CURRICULUM VITAE

John A. Carucci, MD, PhD

EDUCATION:

9/88-5/94	M.D., Ph.D., State University of New York, Health Science Center at Brooklyn Thesis: "Neuropeptide mediated regulation of hapten specific anamnestic IgE responses."
9/85-5/87	MS, Biochemistry, New York University, New York, NY.
9/81-5/85	BA, Biology, Columbia University, New York, NY.

POSTGRADUATE EDUCATION; CLINICAL:

7/99 –7/00	Fellowship in Mohs Micrographic and Advanced Dermatologic Surgery Yale University, New Haven, CT
7/95-7/98	Residency in Dermatology New York University Medical Center, New York, NY
6/94-7/95	Internship in Internal Medicine Yale-New Haven Hospital, New Haven, CT

POSTGRADUATE EDUCATION; INVESTIGATION:

7/98 -7/99	Postdoctoral Fellow Rockefeller University, New York, NY
7/97-7/98	Sulzberger Fellowship Rockefeller University, New York, NY
7/92-10/92	Immunodermatology Preceptorship Vienna International Research Cooperative Center, Vienna, Austria.

HOSPITAL APPOINTMENTS:

2011-present	Associate Attending Physician in Dermatology NYU Langone Medical Center, New York, NY
5/01- 12/10	Assistant Attending Physician in Dermatology New York Hospital, New York, NY

7/99 – 4/01	Assistant Attending Physician in Dermatology Yale New Haven Hospital, New Haven, CT
7/98 – 7/99	Assistant Attending Physician in Dermatology Bellevue Hospital Center, New York, NY

ACADEMIC APPOINTMENTS:

2015	Professor of Dermatology
2011	Associate Professor of Dermatology New York University School of Medicine
2007	Associate Professor of Dermatology Weill Medical College of Cornell University
2001	Assistant Professor of Dermatology Weill Medical College of Cornell University
2000	Clinical Assistant Professor of Dermatology Yale University School of Medicine
1999	Clinical Instructor in Dermatology Yale University School of Medicine
1998	Clinical Instructor in Dermatology New York University School of Medicine

CERTIFICATIONS/LICENSURES:

2021	Diplomate, American Board of Micrographic Surgery and Dermatologic Oncology
2003	Fellow**,** American College of Mohs Micrographic Surgery
2003	State of New Jersey Medical License
2000	Associate, American College of Mohs Micrographic Surgery
1999	State of Connecticut Medical License
1998	Diplomate of the American Board of Dermatology
1996	State of New York Medical License
1995	Diplomate of the National Board of Medical Examiners

HONORS/AWARDS:

2019-2025	Best Doctors in America
2018	Leading Physicians of the World
2015	American Dermatologic Association
2015	Leading Physicians of the World
2014-15	U.S. News and World Report Best Doctors
2014-15	Best Doctors in America
2013-14	Institutional Leadership Development Program NYU Langone Medical Center
2013	Best Doctors in America
2013	U.S. News and World Report Best Doctors
2011-2012	Best Doctors in America
2009-2010	Best Doctors in America
2007-2008	Best Doctors in America
2006	Clinical Scholar, Weill Medical College of Cornell
2005	Americas Top Physicians
2003	Americas Top Doctors
2002	Presidential Citation from the American Academy of Dermatology
2002	American Academy of Dermatology Future Leadership Forum
1999	Faculty Teaching Award, Department of Dermatology, NYU Medical Center
1998	Morris Leider Award, Department of Dermatology, NYU Medical Center
1994	MD with Honors in Research, SUNY-HSCB.
1994	Award for Excellence in Research, Dept. of Pathology, SUNY-HSCB.
1992	McLaughlin Award, National Student Research Forum, Galveston TX.
1991	AOA Award for Excellence in Research. SUNY-HSCB
1991	Competitive Fellowship Award. SUNY-HSCB.
1985	Howard Rusk Research Fellowship, Rusk Institute, NYU Medical Center.

Clinical Responsibilities

Chief, Mohs, and Dermatologic Surgery

The Mohs and Dermatologic Surgery Unit has grown into a regional tertiary referral center for patients with complex melanoma and nonmelanoma skin cancer. The unit continues to act as part of a multidisciplinary team along with head and neck oncologic surgery, surgical oncology, plastic surgery, radiation oncology, medical oncology and dermatopathology. The unit also offers safe and effective aesthetic procedures including laser surgery and toxin and filler injection. The unit added a cosmetic dermatologist in January 2019 and a third surgeon in August 2019.

Research Responsibilities

My laboratory studies mechanisms of aggressive behavior by skin cancers with a particular interest in squamous cell carcinoma in immune compromised patients. Since arriving in at NYU in 2011 I have been the recipient of a RO-1 from NIH/NCI, a U18 from NCI and grants from Cancer Research institute, GlaxoSmithKline, Regeneron, NYU Cancer Center and NYU Department of Dermatology. I also acted as Co-investigator on an R01 awarded to Marcus Schober, Ph.D. (PI) in the Ronald O. Perelman Department of Dermatology. I also acted as C0-I on an SBIR award with Dan Gareau. Ph.D. from Rockefeller.

Research Support

Ongoing Research Support:

1R44CA302122-01 (Carucci-Co-I) 6/18/25-5/31/26

Rapid 3D POC digital cancer pathology by unique confocal microscopy instrumentation and downstream AI: a simple, efficient, robust direct-to-digital approach to meet market demand.

SurgiVance is developing a digital pathology “laboratory-in-a-box” that produces and analyzes high-resolution, 3D, digital pathology images at a patient’s bedside within seconds. This solution combines rapid confocal imaging hardware with artificial intelligence (AI)-enabled software that automatically recolorizes and interprets the digital pathology images, enabling highly accurate and reproducible detection of skin cancer and prediction of outcomes. Over 7.1 million cases of skin cancer are diagnosed annually in the US including approximately 5.4 million cases of basal and squamous cell carcinomas (BCC/SCC). Standard skin cancer pathology has several major pain points including lengthy preanalytical processing times that extend procedure duration and limits efficiency, the need for expensive, bulky equipment, and complications from image artifacts like tissue folding and chopping. Ultimately, histopathology is the rate-limiting factor during curative skin cancer surgery, causing pain and surgical complications. This increases the cost-care burden on the heath system and negatively impacts patient outcomes. SurgiVance’s solution will provide rapid, high-resolution, 3D images and automated interpretation at the point of care, improving upon current tissue specimen processing and imaging for skin cancer removal, enabling electronic medical reading, and reducing operating times. The enabling technology is a patented, miniature, rugged, simpler confocal microscope, integrated with proprietary, AI-enabled interpretation software. The goal of this Direct to Phase II project is to further develop the software component to improve the detection of BCC, expand detection to SCC, and provide additional clinical validation of the software. The specific aims are: 1) Image Acquisition and AI Algorithm Refinement. An expanded image database of BCC and SCC specimens will be created for further algorithm development and training. The AI algorithms will then be refined for high accuracy detection of BCC and SCC; 2) AI Algorithm Development for Prediction of Poor Outcome-associated Gene Expression. Using qPCR data on genes linked to poor patient outcomes, SurgiVance will develop algorithms for predicting gene expression from digital pathology alone; and 3) Clinical Validation and Usability Testing. SurgiVance’s software will be evaluated in a multicenter study by clinical collaborators at Oregon Health and Science University, Northwell Health, and New York University, who will confirm clinical performance using provided sample raw confocal images as well as confocal images of their own and offer valuable usability feedback.

