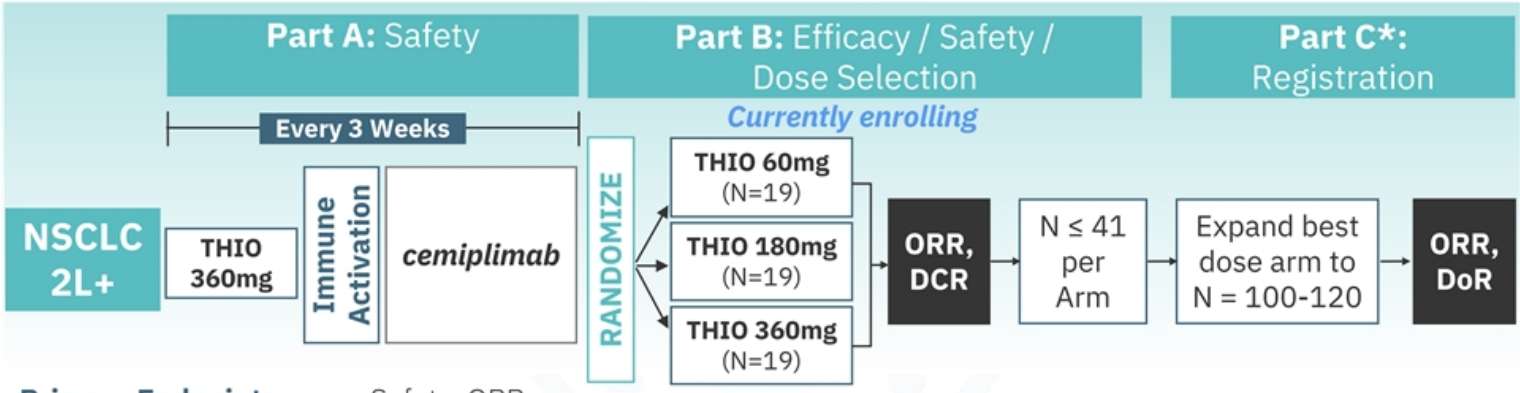
REGENERON AGREEMENT

MAIA & REGENERON

MAIA Biotechnology, Inc. Announces Clinical Supply Agreement with Regeneron for Phase 1/2 Clinical Trial Evaluating THIO in Sequential Administration with Libtayo® (cemiplimab) in Advanced Non-Small Cell Lung Cancer

THIO-101 TRIAL (ONGOING)

A Multicenter, Open-Label, Dose-Finding Phase 2 Trial Evaluating the Safety and Efficacy of THIO Administered in Sequence with LIBTAYO® (*cemiplimab*)



Primary Endpoints	Safety, ORR
Secondary Endpoints	DCR (CR, PR and SD); DoR; PFS; OS
Exploratory Endpoints	PK and PD (activity of THIO in circulating tumor cells measured by specific biomarkers)

ClinicalTrials.gov: https://clinicaltrials.gov/ct2/show/NCT05208944?term=05208944&draw=2&rank=1 *Would require FDA agreement

FAVORABLE SAFETY PROFILE

- Safety events reported during dose-limiting toxicity window
- 360 mg/cycle – THIO highest dose
- Data from 6 patients who completed the dose-limiting toxicity (DLT) period in Cycle 1 (3 weeks)
- No Serious Adverse Events (SAE) or Serious Unexpected Suspected Adverse Reactions (SUSAR)
- Safety profile substantially better than current standard of care
- Chemotherapy has 70-80% incidence of grade 3-4 very severe side effects
- Started Part B (efficacy/dose selection) of the trial upon recommendation by the Safety Review Committee

