Access Free How The Immune System Works The How It Works Series

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The Janeway's Immunobiology CD-ROM, Immunobiology Interactive, is included with each book, and can be purchased separately. It contains animations and videos with voiceover narration, as well as the figures from the text for presentation purposes.

A Sunday Times and New York Times bestseller Out now: The bestselling book from the creator of the wildly popular science YouTube channel, Kurzgesagt - In a Nutshell, a gorgeously illustrated deep dive into the immune system that will change how you think about your body forever. Please note: the originally supplied fixed format edition of the eBook has now been replaced to address difficulties experienced by some readers. Please delete the previous version from your device and download the new edition. _____ 'A truly brilliant introduction to the human body's vast system for fighting infections and other threats' JOHN GREEN, #1 New York Times bestselling author of The Fault in Our Stars 'Reads as if it's a riveting sci-fi novel . . . a delightful treat for the curious' TIM URBAN, creator of Wait But Why _____ You wake up and feel a tickle in your throat. Your head hurts. You're mildly annoyed as you get the kids ready for school and dress for work yourself. Meanwhile, an utterly epic war is being fought, just below your skin. Millions are fighting and dying for you to be able to complain as you drink your cup of tea and head out the door. So what, exactly, IS your immune system? Second only to the human brain in its complexity, it is one of the oldest and most critical facets of life on Earth. Without it, you would die within days. In Immune, Philipp Dettmer, the brains behind the most popular science channel on YouTube, takes readers on a journey through the fortress of the human body and its defences. There is a constant battle of staggering scale raging within us, full of stories of invasion, strategy, defeat, and noble self-sacrifice. In fact, in the time you've been reading this, your immune system has probably identified and eradicated a cancer cell that started to grow in your body. Each chapter delves deeply into an element of the immune system, including defences like antibodies and inflammation as well as threats like viruses, bacteria, allergies and cancer, as Dettmer reveals why boosting your immune system is actually nonsense, how parasites sneak their way past your body's defences, how viruses - including the coronavirus - work, and what goes on in your wounds when you cut yourself. Enlivened by engaging full-colour graphics and immersive descriptions, Immune turns one of the most intricate, interconnected, and confusing subjects - immunology - into a gripping adventure through an astonishing alien landscape. Challenging what you know and think about your own body and how it defends you against all sorts of maladies and how it might also eventually be your own downfall, Immune is a vital and remarkably fun crash course in what is arguably, and increasingly, the most important system in the body. _____

William Clark invites readers on a tour of the immune system, introducing some of the most important medical advances and challenges of the past 100 years, from the development of vaccines and the treatment of allergies, automimmunity and cancer, to prolonging organ transplants and combating AIDS.

This book presents current understanding of the importance of modern immunology in the etiopathogenesis of human diseases and explores how this understanding is impacting on diagnosis, prognosis, treatment, and prophylaxis. As the core of modern immunology, the “danger/injury model” is introduced and addressed throughout the book. Volume I of the book describes the network of damage-associated molecular pattern molecules (DAMPs) and examines the central role of DAMPs in cellular stress responses and associated regulated cell death, the promotion and resolution of inflammation, the activation of innate lymphoid cells and unconventional T cells, the stimulation of adaptive immunity, and tissue repair. The significance of DAMPs in a wide range of human diseases will then be explored in Volume II of the book, with discussion of the implications of injury-induced innate immunity for present and future treatments. This book is written for professionals from all medical and paramedical disciplines who are interested in the introduction of innovative data from immunity and inflammation research into clinical practice. The readership will include practitioners and clinicians such as hematologists, rheumatologists, traumatologists, oncologists, intensive care anesthetists, endocrinologists such as diabetologists, psychiatrists, neurologists, pharmacists, and transplantologists.

