

# The University of New Mexico Comprehensive Cancer Center

**The Official Cancer Center of the State of New Mexico**

**Consortium Partners: Lovelace Respiratory Research Institute,  
Los Alamos National Laboratory, Sandia National Laboratories**

**Leadership ABQ, Albuquerque Chamber of Commerce**



**Cheryl L. Willman, MD**

The Maurice and Marguerite Liberman Distinguished Chair in Cancer Research  
UNM Distinguished Professor of Pathology and Internal Medicine  
Director and CEO, UNM Comprehensive Cancer Center





## **15 YEARS AGO WE PROMISED**

**That with your support, we would build New Mexico's finest and most comprehensive cancer treatment program to assure that *all* New Mexicans would have access to world class cancer care and benefit from advances in cancer research, *right here*, in our home state, surrounded by families and friends who love and support them**

## **AND WE DELIVERED!**



**In 2015, the UNM Cancer Center Achieved Federal  
Designation as a  
National Cancer Institute Comprehensive Cancer Center**

**The UNM Comprehensive Cancer Center is One of Only  
45 Cancer Centers in the Nation (Top 3%) to Achieve  
“Comprehensive” Status and Certification**

# UNMCCC: Leadership Team

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**Cheryl Willman, MD**  
Director & CEO



**Richard Lauer, MD, FACP**  
Chief Medical Officer



**Olivier Rixe, MD, PhD**  
Associate Director,  
Clinical Research



**Alan Tomkinson, PhD**  
Associate Director,  
Basic Research



**Anita Kinney, PhD, RN**  
Associate Director,  
Cancer Population  
Sciences



**Scott Ness, PhD**  
Associate Director,  
Shared Resources



**Angela  
Wandering-Ness, PhD**  
Associate Director,  
Education, Training



**Carolyn Muller, MD**  
Associate Director,  
UNM Women's  
Cancer Center

# UNMCCC: Leadership Team

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**Linda Cook, PhD**  
Cancer Control  
Research Leader



**MaryAnn Osley, PhD**  
Cancer Genetics,  
Epigenetics & Genomics  
Research Leader



**Steve Belinsky, PhD**  
Cancer Genetics,  
Epigenetics & Genomics  
Research Leader



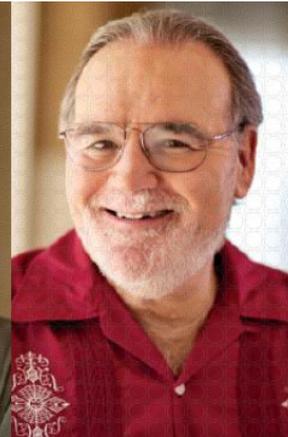
**Bridget Wilson, PhD**  
Translational Cancer  
Biology & Signaling  
Research Leader



**Eric Prossnitz, PhD**  
Translational Cancer  
Biology & Signaling  
Research Leader



**Renata Pasqualini, PhD**  
Cancer Therapeutics  
Research Leader



**Larry Sklar, PhD**  
Cancer Therapeutics  
Research Leader



**Wadih Arap, MD, PhD**  
Distinguished Scientist  
Translational Research



**Cosette Wheeler, PhD**  
Distinguished Scientist  
Public Health/Population  
Research

# UNMCCC: Senior Staff Leaders

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**Rodney Martinez**  
Chief Financial Officer

**Rae Ann Paden, MPH**  
Chief Administrative  
Officer



**Teresa Stewart, MHA**  
Administrative Director  
Clinical Research Office

**Melissa Fitzmaurice  
Neligan, MPH, CRA**  
Director, Research  
Administration

**Justin Schroer**  
Director of Development

# A National Comprehensive Cancer Center:

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1. Delivers the highest quality, integrated, cancer diagnosis and treatment by teams of cancer physicians (medical, surgical, gynecologic, pediatric, and radiation oncologists) who work together with nurses, pharmacists, and supportive care staff (nutrition, psychosocial support), to develop an individualized treatment plan for each of our patients.

*At UNMCCC: New Mexico's largest team of cancer physicians, 134 cancer doctors in every cancer specialty recruited from the finest medical schools in the nation, provide care to more than 11,000 cancer patients each year from every county in New Mexico in > 135,000 ambulatory clinic visits.*

# A National Comprehensive Cancer Center:

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2. Conducts world class cancer research, in our laboratories, clinics, and communities, to discover the causes and cures for cancers particularly affecting New Mexicans, to overcome New Mexico and the nation's cancer burden, and to promote economic development.

*At UNMCCC: Supported by \$72 million annually in federal and private research funds, 128 scientists work with partners at LANL, SNL, LLRI, and State Universities to discover the causes and develop more effective cancer treatments.*

*At UNMCCC: We have developed new diagnostics and drugs for leukemia, breast cancer, ovarian cancer, prostate cancer, liver and pancreatic cancer, brain cancer, and melanoma.*

*At UNMCCC: Since 2010, UNM cancer scientists have been awarded >50 new patents, with 117 patents pending, and have started 13 new biotechnology companies.*

# A National Comprehensive Cancer Center:

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3. Provides access to patients in its region to the newest and most effective cancer prevention and treatments in cancer clinical trials sponsored by the National Cancer Institute, Pharmaceutical Industry, and UNM Cancer Center.

