89Zr-Df-IAB2M Minibody Imaging In Patients With Prostate Cancer: Biodistribution, Kinetics, Lesion Upset And Organ Dosimetry

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Anti-PSMA Minibody: IAB2M

The minibody (MB), IAB2M, is an optimally engineered (i.e., ECL and PSMA-humanized) MB-dimer in which each monomer is comprised of a single chain variable fragment (SCFV) nA×ECL linked to a C-terminal immunoglobulin constant domain (C). The minibody (MB), IAB2M, is the anti-PSMA MB conjugated with deoxynojirimycin (D) and radiolabeled with 89Zr for imaging. Possible cancer.

Imaging advantages:

- Faster clearance: high T2G ratio by 48 h and earlier imaging compared to full antibody

Objectives

- Primary Endpoints
  - To determine the safety, pharmacokinetics (PK) and biodistribution of 89Zr-Df-IAB2M PET imaging
  - To determine the ability of 89Zr-Df-IAB2M PET imaging to detect known sites of disease

- Secondary Endpoints
  - Biopsy correlation of the 89Zr-Df-IAB2M PET image lesions
  - To compare FDG PET with 89Zr-Df-IAB2M PET uptake

Subject Inclusion Criteria

- Histologically confirmed prostate cancer
- Patients with progressive disease by Imaging or biochemical progression
- Measurable disease by CT, bone scan, or MRI that are consistent with disease
- KPS 60 or higher

Methods

Administration:

- Total of 10/20/50 mg of IAB2M minibody
- SmClI of 89Zr in 1-3 mg of IAB2M minibody injected over 5-10 minutes.

Serial blood samples: Pre-injection, 5, 15, 30, 60, and 120 to 240 minutes PI, and a sample at each subsequent day of imaging

Whole body counts: Pre and post void; repeat at each subsequent time point.

Scans: 10 mA CT scans on % imaging and 80 mA CT scan on day 3 (48h); acquisition 5-7 min/FOV

Results: Clearance of 89Zr-Df-IAB2M

- Lesions detection with high contrast possible at 48 h PI.
- 89Zr-Df-IAB2M imaging shows targeting of both bone and soft tissue lesions.
- 89Zr-Df-IAB2M imaging in larger patient population is underway

References