Avian Immunology, Third Edition contains a detailed description of the avian innate immune system, encompassing the mucosal, enteric, respiratory and reproductive systems. The diseases and disorders it covers, include immunodepressive diseases and immune evasion, autoimmune diseases, and tumors of the immune system. Practical aspects of vaccination are examined as well. Extensive appendices summarize resources for scientists including cell lines, inbred chicken lines, cytokines, chemokines, and monoclonal antibodies. With contributions from the foremost international experts in the field, Avian Immunology 3rd, provides the most up-to-date crucial information not only for poultry health professionals and avian biologists, but also for comparative and veterinary immunologists, graduate students and veterinary students with an interest in avian immunology. Avian Immunology, Third Edition, is a fascinating and growing field and surely provides new and exciting insights for mainstream immunology in the future. Reflects significant advances in the field since the second edition, particularly the explosion of knowledge on genomics including work on the chicken, turkey and zebra finch genomes Provides a single source reference ranging from the basic science to cutting edge research Provides practical information for veterinarians particularly those specialised in poultry or companion bird medicine New chapters on the impact of the microbiome on the immune system, defence mechanisms in the egg and embryo and emerging transgene technologies

Immunologists today are interested in all of the diverse cell-types involved in host defense and have a deeper appreciation of the importance of innate immune mechanisms as a first line of protection against pathogens. This volume thus discusses the isolation and functional characterization of cells involved in innate immunity in mouse and man, including mast cells and eosinophils. Other focuses include natural killer cells, methods in statistics, in vivo imaging, genome engineering, and mutagenesis and culture that are adapted to the study of innate immunity in these hosts. These are complemented with a series of chapters dealing with alternative models: plants, worms, mosquitoes, flies, and fish. Together, these approaches and models are being used to dissect the complex interplay between hosts and pathogens and contribute to developing strategies to help fight infection. With chapters written by experts on the cutting-edge of this technology, Innate Immunity is an essential reference for immunologists, histologists, geneticists, and molecular biologists.

Looks at how germs can spread such diseases as the common cold by following the journey of the germs that fly out of a boy's mouth when he sneezes in class without using a tissue, showing how colds spread or not depending on hygiene practices.

Concepts of Biology is designed for the single-semester introduction to biology course for non-science majors, which for many students is their only college-level science course. As such, this course represents an important opportunity for students to develop the necessary knowledge, tools, and skills to make informed decisions as they continue with their lives. Rather than being mired down with facts and vocabulary, the typical non-science major student needs information presented in a way that is easy to read and understand. Even more importantly, the content should be meaningful. Students do much better when they understand why biology is relevant to their everyday lives. For these reasons, Concepts of Biology is grounded on an evolutionary basis and includes exciting features that highlight careers in the biological sciences and everyday applications of the concepts at hand.We also strive to show the interconnectedness of topics within this extremely broad discipline. In order to meet the needs of today's instructors and students, we maintain the overall organization and coverage found in most syllabi for this course. A strength of Concepts of Biology is that instructors can customize the book, adapting it to the approach that works best in their classroom. Concepts of Biology also includes an innovative art program that incorporates critical thinking and clicker questions to help students understand--and apply--key concepts.

This text emphasizes the human immune system and presents concepts with a balanced level of detail to describe how the immune system works. Written for undergraduate, medical, veterinary, dental, and pharmacy students, it makes generous use of medical examples to illustrate points. This classroom-proven textbook offers clear writing, full-color illustrations, and section and chapter summaries that make the content accessible and easily understandable to students.

"Vaccines are one of the most important public health achievements of our time. But now as many vaccine preventable diseases are no longer perceived an imminent threat, vaccines are both lauded and feared, amplified by rapid-fire dissemination of conflicting messages. This book will follow the story of vaccines in the past, present and future to disentangle fact from fiction and underscore their important role in our society"--

