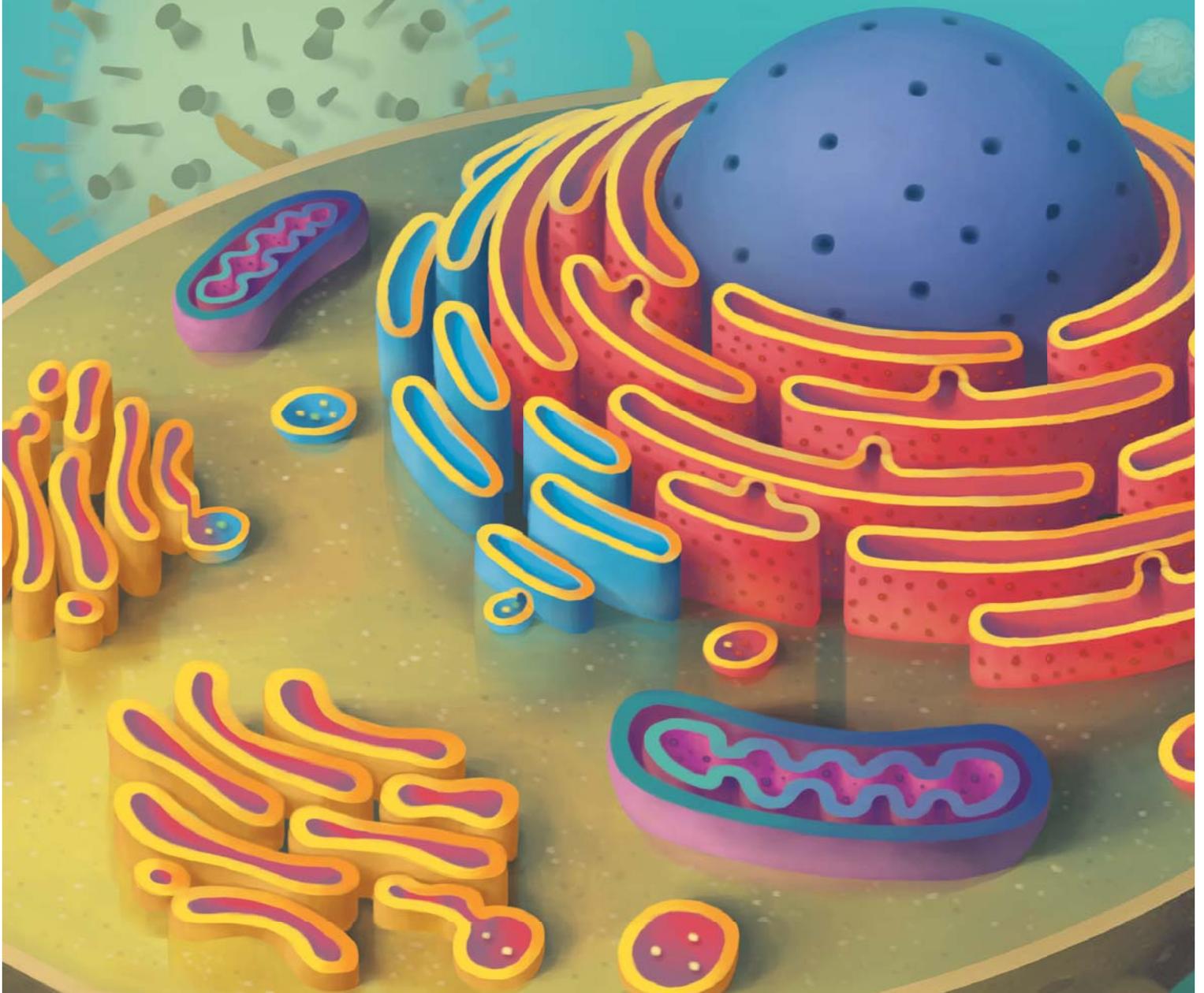


CYTOSIS

A Cell Biology Game

RULEBOOK



CYTOSIS: A CELL BIOLOGY GAME

A worker placement game inside a human cell for 2 - 5 players

OBJECTIVE

Cytosis is a worker placement game that takes place inside a human cell. Players start out with a number of workers and on their turn, they will place one of their workers on any available location within that cell. Some of the locations provide players with resources (e.g., mRNA, ATP); some with actions (e.g., convert resources, collect cards). Resources are used to build enzymes, hormones, and/or receptors, which score Health Points. The player with the most Health Points at the end of the game wins!

