

## Oncology-Basic Science: Basic Science

### Basic Science Posters

# **<sup>99m</sup>Tc-HYNIC-Neurotensin analog: Radiolabeling and in-vivo = evaluation in mice bearing lung carcinoma = cells**

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**Objectives:** Neurotensin (NT) is implicated in several = detrimental<sup>-20</sup> functions linked to cancer progression. Neurotensin is a=20 13-amino-acid peptide, but only amino acids 8-13 are = essential for=20 biologic activity. Some NT analogs have been radiolabeled = with=20 <sup>99m</sup>Tc but none using the HYNIC approach. In this = study the=20 uptake of radiolabeled HYNIC-NT (8-13)analog=20 (Arg-(N-CH<sub>3</sub>)-Arg-Pro-Tyr-Tle-Leu ) with <sup>99m</sup>Tc in = nude mice=20 bearing lung tumor cells was investigated.

**Methods:** Conjugated HYNIC-NT was labeled with <sup>99m</sup>Tc = using=20 Tricine plus EDDA, 0.96 mM of HYNIC-conjugate, stannous = chloride=20 and Na<sup>99m</sup>TcO<sub>4</sub> (1110 MBq). Radiochemical = purity=20 was checked by instant thin layer chromatography and = confirmed by=20 HPLC. Nude mice bearing lung cancer cells (A549) were = injected via=20 tail vein with 0.1 mL/74MBq of <sup>99m</sup>Tc-HYNIC-NT. = Animals=20 were sacrificed at 0.5 and 1.5 h post injection (p.i.) and = images=20 were acquired. Blocking evaluation was also conducted by = co-injection=20 of 115 nmol of NT(8-13).

**Results:** Radiochemical purity of <sup>99m</sup>Tc-HYNIC-NT was = 99.3=20 =B1 0.2%. Highest uptake was found in the kidneys. Tumor = uptake was<sup>-20</sup> higher at 0.5h p.i. (2.4=B10.5 %ID/g) than at 1.5h = (1.7=B10.3%ID/g).<sup>-20</sup> A reduction of 87.6% in tumor uptake after blocking was = observed<sup>-20</sup> in the latter time. Value of tumor/blood, tumor/muscle, = tumor/liver<sup>-20</sup> and tumor/large intestine ratio calculated 1.5h pi was 18.9,<sup>-20</sup> 56.7, 6.5 and 8.9 respectively.

**Conclusions:** The highest uptake of the radiotracer in = tumor<sup>-20</sup> was achieved 30 min pi, but values of tumor/organ and /tissue = ratio confirmed that a delay of 1.5h was more appropriate.=20 Specificity of uptake in NT receptor-positive tissues was = noticed,=20 and confirmed by blockade studies in the animal model. =