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# Sex Hormones and Immunity to Infection



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# **Sex Hormones And Immunity To Infection**

Rongrong Fan, Ines Pineda-Torra, Nicolas Venteclef

#### **Sex Hormones And Immunity To Infection:**

Sex Hormones and Immunity to Infection Sabra L. Klein, Craig Roberts, 2009-10-22 Why sex matters Among human and nonhuman animals the prevalence and intensity of infection typically is higher in males than females and may reflect differences in exposure as well as susceptibility to pathogens Elevated immunity among females is a double edged sword in which it is beneficial against infectious diseases but is detrimental in terms of increased development of autoimmune diseases The present book critically reviews the evolutionary origin and the functional mechanisms responsible for sexual dimorphism in response to infection It emphasizes the value of examining responses in both males and females to improve our understanding about host pathogen interactions in both sexes The contributors are experts in their specific disciplines which range from microbiology and immunology to genetics pathology and evolutionary biology. The book aims at bringing insight to the treatment and management of infectious diseases it delineates areas where knowledge is lacking and highlights future avenues of research Sex Hormones and Immunity to Infection ,2010 **Sex Hormones and Gender Differences** in Immune Responses Elena Ortona, Marina Pierdominici, Virginia Rider, 2019-07-31 Increasingly clear evidence points to the need to consider gender differences in human health In this collection of papers recent research that supports gender differences in the immune system are discussed We have loosely divided the eBook into two sections The first section focuses on the role of steroid hormone interactions within the immune system and their impact on autoimmune diseases infection and allergy This section contains comprehensive reviews and an opinion article about this topic In the following section original research articles revolve around the effects of the sex hormones on immune response Two original manuscripts deal with the role of estrogen receptors in autoimmune diseases Other two research articles discuss the role of the immune system during pregnancy Finally differences between males and females in infections are the topic of further two research articles We are confident this collection of papers will be important for exploring and developing a greater understanding of gender differences in human health and disease Sex and Gender Differences in Pharmacology Vera Regitz-Zagrosek, 2012-10-02 A trailblazing assessment of sex and gender differences in reactions to drug therapy this volume reflects the topic s growing recognition Analyses by international experts on both pharmacokinetics and drug development are informed by an extensive Sex and Gender Differences in Infection and Treatments for Infectious Diseases Sabra L. Klein, Craig W. data set Roberts, 2023-09-11 This fully revised and significantly expanded second edition examines sex and gender differences in the immune system's response to bacterial viral and parasitic infections. The volume discusses both common and distinct molecular mechanisms that mediate these differences and illustrates how responses to vaccines may differ between the sexes and in pregnant individuals Special emphasis is placed on the interplay between hormones and the immune system in the pathogenesis of HIV SARS CoV 2 influenza malaria tuberculosis and amebiasis This second edition includes completely rewritten chapters as well as all new contents This book is intended for researchers in academia and industry as well as

clinicians in the fields of microbiology immunology and pharmacology By expanding knowledge in sex and gender medicine as a basis for developing personalized treatment strategies the book contributes to UN Sustainable Development Goals 3 health and well being and 5 gender equality Nuclear Receptors and Coregulators in Metabolism and Immunity Rongrong Fan, Ines Pineda-Torra, Nicolas Venteclef, 2022-02-04 Sex Bias in Autoimmunity: From Animal Models to Clinical Research and Applications Coziana Ciurtin, Veena Taneja, Elizabeth C Jury, 2023-01-17 Autoimmune diseases are characterized by an abnormal and self directed immune response leading to damage and dysfunction of multiple organs and tissues Most autoimmune diseases are recognized as affecting disproportionately more women than men suggesting a crucial role of sex hormones in modulating immune responses with estrogens being postulated as enhancing autoimmunity and androgens playing a protective role It is also widely acknowledged that there is an overwhelming male bias in non human animal studies of autoimmune diseases while studies of both sexes in human research frequently fail to analyze results by sex Underrepresentation of females in animal models of autoimmune disease is often justified by their intrinsic variability during the reproductive period compromising the understanding of impact of the female sex chromosome and hormones on immune system functions leading to the high prevalence of autoimmune conditions This Research Topic will highlight the most recent advances in understanding the possible mechanisms for sex specific differences in autoimmunity with a specific focus on pre clinical animal and human models of autoimmune inflammation as well as on the most common sex specific differences in autoimmune diseases The topic will emphasize advances in research exploring sex determinants in autoimmune rheumatic diseases such as systemic lupus erythematosus rheumatoid arthritis spondyloarthritis psoriatic arthritis Sj gren s syndrome and further diseases such as inflammatory bowel disease autoimmune hepatitis multiple sclerosis psoriasis asthma and more The present Research Topic will include both full length and short research communications as well as perspective and review articles addressing various aspects of sex biased differences in pathogenesis age at disease onset clinical manifestations disease course treatment response associated co morbidities and overall survival across different autoimmune diseases **Sex Hormones** Raghvendra Dubey, 2012-02-08 Sex Hormones not only regulate reproductive function but they also play a prominent role in the biology and physiology of several organs tissues and in the pathophysiology of several diseases During the last two decades the information on the mechanisms of action of sex hormones such as estrogens and androgens has rapidly evolved from the conventional nuclear receptor dependent mechanisms to include additional non nuclear non genomic and receptor independent mechanisms. This highlights the need to update the current knowledge on sex hormones and their mode of action Increasing evidence that exogenous epigenetic factors can influence sex hormone production and action highlights the need to update our knowledge on the mechanisms involved This book provides a systematic and updated overview of the male female sex hormones and their impact in the biology and physiology of various organs Additionally the book discusses their positive and negative association with the pathophysiology of various diseases e

