

Radioisotope

Lu-177, lutetium-177
Transition metals
 $T_{1/2}$: 6.71 days

Production

In nuclear reactor:
 $^{176}\text{Yb} (n, \gamma) ^{177}\text{Yb} (\beta^-) ^{177}\text{Lu}$

Radiation

Beta particles (β^-)
Gamma photons (γ)

Use

Locally advanced or metastatic pancreatic ductal adenocarcinoma (PDAC).

Target/Mechanism

The integrin $\alpha_v\beta_6$ is an epithelium-specific cell surface receptor overexpressed on numerous malignancies. DOTA-ABM-5G peptide labelled with Lu-177 binds to the receptor, is internalized in the tumor cell, and induces DNA breakage causing cell death.

Insight

Partial result of the Early Phase 1 (First-in-human Study of the Theranostic Pair [^{68}Ga]Ga DOTA-5G and [^{177}Lu]Lu DOTA-ABM-5G in Pancreatic Cancer - NCT04665947) were presented at the SNMMI 2023 and chosen as Image of the Year.

N: 30 Patients

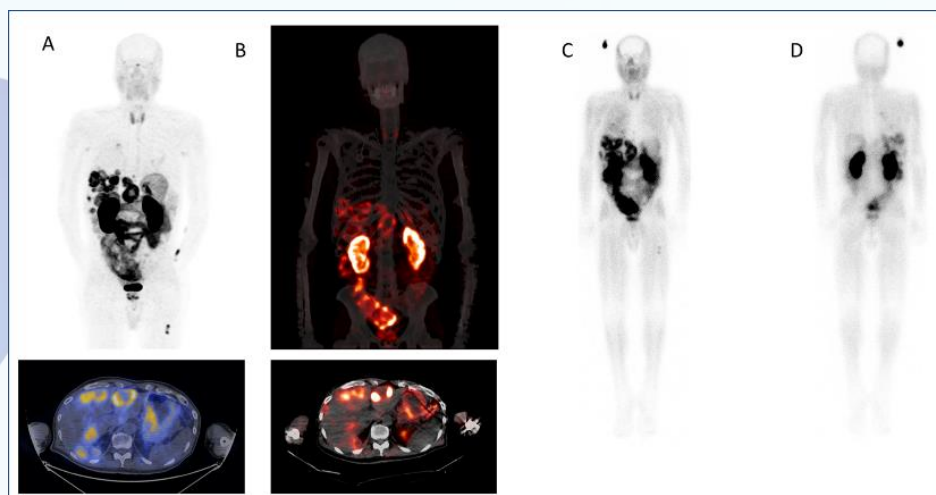
Objective: a) Detect patients' lesions with ^{68}Ga DOTA-5G
b) Evaluate safe and tolerability of the theranostic pair.
c) Identify ^{177}Lu DOTA-ABM-5G Recommended Phase 2 Dose.

Initial results:

17 patients imaged with ^{68}Ga -DOTA-5G (up to 5 mCi) PET/CT.

14 patients treated with ^{177}Lu -DOTA-ABM-5G (25 – 150 mCi).

The theranostic pair was well tolerated, and no drug-related serious adverse events were observed.



Source: SNMMI 2023 Scientific Session P1300 - First-in-human study of the theranostic pair [^{68}Ga]Ga DOTA-5G and [^{177}Lu]Lu DOTA-ABM-5G in pancreatic adenocarcinoma.