

# *C7 Immunotherapy*



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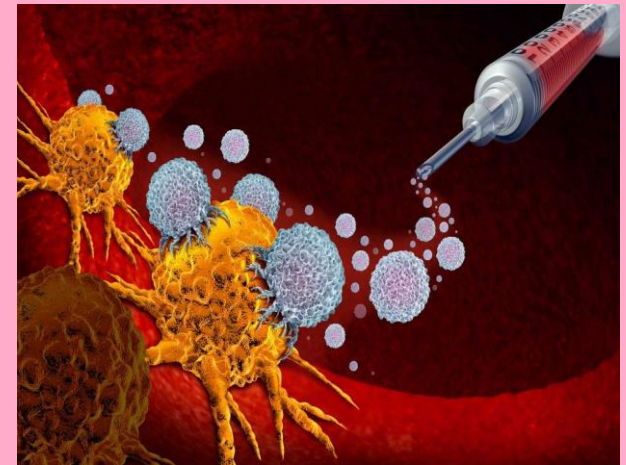
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# What is Immunotherapy?

*Using the body's own immune system to help fight off cancer cells*

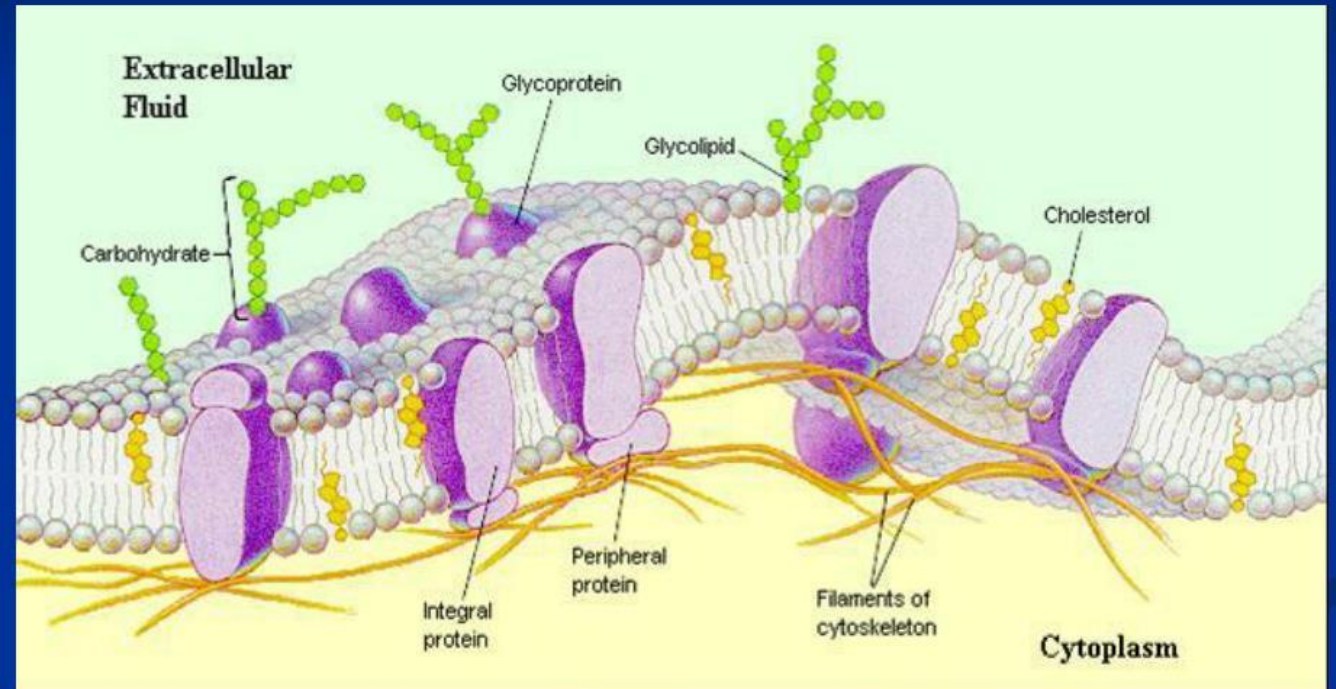
- Man-made or naturally occurring substances
- Big Three
  1. Stop or slow cell growth
  2. Stop the spread
  3. Killing of cancer cells
- Use in conjunction with other treatments



