Clinical Stage Platform Delivery Company

Overcoming Intractable Problems in Oncology and Beyond

TRANSCODE THERAPEUTICS™

NASDAQ Symbol: RNAZ

Forward Looking Statements

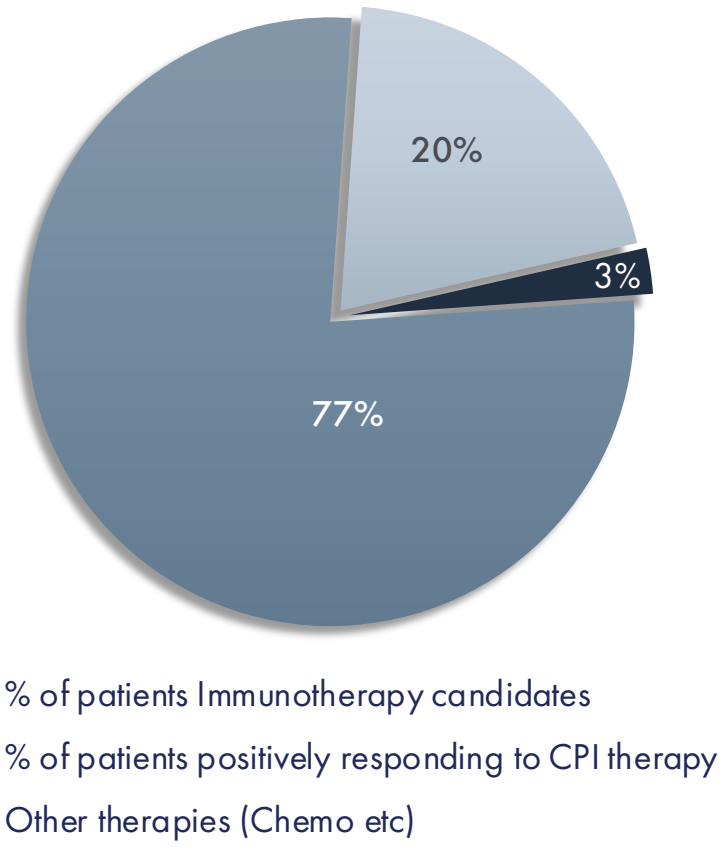
Statements in this presentation contain "forward-looking statements" that are subject to substantial risks and uncertainties. Forward-looking statements contained in this presentation may be identified by the use of words such as "anticipate," "expect," "believe," "will," "may," "should," "estimate," "project," "outlook," "forecast" or other similar words, and include, without limitation, statements regarding TransCode Therapeutics, Inc.'s expectations regarding projected timelines of clinical trials, and expectations regarding current or future clinical trials. Forward-looking statements are based on TransCode Therapeutics, Inc.'s current expectations and are subject to inherent uncertainties, risks and assumptions that are difficult to predict. Further, certain forward-looking statements are based on assumptions as to future events that may not prove to be accurate, including that clinical trials may be delayed; that the data reported may be interim data, conclusions as to which may be superseded by subsequent data we receive in connection with other and/or subsequent clinical trials; and that any anticipated meeting with or presentation to the FDA may be delayed. These and other risks and uncertainties are described more fully in the section titled "Risk Factors" in TransCode Therapeutics, Inc.'s Prospectus and other reports filed with the U.S. Securities and Exchange Commission. Forward-looking statements contained in this presentation are made as of this date, and TransCode Therapeutics, Inc. undertakes no duty to update such information except as required under applicable law.

Cancer Market

Critical Need for New Cancer Therapies Especially Targeting Metastasis

- Oncology Market Size to Hit $581.25 Billion (USD) by 2030
- Global new cancer cases are expected to rise by 47% from 2020 to 2040
- Metastasis Reduces 5-year Survival
- 90% of Cancer Deaths Due to Metastasis*
- Our lead therapeutic candidate TTX-MC138 has the potential to treat cancer patients in19 different solid tumor indications
- Checkpoint Inhibitors currently account for most of the cancer treatment revenue (top 5 drugs = $50 B in annual sales) yet only ~ 3% of patients positively responding

18.1Million Cancer Patients
Newly Diagnosed Annually



Metastasis: Cancer that spreads from organ of origin to other places in the body

*Source: 2019 American Cancer Society, Inc., Surveillance Research; International Agency for Research on Cancer in its report named GLOBOCAN 2022: Precedence Research January 2022

TransCode is focused on creating new molecular therapies using its platform delivery system with the goal to achieve long-term survival for cancer patients

Potential to Transform the Way Cancer is Treated

Value Proposition	• Clinical stage company with highly differentiated technology with goal to achieve long-term survival for cancer patients • Proprietary delivery platform designed to overcome the major challenges with therapeutic delivery • Potential for broad applicability across multiple targets and cancer indications • Complete regression of established metastases in preclinical models of breast and pancreatic cancer with lead candidate • Proof of concept demonstrating successful delivery of multiple therapeutic modalities inside tumor cells • Extensive IP portfolio
Major Differentiating Features	Proprietary delivery platform: ✓ Tunable chemistry optimized for functionalization against relevant documented oncology targets ✓ Size and charge optimized for stability, long circulation, and optimal PK and tissue distribution ✓ Favorable safety profile with similar nanoparticles used in cancer imaging and treatment of iron deficiency anemia ✓ Image-capable platform via MRI provides visual confirmation and quantification of delivery ✓ Enables the endosomal/lysosomal escape via the proton sponge effect for cytosolic delivery ✓ Superior stability, amendable for lyophilization (most payloads) avoiding cold chain logistics extending shelf life potential
Unmet Need	• 9.9 million people died of cancer in 2020 and over 90% of those cancer deaths are attributable to metastatic disease* • Current treatments serve a mostly palliative role in advanced stages of disease
Market Opportunity	• Metastatic cancer market to reach $111 billion by 2028** • Undervalued therapeutic assets with potential for significant return on investment • Average M&A deal value for Phase I oncology companies: $862 million***

*Source: CA Cancer Journal, Global Cancer Statistics 2020; H. Sung et al, May 2021; **Precedence Research 2022; Source: ***Pitchbook, Torrey Biotech Publication July 2022

Milestone Achievements

TransCode achievement of key milestones since inception

2016

- Company Founded

2017-20

- SAB established
- Execute MGH License
- File new patents
- Expand product line
- Added 2 Independent BOD

2021

- IPO - $25.4M (net)
- Hired Co-Founder as CTO
- Radiolabeled Drug Publication
- Added 1 Independent BOD
- SBIR Grant awarded from NIH
- Hired 7 employees
- New Lab space at MBI

2022

- Alliance member of MD Anderson
- Orphan Drug Designation (ODD) received for siPDL1 in pancreatic cancer
- Pancreatic cancer study published - 40% of animals showed complete regression
- FDA approves FIH clinical trial
- Added 12 employees
- Preclinical studies completed in 3 products

