Innate immune biology offers a multitude of clinical targets and pathways across several therapeutic areas. IFM Therapeutics is investigating systemic and targeted delivery options, as well as the potential for combination treatments.

UNDERSTANDING INNATE IMMUNITY

INNATE IMMUNITY

If the immune system consistently under-responds or over-responds, serious diseases can result. Pathogens are identified by Pattern Recognition Receptors (PRRs) found on the surface or inside specialized immune cells.

**INTERNAL PRRs:**
- Toll-like receptors (TLR)
- C-type lectin receptors (CLR)

Identify external threats by pathogen-associated molecular patterns (PAMPs)

**SURFACE PRRs:**
- Toll-like receptors (TLR)
- C-type lectin receptors (CLR)

Identify internal threat by damage-associated molecular patterns (DAMPs)

PRRs, like NLR, recruit help to overcome threats, using inflammatory responses.

After recognition of a PAMP or DAMP, some NLRs can change shapes to create a multi-protein structure known as an inflammasome.

The inflammasome is a molecular machine that activates inflammatory processes including programmed cell death, through the key protein, caspase-1.

Cell death can attract other inflammatory mediators to fight infection.

CANCER

Cancers grow and spread when tumor cells evade detection by the immune system. The innate immune system is responsible for detecting cancer cells and signaling to the adaptive immune system for the destruction of the cancer cells.

INFLAMMATION

Certain diseases trigger the innate immune system to unnecessarily respond and cause excessive inflammation. This type of chronic inflammation is associated with autoimmune and auto-inflammatory conditions.

PATTERN RECOGNITION RECEPTORS

PRRs are broadly divided into Pattern Recognition Receptors (PRRs) found in both the innate and acquired immune cells.

**PRRs:**
- Toll-like receptors (TLR)
- C-type lectin receptors (CLR)
- NOD-like receptors (NLR)
- RIG-1 like receptors (RLR)
- Other internal NLRs

**Cancer immune biology**

Dendritic Cell

B Cell

Macrophage

Neutrophil

CD4+ T Cell

CD8+ T Cell

γδ T Cell

Pathogen

Antibodies

INNATE SYSTEM AND DISEASE

The immune system is comprised of two arms that work together to protect the body — the innate and adaptive immunizations.

INTRODUCTION

The immune system is comprised of two arms that work together to protect the body — the innate and adaptive immunizations.

INNATE

80%

Dendritic Cell

B Cell

T Cell

Lymphocites

CD4+

CD8+

γδ

Neutrophil

Macrophage

Natural Killer T Cell

Macrophages engulf and destroy invading pathogens

Innate immunity is the body's first line of immunological response and reacts quickly to anything that shouldn't be present.

The adaptive, or acquired, immune system is activated when the innate immune system is not able to fully address a threat, but responses are slow, taking up to a week to fully respond.

Scientists estimate innate immunity comprises approximately 80% of the immune system.