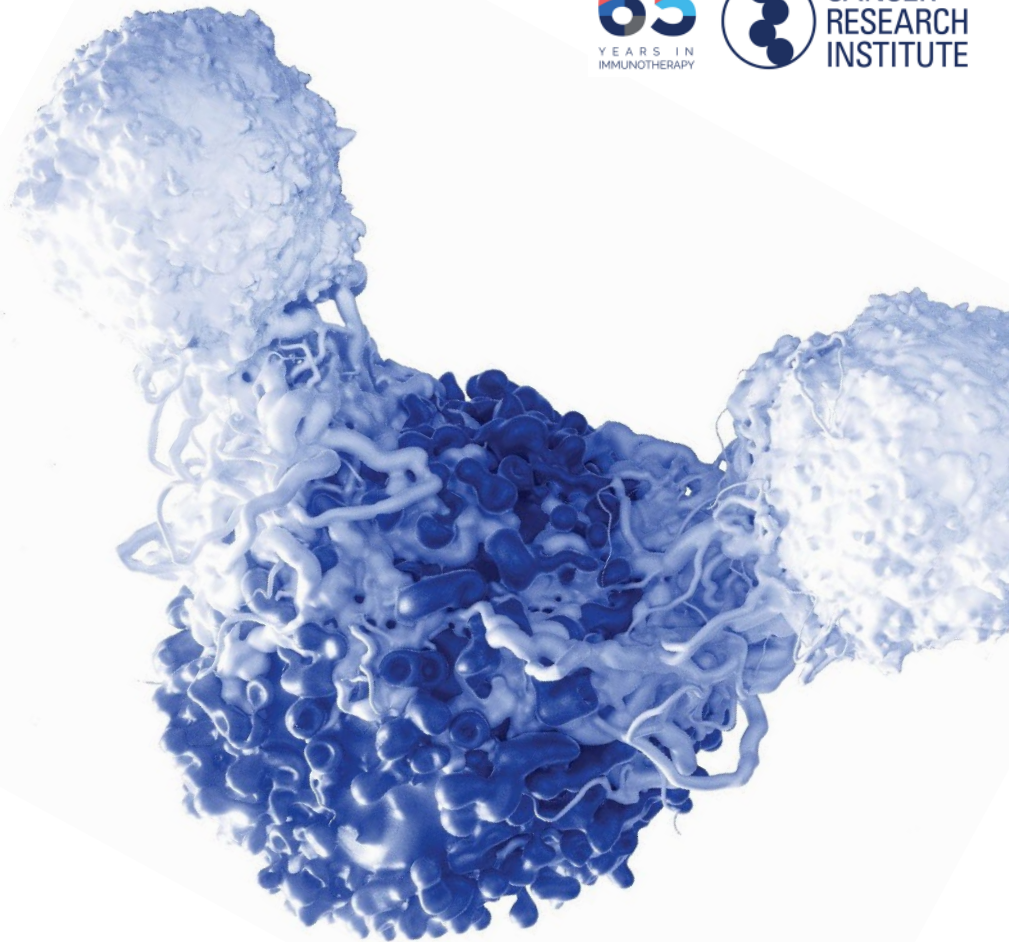


Brian Brewer
Cancer Research Institute

WELCOME



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Thank you to those who helped promote the summit

- Addario Lung Cancer Foundation
- American Cancer Society
- Baylor College of Medicine
- But Doctor I Hate Pink (Ann Silberman)
- Cancer Support Community
- CancerCare
- Colorectal Cancer Alliance
- Fight Colorectal Cancer
- FORCE
- Houston Methodist Cancer Center
- Imerman Angels
- Leukemia & Lymphoma Society
- LUNGeivity Foundation
- The Learning Center at MD Anderson Cancer Center
- Let Life Happen (Barbara Jacoby)
- MD Anderson Cancer Center
- Patient Empowerment Network
- The Rose
- Sisters Network
- SHARE
- Susan G. Komen
- Us TOO

Scientific Experts

Adi Diab, M.D.

MD Anderson Cancer Center

Renata Ferrarotto, M.D.

MD Anderson Cancer Center

Andrew Sikora, M.D., Ph.D.

Baylor College of Medicine

Cassian Yee, M.D.

MD Anderson Cancer Center

Jun Zhang, M.D.

Houston Methodist Cancer Center

Patient Experts

K.C. Dill

Lung Cancer

Robert Fitzgerald

Melanoma

Rick Frantz

Kidney Cancer

Kathy Vecchio

Non-Hodgkin Lymphoma

Schedule of Events



9:00 am Registration and networking

10:00 am Program commences

WELCOME

Brian Brewer

10:15 am **HEAR FROM THE EXPERTS**
Immunotherapy Basics
Andrew Sikora, M.D., Ph.D.

10:45am Panel: Research Updates
Moderator
Andrew Sikora, M.D., Ph.D.

Panelists
Renata Ferrarotto, M.D.
Cassian Yee, M.D.
Jun Zhang, M.D.

11:30 am **PATIENT PERSPECTIVE**
A message from K.C. Dill, lung cancer veteran

12:00 pm Lunch and networking

1:00 pm **LEARN ABOUT CLINICAL TRIALS**
Brian Brewer

1:15 pm **IMMUNOTHERAPY PATIENT PANEL**
Moderator
Brian Brewer

Panelists
Robert Fitzgerald
Rick Frantz
Kathy Vecchio

2:00 pm **TRANSITION BREAK**

2:15 pm **BREAKOUT SESSIONS**
Your choice of a deeper dive Q&A with our experts

General Immunotherapy
Andrew Sikora, M.D., Ph.D.

Head & Neck Cancer
Renata Ferrarotto, M.D.

Melanoma
Cassian Yee, M.D.

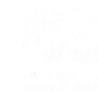
Genitourinary Cancer
Jun Zhang, M.D.

3:15 pm Program closes

9:00 am – 4:00 pm **CLINICAL TRIAL NAVIGATOR APPOINTMENTS**
Appointments are available all day. If you didn't pre-register, but you are interested in scheduling an appointment, please visit the Clinical Trial Navigator desk for more information.

You will receive two emails after the summit:

1. **A survey** to share your feedback on the summit as well as insights into future programming.
2. **Information** from the summit day, including this presentation and instructions on how to use our [Clinical Trial Finder service](#).



Immunotherapy Basics

Baylor
College of
Medicine

DAN L DUNCAN
COMPREHENSIVE
CANCER CENTER

Andrew Sikora, M.D., Ph.D.

Caroline Weiss-Law Translational Research Scholar

Co-director of the Head and Neck Cancer Program at Baylor College of Medicine

Origin & Revival of Immunotherapy



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1890s:
William B. Coley



1900s:
Paul Ehrlich



1960s:
Lloyd J. Old

Immunotherapy is “hand to hand combat”

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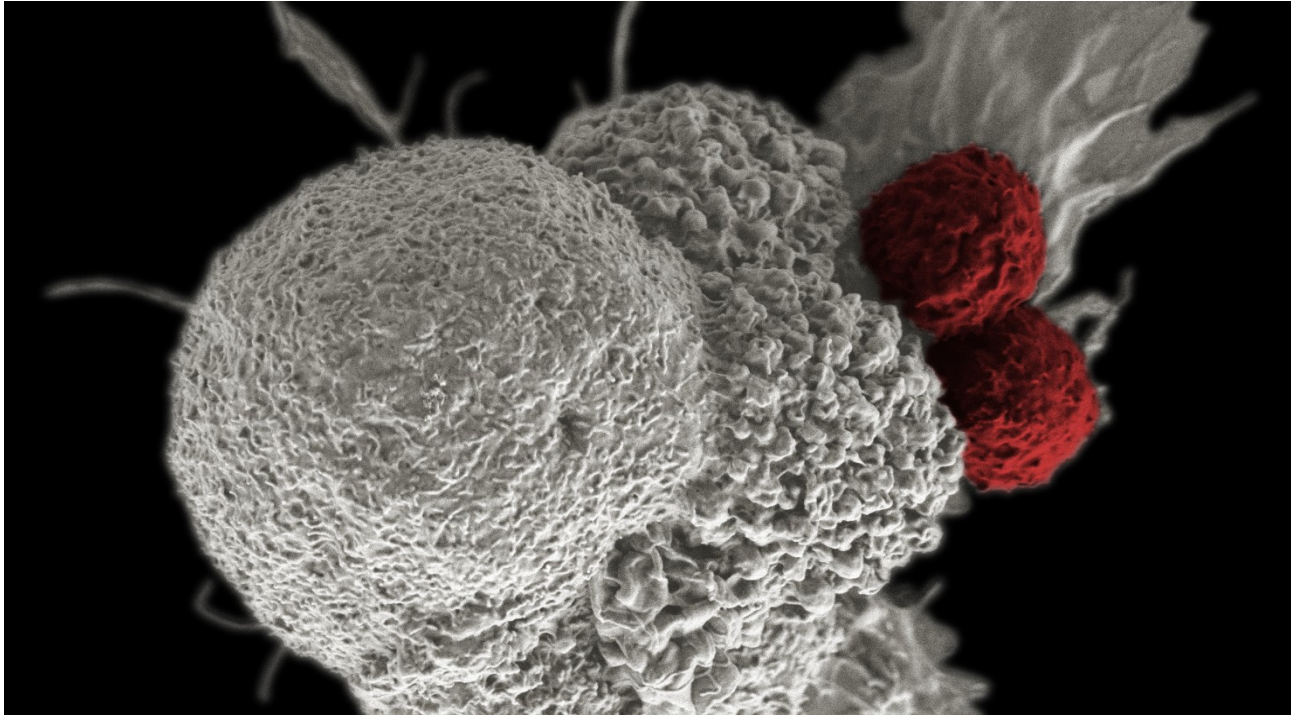


Photo Credit: Rita Serda, PhD; National Cancer Institute “Cancer Close Up” winner 2016

How many immune cells are in the human body?

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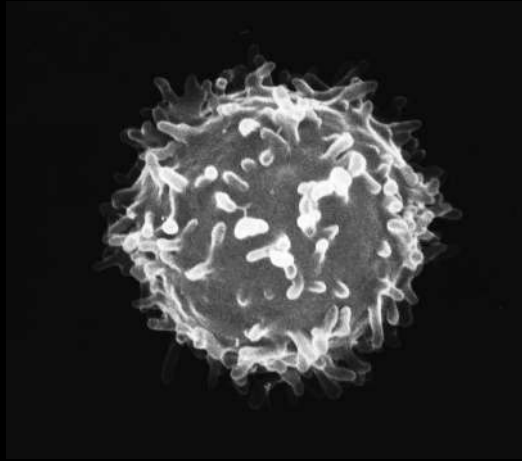
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How many immune cells are in the human body?