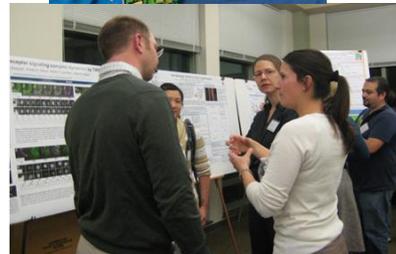
*At UNMCCC: Working with community health systems, we built the New Mexico Cancer Care Alliance, a statewide clinical trials network providing access to new cancer drugs and treatments in over 160 clinical trials each year. The NCI deemed this an “exemplary national model for cancer health care delivery.”*

# A National Comprehensive Cancer Center:

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4. Educates, trains, and mentors the next generation of cancer physicians, scientists, nurses, pharmacists, and healthcare professionals to assure that New Mexico and the nation have a highly qualified healthcare workforce.

*At UNMCCC: Since 2010, UNM has trained 276 cancer scientists (Masters, PhDs and fellows) and 158 cancer health care professionals (physicians, nurses, pharmacists).*



# UNM COMPREHENSIVE CANCER CENTER



## NEW PROJECTS AND PROGRAMS

- **CLINICAL FACILITY EXPANSION**
- **NEW CANCER CLINICAL SERVICE LINES**

# Expansion of UNMCCC Clinical Facility and New Cancer Programs:

- 2014: Project Approved by UNM Regents, HED, NM State Board of Finance
- 2015: \$12M Contract Awarded to Jaynes Corporation
- 11/15/2016: Completion

## 2<sup>nd</sup> Floor:

- The UNM Women's Cancer Center (Breast, GYN Cancers)
- Cancer Surgery Specialty Clinics (Orthopedic, GI/Liver, Thoracic Oncology):
  - Head and Neck Cancers with Dental Medicine and Maxillofacial Reconstructive Surgery
  - Genitourinary Cancers: Prostate, Bladder, Kidney

## 4<sup>th</sup> Floor:

- State's Only Accredited Bone Marrow /Stem Cell Transplantation and Cell-Based Immunotherapy Program
- Phase I (First in Human) Clinical Trials Unit
- Infusion Expansion (38 Additional Chairs; 66 Total)

## Additional Cancer Clinical Service Lines:

- Adolescent and Young Adult Cancer Clinic (Age: 15-30 Years)
- Neuro-Oncology Clinic: Brain and Spinal Cord Tumors
- Cancer Survivorship, Palliative Care, Rehabilitation Clinics



Matthew Fero, MD, PHD  
Fred Hutchinson Cancer Center

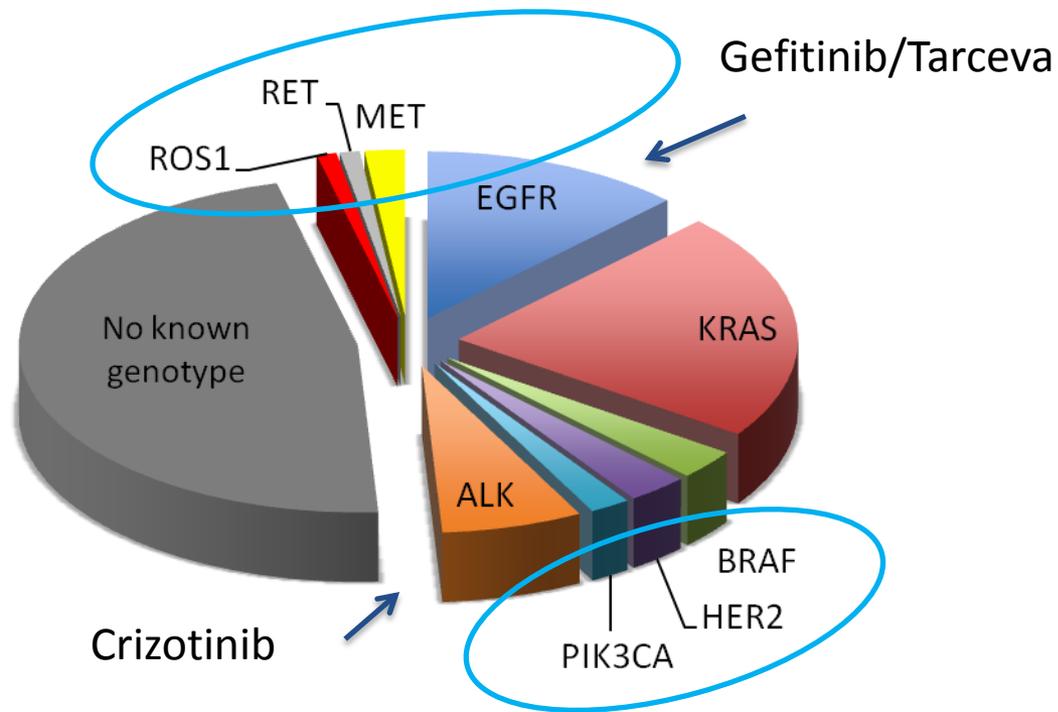
# UNM COMPREHENSIVE CANCER CENTER



## DELIVERING NEW CANCER TREATMENTS

- **PRECISION ONCOLOGY**
- **GENOMIC SEQUENCING OF HUMAN CANCERS**
- **NEW THERAPIES TARGETED TO SPECIFIC GENOME MUTATIONS**