FAVORABLE SAFETY PROFILE

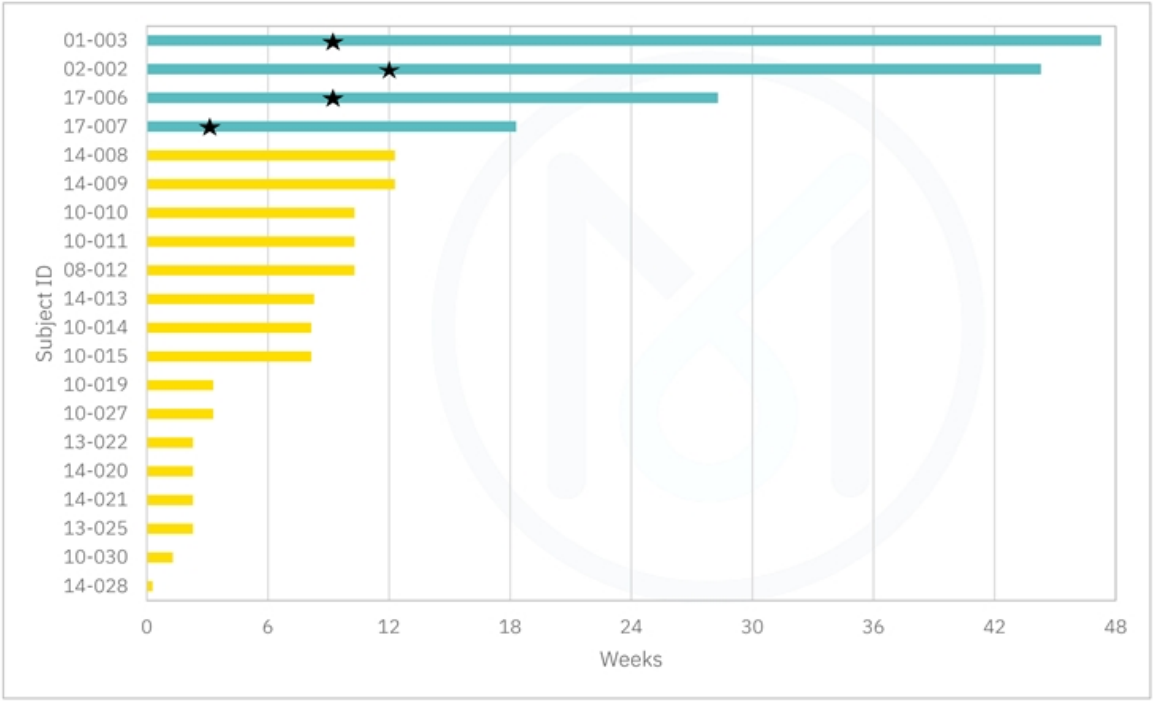
Adverse events (AE) reported – DLT window (3 weeks)	Grade
Fatigue	1
Decreased appetite	1
Blood pressure fluctuation	1
Dyspnea	1
Nausea	1
Interleukin-6 (IL-6) level increased*	1
Rash erythematous	1
Constipation	1
Myalgia	1
Vomiting	2
Nausea**	3

*T-cell activation
**Resolved within 72 hours with treatment

PRELIMINARY SURVIVAL DATA

- The first 2 patients enrolled in Part A of the study continue to be alive, approximately 11 and 10 months respectively, from treatment initiation
- Both patients have advanced Stage IV metastatic disease and are heavily pretreated, receiving third and fourth line of therapy respectively after previously failing treatment with an immune checkpoint inhibitor
- They continue to be progression free following their last dose, 8 and 7 months respectively, with no new treatment
- In real-world clinical practice, observed survival in such heavily pretreated patients is 3-4 months with treatment; weeks without new treatment