In the world of medicine, the term immunology is an expansive and complex field within the discipline of anatomy. This branch of the medical sciences focuses on how the body's immune system works and interacts with other systems. The immune system is a network of cells, tissues, and organs whose main purpose is to protect the body from foreign substances. This system protects the body from disease and infections. This field of medicine is also responsible for the development of vaccines that humans use to protect themselves from such diseases. During my time working in the immunology sphere, I have had the opportunity to interact with several patients who come to me with different complaints and symptoms that may be related to some kind of immunological abnormality. I have also had to deal with patients who may have been exposed to some kind of infectious agent that could put their health at risk. That is why having an understanding of immunology is important for the general population. It is for this reason that I have written this book in an easy-to- digest format so that you can have a better understanding of the concepts behind immune function and disease. This book is based on my research as a doctor and biologist focusing on immunology and it offers a general overview of the different topics that are related to this discipline. This book provides information about the basics of immunology, the immunity system, and ways to prevent sickness. Some of the topics that are covered in this book include the process of immune response, the different types of white blood cells, the different types of antibodies and how they work, and many others. My name is Massoud Abbas, and this book is my way of giving back to society by sharing knowledge that I acquired while working and studying in this field.

"The Immune System, Fourth Edition, emphasizes the human immune system and synthesizes immunological concepts into a coherent, up-to-date, and reader-friendly account of how the immune system works. Written for undergraduate, medical, veterinary, dental, and pharmacy students, it makes generous use of medical examples to illustrate points. The Fourth Edition has been extensively revised and updated. Innate immunity has undergone major revision to reflect this expanding and fast-moving field, and is nowdivided between two chapters: Chapter 2 "Innate Immunity: The Immediate Response to Infection," which deals with complement and other soluble molecules of innate immunity such as antimicrobial peptides, and Chapter 3 "Innate Immunity: The Induced Response to Infection," which deals mainly with the cellular response.Chapters 4-9 have been updated and material has been consolidated to eliminate repetition. Mucosal immunology has exploded as a field since the Third Edition was published, thus its coverage in chapter 10, now devoted to the topic, has been significantly expanded and updated. Also, more emphasis is placed on commensal microorganisms, particularly of the gut, and their interactions with the immune system.Immunological memory and the secondary immune response is now the first part of Chapter 11. The second part of this chapter, entitled "Vaccination to Prevent Infectious Disease," will include new and more modern material. "Bridging Innate and Adaptive Immunity" will also have its own chapter. The remaining clinical chapters will be revised and updated with new immunotherapies, but their content and organization will remain largely the same. The Fourth Edition will be accompanied by an updated and greatly expanded question bank, as well as PowerPoints and JPEGs of all the figures in the text. "--

How the Immune System Works is not a comprehensive textbook. It's the book thousands of students have used to help them understand what's in their big, thick, immunology texts. In this book, Dr. Sompayrac cuts through the jargon and details to reveal, in simple language, the essence of this complex subject. Fifteen easy to follow lectures, featuring the uniquely popular humorous style and engaging analogies developed by Dr Sompayrac, provide an introduction to the 'bigger picture', followed by practical discussion on how each of the components interacts with one another. Now featuring full-color diagrams, this book has been rigorously updated for its fourth edition to reflect today's immunology teaching and includes updated discussion of B and T cell memory, T cell activation, vaccines, immunodeficiency, and cancer. Whether you are completely new to immunology, or require a refresher, How the Immune System Works is an enjoyable way of engaging with the key concepts – you need know nothing of the workings of the immune system to benefit from this book! How the Immune System Works is now accompanied by a FREE enhanced Wiley Desktop Edition - the interactive, digital version of the book - featuring downloadable text and images, highlighting and note taking facilities, book-marking, cross-referencing, in-text searching, and linking to references and glossary terms. It is also available from CourseSmart for instant, online and offline access for studying anytime, anywhere.

