THERANOSTICS INSIGHTS

^{177}Lu-DOTA-DUNP19

Radioisotope

Lu-177, lutetium-177
Transition metals
T ½ : 6.71 days

Production

In nuclear reactor:
^{176}Yb (n, γ) ^{177}Yb(β-)^{177}Lu

Radiation

Beta particles (β-)
Gamma photons (γ)

Use

In clinical trial for relapsed or refractory osteosarcomas.

Target/Mechanism

^{177}Lu-DOTA-DUNP19 also referred as LNTH-2403 is a monoclonal antibody radiolabelled with Lu-177, targeting the Leucine-Rich Repeat-Containing Protein 15 (LRRC15). Once the molecule binds to the receptor, it gets internalize and delivers the beta radiation close to the nucleus. This cause single-strand DNA breakage in the cancer cells and tumour death, while sparing healthy tissues.

Insight

A multi-center, open-label clinical trial (NCT07357519) is investigating safety, radiation dosimetry, and preliminary anti-neoplastic activity of LNTH-2403 in patients, with relapsed or refractory osteosarcoma. Enrolment expectation: 55 patients ≥ 12 years old. Response evaluated on Overall Response Rate (ORR) and Event-Free Survival (EFS) over RECIST v1.1 parameters. ^{18}F-FDG-PET used for efficacy testing, and LRRC15 expression is confirmed by immunohistochemistry.

Phase 1 : single infusion every 8 weeks, on 3+3 design, at 30, 50, and 70 mCi/m^2 to identify Maximum Tolerated Dose (MDT). Explore other dosing schedules based on dosimetry, PK, safety and tolerability data. Determine recommended phase 2 dose (RP2D).

Phase 2: evaluate LNTH-2403 as a single agent in participants with R/R osteosarcoma at the RP2D.