COMPONENTS - BASE GAME

43 CELL COMPONENT CARDS

- 10 Enzyme Cards
- 6 Protein Hormone Cards
- 6 Steroid Hormone Cards
- 5 Steroid Hormone Receptor Cards
- 5 Protein Hormone Receptor Cards
- 4 Additional Resource Cards
- 7 Detoxification Cards



5 GOAL CARDS



12 EVENT CARDS



1 FIRST PLAYER CARD



60 MACROMOLECULE CUBES

- 18 mRNA cubes (Black)
- 18 Protein cubes (Red)
- 12 Carbohydrate cubes (Green)
- 12 Lipid cubes (Yellow)



2 GREY WORKERS



30 ATP TOKENS



PLAYER PIECES

- 20 Workers (4 of each in 5 different colors)
- 10 Transport Vesicle disks (2 of each in 5 different colors)
- 15 Player markers (3 of each in 5 different colors)



COMPONENTS - VIRUS EXPANSION

6 CELL COMPONENT CARDS

- 2 Ebola Virus Attack
- 2 Influenza Virus Attack
- 2 Rhinovirus Virus Attack



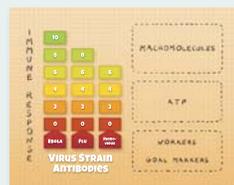
2 GOAL CARDS



3 EVENT CARDS



5 PLAYER MATS



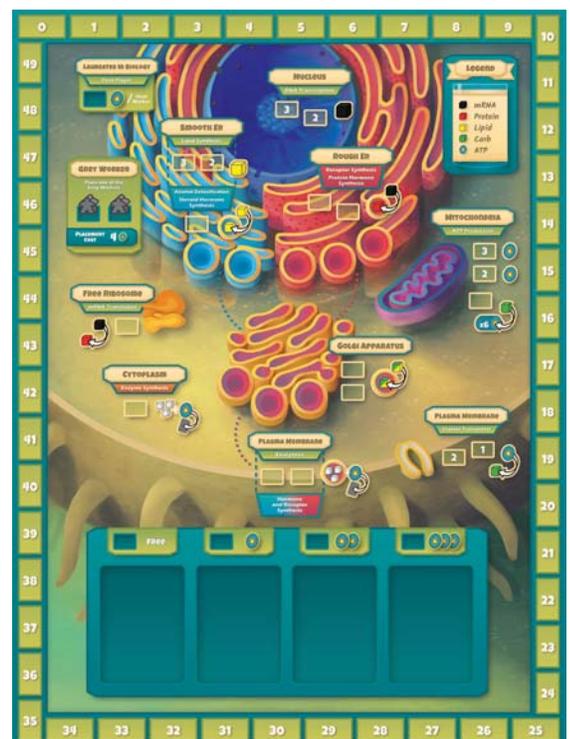
5 DICE



15 ANTIBODY MARKERS (PINK CUBES)



1 GAME BOARD (DOUBLE-SIDED)



GAME SETUP

Remove all the components from the Virus Expansion and place them back into the box. You won't use these components if you're playing the Base Game.

- From the Event Cards, remove the 3 Virus Event Cards.



- From the Cell Component Cards, remove the 6 Virus Attack Cards.



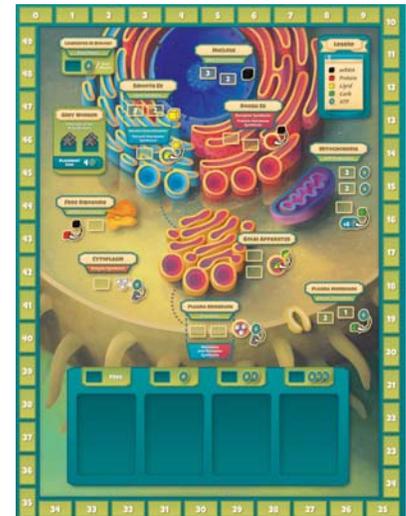
- From the Goal Cards, remove the two **Virus Expansion Goal Cards** ("Virus Attack" and "Immune Response").



- Remove the 5 Virus Dice, 15 Antibody Markers and 5 Player Mats.



- Place the board in the center of the play area with the Base Game side of the board face up. Then, separate the **macromolecule cubes** into like colors, placing them in piles near the board. Now, place the **ATP Tokens** in a pile near the board. These macromolecule cubes and **ATP Token** piles make up the general resource stock. Place the 2 Grey Workers on the Grey Worker area of the board.



- Separate the three types of cards: Event Cards, Goal Cards, and Cell Component Cards. Shuffle the 12 **Event Cards**. If playing a 2 or 3 playergame, randomly remove 2 Event Cards and place them back into the box. If playing a 4 player game, randomly remove 1 Event Card, and if playing a 5 player game remove none. Now, place the remaining Event Cards face down as a deck near the game board.

- Shuffle the **Goal Cards** and place a number of them face up above the game board, equal to the number of players plus 1 (Exceptions: In a 2 player game, use four Goal Cards. In a 5 player game without the Virus Expansion, use all five Goal Cards.) Place any unused Goal Cards back into the box.

- Shuffle the Cell Component Cards and flip four of these cards face-up into the four available spots of the Cell Component Card Area of the board.

- Deal each player three Cell Component Cards. Each player should secretly choose two of the three and shuffle the one unchosen Cell Component Card in with the remaining Cell Component Cards. Now, place these remaining Cell Component Cards face down as a deck to the right of the Cell Component Cards Area just off of the board.