Autoimmune Neurology presents the latest information on autoimmune neurologic disease, the immune response to the body where organs run wild, causing the immune system to attack itself. Autoimmunity is a main element in numerous nervous system diseases and can target any structure within the central or peripheral nervous system. Over the past 20 years, significant advances in our understanding of the pathophysiology of autoimmune disorders, including the use of biomarkers has led to new diagnosis and treatment options. Neurologic conditions associated with autoimmune reactions include dementia, neuromuscular disease, epilepsy, sleep disorders, diabetes, and other common neurologic disorders and disease. This current tutorial-reference will be a must-have title for clinical neurologists, research neurologists, neuroscientists, and any medical professional working with autoimmune disease and disorders. Includes comprehensive coverage of autoimmune neurology Details the latest techniques for the study, diagnosis, and treatment of diseases and disorders, including dementia, neuromuscular disease, epilepsy, and sleep disorders Presents a focused reference for clinical practitioners and the clinical neurology and neurology research communities

How the Immune System Works has helped thousands of students understand what's in their hefty immunology textbooks. In this book, Dr. Sompayrac cuts through the jargon and details to reveal, in simple language, the essence of this complex subject: how the immune system fits together, how it protects us from disease and, perhaps most importantly, why it works the way it does. Featuring Dr. Sompayrac's hallmark lively prose and engaging analogies, How the Immune System Works has been rigorously updated for this sixth edition, including the latest information on subjects such as vaccines, immunological memory, and cancer. A highlight of this edition is a new chapter on immunotherapies – currently one of the hottest topics in immunology. Whether you are completely new to immunology, or require a refresher, How the Immune System Works will provide you with a clear and engaging overview of this fascinating subject.

Whether you are completely new to immunology, or require a refresher, How the Immune System Works will provide you with a clear and engaging overview of this fascinating subject.This book describes the immune system, and how it works in health and disease. In particular he focuses on the human immune system, considering how it evolved, the basic rules that govern its behaviour, and the major health threats where it is important. The immune system comprises a series of organs, cells and chemical messengers which work together as a team to provide defence against infection. Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

This book brings together articles on the overarching theme of how the environment shapes the immune system. The immune system is commonly assumed to respond to harmful pathogens such as bacteria and viruses. However, harmless bacteria, chemicals, stress, normal food and other factors can also trigger, shape or interfere with the immune system, often producing adverse effects. Yet, it is also becoming increasingly accepted that some of these interactions are physiological and necessary for a healthy immune system. Examples of negative effects include the immunosuppressive effects of UV irradiation, or the immunotoxic effects of man-made chemicals such as polycyclic aromatic hydrocarbons. Autoimmunity or allergies can be the adverse consequences of interaction between the immune system and chemical compounds such as drugs. Positive effects can come from natural exposure levels to bacteria, healthy life-style or the diet. There is a great need to understand how communication between the environment and the immune system works. This book addresses this need. It covers environmental factors (such as bacteria, sun exposure), human factors (such as age, exercise or stress), and important man-made factors (such as air pollution). A chapter on human rights complements the scientific chapters. The book is intended for immunologists, toxicologists and researchers who want to know how the immune system works and is triggered, as well as for medical doctors in environmental medicine and the general public interested in immunology.

Defines what the human immune system is and how it works.

Our immune system is important for our survival. Without an immune system, our bodies might be open to assault from micro organism, viruses, parasites, and greater. It is our immune system that continues us wholesome as we glide thru a sea of pathogens. HUMAN IMMUNE SYSTEM is a comprehensive guide to how the immune system works, how different viruses and infections affect our health and offers strategies that have been shown to enhance the immune system. It includes the most up-to-date scientific information about the most important factors related to staying healthy during viral outbreaks as well as in everyday life. There's also practical tips and tools that improve stress resilience, speed of recovery, metabolic health, cardiovascular function and quality of life. This book will teach you how to support your immune system, what to do when you actually get sick and how to improve your overall health and vitality.

