

**P653 - 690: DESIGNING AND EVALUATION A NEW IMMUNOTOXIN CONSTRUCT FOR  
TARGETING GASTRIC CANCER**

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**Background and Aim:** Due to the lack of sufficient specificity of the current therapeutics approaches for targeting cancer cells, costly expenditure as well as side effects the requirement to the novel therapeutic strategies are understood clearly. So, in order to overcome these challenges, target therapy such as bacteria therapies are considered based on understanding the molecular pathogenesis of the cancer. Accordingly, the use of the bacterial toxins for immunotoxin development provided new effective approaches for cancer therapy. Bearing in mind, designing an intelligent immunotoxin construct for targeting gastric cancer were considered, based on application of toxin derived of the *Pseudomonas aeruginosa*.

**Methods:** In this regard, the characterization of the structural and functional feature of the selected toxin was performed. Moreover, cell surface specific antigens of the gastric cancer were gathered, and then subjected to in-silico expression assay, via Protein-atlas database. Subsequently, corresponding ligands of them were determined via String programs, and then filtered via binding affinity as well as post-translation modification, through related program such as Cluspro.

**Results:** Furthermore, the assembly of the selected domains were performed, and then considered for 3D structure, immunogenicity, codon optimization and in-silico expression.

**Conclusion:** this study led to the introduction cell surface specific antigens of gastric cancer such as GRIA2, and also 7 of the related antigens. Moreover, molecular characterization of the selected toxin led to introduce the cell death domains with the capacity of the inhibition of the protein synthesis. Finally, the assembly of the effective domains, led to designing a new construct, which are considering for experimental conditions.

**Keywords:** Bacterial toxins, Cancer, immunotoxins, bioinformatics