Hla Typing Epitopes

Virus Receptors—Advances in Research and Application: 2013 Edition is a ScholarlyBrief™ that delivers timely, authoritative, comprehensive, and specialized information about ZZZAdditional Research in a concise format. The editors have built Virus Receptors—Advances in Research and Application: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about ZZZAdditional Research in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Virus Receptors—Advances in Research and Application: 2013 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Hepatitis B virus (HBV) is a non-cytopathic virus that causes liver disease with variable duration and severity. During infection, host immune response is responsible for both liver damage and viral clearance. The adaptive immune response, particularly virus-specific cytotoxic T lymphocyte (CTL) response, has been shown to play a major role in HBV infection immunopathogenesis by destroying the infected hepatocytes or eliminating HBV in a non-cytolytic manner. From virus-host interaction perspective, HBV core antigen (HBcAg) has been of interest because it is a major immunological target of CTL. Many human leucocyte antigen (HLA)-restricted HBcAg T cell epitopes have been reported which might be different due to the diverse distribution ethnic-specific HLA in distinct geographical regions. Therefore, it is important to identify and characterize HBcAg CTL epitopes in area with high HBV endemic and high population diversity like Indonesia. To support HBcAg as a promising protein to develop CTL epitope-based vaccine, HBcAg sequences of samples from individuals in Indonesia were analyzed. It was found that the sequences were conserved, and amino acid substitutions observed did not reflect the influence of human leucocyte antigen (HLA) types on the HBcAg variability. To develop such a vaccine, the first thing to do is to determine the peptide(s) that must be immunogenic and can interact with HLA class I proteins of Indonesian populations. Using immunoinformatic approaches, 20 HBcAg CTL epitopes (14 nonamers and 6 decamers) against HLA alleles in Javanese, Sundanese-Javanese, and T ernatean populations were identified. These 20 CTL epitopes were also characterized for sequence variation and conservation in 125 HBcAg of Indonesian isolates. Variations of HBcAg CTL epitope were detected, but one variant was found to be predominant in each epitope. By immunoinformatic analysis, different binding affinity was observed for each variant. The difference was found to depend on the location and type of amino acid in related epitope that affect its interaction with HLA binding grooves. The present study describes the use of immunoinformatic approaches as a pilot study to identify HBcAg-CTL epitopes of Indonesian isolates and analyze their conservation and variability. Of 20 CTL epitopes, HBcAg 18-27 was found the best CTL epitope for the Indonesian populations represented by the Javanese, Sundanese-Javanese, and Ternatean. Among the discovered epitope variants, residue FLPSDFFPSI was identified as the best candidate to develop peptide-based vaccine due to its predominance among all isolates studied. This study will be beneficial for developing an approach for successful viral control in hepatitis B patients.

This book presents an authoritative collection of HLA phenotyping and genotyping techniques to be used at the bench level and as a reference. It includes detailed methodologies, notes on the interpretation of tests, reference material, and appendices.

Immunological Concepts in Transfusion Medicine provides a thorough discussion of the immune aspects of blood component transfusion, with in-depth information on the intricacies of immune responses to blood components and the immune processes that may be initiated in response to blood exposure. Written to increase knowledge and awareness of immune challenges such as alloimmunization and transfusion-related acute lung injury, this title bridges current basic scientific discoveries and the potential effects seen in blood recipients. Complies the knowledge and expertise of Dr. Robert Maitta, an expert in immune responses and antibody function/structure studies. Helps clinicians in the daily practice of caring for patients in need of transfusion support, as well as physicians in training when considering utilizing blood transfusions in a limited scope or in the setting of massive transfusion. Includes an immunology primer as an introduction to in-depth chapters covering allergic immune reactions to blood components, transfusion-related immunomodulation, fetal and neonatal alloimmune thrombocytopenia and neonatal neuthropenia, complications of haploidentical and mismatched HSC transplantation, chimeric antibody receptor therapies, and much more. Consolidates today's available information on this timely topic into a single, convenient resource.