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>



10^{12}

10^{11}

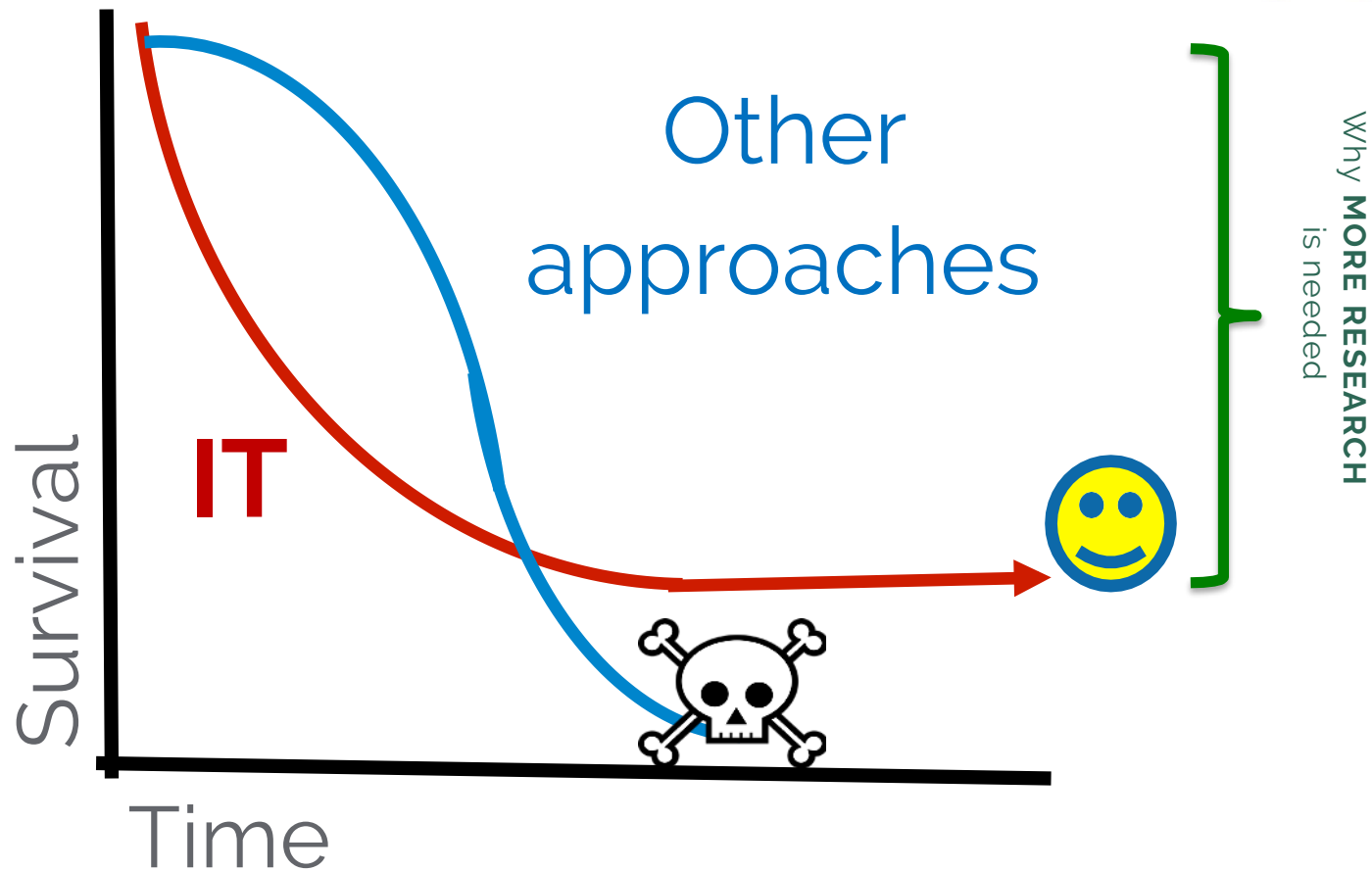
Immunotherapy: Potential for Cure?



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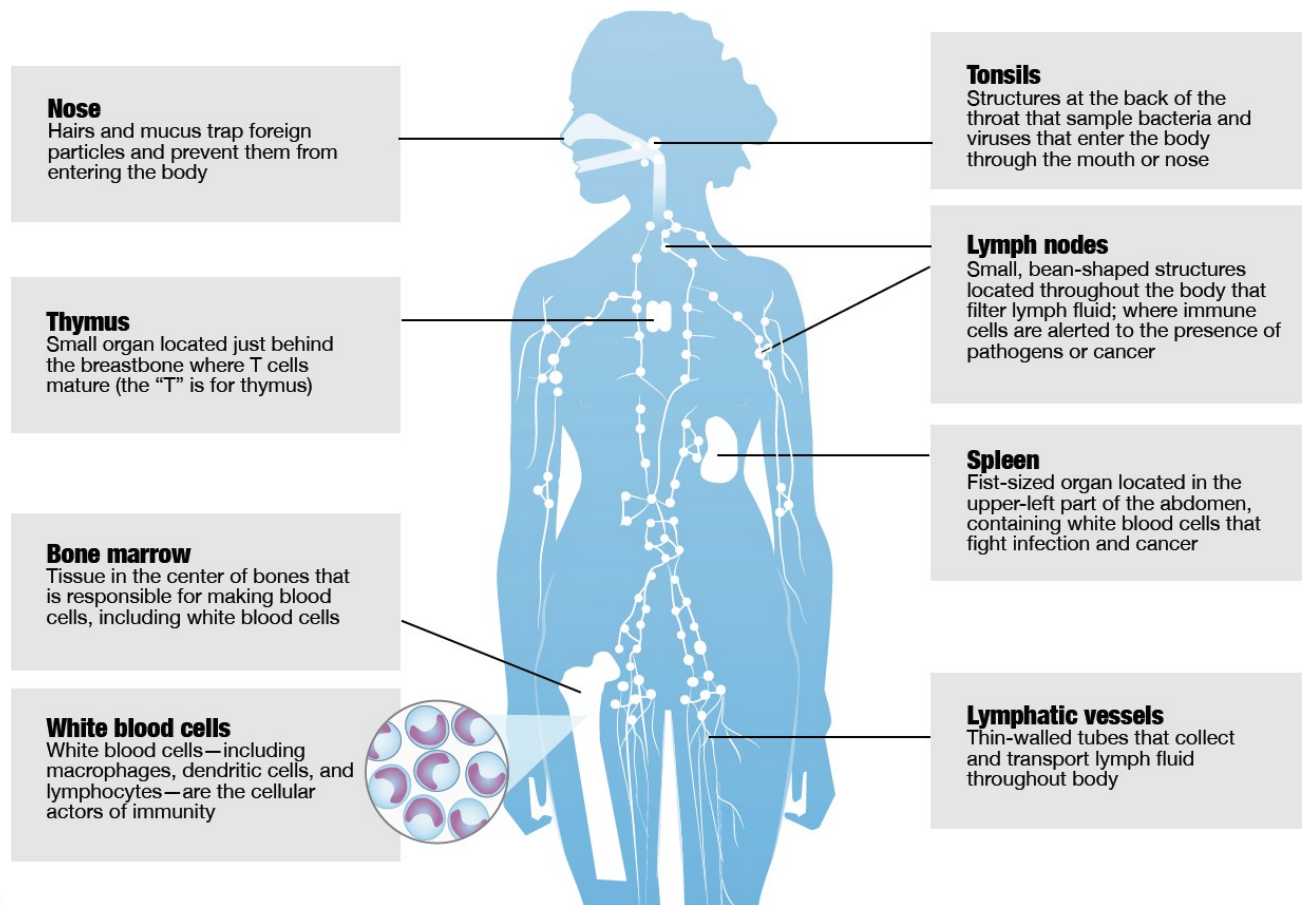
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The Immune System At a Glance

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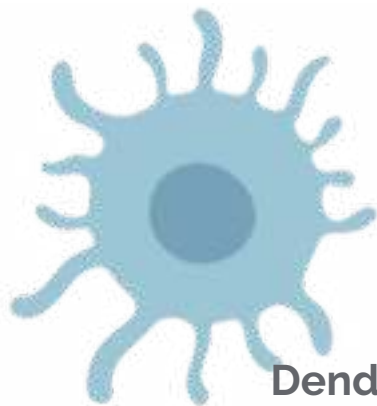
The Cells of the Immune System



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Dendritic
Cell



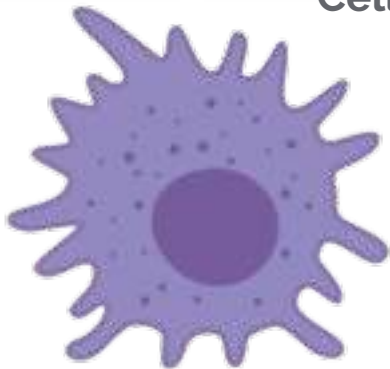
Monocyte



B Cell



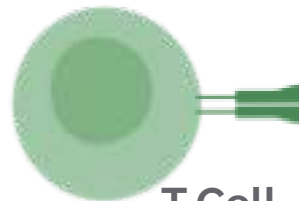
Natural
Killer Cell



Macrophage



Neutrophil



T Cell

Immunotherapy approaches

Stimulating existing
immune cells
(e.g. vaccines)



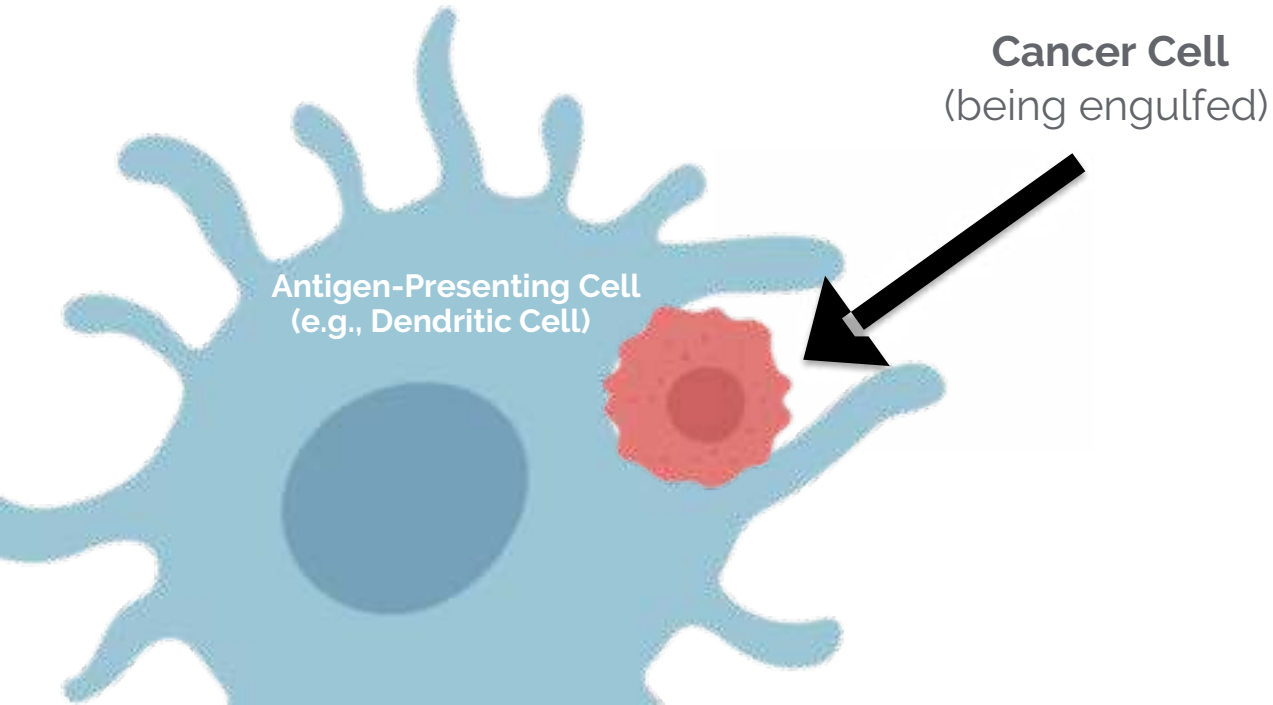
Delivering more immune
cells into the patient
(e.g. adoptive cell therapy)



Inactivating cancer's
immune **defenses**
(e.g. checkpoint inhibitors)