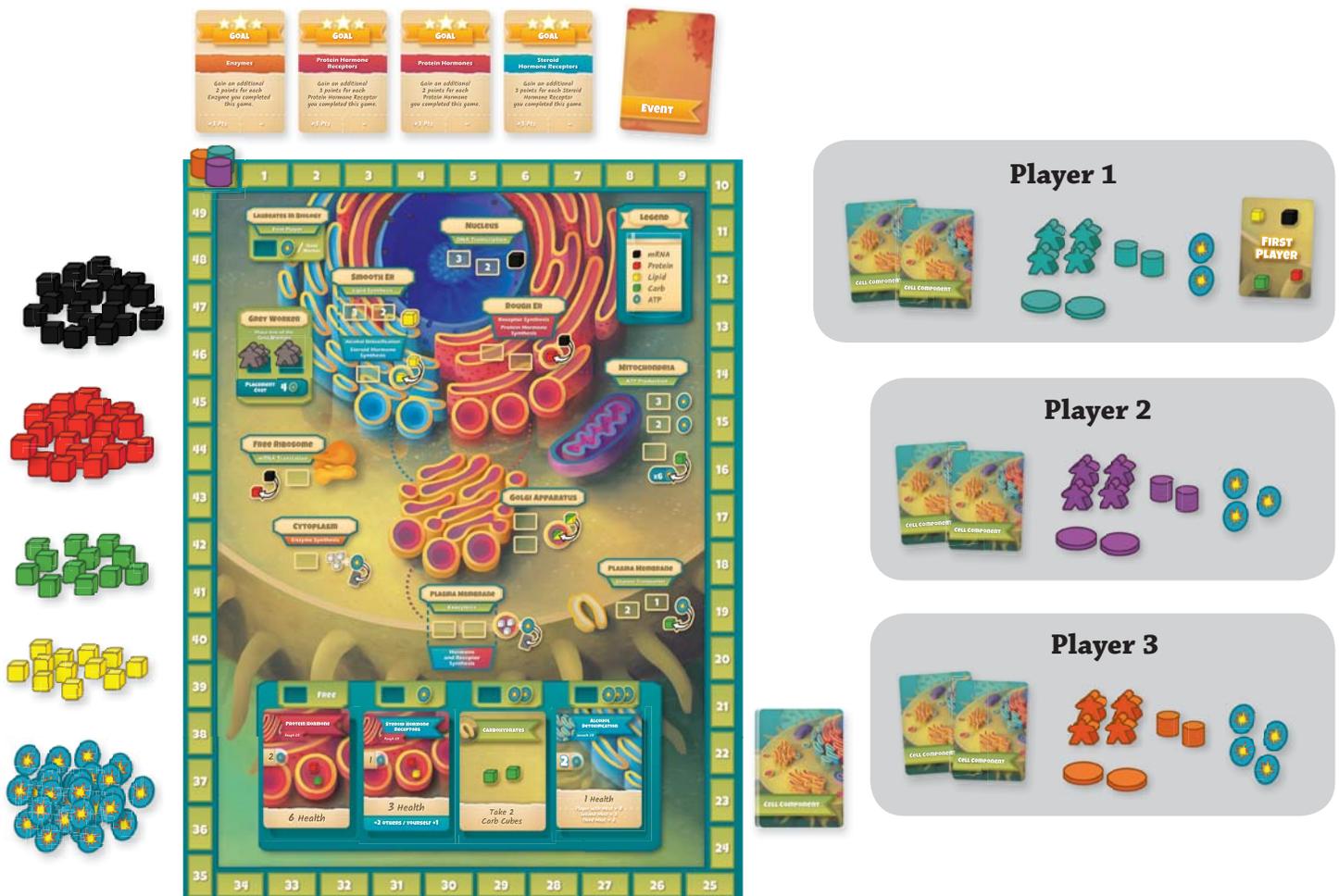
- Give each player their Player Pieces according to the chart on the following page. Each player's pieces should all be of the same color:

2 OR 3 PLAYER GAME	 4 Workers	 2 Transport Vesicle Disks	 3 Markers (1 Heath Marker, 2 Goal Markers)
4 PLAYER GAME	 3 Workers	 2 Transport Vesicle Disks	3 Markers (1 Heath Marker, 2 Goal Markers)
5 PLAYER GAME	 2 Workers	 2 Transport Vesicle Disks	3 Markers (1 Heath Marker, 2 Goal Markers)

- Each player should place one of their Markers on the number 0 on the Health Track (the numeric track surrounding the game board). This is a player's Health Marker, which tracks that player's score along the Health Track.
- Whoever was sick most recently receives the **First Player Card** and 2 **ATP**, the player to their left receives 3 **ATP**, the next player 4 **ATP**, and so on until all players have **ATP**. This begins your personal resource stock.
- Each player chooses 2 additional resources (any combination of **ATP**, **mRNA** or **Lipids**) to add to their personal resource stock.

You are now ready to begin gameplay!

