

PLANO DE ENSINO (Course Plan)

Discipline: Innate Immunity: basic level		Code:
Total course workload : 32 h	Theoretical classes: 32 h	
Course program: Introduction to innate immunity concepts; overview about soluble molecular players in innate immunity; overview about innate cells such as polymorphonuclear and mononuclear phagocytes, innate lymphoid cells, MAIT cells.		
General Objective: To introduce the concepts of innate immunity and its main players.		
Specific aims: To define the properties of the innate immunity; to know the phenotype and functions of phagocytes and lymphoid cells of the innate immunity; to understand the role of soluble effector molecules of the innate immunity; to develop the capacity of understanding basic research on innate immunity.		
References: Review articles <ul style="list-style-type: none"> - Gasteiger et al. Cellular Innate Immunity: an old game with new players. J Innate Immun 9: 111-125, 2017. - Smole et al. Soluble pattern recognition molecules: guardians and regulators of homeostasis at airway mucosal surfaces. Eur J Immunol 50: 624-642, 2020. - Kononova MV et al. Antimicrobial peptides in health and disease (review). App Biochem Microbiol 54: 238-244, 2018. - Matherns DR & Heeger PS. Molecules great and small: the complement system. Clin J A Soc Nephrol 10: 1636-1650, 2015. - Schebb et al. Formation, Signaling and Occurrence of Specialized Pro-Resolving Lipid Mediators—What is the Evidence so far?. Front Pharmacol 13: 1, 2022. - Sokol CL & Luster AD. The chemokine system in innate immunity. Cold Spring Harb Perspect Biol 7: a016303, 2015. - Romo MR et al. Innate immunity in vertebrates: an overview. Immunol 148: 125-139, 2016. - Nauseef WM & Borregaard N. Neutrophils at work. Nat Immunol 15: 602-611, 2014. - Cossio et al. Neutrophils as regulators of the hematopoietic niche. Blood 133: 2140-2148, 2019. - Ziegler-Heitbrock L et al. Nomenclature of monocytes and dendritic cells in blood. Blood 116: e74-e80, 2010. - Gordon S & Pluddemann A. The mononuclear phagocytic system. Generation of diversity. Front Immunol 10: 1893, 2019. - Collin M & Bigley V. Human dendritic cell subsets: an update. Immunology 154: 3-20, 2018. - Eisenbarth SC. Dendritic cell subsets in T cell programming: location dictates function. Nat Rev Immunol 19: 89, 2019. - Crosby CM & Kronenberg M. Tissue-specific functions of invariant natural killer T cells. Nat Rev Immunol 18: 559, 2018. - Eberl G et al. Innate lymphoid cells: a new paradigm in immunology. Science 348: aaa6566, 2015. - Collona M. Innate lymphoid cells: diversity, plasticity, and unique functions in immunity. Immunity 48: 1104-1117, 2018. - Ribatti D. Historical overview on the morphological characterization of large granular lymphocytes/natural killer cells. Immunol Letters 190: 58-63, 2017. - Godfrey DI et al. The biology and functional importance of MAIT cells. Nat Immunol. 20: 1110-1128, 2019. 		
Observation: These references are the basis of the discipline (review articles), but for each course there will be updated original and review articles to be discussed during the classes.		

UNIVERSIDADE FEDERAL DE GOIÁS
INSTITUTO DE PATOLOGIA TROPICAL E SAÚDE PÚBLICA
PROGRAMA DE PÓS-GRADUAÇÃO EM BIOLOGIA DA RELAÇÃO PARASITO-HOSPEDEIRO



PROGRAMA DE DISCIPLINA (Course program)