Adaptive Immune Responses Against Cancer

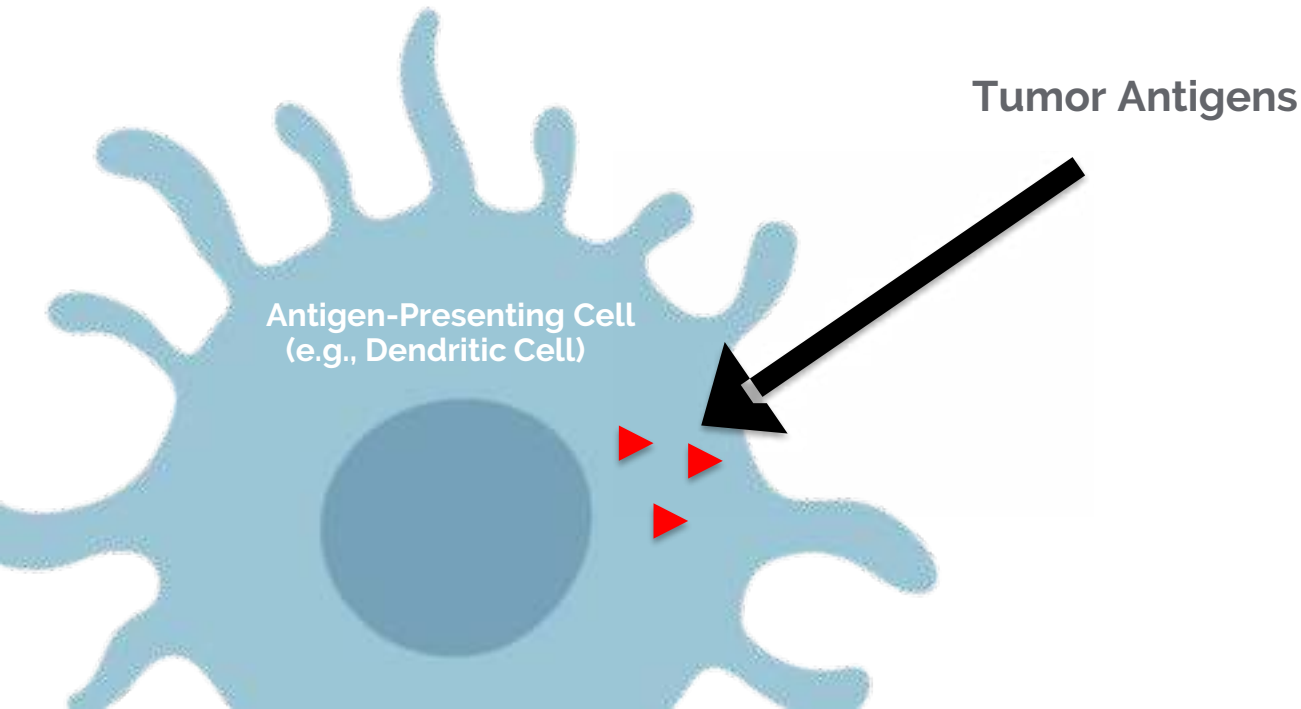


Adaptive Immune Responses Against Cancer



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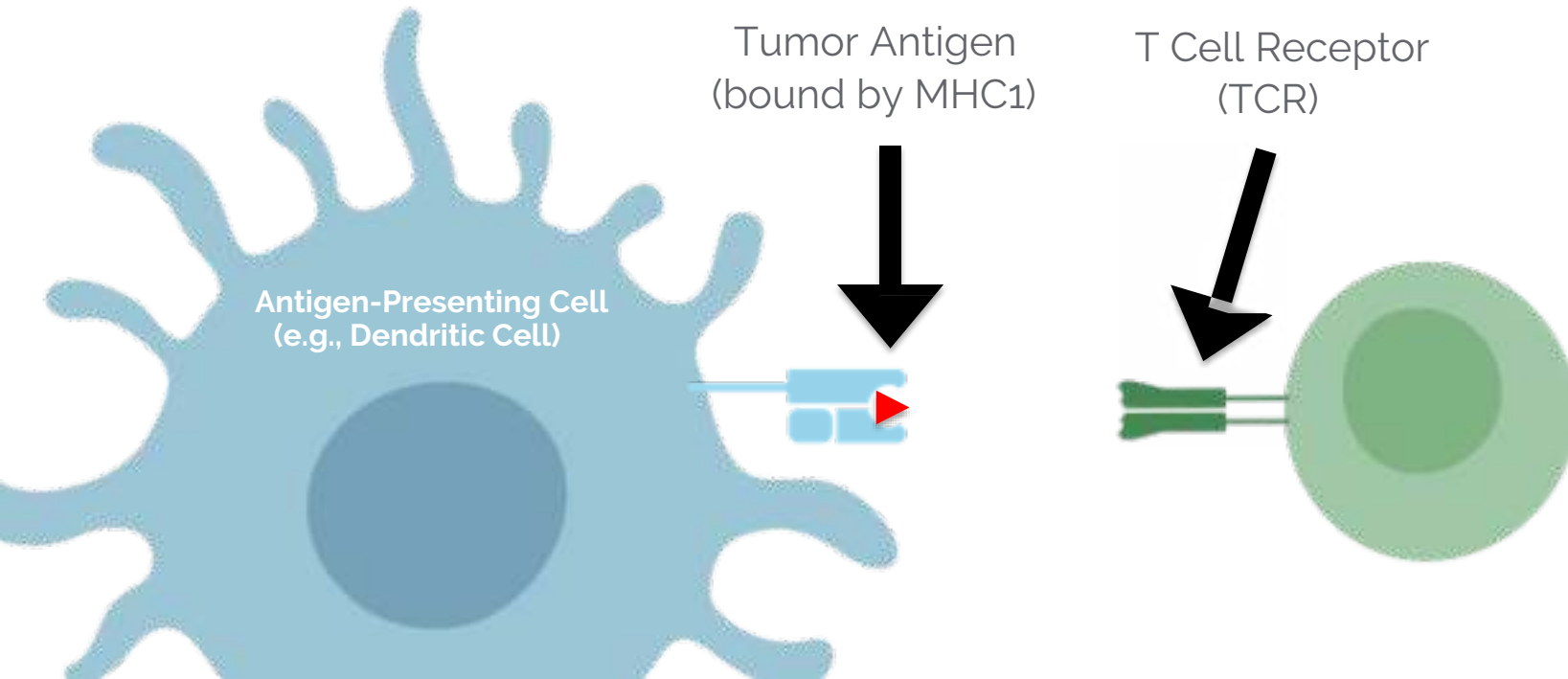


Adaptive Immune Responses Against Cancer



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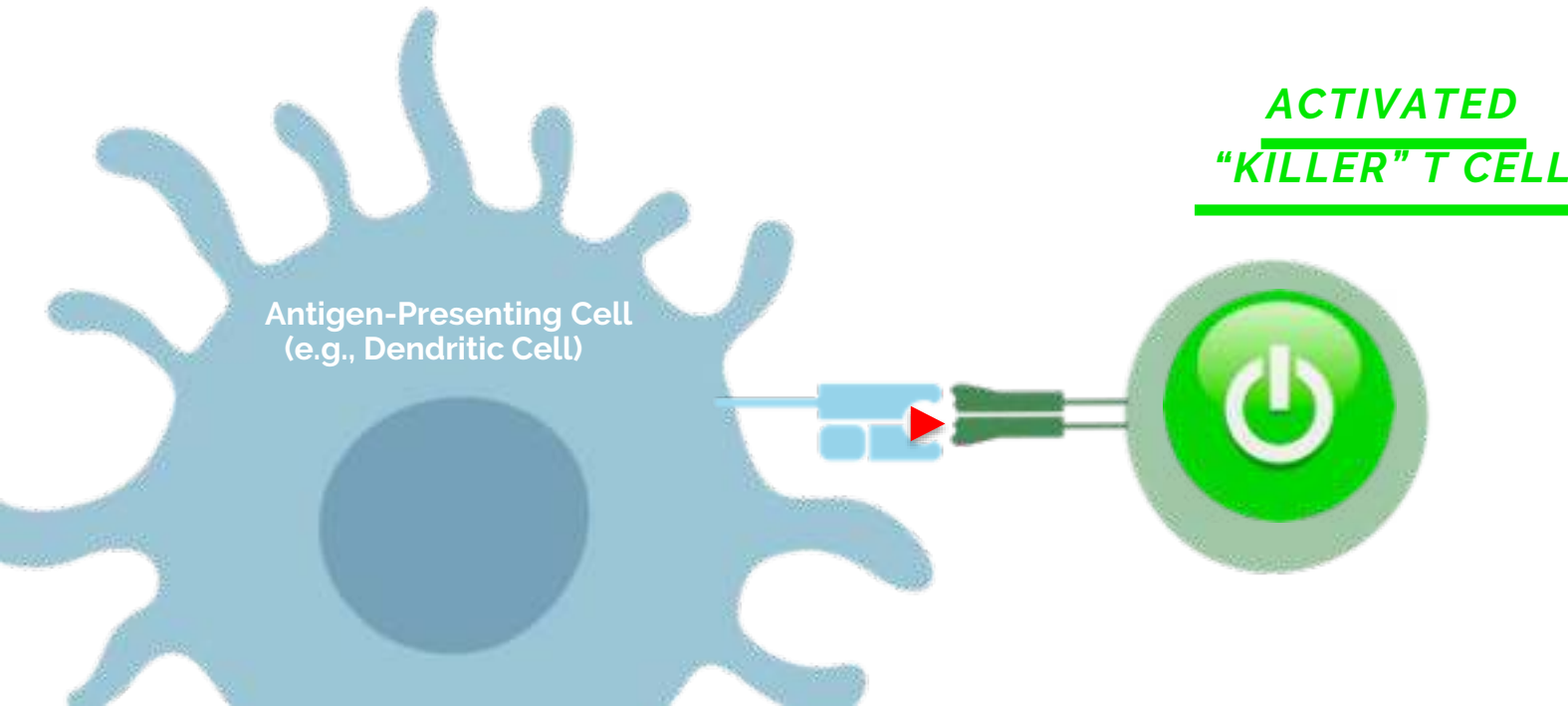


Adaptive Immune Responses Against Cancer



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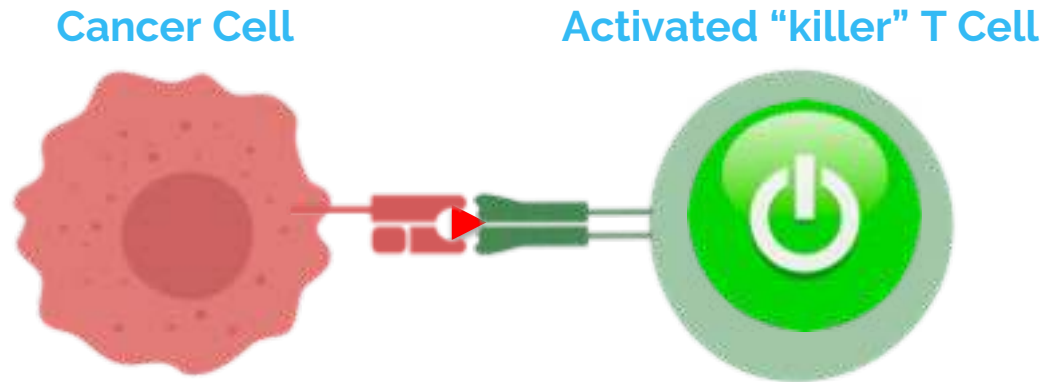
Adaptive Immune Responses Against Cancer



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Adaptive Immune Responses Against Cancer



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Cancer Cell



Activated "killer" T Cell



CANCER CELL ELIMINATED!

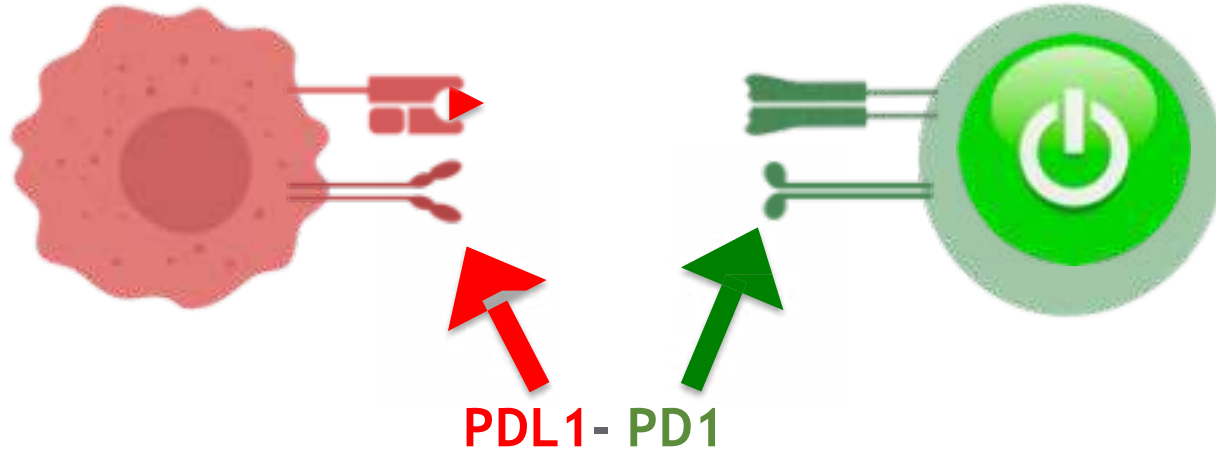
Immune Checkpoints Can Suppress Immune Responses