5R44CA235915-03 (Carucci Co-I) 5/1/24-4/30/26

Advanced Surgical Pathology Device

Diagnosing diseases relies heavily on pathologically analyzing tissue samples from patients. For cancers alone, over 30 million people undergo tissue biopsies annually in the US. While surgery currently represents the best standard of care treatment to cure invasive cancers, its success depends on timely excision of the tumor before it can spread. This is especially true for the removal of skin cancers, more common in the populace than all other malignancies combined, with Mohs surgery deemed the best treatment of choice for its high skin cancer cure rates. However, this procedure requires the repeated histopathological evaluation of patient tissue samples to confirmation of cancerous or non-cancerous tissue. This time-consuming step requires freezing, slicing, and preserving the tissue between microscope slides to take an image, adding 2-3 hours to surgical times. It increases operative times and the risk of postoperative complications including skin infections, bleeding or hematoma, wound dehiscence (disruption of recently repaired wounds), tissue necrosis, and pain. The process is also expensive, requiring ~$70k of equipment to set up, and pricy reagents and highly trained staff to maintain. There is an unmet need in the market for a cost-effective digital pathology solution to rapidly produce high-quality images. SurgiVance is developing a confocal-based Surgical Pathology System (SPS) to non-invasively and rapidly image intact specimens with high resolution. The SPS system uses a novel, patented line-scanning, stage-scanning confocal microscope. The NIH Phase 1 funded prototype successfully images standard sized specimens (5 mm x 10 mm) in only 17 seconds, at 1.2 µm lateral resolution and 8.6 µm optical section thickness. In this Phase II project, SurgiVance has 3 specific aims: 1) Recreate the prototype SPS device in a partner facility, which will perform design and engineering work to miniaturize the device, reduce its complexity, and increase its durability for market use, 2) develop AI-based software to rapidly scan and map the surfaces of fresh samples resected directly from patients, and 3) clinically validate the superior performance of SPS created 3D digital images of fresh tissue samples in comparison to the standard-of-care histopathology in Mohs patients in benchmarks established by the SurgiVance FDA Q-Sub Class II, 510(k) pathway to meet beachhead market needs. This Phase II study will enable SurgiVance to shift the paradigm towards instant, digital 3D pathology, that when integrated with SurgiVance's AI-based diagnostics, could enable robust, reproducible, and rapid automated diagnoses.

Gorlins Syndrome Association (PI-Carucci) 6/1/24-5/31/25

Defining the BCC microenvironment change in response to smoothened inhibition: Identification of a role for addition of checkpoint inhibitor to optimize antitumor therapy for overwhelming disease

We hypothesize that partial response to smoothened inhibition may result in TME priming favoring the use of checkpoint inhibition to achieve complete response. Thus, it may be that addition of checkpoint inhibitors after initial treatment with smoothened inhibitors may lead to more effective treatment of otherwise overwhelming tumor burden in Gorlin syndrome BCC. Our ultimate goals include the following: (1) Define T cell phenotype and clonotype in treatment naïve vs SMO inhibitor treated Gorlin BCC; (2) Define origin of T cell clones populating the Gorlin BCC tumor microenvironment. We will utilize the Gorlin Syndrome Alliance grant to define the spatial relationship between tumor associated macrophages, dendritic cells, Langerhans' cells, and T cells in the Gorlin BCC tumor microenvironment. This will provide meaningful preliminary data to use to apply for federal funding.

Proposals under consideration:

RO-1 (PI-Carucci) NCI 6/1/25-5/31/28

De novo discovery and characterization of histomorphologic patterns associated with metastasis and disease specific death in cutaneous squamous cell carcinoma using self-supervised learning

Poor outcome from cSCC defined as recurrence, metastasis, and disease-specific death may occur with the emergence of aggressive cancer cell populations and tumor permissive alterations in the adjacent microenvironment. In this study, we use machine learning to investigate squamous cell carcinoma microenvironment heterogeneity at the histologic and molecular levels to provide a deeper understanding of how cancer driver events at the molecular level can affect cell morphology and the spatial organization principles of cell populations in

the tumor and its microenvironment. Completion of the proposed studies will reveal novel combined histologic and molecular biomarkers that can then be utilized to better stratify poor outcome risk and ultimately design more precise therapeutic regimens.

R-21 (PI-Carucci) NCI 10-1-26-9-30-28

De novo discovery and molecular profiling of histomorphological patterns linked to poor prognosis in Merkel cell carcinoma via self-supervised learning

Merkel cell carcinoma (MCC) is a rare but highly aggressive neuroendocrine skin cancer with high rates of recurrence and disease-specific death. While histologic diagnosis is typically straightforward, our ability to predict which early-stage tumors will recur, metastasize, or respond to immunotherapy is limited. Clinical staging systems do not fully capture the biological heterogeneity of MCC, particularly in node-negative patients or those receiving immune checkpoint blockade (ICB) therapy, where response rates vary widely. Given the rapid disease progression and immune-sensitive nature of MCC, there is a critical need to identify histologic and molecular correlates of prognosis and treatment response. We propose to use a self-supervised learning (SSL) pipeline to uncover and characterize previously unrecognized histomorphological phenotypic clusters (HPCs) that are associated with poor prognosis in MCC. Unlike supervised deep learning, SSL does not require manual annotations and can reveal novel, unbiased patterns from large datasets of histopathology images. This exploratory study will establish proof-of-concept for applying SSL to rare skin cancers and connect histologic patterns to spatial molecular features.

Completed Research Support

Regeneron Industry Contract (PI: Carucci) 8/25/22-6/30/24

Defining outcome biomarkers, T cell landscape and clinically relevant neoantigens for Merkel Cell Carcinoma.

Research Strategy: Merkel cell carcinoma is a rare and aggressive cutaneous tumor originating in the mechanoreceptor unit of the skin. The etiology is due to Merkel cell polyomavirus integration into the genome vs. accumulation of mutations due to long term UV exposure. MCC behaves aggressive clinically eventuating in metastasis in >30% of patients with a mortality that exceeds melanoma by a factor of 3. MCC is relatively rare with ~2500 cases in the United States in 2018 with an expectation of >3300 by 2025. MCC is an immunogenic tumor with response to checkpoint inhibitors, including the PDL-1 blocker avelumab and PD-1 inhibitor pembrolizumab. In preliminary studies, we found increased progression-free survival in patients treated with checkpoint inhibitors. We also found increased expression of selected T cell and dendritic cell genes associated with better clinical outcomes. We will expand on these studies to drill down on immune biomarkers associated with MCC prognosis and further define the immune microenvironment via deep sequencing of MCC-associated T cells and concomitant antigen discovery. Completion of these studies will enhance our knowledge of the immune microenvironment associated with MCC and provide first ever single-cell TCR sequencing and antigen discovery for MCC. We will proceed through 2 specific aims: (1) Define biomarkers associated with good vs. poor outcome MCC; (2) Define T cell landscape and tumor antigens and neoantigens for MCC

R13 AR076899 01 (PI-Carucci) NIH ITSCC COLLABORATIVE BIENNIAL RETREAT 2/1/20-12/31/23

The International immunosuppression Transplant Skin Cancer Collaborative (ITSCCC) hosts a unique biennial scientific retreat that brings together expert clinicians and investigators from around the world whom are dedicated to caring for immunosuppressed patients with aggressive skin cancers that impact function and survival.[1-3] The population at risk in the United States includes over 300,000 patients with solid organ transplants, 200,000 with hematologic malignancies and 1.1 million who have been exposed to human immunodeficiency (HIV) virus.[4] The numbers of vulnerable will grow with 35,000 transplants expected along with 80,000 new lymphoma diagnoses expected in 2020. The ITSCC Biennial Scientific Retreat draws experts from diverse fields including dermatology, micrographic surgery and dermatologic oncology, transplant surgery, nephrology, hepatology, cardiology, radiation oncology, medical oncology, oncologic surgery, otolaryngology and plastic surgery in a rural retreat center facilitating free and rapid exchange of information. The unique environment, absent conventional silos, allows for design of robust trials, development of evidence-based guidelines and creates the opportunity to advance the state of the art of care for immune suppressed patients with aggressive skin cancer. ITSCC will advance research and clinical care through 3 specific aims: (1) Facilitate collaboration in integration of basic and clinical research to improve the quality of care of immune suppressed patients with aggressive skin cancer; (2) Develop novel and more effective means to educate patients, scientists, primary care doctors and specialist physicians on the unique needs and clinical care issues in immune suppressed patients with aggressive skin cancer; (3) Develop and disseminate sensitive screening criteria to identify highest risk individuals at earliest time point to facilitate implementation of effective strategies to prevent aggressive skin cancer in immune suppressed patients.

Defining the immune ecosystem in autoimmune disease: predicting and intervening against end organ damage.