PRELIMINARY SURVIVAL DATA



*Cut off date of 30May2023 for subjects on treatment and in follow up

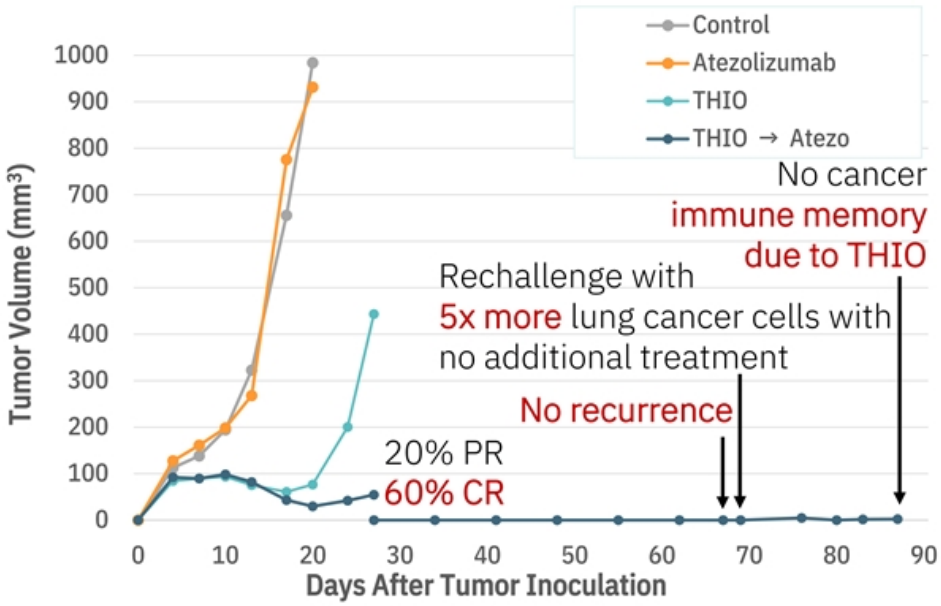
= On treatment

= In Follow Up

= Date of last dose if off treatment

THIO-101 – RATIONALE

- THIO followed by CPI results in 60% complete response
- No recurrence after long-term follow-up
- Anticancer immune memory has been induced: no cancer after rechallenge with 5x more lung cancer (LLC) cells with no additional therapy



Mender et al, Cancer Cell, 2020; THIO followed by Tecentriq (atezolizumab; Roche/Genentech) tested first; repeated later with THIO followed by Keytruda (pembrolizumab; Merck); and Libtayo (cemiplimab; Regeneron)

THIO-101 – NON-SMALL CELL LUNG CANCER

MAIA BIOTECHNOLOGY

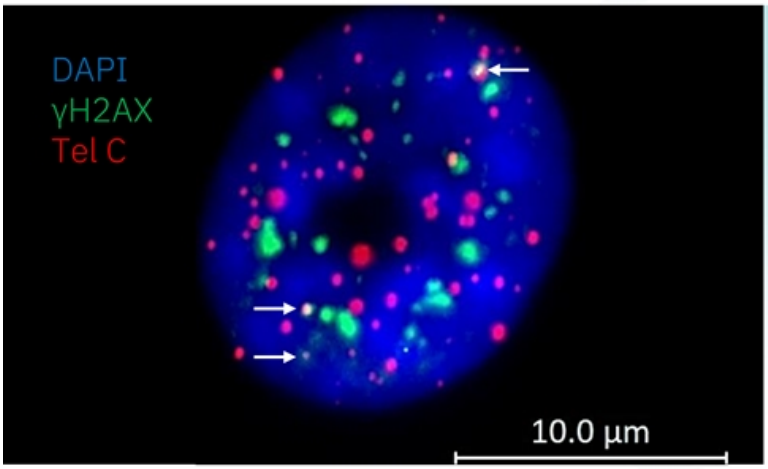
- Target: 20% improvement on Standard of Care (SOC)

Catalyst	Timing	Current SoC (Chemo)
Toxicity	Q1 2023	72-79% Grd 3-4
ORR (Overall Response Rates)	2023	11-23%
CR (Complete Response)	2023	0%
DoR (Duration of Response), PFS (Progression Free Survival)	2024	4-4.5m
OS (Overall Survival)	2025	8.1-10.5m

BIOMARKER – TIFS (TELOMERE DYSFUNCTION INDUCED FOCI)

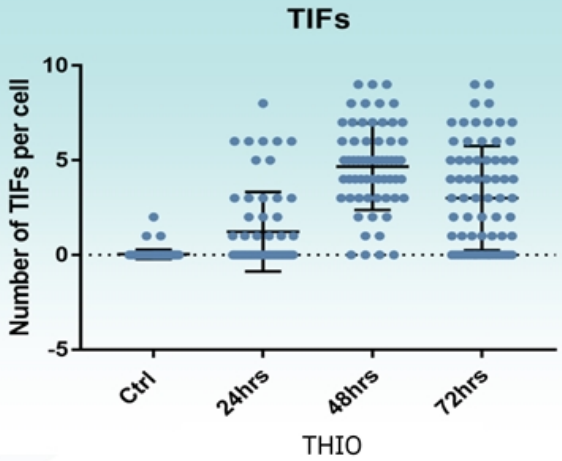
MAIA BIOTECHNOLOGY

Confocal microscopy image of LLC cell nucleus after treatment with THIO



- **Yellow** dots indicated TIFs by THIO
- **Green** dots - γH2AX
- **Red** dots - telomeres