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Cancer Cell

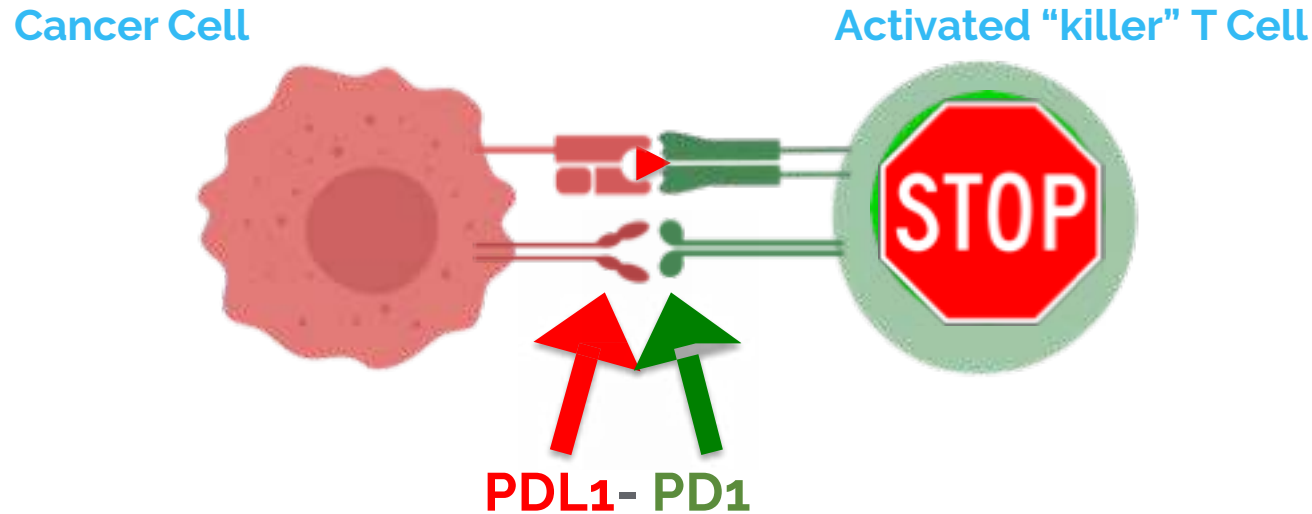
Activated “killer” T Cell



Immune Checkpoints Can Suppress Immune Responses

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Normally, **PDL1-PD1** leads to T cell "exhaustion"

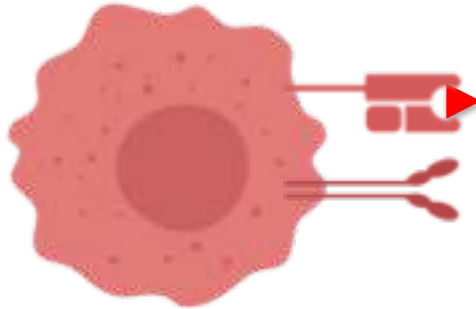
Checkpoint Immunotherapy Can Promote Anti-Cancer Activity



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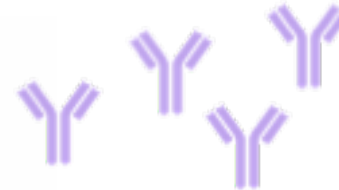
Cancer Cell



Activated “killer” T Cell



PD-1/PD-L1
Checkpoint Inhibitors



Checkpoint Immunotherapy Can Promote Anti-Cancer Activity

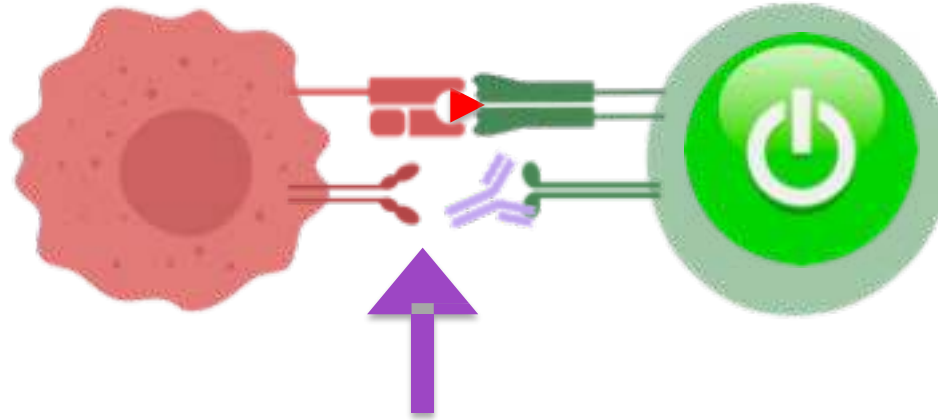


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Cancer Cell

Activated “killer” T Cell



PD-1/PD-L1
Pathway Blocked!

Checkpoint Immunotherapy Can Promote Anti-Cancer Activity



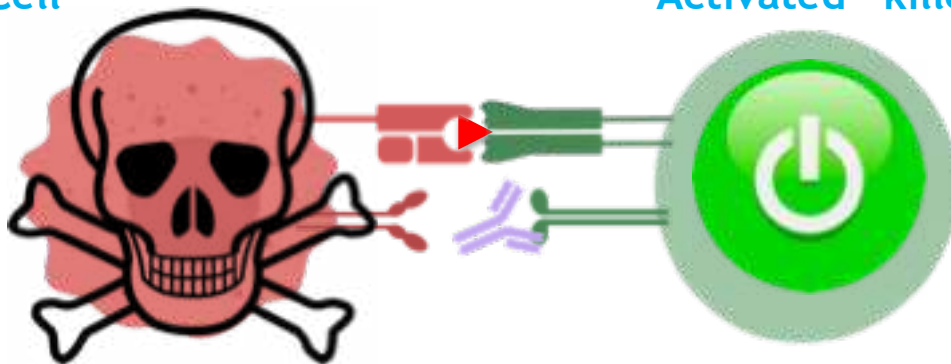
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Activated “killer” T Cell



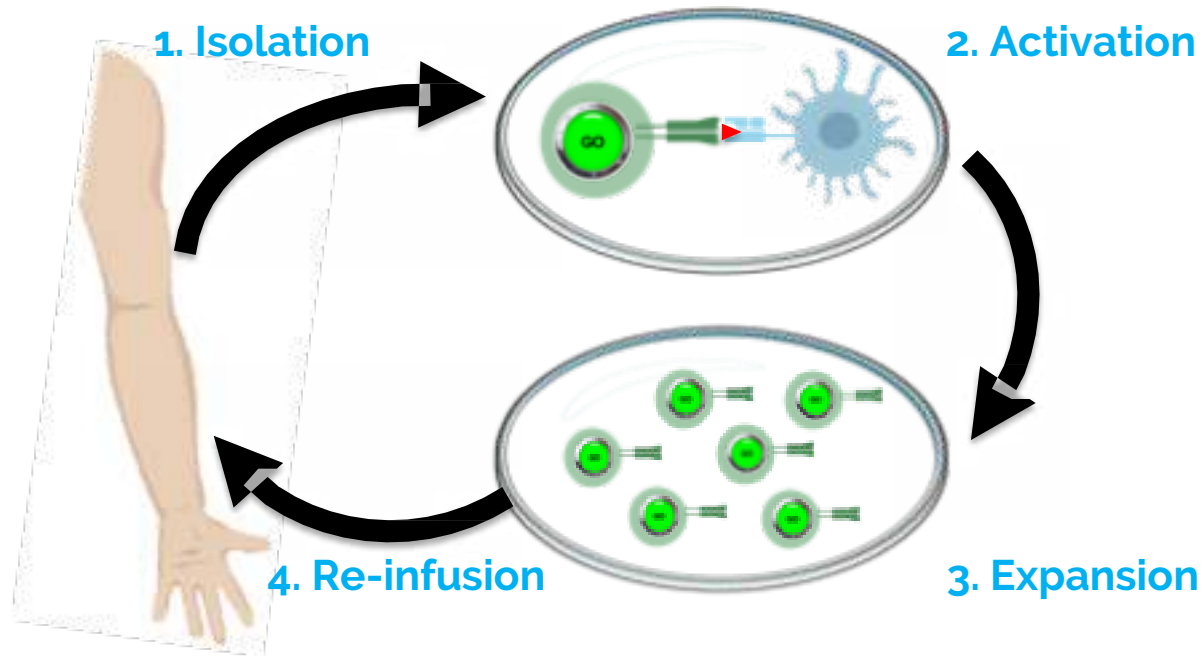
CANCER CELL ELIMINATED!

Adoptive T Cell Immunotherapy

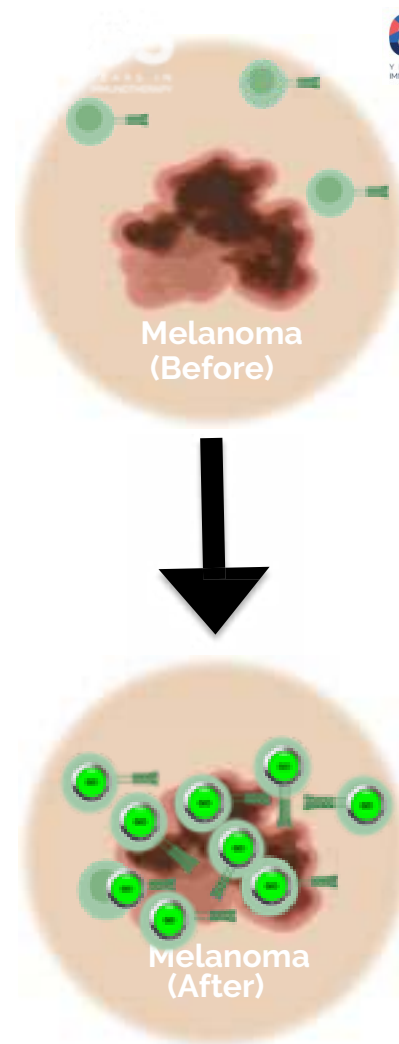
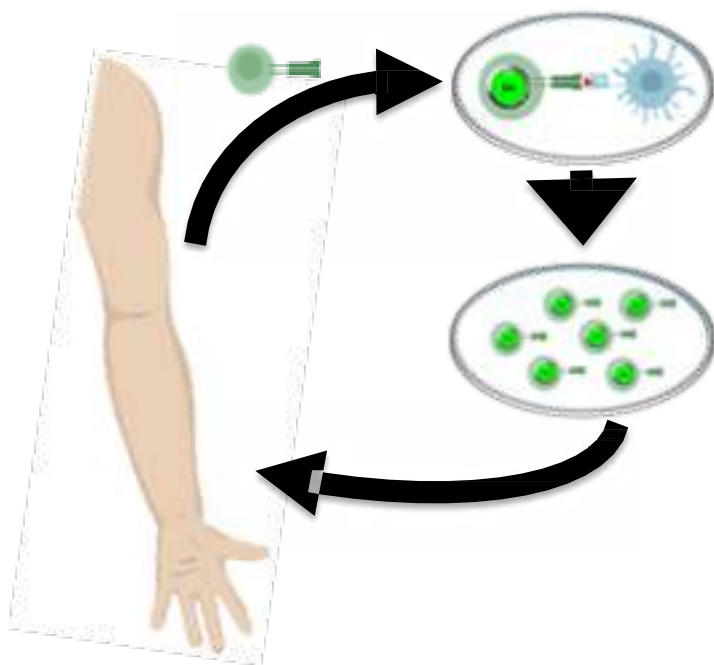


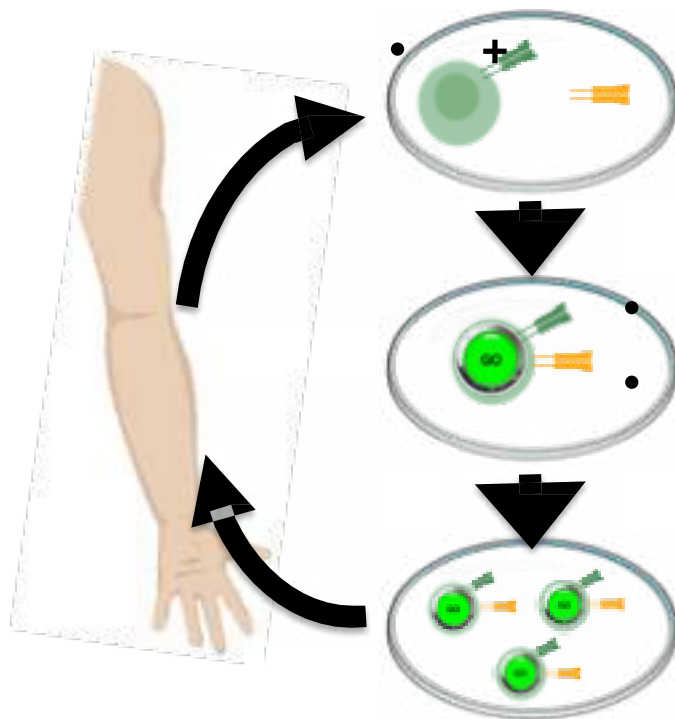
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Adoptive T Cells In Action (Against Melanoma)





