IMMUNO-ONCOLOGY:
THE ROLE OF THE IMMUNE SYSTEM IN CANCER

THE ROLE OF THE IMMUNE SYSTEM

A network of cells, tissues, and organs that protects the body.

THE FIRST AND SECOND LINE OF DEFENSE

The immune system is composed of:

The Innate Immune System:
The first line of defense, which includes barriers like the skin.

The Adaptive Immune System:
The second line of defense, which "remembers" that it has encountered an invading organism and reacts more rapidly on subsequent exposure.

THE IMMUNE SYSTEM TRACKS ALL SUBSTANCES FOUND IN THE BODY

Any new substance raises an alarm that causes the immune system to attack it. These invaders are called antigens.

Evidence indicates that the immune system can recognize and reject tumors.

Two examples of antigens are **germs** and **cancer cells.**

Germs are easily recognized as antigens since they are very different from normal human cells. But **cancer cells** have fewer clear differences.

3 WAYS CANCER CELLS CAN GET PAST THE IMMUNE SYSTEM

SNEAK IN:
cancer cells give off substances that keep the immune system in check.

SURVIVE THE ATTACK:
the immune system recognizes cancer cells, but the response isn't strong enough to destroy them.

HIDE IN PLAIN SIGHT:
the immune system doesn't attack cancer cells because they appear similar to healthy cells.

HELPING THE IMMUNE SYSTEM *ATTACK CANCER CELLS*

1950s →

Researchers propose that the immune system patrols the body to detect and destroy tumor cells.

Scientists and researchers had previously focused on cancer cells and treating cancer as a genetic disease.

Present →

Now the focus is shifting to the microenvironment in which cancer grows, including the immune system.

More than 900 immuno-oncology clinical trials are being conducted across tumor types, including the 10 most common cancers.

The Future

Potential to transform how physicians treat cancer and how patients benefit.

Research in immuno-oncology is finding ways to help the immune system recognize cancer cells and strengthen its response to destroy them.

Immuno-oncology research may have promise in the

TOP TEN MOST COMMON CANCERS WORLDWIDE

(estimated annual incidence)

LUNG 1,800,000	**BREAST** 1,700,000	**COLORECTAL** 1,400,000	**PROSTATE** 1,100,000	**STOMACH** 952,000
LIVER 782,000	**CERVICAL** 528,000	**ESOPHAGEAL** 456,000	**BLADDER** 430,000	**NON-HODGKIN LYMPHOMA** 386,000

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