INTRODUCTON AND AIM OF THE WORK

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The major histocompatibility complex (MHC), referred to in man as the HLA (human leukocyte antigen) region, has been one of the most intensively studied genetic regions during the past two decades. The MHC has been explored in several species, most notably man and mouse and it is highly conserved. Cytogenetic studies have mapped the MHC region to the p21.3 band on the short arm of chromosome 6. Current estimates are that the MHC region contains in the order of 200 genes. This complex region contains multiple expressed and non-expressed genes arranged in three major gene clusters. These include the MHC class I region genes which encode the classical transplantation antigens HLA- A, B, and C. The class II region contains genes which encoding the HLA-D molecules (HLA-DR, HLA-DP, HLA-DQ). The class III region contains genes encoding the complement proteins Factor B, C2 and C4 and the cytochrome P-450 enzyme steroid 21-hydroxylase. The MHC genes are the most polymorphic of all mammalian genes. There are multiple alleles at each locus and each genetic region contains several related genes at different loci. Serological reagents remain an important tool for the detection of polymorphism and, in addition to polyclonal antisera, which continue to be the mainstay of HLA-typing, monoclonal reagents against HLA class I and class II antigens are now widely available ***(Robert Lechler. 1994)***.

As a consequence of the application of modern cloning techniques, the HLA region is on the brink of full characterization and, together with recent advances in immunology, this creates the possibility of making significant progress in understanding the mechanisms responsible for the well-known association of certain HLA types with human diseases. The first reports of an association between an HLA antigen and disease were those of Hodgkin's lymphoma with a cross-reactive group of HLA-B antigens, B5, B15, B18, and B35 ***(Amiel, 1967)*** and of acute lymphoblastic leukemia with HLA-A2 ***(Walford et al., 1970)***.

These particular association have not proven to be consistently reproducible, but a short time later the remarkable association between the rheumatological disorder, ankylosing spondylitis, and HLA-B27 was described. These observations provided the need for further studies of HLA and disease associations, and a large number of diseases have been associated with the possession of particular HLA types. The outcome of hepatitis C virus infection is known to be highly variable and is determined largely by the host immune response, which is in turn restricted by the products encoded by the major histocompitability complex (MHC) ***(Brewerton et al., 1973)***.