

TTX-MC138R

A radiotheranostic with important potential in development

The use of radioisotopes is a (re)emerging approach for many drug development companies in the treatment of cancer. TransCode believes our TTX has the potential for efficient localized penetration of radioisotopes inside tumor cells.

By radiolabeling lead candidate TTX-MC138 with CU-64 (TTX-MC138R, or 64cu-TTX-MC138), TransCode has a radiotheranostic in development with potential benefits that include:

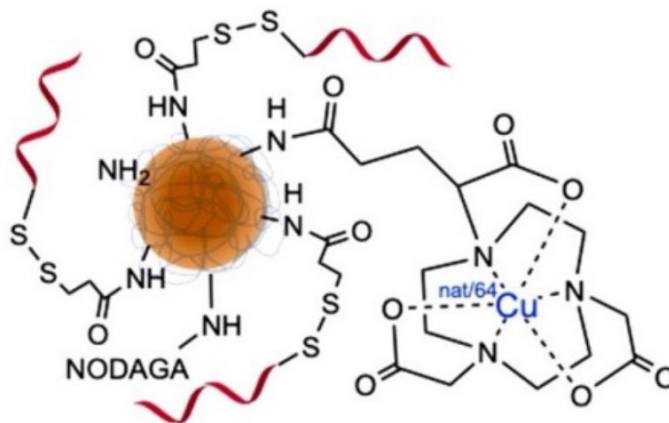
- PK profile that minimizes off-target exposure, maximizes high tumor uptake
- Achieves localization, penetration, and persistence across tumor histologies while maximizing systemic clearance
- Deeper tumor penetration depth to enable more homogeneous irradiation of tumor mass

Achieving the above enables use of off-target toxicity reducing short-range alpha emitters.

50%

50% of all cancer treatment regimens have a radiotherapeutic component

^{64}Cu -TTX-MC138



Potential Therapeutic Applications:

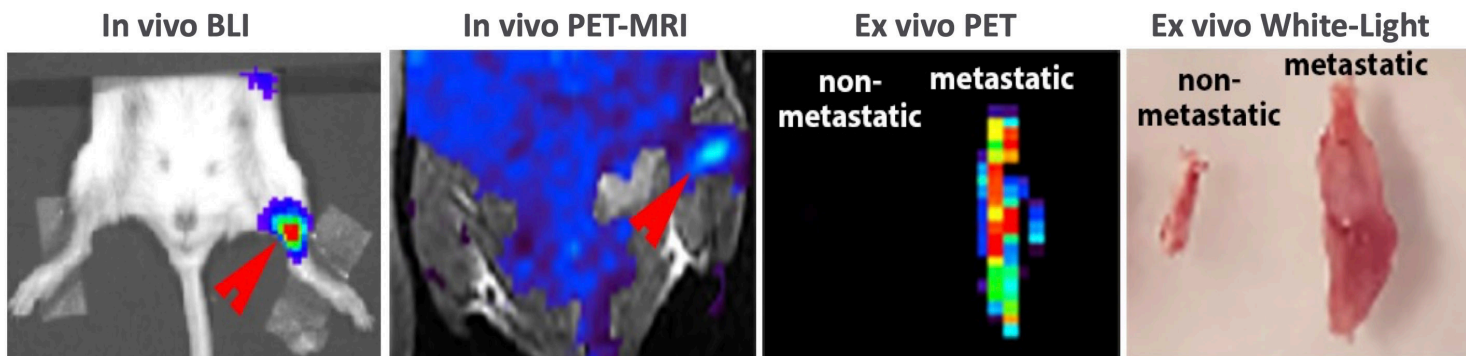
- External Beam Radio Therapy (EBRT): combining target therapy against metastasis delivered by anti-miR-10b oligonucleotide and the radio sensitization of EBRT delivered by the iron oxide core of TTX enhanced by the ^{64}Cu radionuclide
- Targeted Radionuclide Therapy: taking advantage of the biodistribution properties of TTX nanoparticles to enhance therapeutic window of alpha/beta emitting radiotherapeutics

Potential Diagnostic Applications:

- Diagnosis
- Staging
- Phenotyping
- Assessment of prognosis
- Treatment Response

Pre-Clinical Delivery of ^{64}Cu -TTX-MC138 to Metastatic Sites

Bone metastases are shown



Study Design

- Drug was radiolabeled with Cu-64
- Radiolabeled drug was injected into mice bearing luciferase-expressing breast cancer metastases
- Metastases were visualized by bioluminescence imaging (BLI)
- Radiolabeled drug accumulation was imaged by PET-MRI

Study Results

- Drug accumulated in metastatic organs
- Drug accumulation co-localized with the metastatic lesions
- Contralateral bone tissue devoid of metastases did not show similar evidence of drug accumulation

Le Fur, M. et al Cancer Nano 12:16, 2021.

First in Human

Anticipated microdosing study in metastatic breast cancer patients at
MGH's Termeer Center in Q4 2022

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The FDA has not evaluated or approved TTX-MC138R and it is currently not available for patient use.