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GITRL Expressing MSCs affect *in vitro* growth of small cell lung cancer

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Glucocorticoid induced tumor necrosis factor receptor (GITR) and its ligand; GITRL which are members of tumor necrosis factor (TNF) family have been reported to play important roles in cancer immunology. In several studies, it has been reported that mesenchymal stem cells (MSCs) are recruited into tumor sites and might play a role in delivering anti-cancer agents. Using MSCs as a therapeutic agent to trigger GITR-GITRL interaction has not been evaluated yet. Herein, The aim of the work is to investigate how MSCs overexpressing GITRL affect the GITR expressing small cell lung cancer line, SCLC-21H. Human MSCs were transfected with pCR3-GITRL by using Neon Transfection System. Then GITRL transfected cells were co-cultured with SCLC-21H or NCI-H82 cell lines which are GITR positive and negative respectively. The seeding ratio between cancer cell lines and MSCs was 0,125/1; 0,25/1; 0,5/1; 1/1; 2/1. After 48 hours of co-culture, cell viability was assessed with propidium iodide staining and analyzed by flow cytometry (FACS Aria II). Untransfected MSCs were used as a control. Conclusively, the co-culturing of SCLC-21H with GITRL-transfected MSCs inhibited the tumor cells' growth compared to that of co-cultured with untransfected MSCs. The highest inhibition was observed at 0.125/1 seeding ratio. However, inhibition of tumor cell growth was also obtained in co-cultures of GITR negative cell line NCI-H82 with untransfected MSCs, but not with GITRL-transfected MSCs. Our preliminary data suggest a possible therapeutic effect for GITRL-expressing MSCs on GITR+ small cell lung cancers through the modulation of tumor cells' behavior.

Biography

Kopru Cagla Z is still doing her PhD in Hacettepe University Department of Nanotechnology and Nanomedicine in Turkey. She also studies at the Center for Stem Cell Research and Development in the same University. She is interested in stem cells, gene therapy for cancer treatment and biomaterials. She has presented posters on GITRL expression in mesenchymal stromal cells, gold nanoparticules and biocompatible polymers in international meetings.

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