

T cells from children with IDDM are sensitized to bovine serum albumin.

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Abstract

Epidemiological and experimental evidence suggested that denial of dietary cow milk protein early in life protects genetically susceptible children and animals from insulin-dependent diabetes (IDDM). Bovine serum albumin (BSA) was proposed as a candidate milk-borne mimicry antigen responsible for the diabetogenic cow milk effect. Elevated anti-BSA antibodies have been observed in patients and diabetic rodents, and these antibodies precipitate p69 from islet cell lysates. IDDM is a T cell mediated disorder but efforts to detect BSA-specific T cells in diabetic children have so far failed. We describe here a culture system which allowed the detection of BSA-specific T cells and we mapped this response to the ABBOS peptide (pre-BSA position 152-169) previously identified as a possible mimicry epitope. ABBOS-sensitized T cells were found in 28/31 children with recent onset IDDM but not in non-diabetic controls nor in children with SLE or JRA. T cell proliferative responses declined within the first few years of diabetes diagnosis. Although no effector cell role for BSA/ABBOS specific T lymphocytes has been demonstrated, the presence of BSA peptide-specific T cells strengthens the postulated link between a cow milk protein and IDDM.