

The immune system is a collection of biological structures, cell types, and processes that provides an organism's primary defense mechanism against a wide variety of infectious and noninfectious agents and, when working properly, distinguishes pathogens and other foreign substances from the body's own healthy tissue. What we don't fully understand, despite decades of study, is exactly how the numerous components of the immune system function - separately and in combination - to protect our bodies from harm. In fact, it is likely that the immune system has a cache of molecular and cellular weapons and regulatory processes in its arsenal that have yet to be discovered and fully characterized.

When it works properly, the immune system can be a powerful protective mechanism. However, dysfunction can leave the body vulnerable to attack from pathogens like viruses, fungal agents, and bacterial toxins. Similarly, inappropriate or enhanced activity can damage normal organs and tissues that the immune system would typically ignore, causing inflammatory or autoimmune diseases, like allergies, lupus, and type 1 diabetes. In cancer, the immune system either fails to identify tumor tissue as harmful, or potent regulatory mechanisms are induced to prevent effective tumor clearance by the immune system. Even a normal, fully functional immune system can present significant clinical challenges during organ or bone marrow transplantation, resulting in either organ rejection or, in bone marrow transplantation, graft-versus-host disease. Thus, a greater understanding of the immune system will provide numerous opportunities for clinical benefit.

Historically, strategic harnessing of the immune system has led to the development of vaccines against polio, smallpox, and other devastating infectious diseases. Nevertheless, the development of vaccines against some pathogens, like HIV, parasites, and fungi, remains particularly challenging. More recent advances have led to immunotherapeutic approaches based on the development of monoclonal antibodies that block checkpoint inhibitors, engineered growth factors, and therapeutic vaccines in an attempt to prevent or cure cancer or limit the effects of autoimmune or inflammatory diseases.

The U.S. Food and Drug Administration has approved the use of immunotherapy in melanoma, leukemias, lymphomas, and myelomas and in breast, cervical, ovarian, kidney, prostate, and colorectal cancers. Immunotherapeutic approaches are also being used for allergy, rheumatoid disease, autoimmune disorders, and transplantation complications, as well as against infections like HIV/AIDS and hepatitis. Many additional therapeutic targets are in preclinical development or in clinical trials.

For instance, the regulatory T cell, a lymphocyte that can suppress the immune response, has been identified as a possible cell type to target in cancer or use to inhibit unwanted immune responses like graft-versus-host disease, autoimmune disease, and allergy. Progress also continues on the phagocyte-mediated innate immune system, which is responsible for inflammation.

The 2014 Ri.MED Symposium will deal broadly with immunoregulation and immune engineering, with presentations by speakers from the United States and Italy, as well as current Ri.MED fellows. Thank you for joining us for the Eighth Annual Ri.MED Symposium.

Arthur S. Levine  
Ri.MED Scientific Director

Fondazione  
Ri.MED



OSPEDALE  
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The official language of the Symposium will be English.

Attendance is free.  
Please fill out the registration form at [www.fondazionerimed.eu](http://www.fondazionerimed.eu) by October 14, 2014.

Attendees may also be interested in the SIICA-SSAI Joint Workshop "Imaging the Immune System"  
23-24 October 2014, Centro Congressi San Raffaele:  
<http://www.scandinavianimmunology.nu/Siica-2014.pdf>

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## VIII ANNUAL Ri.MED SYMPOSIUM IMMUNOREGULATION: AUTOIMMUNITY, TRANSPLANTATION, AND CANCER