PI-Carucci 1/1/21-12/30/22

We have developed, patented, and utilized a novel informatics approach allowing unparalleled examination of T cell mediated immune response at the single cell level.(1, 2) This approach can be used to define T cell responses in pathogenic states including cancer, solid organ transplantation, and autoimmune disease. We used the algorithm, known as IcellR, to simultaneously define T cell receptor clonotype and T cell phenotype from the tumor infiltrating lymphocyte (TIL) compartment associate with primary cutaneous squamous cell carcinoma (cSCC). We now propose rp apply these methods to defining mechanisms responsible for end organ damage in autoimmune disease. Currently, more than 24 million people in the United States are affected by some form of autoimmune disease which include lupus. rheumatoid arthritis, mixed connective tissue disease and dermatomyositis. End organ pathology is a dire consequence of autoimmune disease due to irreparable damage done to central nervous system, heart, kidneys and lungs. The exact nature of end organ pathology is not yet completely understood. We hypothesize that increased ratios of cytotoxic T cells (Tc) to regulatory T cells (Tr) and decreased expression of exhausted T cells that express checkpoint molecules including BTLA, CTLA4, PD1, and LAG3 are associated with increased likelihood of end organ damage. We further hypothesize that self-reactive T cells play a central role in end organ pathology and that we can define self-reactive, end organ specific T cell clones using IcellR. We propose to define autoreactive T cell clones responsible for interstitial lung disease secondary to dermatomyositis.(3) We further propose to define expression of immune mediated genes using archived specimens from lung biopsy specimens from patients with dermatomyositis associated interstitial lung disease. We will utilize NanoString technology which we have utilized and validated in our lab for cancer studies.(4-6)

Regeneron Industry Contract (PI: Carucci) 3/01/21-2/28/22

Defining the immune landscape in basal cell carcinoma to optimize checkpoint inhibitor therapy for patients with inoperable disease

Basal Cell Carcinoma is the most common cancer in humans with an estimated incidence of 2 million tumors in the United States annually. Although usually cured by excision or destruction, a percentage of these tumors progress to local advanced basal cell carcinoma (laBCC) and metastatic basal cell carcinoma (mBCC). These are currently being managed by multiple modalities, including surgery for palliation, radiation therapy, conventional chemotherapy and smoothened inhibitors including vismodegib and sonidegib. Response rates for these modalities range from 10% to 40%. Although initially considered promising, smoothened inhibitors are prone to resistance and development of squamous cell carcinomas, which may subsequently invade and metastasize. Recently, isolated attempts have been made to treat locally advanced/inoperable BCC using checkpoint inhibitors. There has been success pointing to potential utility of CPI in select cases of laBCC or mBCC. Less is known about the immune microenvironment in BCC compared to SCC. We aim to address this gap and to better define the immune landscape associated with BCC and define parameters predictive of successful treatment of laBCC and mBCC via PD-1 inhibition. We will proceed through 2 Specific Aims: (1) define the immune microenvironment associated with nodular BCC vs. infiltrative BCC; and (2) define the T cell phenotypes associated with highest risk BCC through novel combination of single cell T cell receptor sequencing and T cell gene expression. We hypothesize that highest risk BCC may be associated with increased exhausted T cells and regulatory T cells and thus may be amenable to sustained complete response by treatment with PD-1 inhibitor therapy.Regeneron

R43CA235915 (Co-I: Carucci) NIH/ NCI 8/31/20-7/30/21

Advanced Surgical Pathology Device

Mohs micrographic surgery depends on standard histopathology, which is slow, tedious and costly and is a 2-dimensional diagnosis, which may miss 3Dimensional information. This process is usually analog, with humans evaluating the processed tissue to determine the diagnosis. There is a need for an alternative that is faster and digital so that advanced analytics can improve diagnosis. Such a product could tighten our diagnostic targeting of cancer and improve patient experience. Our product is an advanced surgical pathology device and method to bring rapid diagnosis to the point of care. In our product, an innovative optical imaging device is combined with innovative healthcare software that integrates into the healthcare workflow with minimal re-structuring and minimal re-training of staff. Our long-term goal is to replace standard histopathology with this device. Our project investigates the potential of our device to improve patient satisfaction and reduce morbidity and mortality by serving as a preferable alternative to standard frozen histopathology in Mohs Surgery. Our Phase I specific aims are to show equivalent optical imaging performance (quantified by the resolution, contrast and signal-to-noise ratio) of our product compared to standard pathologic imaging and also show the potential for high throughput imaging and image processing, which will suggest superiority over standard pathologic imaging. Our Phase II Aim will be to generate a deployment prototype capable of supporting a multi-center clinical trial that will enable us to achieve FDA approval as a primary diagnostic.

Industry Contract (PI: Carucci) 10/30/17 – 5/30/20

PD-1 expression in aggressive squamous cell carcinoma in transplant patients: curing cancer while sparing the allograft

Cutaneous squamous cell carcinoma (SCC) is the second most common human cancer and is particularly aggressive in immune suppressed solid organ transplant recipients (OTRs). In many cases, SCC is cured by excision. However, immune suppressed solid organ transplant recipients (OTRs) develop catastrophic carcinomatosis, characterized by hundreds of rapidly growing SCCs, multiple lesions involving extensive body surface (>50%), and metastases rendering surgery impossible [4]. There are currently no curative or even effective medical treatments available. Checkpoint inhibitors including antibodies against programmed death-1 (PD-1) and CTLA-4 have been used successfully in melanoma. We described PD-1 expression in the SCC microenvironment along with PDL-1 and PDL-2 expression by SCC associated myeloid dendritic cells. We will define and manipulate the PD-1 axis in transplant associated SCC and define new treatment strategies for inoperable disease.

U18 TR002312-01 (Site PI: Carucci) NIH/NCI 09/20/2017-09/30/19

Non-destructive, high throughput cytometry for drug discovery using trimodal confocal images of novel, 3D printed skin carcinoma construct. We propose to develop a novel cytometry assay based on label-free, non-destructive, high-throughput confocal imaging, which allows longitudinal testing and comparison of effects for a wide array of target therapeutic molecules in parallel. Two aims are proposed: (Aim 1) Build and characterize a 3DBPS model of SCC. This aim creates imaging biomarkers based on clinical confocal SCC criteria, which mimic histologic SCC criteria in 3DBPS that accurately track therapeutic responses to chemotherapeutic agents in the SCC model as verified by histology;(Aim 2) Monitor drug response using imaging biomarkers defined for SCC 3DBPS

1R01CA193390-01 (PI: Carucci) NIH/NCI 05/01/2015-12/31/2018

Clinical translation of video assisted micrographic surgery for staged cancer removal

The major goal is to develop, refine, and validate a trimodal confocal imaging device that will provide sensitive and specific diagnosis of surgical margins immediately following cancer resection. The device will be validated through clinical trials concerning skin cancer removal defining a process designated Video Assisted Micrographic Surgery (VAMS).

Industry Contract GlaxoSmithKline (PI: Carucci) 06/01/2014-9/30/2017

Expression of MAGE-A3 by invasive squamous cell carcinoma

The goal of this project is to define expression of cancer testis antigen MAGE-A3 in invasive squamous cell carcinoma. Defining MAGE expression and function in squamous cell carcinoma will provide proof of principle for use of approved MAGE based cancer vaccine in trials for treatment of metastases from primary cutaneous squamous cell carcinoma with NYU-Langone as the primary site.

1R01CA18111-01 (PI: Schober, Co-I: Carucci) NIH/NCI 12/01/2013-11/30/2018

Regulation of cancer stem cell quiescence: Implications to tumor recurrence and therapy design
The major goal of this project is to identify and characterize growth-arrested and therapy resistant cancer cells in their native environment within intact tumors.

Cancer Research Institute (PI: Carucci) 07/01/15-09/30/17
Targeting the IL-22 axis for treatment of squamous cell carcinoma.

Project Narrative There are no effective non-surgical treatments for catastrophic carcinomatosis in transplant recipients. We have identified and successfully targeted an arm of the immune system, the IL-22 axis, that we have found promotes SCC growth within the precancerous field in transplant recipients and thus may stimulate early primary cutaneous SCC for further development into rapidly growing, biologically aggressive and potentially metastatic cancer. We have developed the means to target the T-22 axis and we will translate this into a novel therapeutic option for inoperable squamous cell cancer.