2023

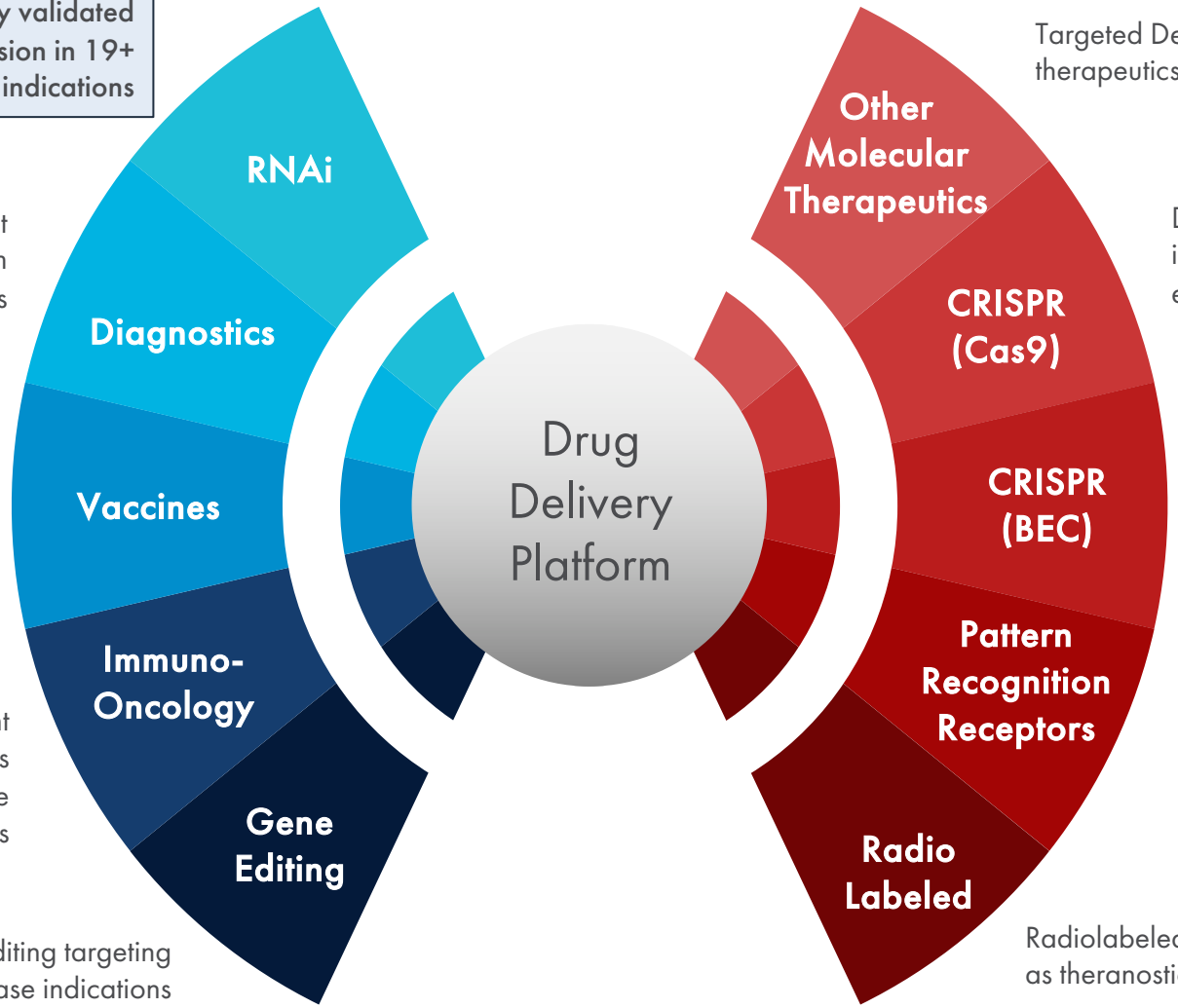
- Scale up of TTX-MC138 Drug Product manufacturing
- Moved to new expanded lab/office space
- ODD received for MC138 in pancreatic cancer
- IRB approval for FIH clinical trial
- Filed patent to expand delivery platform for CRISPR/mRNA and Proteins (nanobodies etc.) to tumors

Expanding Delivery Platform

Advancing First-in-Class Therapeutics

Proprietary Platform with Potential to Deliver a Broad Array of Therapeutics

TTX-MC138 – Lead therapeutic candidate targeting miR-10b, a clinically validated driver of metastatic progression in 19+ tumor indications



A sensor assay to detect microRNA expression in serum to track treatment success

Messenger RNA-based cancer vaccine – capable of expressing oncogenic epitopes

siRNA-based PDL1 checkpoint inhibitor for multiple solid tumors inhibiting expression of PDL1 inside tumor cells and macrophages

Gene editing targeting other disease indications

Targeted Delivery of other molecular therapeutics (Nanobodies, Proteins etc.)

Delivery of CRISPR (Cas9) inside cancer cells for genome-editing in multiple solid tumors

Collaboration with Akribion, (spinout of BRAIN Biotech), for targeted tumor cell ablation

Activating the innate immune system by building an agonist inside the cell stimulating a lasting tumor-specific immune response

Radiolabeled therapeutic candidates to be used as theranostics or radio-immunotherapeutics

Persistent Therapeutic Delivery Challenges:

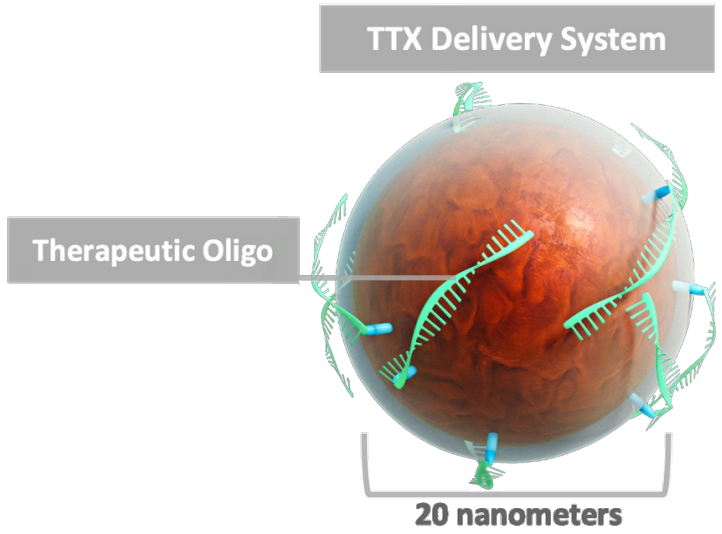
- Delivery of RNA therapeutics to oncology targets
- Precise genome editing using systemically-administered genome editing tools (e.g., CRISPR)
- Delivery of potent and safe mRNA vaccines
- Endosomal escape pathways that enable intracellular delivery of molecular therapeutics