This book contains the proceedings as well as invited papers for the first annual conference of the UNESCO Unitwin Complex System Digital Campus (CSDC), which is an international initiative gathering 120 Universities on four continents, and structured in ten E-Departments. First Complex Systems Digital Campus World E-Conference 2015 features chapters from the latest research results on theoretical questions of complex systems and their experimental domains. The content contained bridges the gap between the individual and the collective within complex systems science and new integrative sciences on topics such as: genes to organisms to ecosystems, atoms to materials to products, and digital media to the Internet. The conference breaks new ground through a dedicated video-conferencing system – a concept at the heart of the international UNESCO UniTwin, embracing scientists from low-income and distant countries. This book promotes an integrated system of research, education, and training. It also aims at contributing to global development by taking into account its social, economic, and cultural dimensions. First Complex Systems Digital Campus World E-Conference 2015 will appeal to students and researchers working in the fields of complex systems, statistical physics, computational intelligence, and biological physics.

Do you want to be more alert? Do you experience symptoms that have no obvious cause? Discover why countless health problems may have inflammation as a common denominator. Learn about the link between allergy and suicide and how too much immunity can trigger depression and fatigue. Heart disease and cancer are also linked with too much immunity in the form of inflammation. But too little immunity can result in infection. This book will provide a clear understanding of how the immune system works and ways you can achieve a state of optimal health. Learn how stress and self-destructive emotions can bring about infection and autoimmunity Understand how immune system cytokines can trigger depression and fatigue Learn how anti-inflammatory diets can lessen the pain of inflammation Discover how personality can predict flare-ups of autoimmunity

CRISPR/Cas is a recently described defense system that protects bacteria and archaea against invasion by mobile genetic elements such as viruses and plasmids. A wide spectrum of distinct CRISPR/Cas systems has been identified in at least half of the available prokaryotic genomes. On-going structural and functional analyses have resulted in a far greater insight into the functions and possible applications of these systems, although many secrets remain to be discovered. In this book, experts summarize the state of the art in this exciting field.

STAR OF BBC ONE'S FREEZE THE FEAR 'I've never felt so alive' JOE WICKS 'A fascinating look at Wim's incredible life and method' FEARNE COTTON My hope is to inspire you to retake control of your body and life by unleashing the immense power of the mind. 'The Iceman' Wim Hof shares his remarkable life story and powerful method for supercharging your health and happiness. Refined over forty years and championed by scientists across the globe, you'll learn how to harness three key elements of Cold, Breathing and Mindset to take ownership over your own mind and wellbeing. 'The book will change your life' BEN FOGLE 'Wim is a legend of the power ice has to heal and empower' BEAR GRYLLS

Supporting initiation, development and resolution of appropriate immune responses is key to survival. Many nutrients and dietary components have been purported to have a role in supporting optimal immune function. This is vital throughout the life course, from the development and programming of the immune system in early life, to supporting immunity and reducing chronic inflammation in older people. In this special issue of Nutrients, we examine the evidence for the role of diet and dietary components in promoting protective immunity.

National Bestseller "A valuable read that will help you understand what it takes to stop COVID-19. ... A super interesting look at the science of immunity." —Bill Gates, Gates Notes Summer Reading List The Pulitzer Prize–winning New York Times journalist "explicates for the lay reader the intricate biology of our immune system" (Jerome Groopman, MD, New York Review of Books) From New York Times science journalist Matt Richtel, An Elegant Defense is an acclaimed and definitive exploration of the immune system and the secrets of health. Interweaving cutting-edge science with the intimate stories of four individual patients, this epic, first-of-its-kind book "give[s] lay readers a means of understanding what's known so far about the intricate biology of our immune systems" (The Week). The immune system is our body's essential defense network, a guardian vigilantly fighting illness, healing wounds, maintaining order and balance, and keeping us alive. It has been honed by evolution over millennia to face an almost infinite array of threats. For all its astonishing complexity, however, the immune system can be easily compromised by fatigue, stress, toxins, advanced age, and poor nutrition—hallmarks of modern life—and even by excessive hygiene. Paradoxically, it is a fragile wonder weapon that can turn on our own bodies with startling results, leading today to epidemic levels of autoimmune disorders. An Elegant Defense effortlessly guides readers on a scientific detective tale winding from the Black Plague to twentieth-century breakthroughs in vaccination and antibiotics, to today's laboratories that are revolutionizing immunology—perhaps the most extraordinary and consequential medical story of our time. Drawing on extensive new interviews with dozens of world-renowned scientists, Richtel has produced a landmark book, equally an investigation into the deepest riddles of survival and a profoundly human tale that is movingly brought to life through the eyes of his four main characters, each of whom illuminates an essential facet of our "elegant defense."

