



## Applied Immunology Internship

Research objectives under Applied Immunology field under which internships are offered focussing in both basic and therapeutic research as well as in other spectrums which fall under Applied Immunology field mentioned below:

1. [Basic Topics under Applied Immunology](#)
2. [Advanced Topics under Applied Immunology](#)
3. [Microbial Immunology](#)
4. [Autoimmunity](#)
5. [Cancer Immunology](#)
6. [Comparative Immunology](#)
7. [Developmental Immunology](#)
8. [Evolutionary Immunology](#)
9. [Immunogenetics](#)
10. [Immunotherapy](#)
11. [Mucosal Immunology](#)
12. [Neuroimmunology](#)
13. [Reproductive Immunology](#)
14. [Systems Immunology](#)
15. [Transplant Immunology](#)
16. [Environmental Immunology](#)
17. [Nutritional Immunology](#)
18. [Psychoneuroimmunology](#)

### Basic Research:

1. **Immunophenotyping:** Characterizing immune cell populations based on surface markers using techniques like flow cytometry.
2. **Cytokine Profiling:** Measuring levels of various cytokines to understand immune responses.
3. **Immunogenomics:** Studying how genetics influence immune system function.
4. **T Cell Receptor Sequencing:** Analyzing T cell diversity and clonality using next-generation sequencing.
5. **B Cell Receptor Repertoire Analysis:** Investigating antibody diversity and specificity.
6. **Epigenetics in Immunology:** Understanding how epigenetic modifications influence immune cell differentiation and responses.

7. **Single-Cell Analysis:** Studying individual immune cells to reveal heterogeneity and functional differences.
8. **Immunometabolism:** Exploring the impact of metabolic pathways on immune cell function.
9. **Functional Assays:** Evaluating immune cell activities, such as proliferation, cytokine production, and cytotoxicity.
10. **In Vitro 3D Organoids:** Creating miniaturized tissues to study immune responses in a more physiological context.
11. **CRISPR/Cas9 Genome Editing:** Modifying genes to understand their role in immune responses.
12. **Immunological Memory Studies:** Investigating how immune memory develops and provides long-term protection.
13. **Immune Cell Trafficking:** Tracking the movement of immune cells in tissues to understand immune surveillance.
14. **Imaging Immunology:** Visualizing immune cell interactions and responses using advanced microscopy.
15. **Cross-Species Immunology:** Comparing immune responses between species to uncover conserved mechanisms.

#### **Therapeutic Research:**

16. **Monoclonal Antibody Therapy:** Designing antibodies targeting specific antigens for therapy.
17. **Immune Checkpoint Inhibitors:** Blocking regulatory pathways to enhance immune responses against cancer.
18. **CAR-T Cell Therapy:** Engineering T cells to express chimeric antigen receptors for targeted cancer therapy.
19. **Adoptive Cell Transfer:** Transferring immune cells, such as T cells or NK cells, for cancer treatment.
20. **Vaccine Development:** Creating vaccines to prevent infectious diseases by inducing protective immune responses.
21. **Immune Modulation:** Developing therapies to regulate immune responses in autoimmune diseases.
22. **Immunotherapy Combinations:** Investigating synergistic effects of combining different immunotherapies.
23. **Tumor Microenvironment Manipulation:** Modifying the microenvironment to enhance immune cell infiltration and activity.
24. **Personalized Immunotherapy:** Tailoring treatments based on an individual's immune profile.
25. **Dendritic Cell Vaccines:** Using dendritic cells to stimulate immune responses against cancer.
26. **Targeted Immunotoxins:** Delivering toxins to specific cells using antibody targeting.

27. **Nanoparticle-Based Vaccines:** Using nanoparticles to enhance vaccine delivery and immune responses.
28. **Immune Priming:** Enhancing initial immune responses to improve vaccine efficacy.
29. **Allergen-Specific Immunotherapy:** Desensitizing allergic individuals to specific allergens.
30. **Immune Modulators in Autoimmunity:** Developing molecules that modulate immune responses in autoimmune disorders.
31. **Immune Regeneration:** Stimulating tissue repair and immune system reconstitution.
32. **Immunotherapies for Chronic Infections:** Targeting persistent viral infections with immunomodulatory approaches.
33. **Antigen-Specific Tolerance Induction:** Inducing tolerance to specific antigens to prevent autoimmune reactions.
34. **Microbiome-Targeted Therapies:** Modulating the gut microbiome to impact immune responses.
35. **Stem Cell Immunotherapy:** Using stem cells to modulate immune responses and promote tissue repair.

## Other Applied Immunology Fields

Microbial Immunology Topics

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### Bacterial Immunology

Studies the immune response to bacterial pathogens, including mechanisms of bacterial evasion, recognition by the immune system, and vaccine development.

### Viral Immunology

Focuses on the immune response to viruses, mechanisms of viral evasion, antiviral immunity, and vaccine research.

### Fungal Immunology

Investigates the immune system's response to fungal pathogens, fungal evasion strategies, and antifungal immunity.

### Parasitic Immunology

Studies the immune response to parasites, including protozoans and helminths, mechanisms of immune evasion by parasites, and vaccine development against parasitic diseases.

## **Immunobiome Research**

Explores the interaction between the microbiome (the community of microorganisms living in a particular habitat, like the human gut) and the immune system, including how the microbiome influences immune development, response, and disease.

## **Vaccine Development and Immunotherapy**

Focuses on the development of vaccines and immunotherapies against microbial pathogens, including understanding immune mechanisms that can be targeted for protective immunity.

## **Host-Pathogen Interactions**

Studies the molecular and cellular interactions between microbes and their hosts, including the mechanisms by which pathogens invade, evade the immune system, and how the host mounts an immune response.

## **Innate Immunity to Pathogens**

Investigates the role of the innate immune system (the first line of immune defense) in recognizing and responding to microbial pathogens.

## **Adaptive Immunity to Pathogens**

Focuses on the role of the adaptive immune system (which provides long-term immunity through memory cells) in recognizing and responding to specific microbial agents.

## **Microbial Evasion Strategies**

Studies how microbes evade the immune system, including mechanisms of resistance to immune responses and antibiotics.

## **Immunogenetics of Infectious Diseases**

Investigates the genetic factors that influence the immune response to infections, including host susceptibility and resistance to diseases.

## **Autoimmunity and Microbial Infections**

Explores the connections between microbial infections and the development of autoimmune diseases, including molecular mimicry and other mechanisms.

## **Immunoinformatics and Systems Immunology**

Applies computational methods and systems biology approaches to study the immune response to microbial infections, including vaccine design and immune system modeling.

Autoimmunity Topics

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## **Pathogenesis of Autoimmune Diseases**

Explores the mechanisms through which the immune system mistakenly targets and attacks the body's own tissues, leading to autoimmune diseases.

## **Genetics of Autoimmunity**

Investigates the genetic predispositions that contribute to the development of autoimmune conditions, identifying susceptibility genes and their roles.

