

PLAYERS 2-5

# PAC-ROPHAGE

A microscopic hero, racing against time to protect your home from dangerous invaders!



## CONTENTS:

- 1 Maze Game Board
- 2 PAC-ROPHAGE Pawns
- 4 PATHOGEN Pawns: Sneaky Sid, Rona the Rukus, Adrenaline, and Bleb-berry
- 35 Invader Cards
- 3 Six Sided Dice
- 4 Invader Remanent Tokens
- 4 Plasma Cell Tokens
- 3 Vaccine Tokens
- 78 Antigen Tokens (26 Purple Triangle, 26 Orange Diamond, 26 Blue Cicle)

## INVADERS / NICKNAME



Dying Cell

"Bleb-berry"



Influenza

"Sneaky Sid"



Coronavirus

"Rona the Rukus"



Adenovirus

"Adrenaline"



# SETTING UP



## LET'S SET-UP THE MAZE GAME BOARD:

- Each space in the maze is represented by an antigen (colored token), an activated plasma cell (token), or a larger gray circle.
- Place the antigen tokens (in a random arrangement) onto each of the black dots with the symbols facing up.
- Place the four Activated Plasma Cell Pellets with the icon facing up.



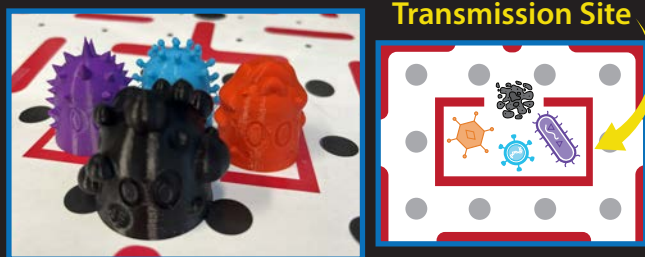
## MEET THE CHARACTERS:



- PAC-ROPHAGE (Yellow): the Pacro-tagonist of the game!
- Influenza (Purple) Pathogen: nickname "Sneaky Sid"
- Coronavirus (Orange) Pathogen: nickname "Rona the Ruckus"
- Adenovirus (Blue) Pathogen: nickname "Adrenaline"
- Dying (Apoptotic) Cell (Black): Nickname: "Bleb-berry"

## NOW PLACE THE CHARACTER PAWNS:

- Place one PAC-ROPHAGE on their yellow START space.
- Place Bleb-berry (black Apoptotic Cell) on the space above the central transmission site.
- Place the three Pathogens at the transmission site as shown on the maze.



## INVADER CARDS:



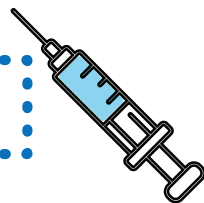
- Shuffle the pathogen and vaccine cards (35) and place them face-down near the board. This is the Pathogen deck.

## CHOOSING CHARACTERS:

Number of Players	PAC-ROPHAGE	Invader Control
2 player game	1 player	1 player control all invaders
3 player game	1 player	2 players control 2 invaders each
4 player game	1 player	1 players controls 2 invaders, 2 players control 1 invader each
5 player game	1 player	4 players control 1 invader each

- Roll the dice to see who plays as PAC-ROPHAGE. The highest number plays as PAC-ROPHAGE.
- Pathogen players place their respective Pathogen Remnant (Fragment) Token in front of them.

NOW YOU ARE READY TO PLAY!



# OBJECT OF THE GAME

Take turns with one person playing as PAC-ROPHAGE while the other players work together playing as the invaders (Pathogens and Apoptotic Cell) trying to catch PAC-ROPHAGE.

Move PAC-ROPHAGE through the Priming Phase Maze collecting Antigens and eliminating Invaders in the way.

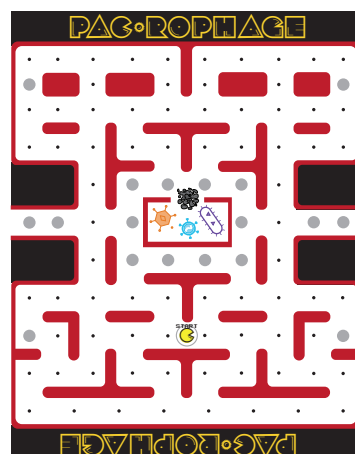
The Invaders (Pathogens and Apoptotic Cell) work together to eliminate PAC-ROPHAGE!