Discipline: Innate Immunity: basic level		Code:
Period: once a year		
Semester/year: 2/2022		
Time Schedule: Start in: August 3rd Finish in: September 21st		
Classes's place: - room: 402 IPTSP		
Coordinator: Professor Fátima Ribeiro-Dias (IPTSP/UFG). Email: fdias@ufg.br		
Collaborator: Professor Helioswilton Sales de Campos (IPTSP/UFG). Email: tonsales@ufg.br		
Methods: Classes <i>Teaching strategies:</i> lecture classes and discussion of scientific articles. <i>Teaching material:</i> the program and papers are available in Sigaa.		
Evaluation: The student need to be present in at least 85 % of classes and to achieve final score C to be approved (CEPEC N.1492). It will be considered for the final score the frequency and evaluation of the self presentations of the students.		
Time schedule	Subject	Professor
1st class August 3rd 2h pm - 6h pm	Historical background: once upon a time Innate Immunity - general concepts (celular and molecular players); explanation about the course and program - Trained Immunity: An Overview and the Impact on COVID-19 Brueggeman JM et al. Frontiers Immunol, 13:837524, 2022. (Discussion with all students)	Fátima
2nd class August 10th 2h pm - 6h pm	An overview about soluble molecular players in innate immunity - Gutierrez et al. CCL2 Inhibition of Pro-Resolving Mediators Potentiates Neuroinflammation in Astrocytes. Int J Mol Sci 23: 3307, 2022 - Lee et al. Inhibition of STAT6 Activation by AS1517499 Inhibits Expression and Activity of PPAR γ in Macrophages to Resolve Acute Inflammation in Mice. Biom 12: 447, 2022 (self presentation of students)	Ton
3rd class August 17th 2h pm - 6h pm	Polimorphonuclear phagocytes: focus on neutrophils - NLRP3 Is Involved in Neutrophil Mobilization in Experimental Periodontitis. Cheat B et al. Frontiers Immunol 13:839929, 2022. - Laminin Triggers Neutrophil Extracellular Traps (NETs) and Modulates NET Release Induced by Leishmania amazonensis. Gustavo Silva-Oliveira et al. Biomedicins 10:521, 2022. (self presentation of students)	Fátima

4th class August 24th 2h pm - 6h pm	Revisiting macrophages: from origin to effector functions - Intermediate Monocytes with PD-L1 and CD62L Expression as a Possible Player in Active SARS-CoV-2 Infection. Rutkowska E et al. Viruses 14:819, 2022. - Doxycycline hyclate stimulates inducible nitric oxide synthase and arginase imbalance, potentiating inflammatory and oxidative lung damage in schistosomiasis. Souza MA et al. Biomedical Journal, in press. (self presentation of students)	Fátima
5th class August 31st 2h pm - 6h pm	Innate lymphoid cells: a mirror of acquired T lymphocytes - Grigg et al. Antigen-presenting innate lymphoid cells orchestrate neuroinflammation. Nature 600: 707, 2021 - Fumagalli et al. Group 1 ILCs regulate T cell-mediated liver immunopathology by controlling local IL-2 availability. Sci Immunol 7: 12, 2022 (self presentation of students)	Fátima (class)/Ton (articles)
September 7th	Feriado	
6th class September 14th 2h pm - 6h pm	Dendritic cells: properties and connection between innate and acquired immunity - Ghanem et al. Proteomic and Single-Cell Transcriptomic Dissection of Human Plasmacytoid Dendritic Cell Response to Influenza Virus. Front Immunol 13:... 2022 - Eld et al. Soluble C-Type Lectin-Receptor Ligands Stimulate ROS Production in Dendritic Cells and Potentiate Killing of MRSA as Well as the MRSA Induced IL-12 Production. Front Immunol 13:..., 2022. (self presentation of students)	Ton
7th class September 21st 2h pm - 6h pm	NKT and MAIT (mucosal associated invariant T cells) cells - Burrello et al. IL10 secretion endows intestinal human iNKT cells with regulatory functions towards pathogenic T lymphocytes. J Crohns Colitis 31: 049, 2022. - Johnson et al. Differential location of NKT and MAIT cells within lymphoid tissue. Sci Rep 8: 12, 2022 (self presentation of students)	Ton

Coordenadora da Disciplina: Fátima Ribeiro Dias

Goiânia, 09 de maio de 2022.