We believe overcoming the challenges of delivery would represent an important step in unlocking therapeutic access to a variety of documented targets involved in a range of cancers and beyond

Our therapeutic delivery strategy employs nanoparticles extensively used in imaging that have been *repurposed* and *optimized* to efficiently deliver payloads to oncology targets

Preclinical evidence TTX has overcome delivery challenges:

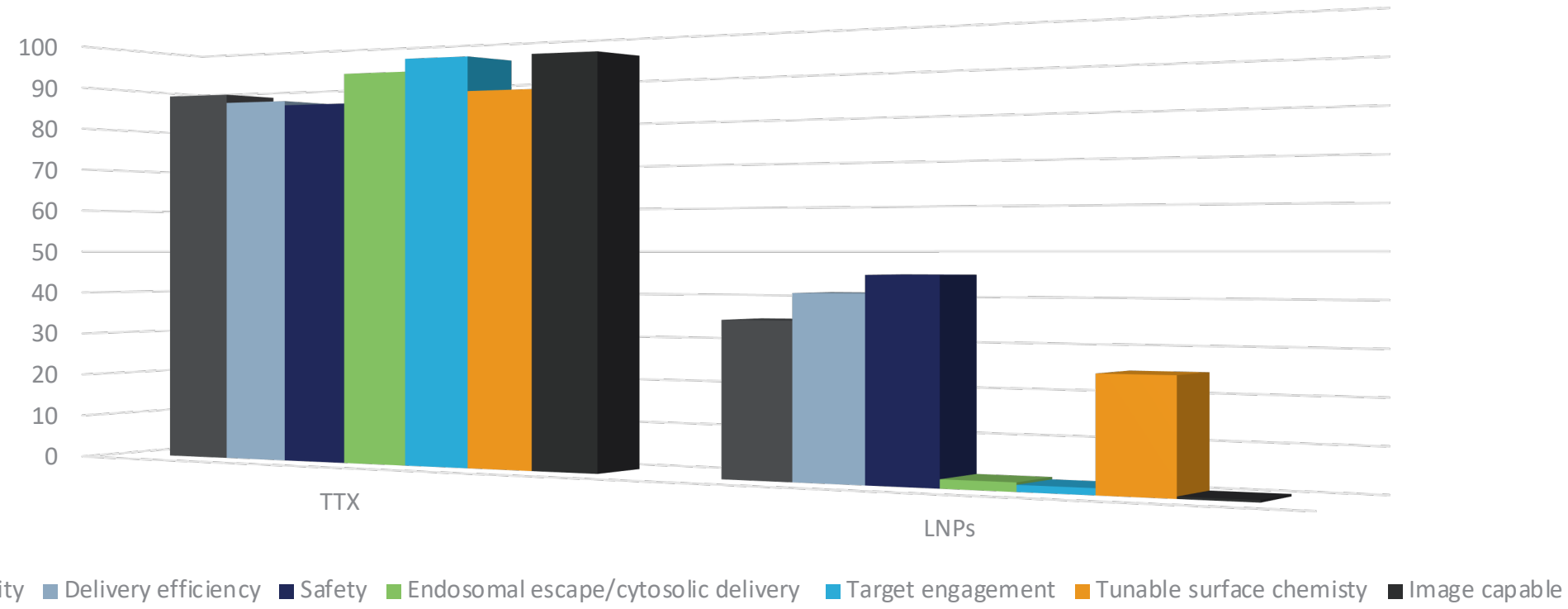
- Superior stability, amenable for lyophilization (most payloads) avoiding cold chain logistics extending shelf life potential
- Enables the endosomal/lysosomal escape via the proton sponge effect for cytosolic delivery
- Unique magnetic property able to confer numerous multimodal therapies/theranostics
- Size & surface chemistry highly tunability - able to access desired tissue target (e.g., TME), enormous flexibility for target delivery
- Simplicity and cost-effective production
- Safety - biodegradability and low immunogenicity
- Readily adaptable for stabilizing various types of payloads (including labile ones)



Yoo B, et al. J Biomed Nanotechnol. 2014;10(6):1114-1122; Yigit MV, et al. Pharm Res. 2012;29(5):1180-1188; Weissleder R, et al. Radiology. 1991;181(1):245-249.

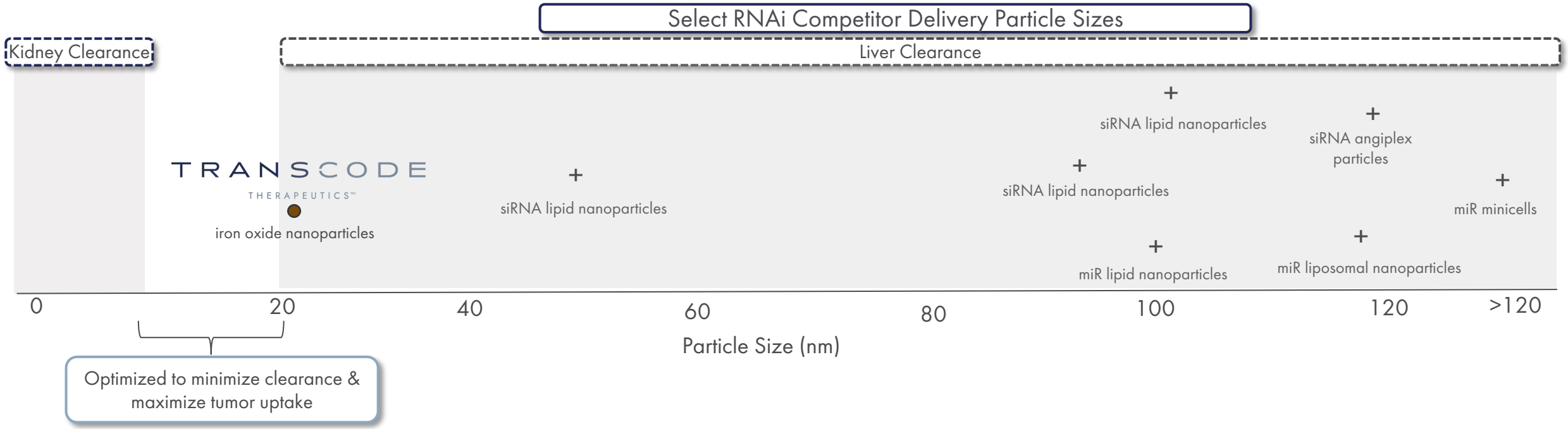
TTX Delivery System Comparison to Lipid Nanoparticles