## **Environmental Triggers of Autoimmunity**

Studies how environmental factors, such as infections, toxins, and dietary components, can trigger autoimmune responses in genetically susceptible individuals.

## **Autoimmune Diagnostics**

Focuses on the development and refinement of diagnostic tests and biomarkers that can detect autoimmune diseases early and accurately.

## **Autoimmune Disease Models**

Develops and utilizes animal models and in vitro systems to study the pathogenesis of autoimmune diseases and test potential therapies.

## **Therapeutic Interventions for Autoimmune Diseases**

Explores existing and novel therapeutic strategies to treat autoimmune diseases, including immunosuppressive drugs, biologics, and cell-based therapies.

## **Autoantibodies and Biomarkers**

Studies the role of autoantibodies in autoimmune diseases, their mechanisms of action, and their potential as diagnostic and prognostic biomarkers.

## **Immunoregulation and Autoimmunity**

Investigates the mechanisms of immune regulation that fail in autoimmunity, including regulatory T cells, cytokine imbalances, and immune checkpoints.

## **Tissue Damage and Repair in Autoimmunity**

Examines the processes of tissue damage and repair in autoimmune diseases, aiming to understand how to mitigate damage and promote healing.

## **Autoimmune Epidemiology**

Studies the distribution, determinants, and dynamics of autoimmune diseases in populations, including risk factors and public health implications.

## **Psychoneuroimmunology of Autoimmunity**

Explores the interactions between the nervous system, the immune system, and psychological processes in the context of autoimmune diseases.

## **Nutritional Immunology and Autoimmunity**

Investigates the impact of nutrition on the immune system and the development or management of autoimmune diseases.

## **Autoimmunity in Aging**

Studies the impact of aging on the immune system and the increased incidence of autoimmune diseases in the elderly population.

## **Gender and Autoimmunity**

Explores the reasons behind the gender differences in the prevalence and severity of autoimmune diseases, focusing on hormonal and genetic factors.

## **Pediatric Autoimmunity**

Focuses on autoimmune diseases in children, including their diagnosis, treatment, and long-term management strategies.

## **Emerging Therapies in Autoimmunity**

Investigates new and emerging therapies for autoimmune diseases, including targeted therapies,

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personalized medicine, and regenerative approaches.

## **Autoimmunity and Transplantation**

Explores the challenges and strategies for managing autoimmunity in the context of organ transplantation, including graft rejection and graft-versus-host disease.

## **Integrative and Complementary Approaches in Autoimmunity**

Studies the role of integrative and complementary medicine approaches, such as acupuncture, yoga, and herbal medicine, in managing autoimmune diseases.

Cancer Immunology Topics

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## **Immune Surveillance and Cancer**

Explores how the immune system monitors and eliminates cancer cells through immune surveillance mechanisms and the evasion strategies employed by tumors.

## **Immunotherapy for Cancer**

Focuses on the development and application of immunotherapeutic strategies, such as checkpoint inhibitors, CAR-T cell therapy, and cancer vaccines.

## **Tumor Microenvironment**

Investigates the complex interactions within the tumor microenvironment, including the role of immune cells, cytokines, and the extracellular matrix in tumor progression and response to therapy.

## **Immune Checkpoints in Cancer**

Studies the role of immune checkpoint molecules in regulating immune responses to cancer and their targeting for cancer therapy.

## **Cancer Vaccines**

Explores the development of prophylactic and therapeutic vaccines against cancer, including strategies to enhance vaccine efficacy.

## **Oncolytic Virus Therapy**

Investigates the use of genetically engineered viruses that selectively kill cancer cells while stimulating an immune response against the tumor.

## **Adoptive Cell Transfer Therapy**

Focuses on the therapeutic use of immune cells, such as T cells engineered to target cancer cells, in the treatment of cancer.

## **Immune-Related Adverse Events**

Studies the side effects associated with immunotherapies, their mechanisms, and strategies for management and mitigation.

## **Neoantigens and Cancer Immunotherapy**

Investigates the role of neoantigens (novel antigens presented by cancer cells) in eliciting immune responses and their application in personalized cancer immunotherapy.

## **Combination Therapies in Cancer Immunology**

Explores strategies for combining immunotherapies with other treatments, such as chemotherapy, targeted therapy, and radiation, to enhance anti-tumor efficacy.

## **Immunosuppression in the Tumor Microenvironment**

Studies the mechanisms by which tumors induce immunosuppression in their microenvironment, hindering immune-mediated tumor destruction.

## **Immune Biomarkers for Cancer**

Focuses on the identification and validation of immune biomarkers that can predict response to therapy, guide treatment decisions, and monitor disease progression.

## **Regulatory T Cells and Cancer**

Investigates the role of regulatory T cells in cancer progression and their targeting to enhance anti-tumor immunity.

## **Metabolic Regulation of Immune Responses in Cancer**

Explores how metabolic processes within the tumor microenvironment influence immune cell



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function and tumor immunity.

## **Natural Killer Cells in Cancer**

Studies the role of natural killer (NK) cells in recognizing and killing cancer cells and strategies to enhance their anti-tumor activity.

## **Microbiome and Cancer Immunotherapy**

Investigates the influence of the microbiome on cancer development, progression, and response to immunotherapy.

## **Cancer Immunoprevention**

Focuses on strategies to prevent cancer development through immunological means, including the modulation of immune responses and vaccination.

## **Immunogenomics in Cancer**

Applies genomic and bioinformatic approaches to understand the genetic underpinnings of immune responses to cancer and to identify new therapeutic targets.

## **Dendritic Cells and Cancer**

Investigates the role of dendritic cells in initiating and regulating immune responses against cancer and their use in cancer immunotherapy.

Comparative Immunology Topics

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## **Evolution of the Immune System**

Explores the evolutionary history of the immune system across different species, highlighting conserved mechanisms and unique adaptations.

## **Immunity in Invertebrates**

Investigates the immune mechanisms in invertebrates, including innate immune responses and the evolution of immune recognition and signaling pathways.

## **Adaptive Immunity in Vertebrates**

Focuses on the development and function of adaptive immunity in vertebrates, including the emergence of B and T cells and antigen recognition.

## **Comparative Immunogenetics**

Studies the genetic basis of immune system variation across different species, including major histocompatibility complex (MHC) evolution and polymorphism.

## **Immune System and Symbiosis**

Explores the interactions between host immune systems and symbiotic organisms, including mutualistic and commensal relationships.

## **Pathogen Recognition Across Species**

Investigates the diverse mechanisms by which different species recognize and respond to pathogens, including pattern recognition receptors.

## **Comparative Microbiome and Immunity**

Studies the role of the microbiome in shaping immune system development and function across different species.

## **Immunity in Aquatic Organisms**

Explores immune system features and responses in aquatic organisms, including fish and marine invertebrates, under varying environmental conditions.

## **Environmental Influences on Immunity**

Investigates how environmental factors, such as temperature, pollution, and habitat change, affect immune system function in different species.

## **Immunological Memory Across Species**

Studies the presence and mechanisms of immunological memory in non-mammalian species, including the potential for adaptive-like responses in invertebrates.