This book covers the latest information related to understanding immune responses to engineered nanomaterials (ENMs). Many ENMs used in both the consumer and biomedical fields have been reported to elicit adverse immune responses ranging from innate immune responses such as complement activation to changes in adaptive immunity that influence pathogen responses and promote disease states such as asthma. Interaction of Nanomaterials with the Immune System covers the most up to date information on our understanding of immune responses to ENMs across a wide range of topics including innate immunity, allergic immune responses, adaptive provides the reader with (1) up to date understanding of immune responses to ENMs; (2) current testing methods; and (3) appropriate models including alternative testing strategies for evaluating immunotoxicity of ENMs.

Clearly, nature has been very effective in creating organisms that are capable of protecting themselves against a wide variety of pathogens such as bacteria, fungi, and parasites. The powerful information-processing capabilities of the immune system, such as feature extraction, pattern recognition, learning, memory, and its distributive nature provide rich metaphors that researchers are finding very useful for the development of computational models. While some of these models are designed to give us a better understanding of the immune system, other models are being developed to solve complex real-world problems such as anomaly detection, pattern recognition, data analysis (clustering), function optimization, and computer security. Immunological Computation: Theory and Applications is devoted to discussing different immunological mechanisms and their relation to information processing and problem solving. This unique volume presents a compendium of up-to-date work related to immunity-based techniques. After presenting the general abstractions of immune elements and processes used in computational models, it then— Reviews standard procedures, representations, and matching rules that are used in all immunological computation models Covers the details of one of the earliest and most well-known immune algorithms, based on the negative selection (NS) process that occurs in the thymus Examines promising immune models, including those based on danger theory, cytokine network models, and MHC-based models The text goes further to describe a wide variety of applications, which include computer security, the detection and analysis of anomalies and faults, robotics, and data mining among others. To enhance understanding of

this emerging field of study, each chapter includes a summary, review questions, and exercises for readers to practice; as well as issues that will require future research.

A thrilling, fact-packed journey of discovery through the body's immune system.

Immune Response Activation and Immunomodulation has been written to address the perceived needs of both medical school and undergraduate curricula and to take advantage of new understandings in immunology. We have tried to achieve several goals and present the most important principles governing the function of the immune system. Our fundamental objective has been to synthesize the key concepts from the vast amount of experimental data that have emerged in the rapidly advancing field of immunology. The choice of what is most important is based on what is most clearly established by experimentation, what our students find puzzling, and what explains the wonderful efficiency and economy of the immune system. Inevitably, however, such a choice will have an element of bias, and our bias is toward emphasizing the cellular interactions in immune response by limiting the description of many of the underlying biochemical and molecular mechanisms to the essential facts. This book gives an insight into the role of cytokines in activating immune response during pathogenic invasion. Immunomodulation, aryl hydrocarbons, the role of the protein defensin and nucleated cells in provoking immune response, Bcl protein/gene-based apoptotic pathways, and plant-derived phytochemical-mediated immune response are all central themes of this book.

“Visceral.”—Wall Street Journal “Illuminating.”—Publishers Weekly “Heroic.”—Science The immune system holds the key to human health. In The Beautiful Cure, leading immunologist Daniel M. Davis describes how the scientific quest to understand how the immune system works—and how it is affected by stress, sleep, age, and our state of mind—is now unlocking a revolutionary new approach to medicine and well-being. The body’s ability to fight disease and heal itself is one of the great mysteries and marvels of nature. But in recent years, painstaking research has resulted in major advances in our grasp of this breathtakingly beautiful inner world: a vast and intricate network of specialist cells, regulatory proteins, and dedicated genes that are continually protecting our bodies. Far more powerful than any medicine ever invented, the immune system plays a crucial role in our daily lives. We have found ways to harness these natural defenses to create breakthrough drugs and so-called immunotherapies that help us fight cancer, diabetes, arthritis, and many age-related diseases, and we are starting to understand whether activities such as mindfulness might play a role in enhancing our physical resilience. Written by a researcher at the forefront of this adventure, The Beautiful Cure tells a dramatic story of scientific detective work and discovery, of puzzles solved and mysteries that linger, of lives sacrificed and saved. With expertise and eloquence, Davis introduces us to this revelatory new understanding of the human body and what it takes to be healthy.