Relative Comparison of LNP & TTX Delivery Characteristics



LNP = Lipid nanoparticles
TTX = Dextran coated iron-oxide nanoparticles

Unique Particle Size Coupled with Exceptional Safety



Competition & Differentiation Summary

- TTX particle size allows for a long circulation time & efficient accumulation in the tumor while minimizing kidney & liver clearance
- Competitors' lipid nanoparticles carry a risk of immunogenicity that is avoided with TransCode's iron oxide particles
  - Iron oxide nanoparticles verified safe after decades of use as an imaging agent & FDA-approved treatment for iron deficiency anemia
- Dextran coating reduces solution aggregation & improves stability

TransCode's Iron Oxide Nanoparticle Optimized for Delivery to Oncology Targets

Source: J Nano Res 2014, Molecular Therapy-Nucleic Acids 2016, Nature Communications 2018, Molecular Therapy 2018, Int J Pharmaceut 2014, Analytical Chem 2013, Large Molecular Therapeutics 2017, Current Pharma Design 2015, Radiology 2018

Pipeline

Pipeline | # Advancing a Pipeline of First-in-Class RNA Therapeutic Candidates

Drug Candidate	Target	Type	Disease Indication	R&D	Preclinical	IND Enabling	Phase 0	Phase 1	Phase 2	Phase 3
TTX-MC138	miR-10b	RNAi	Metastatic Cancer							
			**Glioblastoma (GBM); ***Pancreatic Cancer							
			**SCLC, & Osteosarcoma							
TTX-siPDL1	PD-L1	RNAi	***Pancreatic Cancer							
TTX-siLin28b*	Lin28b	RNAi	Pancreatic Cancer							
TTX-RIGA	Multiple	RIGI	Cancer Agnostic							
TTX-CRISPR	Multiple	CRISPR (Cas9)	Cancer Agnostic							
TTX-CRISPR	Multiple	CRISPR (BEC)	Cancer Agnostic							
TTX-mRNA	Vaccine	mRNA	Cancer Agnostic							

** Seeking Orphan designation status
***Received Orphan designation status from FDA

Shaded portions indicate for external partner development

* TransCode signed Exclusive Option Agreements with The General Hospital Corporation, d/b/a Massachusetts General Hospital, or MGH, for TTX-siLin28b and ^{64}Cu-TTX-MC138. Under these Options, TransCode has the right to negotiate a license for these candidates with MGH. TransCode's decision will depend on the results of preclinical studies it plans to conduct as shown above.

Lead Candidate - TTX-MC138

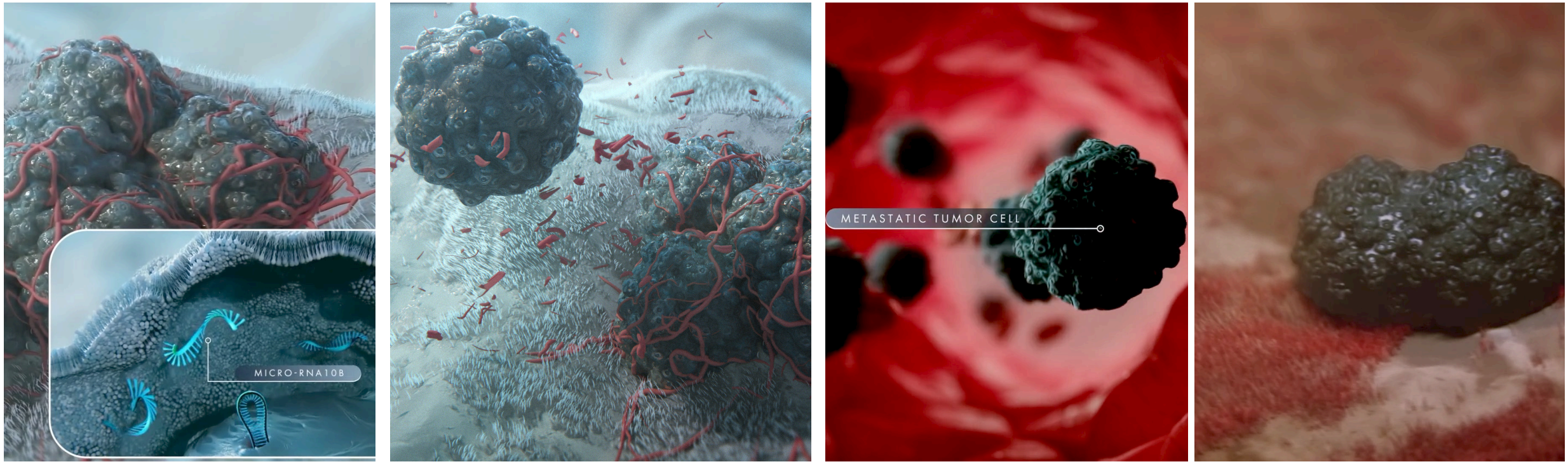
Targeting Mechanisms of Cancer Progression in Multiple Cancer Indications

Validated Biomarker

microRNA-10b is a Unique, Well Documented Biomarker of Metastasis

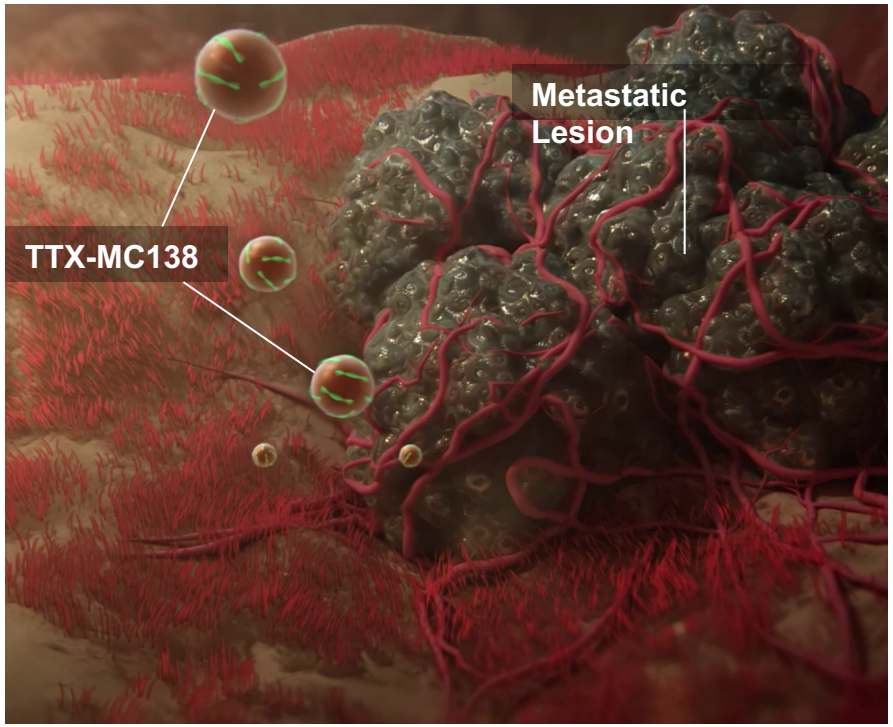
Clinical evidence demonstrated in >700 peer-reviewed publications over the last ten years

