

## MESSAGE FROM THE ORGANIZERS

### ABOUT SITC

Society Overview .....	3
SITC Leadership and Executive Staff .....	4
Upcoming Educational Events .....	5
SITC Initiatives and Collaborations .....	7
SITC Membership Information .....	8
Member Interest Groups and Committees .....	9

### WORKSHOP INFORMATION

Program Schedule .....	10
Workshop Educational Overview .....	12
Workshop Faculty .....	13
Faculty Biographies .....	14
Disclosures .....	18
Abstracts .....	19

### NOTES



**Visit SITC online:**  
the source to all things Cancer Immunotherapy

**www.sitcancer.org**

Access to FREE resources, breaking news, past SITC educational activities and more!

The screenshot shows a Mozilla Firefox browser window displaying the SITC website. The browser's address bar shows 'www.sitcancer.org'. The website content includes a navigation menu with 'About SITC', 'Membership', 'Meetings', 'JITC', 'Resources', and 'Support SITC'. Below the navigation menu, there is a large banner with the text 'www.sitcancer.org' and 'Tumor Immunotherapy for the Treatment of Cutaneous Melanoma'. To the right of the banner, there is a smaller text box that says 'evidence-based manuscript now available online'. At the bottom of the banner, there are buttons for 'Membership', 'Publications', 'SITC News', 'IT News', and 'Important Dates'.



# MESSAGE FROM THE ORGANIZERS

---

Dear Attendees,

Welcome to the SITC 2013 Workshop on Personalized Cancer Immunotherapy! We are very excited to present this one-day program featuring several of the field's leading experts presenting and facilitating discussion on the latest in personalized cancer immunotherapy.

By attending this program you will learn more about the latest technologies and current applications of personalized cancer immunotherapy, discuss critical unaddressed questions, future directions, and have the opportunity to build connections and collaborations that could spark new discoveries, interventions and applications in the field.

It is known that cancer cells contain mutations and other alterations that make them recognizable by the immune system. Recent technological advances in genomics, proteomics and immunophenotyping now allow personalized identification of these alterations for targeting with therapeutics, including immunotherapy. However, many questions remain. What are the best bioinformatics approaches to accurately mining individual tumor samples? How do you use this data to define the most promising therapeutic targets and strategies? How do you integrate genomic information with immunophenotypic data to personalize immunotherapies for cancer patients?

This workshop will discuss the above questions, enhancing the participant's knowledge of patient-specific genomic and molecular analysis, and the application of this information in personalized immunotherapy of cancer. Technologies include genome-wide DNA and RNA sequencing, epigenetic regulation and transcript variation, identification of mutations, polymorphisms associated with cancer risk and clinical outcome, patient-specific T cell epitope discovery, and immunophenotyping. Applications include choosing the "right" antigen, induction of therapeutic immunity, blocking of immune checkpoints such as CTLA-4 and PD-1, combinations of immunotherapy with targeted therapy, and patient-specific immune monitoring.

Thank you for participating in the SITC 2013 Workshop! We would also like to thank the faculty who made this program possible by sharing their expertise and knowledge in this arena. Once again, welcome!

Sincerely,



*Willem*

Willem W. Overwijk, PhD - *MD Anderson Cancer Center*



*Hans-Georg Rammensee*

Hans-Georg Rammensee, PhD - *Universitaet Tuebingen*



*Nicholas P. Restifo* MD

Nicholas P. Restifo, MD - *National Cancer Institute*



*Ena Wang*

Ena Wang, MD - *National Institutes of Health, CC, DTM*



The Society for Immunotherapy of Cancer (SITC) was established in 1984 to facilitate the exchange and promotion of scientific information about the use of biological cancer therapies. SITC is a 501(c)(3) not-for-profit organization of medical professionals with a constituency of academic, government, industry, clinical and basic scientists from around the world. The Society was founded on the belief that new systemic therapeutic treatments would continue to complement chemotherapies and move into the mainstream in the fight against cancer. To aid in this effort, SITC provides intimate channels for the discussion of current clinical trial results and methodologies, as well as means to collaborate on new initiatives in tumor immunology and biological therapy. It is these key interactions and innovations that help advance the progress of cancer research and therapies and lead to better patient outcomes.

## MISSION STATEMENT

It is the mission of the Society for Immunotherapy of Cancer to improve cancer patient outcomes by advancing the science, development and application of cancer immunology and immunotherapy through our core values of interaction/integration, innovation, translation and leadership in the field.

## CORE VALUES

- **Interaction/Integration:** Facilitate the exchange of information and education among basic and translational researchers, clinicians, young investigators, societies and groups sharing the mission of SITC
- **Innovation:** Challenge the thinking and seek the best research in the development of cancer immunotherapy
- **Translation:** Facilitate the transfer of cancer immunology and immunotherapy research from the bench to the clinic and back
- **Leadership:** Define what is new and important and effectively communicate it to all relevant stakeholders

## MEMBERS AND MEETING ATTENDEES

Society membership continues to grow and now includes more than 800 influential leaders and scientists engaged in immunotherapy/biological therapy of cancer, including academicians, senior researchers, clinicians, students, government representatives, and industry leaders from around the world. SITC's members represent 17 medical specialties and are engaged in research and treatment of at least a dozen types of cancer. With major developments and recent FDA approvals in the field of cancer immunotherapy, the SITC Annual Meeting & Associated Programs attendance is growing as well, attracting more than 900 of the brightest minds in the field. Both scientists and clinicians alike from around the globe convene at SITC to share data, hear the most recent advances in the field and find collaboration opportunities.

## DISEASE STATES REPRESENTED BY SITC CONSTITUENTS

SITC covers the full spectrum of both solid tumors and hematologic malignancies including:

- Breast
- Colorectal
- Head & Neck
- Hepatocellular
- Kidney
- Leukemia
- Lung
- Lymphoma
- Melanoma
- Neuroblastoma
- Ovarian
- Prostate
- Renal Cell

## MEDICAL SPECIALTIES REPRESENTED BY SITC CONSTITUENTS

- Cell Biology
- Dermatology
- Genetics
- Gynecologic Oncology
- Hematology
- Immunotherapy
- Internal Medicine
- Medical Oncology
- Microbiology
- Molecular Biology
- Pediatric Oncology
- Pharmacology/Toxicology
- Radiation Oncology
- Radiology
- Stem Cell Biology
- Surgical Oncology
- Transplantation

## Rock out with the Checkpoints!

Saturday, November 9, 2013 • 8:00 pm  
Gaylord National Hotel & Convention Center



# SITC LEADERSHIP AND EXECUTIVE STAFF

---

## OFFICER DIRECTORS

### President

Francesco M. Marincola, MD  
*Sidra Medical and Research Center*

### Vice President

Howard L. Kaufman, MD, FACS  
*Rush University Medical Center*

### Immediate Past President (ex officio)

Thomas F. Gajewski, MD, PhD  
*University of Chicago*

### Secretary/Treasurer

Lisa H. Butterfield, PhD  
*University of Pittsburgh Cancer Institute*

### At-Large Directors

Sandra Demaria, MD  
*New York University School of Medicine*

James H. Finke, PhD  
*Cleveland Clinic Foundation*

Pawel Kalinski, MD, PhD  
*University of Pittsburgh Cancer Institute*

Cornelis J.M. Melief, MD, PhD  
*ISA Therapeutics BV*

A. Karolina Palucka, MD, PhD  
*Baylor Institute for Immunology Research*

Nicholas P. Restifo, MD  
*National Cancer Institute*

Antoni Ribas, MD  
*UCLA Medical Center*

Padmanee Sharma, MD, PhD  
*MD Anderson Cancer Center*

Jedd D. Wolchok, MD, PhD  
*Memorial Sloan-Kettering Cancer Center*

### Society Journal Editor (ex officio)

Editor-in-Chief, *Journal for ImmunoTherapy of Cancer*  
Pedro J. Romero, MD  
*University of Lausanne*

## EXECUTIVE STAFF

Tara Withington, CAE  
Executive Director

Angela Kilbert  
Associate Executive Director

Kate Flynn, MPA  
Director of Membership and Outreach

Nadine M. Couto, CMP  
Senior Meetings Manager


Andrea Rindo  
Education Manager

Katie Koerner  
Digital Marketing Manager

Haley Haas  
Development & Special Projects Manager

Anna Emrick  
Program Manager

Amy Russart  
Project Manager



**LISTEN UP!**

**CALLING ALL EARLY CAREER SCIENTISTS, YOUNG INVESTIGATORS AND STUDENTS!**

SITC is committed to developing the future leaders in the field of cancer immunotherapy as a result, SITC 2013 will feature the following opportunities geared toward early career professionals and students:

- ECS Networking Event at Harrington's Pub & Kitchen on Friday, Nov. 8 at 8:00 pm
- ECS Meet-the-Expert Breakfast on Saturday, Nov. 9 from 7:15 am – 8:00 am
- Young Investigator Awards on Saturday, Nov. 9 from 6:15 pm – 6:45 pm
- ECS Professional Development Session: A Survival Guide for Young Scientists on Sunday, Nov. 10 from 12:05 pm – 3:05 pm



## UPCOMING EDUCATIONAL EVENTS

A major component of the SITC Strategic Plan is an emphasis on providing education and training about the principles and practice of cancer immunotherapy to a broad audience. By continuing with our tradition of facilitating the exchange and promotion of scientific information at our meetings with the aim of expediting the safe transfer of both basic and applied research to the clinical setting, SITC is becoming widely recognized as the leading scientific voice in the field. For more information on any of the programs and initiatives listed below, please visit the SITC website at [www.sitcancer.org](http://www.sitcancer.org).

