# THERANOSTICS INSIGHTS 67Cu-SARTATE



## Radioisotope

Cu-67, Copper-67 Transition metal T ½: 2.6 days

Use

neoplasms.

# Main methods

Cyclotron: [<sup>70</sup>Zn(p,α) <sup>67</sup>Cu]

Photoconversion: [68Zn(y,p) 67Cu]

Accelerator: [<sup>64</sup>Ni(α,n) <sup>67</sup>Cu]

## Production

• *Reactor:* [67Zn(n,p) 67Cu]

[<sup>68</sup>Zn(p,2p) <sup>67</sup>Cu]

# Target/Mechanism

SARTATE (MeCOSar-Octreotate) is a somatostatin analogue. When <sup>67</sup>Cu SARTATE binds to somatostatin receptors and is internalized in the tumor cell, β radiation emitted by copper-67 induces DNA breakage leading to cell death.

## Insight

somatostatin expressing

The initial results on the use of \$^67Cu SARTATE ,and its imaging counterpart \$^64Cu-SARTATE of imaging, in patients with unresectable multifocal meningioma were published (NCT03936426).

#### Objective

Under study for meningioma and

possibility to be used for other

Evaluate the imaging, biodistribution, dosimetry, safety, and tolerability (time frame 55 w)

## N patients

5 with somatostatin receptor– expressing lesions confined to the cranium, to allow normalorgan dosimetry in the remainder of the body.

### Treatment

Radiation

Beta particles (β-)

Max 5.1 GBq of <sup>67</sup>Cu-SARTATE for up to 4 cycles, 6-12 weeks apart.

#### Results

5 patients were PET/CT imaged, 3 of the subjects were administered 4 cycles each of <sup>67</sup>Cu-SARTATE followed by multiple SPECT/CT imaging, time points: 1, 4, 24 and 96 hours post-administration.

Dosimetry: estimated mean effective dose

<sup>64</sup>Cu-SARTATE = 3.95 × 10<sup>-2</sup> mSv/MBq

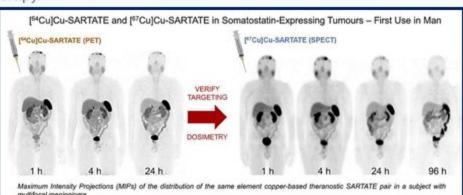
<sup>67</sup>Cu-SARTATE = 7.62 × 10<sup>-2</sup> mSv/MBq

Highest estimated organ dose in decreasing order: spleen, kidneys, liver, adrenals, small intestine.

Comparing PET and SPECT intrasubject imaging, the radiopharmaceuticals exhibited a notable alignment with tumor targets, highlighting its potential as a highly accurate and precise theranostic product for guiding therapy.

No serious adverse events were observed or led to withdrawal from the study.

Further clinical studies will be required to examine the therapeutic dose required and its safety.



This research was originally published in JNM. Balley DL et al. Journal of Nuclear Medicine May 2023, 64 (5) 704-710. © SNMM