Orbuch & Brand Pilot Grant (PI: Carucci) 01/1/17-12/31/17

Developing Bi-specific T cell engaging (BiTE) antibodies and chimeric antigen receptor T cells (CAR-T) for treatment of inoperable squamous cell carcinoma. We initially defined expression of programed death ligand (PD-L1) in human cutaneous squamous cell carcinoma (SCC) and we successfully used a PD-1 inhibitor to treat inoperable SCC in a patient. We also recently defined MAGE-A3 as a unique SCC tumor antigen in human and murine SCC. We aim to isolate and sequence SCC associated cytotoxic T cells as a step toward developing bi-specific T cell engaging (BiTE) antibodies and chimeric antigen receptor T cells (CAR-T) to target PD-1 inhibition so it occurs only within tumor nests and not in organs at risk for autoimmune complications. PD-1 inhibitor use may be associated with autoimmune reactions against the patient's thyroid, pancreas, gut, and heart. This could result in hypothyroidism, insulin dependent diabetes, autoimmune colitis, and heart failure. We have the means to specifically target PD-1 inhibition to the cancer specific T

cells thus circumventing potential issues with thyroid, pancreas, gut, and heart thus preventing PD-1 inhibitor associated thyroiditis, diabetes, colitis, and heart failure. We plan to identify SCC specific effector T cells, inhibit their PD-1 engagement, and, target them to the SCC. CAR-T and BiTE technology require tumor specific targets. To that end we recently identified MAGE-A3 as specific to human and murine SCC. Thus, MAGE-A3 will serve as initial SCC specific target for CAR-T and BiTE experiments. We will proceed through 2 specific aims.

Social Profit Network (PI: Carucci) 02/01/17-01/31/18

Role of SS31 in metabolism and biological behavior of squamous cell carcinoma

The SS31 peptide (H-D-Arg-Dmt-Lys-Phe-NH2) is a novel cell permeable antioxidant specifically targeted to mitochondria which reduces mitochondrial reactive oxygen species (ROS) and preserves ATP production against oxidizing insults. SS31 binds cardiolipin, concentrates at the inner mitochondrial membrane and functions to optimize oxidative phosphorylation and electron transport between complex III and complex IV via cytochrome c. A growing body of evidence suggests that perturbations in mitochondrial metabolism may exert profound influence on cancer biology. Very little is known about effects of metabolic perturbations on the behavior of cutaneous squamous cell carcinoma (SCC). SCC will be diagnosed in ~750,000 people in the United States in 2017 and be responsible for ~10,000 disease specific deaths. SCC will bring a cost burden of over 2 billion dollars to the U.S. health care system next year. We have studied the squamous cell carcinoma microenvironment extensively for over a decade and have developed numerous in vitro and in vivo systems to define potential checkpoints in cancer development and evaluate novel therapeutics. One of our more recent findings resulted in a phase 2 multi-center clinical trial currently enrolling patients. We are poised to evaluate the effects of SS31 on SCC metabolism, proliferation, invasion, and migration. We will begin the evaluations looking at human and murine cell lines in vitro, with the goal of eventually extending these findings to our in vivo model systems. The goal would be clinical trials for treatment of inoperable or metastatic SCC.

Orbuch & Brand Pilot Grant (PI: Carucci) 04/16/2015-03/31/16

Identification of Biomarkers to Predict Metastasis from High Risk Primary Cutaneous SCC
Metastases from cutaneous squamous cell carcinoma [cSCC] are catastrophic and result in as many as 5000 deaths annually in the United States. Recent technological developments, enabling gene and protein analysis in large numbers of archival patient paraffin embedded specimens, will allow us to establish a unique molecular database of SCC in patients on whom corresponding clinical data are available. We will utilize a novel pilot strategy, possible due to the clinical volume and extensive experience of the Section of Dermatologic Surgery in the Department of Dermatology at NYU–Langone Medical Center in partnership with our Biorepository Core, in which we will identify biomarkers for subsequent metastasis in high risk T2 cSCC Cancer

NYU Cancer Center Support Grant P30CA016087 (PIs Carucci, Bhardwaj) 08/30/12-02/28/15
The major goal of this project is to determine the effect of CSA treatment on IL-22 expression in SKH-1 mice.

NYU Cancer Center P30CA016087 (Co-I Carucci) 01/01/2011-2/28/2013
The major goal of this project is to identify and culture human squamous cell carcinoma stem cells.

Dana Foundation Human Immunology Consortium Grant (PI: Carucci) 03/01/2007 - 06/30/2011
Dendritic cell and regulatory T cell subsets in catastrophic squamous cell carcinoma in transplant recipients.

The major goal of this project was to define the phenotype and function of dendritic cell subsets and regulatory T cells involved in the response to tumor antigens from human cutaneous squamous cell carcinoma.

Dermatology Foundation Career Development Award (PI: Carucci) 07/01/2003 - 06/30/2006
Identification of Epidemiological Risk Factors and Elucidation of Molecular Mechanisms Involved in Development of Catastrophic Cutaneous Carcinogenesis in Organ Transplant Recipients

The major goals of this project were to define unique molecular triggers for malignancy distinct from benign hyperproliferation as a basis to study catastrophic disease in transplant recipients and, in collaboration with the International Transplant Skin Cancer Collaborative, to create guidelines of care for transplant patients with squamous cell carcinoma and determine epidemiologic factors associated with catastrophic disease.

CLINICAL TRIALS

Completed Clinical Trials

Regeneron

R-2810-ONC 1787-840007 Intralesional Cemiplimab for Patients with Cutaneous Basal Cell Carcinoma. The goal is to evaluate PD-1 inhibitor as an intralesional neoadjuvant therapy for locally advanced inoperable primary cutaneous basal cell carcinoma. **Role: PI**

Incyte
INCB 86550-102 – Phase 1 study of oral PD-L1 inhibitor for inoperable basal cell carcinoma. Incyte Pharmaceuticals
Role: Co-PI

Regeneron

R2810-ONC-1540 CSCC: **Role: CO-I**
PD-1 inhibitor as a therapy for locally advanced or metastatic squamous cell carcinoma.
The goal is to evaluate PD-1 inhibitor R2810 as a therapy for locally advanced inoperable primary cutaneous squamous cell carcinoma or metastases from primary cutaneous squamous cell carcinoma.

R2810-ONC-1787: **Role: PI**
Phase 1 study of preoperative cemiplimab (REGN2810) administered intralesionally, for patients with recurrent cutaneous squamous cell carcinoma (cSCC). This is a phase 1, single-arm, open-label, dose-escalation pilot study (with cohort expansions) designed to evaluate the safety, tolerability, pharmacokinetics (PK), and antitumor efficacy of weekly intralesional injections of cemiplimab in patients with resectable CSCC.

LDE 225 for metastatic or locally advanced basal cell carcinoma.
Novartis
November 2011- 2017
Role: Sub-Principal Investigator
The goal of the trial is to evaluate the efficacy of smoothened inhibitor LDE 225 in treatment of locally advanced or metastatic basal cell carcinoma.

PN106 for treatment of actinic keratosis
November 2002 - December 2004.
Role: Principal Investigator
The goal of the study was to evaluate use efficacy of nucleotide therapy in suppression of proliferation and growth of precancerous actinic keratosis.

GRADUATE MEDICAL EDUCATION:

Program Director: ACGME Accredited Fellowship in Micrographic Surgery and Dermatologic Oncology, Ronald O. Perelman Department of Dermatology, NYU-LMC
2011-present
Description: Design, implement and administrate training of the Fellow in Micrographic Surgery and Dermatologic Surgery. The goal is to train the fellow in all aspects of tumor removal, advanced reconstruction, and overall management of the patient with complex skin cancer.
Accomplishments: Maximum 10-year accreditation cycle granted in 2013

Program Director: ACGME Accredited Residency in Dermatology Department of Dermatology, Weill Medical College of Cornell
2005-2010
Description: Design, implement and oversee the training of Residents in Dermatology. The goal was to guide them to expertise and mastery of diagnosis and treatment of diseases of the skin, hair, and nails.
Accomplishments: Maximum 5-year accreditation cycle granted in 2009

Development of Dermatologic Surgery Curriculum
Ronald O. Perelman Department of Dermatology, NYULMC

2011-present Description: Developed and delivered core curriculum in dermatologic surgery following:

Skills Lab Development Series I recently developed and am in the process of delivering and evaluating a series of surgical skills development sessions for PGY2 Dermatology residents. Evaluation will be objective with the goal of developing and refining an ongoing skills lab curriculum enabling junior residents to develop and refine core and advanced surgical skills

Lecture Series – each of the following lectures is given to dermatology residents annually

1. Introduction to dermatologic surgery
2. Surgical anatomy and danger zones
3. Biopsy techniques
4. Wound repair
5. Reconstruction: advancement and rotation flaps
6. Reconstruction: transposition flaps and skin grafts
7. Reconstruction: interpolation flaps
8. Basal and squamous cell carcinoma of the skin
9. Melanoma management
10. Management of less common skin cancers
11. Surgery of the nail unit
12. Eyelid biopsy and surgery
13. Introduction to laser surgery
14. Toxins and fillers
15. Surgery board review

Journal Club

Resident surgery Journal Club is held on a bimonthly basis. MSDO Journal Club is held monthly. Articles discussed include recent advances in cutaneous oncology, skin and soft tissue defect reconstruction, wound healing, and basic sciences relevant to dermatologic surgery. Articles may be chosen from *Cancer Research*, *JAMA Dermatology*, *Plastic and Reconstructive Surgery*, *Journal of Plastic Surgery*, *Dermatologic Surgery*, *Journal of the American Academy of Dermatology*, *Journal of Investigative Dermatology*

UNDERGRADUATE MEDICAL EDUCATION:

NYU Langone Grossman School of Medicine - First Year Medical Student Gross Anatomy Course “Head and Neck Anatomy Section.

