Public Abstract
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Title:IDENTIFICATION OF NOVEL BREAST CARCINOMA AND MELANOMA AVID PEPTIDES FOR IMAGING

Development of PET (Positron Emission Tomography) and SPECT (Single Photon Emission Computed Tomography) imaging probes for melanoma and breast carcinoma are of significant importance and are in urgent need for diagnosis and treatment. Currently, FDG (fluorodeoxyglucose) is the prevailing PET probe for melanoma, while antibodies against cancer markers such as human epidermal growth factor HER2 and estradiol derivatives are used to probe breast carcinoma. However, their applications are limited either due to the low efficacy or side effects. In the past decade, several natural peptides and their derivatives were proved to be effective probes for breast carcinoma, melanoma, brain tumor, small cell lung tumor, etc.; however, they are only applicable to a certain portion of the patients with receptor positive tumors. It is hypothesized that new peptides probes specific for melanoma and breast carcinoma will be selected from peptide libraries by phage display technology. 18 positive phage clones were selected by phage display technology. Through ELISA and in vivo optical imaging in mice models, 5 winner peptides were chosen to be synthesized and radiolabelled by In111 for cell binding assays. The cancer cells had reduced radioactivity absorption when competed by the non-radioactive In-DOTA-peptide complex which demonstrated that the winner peptides could bind cancer cells. In conclusion, the modified phage display affinity selection procedure resulted in the identification of peptides that specifically selectively targeted melanoma or breast carcinoma in vitro, two of which possessed affinity in vivo to melanoma/breast carcinoma tumors in the respect.