- Biomarker of cancer progression, higher cancer risk and poor survival outcomes
- Linked to metastatic progression in multiple cancer indications including Breast, Colorectal, Pancreatic, SCLC, Osteosarcoma, Liver and other rapidly proliferating cancers like GBM etc.



miR-10b upregulation in primary tumor cells leads to metastatic tumor cell formation, detachment from the primary tumor and migration to other areas of the body forming new metastases

MOA | TTX-MC138 - Designed to Inhibit miR-10b and Eliminate Metastasis



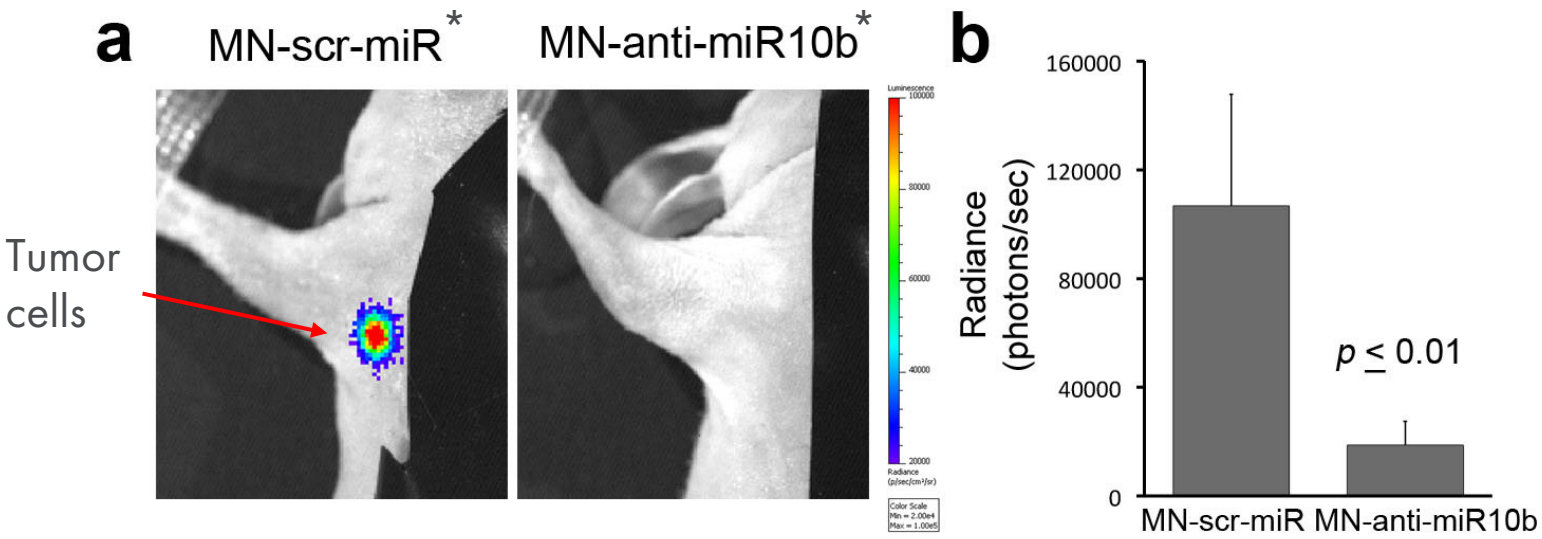
TTX-MC138 delivered to tumor cells in metastatic lesions to engage miR-10b

miR-10b inhibition has been shown to activate miR-10b downstream apoptotic pathway

miR-10b inactivation has been shown to lead to tumor cell death and elimination of existing metastases

Cancer Res 75, 4407-4415 (2015); Sci Rep 7, 45060 (2017)

Prevention of Metastatic Breast Cancer



* MN-anti-miR10b = TTX-MC138
MN-scr-miR = inactive TTX-MC138

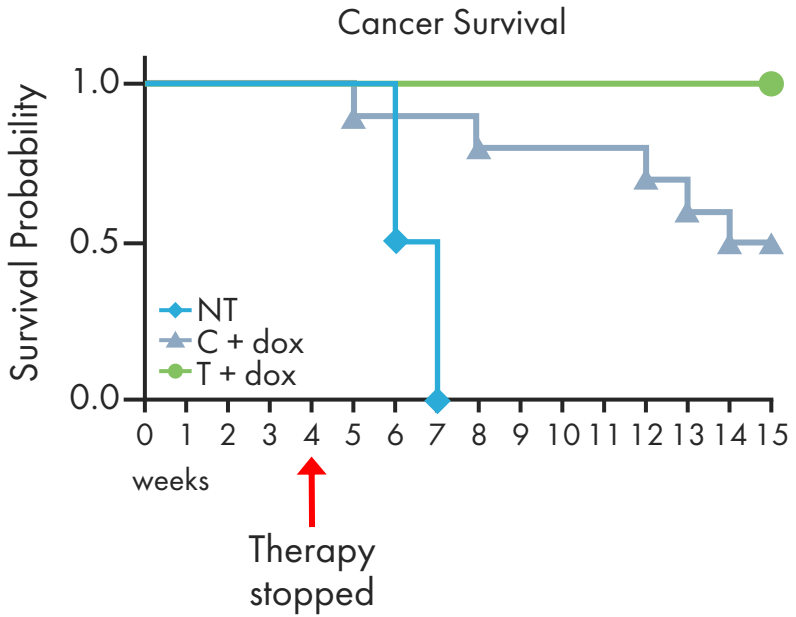
- Human breast cancer cells implanted orthotopically into immunocompromised mice
- Mice were treated with MN-anti-miR10b (TTX-MC138) prior to formation of metastasis
- None of the treated animals formed metastases
- By contrast, control animals treated with an inactive form of TTX-MC138 (MN-scr-miR) formed detectable lymph node metastases within 4 weeks

Source: Oncogene 32:1530. 2013.

