

LEAGUE OF IMMUNO LEGENDS

Game Instructions

Ages: 13+ years old

Number of Players: 12+

OVERVIEW

Players can choose between 12 different immune cells, with different stats/power against different types of diseases and disorders, that in turn have their own strength. Players must follow the immune system pathways to fight an infection, with dice giving a sense of chance. Players can also receive and use different immunotherapies as a *boost* against the diseases. The health of the body is indicated a health bar that moves between 1-10. The goal of the game is to ‘defeat’ as many of the different diseases and disorders before the body can take no more.

GAME CONTENTS

The materials needed for this game are:

- Game Instructions
- Cell Cards [player cards] (x12)
- Disease Cards (x16)
- Immunotherapy Cards (x20)
- “Life”/Health Bar
- First exposure label (x9)
- 12-Sided Die [we found many templates on line if you need one]
- 6-Sided Die (x5)
- Paperclips or other stats indicators

SET-UP

- Print and cut game cards, other files
- Distribute Cell Cards [player cards] (form teams if needed)
- Shuffle and place Disease Cards in middle
- Shuffle and place Immunotherapy Cards in middle

GAME PLAY

Different Rolls (12-Sided Die):

- **(1-6) rolled:** indicates *no effect* and the next player gets to roll (clockwise)
 - **(7-9) rolled:** player picks up an *immunotherapy* card to be used later in the game and the next player rolls
 - **(10-12) rolled:** player picks up a *disease* card that must be fought off
1. The player with the birthday closest to today’s date will roll the 12-sided die
 2. Moving clockwise, players will continue to roll the 12-sided die until a disease card is picked up
 3. **When a disease card is picked up the 12-sided die will no longer be rolled,** and the players must:
 - **Determine which player needs to go first** (*Hint: Use given flow charts*)
 - **Place down any immunotherapy cards they wish to use** (all cells receive those boosts for the specific antigen)
 - The **white** number in the **top right corner** indicates how much the cell’s strength increases
 - The **red** number in the **top right corner** indicates how much the disease’s strength decreases
 4. The first player will roll the number of dice indicated by the **bold orange** number corresponding to the specific type of infection, indicated by the Cell card

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5. The *player to the right will play the disease* and roll the number of dice indicated by the number in the **top right corner**
 - The health bar is increased by the result from the oldest player rolling a 6-sided die
6. **If the player:**
 - **Rolls higher** than the disease, then the next player in the pathway will roll and so on
 - **Rolls lower** than the disease, then the health bar decreases by one and the player tries again
7. **The rolls will continue until either:**
 - **The players defeat the disease**, which occurs when the cells with the ability to eliminate the pathogen have rolled higher than the disease
 - **The health bar reaches 1**, at which point the game ends and the number of defeated diseases is counted up
8. **If the players defeat the disease before the health bar reaches 1**, game play will continue from the beginning and players gain a first exposure label for that disease
 - The disease card is placed back in the pile (in case of a second exposure) and the pile is shuffled
 - Any immunotherapy cards that were used are placed aside and stat changes will no longer be in effect
9. **If a secondary exposure occurs**, then the memory B-cell players will begin the cycle with an increased response of +1 (representing a remembered pathogen, quicker response)

DEVELOPER

This game was designed and developed by Carnegie Mellon University student Claire Kenny as a project for a summer 2020 course, 99-520, section O *Development of Biomedical Engineering Educational Outreach Activities for Middle and High School Audiences*.

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FUNGAL AND PARASITIC INFECTIONS

No particular order is needed, therefore any of the cells below can be used at choice. Should one cell fail, then the turn is passed to the next possible cell able to address the given infection.