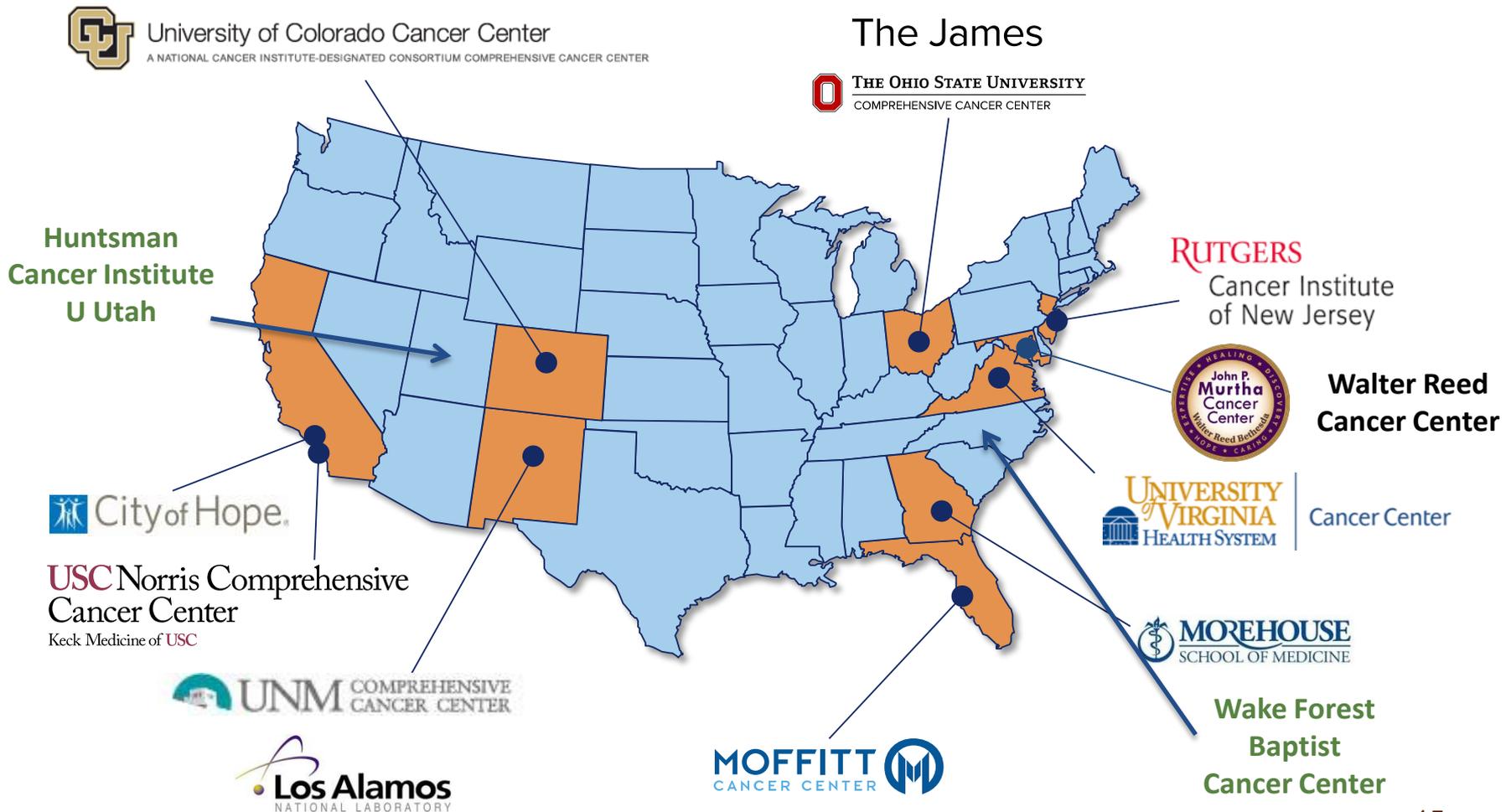
# New Mutations Discovered in Lung Cancer Can Have Dramatic Responses with Targeted Therapies