Equip T cells with new,
cancer-targeting receptors

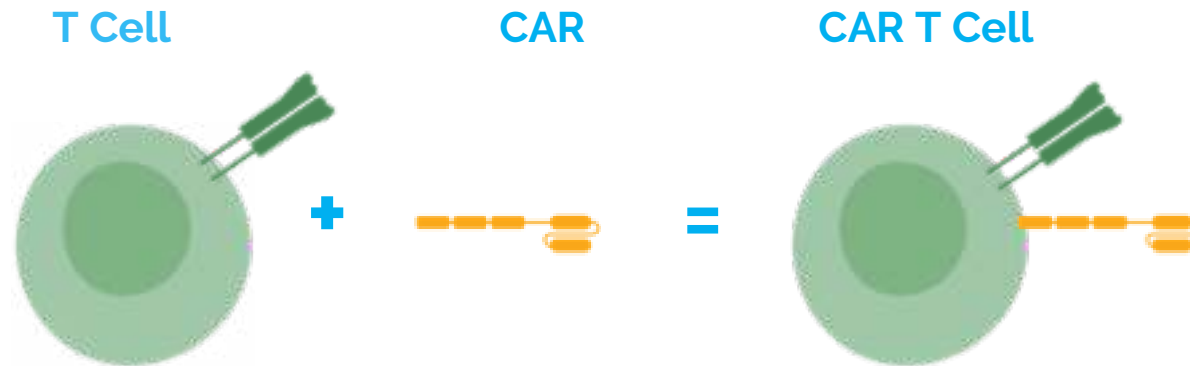
CAR T Cell Immunotherapy (Chimeric Antigen Receptor)



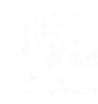
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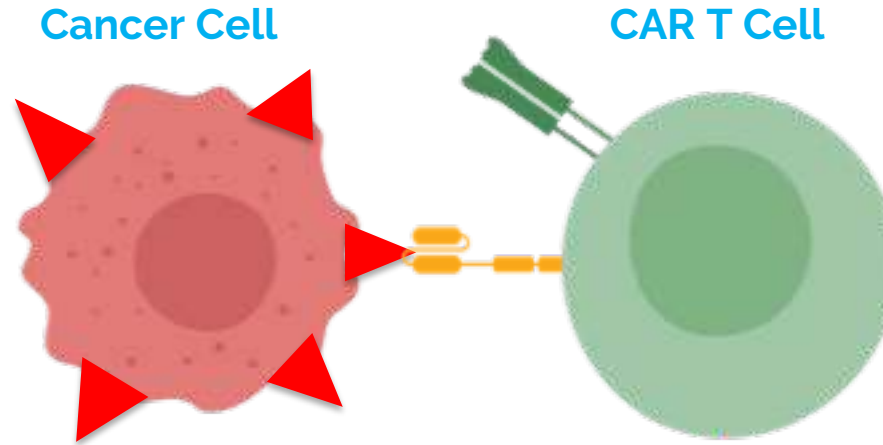
CAR T Cell Immunotherapy (Chimeric Antigen Receptor)



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CARs enable MHC-independent targeting & killing!

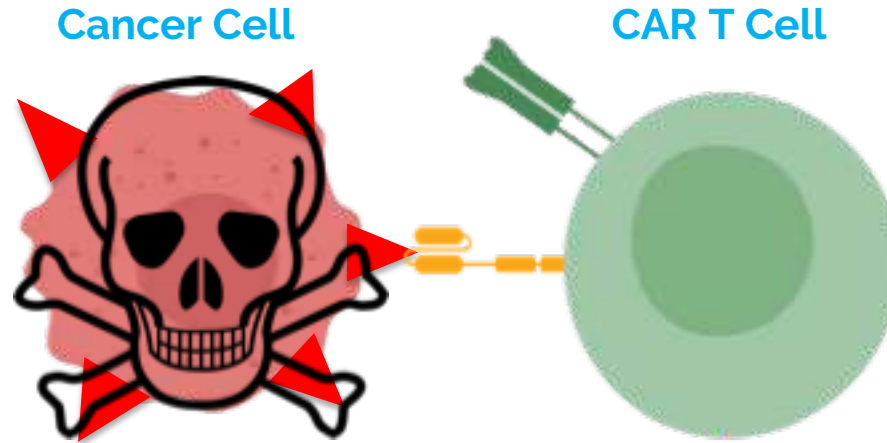
CAR T Cell Immunotherapy (Chimeric Antigen Receptor)



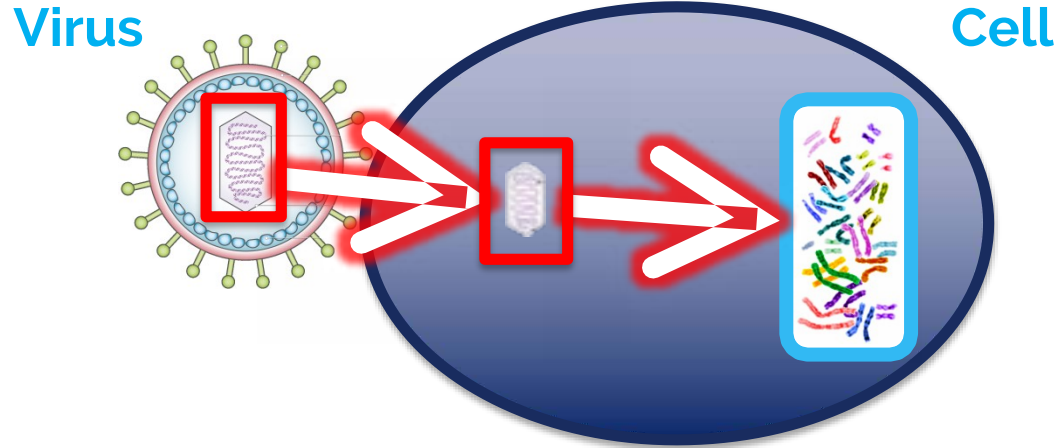
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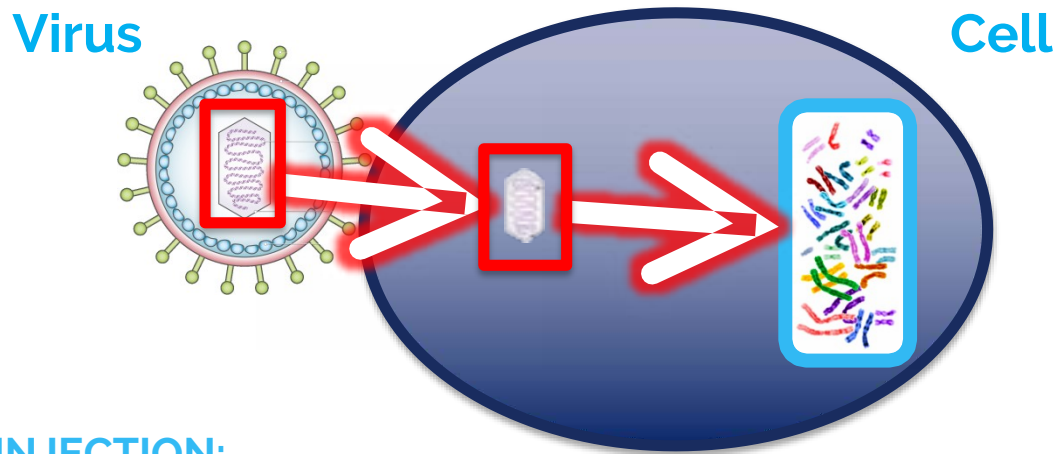
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CARs enable MHC-independent targeting & killing!



- Viruses can alter our cells' DNA, by inserting their own genetic material
- Impaired defenses make tumor cells more susceptible to infection



AFTER INJECTION:

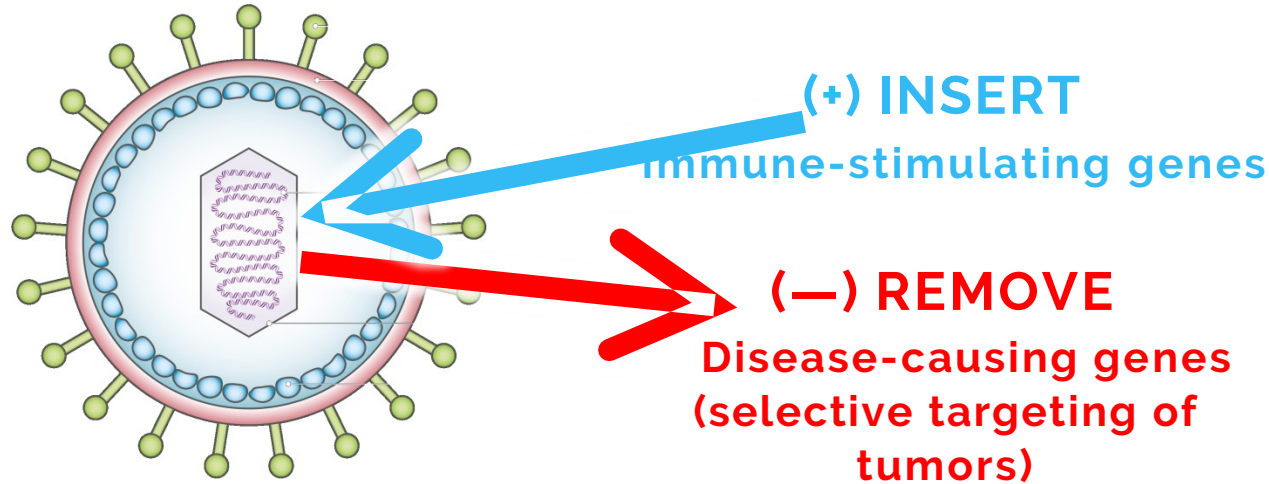
- 1) Viruses cause tumor cells to “burst” & release antigens
- 2) Immune cells uptake & present tumor antigens
- 3) Stimulates adaptive, and potentially systemic, immune responses

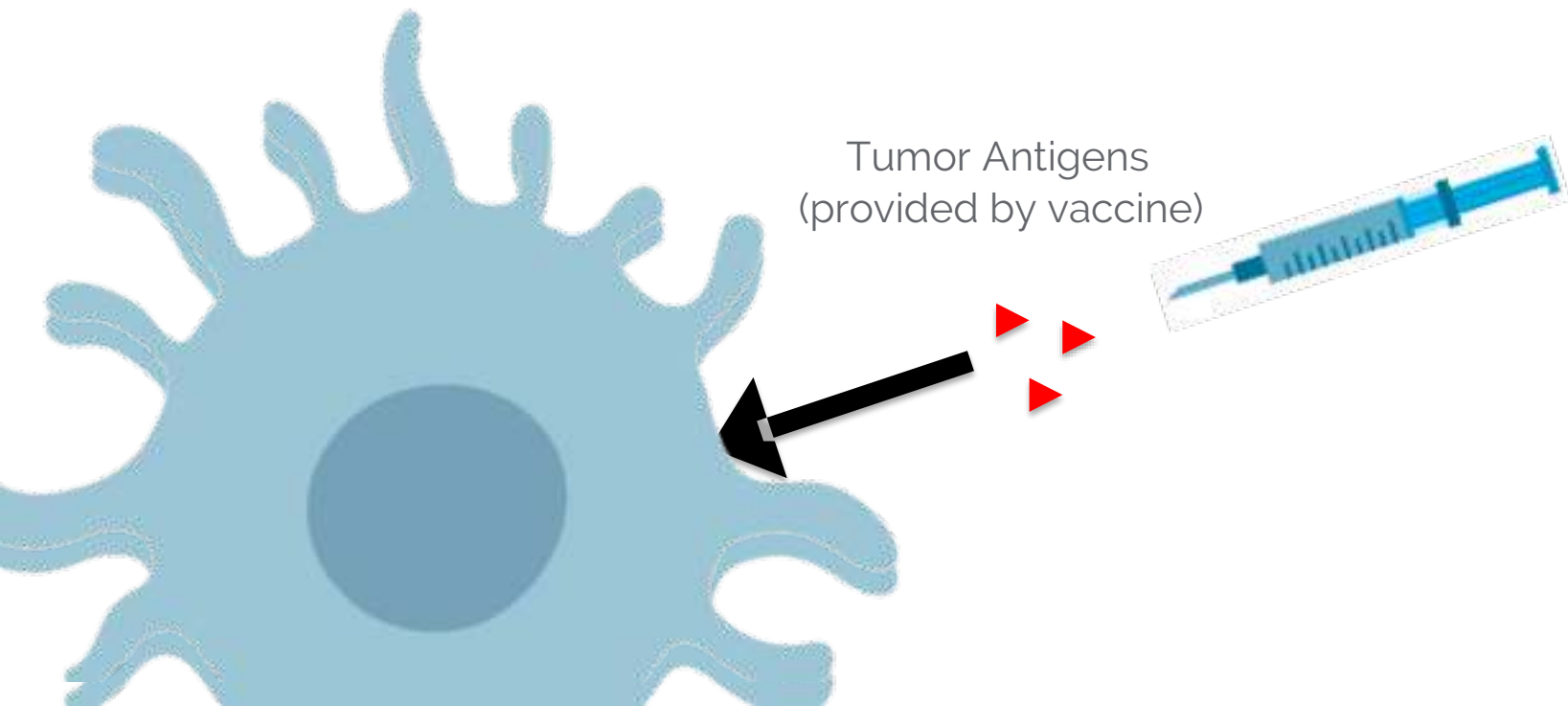
Reprogramming Oncolytic Viruses To Enhance Anti-Tumor Activity