## HOW TO PLAY



- PAC-ROPHAGE has one (1) life in this game.
- PAC-ROPHAGE and the Invaders take turns moving, beginning with the PAC-ROPHAGE.
- PAC-ROPHAGE should try to avoid the Pathogens, but the PAC-ROPHAGE can eliminate the Apoptotic Cell at any time.
- The **Apoptotic Cell can be eliminated at any time by PAC-ROPHAGE**, but for the Pathogens, PAC-ROPHAGE must activate a plasma cell or collect a vaccine for the temporary ability to eliminate Pathogens.



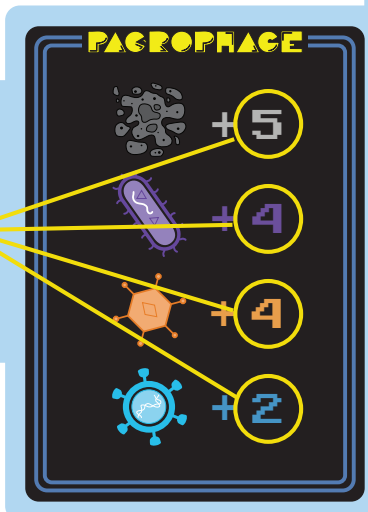
## HERE'S HOW:

Players take turns moving as their characters. PAC-ROPHAGE goes first:

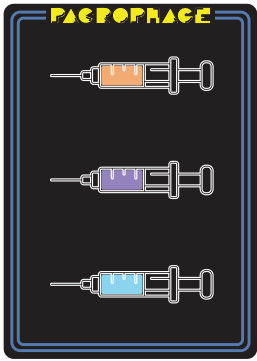
1. PAC-ROPHAGE rolls 3 dice. Add up their value and move that number of spaces in the maze.
2. As PAC-ROPHAGE moves over the board, collect the antigen tokens.
  - PAC-ROPHAGE continues until all antigens are collected, or is eliminated by the Pathogens
  - If PAC-ROPHAGE collects all antigens for one Pathogen, that Pathogen is permanently eliminated from the game. Additionally, PAC-ROPHAGE wears the corresponding Helmet of Immunity from that color Pathogen.

The PATHOGENS now take their turn chasing PAC-ROPHAGE:

3. The Pathogen players flip over the top Invader card in the deck.
4. Each invader card shows the turn order that each pathogen must take (starting from the top; e.g., Bleb-berry (Black), Sneaky Sid (Purple), Rona the Ruckus (Orange), then Adrenaline (Blue). Each pathogen has a number that indicates the number of spaces it must move.
5. Pathogens may collaborate and discuss their moves, but once a pathogen pawn is moved, its turn is over.



6. If a vaccine card is drawn, then place a vaccine token on PAC-ROPHAGE's start space. Then, draw another Pathogen Card for the Pathogens' turn.
- If you draw a vaccine card but all the vaccine tokens have been taken, or there is already a vaccine token on the maze, then discard this card and draw another for the pathogens' turn.



## Movement Rules:

The Route of Exposure connects the left and right sides of the game board. When a player moves through the Route of Exposure, the Pathogen or PAC-ROPHAGE continues its movement on the other side of the board.

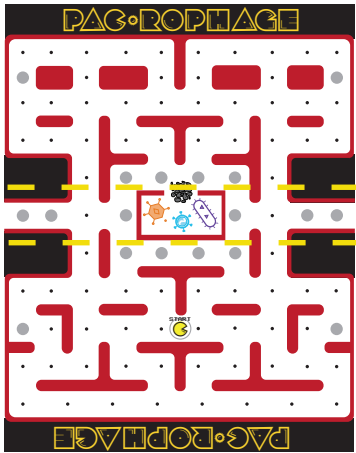
### PAC-ROPHAGE:

- PAC-ROPHAGE may move in all directions (forward, backward, up, and down) through the maze. It may move back and forth multiple times between spaces if it wishes, but it must move the number of spaces rolled.