For more information about SITC educational events, please visit the meeting section of the SITC website [www.sitcancer.org/sitc-meetings](http://www.sitcancer.org/sitc-meetings) or scan the QR code.



### ADVANCES IN CANCER IMMUNOTHERAPY (ACI) REGIONAL PROGRAMS

*Program Directors: F. Stephen Hodi, Jr., MD; Howard L. Kaufman, MD, FACS*

Specifically designed for clinical oncologists and the entire unit of care involved in treating cancer patients with immunotherapy, these programs provide an understanding of basic immunology principles underlying the clinical application of immunotherapy, provide insights into the indications and clinical management of patients receiving tumor immunotherapy, and discuss emerging drugs and concepts in the tumor immunotherapy field.

Presented by leading authorities in tumor immunology and cancer immunotherapy, these programs summarize central themes in tumor immunotherapy, describe the latest research advances and focus on currently approved tumor immunotherapy approaches to facilitate understanding of 1) the underlying principles of tumor immunology and immunotherapy, 2) the clinical indications for cancer immunotherapy and appropriate selection of patients, 3) management of side effects, and 4) the therapeutic effectiveness of immunotherapy to ultimately improve patient outcomes.

#### Upcoming Dates and Locations:



December 7, 2013 – Tampa, FL – In collaboration with Moffitt Cancer Center



December 7, 2013 – Pittsburgh, PA – In collaboration with University of Pittsburgh Cancer Institute, partner with UPMC



December 14, 2013 – Seattle, WA – In collaboration with Seattle Cancer Care Alliance



December 14, 2013 – San Francisco, CA

# SAVE THE DATE FOR SITC 2014!

## NOVEMBER 6-9, 2014 NATIONAL HARBOR, MD



# UPCOMING EDUCATIONAL EVENTS

---

## MELANOMA BRIDGE 2013

*Jointly organized by Istituto Nazionale Tumori Fondazione “G. Pascale,” Fondazione Melanoma Onlus and Sidra Medical and Research Center, together with SITC*

*December 5 – 8, 2013 – Naples, Italy*

The Scientific Board of Melanoma Bridge, including well-known experts covering different areas and based in different countries, aims at achieving a broad-based participation by various groups and societies sharing a clinical or basic interest in the immunology and the biology of the cancer microenvironment. The scientific program of the meeting will be organized in 5 sessions: (1) Diagnosis and new procedures; (2) Molecular advances and combination therapies; (3) News in Immunotherapy; (4) Tumor microenvironment and biomarkers, and (5) World-Wide Immunoscore Task Force: an update, followed by a Regulatory Session.

## UPDATES ON IMMUNOTHERAPY OF CANCER AND IMMUNOSCORE

*Part of the Sidra Symposia Series, held in partnership with SITC*

*January 22 – 23, 2014 – Doha, Qatar*

*Organizers: Paolo Antonio Ascierto, MD; Lotfi Chouchane, PhD; Said Dermime, PhD; Hanadi Rafii El Ayoubi, MD; Howard L. Kaufman, MD, FACS; Francesco M. Marincola, MD*

This symposium provides an educational environment focused on improving the outcome for current and future patients with cancer by incorporating strategies based on cancer immunotherapy. With leading authorities in tumor immunology and cancer immunotherapy, as well as oral abstract and poster presenters, this program will describe the latest research advances, focus on currently approved and emerging tumor immunotherapy approaches, and provide updates on international initiatives, including the Immunoscore, as well as important SITC projects.

Opportunities for travel awards are available through the open abstract submission process. Please visit the SITC website for more details.

### Session Topics:

- Cell Therapy of Cancer
- Checkpoint Blockade
- Combination Therapies
- Highlights of the Annual Meeting for the Society of Immunotherapy of Cancer\*
- Highlights of the Workshop on Personalized Cancer Immunotherapy\*
- Immune Surveillance of Cancer
- Immunomodulation in Cancer with Special Reference to Regulatory T cells and B7-H1
- Immunoscore\*
- Obesity, Inflammation and Cancer
- Regulatory Hurdles\*
- Role of Inflammation in Cancer
- Therapeutic Cancer Vaccines
- Tumor Microenvironment

*\*Denotes non-abstract category*

## ITOC-1 IMMUNOTHERAPY OF CANCER CONFERENCE

*March 12 – 14, 2014 – Munich, Germany*

*Organized by the Biotherapy Development Association in partnership with SITC, the Comprehensive Cancer Center of the Ludwig-Maximilians-Universität München, Roman-Herzog-Krebszentrum Comprehensive Cancer Center, and Munich Tumor Center.*

This is the first European meeting intended to provide a platform for preclinical and clinical researchers in the field of cancer immunotherapy. The concept is timely and necessary as agents have been licensed and arrived in clinical practice and many more similar drugs are expected to follow. The goal of the conference is to provide a forum for discussion of early clinical drug development and address its unique challenges of drug development. The program will focus on topics such as immunomodulatory agents, anti-cancer vaccines and monoclonal antibodies with special emphasis on translational research and biomarker development. The program will be of interest to representatives from academia, industry and other stakeholders who are involved in the development of novel anticancer agents.



SITC initiatives are programs and projects that have been developed in accordance with the Strategic Plan of the Society to solidify SITC's role as a leader in setting the standards in the cancer immunotherapy space. These initiatives are designed to promote the Society's mission of improving cancer patient outcomes by advancing the science, development and application of cancer immunotherapy and include directed initiatives that are focused on issues of major importance to the field as defined by the Board of Directors, its committees, and membership of the Society.

- Continued participation in the biannual Cell Therapy/FDA Liaison Meeting to discuss important issues of mutual interest in the field of cell therapy
- Collaboratively host the CSCO-CAHON-SITC Joint Symposium on Cancer Immunotherapy at the CSCO Annual Meeting in China each year since 2011
- Development of education about immunotherapy for patients and clinical oncologists through regional, CME-certified "Advances in Cancer Immunotherapy" programs
- Development of SITC Champions Initiative to drive interest in cancer immunotherapy through SITC members who are the luminaries in the cancer immunotherapy community
- Collaboration with patient groups, related organizations (both U.S. and abroad), government bodies, regulatory agencies, etc.
- Website and social media expansion to better serve our members and reach a more global audience

## Cancer Immunotherapy Guidelines

SITC led the charge in the production of the first evidence-based consensus statement on tumor immunotherapy for the treatment of patients with melanoma, providing clinicians with expert recommendations for the use of different immunotherapies. "The Society for Immunotherapy of Cancer Consensus Statement on Tumor Immunotherapy for the Treatment of Cutaneous Melanoma" was published in *Nature Reviews Clinical Oncology* and is essentially a "road map" for using interferon- $\alpha$ 2, pegylated interferon, interleukin-2 (IL-2) and ipilimumab in patients with melanoma. Under the leadership of SITC Vice President, Dr. Howard Kaufman, MD, FACS, SITC addressed the deficiency in resources for physicians on how to appropriately use immunotherapy in the treatment of melanoma in the U.S. SITC anticipates the production of additional consensus statements by disease state, updating the melanoma guidelines as appropriate, as well as integrating the guidelines into the Advances in Cancer Immunotherapy regional programs. For more information on SITC members' role in the project as well as the task force members, visit [www.sitcancer.org/about-sitc/initiatives/cancer-immunotherapy-guidelines](http://www.sitcancer.org/about-sitc/initiatives/cancer-immunotherapy-guidelines).

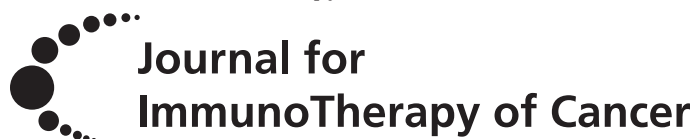


## Immunoscore

SITC continues to lead the progress of this study, an international, retrospective evaluation of immunoscore as a prognostic biomarker for patients with colon cancer. In collaboration with SITC, this task force is comprised of the European Academy of Tumor Immunology; the Cancer and Inflammation Program; the National Cancer Institute, National Institutes of Health, USA; and La Fondazione Melanoma. The project was developed with 23 centers in 17 countries. The results of this global validation may result in the implementation of the immunoscore as a new component for the classification of cancer. Don't miss the update session on immunoscore, to be given by SITC member Dr. Bernard Fox, PhD on Friday morning, November 8 at 8:40 am. For more information about the immunoscore task force and initiative, visit [www.sitcancer.org/about-sitc/initiatives/immunoscore](http://www.sitcancer.org/about-sitc/initiatives/immunoscore).



## Journal for ImmunoTherapy of Cancer



The *Journal for ImmunoTherapy of Cancer* (JITC) is the official journal of SITC.

Under the leadership of Dr. Pedro Romero, MD, this open-access, peer-reviewed journal encompasses all aspects of tumor immunology and cancer immunotherapy, from basic research through to clinical application. Today, more than ever before, the tremendous excitement in the field and the increased momentum brought about by the latest approvals of immunotherapy-based treatments in various cancer types has shown the clear need for the *Journal for ImmunoTherapy of Cancer*, an outlet devoted to and created by today's leaders in the field.

SITC members – don't forget to take advantage of your membership benefit of free article processing charges, a \$2,230 USD value, available through December 2013.