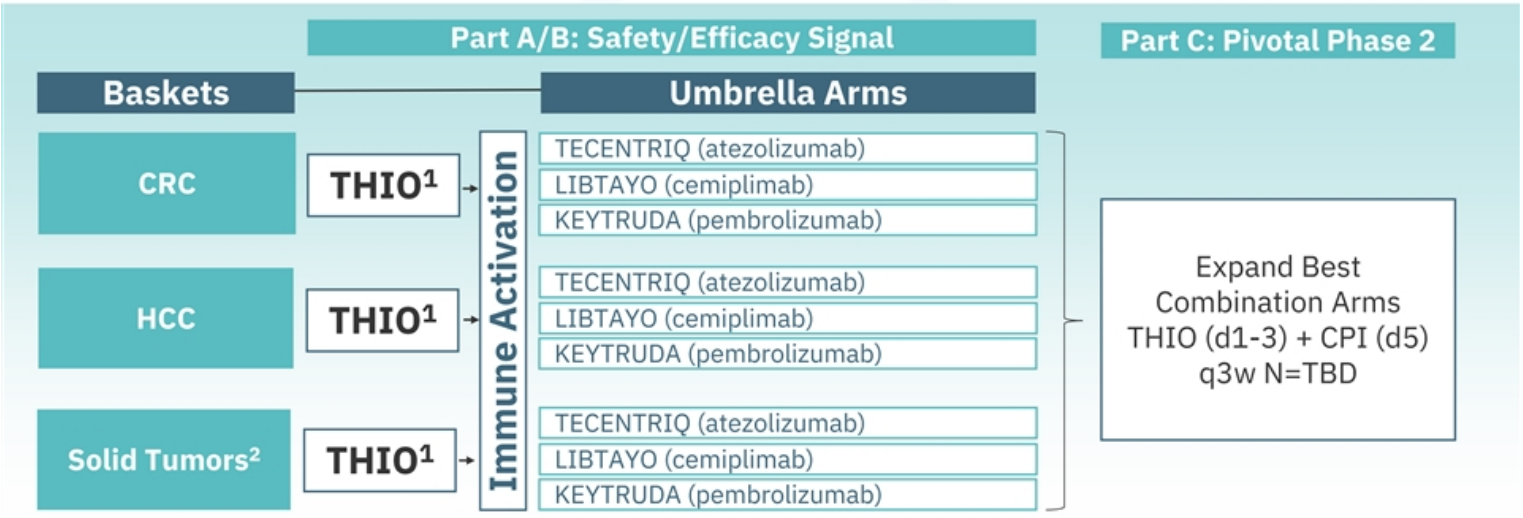
Quantification of TIFs induced in LLC cell by 3 µM of THIO



- TIFs induction reached max after ~ 48h
- Formation of TIFs indicated on-target MOA of THIO

THIO-102 TRIAL (PLANNED)

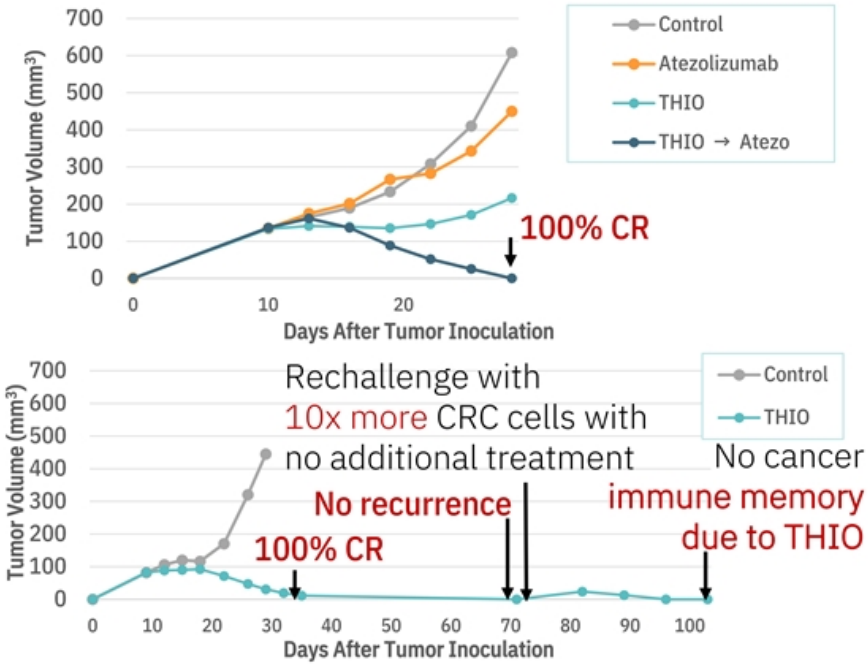
A Multicenter, Open-label, Phase 2 Trial Evaluating the Safety and Efficacy of THIO Administered in Sequence with Anti-PD-1 or Anti-PD-L1