To treat disease or correct genetic disorders using gene therapy, the most suitable vehicle must be able to deliver genes to the appropriate tissues and cells in the body in a specific as well as safe and effective manner. While viruses are the most popular vehicles to date, their disadvantages include toxicity, limited size of genes they can carry, and limited scale of industrial production. Polymeric Gene Delivery: Principles and Applications is the first comprehensive book to specifically address polymeric gene delivery systems. Uniting the expertise of international academic and industrial scientists who are working in the area of polymeric vectors for gene delivery, it is written by prominent researchers directly involved in this field. The book is divided into five sections that deal with challenges and opportunities in gene delivery and the efficient delivery of genes into somatic cells using polymeric vectors. The authors discuss using biodegradable polymers, condensing and non-condensing polymeric systems, microspheres and nanospheres, and designing specialized delivery systems based on targeting strategies. Polymeric Gene Delivery: Principles and Applications accentuates the versatility of polymeric delivery systems, including the potential for biocompatibility, the ability to design their formulation and geometry for a specific purpose, and the ease of modification to the surface of

polymeric carriers. This book is an up-to-date guide for researchers in the field and those interested in entering this dynamic field.

This updated volume gives a clear description of transplantation surgery and covers the recent developments and innovations that have occurred within the field. New chapters on the management of graft dysfunction, organ preservation, new immunosuppressive drugs, molecular medicine and transplantation, robotics in transplantation, and organ bio-engineering are included. The book aims to be an authoritative guide to transplantation surgery that will help improve the likeliness of procedures being successful. This book will be relevant to transplant surgeons, physicians, and nephrologists.

Advancing Immunopeptidomics: Validation of the Method, Improved Epitope Prediction, Peptide-based HLA Typing and Discrimination of Healthy and Malignant TissueWeiterentwicklung Der Immunpeptidomik: Validierung Der Methode, Verbesserung Der Epitopvorhersage, Peptidbasierte HLA-Typisierung und Unterscheidung Von Gesundem und Bösartigem GewebeThe HLA FactsBookElsevier

Ever since the discovery of blood types early in the last century, transfusion medicine has evolved at a breakneck pace. This second edition of Blood Banking and Transfusion Medicine is exactly what you need to keep up. It combines scientific foundations with today's most practical approaches to the specialty. From blood collection and storage to testing and transfusing blood components, and finally cellular engineering, you'll find coverage here that's second to none. New advances in molecular genetics and the scientific mechanisms underlying the field are also covered, with an emphasis on the clinical implications for treatment. Whether you're new to the field or an old pro, this book belongs in your reference library. Integrates scientific foundations with clinical relevance to more clearly explain the science and its application to clinical practice. Highlights advances in the use of blood products and new methods of disease treatment while providing the most up-to-date information on these fast-moving topics Discusses current clinical controversies, providing an arena for the discussion of sensitive topics. Covers the constantly changing approaches to stem cell transplantation and brings you the latest information on this controversial topic.

Organ Transplantation: A Clinical Guide covers all aspects of transplantation in both adult and pediatric patients. Cardiac, lung, liver, kidney, pancreas and small bowel transplantation are discussed in detail, as well as emerging areas such as face and pancreatic islet cell transplantation. For each organ, chapters cover basic science of transplantation, recipient selection, the transplant procedure, anesthetic and post-operative care, and long-term follow-up and management of complications. Important issues in donor selection and management are also discussed, including recruitment and allocation of potential donor organs and expanding the donor pool. Summary tables and illustrations enhance the text, and long-term outcome data are provided where available. Written by expert transplant surgeons, anesthetists and physicians, Organ Transplantation: A Clinical Guide is an invaluable multidisciplinary resource for any clinician involved in transplantation, providing in-depth knowledge of specialist areas of transplantation and covering the full range of management strategies.

This comprehensive and definitive work succeeds and expands on the highly successful HLA and Disease published in 1994. This new edition has been updated, redesigned and reorganised into three sections making it an invaluable reference. The introductory section summarises current knowledge on the structure, function, genetics and evolution of the HLA system. It clarifies its complex and ever changing nomenclature and discusses the mechanisms underlying disease associations with HLA alleles. The second section deals with the importance of HLA in the context of different clinical specialities. Individual chapters describe the association between HLA polymorphism and each disease. The final section features chapters on current laboratory practice in histocompatibility and tissue typing. HLA in Health and Disease is essential reading for basic and clinical researchers working in immunology and immunogenetics, transplantation medicine and autoimmunity. It will also be of interest to anyone in the fields of rheumatology, diabetology, nephrology, allergy, dermatology, neurology, endocrinology, cancer biology, respiratory medicine, haematology, molecular biology and biochemistry. Key Features Structure, function and genetics of HLA HLA nomenclature Evolution of HLA polymorphisms HLA associations in arthritis and rheumatology, renal disease, neurology, diabetes and endocrinology, gastroenterology, respiratory disease, ophthalmology, infections, dermatology and psychiatry HLA and organ transplantation Serological and PCR-based methods in HLA typing Cellular techniques in testing histocompatibility Edited and written by an international panel of experts in the field