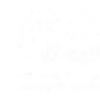
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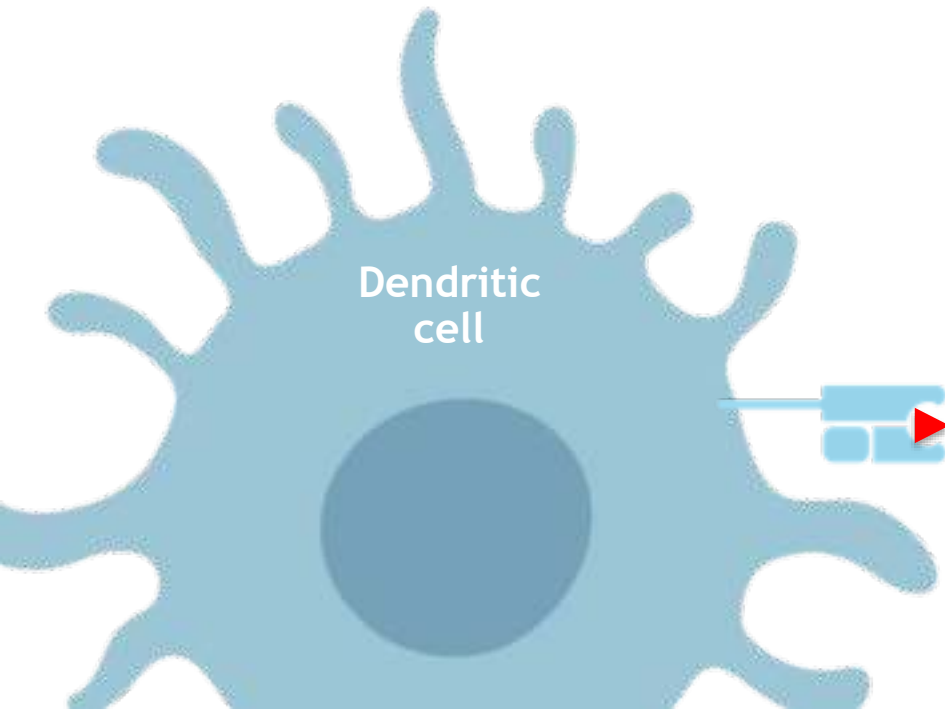
Cancer Vaccines



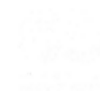
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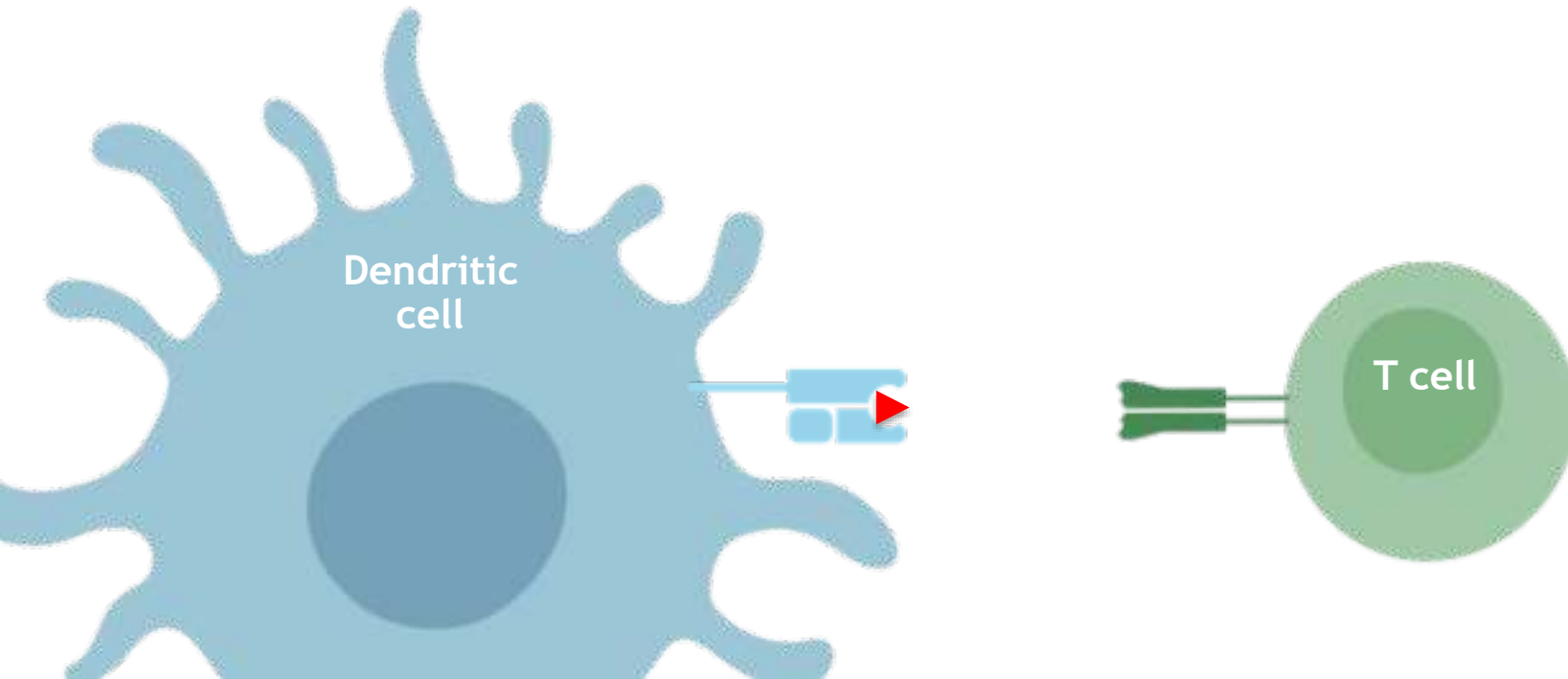


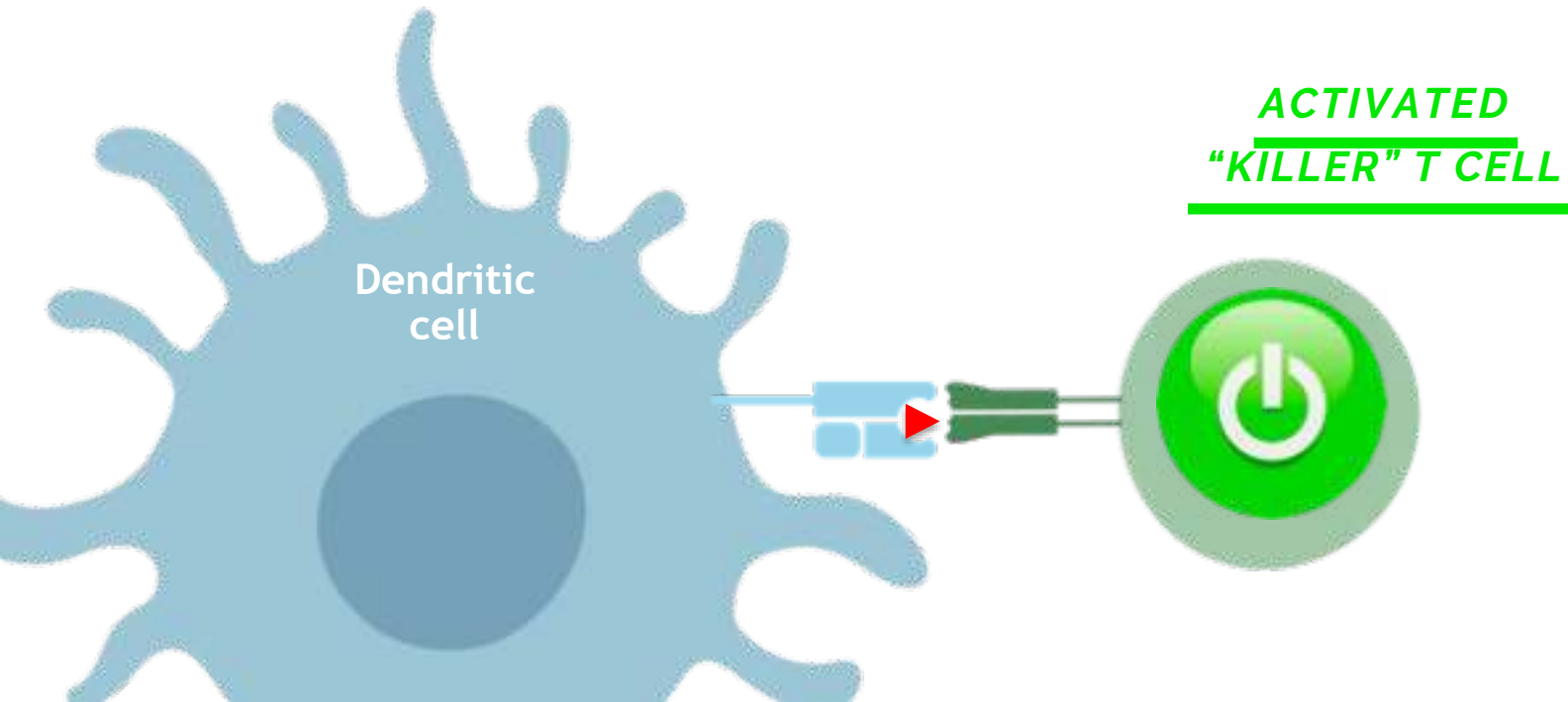
Cancer Vaccines



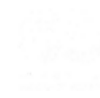
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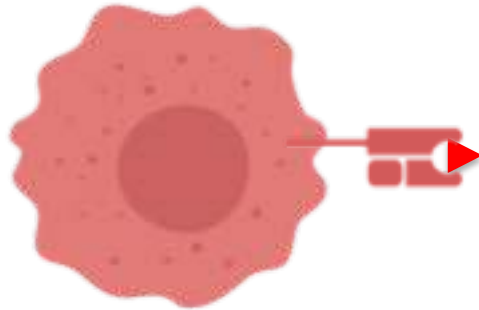
Vaccine-Induced Elimination of Cancer Cells