Elimination of Existing Metastases in Triple Negative Breast Cancer

Stage II/III Metastatic Burden

Treatment stopped after 4 weekly treatments once there was evidence (via imaging) that metastases were eliminated



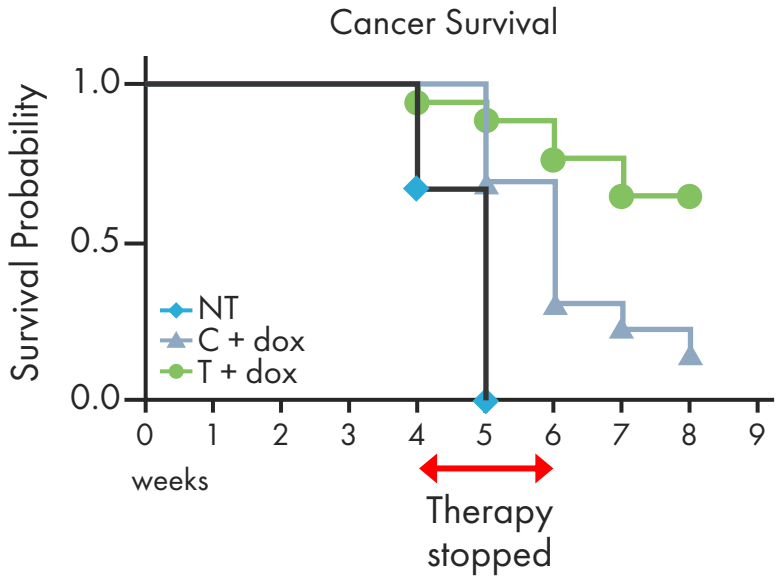
NT: No therapy, C: Control (scrambled oligo), T: TTX-MC138, dox: doxorubicin

Study design: mice (n=35) implanted with MDA-MBA-231 -luc-D3H2LN

TTX-MC138 eliminated pre-existing local metastases (lymph node metastases) in 100% of the animals treated

Stage IV Metastatic Burden

Treatment stopped after 4-6 weekly treatments once there was evidence (via imaging) that metastases were eliminated



NT: No therapy, C: Control (scrambled oligo), T: TTX-MC138, dox: doxorubicin

Study design: mice (n=39) implanted with 4T1-luc2 cells

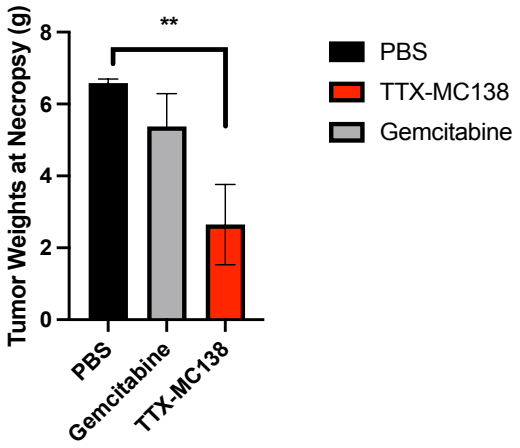
TTX-MC138 eliminated pre-existing distant metastases (cancer spread to distant organs like lung metastases) in 65% of the animals treated

*TNBC, Triple Negative Breast Cancer

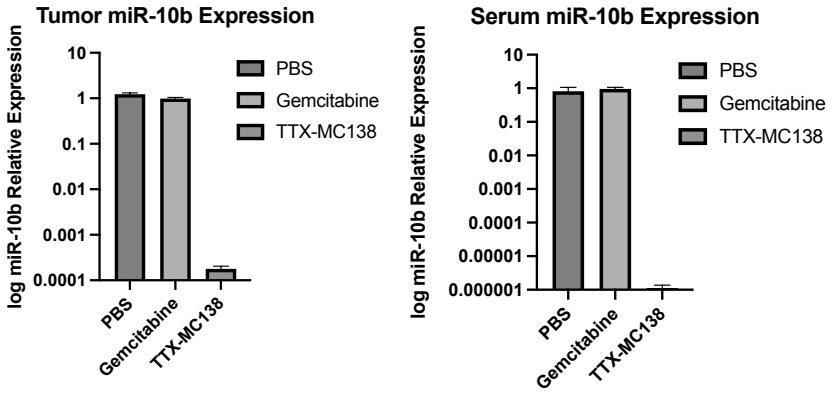
Sources: Yoo B, et al. Cancer Res. 2015;75(20):4407-4415; Yoo B, et al. Sci Rep. 2017;7:45060; Figure 11 in S-1 Preclinical results of TTX-MC138 in models of metastatic breast cancer.

Preliminary Results of Pre-Clinical Efficacy in Pancreatic Cancer Model*

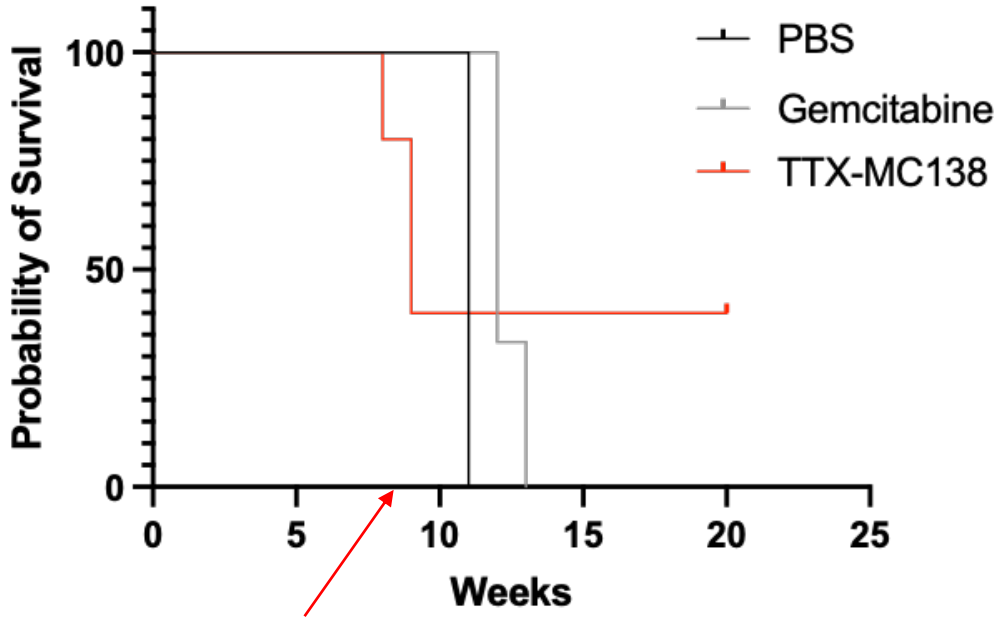
Tumor Weight at Necropsy



miR-10b Inhibition



Cancer Survival



treatment stopped after 8 weekly treatments

- Results: 40% of animals treated with TTX-MC138 showed 100% regression of disease without recurrence during the length of the study (20wks)
- qRT-PCR shows target engagement and the potential to use miR-10b expression in serum as a biomarker of therapeutic success