## **Immune Evasion Strategies by Pathogens**

Explores the diverse strategies evolved by pathogens to evade immune responses in different host

species.

## **Comparative Vaccine Development**

Focuses on the development and application of vaccines in non-human species, including considerations for veterinary and wildlife immunization.

## **Host-Pathogen Co-evolution**

Investigates the co-evolutionary arms race between pathogens and their hosts immune systems across different species.

## **Immunity and Aging Across Species**

Explores how aging affects the immune system in various species and the evolutionary significance of immunosenescence.

## **Immunotherapy in Veterinary Medicine**

Studies the application of immunotherapeutic strategies, including cancer immunotherapy, in veterinary medicine for domestic and wild animals.

## **Autoimmunity and Disease Across Species**

Investigates the occurrence and mechanisms of autoimmune diseases in various species, providing insights into comparative pathogenesis and treatment.

## **Translational Insights from Comparative Immunology**

Explores how discoveries in comparative immunology can inform human immunology and vice versa, highlighting potential for cross-species translational research.

## **Immune System and Life-History Strategies**

Studies the relationship between immune system evolution and life-history strategies across species, including trade-offs between immunity and reproduction.

## **Comparative Immunotoxicology**

Investigates the effects of environmental toxins on the immune systems of different species, highlighting vulnerabilities and resilience mechanisms.

## **Ontogeny of the Immune System**

Studies the development of the immune system from embryonic stages through adulthood, including the maturation of immune organs and cells.

## **Immune System Development in Utero**

Investigates how the immune system develops in the fetal environment, including the influence of maternal factors and early life exposures.

## **Neonatal Immunity**

Explores the characteristics of the neonatal immune system, including unique responses to infections and vaccinations in early life.

## **Immunological Tolerance Development**

Focuses on the mechanisms of immunological tolerance development, including central and peripheral tolerance to self and non-self antigens.

## **Impact of Nutrition on Immune Development**

Studies the role of nutrition, including breast milk components, in the development and maturation of the immune system.

## **Microbiome and Immune System Development**

Investigates the impact of the microbiome on the development and function of the immune system during early life and beyond.

## **Immunodeficiencies and Development**

Explores primary and secondary immunodeficiencies, their impact on immune system development, and strategies for diagnosis and management.

## **Immunosenescence and Aging**

Studies the changes in the immune system associated with aging, including diminished responses to infections and vaccinations.

## **Vaccination Strategies Across Life Stages**

Focuses on the optimization of vaccination strategies for different life stages, from neonates to the elderly, considering the developmental status of the immune system.

## **Immune Education and Memory Formation**

Investigates the processes of immune education during development and the formation of immunological memory.

## **Environmental Influences on Immune Development**

Studies how environmental factors, such as pollutants, allergens, and lifestyle, influence the development and function of the immune system.

## **Developmental Origins of Autoimmune Diseases**

Explores how alterations in immune system development may predispose individuals to autoimmune diseases later in life.

## **Thymus Development and Function**

Investigates the development and function of the thymus, including T cell maturation and the establishment of central tolerance.

## **Bone Marrow and Hematopoiesis**

Focuses on the development and function of the bone marrow in immune cell production and hematopoiesis throughout life.

## **Fetal Immune Programming**

Studies how fetal exposures to infections, maternal antibodies, and other factors program the immune system, affecting susceptibility to diseases.

## **Immunotherapy and Developmental Considerations**

Investigates the considerations and adaptations required for immunotherapeutic approaches in pediatric and elderly populations.

## **Regenerative Immunology**

Explores the intersection of regenerative medicine and immunology, including the role of the

immune system in tissue repair and regeneration.

## **Developmental Immunotoxicology**

Studies the impact of toxic exposures on the developing immune system, including potential long-term consequences for immune function.

## **Immunology of Pregnancy**

Investigates the immunological aspects of pregnancy, including maternal-fetal tolerance, and the impact of pregnancy on maternal immune function.

## **Pediatric Immunization and Immune Response**

Focuses on the unique aspects of pediatric immunization, including schedule optimization and response to novel vaccines.

Evolutionary Immunology Topics

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## **Evolution of Innate Immunity**

Explores the origins and evolution of innate immune mechanisms across different species, from simple organisms to mammals.

## **Adaptive Immunity Evolution**

Investigates the evolutionary development of adaptive immunity, focusing on the emergence of lymphocytes, antibodies, and antigen presentation.

## **Pathogen-Host Co-evolution**

Studies the dynamic interactions between pathogens and their hosts, including how reciprocal evolutionary pressures shape immune responses and pathogen virulence.

## **Molecular Evolution of Immune Genes**

Focuses on the molecular evolution of immune system genes, including gene duplication, diversification, and the impact of genetic variation on immune function.

## **Immune System and Life History Traits**

Explores the relationship between immune system evolution and life history traits, such as lifespan, reproduction, and parental investment.

## **Evolution of Immune System Complexity**

Investigates the evolutionary factors leading to the complexity of immune systems, including the role of ecological and environmental pressures.

## **Evolutionary Perspectives on Autoimmunity**

Examines autoimmunity through an evolutionary lens, exploring how factors like hygiene hypothesis and mismatch theory contribute to autoimmune conditions.

## **Immunogenetics and Population Diversity**

Studies the genetic diversity of immune system components in different populations and its implications for disease susceptibility and vaccine responses.

## **Antimicrobial Peptides Evolution**

Investigates the evolution of antimicrobial peptides, a key component of innate immunity, across different species and their roles in host defense.

## **Symbiosis and Immune System Evolution**

Explores how symbiotic relationships with microorganisms have influenced the evolution of the immune system.

## **Evolutionary Trade-offs in Immune Responses**

Focuses on the trade-offs between immune defense and other physiological processes, such as metabolism and reproduction, from an evolutionary perspective.

## **Impact of Social Behavior on Immune Evolution**

Studies how social structures and behaviors in animal populations influence the evolution of the immune system.

## **Parasite Evasion Strategies and Immune Evolution**

Investigates how the evolution of parasite evasion strategies has driven the diversification and

adaptation of the immune system.

## **Evolution of Vaccine Response**

Explores the evolutionary underpinnings of vaccine responses, including how historical exposure to pathogens may influence current vaccine efficacy.

## **Phylogenetics of Immune Systems**

Uses phylogenetic methods to study the evolutionary relationships and origins of immune system components across species.

## **Immune System and Speciation**

Investigates the role of the immune system in speciation processes, including how immune-related reproductive barriers can drive speciation.

## **Evolution of Immunological Memory**

Studies the origins and evolution of immunological memory, including how memory mechanisms differ among species.

## **Evolutionary Ecology of Disease Resistance**

Explores how ecological factors and evolutionary history shape disease resistance patterns in natural populations.

## **Comparative Immunology and Evolution**

Uses comparative approaches to study the evolution of the immune system, highlighting similarities and differences across taxa.

## **Evolutionary Theories of Aging and Immunity**

Examines how evolutionary theories of aging, such as the disposable soma theory, relate to changes in immune function over the lifespan.

