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The influence of WC1 isoforms on gammadelta T cell function

Aric N Rogers, University of Massachusetts Amherst

Abstract

WC1 molecules are an extensively diversified family of integral type 1 scavenger receptor cysteine rich (SRCR) membrane glycoproteins expressed on the surface of arteriodactyls such as sheep, cattle, and swine. The focus of this dissertation is on establishing the relevance of different forms of WC1 expressed on the surface of bovine $\gamma\delta$ T cells. The results demonstrate that identification of WC1 variant expression on these lymphocytes can be used to determine cellular responses to characterized methods of activation in vitro. In this way, discrete forms of WC1 are shown to be critical antigenic determinants for functionally distinct populations as demonstrated via CD25 expression, proliferation, and production of the inflammatory cytokine IFN- γ . At present, WC1 is the only unique determinant found on $\gamma\delta$ T cells other than the TCR that can be used to distinguish such populations. Genomic analysis carried out by others suggested the potential for more than 50 forms of WC1. This work is the first to show numerous biochemically distinct forms of plasma membrane-bound WC1 using 2D transfer methods. Currently, the bovine genome is sequenced but unassembled. Once complete, the procedures employed here can be used in conjunction with the genomic data and mass spectrometry to identify amino acid sequences of immunoprecipitated WC1 separated via 2D methods. ^

Subject Area

Veterinary science|Immunology

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