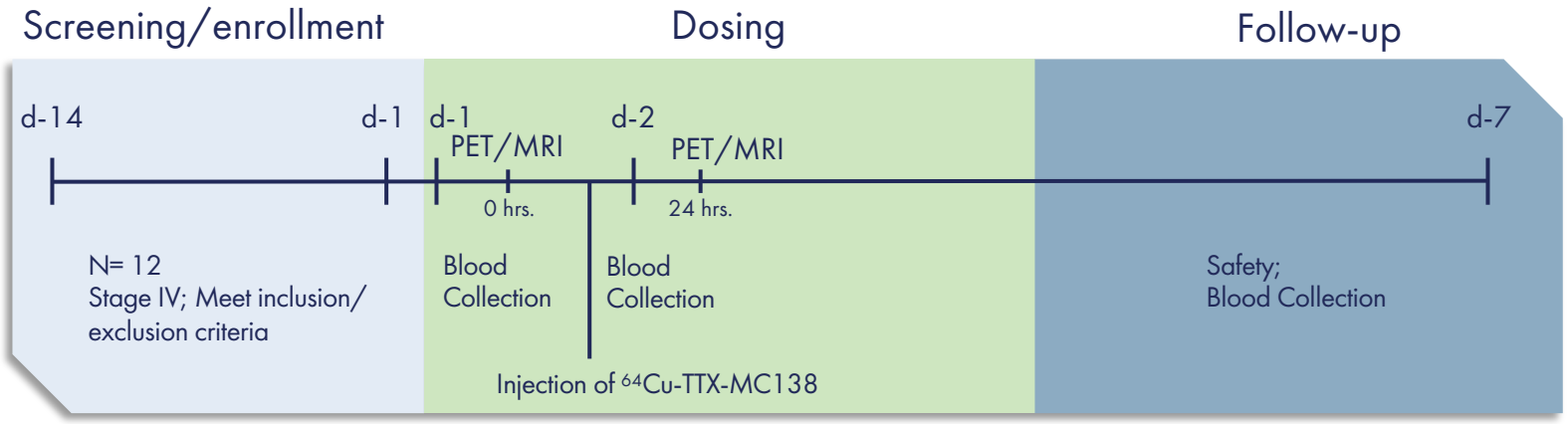
BxPC3-Red-Fluc cells (melanoma) orthotopically implanted into immunocompromised mice; TTX-MC138 Received Orphan Drug Designation from FDA in pancreatic cancer

Lead Therapeutic Candidate TTX-MC138 Clinical Path Forward

First In Human (FIH) Phase 0 Study
Phase I/II Clinical Trial

First-in-Human Phase 0 Clinical Trial – ^{64}Cu-TTX-MC138

- Demonstrate quantifiable evidence of delivery to metastatic lesions in cancer patients with advanced solid tumors
- Validate delivery for the TTX pipeline and open-up additional previously undruggable RNA targets



- **Primary Endpoints:**
  - PET/MRI pre and post therapy to visualize and quantify delivery of radio-labeled TTX-MC138
  - Demonstrate delivery of ^{64}Cu-TTX-MC138 to metastatic lesions
- **Secondary Endpoints**
  - Inform Phase I/II dose level from microdose results
  - Inform Ph I/II clinical trials by measuring pharmacokinetics & biodistribution in vital organs & other tissues
- **Exploratory Objectives:**
  - Measure microRNA-10b expression in patient serum pre and post dose

Received Written Authorization from FDA and IRB Approval to Proceed

Proposed Phase I Trial Design – TTX-MC138

Study Summary

Proposed Trial design

Screening

Abbreviated criteria
- microRNA-10b expression in serum
- Stage IV with primary tumor resected

Phase 1a

Escalation (SAD and MAD)
Solid tumors (not otherwise specified)
Bayesian Optimal Interval Design (BOIN)
N=12 (4 subjects per dose) TBD
Design Scenario: Adaptive/All comers

Phase 1b

Expansion
All-comers that meet inclusion criteria
Expansion at MED dose N=18
Design Scenario: All comers, one or three tumor types

- Phase 1a objective: Safety assessment (3 Dose Levels)
  - Secondary objectives: Confirm delivery to tumor site & evaluate pharmacokinetics, pharmacodynamics
- Phase 1b objective: Exploratory Clinical Pharmacology (Dose Level)
- Secondary objectives: ORR according to investigator's assessment, duration of response, safety and additional pharmacokinetic & pharmacodynamic evaluations
- Multi-center trial; up to 50 subjects
- Follow up: Up to 6 months

- Critical Inputs Being Evaluated:
- Dose Rationale: Non-clinical data, NHP data, Physiologic PK Model
- Schedule: Tox study design gives us coverage of up to two doses, one week apart.
  - FDA may allow for more frequent dosing given late-stage oncology (Pre-IND question)
  - FDA may require more tox data for longer duration of dosing
- Indications: How do different tumors react to dose and/or schedule?

Clinical trial design assesses safety & RP2D* and potential indication of clinical pharmacology (target inhibition)

