

Development of potential molecular probes for stem cell imaging

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Understanding the behavior of cancer stem cells should better enable the design of therapies targeted at the short-lived as well as long-lived cancer stem cells. Many research groups have worked on the problems and almost of them applied the medical imaging technologies as imaging tools. For these purposes many novel molecular probes were in pipeline and forthcoming be in the clinical study. This study proposed to develop MRI and nuclear imaging molecular probes particularly use deferoxamine(DFO) as pharmacophore. Fe (III) and Ga(III) were selected as probes for MR and gamma imaging, respectively. The complexation of Fe (III)- and Ga(III)-DFO was rigorously studied. Both of the complexes did not exhibit

cytotoxicity against both cancer and PBMC cells for the range of concentration use in the imaging experiments. The Fe(III)-DFO complex is very potent MRI targeted cancer cells imaging, since it enhanced the MRI signals of the human small cell lung carcinoma xenografted to male Wistar rats. The MR images revealed a clearly enhanced the MR signals at the lungs of the rats while the histology of the lung presented an infiltrative marks signifying only inflammation an early stage of cancer. It was probably Ga(III)-DFO has the bio-distribution similar to Fe(III)-DFO complex. In conclusion, Fe (III)- and Ga(III)-DFO should be considered as potential molecular probes for cancer stem cell circulating study.

Biography

DS. has completed Master degree of Radiological Science from Mahidol University in 2004 and had been work at Nuclear medicine department of Maharat Nakornrachasima hospital more than 10 years. Current status, during study in Ph.D program of Biomedical Science, at Faculty of Associated medical Sciences, Chiang Mai University.