The HLA FactsBook presents up-to-date and comprehensive information on the HLA genes in a manner that is accessible to both beginner and expert alike. The focus of the book is on the polymorphic HLA genes (HLA-A, B, C, DP, DQ, and DR) that are typed for in clinical HLA laboratories. Each gene has a dedicated section in which individual entries describe the structure, functions, and population distribution of groups of related allotypes. Fourteen introductory chapters provide a beginner's guide to the basic structure, function, and genetics of the HLA genes, as well as to the nomenclature and methods used for HLA typing. This book will be an invaluable reference for researchers studying the human immune response, for clinicians and laboratory personnel involved in clinical and forensic HLA typing, and for human geneticists, population biologists, and evolutionary biologists interested in HLA genes as markers of human diversity. Introductory chapters provide good general overview of HLA field for novice immunologists and geneticists Up-to-date, complete listing of HLA alleles Invaluable reference resource for immunologists, geneticists, and cell biologists Combines both structural and functional information, which has never been compiled in a single reference book previously Serological specificity of allotypes Identity of material sequenced including ethnic origin Database accession numbers Population distribution Peptide binding specificities T cell epitopes Amino acid sequences of allotypes Key references

[Truncated abstract] Natural killer (NK) cell alloreactivity can be exploited in haploidentical haematopoietic stem cell transplantation (HSCT) to improve graft survival, reduce graft versus host disease and decrease leukaemic relapse. NK cells lyse cells that have reduced expression of class I HLA molecules. In an allogeneic setting, donor NK cells may be activated by the absence of donor (self) class I HLA molecules on recipient cells; the absence of self-epitopes being detected by inhibitory KIR receptors on donor NK cells. The way in which genetic polymorphism of the receptors and ligands affects NK allorecognition of missing self, has not been fully elucidated. HLA-C molecules are divided into two groups, C1 and C2, with KIR2DL1 recognising cells expressing C2 and KIR2DL2 and KIR2DL3 recognising cells expressing C1. Donor NK cells expressing KIR2DL2 or KIR2DL3 can be alloreactive towards a recipient if they lack the C1 epitope and donor NK cells expressing KIR2DL1 can be alloreactive towards a recipient if they lack the C2 epitope. KIR3DL1 recognises the Bw4 epitope present on one-third of HLA-B alleles and certain HLA-A alleles. NK cells from donors expressing KIR3DL1 can be alloreactive towards recipients whose cells lack Bw4. Mismatches of KIR related HLA epitopes does not always results in NK alloreactivity. Therefore it is not possible to reliably predict NK alloreactivity based solely on the donor's HLA type and KIR repertoire and the recipient's HLA type. ... All Bw4-positive HLA-B alleles, with the exception of HLA-B*1301 and B*1302, protected targets from lysis. HLA-A*2402 and HLA-A*3201 unequivocally protected target cells from lysis whereas HLA-A*2501 and HLA-A*2301 provided only weak protection from lysis. KIR3DL1-dependent alloreactive NK clones were identified in donors whose only Bw4 positive allele was HLA-A*2402 but not in donors whose only Bw4 positive HLA allele was HLA-B*1301 or B*1302. Finally this thesis demonstrated that an activating KIR can control NK cell alloreactivity. Donors who are C2 negative and KIR2DS1 positive had NK cells that expressed the activating receptor KIR2DS1 and were capable of lysing cells expressing the C2 epitope. More so, KIR2DS1 dependent NK clones were shown to override inhibitory signals generated by NKG2A interacting with its ligand,

HLA-E. The identification of these NK clones has important implications for haploidentical HSCT in that recipient expressing all three NK epitopes, C1, C2 and Bw4 were previously thought to be resistant to alloreactive NK cells controlled by inhibitory receptors. Such patients may be amenable to haploidentical HSCT from C2 negative, KIR2DS1 positive donors. These results will improve the ability to predict NK cell alloreactivity based on a donor's HLA type and KIR repertoire and the recipient s HLA type.