[1] Dose to be selected from THIO-101 study results
[2] E.g. Breast, Prostate, Gastric, Pancreatic, Ovarian, etc

THIO-102 TRIAL – COLORECTAL RATIONALE

- THIO followed by CPI results in 100% complete response
- No recurrence after long-term follow-up
- Anticancer immune memory has been induced: no cancer after rechallenge with 10x more CRC cells with no additional therapy



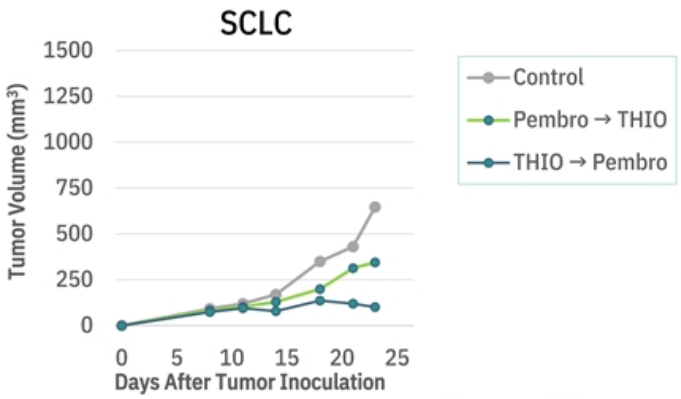
Mender et al, Cancer Cell, 2020

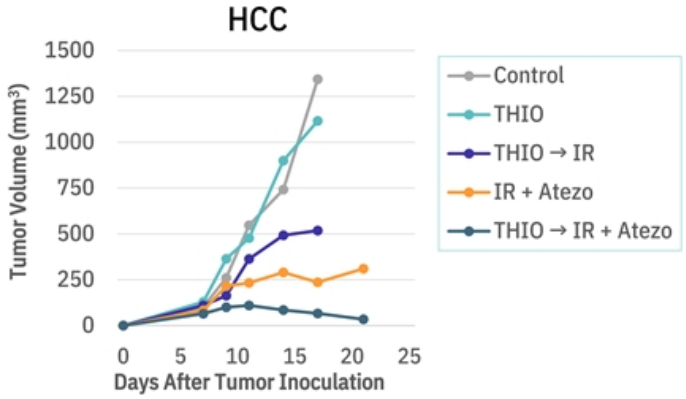
THIO-102 TRIAL - COLORECTAL

- Target: 20% improvement on Standard of Care (SOC)

Catalyst	Timing	Current SoC (Chemo)
Toxicity	2024	50-60% Grd ≥ 3
ORR	2024	1-1.6%
DoR, PFS	2025	1.9-2.0m
OS	2026	6.4-7.2m

SCLC & HCC – ORPHAN DRUG DESIGNATION



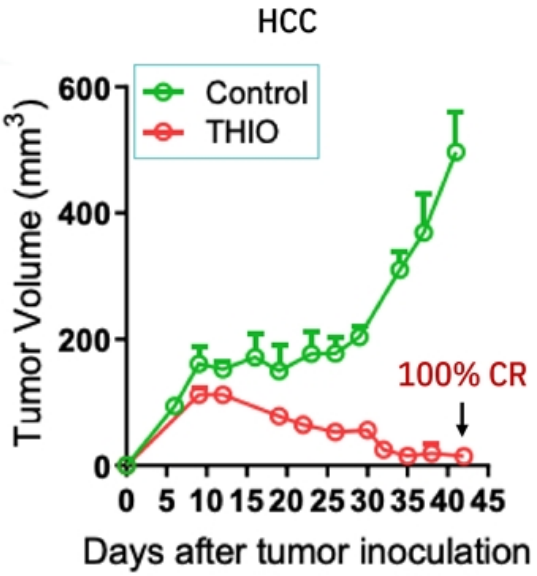


- THIO is synergistic with anti-PD-1 agent Pembrolizumab in Small Cell Lung Carcinoma (H2081) *in vivo* in humanized murine cancer model.
- Treatment with THIO followed by Pembrolizumab results in highly potent anticancer effect, as compared to Pembrolizumab alone.
- THIO converts immunologically "cold non-responsive" SCLC tumor into "hot and responsive" to Pembrolizumab.

- THIO is highly synergistic and effective in combination with anti-PD-L1 agent Atezolizumab and Ionizing Radiation (IR 10Gy) in HCC53N Hepatocellular Carcinoma.
- Treatment with THIO in combination with IR and Atezolizumab results in a complete regression of aggressive HCC tumors. The combination of IR and Atezolizumab is just partially efficacious.