Immunogenetics Topics

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## **Genetic Basis of Immune Response Variability**

Explores the genetic factors that contribute to variability in immune responses among individuals, including susceptibility to infections and vaccine efficacy.

## **HLA System and Disease Susceptibility**

Investigates the role of the Human Leukocyte Antigen (HLA) system in disease susceptibility, transplant compatibility, and autoimmunity.

## **Genetics of Autoimmune Diseases**

Focuses on identifying genetic predispositions to autoimmune diseases and understanding the mechanisms through which they influence disease development.

## **Immunogenetics of Infectious Diseases**

Studies how genetic variations influence the outcome of infectious diseases, including host-pathogen interactions and resistance to infections.

## **Genetic Engineering for Immune Therapies**

Explores the use of genetic engineering techniques, such as CRISPR/Cas9, in developing novel immune therapies for diseases.

## **Immunoglobulin Gene Diversity**

Investigates the genetic mechanisms underlying the diversity of immunoglobulins and their implications for immunity and vaccine development.

## **Genetics of Hypersensitivity and Allergies**

Studies the genetic factors that predispose individuals to hypersensitivities and allergies, including atopic dermatitis, asthma, and food allergies.

## **Immunogenetics and Cancer**

Explores the genetic determinants of immune responses to cancer, including tumor immunogenicity and the efficacy of immunotherapies.

## **Population Immunogenetics**

Investigates the variation in immune system genes across different populations, including

evolutionary adaptations to pathogens.

## **Genetic Regulation of Immune Cell Development**

Focuses on the genetic regulation of the development and differentiation of immune cells, including T cells, B cells, and innate immune cells.

## **Immunogenetics of Transplantation**

Studies the genetic factors affecting graft rejection and the success of organ and tissue transplantation.

## **Cytokine Gene Polymorphisms**

Investigates polymorphisms in cytokine genes and their impact on immune responses, inflammation, and disease susceptibility.

## **Genetic Markers of Immunodeficiency**

Focuses on identifying genetic markers associated with primary immunodeficiencies and their role in disease pathology.

## **Epigenetics and Immune Regulation**

Explores the role of epigenetic modifications in regulating immune responses and their implications for disease and therapy.

## **Pharmacogenetics of Immune Modulation**

Investigates the genetic factors that influence individual responses to immunomodulatory drugs, including adverse reactions and efficacy.

## **Immunogenetics of Aging**

Studies the genetic and epigenetic changes in the immune system associated with aging and their impact on health and longevity.

## **Genome-Wide Association Studies (GWAS) in Immunology**

Uses GWAS to identify genetic variants associated with immune-mediated diseases, response to vaccines, and other immune traits.

## **Immunogenetics of Mucosal Immunity**

Focuses on the genetic factors influencing the development and function of mucosal immunity, including gut and respiratory tract defenses.

## **Gene Therapy for Immunodeficiencies**

Explores the development and application of gene therapy techniques to treat genetic immunodeficiencies, restoring normal immune function.

## **Next-Generation Sequencing in Immunogenetics**

Utilizes next-generation sequencing technologies to uncover genetic variations that influence immune system function and disease susceptibility.

Immunotherapy Topics

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## **Checkpoint Inhibitors**

Explores the development and application of checkpoint inhibitors, focusing on their mechanisms of action and clinical impacts in cancer therapy.

## **CAR-T Cell Therapy**

Investigates the use of chimeric antigen receptor (CAR) T cell therapy in treating cancers, including the engineering of T cells and therapeutic outcomes.

## **Cancer Vaccines**

Focuses on the development of therapeutic vaccines to treat cancer by stimulating the immune system to attack tumor cells.

## **Monoclonal Antibodies**

Studies the use of monoclonal antibodies in targeting specific antigens found on cancer cells, autoimmune diseases, and infectious agents.

## **Immune Modulation Therapy**

Explores therapies aimed at modulating the immune system to enhance its ability to fight diseases, including the use of cytokines and adjuvants.

## **Immuno-Oncology**

Investigates the intersection of immunology and oncology, focusing on harnessing the immune system to fight cancer.

## **Bispecific Antibodies**

Studies the development and application of bispecific antibodies that can bind two different antigens simultaneously for targeted therapy.

## **Oncolytic Virus Therapy**

Explores the use of genetically engineered viruses that selectively infect and kill cancer cells while eliciting an immune response.

## **Allergen-Specific Immunotherapy**

Focuses on treating allergic diseases by desensitizing the immune system to specific allergens.

## **Immunotherapy for Autoimmune Diseases**

Investigates immunotherapeutic approaches to treat autoimmune diseases by modulating or suppressing the immune response.

## **Adoptive Cell Transfer**

Studies the therapeutic transfer of immune cells, such as T cells or NK cells, to enhance the immune response to cancer.

## **Immune Checkpoint Blockade Resistance**

Investigates mechanisms of resistance to immune checkpoint blockade therapies and strategies to overcome this resistance.

## **Immunotherapy in Infectious Diseases**

Explores the use of immunotherapeutic approaches to prevent or treat infectious diseases, including therapeutic vaccines and immune modulators.

## **Tumor Microenvironment and Immunotherapy**

Studies the role of the tumor microenvironment in influencing the efficacy of immunotherapies and strategies to modulate the microenvironment.

## **Immunotherapy Side Effects and Management**

Focuses on the identification, management, and mitigation of side effects associated with immunotherapy treatments.

## **Nanoparticles in Immunotherapy**

Investigates the use of nanoparticles to deliver immunotherapeutic agents, enhance vaccine efficacy, and modulate the immune response.

## **Immune Tolerance Induction**

Explores strategies to induce immune tolerance in conditions such as autoimmune diseases, allergies, and transplant rejection.

## **Combination Immunotherapy**

Studies the combination of different immunotherapeutic approaches to enhance therapeutic efficacy and overcome resistance.

## **Immunotherapy Biomarkers**

Focuses on the identification and validation of biomarkers that can predict response to immunotherapy and monitor treatment progress.

## **Regulatory Aspects of Immunotherapy**

Investigates the regulatory challenges and considerations in the development, approval, and clinical use of immunotherapeutic agents.

## **Immunotherapy for Rare Diseases**

Explores the potential of immunotherapy in treating rare diseases with an immune component, including strategies and challenges.

Mucosal Immunology Topics

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## **Mucosal Barrier and Immunity**

Explores the structure and function of the mucosal barrier in various organs and its role in the immune defense against pathogens.

## **Microbiome and Mucosal Immunity**

Investigates the relationship between the microbiome and mucosal immune responses, including how commensal microbes influence immunity.

## **Mucosal Vaccines**

Focuses on the development and mechanisms of mucosal vaccines, including oral, nasal, and rectal delivery routes for protection against mucosal pathogens.

## **Innate Immunity at Mucosal Surfaces**

Studies the components and mechanisms of innate immunity at mucosal surfaces, including the role of epithelial cells, mucus, and innate immune cells.

