

In the Name of God

This is to certify that Mozhdeh Moghimi kakhki

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APPLICATION FOR TARGETING COLON CANCER VIA IN-SILICO EVALUATION " at the
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**P660 - 986: DESIGNING A GENETICS CONSTRUCT BASED ON A-SARCIN APPLICATION
FOR TARGETING COLON CANCER VIA IN-SILICO EVALUATION**

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Background and Aim: α -sarcin, a fungal ribotoxin, with the appropriate propertise in the size, thermostability, immunogenicity, resistance to the proteases as well as cell death induction via ribosome inactivation, is a suitable candidate for anti-cancer drugs development. the characterization of the structure, function of the toxin were considered in this study for development a new generation of immunotoxins for targeting colon cancer.

Methods: NCBI, Uniprot and ExpASY were used for accessing to the protein and nucleotide. CD search and Motif scan programs were used for detection active domins. cell surface specific antigens of the colon cancer were gathered based on literature and evaluated by ProteinAtlas database. corresponding ligands of the selected antigens through String program. the Cluspro, Pymol, MOE and Rampage programs as well as IEDB, ProPred-I and ProPred databases were used for calculating the binding affinity of the ligand to the corresponding antigene, determine the quality of the structure and immunogenicity character of the constructs, respectively.

Results: the results of this study led to the introduction a cell death domain in the α -sarcin, as well as GPA33 as a cell surface specific antigens of the colon cancer with seven corresponding ligands. physicochemical characterization of the amino acids which are involved in the interaction of the ligand to the selected antigens led to introduced several small ligands. seven novel genetic constructs were designed based on the assembly of the selected domains.

Conclusion: α T-(GGGS)₃-HSF showed the highest quality in the structure and immunogenicity among designed constructs, which for experimental confirmation is under more investigation in our group.

Keywords: α -sarcin, Ribotoxins, Colon cancer, GPA33, Immunotoxin