COMMITTEE MEMBERSHIPS:

National Societies:

Appropriate Use Criteria (AUC) for Work-up and Management of Cutaneous SCC (2019-21)

American College of Mohs Surgery

1. Member, 2000 –present
2. Education Committee (2013-2015)
3. Board of Directors (2012-15)
4. Chair, Annual Meeting of the American College of Mohs Surgery (Chicago, 2018)
5. High-Risk Skin Cancer Collaborative Research Task Force (2021-2022)
6. Fellowship Training Committee (2022-2025)
7. Membership Committee Vice Chair 2025-26
8. Secretary-Treasurer ACMS 2025-2026
9. Executive Council ACMS 2025-2029 (will Vice President 2026-2027, President 2027-2028.

American Academy of Dermatology

1. Member - 1996-present
2. Health Industry Liaison Committee (1998-2001)
3. Bioterrorism Task Force (2001-4)
4. Melanoma/Nonmelanoma Skin Cancer Committee (Member, 2002-4)
5. Melanoma/Nonmelanoma Skin Cancer Committee (Committee Chairman 2005-9)
6. National Quality Measures Development Committee (2013-present)
7. Appropriate Use Criteria (AUC) for Work-up and Management of Cutaneous SCC (2019-21)

International Transplant Skin Cancer Collaborative

1. Member, 2002-present
2. Chair, Research Committee (2004-7)
3. Secretary-Treasurer (2007-2010)
4. Member, Board of Directors (2011-16)
5. President, 2018-2020
6. President Emeritus 2020-2022

American Board of Dermatology

1. Certified 1998
2. Recertification Committee, Dermatologic Surgery Module (2002-6)
3. Recertified 2008
4. ABD Surgical Dermatology Committee 2018- present

American Society for Dermatologic Surgery

1. Member, 2000-present
2. Preceptorship Program Committee (2006-9)
3. ASDS Preceptor 2009-present
4. Research Committee 2017-present

American Medical Association

1. Member, 2011-present

Institutional and Departmental Committees:

1. Clinical Core Competencies Committee, Department of Dermatology NYU Langone Medical Center Member, 2013-present
2. Promotions and Credentialing Committee, Department of Dermatology NYU Langone Medical Center Member, 2013-present
3. Residency and Fellowship Committee, Department of Dermatology, NYU Langone Medical Center Member, 2011-present
4. Graduate Medical Education Committee, NYU Langone Medical Center Member 2011- present
5. Graduate Medical Education Committee, Weill Cornell Medical College Member, 2006-2010
6. Physicians Organization Finance Committee, Weill Cornell Medical College Member, 2005-2009
7. Quality Assurance Committee, Department of Dermatology, Weill Cornell Medical College, Chairman, 2003-2006
8. Clinical Oncology Operations Committee, New York Presbyterian Hospital Member, 2001-2005

Other Departmental and Institutional Responsibilities

1. Residency Applicant Selection and Interviews, Department of Dermatology, 2011-present. Each year, committee members screen over 500 applications and participate in a 3-day interview process to select the incoming PGY-2 class
2. Dermatologist for Facial Transplant Team, 2014-present

Mentorship

Name	Period	Position	Current Status
Asifa Haider, PhD	2003-2006	Postdoctoral Fellow	Scientific Review Officer, Cancer Diagnostics and Treatments (CDT) SBIR/STTR SEP National Institutes of Health, Bethesda, MD
Sarah Arron, MD, PhD	2003	Student	Associate Professor of Dermatology Director, High Risk Skin Cancer Program Department of Dermatology, UCSF
Helen Kaporis, DO	2005-2006	Student	Dermatologist, Methodist Health System Mansfield, TX
Lisa Zaba, MD, PhD	2006-2009	Student	Clinical Associate Professor, Department of Dermatology Stanford
Mark Bluth, PhD	2006-2009	Postdoctoral Fellow	Senior Scientist, Genome Dynamics
Linda Fan, MD	2006-2007	Student	Clinical Assistant Professor, Department of Emergency Medicine SUNY-Health Science Center
Alex Pitts-Keiffer, MD	2007-2008	Student	Anesthesiologist, Medstar Georgetown University Hospital, Greenbelt, Maryland
Julia Pettersen Neckman, MD	2009-2010	Student	Dermatologic Surgeon, Emory, Saint Joseph's Hospital, Atlanta, GA
Dan Belkin, MD	2010-2011	Student	Dermatologist, Laser and Skin Surgery Center of New York
Erika Billick, MD, PhD	2011-2013	Student	Resident in Pathology, SUNY-HSCB (Class of 2016)
Shali Zhang, MD	2011-2102	Student	Dermatologist Richmond Medical Center Richmond California
Valerie Yanofski, MD	2012-2013	Student	Dermatologist, Toronto Dermatology Center
Hideki Fujita, MD, PhD	2006-2010	Visiting Scientist	Associate Professor, Department of Dermatology, Nihon University
Hiroshi Mitsui, MD, PhD	2007-2013	Visiting Scientist	Associate Professor, Department of Dermatology, Faculty of Medicine, University of Yamanashi
Jesse Lewin, MD	2014-2015	Surgery Fellow	Associate Professor, Chief of Micrographic Surgery and Dermatologic Oncology, Mt. Sinai School of Medicine
Mary Stevenson, MD	2015-2016	Surgery Fellow	Associate Program Director, Fellowship in Micrographic Surgery and Dermatologic Oncology, Associate Professor of Dermatology, NYU-Langone
Aga Thompson, MD	2016-2017	Surgery Fellow	Director Skin Cancer Surgery Aspirus Health System, Wausau, WI
Adam Blechman, MD	2017-2018	Surgery Fellow	Director Dermatologic Surgery Hunterdon Medical Center, Flemington, NJ
Theresa Canavan, MD	2018-2019	Surgery Fellow	Director of Micrographic Surgery Cutaneous Oncology VAMC, UC Davis
Reason Wilken, MD	2019-2020	Surgery Fellow	Micrographic Surgeon, Assistant Professor of Dermatology – Northwell, New York
Stephanie Jackson	2020-2021	Surgery Fellow	Micrographic Surgeon, Assistant Professor, Thomas Jefferson Medical College, Philadelphia, PA
Nicholas Frazzette	2019-2020 2021-2022	Medical Student	Resident, Department of Pathology, Grossman School of Medicine NYU
Marianna Babadzhanov	2020-2022	Student	MS4, SUNY-Brooklyn
Arda Celen	2020-22	Student	Dermatology Resident, NYU
Stephanie Jackson MD, PhD	2020-21	Surgery Fellow	Assistant Professor, Micrographic Surgery and Dermatologic Oncology, Thomas Jefferson School of
Maressa Criscito MD,	2019-2021 2021-2022	Resident Surgery Fellow	Assistant Professor of Dermatology, NYU-Langone Director Mohs Surgery, Bellevue Hospital

Mohamed Dani, MD, PhD	2022-2023	Surgery Fellow	Director Dermatologic Surgery Virginia Commonwealth University
Kate Shaw, MD, PhD	2020-23	Resident	Assistant Professor of Dermatology, U. Penn.
Pricilla Kojder, MD	2023-24	Surgery Fellow	Micrographic surgeon, Dallas Affiliated Dermatology
Michele Jaurez	2024-25	Resident Surgery Fellow	Micrographic Surgeon, Director of Surgical Education St. Luke's University Health Network Easton, PA.
Ashley Riddle	2025-26	Surgery Fellow	MSDO Fellow NYU

