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Nota di contenuto	About the Special Issue Editors -- Genomic Diversity of the Major Histocompatibility Complex in Health and Disease -- MHC Genomics and Disease: Looking Back to Go Forward -- The Cynomolgus Macaque MHC Polymorphism in Experimental Medicine -- MHC Evolution in the Era of Genomics: Phase 1.0 -- Major Histocompatibility Complex (MHC) Genes and Disease Resistance in Fish -- An RNA Metabolism and Surveillance Quartet in the Major Histocompatibility Complex -- Long Noncoding RNA HCPS, a Hybrid HLA Class I Endogenous Retroviral Gene: Structure, Expression, and Disease Associations -- The Major Histocompatibility Complex of Old World Camels-A Synopsis -- Intramolecular Domain Movements of Free and Bound pMHC and TCR Proteins: A Molecular Dynamics Simulation Study -- Unusual Placement of an EBV Epitope into the Groove of the Ankylosing Spondylitis-Associated HLA-B27 Allele Allows CD8+ T Cell Activation -- HLA-DQA1 and HLA-DQB1 Alleles, Conferring Susceptibility to Celiac Disease and Type 1 Diabetes, Are More Expressed Than Non-Predisposing Alleles and Are Coordinately Regulated -- A New Pedigree-Based SNP Haplotype Method for Genomic Polymorphism and Genetic Studies -- HLA-E Polymorphism Determines Susceptibility to BK Virus

Nephropathy after Living-Donor Kidney Transplant -- Distribution of Killer-Cell Immunoglobulin-Like Receptor Genes and Combinations of Their Human Leucocyte Antigen Ligands in 11 Ethnic Populations in China -- Role of MHC-I Expression on Spinal Motoneuron Survival and Glial Reactions Following Ventral Root Crush in Mice -- Genetic Association between Swine Leukocyte antigen Class II Haplotypes and Reproduction Traits in Microminipigs -- Genetic Diversity and Differentiation at Structurally Varying MHC Haplotypes and Microsatellites in Bottlenecked Populations of Endangered Crested Ibis -- Reproductive Strategy Inferred from Major Histocompatibility Complex-Based Inter-Individual, Sperm-Egg, and Mother-Fetus Recognitions in Giant Pandas (*Ailuropoda melanoleuca*) -- Discovery of a Novel MHC Class I Lineage in Teleost Fish which Shows Unprecedented Levels of Ectodomain Deterioration while Possessing an Impressive Cytoplasmic Tail Motif.

Sommario/riassunto

The major histocompatibility complex (MHC) is a highly polymorphic and diverse multigene locus in all jawed vertebrate species that has an integral role in adaptive/innate immune systems, transplantation, and infectious and autoimmune diseases. The MHC supra-locus in mammalian vertebrates is usually partitioned into three distinct regions, known as classes I, II, and III, which, to varying extents, can be found conserved in nonmammalian jawed vertebrates, such as bony fish, amphibians, and bird lineages. The MHC gene region is characterized particularly by the expression of class I and class II glycoproteins that bind peptides derived from intracellular or extracellular antigens to circulating T-cells. While this expressed antigenic specificity remains the predominant interest with respect to MHC function and polymorphism in a population, a broader concept has emerged that examines the MHC as a multifunctional polymorphic controller that facilitates and regulates genome diversity with a much greater array of functions and effects than just MHC-restricted antigen recognition. This volume of 19 reprints presented by various experts and collected from the Special Issue of Cells on "MHC in Health and Disease" covers a broad range of topics on the genomic diversity of the MHC regulatory system in various vertebrate species, including MHC class I, II, and III genes; innate and adaptive immunity; neurology; transplantation; haplotypes; infectious and autoimmune diseases; fecundity; conservation; allelic lineages; and evolution. Taken together, these articles demonstrate the immense complexity and diversity of the MHC structure and function within and between different vertebrate species.