Here's what setup for a 3 player game looks like



The setup for a 3-player game includes the following components:

- Goal Cards:** Four goal cards are shown: Enzymes (3 stars), Protein Hormone Receptor (3 stars), Protein Hormone (3 stars), and Steroid Hormone Receptor (3 stars). Each goal card provides 2 points for each resource completed.
- Event Card:** A yellow event card with a star icon.
- Game Board:** A large board with a Health Track (0-10) and various organelles like Nucleus, Smooth ER, Rough ER, Mitochondria, Golgi Apparatus, Cytoplasm, and Plasma Membrane. It includes a legend for mRNA, Protein, Lipid, Carb, and ATP.
- Player 1:** Includes 2 Cell Component cards, 4 Worker icons, 2 Transport Vesicle Disks, 1 Heath Marker, 2 Goal Markers, and a First Player Card.
- Player 2:** Includes 2 Cell Component cards, 3 Worker icons, 2 Transport Vesicle Disks, 1 Heath Marker, and 2 Goal Markers.
- Player 3:** Includes 2 Cell Component cards, 2 Worker icons, 2 Transport Vesicle Disks, 1 Heath Marker, and 2 Goal Markers.
- Resource Stacks:** Stacks of black, red, green, yellow, and blue cubes representing different resources.
- Free Cards:** A set of cards including Protein Hormone Receptor (6 Health), Protein Hormone (3 Health), Carbohydrates (Take 2 Carb Cubes), and Action (1 Health).

GAMEPLAY

GAME SUMMARY

Cytosis is played in rounds and each round is divided into two phases: During Phase 1, players will place their workers in order to collect resources and take actions with the goal of completing Cell Component Cards and thus scoring Health Points. Once all players have placed all their workers, Phase 1 is over and Phase 2 begins. During Phase 2, an Event Card will be revealed and the board will be refreshed.

This process continues until the last Event Card is revealed, after which one more round is played and then players will add up their final number of Health Points.

PHASE 1: WORKER PLACEMENT

Every round, the player holding the **First Player Card** will be the first player to take their turn, then play continues clockwise.

On their turn, a player must place exactly one of their workers on any available spot on the board and then must also immediately collect the resources or take the action associated with that spot. Then, the player to their left (i.e. clockwise) now takes their turn. This worker placement process continues clockwise with each player placing workers in this fashion, one at a time, until all players have placed all of their workers.

Only one worker may be placed on each spot. If a spot is occupied, it is not available again during that round.

There are four main types of worker placement spots in the base game:

- 1 Collecting Resources** (to add to your personal resource stock),
- 2 Purchasing Cell Component Cards** (to add to your hand),
- 3 Completing Cell Component Cards** (these cards are completed over multiple turns),
- 4 Taking the First Player Card** (and **Placing a Goal Marker** or **Taking 1 ATP**)



Available **Not Available**

PHASE 2: EVENT CARD REVEALED AND BOARD REFRESHED

- All players should retrieve the workers they placed during Phase 1. (*Transport Vesicle Disks and any cubes on them should stay on the board.*)
- Now, reveal the top Event Card from the Event deck and follow the instructions on that card. This new Event Card is the only active Event Card. Any Event Cards from previous rounds become inactive.
- Remove the **cheapest** Cell Component Card from the Cell Component Card Area and place it in the Cell Component Card discard pile. Now, without changing the order of the cards, slide any remaining face up Cell Component Cards to the left-most open spot(s). Then fill any newly opened spots with new Cell Component Cards from the top of the Cell Component Card deck.



ENDING THE GAME:

Revealing the last Event Card marks the last round of the game. Play through Phase 1 one last time and instead of going through Phase 2, skip directly to **Scoring**.

WORKER PLACEMENT SPOTS

The game board contains a number of spots on which players can place their workers.

COLLECTING RESOURCES (TO ADD TO YOUR PERSONAL RESOURCE STOCK)



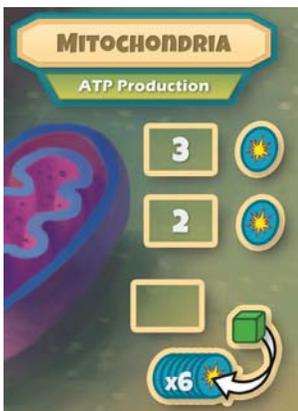
NUCLEUS (*DNA Transcription*)

If a player places a worker on the spot marked with a 3, they receive 3 **black mRNA cubes**. If a player places on the spot marked with a 2, they receive 2 **black mRNA cubes**. Players should add these **black cubes** to their personal resource stock.



PLASMA MEMBRANE (*Glucose Transporter*)

If a player places a worker on the spot marked with a 2, they pay 2 **ATP** from their personal resource stock and receive 2 **green Carbohydrate cubes**. If a player places on the spot marked with a 1, they pay 1 **ATP** from their personal resource stock and receive 1 **green Carbohydrate cube**. Players should add these **green cubes** to their personal resource stock.