of Immunobiology ,2016-04-27 Encyclopedia of Immunobiology Five Volume Set provides the largest integrated source of immunological knowledge currently available It consists of broad ranging validated summaries on all of the major topics in the field as written by a team of leading experts The large number of topics covered is relevant to a wide range of scientists working on experimental and clinical immunology microbiology biochemistry genetics veterinary science physiology and hematology The book is built in thematic sections that allow readers to rapidly navigate around related content Specific sections focus on basic applied and clinical immunology The structure of each section helps readers from a range of backgrounds gain important understanding of the subject Contains tables pictures and multimedia features that enhance the learning process In depth coverage allows readers from a range of backgrounds to benefit from the material Provides handy cross referencing between articles to improve readability including easy access from portable devices

Sex/Gender-Specific Medicine in Clinical Areas Nayoung Kim, 2024-06-03 Sex gender specific medicine SGM is defined as the practice of medicine based on the understanding that biology and social roles are important in men and women for prevention screening diagnosis and treatment Current research demonstrates differences in disease incidence symptomatology morbidity and mortality depending on sex and gender Sex gender specific medicine is a fundamental aspect of tailored therapy and precision medicine Therefore the variables must be considered in medical education and practice as well as in research models ranging from human participants animals and cells This concept could be applied in the whole clinical areas from Neuroscience Psychiatry Gastroenterology Cardiology and Rehabilitation etc Nowadays estrogen is known to play a key role in the prevention of colon cancer and in the resistant progression of liver cirrhosis and hepatocellular carcinoma especially in women This book covers the sex gender specific medicine in the whole clinical areas in the adults as well as in the pediatrics In addition research results of basic science are also introduced in the colon cancer and Alzheimer s disease **Emerging Infectious Diseases** ,2004-07 Sex-Based Differences in Lung Physiology Patricia Silveyra, Xenia T. Tigno, 2021-03-18 This book provides an overview of the latest experimental work on sex based differences in lung function and inflammation Readers will learn how these differences relate to individual predispositions for the development of lung disease in men and women and in different stages of their reproductive lives Further the book focuses on diseases that predominantly affect women or men with an emphasis on the physiological mechanisms underlying their pathobiology In turn these findings are complemented by chapters on recent studies which investigate how circulating sex hormone levels impact the lung s innate immune response to environmental agents and air pollution The pathogeneses of asthma and viral respiratory infection are also major focus areas As an outlook the book also discusses current and future research directions aimed at developing sex specific therapies for lung disease To examine these anatomical and physiological differences in the male and female respiratory systems the authors employ a broad range of methods from molecular and clinical biology

Accordingly the book will be a fascinating read for physiologists and clinicians alike Drug Repurposing for COVID-19 Therapy Filippo Drago, Rafael Maldonado, 2021-10-14 Fetal-Maternal Immune Interactions in Pregnancy Nandor Gabor Reproductive Immunology Gil Mor, 2021-02-12 Than, Sinuhe Hahn, Simona W. Rossi, Julia Szekeres-Bartho, 2020-01-24 Reproductive Immunology Basic Concepts gives a holistic insight into the understanding of the complex interactions between the maternal immune system and the fetal placental unit necessary for the success of pregnancy This interaction is critical for the support of the human fetal semiallograft and the protection against infections. The book covers various topics such as B cells macrophages T cells discussion on fetal signals and their impact on maternal reproductive cells such as endometrial cells mast cells and the role of fetal Hofbauer cells the immune regulatory role of glucorticoids and many other novel topics within the field of reproductive immunology Edited and written by experts in the field this book introduces the up to date knowledge of the role of the immune system during pregnancy and provides the necessary background to understand pregnancy complications associated with alterations in the functioning of the immune system The book provides a complete discussion on the immunological aspects of pregnancy and serves as a great tool for research scientists students reproductive immunologists and OBGYNs Shows the detailed evaluation of the knowledge related to each immune cell type in the pregnant and not pregnant uterus Evaluates each immune cell type and its function during specific reproductive events Provides the biological background for understanding the clinical aspects that will be discussed in subsequent volumes in the Cardiovascular Complications of COVID-19 Umair Mallick, 2022-02-10 This book discusses the evidence behind series the relationship between COVID 19 and heart disease based on emerging state of the art data The rapid and unexpected global spread of the COVID 19 has revealed proportional levels of cardiovascular and metabolic complications A myriad of pathogenetic mechanisms has come to the surface There is still much research required to define whether cardiovascular disease causes COVID 19 complications or that cardiovascular disease appears as a result of the infection and which mechanisms are responsible With cardiovascular and metabolic diseases already at pandemic levels and expected to increase further this book provides readers with an urgent and thorough analysis of this association Cardiovascular Complications of COVID 19 Risk Pathogenesis and Outcomes provides answers to the increasing numbers of questions related to heart disease in COVID 19 highlighting the association between these pandemics and including risk factors mechanisms and how these may impact diverse patients populations It describes how COVID 19 impacts older patients and those with metabolic illnesses such as obesity and diabetes mellitus while providing an overview of the observed gender dichotomy among patients It therefore represents an essential resource not only for all cardiovascular physicians but also for any healthcare professionals managing patients with these diseases or those exploring COVID 19 Sex differences in immunometabolism, prophylaxis and therapy Milica Vujičić, Suresh Mishra, Ashley Fink, 2023-09-01 Immune system function and metabolism are profoundly intertwined on a whole body and cellular level This is reflected in both homeostatic processes during growth and