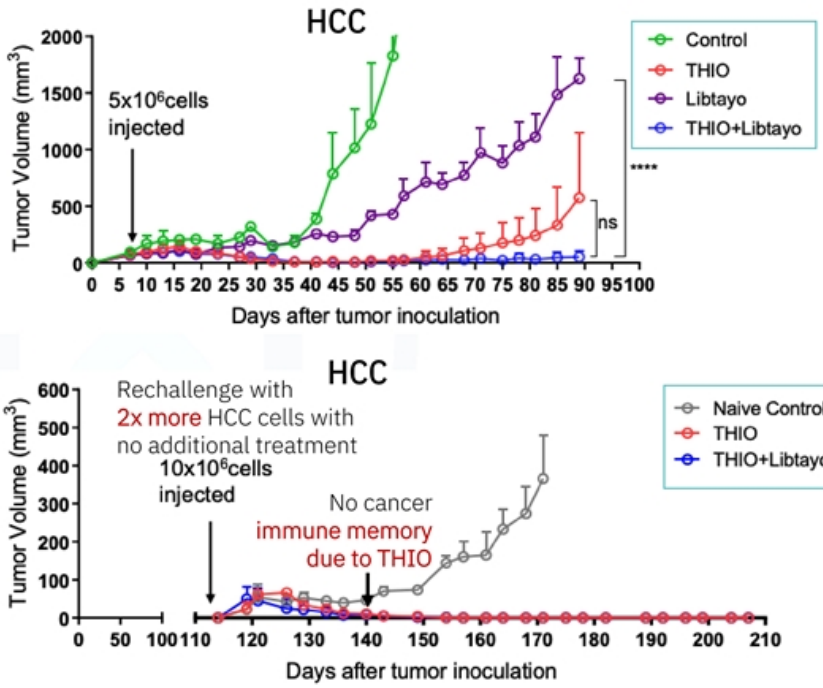
EXCELLENT EFFICACY IN HCC MODELS

- THIO achieved complete and durable responses in Hepatocellular Carcinoma (HCC), the dominant histology in primary liver cancer (90%), in *in vivo* models



HCC ANTI-CANCER IMMUNE MEMORY

- When combined with immunotherapy checkpoint inhibitor Libtayo®, duration of response was further potentiated
- Upon rechallenge with two times more cancer cells and no additional treatment, tumor growth was completely prevented
- Administration of THIO alone and in combination with Libtayo® generated anti-cancer immune memory



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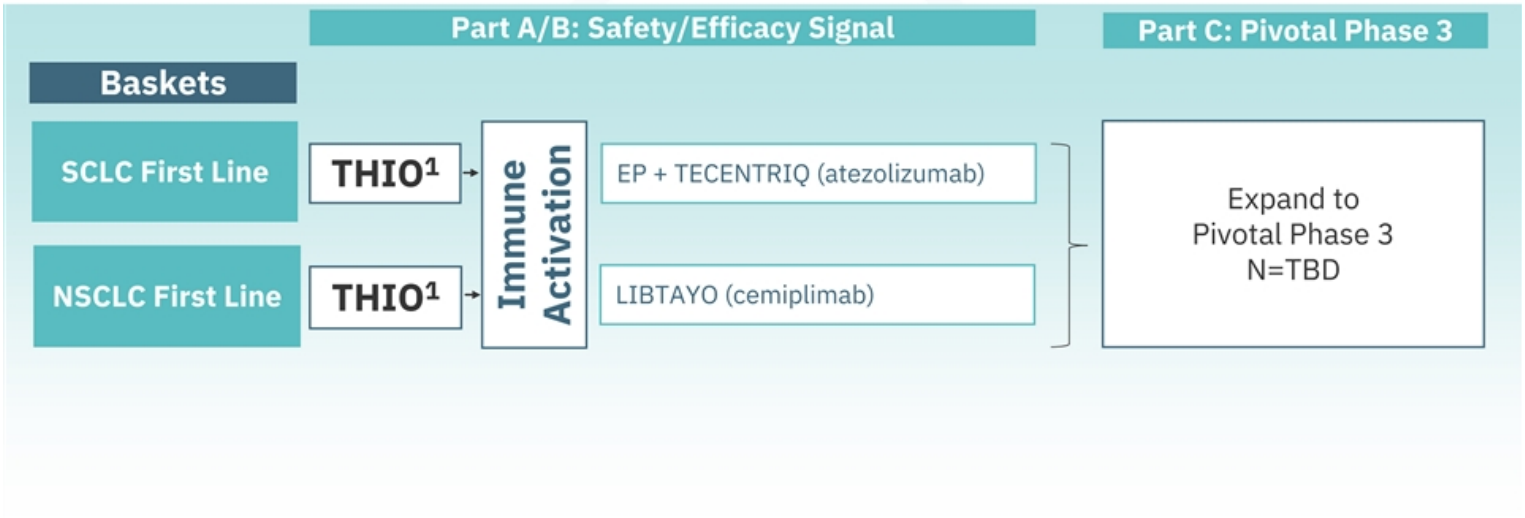


