

## BP-Containing $M(\text{CO})_3$ -Complexes ( $M=^{99\text{m}}\text{Tc/Re}$ ) as Multi-Functional Bone-Seeking Agents

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Bisphosphonates (BPs) are a family of compounds extensively used in the management of disorders of bone metabolism. They accumulate in areas of high metabolic activity, such as bone metastases. Radiolabeled BPs are used for bone imaging or bone pain palliation. [1] *In vitro* cell studies demonstrated that BPs present anti-tumor activity, inhibiting the adhesion and invasion of prostate and breast cancer cells in bone. [2]

We have synthesized bifunctional ligands comprising a pyrazolyl-diamine chelating unit for metal coordination and a pendant diethyl phosphonate, a phosphonic or a bisphosphonic acid group for bone targeting. The biological studies have shown an overall adequate biological profile of the new radiotracers for bone imaging. [3,4]

Herein, we describe the synthesis, characterization and biological evaluation of novel  $^{99\text{m}}\text{Tc/Re}(\text{CO})_3$ -complexes containing a pendant alendronate moiety for bone targeting. We will also evaluate the influence of the molecular weight and the overall charge of the complexes on their bone-seeking properties.

### References:

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- [3] Palma et al., *Dalton Trans.*, 2011, 40, 2787-2796.
- [4] Palma E., *Complexos Organometálicos de Re e Tc com propriedades osteotrópicas para Imagiologia e/ou Terapia*, PhD Thesis, October 2011.

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