For more information about the *Journal for ImmunoTherapy of Cancer* (JITC), visit the Journal section of the SITC website [www.sitcancer.org/journal](http://www.sitcancer.org/journal) or refer to the back cover of this program book.



# SITC MEMBERSHIP INFORMATION

The Society for Immunotherapy of Cancer (SITC) invites you to join your peers in **the only member-driven society** specifically dedicated to professionals working in the field of cancer immunology and immunotherapy. SITC has been leading the field since 1984.

As a member, you will become a part of a vibrant and growing organization with a diverse and far-reaching **global network of more than 800** basic and clinical scientists, industry representatives, government leaders and students working in a variety of work settings and across 17 specialties.

Your contributions as a member will help to shape SITC's direction as we work to advance the development and application of cancer immunotherapy. SITC's objective is to make the word "cure" a reality for cancer patients by elevating cancer immunotherapy as a fourth standard of care.

## REASONS TO JOIN SITC

*Advance your career:* As the only member-driven society for a wide range of leading professionals working in cancer immunology and immunotherapy, SITC is the premiere vehicle to make professional connections.

*Be a meaningful contributor* by shaping discussions that guide progress in the field.

*Interact with luminaries in the field* including leading scientists and clinical researchers.

*Network with colleagues* to develop new ideas, establish new collaborations to advance your work, and participate in active scientific exchange.

*Receive early access to timely information* about what is new and relevant to biological approaches for the treatment of cancer.

*Receive guidance* on relevant and timely issues.

*Serve as a leader* of the Society through governance activities on SITC committees and task forces.

## MEMBERSHIP TYPES

### Regular Member

Available to individuals with an MD or PhD in a biological science or the equivalent who are active, bona fide representatives of the international scientific community with a specialty or interest in a field related to cancer immunology or immunotherapy. Regular membership includes the right to vote on SITC initiatives and leadership. Business/educational resume or Curriculum Vitae is required for application.

### Affiliate Member

Available to individuals active or otherwise interested in cancer immunotherapy. Affiliate membership does not include the right to vote. Business/educational resume or Curriculum Vitae is required for application.

### Scientist-in-Training (Student) Member

Available to individuals enrolled in an MD or PhD academic program or those participating in postdoctoral fellowships and residency program that show a demonstrated interest in cancer immunology or immunotherapy. Student membership does not include the right to vote. Proof of enrollment and letter of recommendation or Curriculum Vitae is required for application.

## SITC MEMBER BENEFITS

- Access to a dynamic global network working to develop the best science in the field via SITC's online directory, webinars and live events
- Discounted registration fees for SITC educational events including the Annual Meeting & Associated Programs
- FREE access to speaker presentations and slide sets from past SITC live events
- FREE or reduced article processing charges in the *Journal for ImmunoTherapy of Cancer* (JITC), SITC's official open access and peer review journal. (Savings of up to \$2,230 USD)
- Leadership opportunities within the Society through committee service and SITC Board of Directors
- Young Investigator Awards and career development activities for early career scientists

## INTERESTED IN BECOMING A MEMBER OF SITC?

Please visit the Registration Desk for more information or to pick up a membership application. Scan the QR code to visit the membership section of the SITC website or to apply for membership online.





# MEMBER INTEREST GROUPS AND COMMITTEES

The Society for Immunotherapy of Cancer is a member-driven organization. It is through the tremendous efforts of committee volunteers that SITC thrives as a successful non-profit organization reaching members across a wide breath of work settings and geographies.

## SITC Membership Constituencies and Stakeholders

- Academia
- Allied Health Professionals
- Government
- Industry
- International Groups
- Patient Advocacy Organizations
- Regulatory Agencies
- Students and Early Career Scientists

The following SITC committees have been established to develop new recommendations on projects, programs, policies and strategies aimed at improving the experience of Society members, meeting attendees and stakeholders in the field. In addition, committees provide input as appropriate on other Society initiatives and educational programming. The committees are comprised of volunteer and/or appointed participants from the SITC membership base charged with representing the best interests of the Society and serving as champions for the field.

## Member Interest Groups and Committees

- Annual Program Committee
- Audit Committee
- Biomarkers Task Force
- Cancer Immunotherapy Guidelines (CIG) Steering Committee and Task Force
- Communications Committee
- Council for Immunotherapy Education & Outreach (CIEO)
- Early Career Scientist Committee (ECS)
- Immunoscore Steering Committee
- Industry Council
- Membership Committee
- Publications Committee
- Website Committee
- World Immunotherapy Council (WIC)

The SITC leadership welcomes new volunteers to join initiatives and committees throughout the year. To learn more about becoming a member of an interest group, committee or task force, please contact the SITC office at [info@sitcancer.org](mailto:info@sitcancer.org) or 414-271-2456.

## SITC CHAMPIONS

SITC Champions address the need for community education about immunotherapy, as well as disseminate information and build awareness for SITC's educational programming and initiatives to institutions and companies. The SITC Membership Committee implemented the SITC Champion initiative to encourage two-way communication between the Society and institutions throughout the country.

### Current SITC Campions:

Charlie Garnett Benson, PhD - *Georgia State University*  
William E. Carson, MD - *The Ohio State University*  
Daniel S. Chen, MD, PhD - *Genentech*  
Laurence J.N. Cooper, MD, PhD - *MD Anderson Cancer Center*  
Robert L. Ferris, MD, PhD - *University of Pittsburgh Cancer Institute*  
James H. Finke, PhD - *Cleveland Clinic Foundation*  
Lawrence Fong, MD - *University of California, San Francisco*  
Thomas F. Gajewski, MD, PhD - *University of Chicago*  
Michael P. Gustafson, PhD - *Mayo Clinic*  
John P. Hanson, MD - *The John Hanson Cellular Research Foundation Inc*  
F. Stephen Hodi, Jr., MD - *Dana-Farber Cancer Institute*  
Howard L. Kaufman, MD, FACS - *Rush University Medical Center*  
Samir N. Khleif, MD - *Georgia Health Sciences Cancer Center*  
Holbrook E. Kohrt, MD, PhD - *Stanford University*  
Sylvia M. Lee, MD - *Fred Hutchinson Cancer Research Center*  
Theodore F. Logan, MD - *Indiana University Simon Cancer Center*  
H. Kim Lyerly, MD - *Duke University Medicine*  
James J. Mulé, PhD - *Moffitt Cancer Center*  
Pamela S. Ohashi, PhD - *Ontario Cancer Institute/Princess Margaret Cancer Centre*  
William L. Redmond, PhD - *Providence Cancer Center*  
Senthamil R. Selvan, PhD - *Thomas Jefferson University*  
Anil Shanker, PhD - *Meharry Medical College/Vanderbilt-Ingram Comprehensive Cancer Center*  
Paul M. Sondel, MD, PhD - *University of Wisconsin*  
James E. Talmadge, PhD - *University of Nebraska Medical Center*  
Jedd D. Wolchok, MD, PhD - *Memorial Sloan-Kettering Cancer Center*  
Arnold H. Zea, PhD - *Louisiana State University*

To learn more about the SITC Champion mission or if you are interested in becoming a SITC Champion, please contact SITC Membership & Outreach Director, Kate Flynn, MPA at [info@sitcancer.org](mailto:info@sitcancer.org) or 414-271-2456.



# PROGRAM SCHEDULE

## THURSDAY, NOVEMBER 7, 2013

7:00 am - 8:00 am	<b>Registration</b>	
7:00 am - 8:00 am	<b>Breakfast</b>	Woodrow Wilson Lobby
8:00 am - 8:30 am	<b>What is the Opportunity Created by the Ability to Obtain Personal Genomic Data?</b>	Woodrow Wilson A
8:00 am - 8:05 am	Welcome and Introductions Nicholas P. Restifo, MD - <i>National Cancer Institute</i>	
8:05 am - 8:30 am	Using Personal Genomic Data to Create Effective Immunotherapies Nicholas P. Restifo, MD - <i>National Cancer Institute</i>	
8:30 am - 9:15 am	<b>Keynote</b> Lessons from Cancer Genome Sequencing Kenneth W. Kinzler, PhD - <i>Johns Hopkins University</i>	Woodrow Wilson A
9:15 am - 10:00 am	<b>New Sequencing Technology/Validation of Mutation Data/Bioinformatics</b> Validation and Use of Mutation Data for Immunotherapy Hans-Georg Rammensee, PhD - <i>Universitaet Tuebingen</i>	Woodrow Wilson A
10:00 am - 10:15 am	<b>Break</b>	
10:15 am - 11:15 am	<b>Oral Abstract Session</b>	
10:15 am - 10:30 am	T Cell Receptor Affinity and Avidity Defines Antitumor Response and Autoimmunity in T Cell Immunotherapy Michelle Krogsgaard, PhD - <i>NYU School of Medicine</i>	
10:30 am - 10:45 am	CD8 T Cell Epitope Peptide Vaccines: Composition, Not Size It's What Matters Esteban Celis, MD, PhD - <i>Moffitt Cancer Center</i>	
10:45 am - 11:00 am	Serial Immune Monitoring: Essential to Resolve Immune Dynamics for Improving Clinical Effectiveness of Immunotherapy Brendon J. Coventry, MD, PhD - <i>University of Adelaide</i>	
11:00 am - 11:15 am	Identification of MHC Class 1 Mitigated Peptides by Combining Mass Spectrometry and Transcriptome Sequencing Lélia Y. Delamarre - <i>Genentech</i>	
11:15 am - 11:45 am	<b>Genomic Instability and Mutations in Different Cancers</b> John Quackenbush, PhD - <i>Dana-Farber Cancer Institute</i>	Woodrow Wilson A
11:45 am - 1:00 pm	<b>Lunch</b>	Woodrow Wilson Lobby
1:00 pm - 2:30 pm	<b>What to do with the Epitope Once You Have It</b>	Woodrow Wilson A
1:00 pm - 1:30 pm	From Tumor Antigen to Therapeutic Index: Lessons from Trials and Errors Rienk Offringa, PhD - <i>DKFZ German Cancer Research Center</i>	
1:30 pm - 2:00 pm	How to (Not) Vaccinate with Peptides Willem W. Overwijk, PhD - <i>MD Anderson Cancer Center</i>	
2:00 pm - 2:30 pm	In Vitro Immunogenicity Testing of Candidate Epitope Steffen Walter, PhD - <i>Immatics Biotechnologies GmbH</i>	
2:30 pm - 3:00 pm	<b>Break</b>	