## **Adaptive Immunity in Mucosal Tissues**

Investigates the mechanisms of adaptive immunity in mucosal tissues, including the induction and regulation of mucosal T and B cell responses.

## **Mucosal Inflammation and Disease**

Explores the causes and mechanisms of inflammation in mucosal tissues and its implications for diseases such as IBD, asthma, and allergic reactions.

## **Mucosal Tolerance**

Studies the mechanisms of mucosal tolerance to dietary antigens and commensal microbes, including the role of regulatory T cells and immune regulation.

## **Secretory Immunoglobulins**

Focuses on the role and regulation of secretory immunoglobulins, especially IgA, in mucosal immunity and protection against pathogens.

## **Intestinal Immune Homeostasis**

Investigates the maintenance of immune homeostasis in the gut, including the balance between immune responses to pathogens and tolerance to commensals.

## **Mucosal Pathogens and Immunity**

Explores the immune responses to mucosal pathogens, including bacteria, viruses, and parasites,

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and strategies for immune evasion by these pathogens.

## **Nasal and Respiratory Mucosal Immunity**

Studies the immune defenses in the nasal and respiratory mucosa, including responses to respiratory viruses and pollutants.

## **Oral and Dental Mucosal Immunity**

Investigates immune responses in the oral cavity and their implications for oral health, including periodontal disease and oral cancer.

## **Genitourinary Mucosal Immunity**

Explores the immune mechanisms in the genitourinary tract, including responses to sexually transmitted infections and urinary tract infections.

## **Mucosal Immunity and Vaccination Strategies**

Focuses on novel strategies for enhancing mucosal immunity through vaccination, including adjuvants and delivery systems.

## **Mucosal Immune Memory**

Studies the mechanisms and implications of immune memory at mucosal sites, including memory T and B cell responses.

## **Mucosal Immunodeficiencies**

Investigates primary and acquired immunodeficiencies affecting mucosal immunity and their clinical implications.

## **Therapeutic Modulation of Mucosal Immunity**

Explores therapeutic approaches to modulate mucosal immune responses, including the treatment of mucosal inflammation and autoimmune diseases.

## **Mucosal Immunity in Aging**

Studies the effects of aging on mucosal immune function and the implications for susceptibility to infections and chronic mucosal diseases.

## **Mucosal Immunology of the Eye**

Investigates the immune mechanisms in the ocular mucosa, including responses to allergens and pathogens affecting the eye.

## **Technological Advances in Mucosal Immunology Research**

Focuses on new technologies and methodologies for studying mucosal immunity, including imaging techniques and organoid models.

Neuroimmunology Topics

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## **Immune-Brain Interactions**

Explores the complex interactions between the immune system and the brain, including the pathways through which they communicate.

## **Neuroinflammation**

Investigates the mechanisms and roles of inflammation within the central nervous system (CNS), its impact on neurological diseases, and potential therapeutic interventions.

## **Autoimmune Neurological Disorders**

Focuses on autoimmune conditions affecting the nervous system, such as multiple sclerosis (MS) and neuromyelitis optica (NMO), including their pathogenesis, diagnosis, and treatment.

## **Neuroimmunology of Neurodegenerative Diseases**

Studies the role of the immune system in neurodegenerative diseases like Alzheimer's disease and Parkinson's disease, including contributions to disease progression and therapeutic targets.

## **Psychoneuroimmunology**

Explores the interactions between psychological processes, the nervous system, and the immune system, including how stress and mental health affect immune function and vice versa.

## **Infection-Induced Neurological Disorders**

Investigates how infections can lead to neurological disorders, including post-infectious syndromes and direct effects of pathogens on the CNS.



## **The Blood-Brain Barrier and Immunity**

Focuses on the role of the blood-brain barrier in regulating immune cell entry into the CNS and its implications for disease and therapy.

## **Neuroimmune Regulatory Mechanisms**

Studies the regulatory mechanisms within the neuroimmune axis, including the roles of microglia, astrocytes, and cytokines in maintaining CNS homeostasis.

## **Glia and Immune Interactions**

Explores the interactions between glial cells (such as microglia and astrocytes) and the immune system in health and disease.

## **Neuroimmunology of Pain**

Investigates the role of the immune system in pain mechanisms, including chronic pain and neuropathic pain.

## **Immunotherapies for Neurological Disorders**

Focuses on the development and application of immunotherapies for the treatment of neurological disorders, including monoclonal antibodies and vaccine approaches.

## **Immune Cells in the CNS**

Studies the types, roles, and regulation of immune cells within the CNS, including resident and peripheral immune cells.

## **CNS Autoantigens and Immune Tolerance**

Investigates the identification of CNS autoantigens and mechanisms of immune tolerance to prevent autoimmune reactions in the CNS.

## **Neuroimmunological Biomarkers**

Explores biomarkers that can indicate neuroimmune activity, aid in diagnosis, and monitor the progression and treatment response of neuroimmune disorders.

## **Impact of the Gut Microbiome on Neuroimmunology**

Studies the influence of the gut microbiome on the neuroimmune axis, including effects on

neuroinflammation and neurological diseases.

## **Viral Infections and Neuroimmunity**

Investigates the impact of viral infections on neuroimmune responses, including mechanisms of viral persistence and CNS damage.

## **Neuroimmunology of Sleep**

Explores the interactions between sleep, the immune system, and the CNS, including how immune processes influence sleep patterns and disorders.

## **Neuroimmunology in Pediatric Disorders**

Focuses on neuroimmune mechanisms and disorders in pediatric populations, including developmental and genetic influences on neuroimmune function.

## **Emerging Techniques in Neuroimmunology Research**

Highlights new and emerging techniques in neuroimmunology research, including advanced imaging, single-cell analyses, and genomics.

## **Translational Neuroimmunology**

Explores the translation of neuroimmunological research into clinical applications, including diagnostic tools, biomarkers, and therapeutic strategies.

Reproductive Immunology Topics

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## **Immune System and Fertility**

Explores the role of the immune system in fertility and reproduction, including how immune responses can impact fertility in both males and females.

## **Immunology of Pregnancy**

Investigates the immunological aspects of pregnancy, including maternal-fetal tolerance, the role of immune cells in placental development, and the implications for pregnancy complications.

## **Autoimmunity and Reproductive Disorders**

Focuses on the connection between autoimmune diseases and reproductive disorders, including their impact on fertility, pregnancy, and neonatal outcomes.

## **Immune Tolerance in Pregnancy**

Studies the mechanisms of immune tolerance during pregnancy, including how the maternal immune system adapts to the presence of fetal antigens.

## **Endometriosis and Immunology**

Explores the immunological aspects of endometriosis, including the role of inflammation, immune cells, and cytokines in the pathogenesis and progression of the disease.

## **Immunotherapies for Reproductive Disorders**

Investigates the use of immunotherapies in treating reproductive disorders, including strategies to modulate immune responses for improved reproductive health.

## **Reproductive Immunology in Assisted Reproductive Technologies**

Studies the implications of immunological factors in the success of assisted reproductive technologies (ART), including in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI).