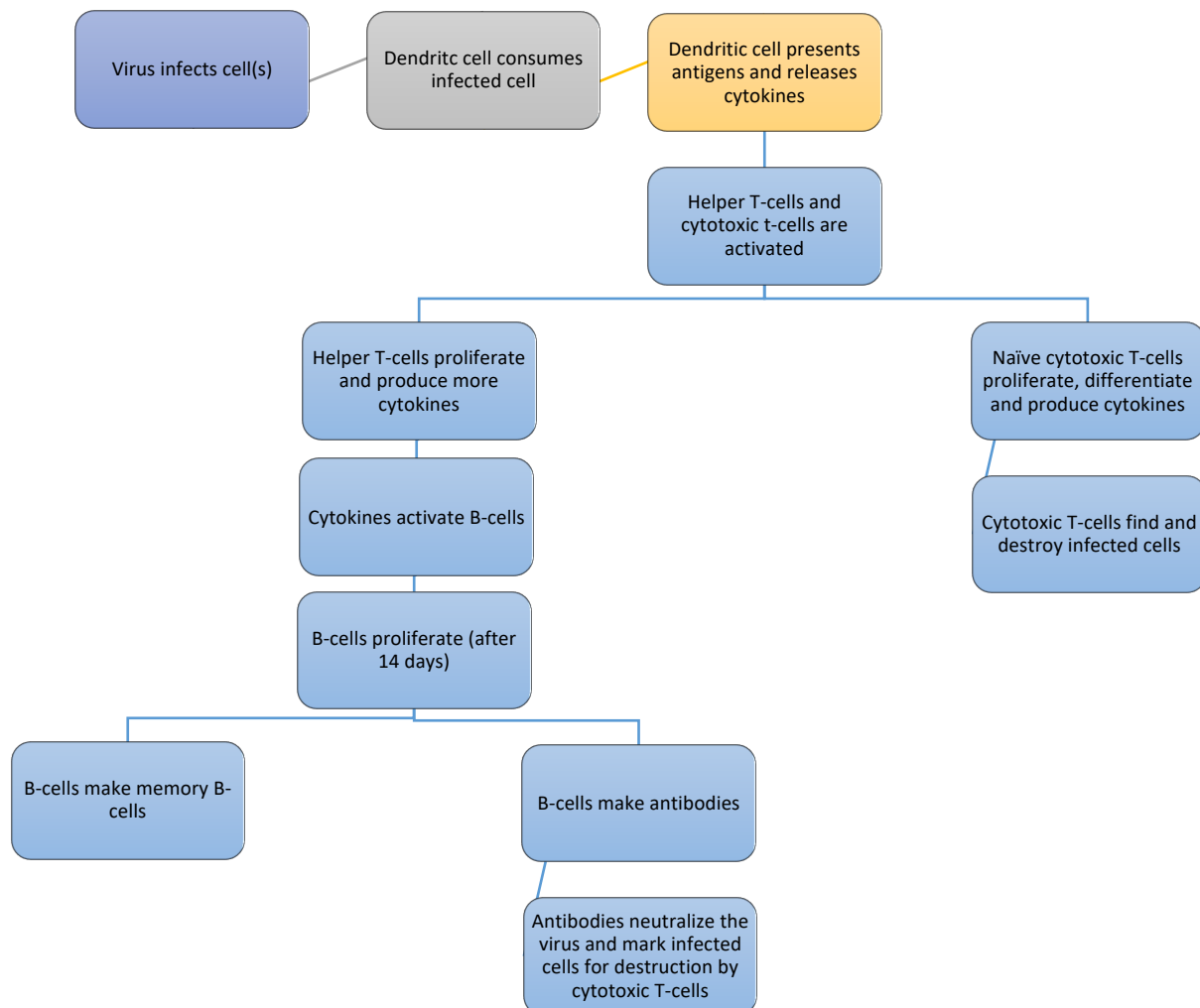
Fungal

- Dendritic cells
- Macrophages
- Neutrophils

Parasitic

- Macrophages
- Mast cells
- Basophils
- Neutrophils
- Eosinophils
- NK cells

VIRAL INFECTION PATHWAY



BACTERIAL INFECTION PATHWAY CHART