## PROGRAM SCHEDULE

3:00 pm - 5:00 pm	<b>Immunologic Implications of Data</b>	Woodrow Wilson A
3:00 pm - 3:30 pm	How the Ability to Predict Tumor-expressed T Cell Epitopes from Tumor Exome/ Genome Sequencing Could Influence the Treatment of Cancer Patients Patrick Hwu, MD - <i>MD Anderson Cancer Center</i>	
3:30 pm - 4:00 pm	Immunologic Implications of Data Drew M. Pardoll, MD, PhD - <i>Johns Hopkins University</i>	
4:00 pm - 4:30 pm	Use of High-throughput Sequencing to Identify Mutated Tumor Antigens Paul F. Robbins, PhD - <i>National Cancer Institute, National Institutes of Health</i>	
4:30 pm - 5:00 pm	Personalizing Immunotherapy Based on Expression of PD-L1 and Other Therapeutic Topics Suzanne L. Topalian, MD - <i>Johns Hopkins University</i>	
5:00 pm - 5:25 pm	<b>Single Cell Network Profiling (SCNP)</b> Alessandra Cesano, MD, PhD - <i>Nodality, Inc.</i>	Woodrow Wilson A
5:25 pm - 5:30 pm	<b>Closing Remarks</b>	

The State of SITC: Membership Business Meeting will immediately follow the conclusion of the Workshop on Personalized Cancer Immunotherapy at 5:30 pm. All are welcome to attend.

## CURE... YEAH, WE SAID IT!



Get your SITC "Cure" t-shirt at the Registration Desk for only \$25 each.  
All proceeds support SITC's Forward Fund

Take a photo of you in your t-shirt and you could be featured on the SITC website!

Visit [www.sitcancer.org/support/forwardfund](http://www.sitcancer.org/support/forwardfund) for more information

# WORKSHOP EDUCATIONAL OVERVIEW

Cancer cells contain mutations and other alterations that make them recognizable by the immune system. Recent technological advances in genomics, proteomics and immunophenotyping now allow personalized identification of these alterations for targeting with therapeutics, including immunotherapy. However, many questions remain. What are the best bioinformatics approaches to accurately mining individual tumor samples? How do you use this data to define the most promising therapeutic targets/strategies? How do you integrate genomic information with immunophenotypic data to personalize immunotherapies for cancer patients?

The purpose of this Workshop is to bring participants up to date on the latest in patient-specific genomic and molecular analysis, and the application of this information in personalized immunotherapy of cancer. Technologies include genome-wide DNA and RNA sequencing, epigenetic regulation and transcript variation, identification of mutations, polymorphisms associated with cancer risk and clinical outcome, patient-specific T cell epitope discovery, and immunophenotyping. Applications include choosing the “right” antigen, induction of therapeutic immunity, blocking of immune checkpoints such as CTLA-4 and PD-1, combinations of immunotherapy with targeted therapy, and patient-specific immune monitoring. By participating in the Workshop, participants will interact with international leaders in the field of personalized immunotherapy to learn about the latest technologies, current applications, critical unaddressed questions, and future directions. Most importantly, participants will have the opportunity to build connections and collaborations to spark new discoveries, interventions and applications.

## TOPICS

- Genomic Instability and Mutations in Different Cancers
- Immunologic Implications of Data
- New Sequencing Technology/Validation of Mutation Data/Bioinformatics
- What is the Opportunity Created by the Ability to Obtain Personal Genomic Data?
- What to do with the Epitope Once You Have It

## PROGRAM GOALS

- Explore cutting-edge technologies for the genomic and proteomic interrogation of individual tumor samples
- Examine novel bioinformatics approaches to data analysis for immunological application
- Define strategies to transform personalized data into personalized immunotherapies
- Discuss the progress, opportunities and challenges involved in developing personalized immunotherapies

## EDUCATIONAL OBJECTIVES

*Upon completion of this program, participants will be able to:*

- Summarize current technologies available to interrogate individual tumor samples at the genomic and proteomic level
- Evaluate how bioinformatics can help identify immunological targets in an individual data set
- Generate strategies to transform these data into personalized immunotherapies
- Analyze the progress, opportunities and challenges involved in developing personalized immunotherapies

## Grow, Collaborate and Learn!

Get involved during the Annual Meeting by using **#SITC2013** hashtag on Twitter



Connect with SITC and your colleagues on all our social media sites  
LinkedIn, Twitter, YouTube and Oncology Tube

LinkedIn



### Did you know?

SITC members can now submit job opportunities to SITC's LinkedIn Job Board. Help develop the future leaders in the field of cancer immunotherapy and submit your open jobs!



YouTube



ONCOLOGY TUBE



## WORKSHOP FACULTY



**Esteban Celis, MD, PhD**  
*Moffitt Cancer Center*  
Oral Abstract



**Alessandra Cesano, MD, PhD**  
*Nodality, Inc.*  
Faculty



**Brendon J. Coventry, MD, PhD**  
*University of Adelaide*  
Oral Abstract



**Léila Y. Delamarre**  
*Genentech*  
Oral Abstract



**Patrick Hwu, MD**  
*MD Anderson Cancer Center*  
Faculty



**Kenneth W. Kinzler, PhD**  
*Johns Hopkins University*  
Faculty



**Michelle Krogsgaard, PhD**  
*NYU School of Medicine*  
Oral Abstract



**Rienk Offringa, PhD**  
*DKFZ German Cancer Research Center*  
Faculty



**Willem W. Overwijk, PhD**  
*MD Anderson Cancer Center*  
Faculty, Organizer



**Drew M. Pardoll, MD, PhD**  
*Johns Hopkins University*  
Faculty



**John Quackenbush, PhD**  
*Dana-Farber Cancer Institute*  
Faculty



**Hans-Georg Rammensee, PhD**  
*Universitaet Tuebingen*  
Faculty, Organizer



**Nicholas P. Restifo, MD**  
*National Cancer Institute*  
Faculty, Organizer



**Paul F. Robbins, PhD**  
*National Cancer Institute, National Institutes of Health*  
Faculty



**Suzanne L. Topalian, MD**  
*Johns Hopkins University*  
Faculty



**Steffen Walter, PhD**  
*Immatics Biotechnologies GmbH*  
Faculty



**Ena Wang, MD**  
*National Institutes of Health, CC, DTM*  
Organizer



**Journal for  
ImmunoTherapy of Cancer**

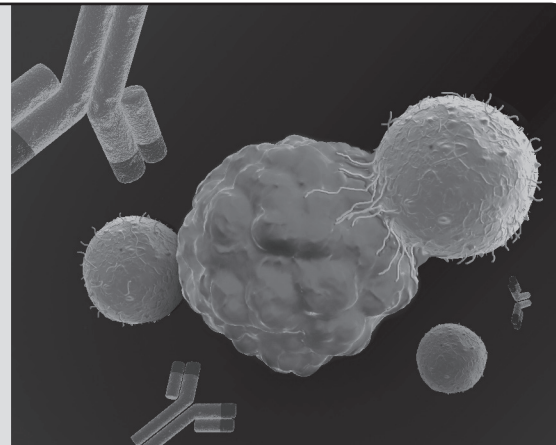


Society for Immunotherapy of Cancer

The *Journal for ImmunoTherapy of Cancer* (JITC) is the official SITC journal aimed to advance effective cancer immunotherapy by acting as a platform for the most important findings in the field. Journal attributes include:

- Open access
- Universally accessible
- Rapid dissemination of information
- Free publication for SITC Members through 2013

Find more information and to submit your manuscript, visit:  
<http://www.sitcancer.org/journal>



[www.immunotherapyofcancer.org](http://www.immunotherapyofcancer.org)



# FACULTY BIOGRAPHIES

---

## **Esteban Celis, MD, PhD**

*Moffitt Cancer Center*

Dr. Esteban Celis is Sr. Member of the Moffitt Cancer Center and Professor, Department of Oncologic Sciences, Univ. of South Florida in Tampa FL. He received his MD/PhD from the National University of Mexico. After his postdoctoral training at MIT, he held Research positions in several Pharma /Biotech companies (Centocor, T Cell Sciences Inc., Cytel/Epimmune). Prior to Moffitt, he was a Professor of Immunology at the Mayo Clinic, Rochester, MN where he initiated 3 clinical trails using peptide-based vaccines for various types of cancer. He is a member of the American Association of Immunologists and the American Association for Cancer Research. He served as a member of the Experimental Immunology Study Section, Natl. Cancer Institute (NCI), member of the Board of Scientific Counselors of the NCI, Section Editor of the Journal of Immunology and Associate Editor of Cancer Research. Dr. Celis has several US patents issued: "Methods for making HLA binding peptides and their uses", and "Induction of anti-tumor cytotoxic T Lymphocytes in humans using synthetic peptide epitopes" and has authored 160 peer-reviewed scientific publications. Three areas of research are investigated in his laboratory: 1) Identification of peptide T-cell epitopes; 2) overcoming immune tolerance to elicit effective anti-tumor immunity and 3) development of effective therapeutic peptide vaccines for cancer.

