Abstract

Adaptive immune system plays a crucial role in effective pathogen clearance as well as establishment of immunological memory and its understanding is important for vaccine and drug development, besides cancer and autoimmune disease treatment. CD8+ T lymphocytes are able to efficiently kill infected cells and develop into antigen-specific memory cells, which are kept in a steady-state and demonstrate enhanced cytokine production and faster response upon reinfection, compared to naive T cells. Additionally, the pool of CD8+ memory T cells is more abundant, diversified and localizes to lymphoid as well as non-lymphoid tissues. On the other hand, proliferation rate, threshold of activation and CD28 costimulation independence are questionable. Even though the opposite was accepted for a long time, it seems that on a per cell basis, memory cells aren't superior to naive in these features and have decreased TCR sensitivity. Interestingly, in contrast to naive, memory CD8+ T cells can be activated independently of TCR, even in the absence of a cognate antigen, which emphasizes their increased sensitivity to inflammatory milieu and contribution to innate immune responses.