REVIEWER

1. NIH ACTS Study Section
2. Center for Scientific Review, National Institutes of Health, Special Emphasis Panel/Scientific Review Group 2013/05 ZRG1 BCMB-A
3. Bart's Charity

Proceedings of the National Academy of Sciences, Journal of Experimental Medicine, *Journal of Investigative Dermatology, Journal of Immunology*, *Clinical Immunology and Immunopathology, JAMA Dermatology*, *Journal of the American Academy of Dermatology, Dermatologic Surgery*, *Facial Plastic Surgery, Neoplasia*

SELECTED PRESENTATIONS:

2025 American College of Mohs Surgery, Nashville TN. “Surgical complications and resolution”

Huntsman Cancer Center, Salt Lake City, UT. “Translating the squamous cell carcinoma microenvironment and improving outcomes” “Interpolation flap reconstruction after removal of aggressive skin cancers”

International Society of Dermatologic Surgery Abu Dabhi, UAE “Multistage reconstruction of complex nasal defects”

American Society for Dermatologic Surgery, Chicago IL. “Multitiered reconstruction of through and through nasal defects”

2024

International Society for Dermatologic Surgery, Taiwan. “Paramedian Forehead Flaps in Nasal Reconstruction”, “Management of Aggressive SCC in Immune Compromised Patients”

American Society for Dermatologic Surgery, Orlando FL. “Breaking Bad, Surgical Complications”

International Trasnplant Skin Cancer Collaborative, Essex, MA. “Establishing and Maintaining Translational Research in Skin Cancer

American Academy of Dermatology, San Diego, CA. Masters of Surgery, “Full thickness defect reconstruction”

American College of Mohs Surgery, Phoenix , AZ. Scientific Abstracts

2023 Visiting International Expert. Singapore General Hospital, National Cancer Center Singapore, National University Hospital Singapore, National Skin Centre Singapore

Lecture 1: “Skin Cancers Burden Worldwide, and the role of dermatologists (Primary, Secondary, Tertiary Prevention)”
Lecture 2: “Squamous Cell Carcinoma of the Skin/ Other rare tumors of the skin”
Lecture 3: “Skin Care for Organ Transplant Recipients”
Lecture 4: Reconstruction of challenging sites post skin cancer surgery
Lecture 5: “Forming Collaborative Networks for Skin Care in Immunocompromised Hosts”
Lecture 6: “The path to a successful Clinician Scientist Career in Dermatology”

2023 Greek Dermatologic Surgery Society, Athens, Greece, “Complex facial reconstruction”, “Regional Reconstruction”, “The Future of Dermatologic Surgery”

2023 American College of Mohs Surgery, Seattle, WA, “Reconstruction: complex and simple”; Plenary Session: Managing Aggressive Squamous Cell Carcinoma

2022 International Society for Dermatologic Surgery, Thessaloniki, Greece “Complex Nasal Reconstruction” “Cheek Reconstruction”

2022 American Academy of Dermatology, Boston, MA
“Field disease in cutaneous squamous cell carcinoma”

2022 American College of Mohs Surgery, Philadelphia, PA
“Reconstruction power hour”

2021 University of Mississippi Medical College Visiting Professor
“Translating the skin cancer immune microenvironment”
“Interpolation flaps in post Mohs reconstruction”

2020 Tisch Cancer Institute Icahn School of Medicine at Mount Sinai Cancer Center
"Translating the cancer ecosystem into therapy"

2020 Visiting Professor: University of Tennessee Health Science Center
"Translational solutions to aggressive squamous cell carcinoma"
"Advanced reconstruction after removal of skin cancer"

2020 Annual Meeting of the Southern Dermatologic Association, Keynote Speaker
"Immune microenvironment in squamous cell carcinoma"

2019 American Society for Dermatologic Surgery
"Management of aggressive squamous cell carcinoma"
"Repair of complex perioral defects"

2019 Skin Cancer Organ Patients Europe, Barcelona
"A Novel Analytic Solution to T-Cell Receptor Sequencing and Gene Expression Profiling Shows Transitory T Cell Phenotype Associated with High Risk Cutaneous Squamous Cell Carcinoma in Transplant Recipients"

2019 Association of Professors of Dermatology
"Developing a translational research program"

2019 Visiting Professor University of Maryland
"Translational approach to aggressive squamous cell carcinoma"
"Advanced reconstruction after removal of skin cancer"

2019 Mt. Sinai Surgery Symposium "How would you reconstruct it?

2019 Society for Investigative Dermatology, Chicago, IL

2019 American College of Mohs Surgery Annual Meeting, Baltimore, MD.
"Pedicle flaps for ear reconstruction"
"Defining the Cutaneous Squamous Cell Carcinoma T Cell Landscape"

2019 Visiting Professor SUNY-Health Science Center at Brooklyn
"Squamous cell carcinoma- bench to bedside"
"Pedicle Flaps in repair of complex defects"

2019 International Immunosuppression Transplant Skin Cancer Collaborative Annual Meeting
Washing Press Club, Washington, DC "President's Address"

2019 American Academy of Dermatology, Washington DC
"Scar Revision"

2018 International Immunosuppression Transplant Skin Cancer Collaborative Biennial Retreat Essex, MA
"Ruxolitinib inhibits cyclosporine induced proliferation of squamous cell carcinoma"
"Single-cell sequencing of Human cSCC TILs: Cancer associated CD8+ T-regs"

2018 American Academy of Dermatology Summer Meeting, Chicago IL
"Advances in Transplant Dermatology"

2018 American College of Mohs Surgery, Chicago, IL.
Annual Meeting Program Chairman
"Repair of defect of the lip, ala, and cheek." "cross finger flap" "Stratification of Poor Outcomes for Cutaneous Squamous Cell Carcinoma in Immunosuppressed Patients using American Joint Committee on Cancer Eighth Edition and Brigham and Women's Hospital Staging Systems"

2018 American Academy of Dermatology, Washington, DC. "Management of patients with multiple cancers"

2018 Advances in Facial Plastic Surgery Mt. Sinai School of Medicine, New York "How would you reconstruct it?"

2019 Society for Investigative Dermatology / IID. Orlando, FL "Ruxolitinib inhibits cyclosporine a (CSA) induced proliferation of squamous cell carcinoma (SCC): Implications for treating catastrophic SCC in organ transplant recipients (OTRs)." "Cancer testis antigen melanoma-associated antigen A3 (MAGE-A3) promotes cutaneous squamous cell carcinoma growth in vivo." "A metabolic assay to assess human T-cell activation in squamous cell carcinoma"

2017 Visiting Professor, Dell Medical School, University of Texas at Austin

American Society for Dermatologic Surgery, Chicago, IL. "Multidisciplinary management of aggressive skin cancers"

Visiting Professor, Department of Dermatology, Stony Brook University Hospital

Mt. Sinai Surgery Symposium "How would you reconstruct it?"

American College of Mohs Surgery, San Francisco, CA "Reconstructive Surgery"

American Academy of Dermatology, Orlando, FL "How would you reconstruct it?"; "Management of patients with multiple or complex cancers"; "Advanced scar revision"

2016 American Society for Dermatologic Surgery, New Orleans, LA. "Iron Surgeon".

Multidisciplinary management of complex cancers"

Society for Investigative Dermatology, Scottsdale, AZ.