### INVADERS (Pathogens and Apoptotic Cell):

- Invaders may move forward, backward, up, and down – but must move in a continuous direction. Invaders may not suddenly go in reverse back to the last space they just moved from.
- Invaders cannot move through other Pathogens.
- If an invader cannot move the total of its assigned movement, it moves as far as it can, and then its turn ends. (**NOTE: Invaders do NOT roll the dice**)
- When a Invader Remnant enters the transmission site, that pathogen's movement immediately ends, and its turn is over. The Invader Remnant token becomes reinfected (i.e., replaced) by the Invader Pawn and then waits at the transmission site until the next turn.
- Invaders may collaborate and discuss their moves as a team, but once an invader is moved, its turn is over.
- When starting a game, the Apoptotic Cell (black) must move first before the Pathogens can leave the transmission site and enter the body. So, if the Apoptotic Cell is not the first invader to move on the first card drawn, the pathogens that appear before it loses their turn since they cannot move out of the transmission site.

Route of Exposure



## EATING PATHOGENS

### PLASMA CELL ACTIVATION:

When PAC-ROPHAGE activates a Plasma Cell, the Plasma Cell releases a flood of antibodies allowing PAC-ROPHAGE to eat pathogens (i.e., phagocytosis) for a limited time.

1. Once PAC-ROPHAGE moves onto a plasma cell (token), its movement ends immediately, but its turn continues. Reroll the 3 dice and add them up. PAC-ROPHAGE moves that number of spaces and eliminates any Pathogen in its way (i.e., phagocytosis).
  - Once activated, a plasma cell doesn't reset, and a vaccine can't be triggered while in action.
2. If a Invader is eliminated, it becomes a Invader Remnant that must return to the transmission site (jail) to re infect (i.e., regenerate) the invader. Swap the Invader for a Invader Remnant (i.e., fragment) token of matching color.
3. A Invader Remnant acts like a pawn and must move to travel back to the transmission site to regenerate to re infect the maze. Pathogen Remnants can move through other players and vice versa until they regenerate.



# VACCINES:

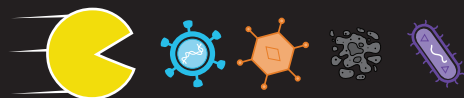
Vaccines stimulate macrophages and other immune cells, leading to a heightened immune response. We are representing this through the addition of another PAC-ROPHAGE. However, Vaccines don't cause a permanent increase in macrophage count.

- Once PAC-ROPHAGE moves onto a vaccine (token), its movement ends immediately, but its turn continues. Place a second PAC-ROPHAGE on the board on the space opposite the PAC-ROPHAGE's original starting position. Reroll the 3 dice and add them up. PAC-ROPHAGE moves that number of spaces and eliminates any Pathogen in its way (i.e., phagocytosis).
- When a vaccine is used, either PAC-ROPHAGE can eliminate the specific pathogen that corresponds to that vaccine.
- After vaccination PAC-ROPHAGE collects the Helmet of Immunity from that color pathogen.
- In vaccine mode, the plasma cell cannot be activated.
- Once all the PAC-ROPHAGE(s) have completed their movement, one PAC-ROPHAGE is removed from the board at the choice of the PAC-ROPHAGE player.



- When either PAC-ROPHAGE has collected all antigens, eliminates all 4 Pathogens at once, or is eliminated by one of the Pathogens, the game is over.
- If PAC-ROPHAGE collected all the antigens or eliminated all 4 Pathogens at once, it won. Otherwise, the Pathogens and Apoptotic Cell win as a team.

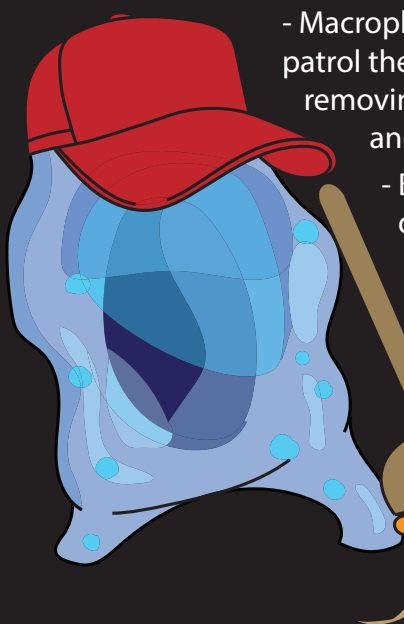
## MISSION BRIEFING: Defend Your Body!