# Tumor Genome Sequencing to Targeted Therapy

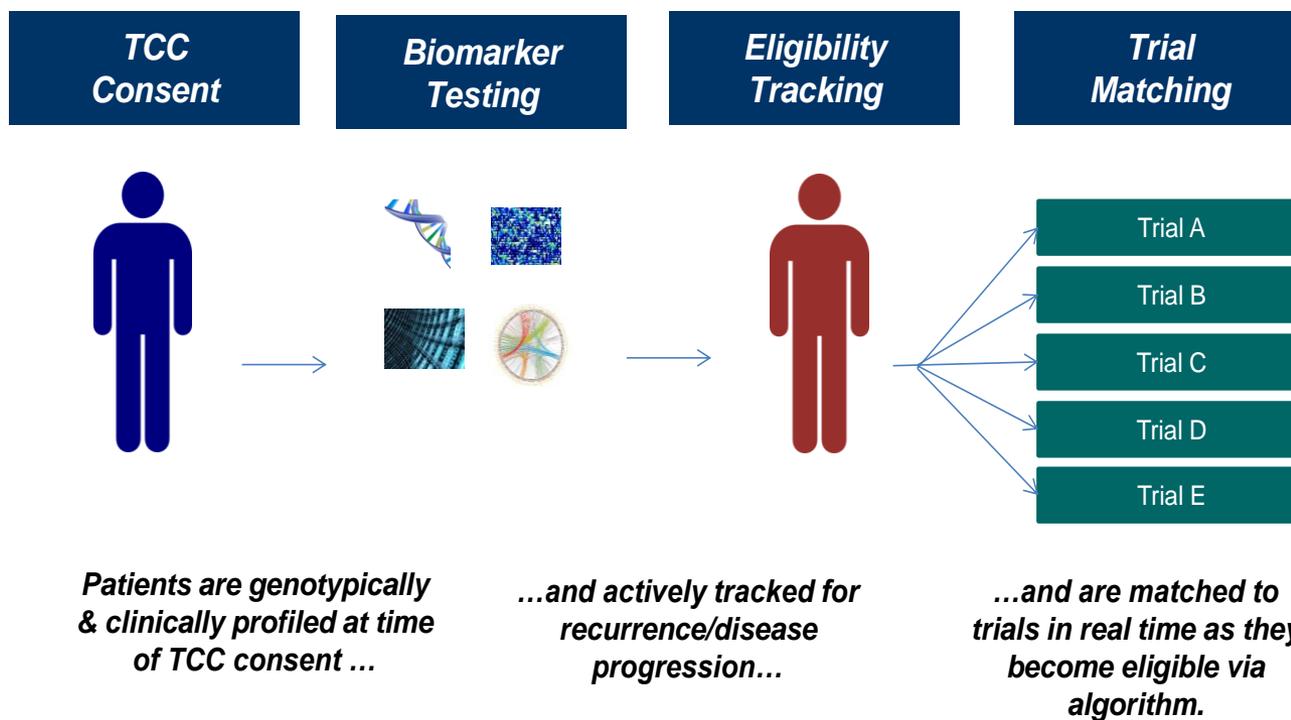
## Total Cancer Care / ORIEN Network

Collaboration of 18 of the Nation's Leading NCI Cancer Centers, The Military Cancer Center at Walter Reed, the Veteran's Administration Health System



# New Precision Cancer Medicine Clinical Trial Matching Opportunity: An Alliance of NCI Cancer Centers and Pharmaceutical Industry

*ORIEN is launching a “cohort surveillance” to actively track patients for enrollment to biomarker driven clinical trials*



# Accumulation of Somatic Mutations Mutational Signatures in Human Cancer

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Ludmil  
Alexandrov, PhD  
LANL (CGEG)  
Oppenheimer  
Fellow

Science /AAAS  
Top Scientist  
Under 30  
(Biomedicine)

## Current “Big Data” Capabilities at LANL:

- High throughput external network connection and capability to download petabytes of data from external sources
- High performance computational pipelines for cancer genomics analysis
- Current access for cancer genomics: 5PB data storage; “free” computational/CPU compute time
- Completed analysis of >35,000 cancer genomes (ICGC, TCGA)



