

Tfh Response to Flu Vaccine

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Influenza vaccination is recommended for all adults, yet some populations have weak, poorly protective immunologic responses to vaccination. Much work has focused on B cell responses but less emphasis has been placed on the T cell determinants of antibody responses following vaccination. T follicular helper CD4 cells (Tfh) provide help to B cells resulting in affinity maturation, class switch recombination, and differentiation to long-lived plasma cells. Seasonal influenza vaccine induced an increase in a circulating T follicular helper cell (cTfh) CD4 subset that expressed ICOS (CD278) and CD38 and contained influenza-specific memory cells. The ICOS+CD38+ cTfh response at 7 days after vaccination correlated with the induced antibody and plasmablast responses and demonstrated clonotypic characteristics of a memory response. Moreover, the ICOS+CD38+ cTfh response can be used to probe the effects of aging and pharmacotherapy on the vaccine response. These results demonstrate the utility of studying Tfh as a T cell determinant of the antibody response and may yield strategies for rational vaccine strategies.