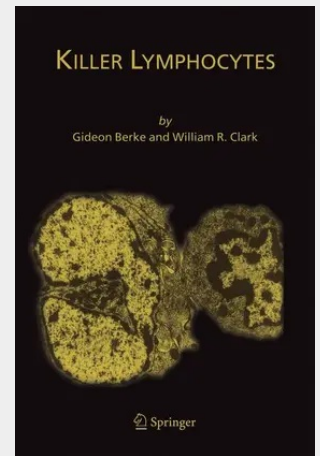


Killer Lymphocytes

The existence of a unique kind of immune cell – the killer lymphocyte – which destroys other cells in a highly specific manner, has fascinated immunologists for almost half a century. How do these cells, whose precursors have lived in communal harmony with their host, decide that some of their cohabitants must die? And how do they kill them? The definition of killer lymphocytes came from discovery of their roles in a wide range of in vivo phenomena such as transplant rejection, virus infection and its related immunopathologies, and anti-tumor responses. Yet for the most part almost everything we know about these cells has come from studying them in vitro. They have yielded their secrets slowly and reluctantly. To understand fully how they work, geneticists and immunologists had to unravel the major histocompatibility systems of vertebrates, a long and torturous road that provided some of the darkest hours of immunology. The search for antigen-sensing receptors on both T cells and NK cells was scarcely less frustrating. And the holy grail of cell-mediated cytotoxicity – defining the mechanism by which killer cells take down their adversaries – sorely tested the ingenuity, patience and mutual good will of laboratories around the world. These questions have now largely been answered. But do we really understand these cells? We can tame them to a large degree in transplant rejection. It may yet turn out that we can harness their immunotherapeutic potential in treating viral and malignant disease.

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