MITOCHONDRIA (*ATP Production*)

If a player places a worker on either of the spots marked with a 2 or 3, they receive 2 or 3 **ATP** Tokens respectively. If a player places on the bottom-most spot, they must pay 1 **green Carbohydrate cube** from their personal resource stock, and receive 6 **ATP**. (If 6 **ATP** are not available, they may take less than 6 **ATP**). Players should add these **ATP Tokens** to their personal resource stock.



SMOOTH ER (*Lipid Synthesis*)

If a player places a worker on the spot marked with a 3, they receive 3 **yellow Lipid cubes**. If a player places on the spot marked with a 2, they receive 2 **yellow Lipid cubes**. Players should add these **yellow cubes** to their personal resource stock.



FREE RIBOSOME (*mRNA Translation*)

If a player places a worker on the **mRNA Translation** spot, they may trade any number of **black mRNA cubes** from their personal resource stock for the same number of **red Protein cubes**. Players should then add these **red cubes** to their personal resource stock.

EXTRA RESOURCES ADDED BY EVENT CARDS

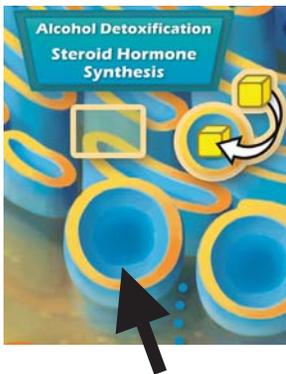
If an Event Card adds a resource of any type to a location on the Board, that resource is awarded to the first player to place on any spot within that location on the board at no additional cost. (See **Event Cards** for more details)

PURCHASING CELL COMPONENT CARDS (TO ADD TO YOUR HAND)



If a player places a worker on any of the spots within the Cell Component Card area, they should pay the **ATP** cost (indicated to the right of their worker) and select the card just below their worker, placing that card into their hand.

COMPLETING CELL COMPONENT CARDS (THESE CARDS ARE COMPLETED OVER MULTIPLE TURNS)



Budding Transport Vesicle Location

SMOOTH ER

If a player places a worker on the lower portion of the Smooth ER (Alcohol Detoxification or Steroid Hormone Synthesis) they must do one of two things:

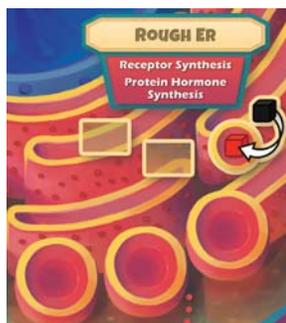
OPTION 1: ALCOHOL DETOXIFICATION

If a player places a worker to complete an Alcohol Detoxification Card, they must pay the amount of **ATP** shown on the card and then immediately gain 1 Health Point.

OPTION 2: STEROID HORMONE SYNTHESIS

The process of completing Steroid Hormone Cards starts by placing a worker in the Steroid Hormone Synthesis area of the **Smooth ER**. If a player places a worker in this spot, they must:

1. Place one of your Transport Vesicle Disks on any one of the available Budding Transport Vesicle Locations (yellow rimmed circles) in the **Smooth ER**.
2. Place a number of **Lipid cubes** (just **Lipid cubes**, **Carbohydrate cubes** must be placed on their Transport Vesicle Disk in the Golgi Apparatus) from their personal resource stock onto that Transport Vesicle Disk according to the quantity required by the Steroid Hormone Card that player is trying to complete.



ROUGH ER (Protein Hormone Synthesis / Receptor Synthesis)

The process of completing a Protein Hormone, Protein Hormone Receptor or a Steroid Hormone Receptor Card starts by first placing a worker in the **Rough ER**. If a player places a worker on any of the spots within the **Rough ER** they must:

1. Place one of their Transport Vesicle Disks on any one of the available budding Transport Vesicle locations (yellow rimmed circles) in the **Rough ER**.
2. Trade the number of **mRNA cubes** from their personal resource stock (according the Cell Component Card they are trying to complete) for the same number of **Protein cubes** from the general resource stock. Then, place those **Protein cubes** onto that Transport Vesicle Disk placed in Step 1 above.

*Note: You **must** start with **mRNA cubes**. You may **not** place **Protein cubes** from your personal resource stock here.*

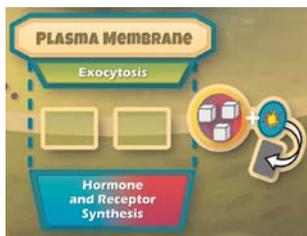


GOLGI APPARATUS

The Golgi Apparatus is the second step in the process of completing a Protein Hormone, Steroid Hormone, Protein Hormone Receptor or Steroid Hormone Receptor Card. If a player places a worker on either of the spots within the Golgi Apparatus, they must:

1. Move one of their Transport Vesicle Disks (and all cubes on it) from either the Smooth ER or the Rough ER, onto an available budding Transport Vesicle location in the Golgi Apparatus.
2. Place one **Carbohydrate cube** or place one **Lipid Cube** from their personal resource stock onto that Transport Vesicle Disk, according to the Cell Component Card they are trying to complete. (This spot does NOT allow a player to trade a **Carbohydrate cube** for a **Lipid cube** or vice versa.