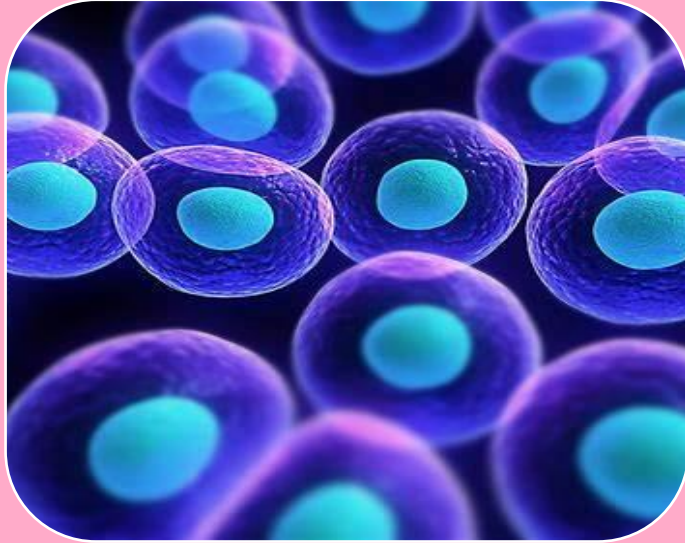
# History

- o Self vs. Non-Self
- o Surface Proteins

## Arrangement of cell surface proteins



# Defenseless Immune System



- Starts off as a normal, healthy cell

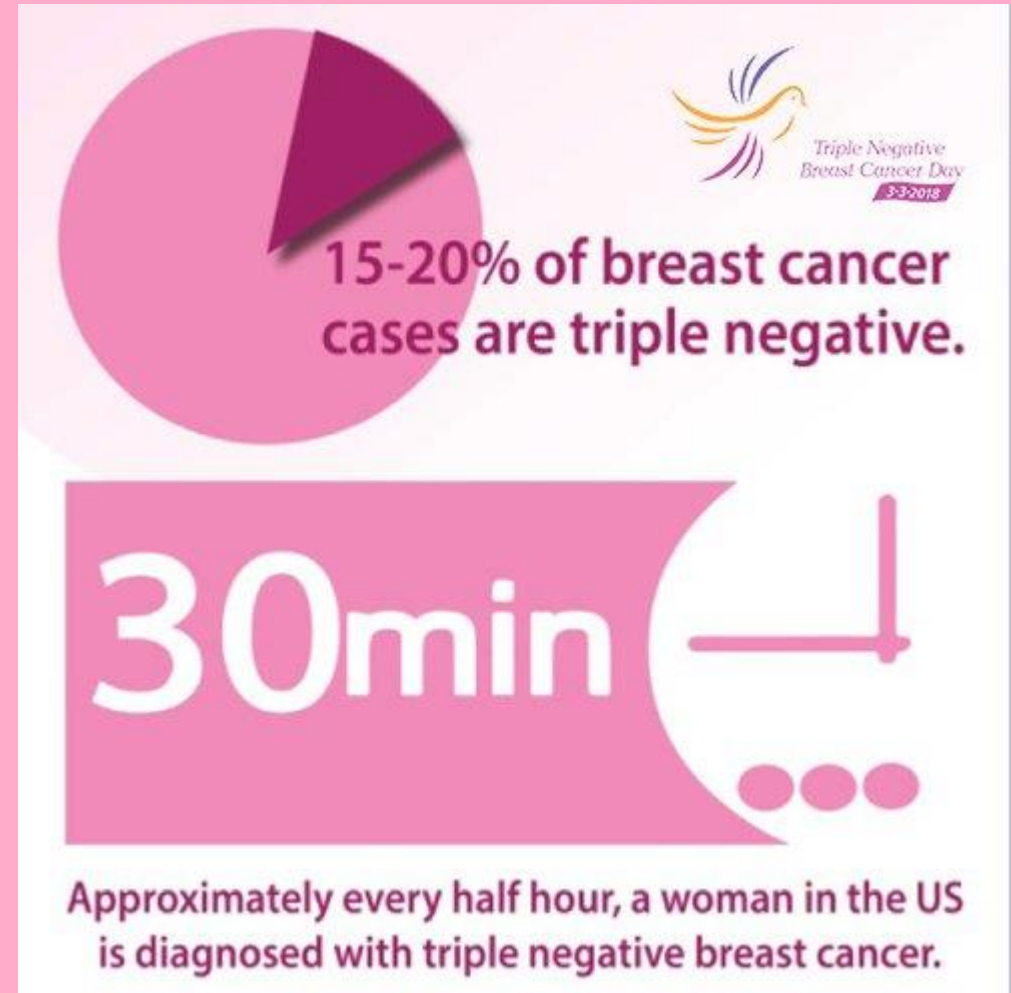


- Cancer cells can develop the ability to avoid the immune system

# Prime Candidates



[VIDEO](#)



# Two Main Types

## Active Immunotherapy

- Immune system stimulation
- Cancer vaccines
- Adoptive cell therapy

## Passive Immunotherapy

- Man-made components to help the fight
- Immune checkpoint inhibitors
- Cytokines

# Treatment Routes

## Immune Checkpoint Inhibitors

- Figuring out sneaky tumors
- Block false signals
- Attack pathways where cancer grows
- Keyruda
  - *Combination Drug*
- Jemperli
  - *mismatch repair deficient (dMMR)*

## Targeted Immunotherapy Medicines

- Target specific receptors on breast cancer cells
- Monoclonal antibodies
- Enhertu
- Herceptin
- Kadcylla
- Margenza
- Phesgo
- Perjeta
- Trodelvy