# Known or Speculative Causes of Mutational Signatures



Tobacco smoking



# Known or Speculative Causes of Mutational Signatures

Tobacco  
chewing



# Known or Speculative Causes of Mutational Signatures



Ultraviolet  
light

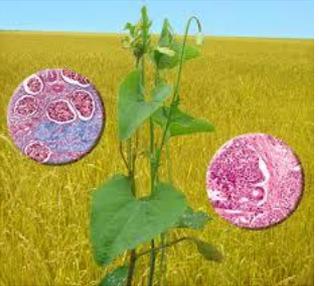


# Known or Speculative Causes of Mutational Signatures



Aflatoxin

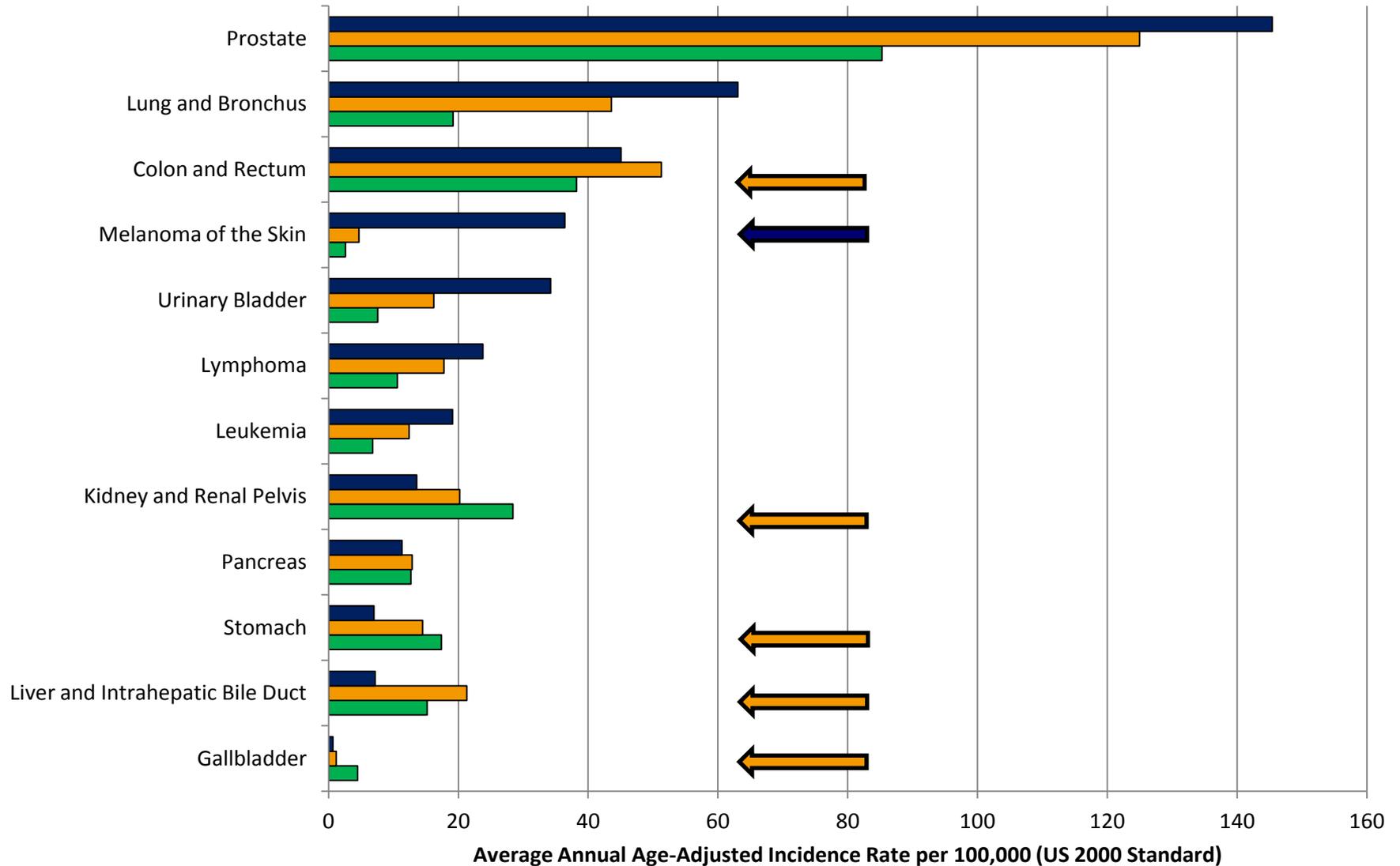
# Known or Speculative Causes of Mutational Signatures