Wednesday, 22 October 2014

San Raffaele Congress Center  
Via Olgettina 58  
20132 Milano - Italy

ECM accredited event

# PROGRAM

- 8:30 a.m. Symposium Registration
- 9:00 a.m. Welcome to Vita - Salute San Raffaele University
- 9:05 a.m. **Arthur S. Levine** - Welcome from the University of Pittsburgh
- 9:10 a.m. **Bruno Gridelli** - Welcome and Introduction to Ri.MED
- 9:25 a.m. **Camillo Ricordi** - Introduction to Symposium Theme
- 9:45 a.m. **Mark J. Shlomchik** - B vs. DC: How We Get Autoimmuni-T
- 10:30 a.m. BREAK
- 10:45 a.m. **Sarah Gaffen** - IL-17 Signaling and Fungal Immunity: The Dark Side of Anti-Cytokine Therapy
- 11:30 a.m. **Claudio Bordignon** - Suicide-Gene Modified Donor T Cells and T-Cell Depleted Stem Cell Transplants Display Potent Anti-Leukemia Activity
- 12:15 p.m. LUNCH
- 1:30 p.m. **Dario A.A. Vignali** - Targeting Tregs in Tumors
- 2:15 p.m. **Vincenzo Bronte** - Molecular and Metabolic Control of Antitumor Immunity by Myeloid Cells
- 3:00 p.m. BREAK
- 3:15 p.m. **Fadi G. Lakkis** - How Transplanted Organs Are Sensed by the Innate Immune System
- 4:00 p.m. **Warren D. Shlomchik** - Mechanisms of Graft-versus-Host Disease and Graft-versus-Leukemia
- 4:45 p.m. **Arthur S. Levine** - Concluding Discussion
- 5:00 p.m. Symposium Conclusion

# SPEAKERS

**Claudio Bordignon, MD**  
Professor of Hematology  
Vita-Salute San Raffaele University  
Chairman and CEO, MolMed S.p.A.

**Vincenzo Bronte, PhD**  
Professor of Pathology and  
Diagnostics  
Faculty of Medicine and Surgery  
University of Verona

**Sarah L. Gaffen, PhD**  
Professor of Medicine  
University of Pittsburgh School of  
Medicine

**Bruno Gridelli, MD**  
Vice-President, Ri.MED Foundation  
Professor of Surgery, University of  
Pittsburgh  
CEO, ISMETT, Palermo, Italy  
Medical and Scientific Director,  
UPMC International Division

**Fadi G. Lakkis, MD**  
Frank and Athena Sarris Professor  
of Transplantation Biology  
Professor of Surgery, of  
Immunology, and of Medicine  
Scientific Director, Thomas E.  
Starzl Transplantation Institute  
University of Pittsburgh School of  
Medicine

**Arthur S. Levine, MD**  
Scientific Director, Ri.MED Foundation  
Senior Vice Chancellor for the  
Health Sciences  
John and Gertrude Petersen Dean  
of Medicine  
Professor of Medicine and of  
Molecular Genetics  
University of Pittsburgh

**Camillo Ricordi, MD**  
President, Ri.MED Foundation  
Stacy Joy Goodman Professor of  
Surgery  
Distinguished Professor of Medicine  
Professor of Biomedical Engineering,  
Microbiology and Immunology  
Director, Diabetes Research  
Institute and Cell Transplant  
Program, University of Miami

**Mark J. Shlomchik, MD, PhD**  
Professor and Chair of Immunology  
University of Pittsburgh School of  
Medicine

**Warren D. Shlomchik, MD**  
Professor of Medicine (Hematology)  
and of Immunobiology  
Yale University school of Medicine

**Dario A.A. Vignali, PhD**  
Professor and Vice Chair  
of Immunology  
University of Pittsburgh School of  
Medicine

# FONDAZIONE Ri.MED

The Ri.MED Foundation was established in 2006 with an international partnership between the Italian Government, the Region of Sicily, the Italian National Research Council (CNR), the University of Pittsburgh, and UPMC.

The Foundation, based in Palermo, promotes, supports, and leads biomedical and biotechnological research projects, with emphasis on the translation of innovative results into clinical practice.

The Foundation is currently focused on the creation of the **Biomedical Research and Biotechnology Center**, which will be a reference point for researchers from all over the world, placing Sicily at the avant-garde of the biomedical and biotechnological research field, growing faster and faster.

At the same time, the Foundation trains young, brilliant researchers who will provide the human capital of the Research Centre: the postdoctoral researchers selected for the **Ri.MED Research Fellowship** are based at the University of Pittsburgh or at European centers of excellence, while other researchers and technicians work in the laboratories of ISMETT **Regenerative Medicine and Biomedical Technologies Unit** in Palermo. Under the supervision of the Foundation's Scientific Committee, Ri.MED researchers have published numerous significant **scientific articles** over recent years.

The Foundation has launched important conventions and **scientific collaborations** with some of the leading institutes in the biotechnology sector, signing agreements for the development of technological innovation to promote research and share laboratories and resources. The goal is to improve scientific knowledge and obtain the related collective benefits.

The Foundation's work also receives significant impetus from the success in obtaining **financing for research**. In fact, Ri.MED is constantly searching and selecting appropriate international, EU, ministerial, and regional funding proposals in order to present competitive projects and launch co-financed research programs with external parties.