Note: If the active player places a worker on a spot in the Smooth ER, Rough ER or Golgi Apparatus, and no budding Transport Vesicle locations for that area are available, that player chooses one Transport Vesicle Disk (and all cubes on it) to remove from the board and return to the player who owns it. That active player must now place (or move) their Transport Vesicle Disk and appropriate cubes, onto the newly opened Transport Vesicle location.



PLASMA MEMBRANE (Exocytosis)

The exocytosis of the Plasma Membrane is the final step in completing a Protein Hormone, Steroid Hormone, Protein Hormone Receptor or Steroid Hormone Receptor Card. If a player places a worker on any of the spots within the Plasma Membrane, labeled Exocytosis, they must:

1. Reveal the Cell Component Card they are completing.
2. Move one of their Transport Vesicle Disks from the Golgi Apparatus, through the Plasma Membrane, and out of the cell.
3. Immediately pay the **ATP** cost indicated on that Cell Component Card.
4. Place the macromolecule cubes from the Transport Vesicle Disk back into the general resource stock. The Transport Vesicle Disk should go back to the player who owns it.
5. Now, gain Health Points according to the number indicated on that Cell Component Card just completed.



CYTOPLASM (Enzyme Synthesis)

The Cytoplasm is the final step in completing an Enzyme Card (once a player has red **Protein cubes** from the Free Ribosome). If a player places a worker on the spot within the Cytoplasm labeled Enzyme Synthesis, they must:

1. Reveal the Enzyme Card they are completing.
2. Immediately pay the **ATP** cost indicated on that Enzyme Card.
3. Pay a number of **Protein cubes** (and a **Carbohydrate cube** if required) from their personal resource stock, as indicated on that Enzyme Card.
4. Now, gain Health Points according to the number indicated on that Enzyme just completed.

TAKING THE FIRST PLAYER CARD (AND PLACING A GOAL MARKER OR TAKING 1 ATP)



LAUREATES IN BIOLOGY

If a player places a worker on the spot in the Laureates in Biology area, they must take the **First Player Card** (and keeps it for all subsequent rounds until the **First Player Card** is claimed by another player) and they may choose to do one of the following:

1. Take 1 **ATP** and add it to their personal resource stock, **or**
2. Place one of their two Goal Markers on one of the available Goal Cards above the game board. (Once a Goal Marker has been placed, it may never be moved.)

The First Goal Marker placed on each Goal Card immediately awards that player 3 Health Points. (See **Goal Cards** for details)

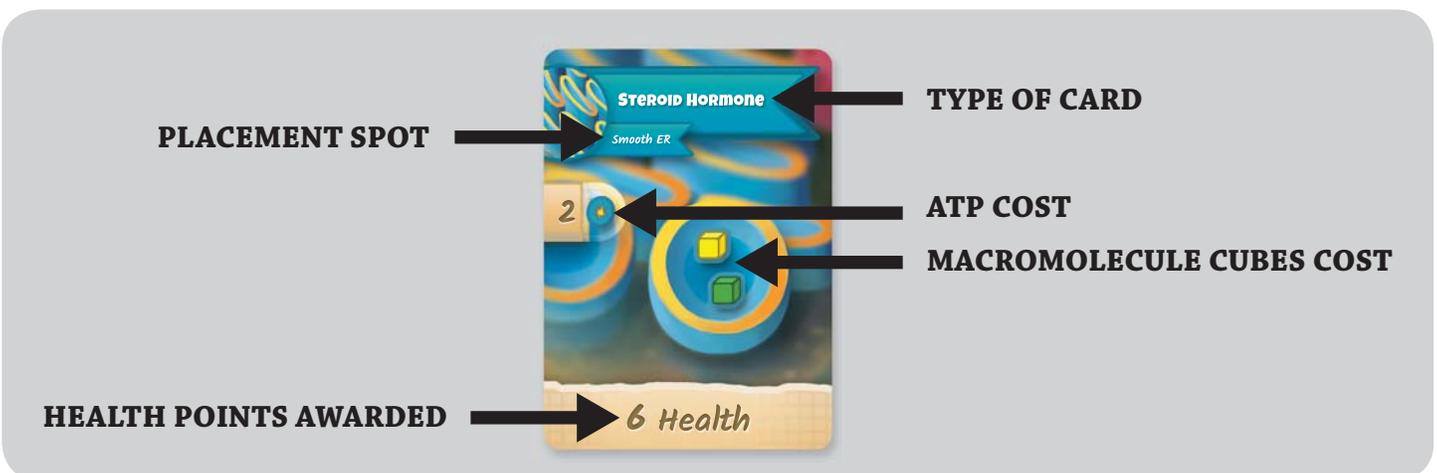
CELL COMPONENT CARDS

There are five types of Cell Component Cards in the base game: (1) **Hormone Cards**, (2) **Hormone Receptor Cards**, (3) **Enzyme Cards**, (4) **Alcohol Detoxification Cards**, and (5) **Additional Resource Cards**.

