N-GLYCOSYLATION AFFECTS HUMORAL IMMUNE RESPONSE OF HER1 CANCER VACCINE

Katia Garcia Duardo, Development Process Direction, Center of Molecular Immunology
katiag@cim.sld.cu
Yanet Cueto Cabañas, Institute of Pharmacy and Food Sciences, Havana University
Gretchen Bergado Baez, Tumoral Biology Direction, Center of Molecular Immunology
Judith Raymond Pous, System Biology Direction, Center of Molecular Immunology
Estela Yamilet Rabasa Legón, Development Process Direction, Center of Molecular Immunology
Adolfo Castillo Vitlloch, Development Process Direction, Center of Molecular Immunology
Kathya R. de la Luz Hernández, Development Process Direction, Center of Molecular Immunology

Key words: Cancer vaccine, glycosilation, Her-1, immunotherapy

Vaccine preparations based on the extracellular domain of Her1 protein (Her1-ECD) have demonstrated, in vitro and in vivo, a potent antimetastatic effect on EGFR+ Lewis lung carcinoma model, while associated side effects were absent. The Her1-ECD is a glycoprotein with a molecular weight of 105 kDa and has 11 potential sites for N-glycosylation. Glycosylation is a post-translational modification that can affect the protein folding, stability, regulates protein half-life, immunogenicity, biological activity and other functions. In this work, the N-glycosylation Her1-ECD was preliminarily characterized by SDS-PAGE, glycan differentiation by lectin and normal phase chromatography. Finally, the biological activity of the glycosylated and totally deglycosylated Her1-ECD protein was compared. As results were obtained that N-glycosylation profile of Her1-ECD is composed of high mannose, hybrid and complex N-glycans types, and Her1-ECD glycosylation modifies the humoral immune response, measured as antibody titers, recognition of EGFR in A431 cell line and cell cycle arrest.