This comprehensive book on transfusion practices and immunohematology offers concise, thorough guidelines on the best ways to screen donors, store blood components, ensure safety, anticipate the potentially adverse affects of blood transfusion, and more. It begins with the basics of genetics and immunology, and then progresses to the technical aspects of blood banking and transfusion. Chapters are divided into sections on: Basic Science Review; Blood Group Serology; Donation, Preparation, and Storage; Pretransfusion Testing; Transfusion Therapy; Clinical Considerations; and Safety, Quality Assurance, and Data Management. Developed specifically for medical technologists, blood bank specialists, and residents, the new edition conforms to the most current standards of the American Association of Blood Banks (AABB). Expert Opinion essays, written by well-known, frequently published experts, discuss interesting topics of research or new advances in the field. Important terms are defined in the margins of the pages on which they appear, enabling readers to easily check the meaning of an unfamiliar term where it appears in context. Margin notes highlight important concepts and points, remind readers of previously discussed topics, offer an alternative perspective, or refer readers to other sources for further information. Material conforms to the most recent AABB standards for the most accurate, up-to-date information on immunohematology. Advanced concepts, beyond what is required for entry-level practice, are set apart from the rest of the text so readers can easily differentiate between basic and advanced information. A new chapter on Hematopoietic Stem Cells and Cellular Therapy (chapter 19) provides cutting-edge coverage of cellular therapy and its relevance to blood-banking. New content has been added on molecular genetics, component therapy, and International Society of Blood Transfusion (ISBT) nomenclature, as well as the latest information on HIV, hepatitis, quality assurance, and information systems. Coverage of new technologies, such as nucleic acid technology and gel technology, keeps readers current with advances in the field.

This textbook reviews the novel techniques employed in corneal transplantation. It will assist fellows and corneal surgeons in using these techniques to best effect and in selecting patients for surgical procedures, taking into account the benefits and risks. Until 15 years ago the state-of-the art type of corneal transplantation was penetrating keratoplasty. Since the start of this millennium, however, important advances have been made in developing new surgical techniques. Today, the vast majority of keratoplasty procedures are performed as delicate lamellar procedures, either with the assistance of fine microkeratomes or femtosecond lasers or using very advanced surgical dissection procedures. Corneal Transplantation provides detailed information on these and other advances, which have helped patients undergoing keratoplasty to achieve a much faster visual recovery and a more stable eye with less risk of rejection episodes. ?

Influenza: New Insights for the Healthcare Professional: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Influenza. The editors have built Influenza: New Insights for the Healthcare Professional: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Influenza in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Influenza: New Insights for the Healthcare Professional: 2011 Edition has been produced by the world’s leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at http://www.ScholarlyEditions.com/.

Hematology, 6th Edition encompasses all of the latest scientific knowledge and clinical solutions in the field, equipping you with the expert answers you need to offer your patients the best possible outcomes. Ronald Hoffman, MD, Edward J. Benz, Jr., MD, Leslie E. Silberstein, MD, Helen Heslop, MD, Jeffrey Weitz, MD, John Anastasi, MD, and a host of world-class contributors present the expert, evidence-based guidance you need to make optimal use of the newest diagnostic and therapeutic options. Consult this title on your favorite e-reader with intuitive search tools and adjustable font sizes. Elsevier eBooks provide instant portable access to your entire library, no matter what device you're using or where you're located. Make confident, effective clinical decisions by consulting the world's most trusted hematology reference. Access the complete contents online at www.expertconsult.com, with a downloadable image collection, regular updates, case studies, patient information sheets, and more. Apply all the latest knowledge on regulation of gene expression, transcription splicing, and RNA metabolism; pediatric transfusion therapy; principles of cell-based gene therapy; allogeneic hematopoietic stem cell transplantation for acute myeloid leukemia and myelodysplastic syndrome in adults; hematology in aging; and much more, thanks to 27 brand-new chapters plus sweeping updates throughout. Find the information you need quickly and easily thanks to a completely reworked organization that better reflects today’s clinical practice. Visualize clinical problems more clearly with new and updated images that reflect the pivotal role of hematopathology in modern practice. Benefit from the experience and fresh perspective of new editor Dr. Jeffrey Weitz, Professor of Medicine at McMaster University School of Medicine and Executive Director of the Thrombosis and Atherosclerosis Research Institute in Ontario.