With the exception of the Additional Resource Cards, which simply give players additional resources, each card indicates the placement spot to begin that card, the resource cost (**macromolecules cubes** and **ATP**) needed to complete that card, as well as the number of Health Points it will immediately score once it is completed.

The Hormone Receptor Cards may score a player additional points throughout the game, (see **Hormone Receptor Cards** for details), while Enzyme Cards or Alcohol Detoxification Cards may score a player additional End Game points. (See **Enzyme Cards** and **Alcohol Detoxification Cards** for details). A quick reference for these additional points is shown at the bottom of each card.

Cards in a player's hand are kept secret from other players until completed, while completed cards should be kept face up in front of the player who completed them. Completed cards will be useful in tracking **End Game** points.



HORMONE CARDS

There are two different types of Hormone Cards: Protein Hormones (red background) and Steroid Hormones (blue background).

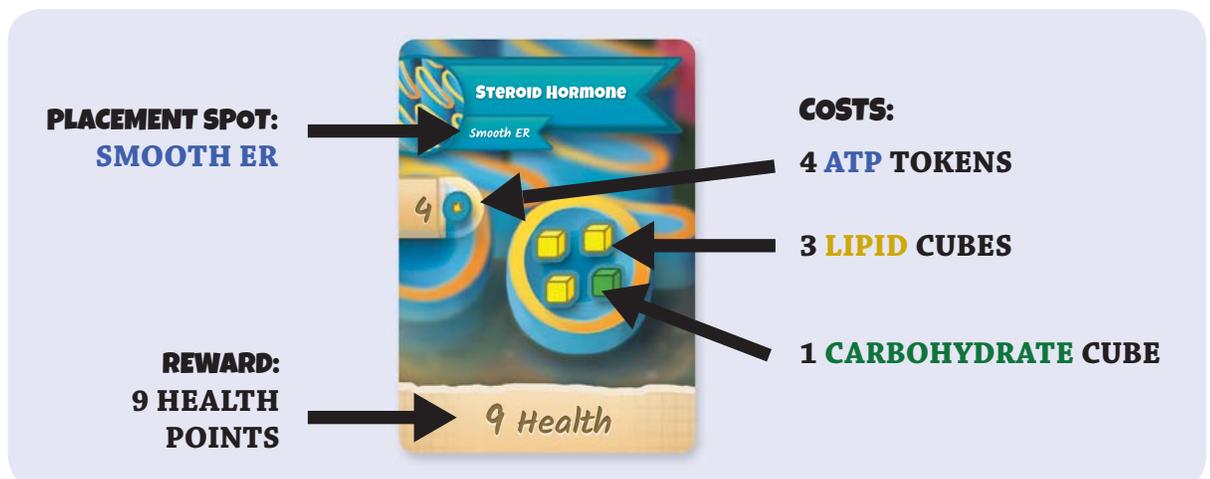
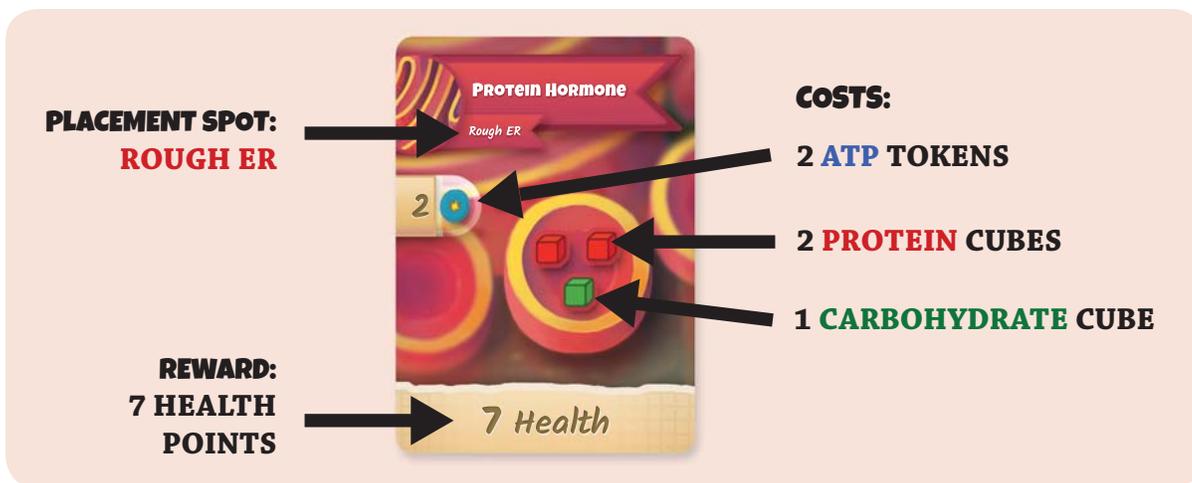
Hormone Cards (as with most cards) are completed over a series of turns by placing workers in the required spots, first in the ER (either the Smooth ER or the Rough ER), then in the Golgi Apparatus, and finally in the Plasma Membrane (Exocytosis).