[1] Dose to be selected from THIO-101 study results

EXCLUSIVITY AND INTELLECTUAL PROPERTY

Goal: **New Chemical Entity (NCE) Marketing Exclusivity**

- THIO has never been previously approved by the FDA for commercialization
- Robust exclusivity
- US: 7 years; EU, Japan, other markets: 10 years

Robust and Growing Patent Portfolio for THIO

- 1 issued US patent
- 4 issued foreign patents
- 5 pending US patent applications
- 7 pending foreign patent applications

Current patents/provisional applications broadly cover the following key areas:

- Telomere targeting compounds (2034+)
- THIO's immunogenic treatment strategy: sequential combination with CPIs (2041)

EXPERIENCED MANAGEMENT TEAM

MAIA BIOTECHNOLOGY

Vlad Vitoc, MD, MBA

Founder, Chairman, and Chief Executive Officer

- 22+ years in Oncology Pharma/ Biotech: Commercial, Medical
- 12 compounds launched across 20+ tumor types
- Leadership roles at Bayer (Nexavar), Astellas (Tarceva, Xtandi), Cephalon (Treanda), Novartis (Zometa), and Incyte (Jakafi)

Mihail Obrocea, MD

Chief Medical Officer

- Hematologist/Oncologist executive
- 21+ years of drug development experience: cell therapy, active immunotherapy and cancer vaccines, antibodies, antibody drug conjugates (ADCs), small molecules

Sergei Gryaznov, PhD

Chief Scientific Officer

- 25+ years as Scientist
- Expert Drug Discovery and Development, Oncology with 120+ publications
- Head of the J&J Oligonucleotide Center of Excellence Worldwide
- Expert of telomeres and telomerase in cancer, co-inventor of THIO

Joe McGuire

Chief Financial Officer

- 30+ years of financial expertise
- CFO for privately held and publicly traded companies in the healthcare and other industries

NOVARTIS astellas Pfizer BAYER janssen Incyte MedImmune

pharmacyclics JUNO THERAPEUTICS Cephalon Oncology geron PHARMACIA exicure

CAPITALIZATION TABLE & CASH BALANCE

Capitalization Table *(as of 6/7/2023)*

Common stock	13,625,925
Options (WAEP: $2.67)[1]	7,741,123
Warrants (WAEP: $5.59)	924,760
Fully Diluted Shares Outstanding	22,291,810

Cash Balance of $9.57[2] million
(as of 6/7/2023)

[1] 5,136,153 options held by directors and officers
[2] Includes the net proceeds from a public offering of common stock in April 2023

Note: Directors and officers, and their affiliates, own 39.1% of the 22,291,810 fully diluted shares outstanding

INVESTMENT OPPORTUNITY

SIGNIFICANT MARKET OPPORTUNITY

MAIA BIOTECHNOLOGY

Developing agents for the top tumor types markets globally

NSCLC #1 WW
Mortality: 1.7M
Sales: $ 34B

CRC #2 WW
Mortality: 1.0M
Sales: $ 20B

$42B CPIs Group

- 5 CPIs approved for NSCLC sold $12B
- >30% of NSCLC drug sales
- >40% of total CPI sales
- Keytruda®: $7.5B in NSCLC of $21B total

Partnership with Regeneron (Libtayo®)

- Profile similar to Keytruda®
- Libtayo® is entrant #5 in CPIs
- Needs superior efficacy to Keytruda®
- Sequential combination with THIO is key

Checkpoint Inhibitors

Keytruda® (pembrolizumab)	Opdivo® (nivolumab)	Tecentriq® (atezolizumab)	Imfinzi® (durvalumab)	Libtayo® (cemiplimab)
MERCK	Bristol Myers Squibb	Genentech A Member of the Roche Group	AstraZeneca	REGENERON