This invaluable book provides comprehensive coverage of contemporary serological, cellular and molecular methodologies in histocompatibility testing, and their application to human organ transplantation and transfusion. The contributors are internationally respected authorities in histocompatibility and immunogenetics, and are closely involved in the development or application of state-of-the-art technologies. The first three sections of the book are primarily intended for use as a bench manual for histocompatibility testers, immunologists and immunogeneticists; the fourth and fifth sections, on selection of donors and statistical methods, will further assist medical practitioners involved in clinical transplantation and its outcome. The final section of the book reviews the genetics and clinical relevance of minor histocompatibility antigens. Contents: Foreword:HLA Polymorphism: Origin and Maintenance (W F Bodmer)Introduction:Immune Recognition and the MHC (P Travers)Antibody-Based Histocompatibility Testing:HLA Typing by Alloantibodies and Monoclonal Antibodies (G M Th Schreuder)Screening for HLA-Specific Antibodies (C Brown & C Navarrete)Detection of Soluble HLA (V Rebmann & H Grosse-Wilde)Crossmatching by Lymphocytotoxicity and Flow Cytometry (S Martin & A Harmer)DNA-Based Histocompatibility Testing:PCR-SSP Typing (M Bunce)PCR-SSOP Typing (D Middleton)Sequencing-Based Typing (J Ross)DNA Conformational Analysis (J R Argüello & J A Madrigal)Microsatellite Typing (A Cambon-Thomsen et al.)On-Line HLA Sequence Alignments (G J Laundy & J L Bidwell)Cell-Based Histocompatibility Testing:Cell-Based Histocompatibility Testing (E Kaminski)Donor Selection:Allocation of Solid Organs for Transplantation (P A Dyer & S Sheldon)Selection of Haemopoietic Stem Cell Donors for Transplantation (A Green)Selection of Platelet Donors and Provision of HLA-Matched Platelets (J Harrison & C Navarrete)Statistical Methods:Population Genetics of the Human Major Histocompatibility Complex (R F Schipper et al.)Survival Analysis in Solid Organ Transplantation (P A Dyer)Survival Analysis in Bone Marrow Transplantation (S Richards)HLA and Disease Association: Statistical Considerations(J H Barrett et al.)Minor Histocompatibility Antigens:Minor Histocompatibility Antigens (E Simpson) Readership: Researchers in immunology, histopathology, cell biology and genetics, surgeons and workers in blood transfusion.

Keywords:Immunology;Genetics;Immunogenetics;Transplantation;Histocompatibility;Tissue Typing;Human Leucocyte Antigens, HLA;Major Histocompatibility Complex, MHC;Laboratory Methods

Immunoinformatics: Predicting Immunogenicity In Silico is a primer for researchers interested in this emerging and exciting technology and provides examples in the major areas within the field of immunoinformatics. This volume both engages the reader and provides a sound foundation for the use of immunoinformatics techniques in immunology and vaccinology. The volume is conveniently divided into four sections. The first section, Databases, details various immunoinformatic databases, including IMGT/HLA, IPD, and SYEPEITHI. In the second section, Defining HLA Supertypes, authors discuss supertypes of GRID/CPCA and hierarchical clustering methods, Hla-Ad supertypes, MHC supertypes, and Class I Hla Alleles. The third section, Predicting Peptide-MCH Binding, includes discussions of MCH binders, T-Cell epitopes, Class I and II Mouse Major Histocompatibility, and HLA-peptide binding. Within the fourth section, Predicting Other Properties of Immune Systems, investigators outline TAP binding, B-cell epitopes, MHC similarities, and predicting virulence factors of immunological interest. Immunoinformatics: Predicting Immunogenicity In Silico merges skill sets of the lab-based and the computer-based science professional into one easy-to-use, insightful volume.

Hypothesis. The alleles encoding human leukocyte antigen (HLA) molecules that present viral epitopes required for effective immune responses should be associated with lower risk of HCV infection. Purpose/design. To determine which HLA supertype alleles (functional allelic groupings) are associated with HCV infection, HLA supertypes and behavioral factors were examined in participants from the Vancouver Injection Drug User Study open cohort, grouped according to HCV serostatus (93 seronegative, 120 seropositive). HCV seronegative participants were followed prospectively for factors associated with seroconversion. Results. No HLA supertypes were associated with HCV seronegativity or decreased seroconversion. Class I HLA supertype B62 was associated with increased HCV seroconversion (HR 2.35, p = 0.02). Individual class II HLA alleles and behavioral factors were associated with HCV serostatus and seroconversion. Conclusions . HLA associations with HCV infection might aid in the identification of epitopes important in HCV infection. For broad population coverage, HLA supertypes should be considered in epitope-based vaccine design.

