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World Cancer 2020: In vitro study of the immunostimulating potential of dendritic vaccines and the cytotoxic activity of human CIK cells: Assel Issabekova, National Center for Biotechnology, Kazakhstan

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Abstract:

Adoptive cell therapy is the promising strategy in cancer immunotherapy. We studied the effect of human dendritic cells (DCs) treated with antigens of the colorectal tumor cell line SW-620 on the cytotoxic activity of human cytokine-induced killer (CIK) cells. Immunogenic apoptotic cells, lysates and total RNAs of tumor were obtained by various methods, including the exposure of SW-620 to various chemotherapy drugs (staurosporine, oxaliplatin, mitoxantrone, 5-fluorouracil). All tumor cells were preliminarily subjected to heat shock. Effect of DC was investigated on ex vivo expanded CD56+ CIK cells of whole blood or blood mononuclear cells. Antigen-loaded DCs were cultured with CD56+ CIK cells at a 10:1 ratio for 48 hours. Cytotoxicity was assessed by MTT-assay using SW-620 cells as targets. In accordance with results the highest lytic activity was found in the group with CIK cells of total blood activated by Mo-DC, loaded with oxaliplatin, staurosporine -induced apoptotic tumor cells, total tumor RNA, and tumor lysates. Comparison of the activation potential of T-lymphocytes revealed that CIK cells of whole blood have a higher cytotoxicity compared to CIK cells of peripheral blood mononuclear cells. Additional stimulation of DC maturation by TNF-α enhances the cytotoxic activity of CIK cell.

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Biography:

Assel Issabekova has completed her PhD at the age of 27 years from Al-Farabi Kazakh National University. She is the senior researcher of National Center for Biotechnology. She has published more than 3 papers in reputed journals

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