## **Alessandra Cesano, MD, PhD**

*Nodality, Inc.*

Alessandra Cesano joined Nodality in 2008 as Chief Medical Officer. From 2006 until joining Nodality she was at Biogen Idec as Vice President and Medical Officer, Oncology Medical Research. Alessandra has over 15 years experience within the biotech / pharmaceutical industry concentrating in oncology pre-clinical research at The Wistar Institute (Philadelphia, PA), clinical development at both SmithKline Beecham Pharmaceuticals (Collegeville, PA) and Amgen Inc. Along her career path, Alessandra has authored over 85 articles for research publications and is co-inventor in five patents. Alessandra is a board certified medical oncologist and holds a PhD in tumor Immunology. She previously held visiting professor and adjunct assistant professor status for the University of Turin (Turin, Italy) and University of Pennsylvania (Philadelphia, PA) respectively. Alessandra is fluent in Italian, French, and English.

## **Brendon J. Coventry, MD, PhD**

*University of Adelaide*

Professor Brendon Coventry, BM BS, PhD, FRACS FRSM FACS is a cancer surgeon and Assoc. Professor of Surgery at the University of Adelaide and a Senior Consultant Surgeon at the Royal Adelaide Hospital, and Foundation Director of the Adelaide Melanoma Unit. He is a Fellow of the Royal Australasian College of Surgeons, the American College of Surgeons, The Royal Society of Medicine and SITC. He trained in General Surgery & Surgical Oncology, serving as immediate past Presi-

dent of the Australasian Surgical Oncology Section, with a PhD in Tumour Immunology and Immunotherapy.

His laboratory interests include immune responses and immunotherapies for malignancies, notably melanoma and breast cancers. He has long-standing clinical and research interests in vaccine therapies for human cancers and the role of chemotherapy and coordinated immuno-chemotherapies. He is a US National Institutes of Health and NCI Clinical Investigator, serving as Principal Investigator and scientific advisor for several international multicentre clinical trials in surgical and vaccine therapies, and national Australian clinical trials for melanoma.

He is Chief Editor of the 7-Volume series "Surgery: Complications, Risks and Consequences", and has co-authored in several books, notably two editions of Cutaneous Melanoma and Anatomy of General Surgery Operations. He was Chapter Leader for the Australian and New Zealand Melanoma Clinical Guidelines, and has over 70 peer-reviewed journal publications.

He has become increasingly concerned with the lack of progress in advanced cancer survival, and has provided several immunological explanations/ approaches for better serial immune monitoring and personalized timing of therapies.

## **Lélia Y. Delamarre**

*Genentech*

Lélia Delamarre joined the Cancer Immunotherapy and Hematology Department at Genentech after completing her postdoctoral training at Yale University where she studied the cell biology of antigen presentation in dendritic cells. She obtained a PhD in Virology from Université Pierre et Marie Curie in France. Her laboratory studies the modulation of dendritic cell and T cell functions, with the goal of developing new strategies to enhance immune responses to cancer.

## **Patrick Hwu, MD**

*MD Anderson Cancer Center*

Dr. Hwu is Professor and Chairman of the Department of Melanoma Medical Oncology and the Department of Sarcoma Medical Oncology at MD Anderson Cancer Center in Houston, TX. He earned his MD from Medical College of Pennsylvania, Philadelphia.

## **Kenneth W. Kinzler, PhD**

*Johns Hopkins University*

Kenneth Kinzler, PhD, is Professor of Oncology at The Sidney Kimmel Comprehensive Cancer Center (SKCCC) at the Johns Hopkins University School of Medicine. He has produced classic studies of the genes causing human cancer including the discovery of APC, the gene that initiates virtually all colorectal tumors. His subsequent analyses of the functional properties of the APC gene product have had widespread ramifications for developmental biology as well as cancer biology. He is also known for his



development of genetic methods for analyzing gene expression and mutations in human cancer leading to his most recent work on defining the cancer genome for more than a dozen human tumor types. He has coauthored over 300 peer-reviewed articles on the molecular analyses of cancer.

Dr. Kinzler received his BS in Toxicology from the Philadelphia College of Pharmacy and Science, graduating Magna cum. In 1988, he received a doctorate in Pharmacology and Molecular Sciences from the Johns Hopkins University School of Medicine, where he also completed a fellowship in oncology. In 1990, he joined the faculty of the SKCCC. Dr. Kinzler was promoted to Professor of Oncology in 1999 and is currently co-director of the Ludwig Center at Johns Hopkins University.

### **Michelle Krogsgaard, PhD**

*NYU School of Medicine*

Dr. Michelle Krogsgaard is an Assistant Professor at Department of Pathology and NYU Cancer Center at New York School of Medicine. She earned her Ph.D. at the University of Copenhagen in Denmark under the supervision of Drs. Jan Engberg and Lars Fugger, where she employed antibody and receptor engineering to develop novel immunological reagents to investigate molecular mechanisms involved in the pathogenesis of multiple sclerosis (MS). Following her Ph.D. work, Dr. Krogsgaard was a post-doctoral fellow at Stanford University, where she worked under the supervision of Dr. Mark M. Davis on understanding basic mechanisms of T-cell activation.

In her current position her laboratory is undertaking the investigation of the fundamental question of how effective T-cell responses are generated against foreign and self-antigens. To this end, the research combines cell biological, biochemical and biophysical approaches to explore mechanisms of T-cell recognition, activation and migration, and T-cell effector functions in animal models of human disease and in primary human tissues.

Dr. Krogsgaard was a Alfred Benzon Fellow, a Pew Scholar, an American Cancer Society Research Scholar, a Cancer Research Institute investigator and was selected for the Exceptional, Unconventional, Research Enabling Knowledge Advancement (EU-REKA) Innovator Award from the National Institute of Health.

### **Rienk Offringa, PhD**

*DKFZ German Cancer Research Center*

As head Div. Molecular Oncology of Gastrointestinal Tumors, German Cancer Research Center, I am focusing on pancreatic cancer and the development of treatment strategies that combine cytotoxic drugs with immunotherapeutic approaches. Due to a co-appointment at the European Pancreas Center of Heidelberg University, one of the largest and most advanced clinics for surgical treatment of pancreatic cancer, I am able to efficiently perform patient-based pre-clinical research and to translate promising pre-clinical findings into clinical trials.

During my PhD studies, I started out as a molecular biologist, dissecting the impact of oncogenes on transcription regula-

tion. My involvement in a pre-clinical project that successfully pioneered adaptive T-cell therapy inspired me to shift towards the field of tumor immunology. I have subsequently worked at Dana Farber Cancer Institute, Boston (post-doc.), Leiden University Medical Center, The Netherlands (associate professor; Head Tumor immunology group) and Genentech Inc., USA (Principal Scientist).

### **Willem W. Overwijk, PhD**

*MD Anderson Cancer Center*

Dr. Willem Overwijk is an Associate Professor in the Department of Melanoma Medical Oncology at MD Anderson Cancer Center, Houston, TX. The mission of his Cancer Vaccine Laboratory is to develop new immune-based cancer therapies through understanding the interplay between cancer and the immune system.

Originally from the Netherlands, Dr. Overwijk trained at the Surgery Branch, National Cancer Institute in Bethesda, MD and received his PhD in Biochemistry and Molecular Biology from the George Washington University in Washington, DC. He completed his postgraduate training at the Netherlands Cancer Institute in Amsterdam in 2004 and has since worked at MD Anderson Cancer Center.

Dr. Overwijk's work focuses on understanding the biology of vaccines, and translating this understanding into effective vaccines for cancer therapy and prevention.

### **Drew M. Pardoll, MD, PhD**

*Johns Hopkins University*

Dr. Pardoll is an Abeloff Professor of Oncology, Medicine, Pathology and Molecular Biology and Genetics at the Johns Hopkins University, School of Medicine. He is Director of the Cancer Immunology in the Sidney Kimmel Comprehensive Cancer Center. Dr. Pardoll completed his M.D., Ph.D, Medical Residency and Oncology Fellowship at Johns Hopkins University. Dr. Pardoll has published over 250 papers as well as over 20 book chapters on the subject of T cell immunology and cancer vaccines. He has served on the editorial board of the Journal of the National Cancer Institute and Cancer Cell, and has served as a member of scientific advisory boards for the Cancer Research Institute, the University of Pennsylvania Human Gene Therapy Gene Institute, Biologic Resources Branch of the National Cancer Institute, Harvard-Dana Farber Cancer Center, Cerus Corporation, Global Medical Products Corporation, Genencor Corporation, CellGenesys Corporation, Mojave Therapeutics, the American Association of Clinical Oncology and the American Association of Cancer Research. Dr. Pardoll has made a number of basic advances in Cellular Immunology, including the discovery of gamma - delta T cells, NKT cells and interferon-producing killer dendritic cells. Over the past two decades, Dr. Pardoll has studied molecular aspects of dendritic cell biology and immune regulation, particularly related to mechanisms by which cancer cells evade elimination by the immune system. He is an inven-

## FACULTY BIOGRAPHIES

---

tor of a number of immunotherapies, including GVAX cancer vaccines and *Listeria monocytogenes* based cancer vaccines. Dr. Pardoll's basic immunology discoveries include the identification of gd-T cells, NKT cells and IKDC. He elucidated the role of Stat3 signaling in tumor immune evasion and in Th17 development, leading to the discovery that Stat3-driven Th17 responses promote carcinogenesis. Dr. Pardoll discovered one of the two ligands for the PD-1 inhibitory receptor and leads the Hopkins cancer immunology program that developed PD-1 pathway-targeted antibodies, demonstrating their clinical activity in multiple cancer types. His more than 250 articles cover cancer vaccines, gene therapies, cancer prevention technologies, recombinant immune modulatory agents for specific pathways that regulate immunity to cancer and infectious diseases.