The Essentials in Ophthalmology series represents an aged by readership acceptance of the first two series, unique updating publication on the progress in all sub- each of eight volumes. This is a success that was made specialties of ophthalmology. possible predominantly by the numerous opinion-lead- In a quarterly rhythm, eight issues are published cov- ing authors and the outstanding section editors, as well ering clinically relevant achievements in the whole field as with the constructive support of the publisher. There of ophthalmology. This timely transfer of advancements are many good reasons to continue andstill improve the for the best possible care of our eye patients has proven to dissemination of this didactic and clinically relevant be effective. The initial working hypothesis of providing information. new knowledge immediately following publication in the peer-reviewed journal and not waiting for the textbook G. K. Krieglstein appears to be highly workable. R. N. Weinreb We are now entering the third cycle of the Ess- tials in Ophthalmology series, having been encour- Series Editors Preface Our knowledge and understanding of immune-mediated the most recent research material available. The scope of diseases has increased exponentially over the past few the chapters ranges from well-recognized immune dis- years, especially in the areas of immunopathogenesis and ders such as cornea transplantation, uveitis and diabetic immunotherapeutics.

Immunohematology: Principles and Practice, Third Edition an ideal text for anyone who wants to master the theory and practices of today's blood banking.

This issue of Clinics in Laboratory Medicine, edited by Drs. Julio Delgado and Eszter Lazar-Molnar, will focus on HLA and Disease. Topics include, but are not limited to, The potential impact of NGS in HLA and disease association studies, HLA typing by NGS, HLA Antibody Testing: Evolution and Challenges, Diversity of killer cell immunoglobulin-like receptors and disease, Technical Aspects of Crossmatching in Transplantation, HLA Markers in Celiac Disease, HLA Associations in Drug Hypersensitivity Reactions, HLA in BMT, Post-transplant monitoring, HLA epitope matching in transplantation, and Molecular Testing in Post-Transplant Monitoring.

Blood and Marrow Stem Cell Transplantation, Third Edition serves as a convenient reference for oncology nurses caring for blood and marrow stem cell transplantation recipients. The Third Edition has been updated and revised to reflect the most current research related to the past, present, and future of blood and marrow stem cell transplants. This resource covers everything from preparing for transplantation surgery, to recovery-related issues and delayed outcomes. Basic background information on transplantation procedures and processes are provided, along with in-depth coverage of pulmonary, cardiac, renal and hepatic, neurologic, and hematologic effects. A chapter devoted to controversial ethical issues is also provided. Blood and Marrow Stem Cell Transplantation, Third Edition presents complete, up-to-date coverage of the transplantation process from beginning to end.

Recognized as the definitive reference in laboratory medicine since 1908, Henry's Clinical Diagnosis continues to offer state-of-the-art guidance on the scientific foundation and clinical application of today's complete range of laboratory tests. Employing a multidisciplinary approach, it presents the newest information available in the field, including new developments in technologies and the automation platforms on which measurements are performed. Provides guidance on error detection, correction, and prevention, as well as cost-effective test selection. Features a full-color layout, illustrations and visual aids, and an organization based on organ system. Features the latest knowledge on cutting-edge technologies of molecular diagnostics and proteomics. Includes a wealth of information on the exciting subject of omics; these extraordinarily complex measurements reflect important changes in the body and have the potential to predict the onset of diseases such as diabetes mellitus. Coverage of today's hottest topics includes advances in transfusion medicine and organ transplantation; molecular diagnostics in microbiology and infectious diseases; point-of-care testing; pharmacogenomics; and the microbiome. Toxicology and Therapeutic Drug Monitoring chapter discusses the necessity of testing for therapeutic drugs that are more frequently being abused by users.

Dissection of the specificity of host immune responses following infection with Mycobacterium tuberculosis is essential for designing effective vaccination and diagnostic biomarkers as well as for better understanding of immunopathogenesis of active tuberculosis. The articles in this volume of the Topics in Microbial Immunology review the significance of this area of research from both experimental models and clinical surveys. This includes T cell recognition of MHC permissive epitopes, use of algorithms for genome-based prediction of immunodominant epitopes, evaluation of candidate antigens/epitopes and adjuvants for vaccination and immunodiagnosis. Future research strategies indicate the need for better understanding of the relationship between epitope specificity and the phenotype of responding T cells and search for biomarkers with a capacity to discriminate and predict the change from latent infection to active disease. These research avenues have important potentials for improving the prevention and control of tuberculosis.

