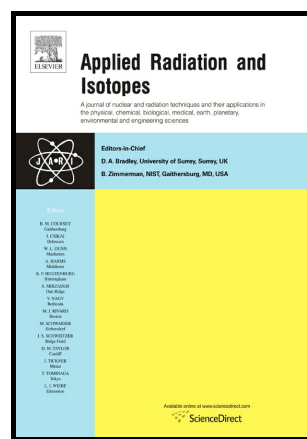


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## Development of bone seeker radiopharmaceuticals by Scandium-47 and estimation of human absorbed dose

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### ABSTRACT

In this study labeling EDTMP (ethylenediamine tetra(methylene phosphonic acid)) and HEDP (Hydroxyethylidene-1, 1-Diphosphonic Acid) as the carrier ligands with Scandium-47 were investigated. The biokinetics of the bone seeking of labeled ligands with Scandium-47 were assessed by measuring the skeletal absorbed dose and then the mice data extrapolated to human absorbed dose and compared with the <sup>186/188</sup>Rhenium-HEDP, <sup>153</sup>Samarium-EDTMP dosimetry data estimated by other researchers. Because the availability of <sup>47</sup>Sc was limited we performed some preliminary studies using <sup>46</sup>Sc.

Key words: radiopharmaceuticals, <sup>47/46</sup>Sc-HEDP, <sup>47/46</sup>Sc-EDTMP, biodistribution, human dosimetry.

### INTRODUCTION

Bone metastasis due to advanced stage of cancer is one of the severe problems for life quality of cancer patients. Several methods are applied for therapy and palliation of this symptom and among them internal radiotherapy using radionuclide with suitable nuclear properties bound to bone-seeking nuclides have been shown to be particularly effective. A moderate energy  $\beta^-$  emitter radionuclide with suitable half life that is able to form a stable chemical bonding with

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