Dietary ribonucleotides increase antigen-specific type 1 T-helper cells in the regional draining lymph nodes in young BALB/cJ mice.

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Abstract

OBJECTIVES: We assessed the mechanisms of ribonucleotide action on type 1 T-helper cell (Th1) responses against ovalbumin (OVA) in Th2-biased BALB/cJ mice.

METHODS: Mice were fed a ribonucleotide-free or ribonucleotide-supplemented diet and given OVA subcutaneously with incomplete Freund's adjuvant at 3 and 6 wk. Costimulatory molecule expression (CD86 and CD154), the state of naive versus effector/memory Th cells, and the frequency of OVA-specific resting versus activated Th1/Th2 cells were assessed in cells from the regional draining lymph nodes. OVA challenge increased CD86, but not CD154, expression. Effector/memory stage Th/cytotoxic T cells increased after the first and second OVA challenges.

RESULTS: Dietary ribonucleotides did not affect the expression of any of these cell surface molecules. Antigen-specific Th1 and Th2 cells increased 10 d after the first OVA dose and 5 d after the second OVA dose. Further, dietary ribonucleotides increased OVA-specific resting and activated Th1 cells 10 d after the first OVA dose and decreased OVA-specific resting Th2 cells 5 d after the second OVA dose.

CONCLUSIONS: Dietary ribonucleotides may attenuate skewed Th2 responses by augmenting clonal expansion of OVA-specific Th1 cells, suppressing expansion of OVA-specific Th2 cells in Th2-biased BLAB/cJ mice, and not affecting antigen non-specific cell surface markers.

Comment in

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