"Indium-111 Radiolabelled Peptide for Theranostics of ER positive tumours"

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Estrogen Receptor (ER) expression is considered one of the most important biomarkers in breast cancer. The current treatment of the ER positive breast cancer involves specific hormone therapy to inhibit the ER signaling. Despite the recent therapeutic advances, many patients still become resistant to the endocrine treatment and develop metastasis by mechanisms that are not fully understood [1] [2].

In the last years there has been evidence that in addition to the classical genomic action, the ER is also involved in non-genomic responses that have proliferative and anti-apoptotic effects in cancer cells. The interaction between ER-α and the Src kinase that occurs upon stimulation by estradiol is known to elicit an acute signaling pathway that leads to increased DNA synthesis. To block this association a six amino acid ER-mimicking peptide, **pY-pep** (Ac-Leu-pTyr-Asp-Leu-Leu-NH_2) was described [3].

The simultaneous emission of gamma-rays and Auger electrons makes Indium-111 (^{111}In) a relevant radionuclide for both imaging and therapy. Taking advantage of these properties a potential theranostic agent based on the pY-pep was prepared and radiolabelled with ^{111}In. *In vitro* stability studies were performed and further studies are currently underway.

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