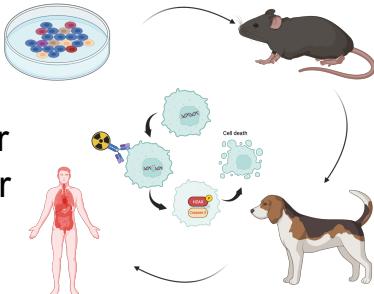


## Targeting by...

### Antibody

- Bladder cancer
- Ovarian cancer



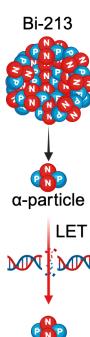
### MAA

- Breast cancer
- Melanoma



## Targeted Radiation therapy Using Alpha Particles

Radioisotopes:  
Bi-212, Bi-213



**NIOWAVE**  
Accelerating Your Particles  
collaborator

## Pipeline (Cancer Imaging & Therapy)

Zr-89, then Bi-213-hAnnA1

Phase 1-PO1 waiting  
NIH grant review

Tc-99m, then Bi-213-TCMC-trastuzumab +  
Tc-99m, then Bi-213-TCMC-cetuximab

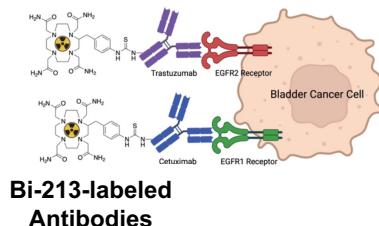
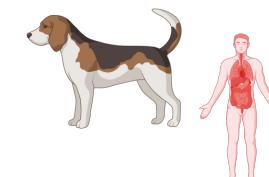
Phase 1 funded  
With Drs. Fan, Singh, Tolbert  
& Dr. Alison Masyr (Canine)  
2025 Q4

Funding Needed:

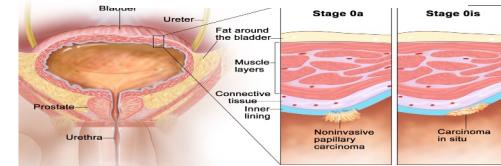
Bi-212/3-macroaggregated albumin (MAA)

2026 Q2  
Breast Cancer  
(Arterial Delivery)

## Zinn Lab Research



### Stage 0 Bladder Cancer



## Pipeline (Other Imaging & Therapy)

F-18-insulin → Nose to brain drug delivery  
For Cognitive Decline  
Preclinical-non-human primate, ready for human

F-18-Sorbitol → Brain Waste Clearance  
Preclinical-rats, ready for human

F-18-FDG (NIH R01)  
Phase I (MS patients)  
With Dr. Dana Spence  
2026 Q1

C-Peptide Formulation (Helmsley)  
Phase I (with F-18-FDG)  
With Dr. Dana Spence & Sparrow (Dr. Beth Littlejohn)  
2025 Q4

## One Team... One Health



Three Emerging MSU Programs Are Advancing Clinical Trials to Improve Animal and Human Health



RadCore



Drug Development

Drug Manufacturing With cGMP Radiopharmaceuticals

RadCore

Drug Development

Drug Manufacturing With cGMP Radiopharmaceuticals

RadCore

## Clinical Translation

The Clinical Innovations Program (CLIP) Advances the standard of care in veterinary and human medicine through high-quality clinical trials



Radiochemistry and Radiopharmacy Solutions (RadCore) FDA guidelines for cGMP under 21 CFR parts 211/212, USP <797> & USP <800>

## Drug Manufacturing (RadCore)

**RadCore**  
Radiochemistry and Radiopharmacy Solutions