"The IL-22 Axis in Cutaneous SCC"; "Cyclosporine A immunosuppression drives catastrophic squamous cell carcinoma through Interleukin-22"; "Defining gene expression profiles for subtypes of high-risk squamous cell carcinoma [SCC] using RNA from formalin fixed paraffin embedded specimens"

2016 Mt. Sinai School of Medicine Course in Advanced Surgery "How would you reconstruct it?"

2015 American College of Mohs Surgery, Napa, CA. Masters of Reconstruction

2015 American College of Mohs Surgery, Napa, CA. New Developments in SCC

2015 American College of Mohs Surgery, Napa, CA. Instructor in Facial Reconstruction Cadaver Course

2015 Visiting Professor: SUNY-Health Science Center at Brooklyn

2015 American Society of Dermatologic Surgery, Chicago, IL
Staged Repairs in Dermatologic Surgery; Masters of Closure

2015 World Congress of Dermatology –Vancouver, B C . Controversies in dermatologic surgery

2015 World Congress of Dermatology –Vancouver, BC Management of Aggressive Squamous Cell Carcinoma

2015 American College of Mohs Surgery, San Antonio, TX. Master's Panel

2015 Mt. Sinai Advances in Dermatologic Surgery- Dermatologic Oncology

2015 American Academy of Dermatology, San Francisco
CA "Skin Cancer Surgery and the Transplant Recipient"

2014 World Congress of Skin Cancer, Edinburgh Plenary Lecture entitled "Dendritic cells in the tumor microenvironment"

2014 American Academy of Dermatology, Chicago, IL. Anatomy and surgical technique; Tumor Board

2014 American College of Mohs Surgery, Phoenix, AZ Management of advanced nonmelanoma skin cancer2014 Mt. Sinai Advances in Dermatologic Surgery Complex defect repair

2014 NYU Advances in Dermatology - Staged repairs

2013 American College of Mohs Surgery, San Diego, CA "What's new in melanoma management"

2013 ASDS, Chicago, IL. Multidisciplinary management of complex cancers

2013 Visiting Professor Albert Einstein College of Medicine, Bronx, NY

2013 Visiting Professor SUNY Health Science Center at Brooklyn, NY

2013 American Academy of Dermatology Summer Meeting - Tumor Board

2013 American Academy of Dermatology; Facial Reconstruction

2013 American College of Mohs Surgery Management of aggressive SCC

2012 Visiting Professor Case Western Reserve University, Cleveland, OH "Molecular basis for catastrophic skin cancer"

2012 American Society for Dermatologic Surgery, Chicago, IL "Interpolation Flap Repair"

2012 American Society for Dermatologic Surgery, Chicago, IL "Smoothened inhibitors for advanced BCC"

2012 American Academy of Dermatology, Boston, MA Staged Repairs for Facial Reconstruction

2011 American Academy of Dermatology – NY, NY Advanced Reconstructive Surgery

2011 American Academy of Dermatology – NY, NY Surgical Management of Facial Melanomas

2010 Visiting Professor, Department of Dermatology, Yale

2010 American Academy of Dermatology, Chicago IL, Multidisciplinary Management of Aggressive Skin Cancers"

2010 American Academy of Dermatology, Miami, FL "Advanced Reconstruction of the Ear"

2010 American College of Mohs Surgery, New York, NY, "Staged Melolabial Interpolation Flap"

2010 American College of Mohs Surgery, New York, NY, "Macrophage-derived VEGF-C in SCC"

2009 Visiting Professor, NYU, "Immune Pathogenesis of SCC"

2009 World Congress for Skin Cancer, Tel Aviv, "Th22 Responses in SCC"

2009 American Academy of Cancer Research, Denver, CO, "T cell and dendritic cell interactions in primary cutaneous SCC"

2009 American Academy of Dermatology, San Francisco, CA, Nonmelanoma Skin Cancer, Transplant Oncology

2009 American College of Mohs Surgery, Austin TX, Tumor Board

2008 Visiting Professor, Albert Einstein College of Medicine, NY,

2009 "Advanced Reconstruction"

2008 Visiting Professor, St. Luke's-Roosevelt, New York, NY "Mechanisms of Carcinogenesis in Primary Cutaneous SCC".

2008 American Academy of Dermatology, Chicago, IL, "Interpolation Flap Repair"

2008 American College of Mohs Surgery, Vancouver. "Cutaneous Oncology Update"

2008 American Academy of Dermatology, San Antonio TX, "Non-melanoma skin cancer"

2007 Visiting Professor**,** Mayo Clinic, Department of Dermatology Department of Transplant Surgery Rochester, MN. "Transplant oncology"

2007 Visiting Professor**,** Brown, Providence, RI. "Transplant skin cancers"

2007 ASDS, Chicago, IL. "Advanced reconstruction", "aggressive tumors"

2007 Dermatology World Congress, Buenos Aires, Argentina. "Staged repairs"

2007 American Academy of Dermatology, Washington, DC. "Advanced topics in nonmelanoma skin cancer"

2007 American College of Mohs Surgery, Naples, FL. "Tumor Board"

2006 ASDS. Palm Desert, CA. "Advanced facial reconstruction"

2006 American Academy of Dermatology, San Francisco, CA. “Advances in nonmelanoma skin cancer”

2006 American College of Mohs Surgery and Cutaneous Oncology, Scottsdale, AZ. “Melanoma in transplant recipients”

2006 Visiting Professor**,** Department of Dermatology, Albert Einstein School of Medicine, “Reconstruction after Mohs surgery for skin cancer”

2006 World Transplant Congress, Boston, MA. “Aggressive carcinogenesis in transplant recipients”

2006 Visiting Professor, Department of Dermatology, Penn State University Hershey, PA. “Mechanisms responsible for aggressive nonmelanoma skin cancer” “Advanced reconstructive surgery”.

2006 Visiting Professor, Department of Dermatology, SUNY-Brooklyn, “Aggressive skin cancer – bedside to bench and back”, “Flap and graft reconstruction”.

2005 Visiting Professor, Department of Dermatology Emory

2005 American Academy of Dermatology, New Orleans, LA. “SCC in transplant recipients”

2005 American Academy of Dermatology, New Orleans, LA. “In transit metastatic SCC”

2005 American Academy of Dermatology, New Orleans, LA. “Mohs surgery for melanoma”

2004 American College of Mohs Micrographic Surgery and Cutaneous Oncology San Diego, CA. “Bilobed Flap repair” (video)

2004 American College of Mohs Surgery, San Diego, CA. “Island Pedicle flap” (video)

2004 American College of Mohs Surgery, San Diego, CA. “Molecular fingerprint of squamous cell carcinoma”

2004 American College of Mohs Surgery, San Diego, CA. “In transit metastases from SCC”

2004 American Society of Facial Plastic and Reconstructive Surgery, New York, NY. “Laser surgery for vascular lesions”

2004 American Academy of Dermatology Washington, DC, “Reconstructive Surgery”

2003 Visiting Professor, Albert Einstein SOM “Management of Skin Cancer in Organ Transplant Recipients”

2003 American Academy of Dermatology, Flap and Graft Reconstruction after Mohs Surgery

2002 Visiting Professor, New York Medical College, Department of Dermatology “Mohs and Reconstructive Surgery for Nonmelanoma Skin Cancer”

2002 8th International Symposium of Facial Plastic Surgery, New York, NY, “Superficial and medium depth chemical peels”

2001 Visiting Professor Columbia Presbyterian Department of Otolaryngology “Mohs Micrographic Surgery for Skin Cancer”

2000 American Academy of Dermatology, Anaheim, CA,

2001 “Basic reconstruction: planning the repair”

2002 American Society of Dermatologic Surgery, Denver, CO, “Lentigo maligna, the dermatologic surgeon’s perspective”

2000 American College of Mohs Surgery and Cutaneous Oncology, Denver, CO, “Human cadaveric allograft repair of nasal defects after Mohs micrographic surgery”

2000 American College of Mohs Surgery and Cutaneous Oncology, Denver, CO, “Evaluation of permanent sections from tissue blocks from Mohs micrographic surgery may alter postoperative management.”

1999 American Academy of Dermatology, New Orleans, LA. PACAP suppresses dendritic cell function.”

1998 5th International Symposium on Dendritic Cells in Fundamental and Clinical Immunology, Pittsburgh, PA. “CGRP Decreases Expression of HLA-DR and CD86 by Dendritic Cells and Suppresses T cell Proliferative Responses to Tetanus Toxoid.”