### **John Quackenbush, PhD**

*Dana-Farber Cancer Institute*

John Quackenbush is Professor of Biostatistics and Computational Biology and Professor of Cancer Biology at the Dana-Farber Cancer Institute (DFCI) and Professor of Computational Biology and Bioinformatics at the Harvard School of Public Health. He also serves as the Director of the Center for Cancer Computational Biology (CCCB) at the DFCI which provides broad-based bioinformatics support to the local research community. His research is focused on developing new methods for integrative genomic data analysis and inference of gene networks as well as understanding the role that variation plays in the defining phenotype.

### **Hans-Georg Rammensee, PhD**

*Universitaet Tuebingen*

I started to work on immunology in 1979, with the specific aim of using tumor immunology to fight against cancer. My first research projects were on minor histocompatibility antigens, which revealed some similarity to tumor antigens. After contributing to the areas of genetics and immune regulation ("veto cells"), I showed that central tolerance to such antigens is MHC restricted (*Nature* 1984; 308:741). Later, I identified the first minor H antigen (*Nature* 1986; 319:502).

Later, we 1) showed that minor H antigens are peptides presented by MHC (*Nature* 1990; 343:275, *Science* 1990; 249:283); 2) identified the first naturally processed viral T cell epitopes (*Nature* 1990; 348:252), 3) for the first time eluted and identified peptides directly from MHC, and discovered the nature of MHC peptide specificity ("motifs") (*Nature* 1991; 351:290; 4) showed that MHC itself contributes to processing of peptides (*Nature* 1990; 348:248; 5) used a covalent peptide/TLR-ligand compound for efficient immunization (*Nature* 1989; 342:561). Building on the MHC/peptide work, we were the first group to exactly predict T cell epitopes. We then systematically developed bioinformatic tools for this purpose, e.g., our database SYFPEITHI (*Immunogenetics* 1995; 41:178).

In recent years, we have combined basic research on MHC biology with translational research. This work has led to two spin-off companies (*immatics* and *CureVac*), both in clinical phase II or III trials. I now intend to develop individualized cancer immunotherapy further, taking advantage of the technological advances in genome sequencing and peptidome analysis.

### **Nicholas P. Restifo, MD**

*National Cancer Institute*

Nicholas P. Restifo is an honors graduate from Johns Hopkins University and obtained his MD from New York University. He did post-doctoral training at the Memorial Sloan-Kettering Cancer Center and the National Cancer Institute in Bethesda before becoming a principal investigator at the NCI/NIH in 1993. Dr. Restifo has authored or co-authored more than 250 papers on cancer immunotherapy and these have been cited more than 25,000 times according to Thomson/Reuters. Dr. Restifo's main interests are the development of novel T cell based immunotherapies. His current work is directed toward understanding T cell differentiation and how it affects the therapeutic effectiveness of anti-tumor T cells. His ongoing goal is to develop basic immunological concepts into successful treatments for patients with cancer.

### **Paul F. Robbins, PhD**

*National Cancer Institute, National Institutes of Health*

I received a PhD degree in Microbiology and Immunology in 1982 from Washington University in St. Louis. After spending five years in the laboratory of Dr. Alfred Nisonoff evaluating the diversity anti-hapten antibodies I joined the laboratory of Dr. Jeffrey Schlom, where I developed a murine model system to evaluate T cell responses to the human CEA protein. From 1992 until the present time I have worked in Dr. Steven Rosenberg's laboratory, where I have focused on the identification of antigens recognized by melanoma-reactive tumor infiltrating lymphocytes (TIL) that are associated with response to adoptive immunotherapy, as well as other factors that are associated with response to therapy. Recent, melanomas from patients who received adoptive immunotherapy were subjected to whole exome sequencing to identify candidate mutated T cell epitopes. Screening of candidate antigens resulted in the identification of mutated epitopes recognized by seven of the nine melanomas that were initially evaluated.

### **Suzanne L. Topalian, MD**

*Johns Hopkins University*

Dr. Topalian received her medical degree from the Tufts University School of Medicine, and completed a general surgery residency at the Thomas Jefferson University Hospital in Philadelphia. She was a research fellow in Pediatric Surgery at the Children's Hospital of Philadelphia, and subsequently in Surgical Oncology at the National Cancer Institute, NIH. After 17 years as a Senior Investigator at the NIH, Dr. Topalian joined the



Johns Hopkins faculty in 2006 to direct the Melanoma Program in the Kimmel Cancer Center.

Dr. Topalian is a physician-scientist who has published over 100 original research articles on cancer immunology and immunotherapy. Her studies of human anti-tumor immunity have provided a foundation for the translational development of cancer vaccines, adoptive T cell transfer, and immuno-modulatory monoclonal antibodies. Her current research focuses on modulating immune checkpoints such as PD-1 in cancer therapy, and discovering biomarkers predicting clinical outcomes. These efforts have opened new avenues of scientific interest and clinical investigation in cancer immunology and immunotherapy, and have established the importance of this approach in oncology.

### **Steffen Walter, PhD**

*Immatics biotechnologies GmbH*

Steffen Walter studied Biochemistry in Tuebingen (Germany) and focused on Immunology, Physical Chemistry and Molecular Biology (Los Angeles). After completing his Ph.D. on human T cells in the department of Prof. Stefan Stevanovic (lab of Prof. Hans-Georg Rammensee), Steffen joined immatics biotechnologies in 2005.

As Director and Head of Immunology, his focus is to support the clinical development of the company by gathering the most relevant immunological biomarker (immunomonitoring) from phase I-III clinical trials within a GCP environment. This includes the setup of one of the largest laboratory networks worldwide to collect high quality PBMC samples from multi-centric clinical trials including Europe (50+ labs), USA and Japan (10+ labs). This further includes the assessment of T-cell specificity and function as well as state-of-the art measurement of multiple cellular biomarkers to define the immune status of a patient. Furthermore, his team pre-clinically assesses the immunogenicity of novel product candidates.

Steffen has joined the two major international activities (CIMT-CIP, CRI-CIC) that promote harmonization in immunomonitoring. Since 2012, he has taken a leading role in assay harmonization as a member of the CIMT-CIP steering committee.

### **Ena Wang, MD**

*National Institutes of Health, CC, DTM*

Dr. Ena Wang obtained her Medical Doctor degree at Hebei Medical University, China in 1983 and a Master of Medicine in 1989 at Shanghai Medical University (Fudan University). She came to the United State in 1991 as Visiting Research Scientist at the Department of Microbiology and Immunology, University of Arizona and continued her academic career as Assistant research scientist in the same department till 1997. In 1998, she was granted a Cancer Research Fellow position at the Surgery Branch, NCI, NIH. She was promoted to Staff Scientist in 2001 and appointed as Director of Molecular Sciences in 2007 at the Infectious Disease and Immunogenetics Section (IDIS), Department of Transfusion Medicine, Clinical Center, NIH. She is also one of the pioneers of Trans NIH initiative, the Associated Director of Center for Human Immunology and Omic Facility Head at NIH since 2009. Since 2013 she is Acting Section Head of IDIS at NIH.

She has contributed 23 book chapters and more than 140 peer reviewed articles. The her research are focused on the study of germ line characteristics that could explain the influence of genetic background of the host in modulating disease evolution and the study of genetic alterations of cancer cells or pathogens at times relevant to disease outcome or response to therapy. Her work has focused extensively on the variation of cancer cells during its natural evolution or in response to therapy and the real-time analysis of evolving cancer phenotypes ex vivo in patients with melanoma and other cancers.

