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Oral presentation

Virus-specific cellular immune correlates of survival in vaccinated monkeys after SIV challenge

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Understanding the characteristics of the virus-specific T lymphocyte response that will confer optimal protection against the clinical progression of AIDS will inform the development of an effective cellular immune-based HIV vaccine. We have recently shown that survival in plasmid DNA-primed/recombinant adenovirus-boosted rhesus monkeys that are challenged with SIVmac251 is associated with the preservation post-challenge of central memory CD4+ T lymphocytes and robust IFN-g-producing SIV-specific CD8+ and CD4+ T lymphocyte responses. Further studies were initiated to extend these observations to determine which virus-specific T lymphocyte subpopulations play a primary role in controlling disease progression and characterize the functional repertoire of these cells. We show that the preservation of the SIV-specific central memory CD8+ T lymphocyte population and a linked SIV-specific CD4+ T lymphocyte response are associated with prolonged survival in vaccinated monkeys following challenge. Further, we demonstrate that SIV-specific IFN-g, TNF-a, and IL-2 producing T lymphocytes are all comparably associated with protection against disease progression. These findings underscore the contribution of virus-specific central memory T lymphocytes in controlling clinical progression in vaccinated individuals following a primate immunodeficiency virus infection.