

# Gustavo B. Menezes, Ph.D.

Team Leader: Center for Gastrointestinal Biology  
Associated Professor in Cell Biology  
Federal University of Minas Gerais - Brazil



## **Education:**

Graduation in Dentistry – Doctor in Dental Sciences  
Masters in Biological Sciences – Pharmacology – Federal University of Minas Gerais – 2004  
Ph.D. in Sciences – Biological Sciences – Pharmacology - Federal University of Minas Gerais – 2008

## **Professional Appointments:**

Post-Doctoral Fellow in Immunology - University of Calgary – Canada – 2009-2010  
Post-Doctoral Fellow in Immunopharmacology – Federal University of Minas Gerais - 2011  
Tenure: Professor of Cell Biology and Head of Center for Gastrointestinal Biology - Federal University of Minas Gerais - 2010  
Members of Professional / Academic societies:  
Brazilian Academy of Sciences – Affiliate member 2015-2109  
Brazilian Society of Immunology (SBI) – Director Board  
Brazilian Society of Cell Biology (SBBC) – Director Board  
Maxillofacialtips S.A. – Vice President, Scientific Direction

## **Selected Awards and honors:**

2017 “Conceição Ribeiro da Silva Machado” Award for Excellence in Scientific Publication- 2017, Federal University of Minas Gerais  
2017 Best Ph.D. Thesis supervised in Biological Sciences in Medical/Veterinary/Cell Biology fields  
2016 “Thereza Kipnis Award” – Honor Prize for Scientific Relevance, Brazilian Society of Immunology.  
2015 Elected as Affiliated Member of the Brazilian Academy of Sciences (2015-2019)  
2015 Best Ph.D. Thesis supervised in Biological Sciences in all Brazil in Medical/Veterinary/Cell Biology fields  
2015 Best Ph.D. Thesis supervised in Biological Sciences in Federal University of Minas Gerais  
2014 “Thereza Kipnis Award” – Main Prize for Scientific Relevance, Brazilian Society of Immunology.  
2013 Young Investigator Award – Best Under-grad student poster - Federal University of Minas Gerais  
2013 Young Investigator Award – 2nd Best PhD student poster - Federal University of Minas Gerais  
2013 “Conceição Ribeiro da Silva Machado” Award for Excellence in Scientific Publication- 2013, Federal University of Minas Gerais  
2013 Best Under-grad poster - Federal University of Minas Gerais – Scientific Meeting of Under-grad students of Federal University of Minas Gerais  
2012 Best Under-grad poster – Toxicology Journey 2012 – School of Medicine - Federal University of Minas Gerais  
2012 “Thereza Kipnis Award” – Honor Prize for Scientific Relevance, Brazilian Society of Immunology.  
2012 Young Investigator Award – Best Ph.D. student poster - Brazilian Society of Pharmacology and Experimental Therapeutics  
2011 High Graded Posters - TOP 10%, World Congress on Inflammation.  
2009 TOP 5 best works - Post Doctoral - Travel Award to ALAI 2009, Brazilian Society of Immunology.  
2009 TOP 3 best works - Honor Prize for Scientific Relevance, Brazilian Society of Immunology.  
2003 Young Investigator Award - Travel Award 2003 - Vancouver, Canadá, International Association of Inflammation Societies.

## **Career Briefing:**

I have been interested in understanding leukocyte biology, specifically how leukocytes migrate to sites of cell death and how sterile inflammation damages tissues. During my Masters and PhD, I investigated mechanisms involved in leukocyte chemotaxis and started to work on visualization of leukocyte trafficking *in vivo*, and this has been instrumental in the setting up of *in vivo* imaging techniques in our university in Brazil. After my PhD, I joined Prof Paul Kubers group at the University of Calgary as a post-doctoral fellow. In this period, I received training on use confocal microscopy to visualize specific immune cells *in vivo*. My main post-doc project was to understand how immune cells recognized dead cells *in vivo*. For this, I generated a novel model of *in vivo*