# DISCLOSURES

*As of October 11, 2013. Full listing is available on-site.*

## **Esteban Celis, MD, PhD**

*Moffitt Cancer Center*

No relevant financial relationship to disclose

## **Alessandra Cesano, MD, PhD**

*Nodality, Inc.*

No relevant financial relationship to disclose

## **Nadine M. Couto, CMP**

*SITC Staff*

No relevant financial relationship to disclose

## **Brendon J. Coventry, MD, PhD**

*University of Adelaide*

No relevant financial relationship to disclose

## **Lélia Y. Delámare**

*Genentech*

Genentech, Salary, Employee

## **Anna Emrick**

*SITC Staff*

No relevant financial relationship to disclose

## **Kate Flynn, MPA**

*SITC Staff*

No relevant financial relationship to disclose

## **Haley Haas**

*SITC Staff*

No relevant financial relationship to disclose

## **Patrick Hwu, MD**

*MD Anderson Cancer Center*

No relevant financial relationship to disclose

## **Angela Kilbert**

*SITC Staff*

No relevant financial relationship to disclose

## **Kenneth W. Kinzler, PhD**

*Johns Hopkins University*

PGDx, Royalty, Ownership Interest, Founder; Inostics, Royalty, Ownership Interest, Founder; Morphotek, Royalty, Consulting Fee, SAB

## **Katie Koerner**

*SITC Staff*

No relevant financial relationship to disclose

## **Michelle Krogsgaard, PhD**

*NYU School of Medicine*

No relevant financial relationship to disclose

## **Rienk Offringa, PhD**

*DKFZ German Cancer Research Center*

No relevant financial relationship to disclose

## **Willem W. Overwijk, PhD**

*MD Anderson Cancer Center*

Amgen, Consulting Fee, Consulting

## **Drew M. Pardoll, MD, PhD**

*Johns Hopkins University*

No relevant financial relationship to disclose

## **John Quackenbush, PhD**

*Dana-Farber Cancer Institute*

No relevant financial relationship to disclose

## **Hans-Georg Rammensee, PhD**

*Universitaet Tuebingen*

Cofounder and Shareholder of Immatix Biotechnologies GmbH, Tübingen, Ownership Interest, Chair, Scientific Advisory Board; Cofounder and Shareholder of CureVac GmbH, Tübingen, Ownership Interest, Member Advisory Board; Synimmune GmbH Tübingen, Ownership Interest, Consulting

## **Nicholas P. Restifo, MD**

*National Cancer Institute*

No relevant financial relationship to disclose

## **Andrea Rindo**

*SITC Staff*

No relevant financial relationship to disclose

## **Paul F. Robbins, PhD**

*National Cancer Institute, National Institutes of Health*

No relevant financial relationship to disclose

## **Amy Russart**

*SITC Staff*

No relevant financial relationship to disclose

## **Suzanne L. Topalian, MD**

*Johns Hopkins University*

Bristol-Myers Squibb, Research Grant Support, Investigator; Amplimmune Inc., Spouse Received Consulting Fees and Royalties through Institution, Spouse is Consultant; Jounce Therapeutics, Consulting Fee, Consultant

## **Steffen Walter, PhD**

*Immatix Biotechnologies GmbH*

Immatix Biotechnologies GmbH, Salary, Stock Options, Employment

## **Ena Wang, MD**

*National Institutes of Health, CC, DTM*

No relevant financial relationship to disclose

## **Tara Withington, CAE**

*SITC Staff*

Executive Director Incorporated, Ownership Interest, Employment/Partner



## MATCHING INDIVIDUAL PATIENTS TO OPTIMAL IMMUNOTHERAPY

### Serial Immune Monitoring: Essential to Resolve Immune Dynamics for Improving Clinical Effectiveness of Immunotherapy

Brendon J Coventry<sup>1</sup>, Martin L Ashdown<sup>2</sup>

<sup>1</sup>*Discipline of Surgery, University of Adelaide, Adelaide, South Australia, Australia*

<sup>2</sup>*Department of Medicine, University of Melbourne, Melbourne, Victoria, Australia*

Cancer immunotherapy is rapidly evolving. Most agents are expensive with limited clinical efficacy, and do not cure most patients. Occasional, unpredictable/ random complete responses occur to underpin extended survival, and some ‘cures’.

Dutcher et al 2013, commented on our work recently that “investigators are beginning to monitor closely and sequentially map the immune response using serial daily measurements” to “describe a sequential, time-dependent, homeostatic, physiological process, requiring the coordinated and timely interaction of cytokines, their receptors, and the responding cell populations”.

Recent advances in cancer immunology clearly place homeostatic immune regulation mechanisms as the principal hurdle to clinical efficacy to release the endogenous tumor immune response from down-regulation.

A dynamic, bimodal or oscillating tumor immune response, as shown in late stage cancer patients prior to therapy, has led to trials being approved in which close serial data prior to therapy can define the ‘immune dynamics’ to optimally synchronize timed therapy at an appropriate point in the patient’s oscillation in an attempt to deliver a disruptive signal to break homeostatic tumor tolerance. This work suggests the random occasional successes already seen are due to more to a probability constraint of the patient being ‘accidentally’ treated at the correct point in their own immune cycle.

Here, we provide a strategy or clinical algorithm in which serial data is collected, resolved and analysed to maximize the probability of treatment success by timing therapy to attain Complete Responses in majority of patients.

Serial immune data monitoring → treat accurately → CR & Survival.

### Rituximab Response in Follicular Lymphoma: Contributions from KIR 2DS1 and HLA-C

Amy K Erbe<sup>1</sup>, Wei Wang<sup>1</sup>, Bartosz Grzywacz<sup>2</sup>, Eric A Ranheim<sup>2</sup>, Jacquelyn A Hank<sup>1</sup>, Kyungmann Kim<sup>3</sup>, Lakeesha Carmichael<sup>3</sup>, Songwon Seo<sup>3</sup>, Eneida A Mendonca<sup>3</sup>, Yiqiang Song<sup>3</sup>, Fangxin Hong<sup>4</sup>, Randy D Gascoyne<sup>5</sup>, Elizabeth Paietta<sup>6</sup>, Sandra J Horning<sup>7</sup>, Brad Kahl<sup>8</sup>, Paul M Sondel<sup>1</sup>

<sup>1</sup>*Department of Human Oncology, University of Wisconsin-Madison, Madison, WI, USA*

<sup>2</sup>*Department of Pathology and Laboratory Medicine, University of*

*Wisconsin-Madison, Madison, WI, USA*

<sup>3</sup>*Department of Biostatistics and Medical Informatics, University of Wisconsin-Madison, Madison, WI, USA*

<sup>4</sup>*Department of Biostatistics, Harvard University, Dana Farber Cancer Institute, Boston, MA, USA*

<sup>5</sup>*Department of Pathology and Laboratory Medicine, British Columbia Cancer Agency, British Columbia, Canada*

<sup>6</sup>*Department of Medicine, Montefiore Medical Center North Campus, Bronx, NY, USA*

<sup>7</sup>*Genentech, Inc., South San Francisco, CA (current location), Department of Medicine, Stanford University, Stanford, CA, USA (former location)*

<sup>8</sup>*Department of Medicine, University of Wisconsin-Madison, Madison, WI, USA*

Immunotherapeutic response in cancer patients may vary depending upon individual genotypes. A recent ECOG clinical trial sought to optimize rituximab administration in low tumor burden follicular lymphoma patients. We analyzed DNA from these patients to assess KIR/KIR-ligand genotype influence on response to rituximab. The activating KIR2DS1 gene and its ligand, HLA-C2, had significant associations with clinical outcome. In an allogeneic setting, Venstrom et al. (NEJM-2012) found that patients receiving a transplant from KIR2DS1 positive (2DS1+) donors had a lower relapse rate than from 2DS1 negative (2DS1-) donors. Moreover, from 2DS1+ donors, the HLA-C1 positive (C1+) recipients [homozygote or heterozygote] fared better than HLA-C2 homozygous (C2C2) recipients. Similarly, we found that 2DS1+ patients had a trend towards improved tumor shrinkage if they were C1+ vs. C2C2 (p=0.062), and a longer time to rituximab-failure (TTRF) (p<0.001). Unlike Venstrom et al., we found that C2C2 patients had improved tumor shrinkage (p=0.039) and TTRF (p=0.023) if 2DS1- vs. 2DS1+. This may parallel studies where the presence of an activating receptor and its ligand resulted in desensitization of NK cells. Our data are concordant with previous allogeneic findings, suggesting C2 homozygosity may contribute to NK cell hyporesponsiveness in a 2DS1 dependent manner, even in autologous settings.

### Practical Guide to Immunotyping in Tissue – Pre-analytic Factors, Immunohistochemistry, Image Analysis, Stereology

Steven J Potts<sup>1</sup>, AJ Milici<sup>1</sup>

<sup>1</sup>*Tissue Pathology, Flagship Biosciences, Phoenix, AZ, USA*

With exciting new approaches like the Immunoscore or other techniques for evaluating immune cells in tumors, the results critically depend on the entire tissue measurement process, from sample acquisition, through histology and immunohistochemistry (IHC), to whole slide scanning and image analysis. This workshop will not present new data, but will provide a step-by-step guide in new and old techniques for overcoming challenges associated with quantifying the local immune response in tissue. The following aspects will be discussed, and areas where further standardization is required will be highlighted. 1) Pre-analytic factors in tissue handling -- choices of fixative, effects of ischemia

time and time in fixation on IHC 2) Immune Cell Immunohistochemistry -- what works and doesn't work in human and mouse tissue, optimization steps and recommendations. How to approach IHC for subsequent quantitation. What can we learn from existing clinical measurements of immune cells in tissue? 3) Whole slide scanning -- Review of hardware and software, necessary QA steps, file formats, digital pathology de-mystified 4) Whole slide image analysis and stereology -- what are we really measuring? What assumptions are we making? What tools are available from commercial and open-source vendors?

