

Dr. Esin Cetin Aktas graduated from the University of Istanbul Faculty of Science, Department of Biology in 1994. She has completed her Msc thesis “The effect of Ehrlich-Ascides fluid on the proliferation of L-cells” in the same department and obtained her PhD degree from the Istanbul University, Institute of Experimental Medicine, Department of Immunology in 2002 with the thesis “The role of NK cells in atopic dermatitis”. She has been working at the Immunology Department since 1998. Dr. Cetin Aktas national and international cited publications and is experienced in cell culture techniques, flow cytometry [apoptosis, intracytoplasmic cytokine detection, cell proliferation, neutrophil functions, and cytometric bead arrays] and cell isolation methods. She has received more than 2000 citations with 20 h index value. Recently, Dr. Cetin Aktas is working on projects in cytokine network and effects of anti TNF-alpha treatment on NK cells in Behçet’s Uveitis. She also has projects on immune checkpoint receptor expressions on tumor infiltrating cells T and NK cells in non-small cell lung cancer, breast cancer and ovarian cancer.



Lab – Cytotoxic activity tests: Natural killer (NK) cells are cytotoxic innate lymphoid cells that can lyse cancerous or virally infected cells. Target cell recognition induces secretory lysosome exocytosis and the release of the cytotoxic contents of this organelle. During the NK cell degranulation, lysosomal-associated membrane protein-1 (LAMP-1 or CD107a) transiently appears on the surface of NK cells. flow cytometry. In this laboratory session, we will demonstrate surface staining and degranulation tests for determining NK cell cytotoxic activity and analyses will be also discussed.

Relevant Literature:

1. Fehim Esen, Gunnur Deniz, **Esin Cetin Aktas**. PD-1, CTLA-4, LAG-3, and TIGIT: The roles of immune checkpoint receptors on the regulation of human NK cell phenotype and functions. *Immunology Letters*, 2021 240:15-23. doi.org/10.1016/j.imlet.2021.09.009.
2. Harb H, Benamar M, Lai PS, Contini P, Griffith JW, Crestani E, Schmitz-Abe K, Chen Q, Fong J, Marri L, Filaci G, Del Zotto G, Pishesha N, Kolifraith S, Broggi A, Ghosh S, Gelmez MY, Oktelik FB, **Cetin EA**, Kiykim A, Kose M, Wang Z, Cui Y, Yu XG, Li JZ, Berra L, Stephen-Victor E, Charbonnier LM, Zanoni I, Ploegh H, Deniz G, De Palma R, Chatila TA. Notch4 signaling limits regulatory T-cell-mediated tissue repair and promotes severe lung inflammation in viral infections. *Immunity*. 2021 Jun 8;54(6):1186-1199.e7.
3. Engin A, Turna A, Esen F, Agkoc M, Cikman DI, Saglam OF, Deniz G, **Aktas EC**. Mediastinal lymph node removal ameliorates cytotoxic T-lymphocyte functions in patients with non-small cell lung cancer. *Tumori Journal*; 2021, in press. 1–8. <https://doi.org/10.1177/03008916211064643>.
4. Gelmez MY, Cinar S, **Cetin EA**, Ozcit-Gürel G, Babuna-Kobaner G, Erdugan M, Gul A, Akdag-Kose A, Deniz G. Inflammatory status might direct ILC and NK cells to IL-17 expressing ILC3 and NK subsets in Behcet's disease. *Immunol Lett*. 2021 Jul 235:1-8.
5. Abbasov A., **Aktas Cetin E**, Cabioglu N., Mollavelioglu B., Onder S., Emiroglu S., Tükenmez M., Muslumanoglu M., Igci A., Deniz G., et al., "Differential Expression of Novel Immune Checkpoint Receptors on Tumor Infiltrating Lymphocytes in Patients with Locally Advanced Breast Cancer after Neoadjuvant Chemotherapy. *Neoplasma*. 2021 Sep;68(5):1079-1090. doi: 10.4149/neo_2021_210127N141.

6. Pur Ozyigit L, **Aktas EC**, Gelmez YM, Ozturk AB, Gemicioglu B, Deniz G. Functionality of Natural Killer cells in Obese Asthma Phenotypes. *Clinical & Experimental Allergy* 2022 Mar 31. doi: 10.1111/cea.14136. Online ahead of print.
7. Sallakci N, Tahrali I, Kucuksezer UC, **Aktas Cetin E**, Gul A, Deniz G. Effect of different cytokines in combination with IL-15 on the expression of activating receptors in NK cells of patients with Behçet's disease. *Immunol Res.* 2022 Jun 3. doi: 10.1007/s12026-022-09298-5.