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Cancer Cell



Activated “killer” T Cell

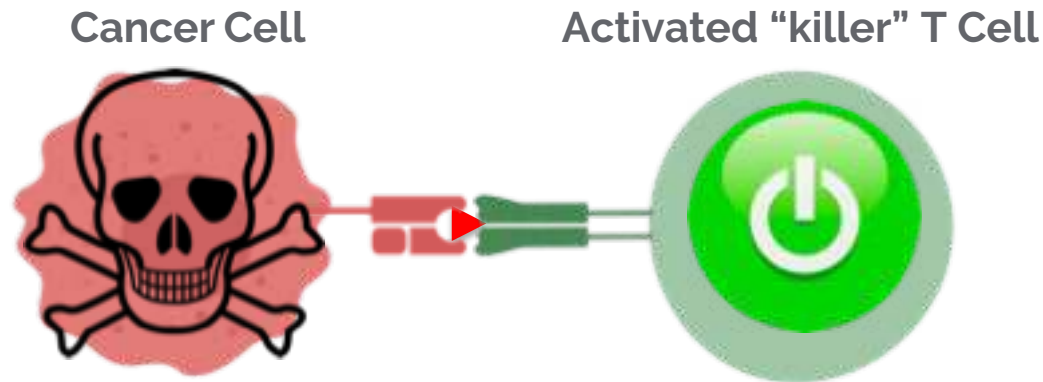


Vaccine-Induced Elimination of Cancer Cells



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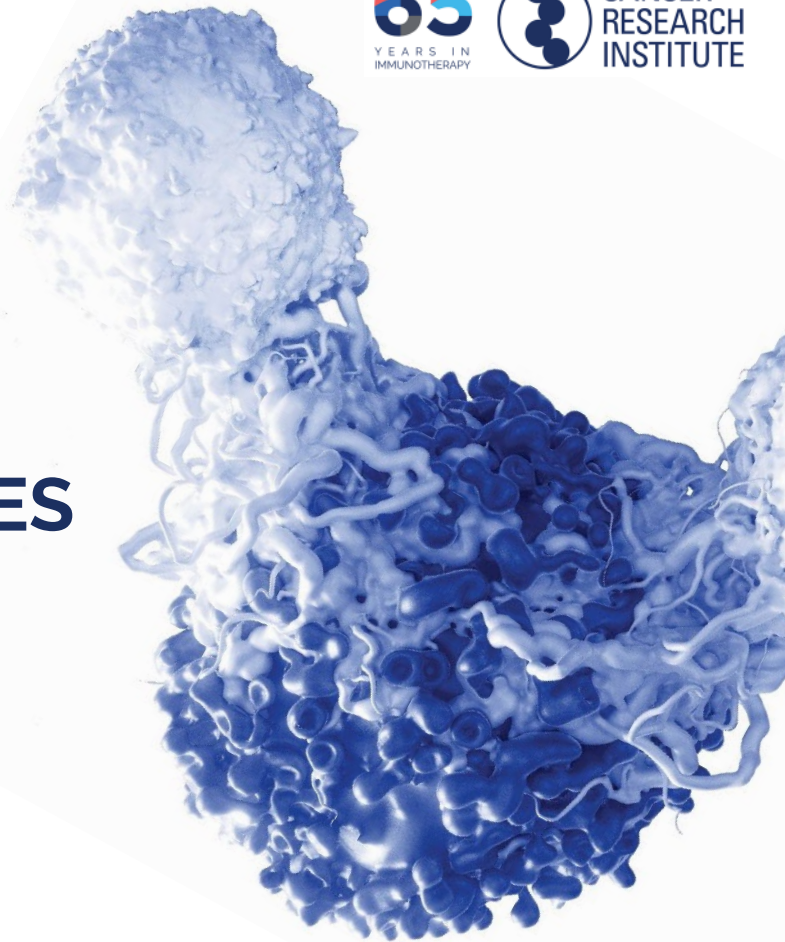
Challenges in Cancer Immunotherapy



- Discovering **new immune pathways, targets,** and **strategies** to increase the number of immunotherapy approaches available
- Identifying and validating new biomarkers to help doctors **predict** which patients will **respond** to immunotherapies
- Determining the best way to **combine** immunotherapies with each other and with conventional treatments to **benefit** more patients
- Learning how to **reduce side effects** of immunotherapy without losing benefit

Panel Discussion

LATEST RESEARCH UPDATES



Moderator

Andrew Sikora, M.D., Ph.D.

Panel

Renata Ferrarotto, M.D.

Head and Neck Cancers

Cassian Yee, M.D.

Melanoma

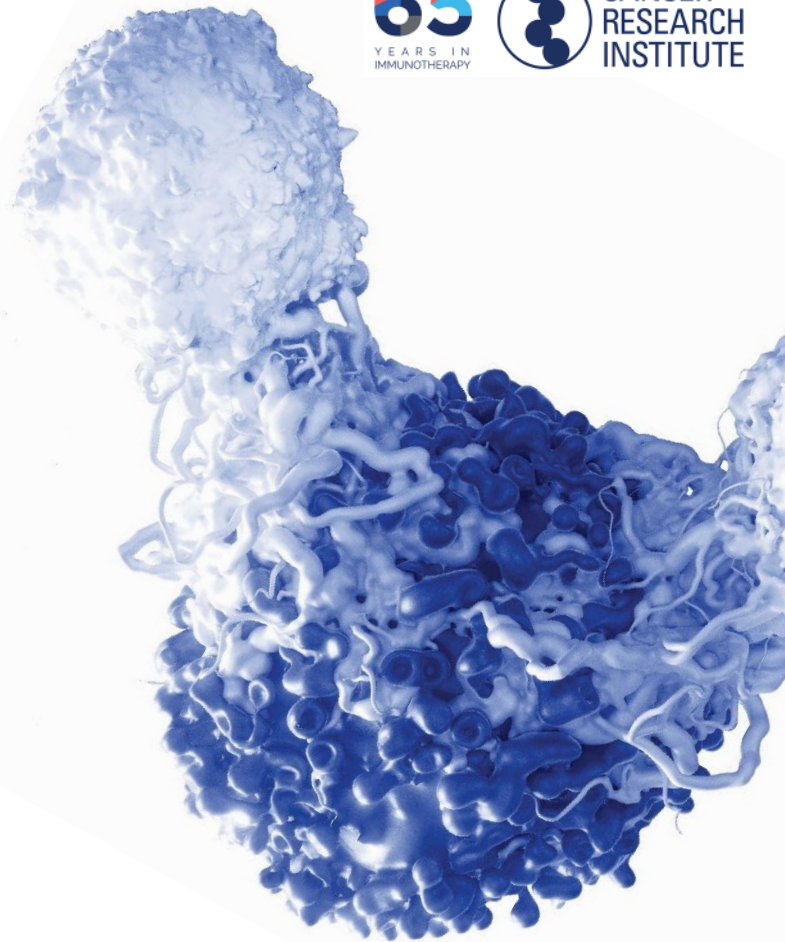
Jun Zhang, M.D.

Lung Cancer and Non-Prostate
Genitourinary Cancers

K.C. Dill

Surviving Lung Cancer

PATIENT PERSPECTIVE

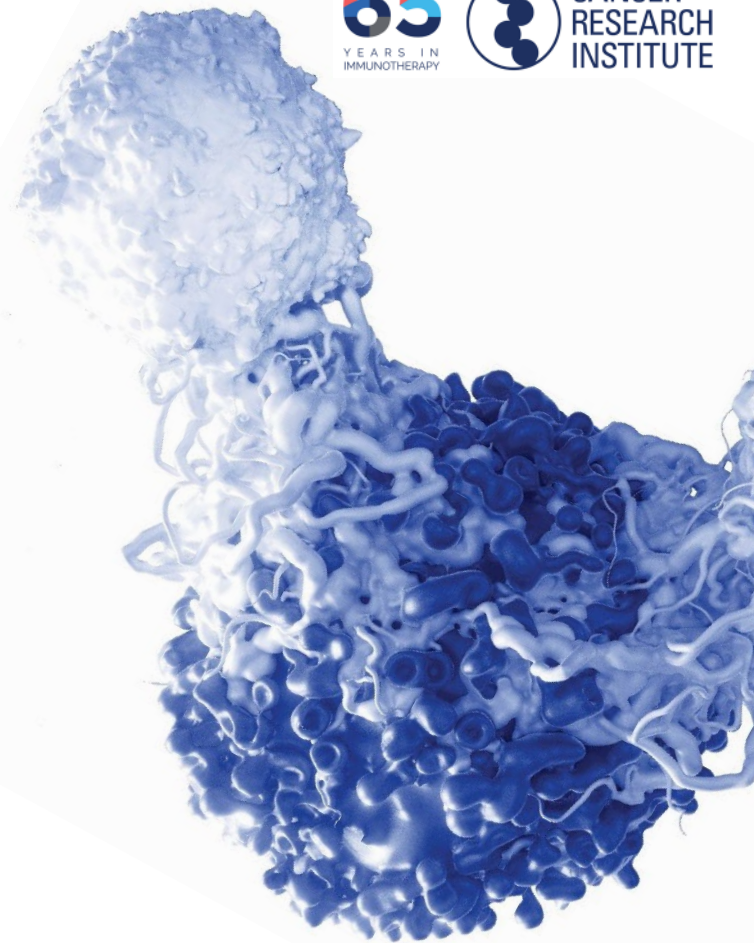


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Lunch and Networking

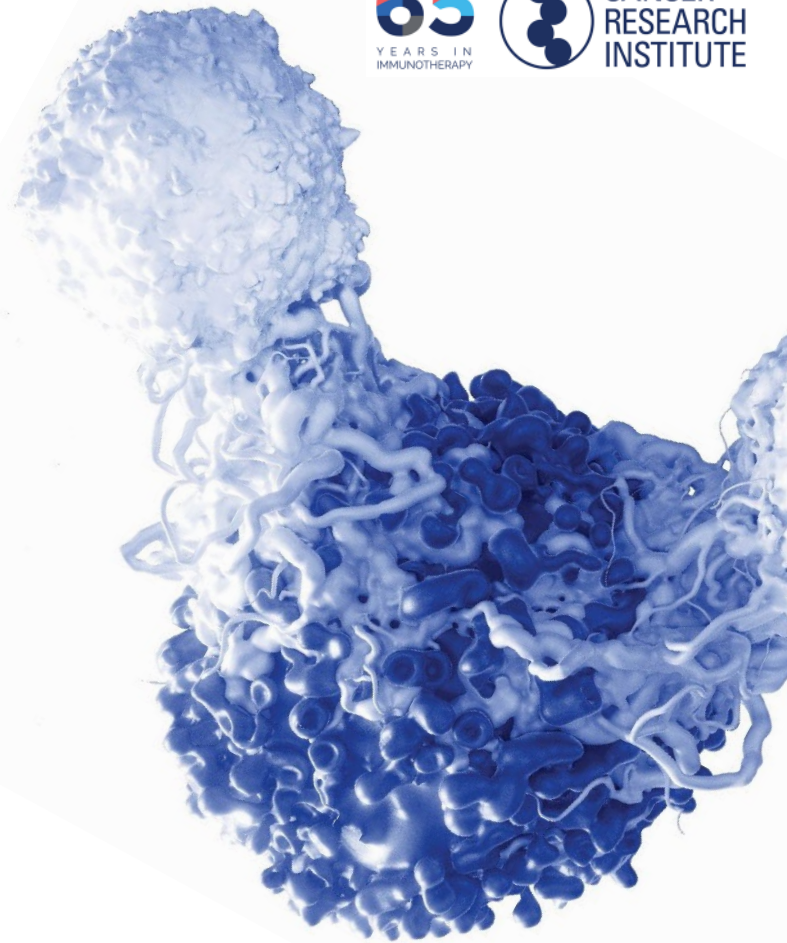
Ballroom



Brian Brewer

Cancer Research Institute

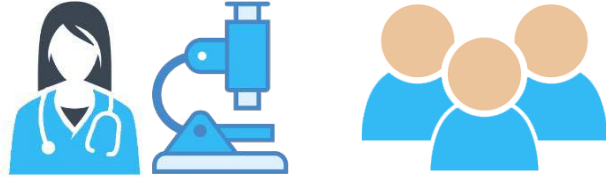
LEARN ABOUT CLINICAL TRIALS



What Are Clinical Trials?

