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Design, synthesis and validation of an *in vitro* platform peptide-whole cell screening assay using MTT reagent

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An *in-vitro* platform to perform a peptide screening against different cancer cell lines was designed. The strategy for this screening relied on detection of high affinity cancer targeting peptides based on the sequence of NGR and P160. Evaluation of the best binding peptides was done through incubation of the cellulose membrane-bounded cells with MTT reagent which is reduced to purple formazan in living cells, further quantified using Elispot and Kodak imager. For a proof of concept, a peptide library (132 spot, 66 different peptides) was designed, synthesized, and screened against different cancer cell lines. Current screening process assist in the identification of positive, negative peptide, and the relative binding between positive ones. Better binding peptides of NGR sequence were pointed out to show up to 2.6 fold increase to CD13 positive cell lines with insignificant binding to CD13 negative ones. Comparable results were observed for P160 sequences where different peptides showed higher binding up to 3 fold increase relative to the native P160 peptide. Based on our results, an alternative colour approach to identify new peptides for cancer targeting was developed and applied for two different peptide libraries.

Biography

Sahar Ahmed is an Assistant Professor at the Department of Pharmacognosy and Pharmaceutical Chemistry, College of Pharmacy, Taibah University, KSA. She received her BSc from the Faculty of Pharmacy, Assiut University, Egypt and then her MSc from the same faculty. She subsequently obtained her PhD from the Faculty of Pharmacy, University of Alberta, Canada in 2010 under the supervision of Dr. K Kaur followed by one year of a Post-doc at the same faculty. She has participated in many international conferences and published 15 publications in international journals and one chapter book.

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