development and in pathological states For instance chronic inflammation in adipose tissue is a strong predictor of insulin resistance and metabolic syndrome overall increasing risk for type 2 diabetes and associated co morbidities in obese individuals Simultaneously increased visceral adiposity is linked with a delayed or deficient immune response to infection On the cellular level immune cell phenotype is intimately connected with metabolic status In states of high energy demand immune cells rely on glycolysis for producing ATP while oxidative phosphorylation is the preferred energy source in resting Coronavirus Disease (COVID-19): Pathophysiology, Epidemiology, Clinical Management and regulatory states and Public Health Response (volume I.B) Zisis Kozlakidis, Denise L. Doolan, Shen-Ying Zhang, Yasuko Tsunetsugu Yokota, Tatsuo Shioda, Rukhsana Ahmed, Mohan Jyoti Dutta, Ata Murat Kaynar, Michael Kogut, Hannah Bradby, Slobodan Paessler, Alex Rodriguez-Palacios, Alexis M. Kalergis, Longxiang Su, Abdallah Samy, Zhongheng Zhang, 2023-04-25 Volume I B An outbreak of a respiratory disease first reported in Wuhan China in December 2019 and the causative agent was discovered in January 2020 to be a novel betacoronovirus of the same subgenus as SARS CoV and named severe acute respiratory syndrome coronavirus 2 SARS CoV 2 Coronavirus disease 2019 COVID 19 has rapidly disseminated worldwide with clinical manifestations ranging from mild respiratory symptoms to severe pneumonia and a fatality rate estimated around 2% Person to person transmission is occurring both in the community and healthcare settings The World Health Organization WHO has recently declared the COVID 19 epidemic a public health emergency of international concern The ongoing outbreak presents many clinical and public health management challenges due to limited understanding of viral pathogenesis risk factors for infection natural history of disease including clinical presentation and outcomes prognostic factors for severe illness period of infectivity modes and extent of virus inter human transmission as well as effective preventive measures and public health response and containment interventions. There are no antiviral treatment nor vaccine available but fast track research and development efforts including clinical therapeutic trials are ongoing across the world Managing this serious epidemic requires the appropriate deployment of limited human resources across all cadres of health care and public health staff including clinical laboratory managerial and epidemiological data analysis and risk assessment experts It presents challenges around public communication and messaging around risk with the potential for misinformation and disinformation Therefore integrated operational research and intervention learning from experiences across different fields and settings should contribute towards better understanding and managing COVID 19 This Research Topic aims to highlight interdisciplinary research approaches deployed during the COVID 19 epidemic addressing knowledge gaps and generating evidence for its improved management and control It will incorporate critical theoretically informed and empirically grounded original research contributions using diverse approaches experimental observational and intervention studies conceptual framing expert opinions and reviews from across the world The Research Topic proposes a multi dimensional approach to improving the management of COVID 19 with scientific contributions from all areas of virology

immunology clinical microbiology epidemiology therapeutics communications as well as infection prevention and public health risk assessment and management studies Sex/Gender-Specific Medicine in the Gastrointestinal Diseases Nayoung Kim,2022-05-26 Sex gender specific medicine SGM is defined as the practice of medicine based on the understanding that biology and social roles are important in men and women for disease prevention screening diagnosis and treatment Current research demonstrates differences in disease incidence symptomatology morbidity and mortality based on sex and gender Sex gender specific medicine is a fundamental aspect of tailored therapy and precision medicine Therefore the variables must be considered in medical education and practice as well as in research models ranging from human participants animals and cells Gastroenterology is very big and important division of Internal Medicine which include esophagus stomach small and large intestine pancreatobiliary tract and liver Nowadays estrogen is known to play a key role in the prevention of colon cancer and progression of liver cirrhosis and hepatocellular carcinoma especially in women This book covers the sex gender specific medicine in the area of gastrointestinal GI tract in the adults as well as in the pediatrics and in the gut microbiota Coronavirus Disease (COVID-19): Diet, Inflammation and Nutritional Status Ioannis Zabetakis, Christophe Matthys, Alexandros Tsoupras, 2021-11-02

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