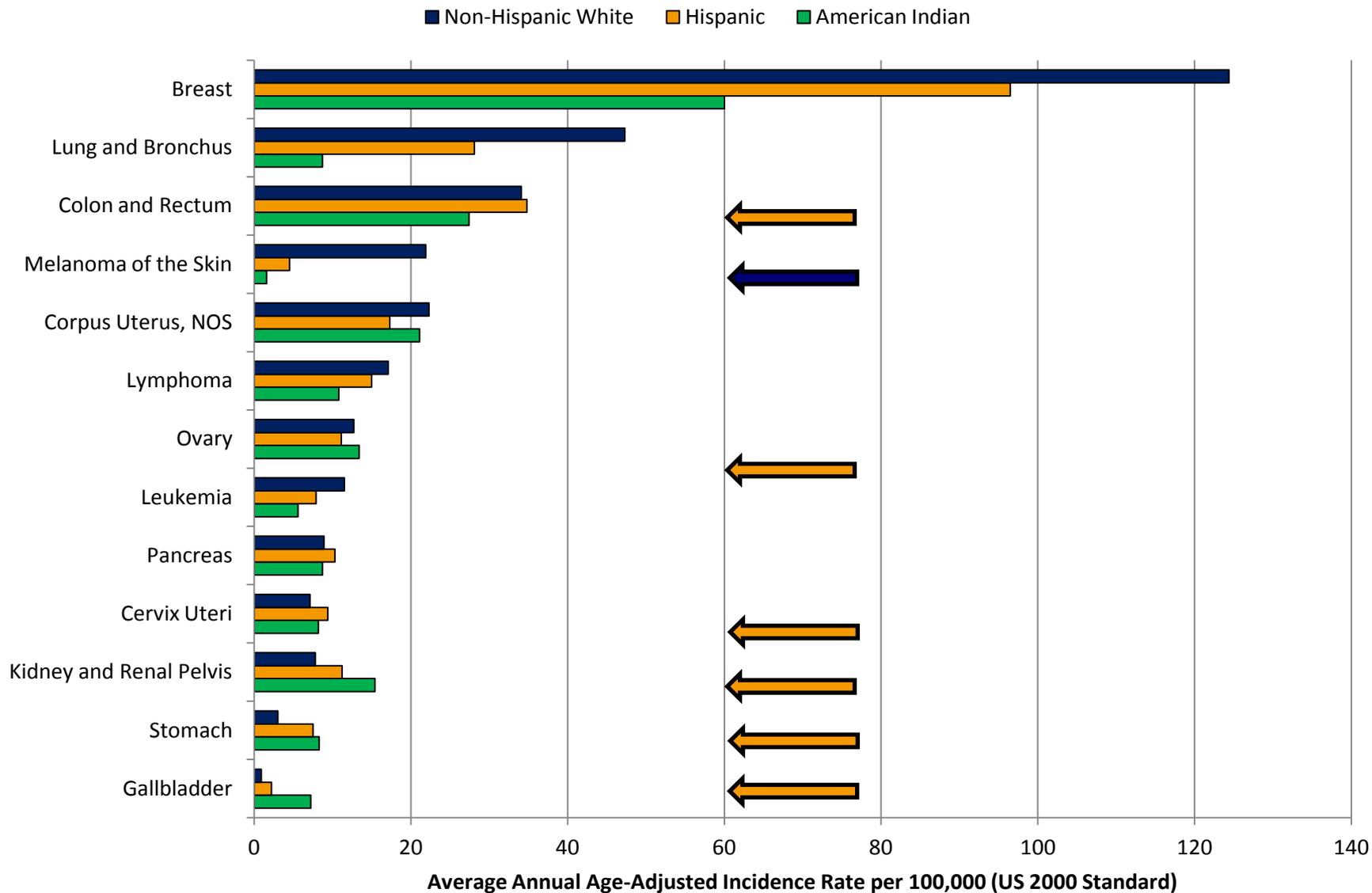
**Aristolochic acid**

# Cancer Incidence - New Mexico Males (2002-2011)