## **Placental Immunology**

Focuses on the immunological functions of the placenta, including its role in maternal-fetal immune interactions and protection against pathogens.

## **Immunological Aspects of Preeclampsia**

Investigates the immunological factors contributing to the development of preeclampsia, including the role of inflammation and immune cells.

## **Infections and Reproductive Health**

Explores the impact of infections on reproductive health, including sexually transmitted infections (STIs) and their effects on fertility and pregnancy outcomes.

## **Male Reproductive Immunology**

Studies the immune aspects of male reproductive health, including the role of the immune system in testicular function, sperm production, and fertility.

## **Contraception and the Immune System**

Investigates the interactions between contraceptive methods and the immune system, including the immunological impact of hormonal contraceptives.

## **Immunogenetics of Reproductive Disorders**

Explores the genetic and immunogenetic factors underlying reproductive disorders, including predispositions to conditions like recurrent pregnancy loss and endometriosis.

## **Immune System and Neonatal Development**

Focuses on the impact of the maternal immune system on neonatal development, including the effects of maternal antibodies and the development of the neonatal immune system.

## **Immunological Predictors of Reproductive Success**

Studies potential immunological markers that could predict reproductive success, including biomarkers for pregnancy complications or successful ART outcomes.

## **Vaccination and Reproductive Health**

Investigates the effects of vaccinations on reproductive health, including the safety and efficacy of vaccines in pregnant women and impacts on fertility.

## **Environmental Factors and Reproductive Immunology**

Explores the effects of environmental factors, such as toxins and pollutants, on reproductive immunology and their implications for fertility and pregnancy.

## **Lactation and Immunology**

Studies the immunological aspects of lactation, including the transfer of maternal antibodies through breast milk and the impact on neonatal immunity.

## **Emerging Research Techniques in Reproductive**

## **Immunology**

Highlights new and emerging research techniques and methodologies in reproductive immunology, facilitating advanced studies in the field.

Systems Immunology Topics

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## **Computational Modeling of Immune Responses**

Explores computational models and simulations to predict immune response dynamics, understand complex immune processes, and guide experimental designs.

## **High-Dimensional Data Analysis in Immunology**

Focuses on the analysis of high-dimensional immunological data, including flow cytometry, mass cytometry (CyTOF), and single-cell RNA sequencing, to decipher immune system complexity.

## **Immune System Network Analysis**

Investigates the network properties of the immune system, including interaction networks among immune cells, cytokines, and signaling molecules to understand system-wide behaviors.

## **Systems Biology of Infection and Immunity**

Studies the systems biology approaches to infection and immunity, integrating multi-omic data to understand host-pathogen interactions and immune responses to infection.

## **Machine Learning Applications in Immunology**

Explores the application of machine learning techniques to immunological data for predicting disease susceptibility, vaccine responses, and treatment outcomes.

## **Quantitative and Systems Pharmacology in Immunotherapy**

Focuses on the use of quantitative systems pharmacology models to predict the pharmacodynamics and pharmacokinetics of immunotherapies, optimizing dosing regimens and reducing toxicity.

## **Immune Repertoire Sequencing**

Investigates the sequencing and analysis of immune repertoires, including T-cell receptors and B-cell receptors, to understand diversity and dynamics in health and disease.

## **Multi-Omics Approaches in Immunology**

Studies the integration of multi-omics data (genomics, proteomics, metabolomics, etc.) to gain comprehensive insights into immune function and regulation.

## **Immune Cell Signaling Pathways**

Explores the mapping and modeling of signaling pathways in immune cells, understanding how signals are integrated to produce functional outcomes.

## **Microbiome and Systems Immunology**

Investigates the systemic effects of the microbiome on the immune system, utilizing systems biology approaches to understand microbiome-immune interactions.

## **Dynamic Modeling of Immune Tolerance and Autoimmunity**

Focuses on dynamic models of immune tolerance mechanisms and their failure in autoimmune diseases, aiming to identify therapeutic intervention points.

## **Systems Immunology in Vaccine Development**

Explores the application of systems immunology approaches to vaccine development, including identifying correlates of protection and optimizing vaccine formulations.

## **Immuno-Metabolism and Systems Biology**

Studies the interplay between metabolism and immune function using systems biology approaches to elucidate regulatory mechanisms and therapeutic targets.

## **Epigenetics and Systems Immunology**

Investigates the role of epigenetic modifications in immune system regulation and function, integrating epigenetic data into system-wide analyses.

## **Network Pharmacology in Immune Modulation**

Explores the use of network pharmacology to identify multi-target drugs and natural compounds

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that modulate immune system networks for therapeutic benefit.

## **Translational Systems Immunology**

Focuses on the translation of systems immunology findings into clinical applications, including diagnostic biomarkers and precision immunotherapy.

## **Artificial Intelligence for Immunological Data Interpretation**

Investigates the use of artificial intelligence (AI) and deep learning algorithms for the interpretation of complex immunological data, enhancing understanding and discovery.

## **Modeling Immune System Development**

Studies the use of systems biology models to understand the development and maturation of the immune system over time and in response to environmental exposures.

## **Systems Immunology of Aging**

Explores the changes in the immune system with aging using systems biology approaches, aiming to identify interventions to improve immune function in the elderly.

## **Emerging Technologies in Systems Immunology**

Highlights emerging technologies and methodologies in systems immunology, including new experimental platforms and computational tools for systems-level analyses.

Transplant Immunology Topics

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## **Immunological Basis of Graft Rejection**

Explores the immunological mechanisms underlying graft rejection, including cellular and humoral immune responses against transplanted tissues or organs.

## **Strategies for Inducing Transplant Tolerance**

Focuses on strategies to induce immunological tolerance to transplants, aiming to reduce or eliminate the need for lifelong immunosuppression.

## **Immunosuppressive Therapies**

Investigates current and emerging immunosuppressive drugs and therapies used to prevent transplant rejection and manage transplant-related complications.

## **Immunogenetics of Transplantation**

Studies the role of genetic factors, including HLA matching and polymorphisms, in transplant compatibility, rejection, and tolerance.

## **Role of the Microbiome in Transplant Outcomes**

Explores how the microbiome influences transplant outcomes, including the impact on immune responses and infection risk post-transplantation.

## **Antibody-Mediated Rejection**

Investigates the mechanisms, diagnosis, and treatment of antibody-mediated rejection in organ transplantation, focusing on donor-specific antibodies.

## **Cellular Therapies for Transplant Immunomodulation**

Focuses on the use of cellular therapies, such as regulatory T cells and mesenchymal stem cells, to modulate immune responses in transplantation.

## **Xenotransplantation Immunology**

Explores the immunological challenges and advancements in xenotransplantation, including overcoming cross-species immune barriers.

## **Transplantation of Tolerogenic Dendritic Cells**

Investigates the potential of tolerogenic dendritic cells to induce immune tolerance and improve transplant outcomes.

## **Graft-Versus-Host Disease (GVHD)**

Studies the immunopathogenesis, prevention, and treatment of GVHD, a significant complication of allogeneic bone marrow or stem cell transplants.