## **ImmunTraCkeR® as a Reliable TCR Repertoire Profiling Tool to Understand Immune Response and to Explore Immunotherapy Biomarkers**

Isabelle Tanneau<sup>1</sup>, Audrey Nondé<sup>2</sup>, Anaïs Courtier<sup>2</sup>, Gilles Parmentier<sup>2</sup>, Marlène Noel<sup>2</sup>, Audrey Grivès<sup>2</sup>, Solène Perez<sup>2</sup>, Nadia Plantier<sup>1</sup>, Jean-François Mouret<sup>2</sup>, Manuarii Manuel<sup>2</sup>, Orchidée Filipe-Santos<sup>2</sup>

<sup>1</sup>*Business Development, ImmunID, Grenoble, France*

<sup>2</sup>*Research & Development, ImmunID, Grenoble, France*

Over the last decade, the host immunity has emerged as a critical determinant of cancer development and of response to therapy. Great progress has been made in the development of immunotherapies, which leverage the patient's immune system to reach better clinical outcomes. Immune checkpoint inhibitors show deep and durable tumor responses in various indications. However, response rates vary a lot depending on the tumor type and remain relatively low. Scientists and clinicians are currently struggling in the research of reliable biomarkers to predict patient response. Studying the development and selection of lymphocyte repertoires is essential to understand the function of the immune system in healthy individuals and in cancer patients. We propose an innovative test called ImmunTraCkeR® to study immune repertoire diversity, based on the detection of V-J rearrangements of the T cell receptor. Our immune profiling platform allows to reliably monitor immune diversity in blood or tumors and to assess variations between individuals during the course of disease and/or treatment. Past studies have shown the clinical utility of T cell diversity and immune status in several indications, including metastatic cancers and infections. ImmunTraCkeR® may allow clinicians to better understand their patient's response and to adapt the therapeutic strategy according to the host's immune status.

## **NEW SEQUENCING TECHNOLOGY/ VALIDATION OF MUTATION DATA/ BIOINFORMATICS**

### **Identification of MHC Class I Mutated Peptides by Combining Mass Spectrometry and Transcriptome Sequencing**

Qui Phung<sup>1</sup>, Suchit Jhunjhunwala<sup>1</sup>, Mahesh Yadav<sup>1</sup>, Tommy K. Cheung<sup>1</sup>, Patrick Lupardus<sup>1</sup>, Joshua Tanguay<sup>1</sup>, Klara Totpal<sup>1</sup>,

Christian Franci<sup>1</sup>, Stephanie Bumbaca<sup>1</sup>, Jens Fritsche<sup>2</sup>, Toni Weinschenk<sup>2</sup>, Jennie Lill<sup>1</sup>, Lélia Delamarre<sup>1</sup>

<sup>1</sup>*Genentech, South San Francisco, CA 94080, USA.*

<sup>2</sup>*immatics biotechnologies GmbH, Tübingen, Germany*

Recent cancer genomic studies have shown that human tumors can harbor a remarkable number of somatic mutations. The non-synonymous mutations when presented on MHC class I could potentially be highly immunogenic by being recognized as foreign by the adaptive immune system. Here we used a novel approach combining mass spectrometry and transcriptome sequencing to identify mutated peptides displayed by MHC class I. We sequenced the transcriptome of MC38 murine colon cancer cells, and found 2327 non-synonymous coding variations compared with the mouse reference genome. In parallel we identified peptides naturally presented on MHC class I using mass spectrometry (LC/MS)-based peptide sequencing of the same cell line. FASTA files generated from the RNAseq results were used as the database to search the mass spectrometric data against. Out of over 3500 unique peptides identified, seven sequences contained mutated residues. The immunogenicity of the validated mutated peptides was next examined by immunizing mice with synthetic long peptide vaccines. Two of the seven mutated peptides were found to induce strong CD8 T cell response. Structural prediction analysis of the peptide-bound MHC class I complex suggested that the two immunogenic peptides were configured with the mutated residue in a solvent accessible position, thus more likely to be recognized by the TCR. Our findings validate our approach combining mass spectrometry and transcriptomics for neo-epitope discovery.

## **WHAT TO DO WITH A T-CELL EPITOPE ONCE YOU HAVE IT**

### **CD8 T Cell Epitope Peptide Vaccines: Composition, Not Size: It's What Matters**

Esteban Celis<sup>1</sup>

<sup>1</sup>*Moffitt Cancer Center, Tampa, FL, United States*

Numerous CD8 T cell epitopes have been identified allowing the development of epitope-based cancer immunotherapy such as the use of synthetic peptide based vaccines. However, peptide vaccines have been notoriously poorly immunogenic and provide suboptimal therapeutic effects. It has been proposed that minimal peptide epitopes are poorly immunogenic because they are presented to T cells by non-professional APCs. Therefore, it is proposed that using long peptides vaccines will improve immunogenicity by forcing antigen presentation by professional APCs. Using several mouse tumor models, we observe that peptide composition (hydrophobicity, amphipathicity), adjuvant and route of vaccine administration are more critical than peptide size for generating strong CD8 T cell responses that limit tumor growth. Two separate events are required for peptides to generate massive CD8 T cell responses, similar to those observed during acute viral infections: 1) Peptide priming mediated professional



APCs, where CD40 activation and TLR signals are critical; 2) T cell expansion, which can be mediated by either professional and non-professional APCs and where type-I interferon induced by retinoic acid-inducible (RIG-I)-like receptor stimulation by poly-IC plays a critical role. Effective anti-tumor CD8 T cell responses were accomplished by 2 systemic injections (iv or im 5-7 days apart) of peptide/poly-IC.

### **T-cell Receptor Affinity and Avidity Defines Antitumor Response and Autoimmunity in T-cell Immunotherapy**

Shi Zhong<sup>1</sup>, Karolina Malecek<sup>1,2</sup>, Laura A. Johnson<sup>3,9</sup>, Zhiya Yu<sup>3</sup>, Eleazar Vega-Saenz de Miera<sup>4,5</sup>, Farbod Darvishian<sup>5,6</sup>, Katelyn McGary<sup>1,2</sup>, Kevin Huang<sup>1</sup>, Josh Boyer<sup>1</sup>, Emily Corse<sup>7,10</sup>, Yong-zhao Shao<sup>5,8</sup>, Steven A. Rosenberg<sup>3</sup>, Nicholas P. Restifo<sup>3</sup>, Iman Osman<sup>1,4,5</sup>, Michelle Krogsgaard<sup>1,2,5,6</sup>

<sup>1</sup>*NYU Cancer Institute, New York University School of Medicine (NYUSoM), New York, NY, United States*

<sup>2</sup>*Program in Structural Biology, NYUSoM, New York, NY, United States*

<sup>3</sup>*Center for Cancer Research, National Cancer Institute, NIH, Bethesda, MD, United States*

<sup>4</sup>*Ronald O. Perelman Department of Dermatology, NYUSoM, New York, NY, United States*

<sup>5</sup>*Interdisciplinary Melanoma Cooperative Group, NYUSoM, New York, NY, United States*

<sup>6</sup>*Department of Pathology, NYUSoM, New York, NY, United States*

<sup>7</sup>*Department of Immunology, Memorial Sloan-Kettering Cancer Center, New York, NY, United States*

<sup>8</sup>*Division of Biostatistics, NYUSoM, New York, NY, United States*

<sup>9</sup>*Present address: Abramson Family Cancer Research Institute, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, United States*

<sup>10</sup>*Present address: Department of Immunology, The University of Texas MD Anderson Cancer Center, Houston, TX, United States*

T-cells have evolved the unique ability to discriminate “self” from “non-self” with high sensitivity and selectivity. However, tissue-specific autoimmunity, tolerance or eradication of cancer does not fit into the self/non-self paradigm because the T-cell responses in these situations are most often directed to non-mutated self-proteins. To determine the TCR affinity threshold defining the optimal balance between effective antitumor activity and autoimmunity *in vivo*, we used a novel self-antigen system comprised of seven human melanoma gp100209-217-specific TCRs spanning physiological affinities (1 to 100  $\mu$ M). We found that *in vitro* and *in vivo* T-cell responses are determined by TCR affinity. Strikingly, we found that T-cell antitumor activity and autoimmunity are closely coupled but plateau at a defined TCR affinity of 10  $\mu$ M, likely due to diminished contribution of TCR affinity to avidity above the threshold. Our results suggest a relatively low affinity threshold is necessary for the immune system to avoid self-damage given the close relationship between antitumor activity and autoimmunity. This, in turn, indicates that treatment strategies focusing on TCRs in the intermediate affinity range (KD  $\sim$ 10  $\mu$ M) or targeting shared tumor antigens would dampen the potential for autoimmunity during adoptive T-cell therapy for the treatment of cancer.

M.K. was a Pew Scholar in the Biomedical Sciences supported by the Pew Trust. This work was supported by the National Institute of Health grants NCI 1U01CA137070 and NIGMS 5R01GM085586 (to M.K.), an American Cancer Society Research Scholar grant RSG-09-070-01-LIB (to M.K), a Cancer Research Investigator grant (to M.K.) and the NYU Cancer Institute, the NYU Cancer Institute Cancer Center Support Grant 5P30CA016087-27 (to I.O.), and the Marc Jacobs campaign to support the Interdisciplinary Melanoma Cooperative Group.

## Forward Fund

Advancing Cancer Immunotherapy

Help move the field of cancer immunotherapy *Forward!* Purchase your “Friend of the Society” Ribbon at the SITC Registration Desk or on your SITC 2013 registration form for a minimum donation of \$50, or make a general *Forward* Fund contribution. All contributions to the *Forward* Fund support research, training, education, and all SITC awards, including the *Richard V. Smalley, MD Award* and the Young Investigator Awards.