# Treatment Routes

## Adoptive Cell Therapy

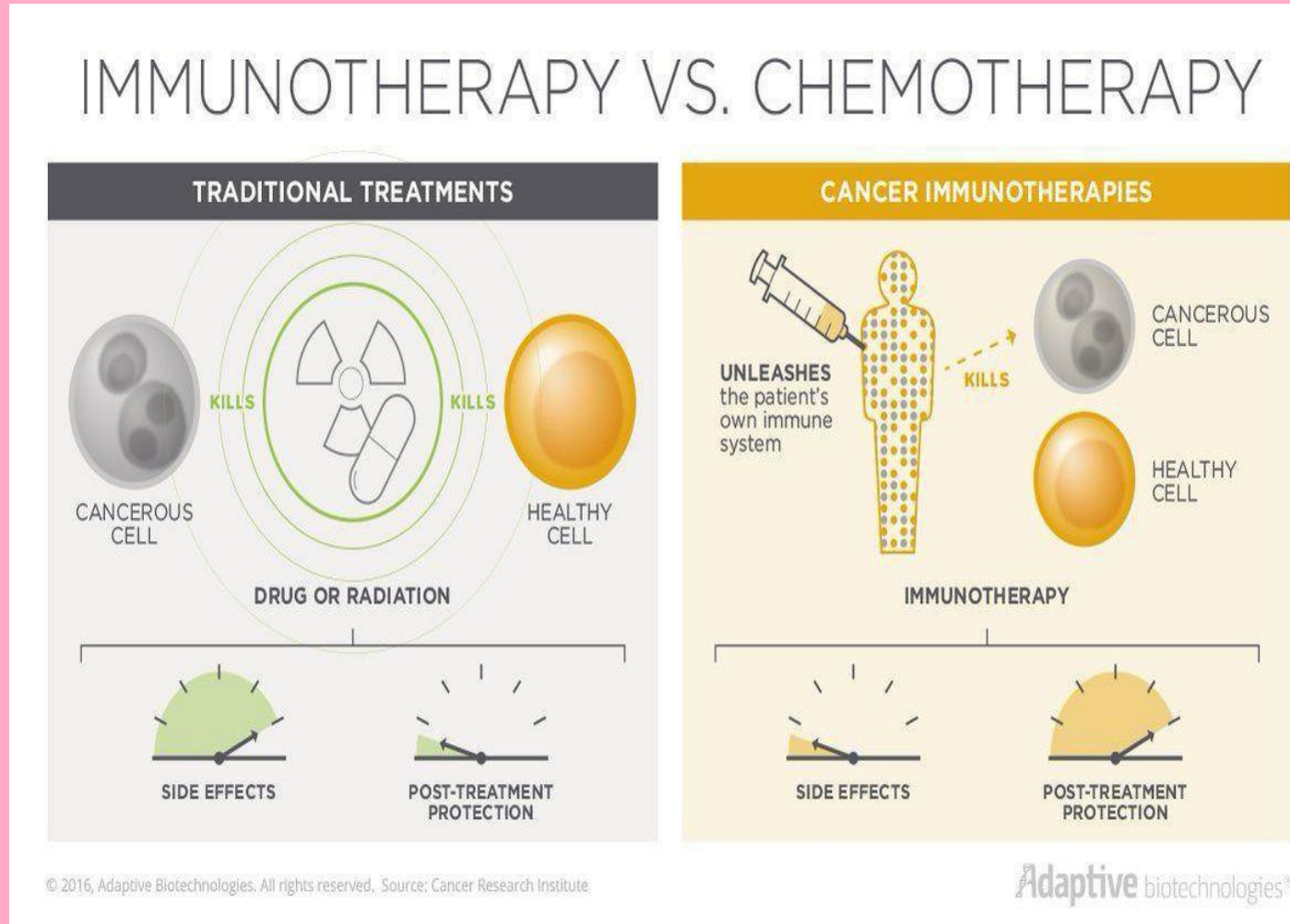
- Also known as 'Cellular Immunotherapy'
- Modification of T-cells
- Long process
- None have been approved by the FDA (clinical trials ONLY)
- 2 types:
  - Chimeric Antigen Receptor (CAR) T-cell Therapy
  - Tumor Infiltrating Lymphocyte (TIL) and interleukin-2 (IL-2) T-cell Therapy

## Cytokines

- Proteins made by certain immune system cells
- Non-specific immunotherapy
- Combination treatment
- None have been approved by the FDA
- 2 types:
  - Interleukins  
white blood cells
  - Interferons  
virus infections

# Advantages and Disadvantages

- + Revolutionizing future
- + Ease of combining with other treatments
- Extended timeline



# Revolutionary Breakthrough

- January 27, 2023 FDA approved Elacestrant (Orserdu)
- ER-positive, HER2-negative, ESR1- mutated advanced or metastatic breast cancer
- Random clinical trial
  - 478 participants and 2 different treatments
  - Elacestrant = 3.8 months PFS
  - Fulvestrant = 1.9 months PFS



# The Future is Bright

*“ Immunotherapy can range from a drug to boost the immune system to re-engineering immune cells to fight cancer. These therapies show great promise, often in cases where cancer has been very advanced and where other known therapies have failed.”*

~ David G. Maloney, MD, PhD, Medical Director, Bezos Family Immunotherapy Clinic

[VIDEO](#)



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