leukocyte migration, and using this model, I demonstrated seminal steps of neutrophil migration and how dead cells show the immune system where they are. These data were published in *Science* in 2010 and this paper has now more than 1000 citations and is considered a landmark paper in leukocyte biology. After this, I worked as a post-doc and established the first two-photon confocal microscope in Latin America to perform *in vivo* imaging. Since then, this technique has been used widely in my University, which has become a reference Centre for *in vivo* confocal microscopy in Brazil. **Career as Senior Scientist:** In 2010, I was hired as an Associate Professor at the Department of Morphology of UFMG and has since started my own lab, named “Center for Gastrointestinal Biology”. As a principal investigator, I am focused in translating data gathered in my career to understand how immune cells exacerbate organ injury during acute liver failure. These data have been published in Journals of high impact factor, including Gastroenterology, Journal of Hepatology, Cell Reports, Hepatology and Nature Protocols. I am now continuing my efforts to understand how we can manipulate the immune system to avoid collateral damage during sterile diseases and also the basic biology behind how the immune cells deal with dead cells in our body. Using experimental models, my group has elucidated novel therapeutic alternatives to treating acute liver failure, and in 2014 we deposited a patent of a new class of drugs that block the immune recognition of molecules derived from dead cells that can feed the inflammatory response, worsening liver injury. These new drugs were shown to prevent up to 75% of liver damage, and will be surely key in the next steps of the investigations in this field. For our contributions in intravital microscopy field, my lab was honored as a “Nikon Center of Excellence” in 2016 (the only one in South America). In 2016, we described a new cell lineage in the liver, and published the mechanisms involved in macrophage education in the liver and how new liver macrophages and dendritic cells become functional phagocytes after chemical cell ablation in liver, a situation that has a very relevant medical impact. Also, we are currently describing for the first time the differences in the immune and metabolic systems in newborns in comparison to adults, and how metabolic diseases in children can affect their immune system forever. Our data are now being used as an experimental platform to investigate the impacts of malnutrition, obesity and several diseases in children and adults. **Human Resources:** I have supervised 19 under-grad students, 9 Masters, 6 Ph.Ds and 9 post-docs. Currently, I am supervising 5 Masters candidates, 4 Ph.D. candidates, 2 undergrad students and 2 post-docs. It is worth mentioning that all my former supervised post-docs are now Professors or Investigators in different Federal and Private Institutes in Brazil and other countries, demonstrating how my lab is focused primarily in generating human resources and new scientists, in a land where science is not a Governmental priority. Also, our data have been presented in key conferences and Universities around the World. I was one of the Discussion Leaders to Gordon Research Conferences in 2018, and recently I was selected to give one of the Opening Lectures in The World Liver Conference 2018 in Paris. Also, I am an active scientific contributor in high profile Institutes, including Harvard Medical School, Yale University and University of Calgary. I am currently reviewer of all Grant Agencies in Brazil (CAPES, CNPq, FAPEMIG) and also referee of major impact factors journals, including Journal of Leukocyte Biology, Science Translational Medicine, Nature Protocols, Cell Reports, Journal of Hepatology and others.

**STATEMENT OF INTEREST:** I have been working since I was 17 years old on the leukocyte biology field, and I am glad life has directed me to this point. Have deciding to move back to Brazil after my international training to build my own lab was a decision that trespassed my own dreams and plans, and this has become a life changing opportunity to many low-income students that could receive cutting-edge lab training in South America. Two years ago, I was invited by Society of Leukocyte Biology to initiate a Program of Collaboration between Brazilian Society of Immunology (BSI) and SLB. We since then have been working together to build a strong network that can tightly connect South America with the rest of the World, and this chain link has been the Leukocyte Biology. To demonstrate this, I have co-edited the 2018’s Journal of BSI-Leukocyte Biology Special Issue – which published dozens of high profile papers derived from different Latin America labs. I will be performing this mission again in 2020 (postponed to 2021 due to COVID-19 pandemic), and I am sure that the success will be even higher. As a putative member of the SLB Council, I would focus on enhancing the opportunities that SLB can offer to both young and senior investigators in South America, increasing not only the frequency of our students in foreign meetings, but also allowing international Leaders to attend in Conferences and Initiatives in Latin America. For this, I will be the SLB corresponding Scientist and organizer inside not only Brazilian Society of Immunology, but also in our Cell Biology Society. Together, these two Societies can gather more than 2.000 highly motivated scientists, which could consist in a strong pool of human resources to maintain Leukocyte Biology reaching scientists in all different continents. Finally, having on your continent a representative of one of the largest scientific societies in the world is not only an honor, but also a proof and an inspiration to our people that Science is the greatest instrument of freedom, breaking barriers sometimes imposed by socioeconomic issues. So, I believe that becoming a SLB Council Member will be a fundamental step in this direction.