

**Dr. Umut Can Kucuksezer** was graduated from Istanbul University, Cerrahpasa Faculty of Medicine, Division of Biomedicine in 2001. He obtained master's degree in 2004 with thesis entitled as "Cytokine profiles of NK cells in Behcet patients with uveitis", and PhD degree in 2009 with thesis entitled as "Breaking of allergen-specific peripheral tolerance by TLR-activated antigen presenting cells", from Istanbul University, Institute of Health Sciences, Dept. of Immunology. He worked in Swiss Institute of Allergy and Asthma Research (SIAF), Davos, Switzerland in between 2006-2007 and contributed in research of immune tolerance. He has been working in Istanbul University, Aziz Sancar Institute of Experimental Medicine, Department of Immunology since 2002. He has been working as an Associated Professor since 2014.



**Dr. Kucuksezer** has experience in cell culture techniques, cell isolation and purification methods and flow cytometry (cell proliferation, immune phenotyping, intracellular cytokine staining, NK cell cytotoxicity). His main research areas focuses on interactions between innate and adaptive immunity, lymphocyte functions, immune tolerance, inflammation, immune deficiencies and allergic diseases. He has over 40 National and International publications with 1580 citations and an H-index of 16.

**Lab – Proliferation Tests:** Proliferation tests are applied to monitor cellular proliferative responses which gains attendance both in research and also in clinical practice. By utilization of flow cytometry, it was possible to develop novel methodologies which permits easy, non-radioactive and safe approaches for investigation of cell proliferation. This laboratory session aims to explain the basics of flow cytometric proliferation assays by utilization of CFSE dye.

#### **Relevant Literature:**

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3. I. Tahrali, **U.C. Kucuksezer**, N. Akdeniz, A. Altintas, U. Uygunoglu, E. Aktas-Cetin, and G. Deniz, CD3(-)CD56(+) NK cells display an inflammatory profile in RR-MS patients. *Immunol Lett.* **216**: p. 63-69, 2019.
4. I. Tahrali, **U.C. Kucuksezer**, A. Altintas, U. Uygunoglu, N. Akdeniz, E. Aktas-Cetin, and G. Deniz, Dysfunction of CD3(-)CD16(+)CD56(dim) and CD3(-)CD16(-)CD56(bright) NK cell subsets in RR-MS patients. *Clin Immunol.* **193**: p. 88-97, 2018.
5. **U.C. Kucuksezer**, E. Aktas-Cetin, S. Bilgic-Gazioglu, I. Tugal-Tutkun, A. Gul, and G. Deniz, Natural killer cells dominate a Th-1 polarized response in Behcet's disease patients with uveitis. *Clin Exp Rheumatol.* **33**(6 Suppl 94): p. S24-9, 2015.

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8. E. Aktas Cetin, F. Cosan, **U.C. Kucuksezer**, S. Bilgic, Y. Cagatay, A. Gul, and G. Deniz, Behcet's disease: immunological relevance with arthritis of ankylosing spondylitis. *Rheumatol Int.* **33**(3): p. 733-41, 2013.
9. S. Genc, H. Eroglu, **U.C. Kucuksezer**, E. Aktas-Cetin, A. Gelincik, E. Ustyol-Aycan, S. Buyukozturk, and G. Deniz, The decreased CD4+CD25+ FoxP3+ T cells in nonstimulated allergic rhinitis patients sensitized to house dust mites. *J Asthma.* **49**(6): p. 569-74, 2012.
10. E. Aktas, **U.C. Kucuksezer**, S. Bilgic, G. Erten, and G. Deniz, Relationship between CD107a expression and cytotoxic activity. *Cell Immunol.* **254**(2): p. 149-54, 2009.
11. G. Deniz, G. Erten, **U.C. Kucuksezer**, D. Kocacik, C. Karagiannidis, E. Aktas, C.A. Akdis, and M. Akdis, Regulatory NK cells suppress antigen-specific T cell responses. *J Immunol.* **180**(2): p. 850-7, 2008.
12. M. Akdis, A. Trautmann, S. Klunker, I. Daigle, **U.C. Kucuksezer**, W. Deglmann, R. Disch, K. Blaser, and C.A. Akdis, T helper (Th) 2 predominance in atopic diseases is due to preferential apoptosis of circulating memory/effector Th1 cells. *FASEB J.* **17**(9): p. 1026-35, 2003.