HLA from Benchtop to Bedside provides the reader with a comprehensive, concise and thoroughly up-to-date book on all aspects of the HLA system, including new techniques and methodologies. Each chapter begins with bullet point lists of principle learning points, including comprehensive references and validated links to international resources. Written by a diverse range of international academics for

professionals, researchers, undergraduate and graduate students, this book is ideal for organ and stem cell transplant professionals, histocompatibility laboratory professionals and staff, medical residents and fellows on transplant services, medical students, and students in clinical laboratory science. The book's author, Dr. Arthur Bradley Eisenbrey, is an experienced transplant pathologist who has held significant academic and leadership positions in the field. Reviews current knowledge surrounding the HLA system Covers current methodologies and utilization of histocompatibility testing Authored by a leader in the field of histocompatibility and transfusion medicine

Advances in Immunology

The Acquired Immunodeciency Syndrome pandemic continues to have a large social impact. Many advances in the treatment of infection by the causative agent, Human Immunode ciency Virus, have been made in the last three decades. However, this treatment often means a life-long rigorous adherence to treatment and acquisition of resistance mutations to antiretrovirals. Thus far, the e cacy of promising vaccines has been disappointing. In the last decade, interest has grown concerning the interaction between mutations conferring resistance to antiretrovirals and the e ect this has on epitopes recognized by cytotoxic-T-lymphocytes (CTL). Investigating this is a di cult task, owing to both the extreme polymorphism of HIV and the polymorphism of the Human Leukocyte Antigen (HLA) molecules that present peptides to the CTLs. A large amount of HLA-associated CTL escape mutations have been discovered. Together with this, computational approaches in CTL epitope discovery is becoming increasingly accurate. Here, a method of imputing HLA type from patients together with predicting the in uence of anitretroviral mutations was used to discover potential epitopes for the HLA B*15 and B*48 types in the HIV-1 Subtype B pol region.

Completely revised and updated for its Fourth Edition, this Spiral(R) Manual is a quick-reference guide to the diagnosis and treatment of allergies and immunologic disorders in children and adults. Coverage includes allergic and immunologic disorders of each organ system; anaphylaxis; insect, drug, and food allergies; rheumatic diseases; immunohematology; transplantation immunology; primary immunodeficiency diseases; HIV disease and related opportunistic infections; immunologic diagnostic techniques; and immunization and immunoprophylaxis. The book is written in an easy-to-scan outline format, with numerous tables. Fourteen appendices provide rapid access to essential information, including normal laboratory values, allergy elimination diets, and manufacturers of allergenic extracts and environmental control products. A Brandon-Hill recommended title.

Cancer Vaccines and Tumor Immunity offers a review of the basic scientific discoveries that have moved forward into clinical trials. Presented in the context of real-world human research and experimentation, these major scientific advances demonstrate how our understanding of immune activation, T-regulatory cells, and autoimmunity will impact cancer vaccine design. The authors also explain how vaccination in the context of bone marrow transplantation will open new avenues for clinical study in the future.

Offering practical guidance for all members of the transplant team, Kidney Transplantation, Principles and Practice, 8th Edition, provides the balanced, up-to-date information you need to achieve optimal outcomes for your patients. A global team of internationally renowned surgeons and nephrologists, many new to this edition, offers fresh perspectives on everything from applied science and surgical techniques to immunosuppressive methods, outcomes, risks, and medical considerations related to kidney transplantation, in both adults and children. Offers state-of-the-art coverage of all areas of kidney transplantation such as preservation of kidneys; mechanisms of rejection and the induction of tolerance; techniques of laparoscopic live donor nephrectomy; and immunosuppression. Contains up-to-date outcomes data and analysis of the evidence supporting current practice in the field. Includes new information on desensitization and considerable new data on the clinical use of costimulation blockade. Keeps you current with new chapters on kidney allocation policy that reflects the ethical and societal values of different countries and populations; and biomarkers of kidney injury and rejection, including the need for better monitoring tools to guide therapy and patient management. Covers hot topics such as management of chronic allograft failure, the sensitized patient and antibody-mediated rejection, and paired exchange principles. Features hundreds of superb illustrations to help you visualize key concepts and nuances of renal transplantation. Provides dynamic visual guidance with new real-time video coverage of ultrasound-guided pancreas allograft biopsy; a new animation of calcineurin inhibitor mechanism of action animation; and videos that demonstrate the formation of an immune synapse, 3-D rotational images of immune synapses, an NK cell killing its target, peritoneal dialysis-catheter insertion techniques, laparoendoscopic single site (LESS) donor nephrectomy, and more.