## **Immunological Monitoring of Transplant Recipients**

Focuses on immunological assays and biomarkers for monitoring transplant recipients, predicting



rejection episodes, and guiding therapy adjustments.

## **Alloimmune Responses**

Investigates the immune response to allogeneic transplants, including the role of T cells, B cells, and innate immune cells in rejection and tolerance.

## **Transplant Immunology in Regenerative Medicine**

Explores the interface between transplant immunology and regenerative medicine, including the use of stem cells and engineered tissues for transplantation.

## **Ischemia-Reperfusion Injury in Transplantation**

Studies the immunological aspects of ischemia-reperfusion injury in transplanted organs and strategies for its prevention and treatment.

## **Novel Biomaterials for Immune Modulation in Transplantation**

Investigates the use of biomaterials for local delivery of immunosuppressants or to create immune-modulating environments around transplants.

## **Mucosal Immunity in Transplantation**

Focuses on the role of mucosal immunity in the context of organ transplantation, particularly for transplants involving mucosal surfaces.

## **Immunotherapy for Transplant-Associated Malignancies**

Explores immunotherapeutic approaches to treat or prevent malignancies associated with organ transplantation and immunosuppression.

## **Costimulation Blockade in Transplantation**

Studies the use of costimulation blockade agents to prevent allogeneic transplant rejection and induce operational tolerance.

## **Long-Term Outcomes and Complications in Transplant Recipients**

Investigates the long-term immunological outcomes and complications in transplant recipients,

including chronic rejection and drug toxicity.

## **Emerging Technologies and Approaches in Transplant Immunology**

Highlights emerging technologies and novel approaches in transplant immunology research, aiming to improve transplant outcomes and patient quality of life.

Environmental Immunology Topics

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## **Immune System and Environmental Exposures**

Investigates how exposure to environmental factors such as pollutants, chemicals, and natural toxins influences immune system function and susceptibility to diseases.

## **Air Pollution and Respiratory Immunity**

Explores the impact of air pollution on respiratory immune responses, including effects on asthma, allergies, and respiratory infections.

## **Microbiome and Environmental Factors**

Studies the interaction between environmental factors and the microbiome, including how changes in the microbiome can influence immune system development and disease risk.

## **Climate Change and Infectious Diseases**

Investigates the effects of climate change on the distribution and prevalence of infectious diseases and the implications for immune responses.

## **Heavy Metals and Immune Function**

Explores the effects of heavy metal exposure on immune function, including mechanisms of immunotoxicity and implications for autoimmune diseases and cancer.

## **Environmental Endocrine Disruptors and Immunity**

Studies the impact of endocrine-disrupting chemicals found in the environment on immune function and the development of immune-related diseases.

## **Nutrition, Environment, and Immunity**

Investigates the interplay between dietary factors, environmental exposures, and immune system health, including the impact on inflammatory and autoimmune diseases.

## **Immunotoxicology of Pesticides**

Explores the immunotoxic effects of pesticide exposure, including impacts on immune cell function, cytokine production, and disease resistance.

## **Water Quality and Immune Health**

Investigates the relationship between water quality, including the presence of pathogens and contaminants, and immune health outcomes.

## **UV Radiation and Immune Suppression**

Studies the effects of ultraviolet (UV) radiation exposure on immune suppression, skin cancer, and photoimmunology.

## **Immunology of Built Environments**

Explores how indoor environments, including air quality and building materials, affect immune health and disease susceptibility.

## **Plasticizers and Immune Dysregulation**

Investigates the impact of exposure to plasticizers, such as phthalates and bisphenol A (BPA), on immune function and the development of allergies and asthma.

## **Nanoparticles and Immune Responses**

Studies the interactions between engineered nanoparticles and the immune system, including potential uses in immunotherapy and risks of immunotoxicity.

## **Environmental Factors in Autoimmune Diseases**

Focuses on the role of environmental exposures in the development and progression of autoimmune diseases.

## **Stress, Environment, and Immune Function**

Investigates the connections between psychological stress, environmental stressors, and their

combined effects on immune function.

## **Immunological Effects of Herbal and Traditional Medicines**

Explores the immunomodulatory effects of herbal and traditional medicines, including potential benefits and risks associated with their use.

## **Global Health and Environmental Immunology**

Studies the global health implications of environmental immunology, including the effects of pollution and climate change on disease patterns and immune health in different populations.

## **Occupational Exposures and Immune Health**

Investigates the effects of occupational exposures to chemicals, dust, and other materials on immune health and the risk of developing occupational diseases.

## **Immunology of Aging and Environmental Factors**

Explores how environmental factors contribute to immune aging and the implications for age-related diseases and vaccine responses in the elderly.

## **Emerging Contaminants and Immune System Health**

Focuses on the immunological impacts of emerging environmental contaminants, including novel chemicals and microplastics.

## **Translational Environmental Immunology**

Applies findings from environmental immunology research to develop interventions, policies, and guidelines to protect and improve immune health in the face of environmental challenges.

Nutritional Immunology Topics

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## **Impact of Macronutrients on Immune Function**

Investigates how proteins, carbohydrates, and fats influence the immune system, including effects on immune cell activation, differentiation, and function.

## **Micronutrients and Immunity**

Studies the roles of vitamins and minerals in supporting immune function, including deficiencies that can lead to immunosuppression and increased disease susceptibility.

## **Dietary Supplements and Immune Health**

Explores the effectiveness and mechanisms of dietary supplements in enhancing immune health and preventing or managing diseases.

## **Probiotics, Prebiotics, and Gut Immunity**

Investigates the impact of probiotics and prebiotics on gut health and immunity, including effects on the gut microbiota and mucosal immune responses.

## **Immunomodulatory Effects of Functional Foods**

Studies foods with beneficial effects on immune function beyond basic nutrition, including bioactive compounds and antioxidants.

## **Nutrition and Autoimmune Diseases**

Explores the relationship between nutrition and the development or management of autoimmune diseases, including dietary interventions.

## **Nutritional Strategies in Immunotherapy**

Investigates how nutrition can support immunotherapy, including optimizing patient outcomes and reducing therapy-related side effects.

## **Nutrition and Vaccine Efficacy**

Studies how nutrition affects vaccine responses and efficacy, including the role of specific nutrients in modulating immune responses to vaccination.

## **Obesity, Metabolism, and Immune Function**

Explores the connections between obesity, metabolic health, and immune function, including the effects of adipose tissue on inflammation and immunity.

## **Malnutrition and Immune Suppression**

Investigates the effects of malnutrition on immune suppression, including impacts on infection

risk, disease progression, and vaccine responses.

## **Food Allergies and Nutritional Immunology**

Studies the immunological mechanisms of food allergies and the role of diet in managing allergies and promoting tolerance.

## **Nutritional Genomics and Immune Function**

Explores the interactions between nutrition, genetic predispositions, and immune function, including personalized nutrition approaches.

## **Immunological Effects of Fasting and Caloric Restriction**

Investigates the effects of fasting and caloric restriction on immune function, including potential benefits for longevity and disease prevention.