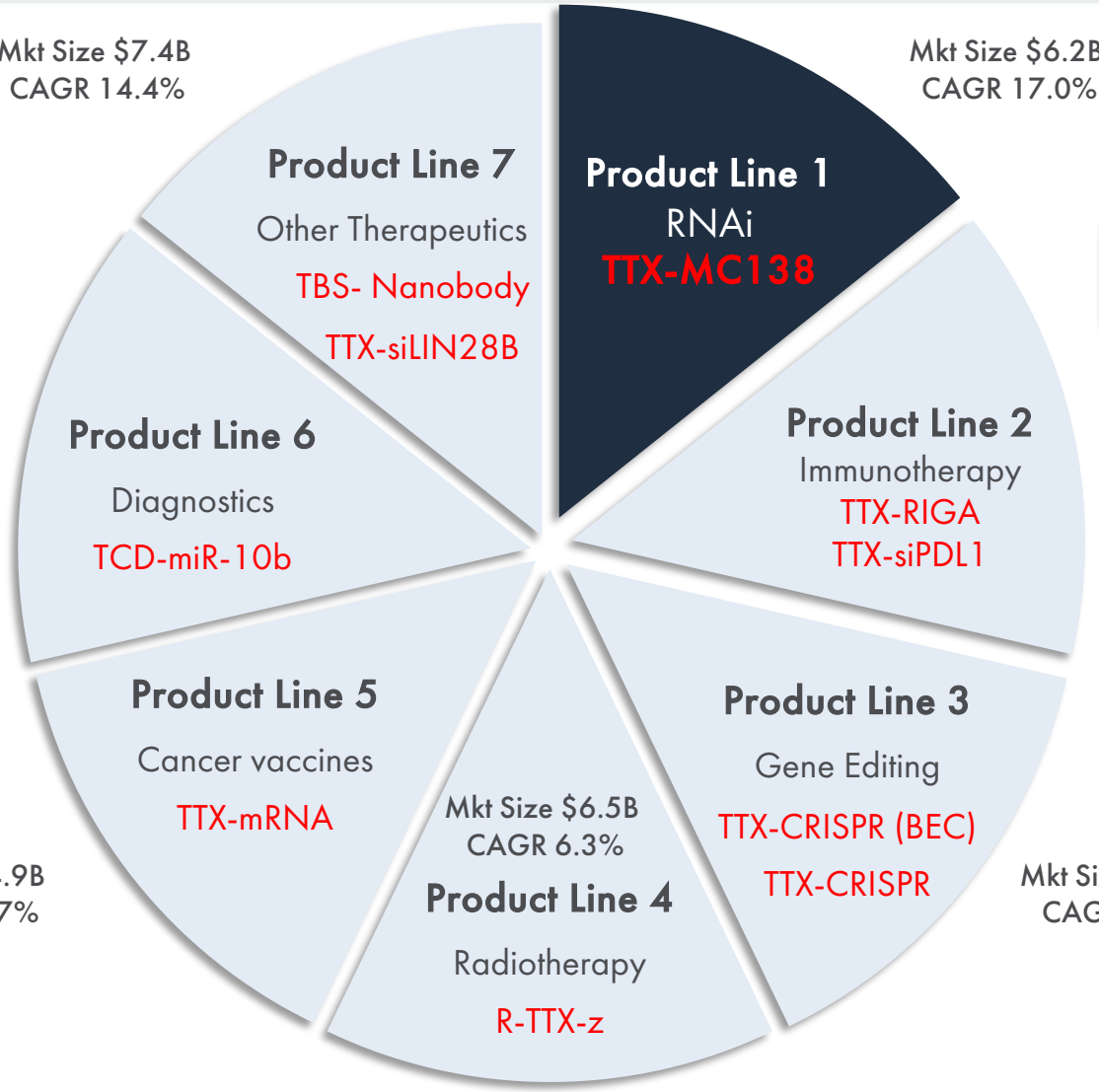
*RP2D – Recommended Phase II dose

External Partnership Development

Out-licensing/Partnering Opportunities

R&D Pipeline Market Opportunity

Total Current Pipeline Market Opportunity $289.8 Billion



Primary In-house Focus

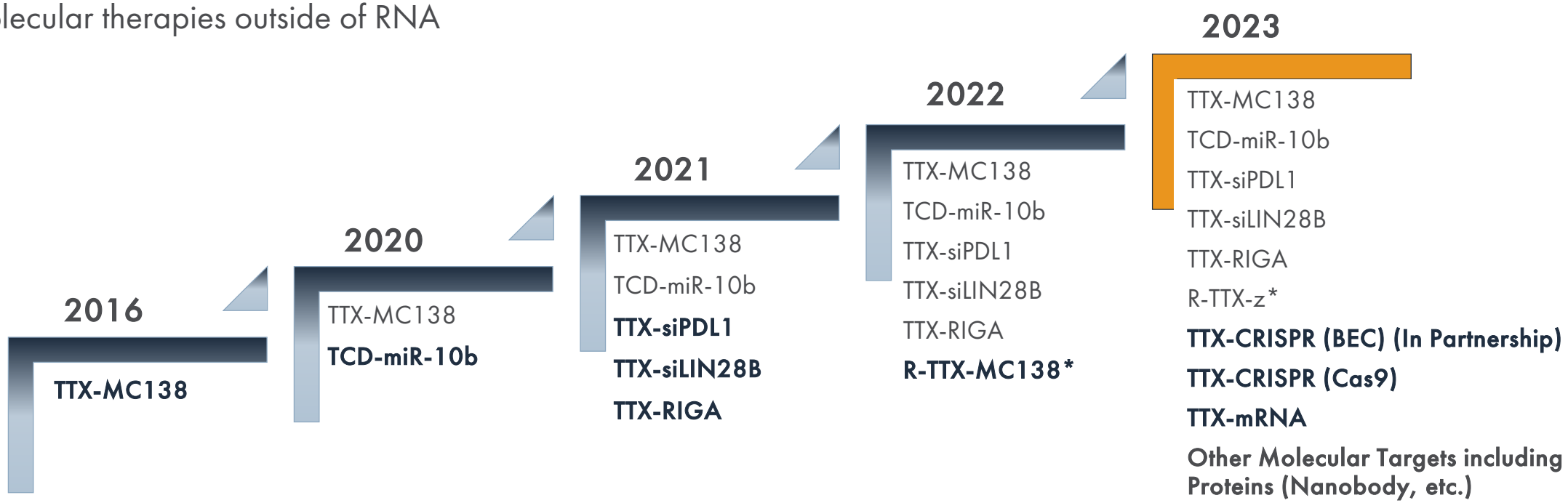
Primary Partnering Opportunities

TBS - Target Binding Scaffold

Growth Market Reports January 2023; Emergen Research 2021; KD Markets Insight 2023; Allied Market Research 2023; Research Reports World 2023; Coherent market insights 2023; Research and Markets 2023

Historical Timeline for Product Development

Expanding delivery capability includes CRISPR-based genome editing and mRNA vaccines as well as other molecular therapies outside of RNA



* 'R" indicates radio-labeled therapeutic

Company Founded | IPO | Expanding Delivery Platform

Product	Potential partner(s)	Program progress to date
TTX-CRISPR (BEC)	Akribion (BRAIN Biotech)	Optimizing in vitro POC then move into animals
TTX-CRISPR (Cas9)	TBD	In vitro success – optimizing for next steps and animal study
TTX-siRNA	2	Potential pilot studies demonstrating tissue specific targeted delivery
mRNA Vaccine	TBD	Successful in vitro delivery of mRNA inside tumor cells; next step is optimizing for animal study POC
Radio-TTX-miR-10b	TBD	Entering Phase 0 First in Human clinical trial
TCD-miR-10b	LabCorp	Developing assay with partner for clinical measurement of miR-10b in patient samples for clinical trials
TBS-Nb	TBD	Provisional patent filed (covering other molecular therapies delivery including proteins, nanobodies, etc.)

Sources of Capital	Amount
Seed Capital (Angel investors)	$2,240,000
SBIR Grant	2,300,000
IPO (Net Proceeds)	25,400,000
S-3 Financings (Net Proceeds)	1,485,000
Total	$31,425,000

NASDAQ Symbol: RNAZ	Shares
Common Stock (Mar. 31, 2023)	15,823,534
Shares under S-3 (April 2023)	1,075,000
Options (WAEP $0.74)	3,017,033
Warrants (WAEP $2.39)	761,741
Total	20,677,308

- Insider ownership (fully diluted): ~35%

Potential Value Creating Milestones 2023-2025

Value-Generating Milestones with Potential to Create Multiple Liquidity Opportunities

2023

TTX-MC138:

- **Phase 0 clinical trial results – unlocking potential for the entire platform**
- Final tox testing for Ph I IND
- File IND for Ph I/II
- File for European ODD status

Partnerships:

- Seeking partnerships for all external development candidates

2024

TTX-MC138

- IRB Approval – Ph I/II
- Commence Multicenter Ph I
- Topline results Ph I
- Expansion Ph II dose patients

IND Enabling:

- TTX-RIGA or TTX-siPDL1
- **Finalize diagnostic test for miR-10b**

2025

TTX-MC138

- Commercialize or commence Ph III

Advance next therapeutic candidate to clinic – Ph I