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VACCINES & AUTOIMMUNITY



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Figure 6.1 Map of the human HLA. The region is conventionally divided into three subregions: the class I, II, and III regions. Each contains numerous genes – only a few of the most relevant are shown here. Abbreviations: *TAPBP*, Tapasin; *LMP1* and *LMP2*, large multifunctional proteases 1 and 2; *TAP1* and *TAP2*, transporter associated with antigen processing 1 and 2; *C2*, *C4A*, and *C4B*, complement components 2, 4A, and 4B; *BF*, complement factor B; *HSPA1A* and *HSPA1B*, heat-shock protein 1A A-type and B-type; *HSPA1L*, heat-shock protein 1A-like; *LTA* and *LTB*, lymphotoxins A and B; *TNFA*, tumor necrosis factor α ; and *MICA* and *MICB*, major histocompatibility complex class I chain genes A and B.

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are located and assembled in the lumen of the ER, where they cannot bind peptides because the complex occupies the peptide-binding site. Heterotrimers leave the ER and pass through the Golgi apparatus to fuse with vesicles. The Ii is degraded and, with the help of HLA-DM and HLA-DO, a peptide can be joined. Complexes of HLA class II and peptide are relocated to the plasma membrane, where they can be recognized by CD4⁺ T cells.

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Reprinted from Katzav, A., Arango, M.T., Kivity, S., *et al.* (2013). Passive transfer of narcolepsy: anti-TRIB2 autoantibody positive patient IgG causes hypothalamic orexin neuron loss and sleep attacks in mice. *J Autoimmun*, **45**: 24-30. Copyright (2013), with permission from Elsevier.

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