## **Nutrition, Inflammation, and Chronic Diseases**

Studies the role of diet in modulating inflammation and its implications for chronic diseases, including cardiovascular disease, diabetes, and cancer.

## **Aging, Nutrition, and Immunity**

Explores the impact of nutrition on immune aging, including dietary interventions to improve immune function in the elderly.

## **Nutritional Immunology of Infectious Diseases**

Investigates the role of nutrition in susceptibility to and recovery from infectious diseases, including interactions between nutrition and pathogen-induced immune responses.

## **Plant-based Diets and Immune Health**

Studies the effects of plant-based diets on immune health, including the roles of phytochemicals and vegetarian/vegan diets in immune modulation.

## **Exercise, Nutrition, and Immune Function**

Explores the interactions between exercise, diet, and immune function, including strategies for optimizing immune health through lifestyle interventions.

## **Nutritional Status Assessment in Immunocompromised Individuals**

Focuses on methods for assessing nutritional status and its impact on immune function in immunocompromised individuals, including those with HIV/AIDS, cancer, and autoimmune diseases.

## **Nutrition and Skin Immunity**

Investigates the role of nutrition in skin health and immunity, including the impact of specific nutrients on skin barrier function and inflammatory skin diseases.

## **Emerging Trends in Nutritional Immunology Research**

Highlights emerging trends and technologies in nutritional immunology research, including novel bioactive compounds and nutraceuticals for immune health.

Psychoneuroimmunology Topics

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## **Stress and Immune Function**

Explores the effects of psychological and physical stress on immune function, including the role of stress hormones in modulating immune responses.

## **Brain-Immune System Interactions**

Investigates the communication pathways between the brain and the immune system, including the role of neuroimmune mediators in health and disease.

## **Mood Disorders and Immunity**

Studies the relationship between mood disorders, such as depression and anxiety, and immune function, including inflammation and autoimmunity.

## **Psychosocial Factors and Disease Susceptibility**

Explores how psychosocial factors, including social support and loneliness, influence susceptibility to and recovery from infectious and autoimmune diseases.

## **Neuroendocrine Regulation of Immunity**

Investigates the regulatory role of the neuroendocrine system in immune responses, including the effects of hormones like cortisol and adrenaline.

## **Behavioral Conditioning of Immune Responses**

Studies the phenomenon of immune conditioning, where behavioral interventions can modulate immune function and disease outcomes.

## **Sleep and Immune Function**

Explores the impact of sleep and sleep disorders on immune function, including the effects of sleep deprivation and circadian rhythm disruptions.

## **Exercise and Immune Regulation**

Investigates the effects of physical exercise on immune regulation, including acute and chronic impacts on inflammation and immune surveillance.

## **Gut-Brain Axis and Immunity**

Studies the interactions between the gut microbiome, the brain, and the immune system, including the role of gut-derived neurotransmitters and metabolites.

## **Chronic Pain and Immune System Interactions**

Explores the bidirectional relationships between chronic pain and immune function, including the role of inflammation in pain syndromes.

## **Immune System Modulation by Meditation and Mindfulness**

Investigates how mindfulness practices and meditation can modulate immune function and improve health outcomes.

## **Psychoactive Substances and Immune Function**

Studies the effects of psychoactive substances, including alcohol, nicotine, and cannabinoids, on immune function and inflammation.

## **Early Life Stress and Immune Development**

Explores the long-term effects of early life stress on immune system development and the risk of



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developing immune-related conditions.

## **Personality Traits and Immune Function**

Investigates the associations between personality traits, such as optimism and neuroticism, and immune function, including disease resistance and vaccination responses.

## **Psychoneuroimmunology of Aging**

Studies the interactions between psychological factors, neuroendocrine function, and immune aging, including implications for age-related diseases.

## **Interventions to Modulate Immune Function**

Explores behavioral and psychological interventions designed to modulate immune function and improve health outcomes, including stress reduction techniques and lifestyle changes.

## **Psychoneuroimmunology of Infectious Diseases**

Investigates the role of psychological and neuroendocrine factors in the susceptibility to and outcomes of infectious diseases.

## **Autoimmune Diseases and Psychosocial Interventions**

Explores the effectiveness of psychosocial interventions in managing autoimmune diseases, including impacts on disease progression and quality of life.

## **Neuroinflammation and Cognitive Function**

Studies the impact of neuroinflammation on cognitive function and the role of psychoneuroimmunological processes in neurodegenerative diseases.

## **Translational Psychoneuroimmunology**

Focuses on translating psychoneuroimmunology research findings into clinical practice, including diagnostic, therapeutic, and preventive applications.

## **Emerging Trends in Psychoneuroimmunology Research**

Highlights emerging trends and novel research methodologies in psychoneuroimmunology, including interdisciplinary approaches and advanced imaging techniques.

Please contact +91-9014935156 via whatsapp for joining procedures.

## Fee Structure

Note 1: Fee mentioned below is per candidate.

Note 2: Fee of any sort is NON REFUNDABLE once paid. Please cross confirm all the details before proceeding to fee payment

2 Days Total Fee: Rs 1800/-
<b>Reg Fee Rs 540/-</b>
5 Days Total Fee: Rs 3913/-
<b>Reg Fee Rs 1174/-</b>
10 Days Total Fee: Rs 6000/-
<b>Reg Fee Rs 1800/-</b>
15 Days Total Fee: Rs 9474/-
<b>Reg Fee Rs 2842/-</b>
20 Days Total Fee: Rs 14000/-
<b>Reg Fee Rs 4200/-</b>
30 Days Total Fee: Rs 22235/-
<b>Reg Fee Rs 5500/-</b>
45 Days Total Fee: Rs 33882/-
<b>Reg Fee Rs 5500/-</b>
2 Months Total Fee: Rs 42000/-
<b>Reg Fee Rs 5500/-</b>
3 Months Total Fee: Rs 64000/-
<b>Reg Fee Rs 5500/-</b>
4 Months Total Fee: Rs 85000/-
<b>Reg Fee Rs 5500/-</b>

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5 Months Total Fee: Rs 107000/-
<b>Reg Fee Rs 5500/-</b>
6 Months Total Fee: Rs 128000/-
<b>Reg Fee Rs 5500/-</b>
7 Months Total Fee: Rs 150000/-
<b>Reg Fee Rs 5500/-</b>
8 Months Total Fee: Rs 171000/-
<b>Reg Fee Rs 5500/-</b>
9 Months Total Fee: Rs 192000/-
<b>Reg Fee Rs 5500/-</b>
10 Months Total Fee: Rs 214000/-
<b>Reg Fee Rs 5500/-</b>
11 Months Total Fee: Rs 235000/-
<b>Reg Fee Rs 5500/-</b>
1 Year Total Fee: Rs 257000/-
<b>Reg Fee Rs 5500/-</b>

**Please contact +91-9014935156 for fee payments info or EMI options or Payment via Credit Card or Payment using PDC (Post Dated Cheque).**