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Quantitative tracking of individual TCR repertoires

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The individual repertoire of T Cell Receptors (TCRs) is a mirror of functioning of an immune system that keeps detailed information concerning infectious and autoimmune conditions. We have developed approach that enables unbiased quantitative analysis of the human TCR V beta repertoire by massive sequencing. Using this approach, we have performed the first detailed tracking of the fate of human T cell clones after high dose chemotherapy and autologous hematopoietic stem cell transplantation (HSCT). We show that multiple T cell clones do survive the transplantation procedure, some of them being essentially suppressed, but some of them expanding and fighting infections early after HSCT. We believe that wide application of the proposed approach will lead to optimization of HSCT protocols, progress in understanding infection and autoimmunity, and development of individual sequence-based diagnostics of immune status.

Biography

DM Chudakov has completed his PhD at the age of 25 years from Shemyakin and Ovchinnikov Institute of Bioorganic Chemistry, RAS (Moscow, Russia). Starting form 2008, he is a head of the laboratory of Fluorescent instruments for immunology and neurobiology in the same institute. He has published more than 50 papers in reputed journals.