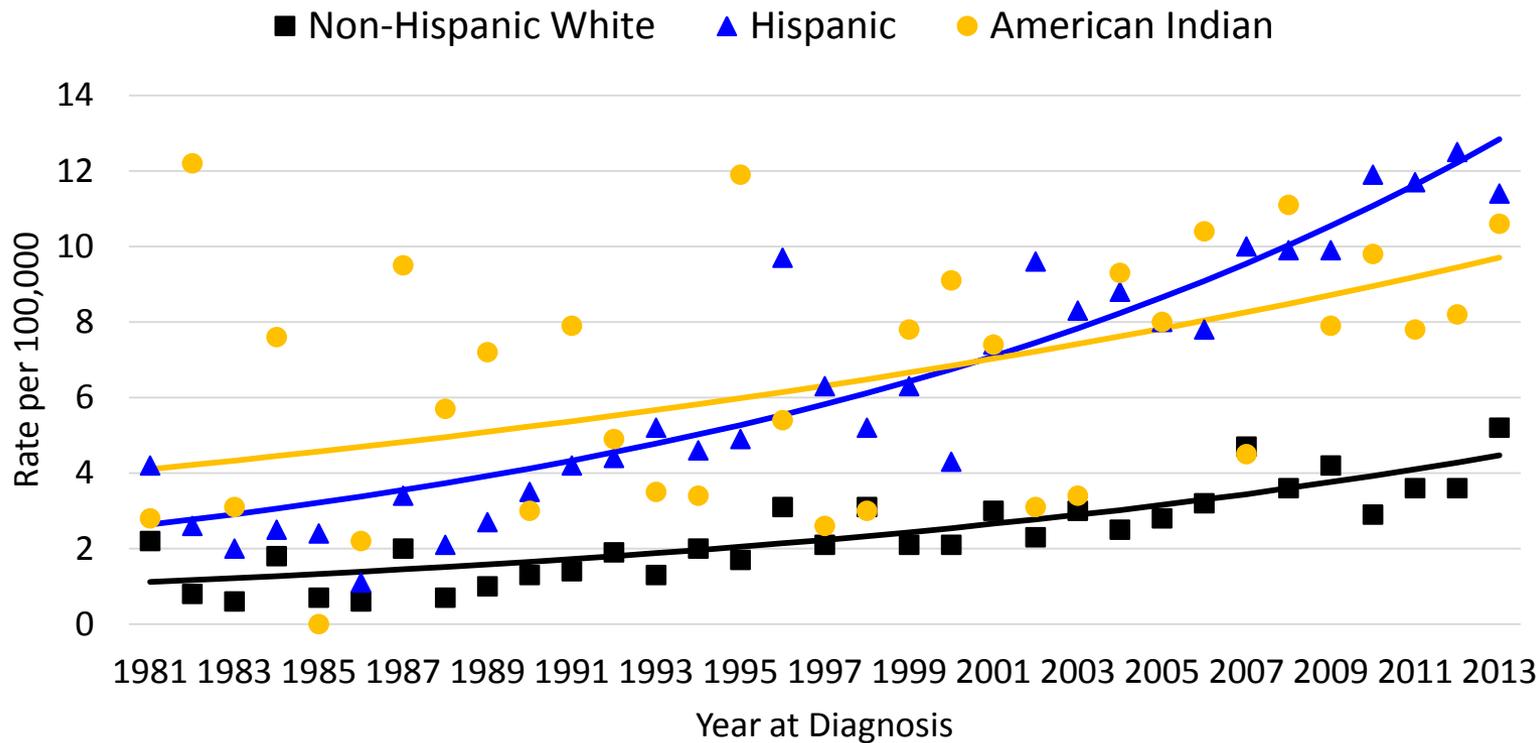
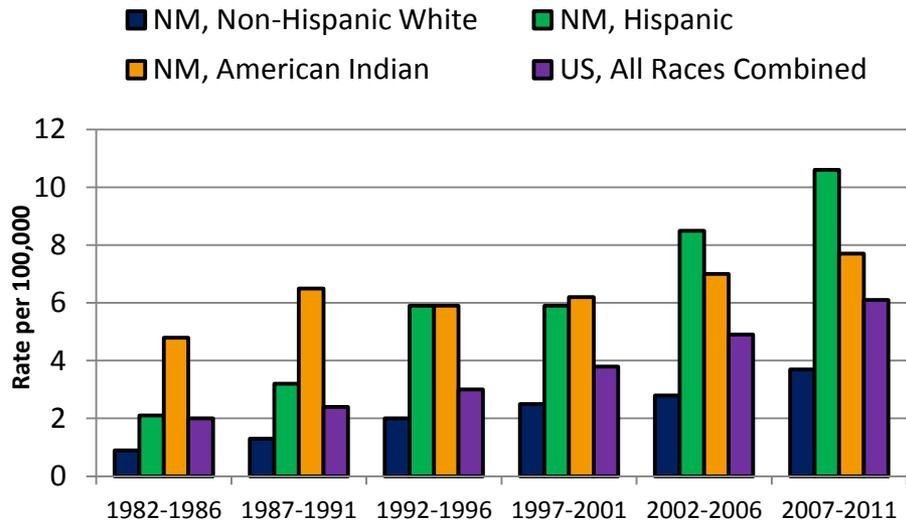
■ Non-Hispanic White ■ Hispanic ■ American Indian



