M.B.A. Oldstone (Ed.)

Molecular Mimicry: Infection-Inducing Autoimmune Disease

With 28 Figures and 9 Tables

Springer
Cover illustration by Melissa Nicholson and Kai W. Wucherpfennig
The cover shows the crystal structure of the first human autoimmune T cell receptor bound to its self-peptide/MHC target. The T cell receptor originated from a patient with relapsing-remitting multiple sclerosis and is specific for a myelin basic protein peptide bound to HLA-DR2 (DRA, DRB1*1501). This structure showed a highly unusual binding topology in which the T cell receptor only contacted the N-terminal part of the self-peptide. This binding mode reduces the interaction surface with the MHC bound peptide, and places physical limits on the peptide specificity of this T cell receptor. This structure thus provides an explanation for the finding that this myelin basic protein specific T cell clone can be activated by a number of different microbial peptides that have limited sequence similarity with the self-peptide. The MHC molecule is colored blue, and the TCR alpha and beta chains yellow and red, respectively. The peptide is shown as a stick and ball model.
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