Now that you've learned how to navigate through the game's controls and mechanics, it's time to dive into the biology behind the immune system! Here's what you need to know:

### The Immune System: Your Body's Defense Team

The immune system is a powerful defense network inside your body, made up of specialized cells working together to protect you from harmful invaders, such as bacteria, viruses, and other pathogens. Your white blood cells are the key players in this battle. Let's meet them!



- Macrophages: These are your body's clean-up crew. They constantly patrol the tissues, looking for and clearing out dead or dying cells. By removing these cellular remains quickly, they help prevent inflammation and keep things running smoothly.
- B Cells: These warriors produce **antibodies**—specialized weapons designed to lock onto invading pathogens. When B cells find an invader, they tag it for destruction or neutralize it directly.
- T Cells: These elite soldiers don't just track invaders—they actively destroy infected cells. Think of them as the body's special forces, targeting and eliminating threats at the source.
- Antigen-Presenting Cells (APCs): APCs are like **scouts** that capture pathogens and display their antigens to T cells. By presenting the invader's "ID," they help T cells recognize and respond faster to the threat.

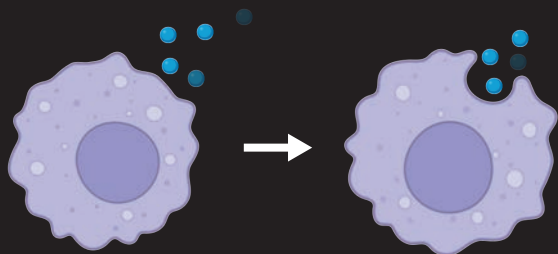
## How It Works: Defending Your Body from Invaders

1. Pathogens (like bacteria or viruses) enter your body and release antigens, which are foreign molecules your immune system can recognize.
2. B cells produce antibodies to neutralize the invaders or mark them for destruction.
3. T cells directly attack and destroy infected cells to stop the spread of the pathogen.
4. Macrophages clean up dead or damaged cells, making sure there's no leftover debris that could cause inflammation or autoimmune issues.



## PHAGOCYTOSIS: The Superhero Showdown!

The history of phagocytosis is fascinating because it's a process that's been around for a very long time, even before humans existed! Phagocytosis is one of the most ancient and basic ways that living organisms protect themselves from harm.

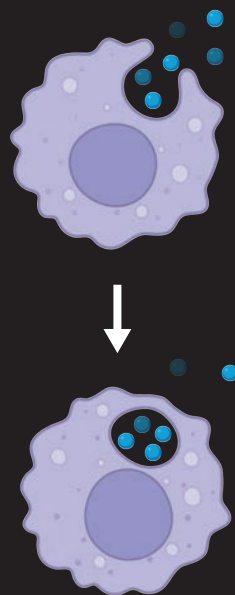


**The Chase:** Once the macrophage sees the bad guy, it starts moving toward it. Think of the macrophage like a superhero running toward the villain, ready to catch them. The macrophage sends out "arms" (called pseudopodia) that stretch around the bad guy, almost like it's reaching out to grab it.

**The Big Tackle:** Now the macrophage is super close, and it wraps around the bad guy! The arms (pseudopodia) are like superhero hands grabbing onto the villain. It's like the macrophage is saying, "Gotcha!"

**The Swallow:** After catching the bad guy, the macrophage swallows the villain whole, wrapping itself around the bacteria or virus, trapping it inside. It's like the macrophage has just gobbled up the bad guy and locked it in a special bubbly prison (called a phagosome) so it can't escape!

**The Cleanup:** Inside the macrophage, there are tiny superhero tools called lysosomes—like cleaning supplies and super strong cleaning sprays. These lysosomes join up with the phagosome (the bad guy's prison) and release special enzymes that break down the bad guy into tiny, harmless bits.



**Ready? Let's go defend your body!**