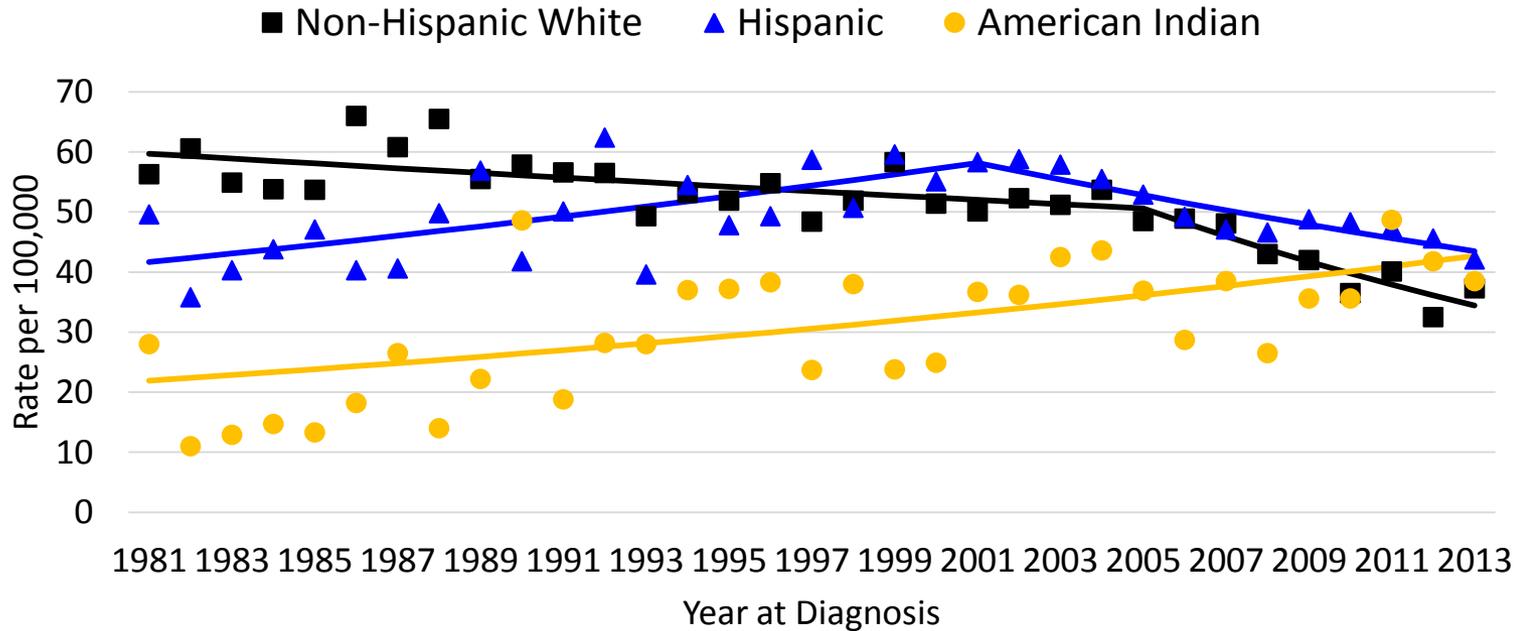
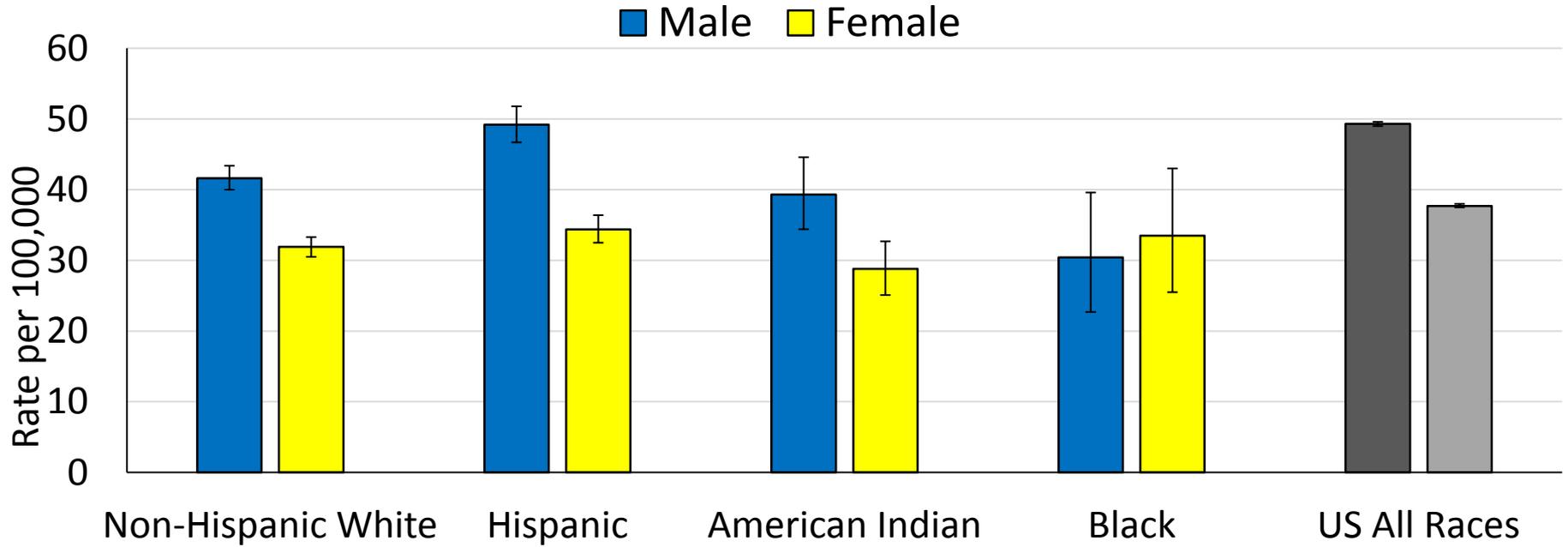
# Cancer Incidence - New Mexico Females (2002-2011)



# Liver Cancer



# Colorectal Cancer



# UNM COMPREHENSIVE CANCER CENTER



## THE REVOLUTION IN CANCER MEDICINE

- **IMMUNOTHERAPY**



**Olivier Rixe, MD, PhD**

**Associate Director,  
Clinical Research**

**Paris, France**

**Jacque Chirac Prize**

**Former Director,  
Gustave Roussy  
Institute**

# IMMUNOTHERAPY: TARGETING PD-1 / PDL-1



- Many human cancers elicit an immune response to proteins on a cancer cell surface
- How do we harness that to kill cancer cells, regardless of the genomic mutations present?
- HOWEVER, Cancer cells may also evade killing by the immune system by expressing PD-L1 and blocking anti-cancer T cells
- New anti PD-L1 treatments are having dramatic impacts in lung kidney, melanoma, and other cancers