Traces the history of disease control, discusses inoculations, antigens, antibodies, T cells, and AIDS, and looks at what happens when the human body gets sick

Immunity and Inflammation in Health and Disease: Emerging Roles of Nutraceuticals and Functional Foods in Immune Support provides a comprehensive description of the various pathways by which the vertebrate immune system works, the signals that trigger immune response and how fnew and novel nutraceuticals and functional foods, can be used to contain inflammation and also to boost immunity and immune health. Inflammation is a tool to fight pathogens and the vertebrate immune system has a very complex network of cells to achieve this. However inflammation that goes awry is also the leding cause of several diseases ranging from cardiovascular diseases to diabetes. This book covers the entire gamut from the various cellular players in the inflammation-immune response to its ramifications in terms of protection against pathogens as well as in onset of metabolic, aging and auto-immune related diseases. Finally, the balancing role of dietary nutrients between host defence and immune support is also showcased. The first three scetions explain the various components of the immune system and their modes of activation. The fourth section deals with the ramifications of a robust and execessive inflammatory response. The fifth section is focused on the association between nutrition and immunity and how deficiencies in certain nutrients may affect immunocompetence. The sixth section chapters represent a vision of paradigm shifts within the field and discusses possible future directions. This bool will be a valuable reference for researchers studying immune health either in academia, or in the nutraceutical or functional food industries. Product developers in nutraceutical, supplement, functional food, and health food companies will also appreciate the information presented here.

The cells of the immune system are lymphocytes (T-cells, B-cells and NK (natural killer) cells), neutrophils, eosinophils, and monocytes/macrophages. This book is an overview of some types of these cells and their role in recognizing and/or reacting against foreign material. The immune system is characterized by collaboration between cells and proteins. The development of all cells of the immune system begins in the bone marrow with a hematopoietic stem cell. Two chapters deal with neutrophils, three chapters with T-cells, four chapters with eosinophils, and other chapters review the immunomodulation of macrophages, the role of transcription factor KLF4 in regulating plasticity of myeloid-derived suppressor cells, immune reconstitution after allogeneic hematopoietic stem cell transplantation, and role of sorption detoxification in the therapy of acute radiation sickness.

Maintaining a healthy lifestyle is an advantage when it comes to strengthening our immune system. While most people adopt healthy behaviors when they are sick, you can create a lifestyle to be able to sustain your health and improve your immunity. Increasing our understanding of how our immune system works and what you can do to boost your body’s immunity is key to succeeding in fighting sicknesses. Not only are we more likely to adopt healthier habits, but we are also more likely to change our lifestyle if we know what can sustain health. The immune system is linked to so many aspects of our life. The food we eat, the quality of our sleep, and the level of stress are all things that are within our control to supercharge our body. This informative and detailed guide will give you guidance on how you can fight harmful viruses and bacteria. Topics covered: How your immune system functions and what you can do to help it fight bacteria and viruses; The research behind immunity and why you should adopt our recommendations; How you can benefit from embracing new behaviors and introduce variety in your meals; Why it is so vital for you to have a bedtime routine; Exercises you can add to your workout to boost your immune system; Foods to adopt in your nutrition that will increase your intake of nutrients vital to your immune system; How to create a healthy life that keeps you energized during the flu season; How to charge your immune system in 21 days and stay healthy; 8 delicious recipes that will support your immune system; 6 supplements that are essential to improve your body’s immunity; 2 simple ways to manage your daily stress and increase your immunity; Successful techniques to detoxify your body of harmful antigens; How you can practice good hygiene that keeps viruses away; Customized activities that will help you apply the changes right away and start improving your immune system; Practical ways to boost your immunity in your daily activities; 6 things to avoid if you want to stay healthy