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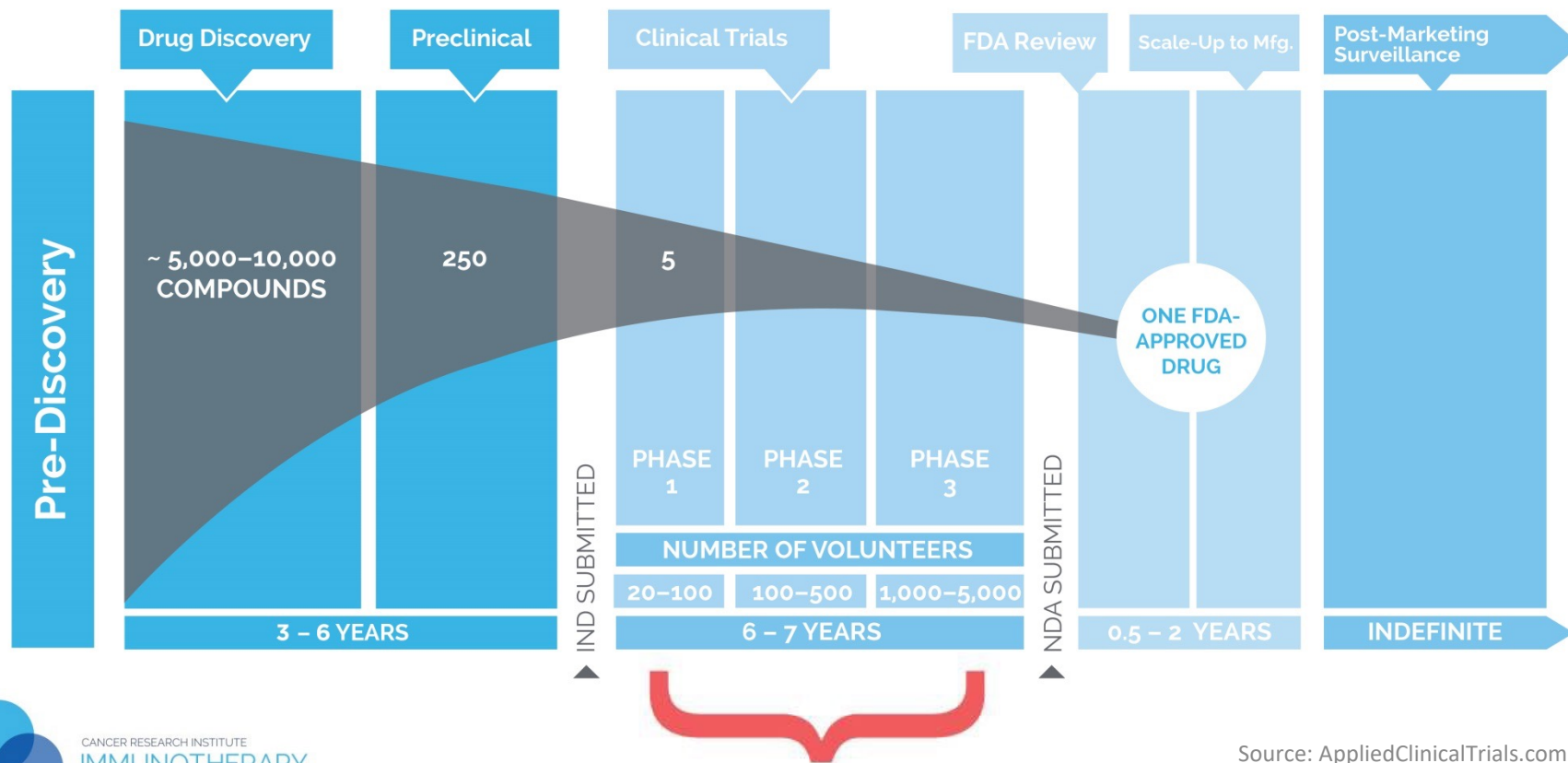


- Research studies that involve people
- Designed to answer specific questions about new and existing treatments
- Aim to improve treatments and the quality of life for people with disease

Getting from Discovery to Approval

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What Are Clinical Trial Phases?

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Phase
1



Is the treatment safe?

Purpose:

- First study in humans
- Find best dose, delivery method, and schedule
- Monitor for side effects
- Determine safety

Number of people: 20-100

Phase
2



Does it work?

Purpose:

- Look for effect on specific type(s) of cancer
- Continue monitoring for side effects and safety

Number of people: 100-500

Phase
3



Does it work better?

Purpose:

- Compare new treatment (or new use of a treatment) with current standard treatment
- Determine risk vs. benefit

Number of people: 1,000-5k+

Pros and Cons of Clinical Trials

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Potential Advantages	Potential Disadvantages
Access to best possible care	Unknown side effects or risks
Receiving new drugs before they're widely available	Unknown benefits—drugs may not work as intended
Close monitoring by medical team	Not all patients may benefit
Chance to play active role in healthcare and research	Frequent tests and clinic visits
Help future generations	Possible need to travel to trial sites

Patient Resource, "Understanding Clinical Trials: A Guide for Patients and Their Families"

Questions to Ask Before Volunteering



- Why is this trial being done?
- Why is it believed that the treatment being studied may be better than the standard treatment?
- What are my other options (standard treatments, other trials)?
- How did patients do in any previous studies of this treatment?
- How will the doctor know if treatment is working?
- How long will the trial last?

Questions to Ask Before Volunteering



- Can I continue to receive this treatment after the trial ends?
- What kinds of procedures or tests are involved?
- What impact with the trial have on my daily life?
- Will I have to travel for treatment? Will I be compensated?
- How often will I need to travel to receive treatment?
- Will I be hospitalized as part of the trial?
- What costs (if any) will be my responsibility to pay?

Getting into a Clinical Trial Isn't Always a Given



Trials are designed to ask specific questions, and must adhere strictly to entry criteria to ensure data is accurate and meaningful.

This also helps ensure patients who could be made worse by treatment are not exposed to the risk.

Common criteria include:

- **cancer type or stage**
- **treatment history**
- **genetic factors**
- **age**
- **medical history**
- **current health status**

Clinical Trials: Myth versus Fact

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MYTH

I might only get placebo
("sugar pill") instead of treatment.

FACT

Placebos are rarely used and never given
in the absence of some form of treatment.

Clinical Trials: Myth versus Fact

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MYTH

Trials are only for people who have run out of treatment options (a “last resort”).

FACT

Clinical trials are designed for people with cancer of all types and stages.

Clinical Trials: Myth versus Fact

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MYTH

I need to travel to a large hospital or cancer center to participate in a clinical trial.

FACT

Trials take place at local hospitals, cancer centers, and doctors' offices in all parts of the country, in both urban and rural areas.

Clinical Trials: Myth versus Fact

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MYTH

My health insurance doesn't cover the cost of care in a clinical trial.

FACT

Doctor visits, hospital stays, and certain testing procedures may be covered by insurance. Research costs are typically covered by the trial sponsor.

Clinical Trials: Myth versus Fact

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MYTH

Signing a consent form “locks” me into staying in a trial.

FACT

Fact: You are free to change your mind for any reason about participating in a trial anytime before or during a trial.

Clinical Trials: Myth versus Fact

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MYTH

I will be made to feel like a
“guinea pig” experiment.

FACT

Fact: The overwhelming majority of trial participants say they were treated with dignity and respect, and report having had a positive experience in a trial.

Clinical Trials: Myth versus Fact

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MYTH

Clinical trials aren't safe.

FACT

Fact: Safeguards including an Institutional Review Board, Data and Safety Monitoring Board, and an ongoing informed consent process ensure patients' rights and safety are protected.

A Word About Informed Consent



Informed consent = having all the facts before and during a trial

- Study purpose
- Length of time of the study
- Predictable risks
- Possible benefits
- Expectations
- Patient's rights
- Treatment alternatives
- Patient health monitoring
- Safeguards in place
- How to withdraw from study

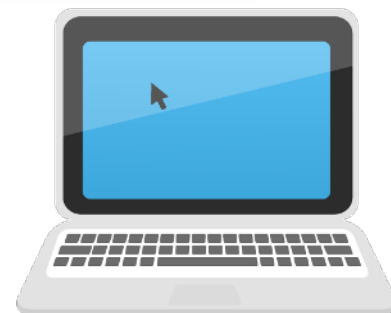
**Be bold in asking for details.
It's YOUR treatment plan.**

How Can I Find a Clinical Trial?

65
YEARS IN
IMMUNOTHERAPY

CANCER
RESEARCH
INSTITUTE

- Ask your doctor
- Ask another doctor if necessary...
- Contact a patient advocacy organization
 - Seek assistance from a clinical trial navigator, if offered
 - CRI Clinical Trial Finder: 1 (855) 216-0127
- Search online
 - <https://www.cancerresearch.org/patients/clinical-trials>
 - <https://clinicaltrials.gov/>



Panel Discussion

Immunotherapy Patient Panel

Moderator

Brian Brewer

Panel

Robert Fitzgerald

Melanoma

Rick Frantz

Kidney Cancer

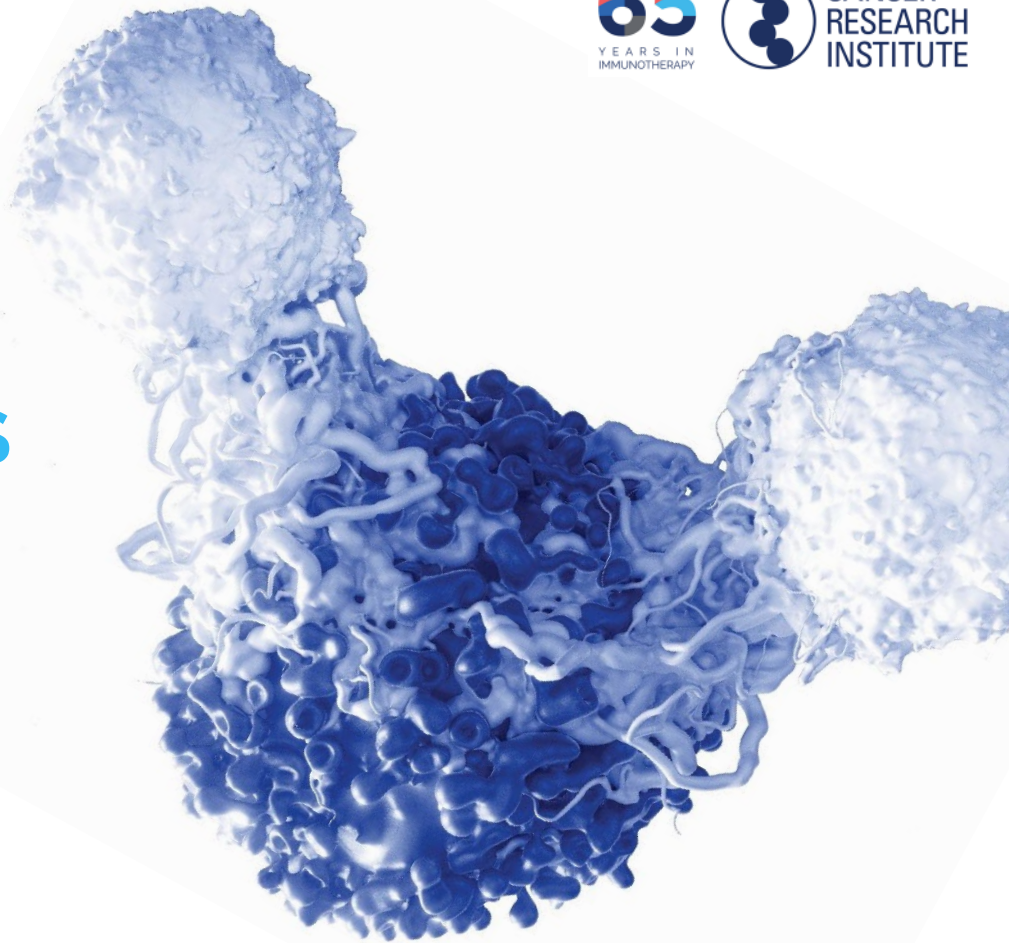
Dixie Frantz

Kidney Cancer

Kathy Vecchio

Non-Hodgkin Lymphoma

BREAKOUT SESSIONS



Breakout Session Rooms



General Immunotherapy

Renata Ferrarotto, M.D.

Ballroom

Genitourinary and Lung Cancers

Jun Zhang, M.D.

Room 5

Melanoma

Adi Diab, M.D.

CPB Telehealth

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Thank you to those who helped promote the summit

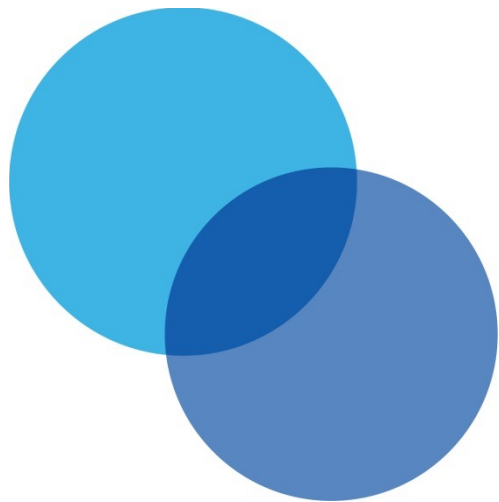
- Addario Lung Cancer Foundation
- American Cancer Society
- Baylor College of Medicine
- But Doctor I Hate Pink (Ann Silberman)
- Cancer Support Community
- CancerCare
- Colorectal Cancer Alliance
- Fight Colorectal Cancer
- FORCE
- Houston Methodist Cancer Center
- Imerman Angels
- Leukemia & Lymphoma Society
- LUNGeivity Foundation
- The Learning Center at MD Anderson Cancer Center
- Let Life Happen (Barbara Jacoby)
- MD Anderson Cancer Center
- Patient Empowerment Network
- The Rose
- Sisters Network
- SHARE
- Susan G. Komen
- Us TOO

Thank You!



You will receive two emails after the summit:

1. **A survey** to share your feedback on the summit as well as insights into future programming.
2. **Information** from the Summit day, including this presentation and instructions on how to use our [Clinical Trial Finder service](#).



CANCER RESEARCH INSTITUTE

IMMUNOTHERAPY **PATIENT SUMMIT**

Houston December 8, 2018