Encyclopedia of Bioinformatics and Computational Biology: ABC of Bioinformatics combines elements of computer science, information technology, mathematics, statistics and biotechnology, providing the methodology and in silico solutions to mine biological data and processes. The book covers Theory, Topics and Applications, with a special focus on Integrative –omics and Systems Biology. The theoretical, methodological underpinnings of BCB, including phylogeny are covered, as are more current areas of focus, such as translational bioinformatics, cheminformatics, and environmental informatics. Finally, Applications provide guidance for commonly asked questions. This major reference work spans basic and cutting-edge methodologies authored by leaders in the field, providing an invaluable resource for students, scientists, professionals in research institutes, and a broad swath of researchers in biotechnology and the biomedical and pharmaceutical industries. Brings together information from computer science, information technology, mathematics, statistics and biotechnology Written and reviewed by leading experts in the field, providing a unique and authoritative resource Focuses on the main theoretical and methodological concepts before expanding on specific topics and applications Includes interactive images, multimedia tools and crosslinking to further resources and databases

Neoplastic Diseases of the Blood integrates the history, epidemiology, pathology, pathophysiology, and therapeutics of modern neoplastic hematopathology. The book is divided into five major sections, with the first four covering the spectrum of hematologic neoplasia— Chronic Leukemias and Related Disorders , Acute Leukemias, Myeloma and Related Disorders, and Lymphomas. The fifth section covers a variety of topics in supportive care. Now in its fifth edition, this classic and invaluable text brings together a team of internationally renowned experts and offers in-depth coverage of the complex interface between diagnosis and therapy. Chapters feature an accessible and easy-to-read layout and provide updates on the tremendous progress made in the last decade in the understanding of the nature of hematologic

malignancies and their treatment. An authoritative and indispensable resource for students, trainees, and clinicians, this fifth edition is sure to distinguish itself as the definitive reference on this topic.

The first real major breakthrough that laid the basis of HLA antibody detection in the field of solid organ transplantation, came with the introduction of the complement dependent cytotoxicity (CDC) test in 1964 by Terasaki and McClelland. Since then, methods for antibody detection have evolved remarkably from conventional cell-based assays to the current advanced solid phase systems on the Luminex platform, with increasing degree of sensitivity and specificity. The latter have been indispensable for more accurate identification of donor specific HLA antibodies in broadly reactive allo antisera, and to guide donor selection and kidney paired exchange programs through virtual crossmatching, in addition to serving as excellent tools for initiating pre-transplant desensitization and post- transplant antibody monitoring. Consensus is evolving on the optimal routine employment of these methods in donor selection strategies along with an understanding of the clinical relevance of antibodies detected by each of them. The immunoassays based on the Luminex platform and flow cytometric beads are however unable to discriminate complement fixing from non-complement fixing HLA antibodies. This is important because the former are considered clinically more pertinent in the peri-transplant period. The C1q assay which is a modification of the solid phase assay based on Luminex single antigen beads, which can be used effectively to monitor high dose IVIG desensitization is essentially a surrogate complement fixing assay, retaining the exquisite sensitivity and specificity of the Luminex platform. Currently, information obtained from these assays is preliminary and much needs to be done to standardize technologies and set a consensus ‘MFI cut off’ for antibody positivity. Besides the overriding influence of anti-HLA antibodies on overall solid organ graft survival, immune response to non-HLA antigens has become a topic of substantial interest in recent years. An ever expanding list of non-HLA antigens has been implicated in graft rejection for various organs, of which the most noted are the Major Histocompatibility Complex class I chain-related molecule A (MICA), Vimentin, Myosin, Angiotensin II type 1 receptor (AT1R), Tubulin and Collagen. MICA is one of the most polymorphic and extensively studied non-HLA antigenic targets especially in renal transplantation. Although there are clear indications of MICA antibodies being associated with adverse graft outcome, to date a definitive consensus on this relationship has not been agreed. Because MICA molecules are not expressed constitutively on immunocompetent cells such as T and B lymphocytes, it is of utmost importance to address the impact of MICA donor specific antibodies (DSA) as compared to those that are non- donor specific (NDSA) on graft outcome. The soluble isoform of MICA molecule (sMICA) that is derived from the proteolytic shedding of membrane bound molecules has the potential to engage the NK-cell activating receptor NKG2D and down-regulate its expression. Consequent to the interaction of NKG2D by sMICA, the receptor ligand complex is endocytosed and degraded and thus suppresses NKG2D mediated lysis of the target by NK cells. Thus interaction between NKG2D and sMICA leads to expansion of immunosuppressive/anergic T cells thereby resulting in suppression of NKG2D mediated host innate immunity. These concept support the possible involvement of an immunosuppressive role for sMICA during allotransplantation as shown recently for heart transplantation. This research topic focusses on the clinical utility of investigating the complete antibody repertoire in solid organ transplantation.