SOFTWARE DEVELOPMENT:

Alireza Khodadadi-Jamayran, Joseph Pucella, Hua Zhou, Nicole Doudican, **John Carucci**, Adriana Heguy, Boris Reizis, Aristotelis Tsirigos
iCellR: Analyzing High Throughput Single Cell Sequencing Data
iCellR is iCellR: Analyzing High-Throughput Single Cell Sequencing Data
A toolkit that allows scientists to work with data from single cell sequencing technologies such as scRNA-seq, scVDJ-seq and CITE-Seq. Single (i) Cell R package ('iCellR') provides unprecedented flexibility at every step of the analysis pipeline, including normalization, clustering, dimensionality reduction, imputation, visualization, and so on. Users can design both unsupervised and supervised models to best suit their research. In addition, the toolkit provides 2D and 3D interactive visualizations, differential expression analysis, filters based on cells, genes and clusters, data merging, normalizing for dropouts, data imputation methods, correcting for batch differences, pathway analysis, tools to find marker genes for clusters and conditions, predict cell types and pseudotime analysis. *https://github.com/rezakj/iCellR*

PEER REVIEWED ORIGINAL PUBLICATIONS:

1. Dermatologic Oncology: The Past 50 Years. Tvedten E, Jennings T, Alam M, Carr D, Carucci J, Council L, Eisen D, Lawrence N. Dermatol Surg. 2025 Oct 1;51(10):919-929.PMID: 40932133
2. Performance of Staging Systems for Non-head and Neck Cutaneous Squamous Cell Carcinoma. Voller LM, Hirotsu KE, Aasi SZ, Nikahd M, Ruiz E, Ran N, Granger EE, Koyfman S, Vidimos A, Wysong A, Carucci JA, Carter JB, Cañueto J, Girardi FM, Mangold AR, Srivastava D, Brodland DG, Zitelli JA, Willenbrink TJ, Shahwan KT, Carr DR. Am J Clin Dermatol. 2025 Sep 25. PMID: 40996598
3. Impact of Immunosuppression on Cutaneous Squamous Cell Carcinoma Outcomes. Klein JC, Shahwan KT, Petric UB, Mallela T, Voller L, Ruiz E, Ran N, Granger EE, Koyfman S, Vidimos A, Wysong A, Hirotsu K, Carucci JA, Carter JB, Cañueto J, Girardi FM, Mangold AR, Brodland DG, Zitelli JA, Willenbrink TJ, Lotter W, Jeanselme V, Nikahd M, Nijhawan RI, Srivastava D, Carr DR. J Am Acad Dermatol. 2025 Sep 18:S0190-9622(25)02830-0. PMID: 40975132
4. Retrieval Augmented Generation-Enabled Large Language Model for Risk Stratification of Cutaneous Squamous Cell Carcinoma. Jairath NK, Pahalyants V, Cheraghlou S, Maas D, Lee N, Criscito MC, Stevenson ML, Mehta A, Leibovit-Reiben Z, Stockard A, Doudican N, Mangold A, Carucci JA. JAMA Dermatol. 2025 Aug 1;161(8):796-804. PMID: 40498504
5. Lymphovascular invasion is an independent predictor of metastasis and disease-specific death in cutaneous squamous cell carcinoma: A multicenter retrospective study. Hirotsu KE, Aasi SZ, Samson KK, Zheng C, Nazaroff JR, Voller LM, Ruiz ES, Ran NA, Granger EE, Koyfman SA, Vidimos AT, Carr DR, Shahwan KT, Carucci JA, Carter JB, Cañueto J, Girardi FM, Mangold AR, Srivastava D, Brodland DG, Zitelli JA, Willenbrink TJ, Wysong A. J Am Acad Dermatol. 2025 Aug;93(2):368-377. PMID: 40253009
6. A multicenter validation study of Mohs micrographic surgery versus wide local excision in primary high-stage cutaneous squamous cell carcinoma. Wang DM, Ran NA, Granger EE, Koyfman S, Vidimos A, Wysong A, Carr DR, Shahwan KT, Hirotsu KE, Carucci JA, Carter JB, Cañueto J, Girardi FM, Mangold AR, Srivastava D, Nijhawan RI, Brodland DG, Zitelli JA, Willenbrink TJ, Ruiz ES. J Am Acad Dermatol. 2025 Aug;93(2):527-532. PMID: 40210096
7. Validation of Current Staging Systems in HNCSCC: A Multinational Cohort Study. Girardi FM, Wagner VP, Machado CDC, Wysong A, Ran NA, Granger EE, Koyfman SA, Vidimos AT, Carr DR, Shahwan KT, Hirotsu KE, Carucci JA, Carter JB, Mangold AR, Srivastava D, Brodland DG, Zitelli JA, Willenbrink TJ, Jambusaria-Pahlajani A, Nijhawan RI, Ruiz ES, Cañueto J. Head Neck. 2025 Jul 25. PMID: 40709408
8. Excision of Penile Squamous Cell Carcinoma Is Associated With High Rates of Positive Surgical Margins. Cheraghlou S, Pahalyants V, Jairath NK, Doudican NA, Carucci JA. Dermatol Surg. 2025 Jul 22. PMID: 40693659
9. Satellitosis or in-transit metastasis in cutaneous squamous cell carcinoma: Risk factors and the prognostic significance. Pahalyants V, Jairath NK, Maas DE, Cheraghlou S, Mandal S, Friedman S, Criscito MC, Lee N, Doudican NA, Ruiz ES, Ran N, Granger EE, Koyfman S, Vidimos A, Wysong A, Carr DR, Shahwan KT, Hirotsu KE, Carter JB, Cañueto J, Girardi FM, Mangold AR, Srivastava D, Brodland DG, Zitelli JA, Willenbrink TJ, Carucci JA. J Am Acad Dermatol. 2025 Jul 17:S0190-

9622(25)02482-X. PMID: 40683360
10. Mohs Micrographic Surgery for Melanoma. Burshtein J, Marson J, Shah M, Zakria D, DeBusk L, Rosenberg A, Rigel D, Carucci J. Dermatol Clin. 2025 Jul;43(3):473-482. PMID: 40581427
11. riSCC: A personalized risk model for the development of poor outcomes in cutaneous squamous cell carcinoma. Jambusaria-Pahlajani A, Jeanselme V, Wang DM, Ran NA, Granger EE, Cañueto J, Brodland DG, Carr DR, Carter JB, Carucci JA, Hirotsu KE, Karn EE, Koyfman SA, Mangold AR, Muradás Girardi F, Shahwan KT, Srivastava D, Vidimos AT, Willenbrink TJ, Wysong A, Lotter W, Ruiz ES. J Am Acad Dermatol. 2025 Jul;93(1):73-81. PMID: 40024391
12. Mohs micrographic surgery is non-inferior to wide local excision for disease specific survival in sebaceous carcinoma: analysis of the Surveillance, Epidemiology, and End Results (SEER) database (2000-2021). Pulavarty A, Liu L, Juarez M, Criscito MC, Lee N, Stevenson M, Carucci J. Arch Dermatol Res. 2025 Jun 11;317(1):806. PMID: 40498150
13. Risk Factor Number and Recurrence, Metastasis, and Disease-Related Death in Cutaneous Squamous Cell Carcinoma.Ran NA, Granger EE, Brodland DG, Cañueto J, Carr DR, Carter JB, Carucci JA, Hirotsu KE, Koyfman SA, Mangold AR, Girardi FM, Shahwan KT, Srivastava D, Vidimos AT, Willenbrink TJ, Wysong A, Ruiz ES. JAMA Dermatol. 2025 Jun 1;161(6):597-604.PMID: 40105853
14. Identifying the impact of minor risk factors in Brigham and Women's Hospital stage T1 cutaneous squamous cell carcinomas on risk of poor outcomes: A retrospective cohort study. Shahwan KT, Walker TD, Tan A, Ruiz E, Ran N, Granger EE, Koyfman S, Vidimos A, Wysong A, Hirotsu KE, Carucci JA, Carter JB, Cañueto J, Girardi FM, Mangold AR, Srivastava D, Brodland DG, Zitelli JA, Willenbrink TJ, Carr DR .J Am Acad Dermatol. 2025 Jun;92(6):1319-1326. PMID: 40010504
15. How We Do It: An Illustrative Biopsy Protocol for Preventing Wrong-Site Surgery. Bawany F, Kojder P, Carucci JA, Lee N. Dermatol Surg. 2025 Apr 1;51(4):453-454. PMID: 39513604
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MEDIA:

Television – *Good Day New Y*ork, *NBC Nightly News* - Interviewed regarding safety concerns pertaining to cosmetic laser surgery, increasing incidence of skin cancer in young adults, potential advances in the treatment of skin cancer
Magazines – Featured in *Cosmopolitan*, *Marie Claire*, *Chicago Life* (Featured expert on topics including skin cancer prevention and treatment)

HOBBIES/ INTERESTS:

Music – Multi instrumentalist; Voting member of *National Academy of Recording Arts and Sciences* (Grammy Awards).

Per Chat GPT “John Carucci is known for his skills as a guitarist, particularly within certain music communities. His style and technique may appeal to a variety of listeners.” “JC Docrock is recognized for his guitar skills, particularly in the rock and metal genres. He has a following and is known for his technical proficiency and engaging performances.”

Latest single “Take My Heart” with Tuesday’s Child, Free the Lightning (TC, full length album), Better Late Than Never (JC, 3 song EP), I Can’t Breathe (with Madeline Monet) available on all streaming formats.

Running, hiking, rock scrambling