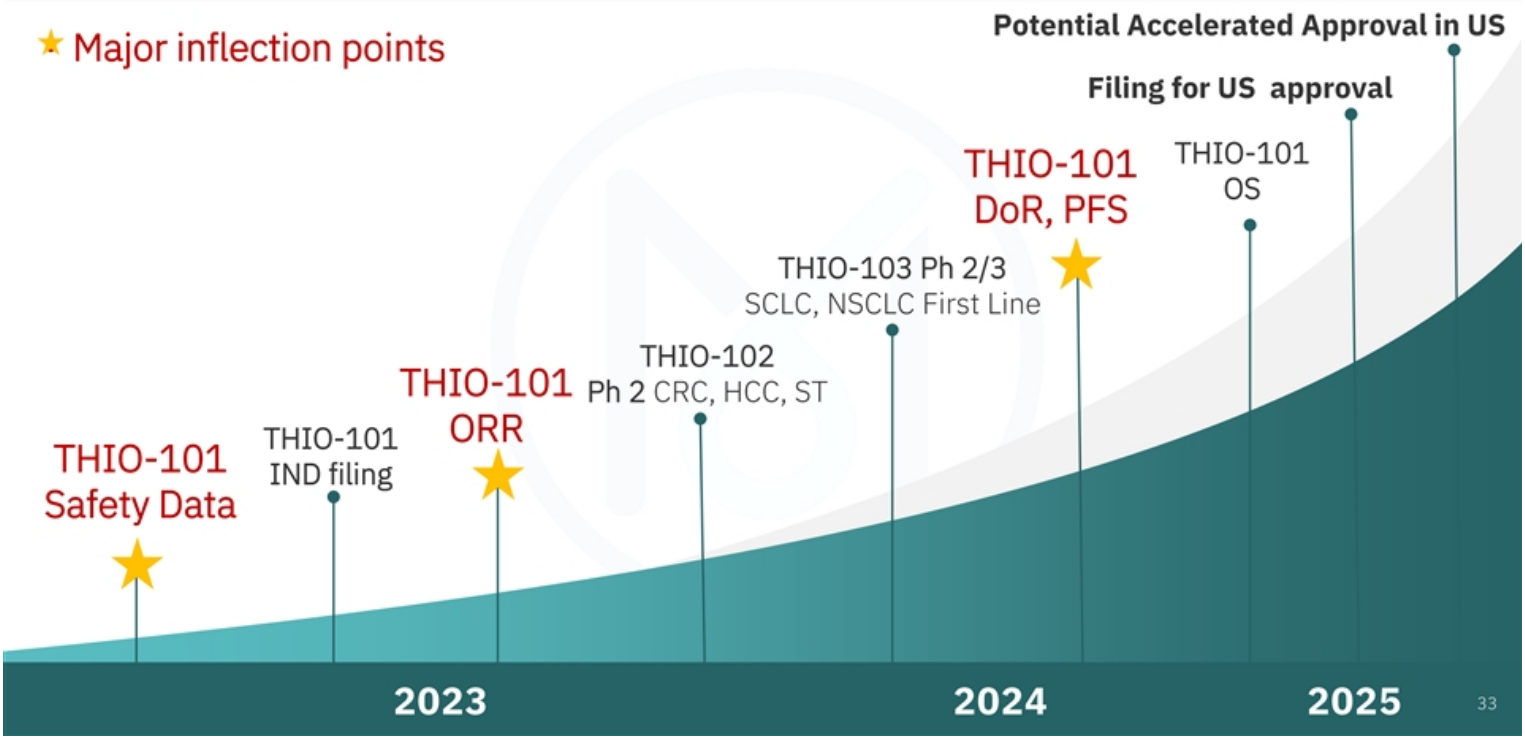
COMPARABLE COMPANIES

MAIA BIOTECHNOLOGY	MIRATI THERAPEUTICS	zentalis	IOVANCE BIOTHERAPEUTICS	KURA ONCOLOGY	Turning Point Therapeutics
$34M	$2.4B	$1.5B	$1.8B	$0.9B	$4.1B

- On June 3, 2022, Bristol Myers Squibb announced the acquisition of Turning Point Therapeutics in an all-cash transaction for $4.1B in equity value.

Market Caps as of June 6, 2023 (source: S&P CapitalIQ)

MULTIPLE VALUE-DRIVING MILESTONES



MAIA BIOTECHNOLOGY LISTED

NYSE:
MAIA
July 28, 2022