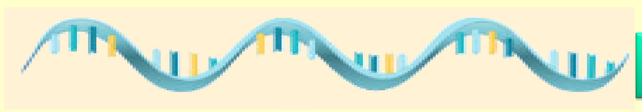
TISSUE-SPECIFIC RNA DRUG DELIVERY PLATFORM TECHNOLOGY

BOUND Therapeutics

BOUND Tx Generative AI/ML Approaches for Protein-Ligand Interaction Design

Target Selection	Binding Site Selection	AI Molecular Pattern Discovery	Ligand Selection
Choose a Natural 3D Conformation for a **Protein Target Candidate**	Automated 3D Protein **Structure Analysis for Identification of Putative Binding Pockets**	AI-Driven **Ligand Library Generation and In-Silico Experiments** for Optimal Molecular Structure Identification	AI Employs **Reinforcement Learning to Generate Optimal Ligand Structures**, Guided by Desired Structural and Chemical Properties

BOUND Tx RNA-Peptide Drug Design



Ligand

- Innovative RNA Sequence Design, Substitution and Back Bone Optimization
- Protease Resistance: ensuring stability pre/post-cellular uptake
- Enhanced Specificity and Efficacy
- Low Immunotoxicity
- High Therapeutics Index (TI)

- Non-Canonical Cyclic Peptides
- Protease Resistance and High Binding Affinity to Specific Targets: ensuring stability during circulation and ligand binding
- Compact Size (< 2 KD): facilitates tissue penetration and cellular internalization
- Low Immunotoxicity

Mechanism of Action (MOA)

Outside Cancer Cell

Cancer cells exhibit upregulated expression of receptors that selectively bind to abundant circulating growth factors, facilitating enhanced proliferation and growth of malignant cells

BOUND Tx Cancer-Blocking RNA Drug with Receptor-Targeting Peptide Ligand

Design the RNA drug to target any cancer-driver RNA (oncogene).

Inside Cancer Cell

BOUND Tx platform utilizes a receptor-targeting peptide ligand to deliver a drug cargo, comprising a conjugated RNA analog, that once it's internalized inside the cell, will block a cancer-driving RNA (oncogene) in the cytoplasm.

RNA-peptide blocks the cancer-driver RNA (oncogene) inside the cancer cell.

Pending and Issued Patents

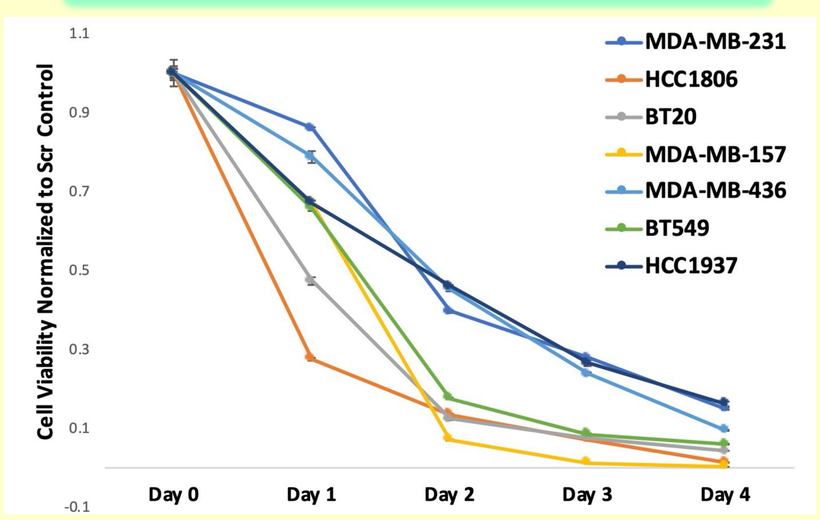
"Compositions and Methods for the Treatment of Cancer" PCT/US2024/019719, 2024

"Compositions and Methods for MYC Messenger RNA Inhibitors", US 11,306,312, issued 2022
- Expires in Feb. 2038, could be extended as far as Aug. 2043

Technology Feature	BOUND Tx	Competitive Technology
Tissue Targeted Delivery	Targeted Extrahepatic Delivery to Solid Tumors via Specific Cellular Membrane Proteins	Limited Systemic Deliverable Targets: Hepatic, Circulation and Local
Formulation	Soluble in saline, isotonic. No issues with dosing volume, range and route or injection site reactions (ISR)	Costly formulation, limited dosing volume, range and route due to ISR
Tissue Penetration	Small size, good in-vivo biodistribution and cellular PK profile	Large molecular weight, poor cellular PK
Delivery Ligand	Proprietary AI design, cargo tailored structure chemistry, rapid turnaround	Costly high-throughput compound screening
Therapeutic Index (TI)	WIDE	NARROW

