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CD Cell Markers

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Clusters of differentiation (CDs) are a system for identifying cellular surface markers, a number of which define lymphocyte subsets (see , Lymphocytes). The system and its nomenclature were formalized in a 1982 international workshop. Originally CD terms specified the monoclonal antibodies (mAbs) that clustered statistically in their reactivities to target cells. More recently, the CD terms apply to the cellular molecules themselves. The CDs, which now number more than 200 (and may eventually number in the thousands), are defined at the Human Cell Differentiation Molecules workshops (formerly Human Leukocyte Differentiation Antigen Workshops). Workshops involve “multiple laboratories examining coded panels of

Chemokines

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Chemokines comprise a family of about 40 low-molecular-weight cytokines (see , Cytokines) with important roles in the immune system, as well as functions beyond it. The name chemokine, a contraction of “chemotactic cytokine,” reflects the common property, by which chemokines were originally identified, of promoting leukocyte chemotaxis. Chemokines are classified into 4 subfamilies, based on their cysteine (C) residues and other amino-acid (X) residues (see , Genetics, Nucleic Acids and Amino Acids): Examples of specific chemokines, by subfamily, are shown below: Expanded common names of the chemokines are often unwieldy and uninformative and so are rarely used, though use of

Complement

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It is estimated that one C3b deposited on an organ- ism can become four million in about 4 min. M. K. Liszewski and J. P. Atkinson(p922) The term complement refers to a group of serum proteins activated sequentially and rapidly in a cascade that produces molecules providing resistance to pathogens. The system was named in 1899 for its complementarity with antibodies in destroying microbes. Current nomenclature derives largely from the 1968 World Health Organization Bulletin "Nomenclature of Complement," with subsequent modifications as mechanisms of action were further elucidated. Three complement activation pathways are recognized: the classical pathway (activation by antibody), the

HLA/Major Histocompatibility Complex

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UPDATE: In April 2010, the WHO Nomenclature Committee for Factors of the HLA System introduced a modification of the nomenclature outlined in the manual; the new nomenclature introduces delimiters in the form of colons, which removes the restriction of only allowing 99 alleles in 1 group. Hence the former HLA-DQB1*0503 is now expressed as HLA-DQB1*05:03 (Tait BD. The ever-expanding list of HLA alleles: changing HLA nomenclature and its relevance to clinical transplantation. Transplant Rev [Orlando]. 2011;25[1]:1 8.). This change was made March 29, 2011. [I]n transplantation, Histocompatibility Leads to Acceptance; in anthropology, Human populations are Located by Allelic variation; in

Immunoglobulins

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… the antibody in serum is a mixture of perhaps 100 million slightly different types of molecule… J. H. L. Playfair and B. M. Chain(p38) Plasma cells can release up to 2000 antibody mole- cules per second … J. H. L. Playfair and B. M. Chain(p43) You are the antibody. Smash Mouth Immunoglobulins are the glycoproteins that constitute antibodies. They were first recognized by serum electrophoresis and, because they were localized to the electrophoretic gamma zone, were originally referred to as #-globulins. The term immunoglobulin and terminology for immunoglobulin classes were put forth in the 1960s. The use of the abbreviation Ig (pronounced

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… some viruses subvert the immune response by producing homologs of mammalian cytokines or their receptors. J. J. Oppenheim and M. Feldmann(p7) Cytokines are proteins or glycoproteins produced after stimulation (such as activation of immune cells) that act at short distances in very low concentrations to produce various effects, such as immune and inflammatory reactions, repair processes, and cell growth and differentiation., Each cytokine has multiple effects and overlaps with other cytokines, including structurally dissimilar ones, in those effects. The multiple effects (pleiotropy) are explained by the presence of cytokine receptors on a wide variety of cells, and the overlap (redundancy)

Lymphocytes

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The normal adult human body contains on the or- der of a trillion (1012) lymphocytes.… Together, the thymus and marrow produce approximately 109 mature lymphocytes each day, which are then released into the circulation. Tristram G. Parslow(pp40-41) Lymphocytes are the cells that carry out antigen-specific immune responses. The 2 main types are the T lymphocyte and the B lymphocyte, also called the T cell and the B cell. A hyphen does not appear in these terms, unless they are used adjectivally. Historically, the letters T and B reflected the anatomic sites of maturation of the 2 groups of cells, the thymus