How the Immune System Works has helped thousands of students understand what’s in their big, thick, immunology textbooks. In his book, Dr. Sompayrac cuts through the jargon and details to reveal, in simple language, the essence of this complex subject. In fifteen easy-to-read chapters, featuring the humorous style and engaging analogies developed by Dr. Sompayrac, How the Immune System Works explains how the immune system players work together to protect us from disease – and, most importantly, why they do it this way. Rigorously updated for this fifth edition, How the Immune System Works includes the latest information on subjects such as vaccines, the immunology of AIDS, and cancer. A highlight of this edition is a new chapter on the intestinal immune system – currently one of the hottest topics in immunology. Whether you are completely new to immunology, or require a refresher, How the Immune System Works will provide you with a clear and engaging overview of this fascinating subject. But don’t take our word for it! Read what students have been saying about this classic book: "What an exceptional book! It's clear you are in the hands of an expert." "Possibly the Best Small Text of All Time!" "This is a FUN book, and Lauren Sompayrac does a fantastic job of explaining the immune system using words that normal people can understand." "Hands down the best immunology book I have read... a very enjoyable read." "This is simply one of the best medical textbooks that I have ever read. Clear diagrams coupled with highly readable text make this whole subject easily understandable and engaging." Now with a brand new website at www.wiley.com/go/sompayrac featuring Powerpoint files of the images from the book

The immune system is central to human health and the focus of much medical research. Growing understanding of the immune system, and especially the creation of immune memory (long lasting protection), which can be harnessed in the design of vaccines, have been major breakthroughs in medicine. In this Very Short Introduction, Paul Klenerman describes the immune system, and how it works in health and disease. In particular he focuses on the human immune system, considering how it evolved, the basic rules that govern its behavior, and the major health threats where it is important. The immune system comprises a series of organs, cells and chemical messengers which work together as a team to provide defence against infection. Klenerman discusses these components, the critical signals that trigger them and how they exert their protective effects, including so-called innate immune responses, which react very fast to infection, and adaptive immune responses, which have huge diversity and a capacity to recognize and defend against a massive array of micro-organisms. Klenerman also considers what happens when our immune systems fail to be activated effectively, leading to serious infections, problems with inherited diseases, and also HIV/AIDS. At the opposite extreme, as Klenerman shows, an over-exaggerated immune response leads to inflammatory diseases such as Multiple Sclerosis and Rheumatoid Arthritis, as well as allergy and asthma. Finally he looks at the Immune system v2.0 - how immune therapies and vaccines can be advanced to protect us against the major diseases of the 21st century. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

From two of the world’s top scientists and one of the world’s top science writers (all parents), Dirt Is Good is a q&a-based guide to everything you need to know about kids & germs. “Is it OK for my child to eat dirt?” That’s just one of the many questions authors Jack Gilbert and Rob Knight are bombarded with every week from parents all over the world. They've heard everything from “My two-year-old gets constant ear infections. Should I give her antibiotics? Or probiotics?” to “I heard that my son’s asthma was caused by a lack of microbial exposure. Is this true, and if so what can I do about it now?” Google these questions, and you’ll be overwhelmed with answers. The internet is rife with speculation and misinformation about the risks and benefits of what most parents think of as simply germs, but which scientists now call the microbiome: the combined activity of all the tiny organisms inside our bodies and the surrounding environment that have an enormous impact on our health and well-being. Who better to turn to for answers than Drs. Gilbert and Knight, two of the top scientists leading the investigation into the microbiome—an investigation that is producing fascinating discoveries and bringing answers to parents who want to do the best for their young children. Dirt Is Good is a comprehensive, authoritative, accessible guide you've been searching for.