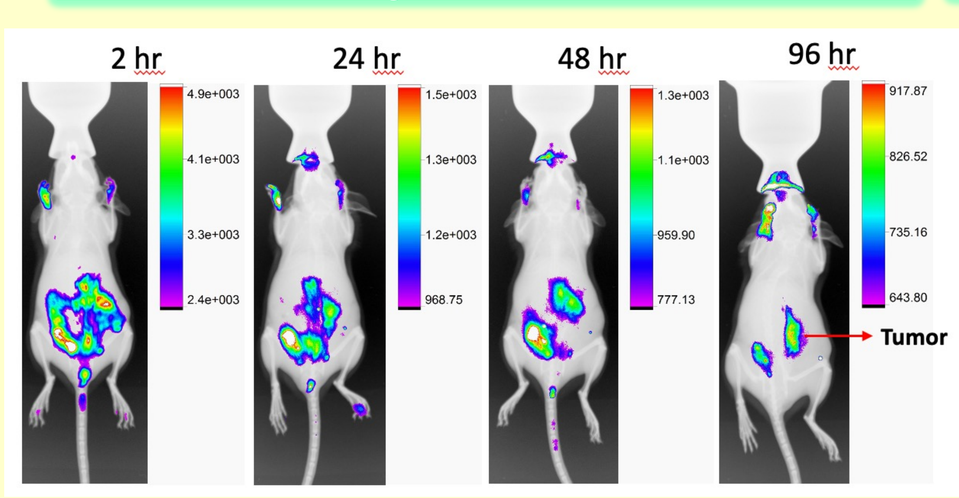
Tumor Specific Delivery of BOUND Tx BND6482 miR-21 Inhibitor in Triple Negative Breast Cancer (TNBC)

AntimiR-21 TNBC Cell Inhibition



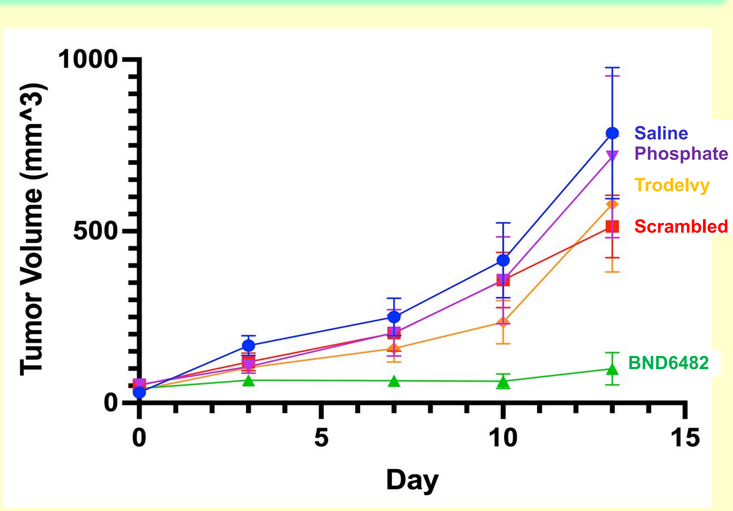
BOUND Tx BND5412 miR-21 inhibitor led to an over 8-fold reduction in cell proliferation across seven human triple-negative breast cancer cell models during a 4-day period

Time-course Fluorescent-Labeled BND6482 Delivery in TNBC Tumors



Changes in BOUND TX AlexaFluor647-BND6482 miR-21 Inhibitor Accumulation in EMT6 Triple-Negative Breast Cancer Allografts in Female Balb/c Mice Following a Single 5 mg/kg Intraperitoneal Injection

In-vivo POC Efficacy: BND6482 Inhibited TNBC Tumor Growth



Administration of BOUND Tx BND6482 at 5 mg/kg-IP BIW, the progression of tumor volumes in EMT6 orthotopic TNBC allografts localized within mammary adipose tissue was halted. In contrast, the controls: vehicle, mismatched RNA, anti-Trop-2-irinotecan conjugate Trodelvy (SOC) demonstrated persistent tumor growth. Sample size N=5. Error bars represent the standard error of the mean (SEM)

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