First, a player must place a worker in the **ER** (either Smooth ER for Steroid Hormone Cards or Rough ER for Protein Hormone Cards), which allows that player to immediately place one of their Transport Vesicle Disks in the ER, along with the required **Protein** or **Lipid** cubes. (See Smooth ER and Rough ER sections under **Completing Cell Component Cards** for details.)

Next, a player must place in the Golgi Apparatus, pulling their Transport Vesicle Disk (and all cubes on it) from the ER and adding the additional **Carbohydrate** cube.

Finally, a player must place in the Exocytosis area of the Plasma Membrane and pay the **ATP** cost. That player then gains the number of Health Points shown on the card just completed.

All macromolecule cubes shown on a Hormone Card must have been placed on a Transport Vesicle Disk in the process just outlined to complete a Hormone Card.



A Detailed Example of How to Complete a Protein Hormone Card

This example assumes the player has already collected **mRNA cubes** previous to their first placement, a **Carbohydrate cube** previous to their second placement, and enough **ATP** previous to their third and last placement.

For the first worker placement, place a worker in the **Rough ER**, and do all of the following:

1. Place your Transport Vesicle Disk on one of the available budding Transport Vesicle locations.
2. Trade two **mRNA cubes** from your personal resource stock for two **Protein cubes** to match the quantity required by the Protein Hormone Card that you are trying to complete.
3. Place those **Protein cubes** onto that Transport Vesicle Disk.

For the second worker placement, place a worker in the **Golgi Apparatus**, and do all of the following:

1. Move your Transport Vesicle Disk (and all cubes on it) from the **Rough ER**, into an available budding Transport Vesicle location in the **Golgi Apparatus**.
2. Then place one **Carbohydrate cube** from your personal resource stock onto that Transport Vesicle Disk.

For the third worker placement, place a worker in the **Exocytosis area of the Plasma Membrane**, and do all of the following:

1. Reveal the Protein Hormone Card you are completing.
2. Move your Transport Vesicle Disk (and all cubes on it) from the Golgi Apparatus, through the Plasma Membrane, and out of the cell.
3. Immediately pay the 2 **ATP** indicated on that Protein Hormone Card.
4. Place the macromolecule cubes from that Transport Vesicle Disk back into the **general resource stock**. The Transport Vesicle Disk goes back to you! Gain the 7 Health Points shown on the Protein Hormone Card you've just completed.



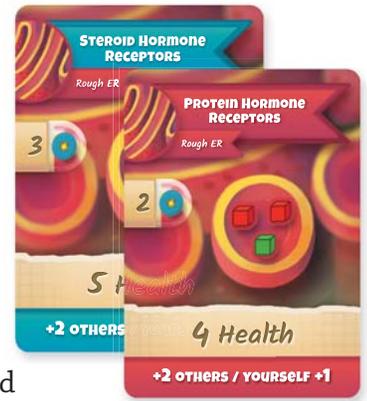
CONGRATULATIONS, YOU'VE JUST COMPLETED A PROTEIN HORMONE CARD!

HORMONE RECEPTOR CARDS

There are two different types of Hormone Receptor Cards: Steroid Hormone Receptor Cards and Protein Hormone Receptor Cards. Both types of Hormone Receptor Cards are completed in the exact same way as the Hormone Cards, with two exceptions. First, **BOTH** Hormone Receptor Cards begin in the **Rough ER**. Second, Steroid Hormone Receptor Cards will receive a **Lipid cube** (rather than a Carbohydrate cube) in the Golgi Apparatus. (See **Hormone Cards** for more details on how to complete Hormone Receptor Cards).

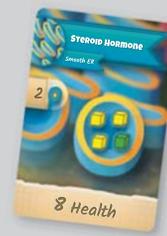
The major benefit of **Hormone Receptor Cards** is that players who have completed them will score Health Points when opposing players complete Hormone Cards. Any time an opposing player completes a **Protein Hormone Card**, all players with a completed **Protein Hormone Receptor Card** will gain 2 Health Points for each **Protein Hormone Receptor Card** they've completed.

And, any time an opposing player complete a **Steroid Hormone Card**, all players with a completed **Steroid Hormone Receptor Card** will gain 2 Health Points for each **Steroid Hormone Receptor Card** they've completed.



For example, if a player has two completed Steroid Hormone Receptor Cards, they will move up 4 Health Points each time an opposing player completes a Steroid Hormone Card. In the same way, if a player has three completed Steroid Hormone Receptor Cards, they will move up 6 Health Points each time an opposing player completes a Steroid Hormone Card.

Player 1
completes
a **Steroid**
Hormone



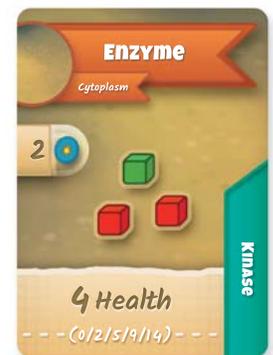
Player 2
receives
6 health
points



Also, any time a player personally completes a **Protein Hormone Card**, they will score 1 additional Health Point for each **Protein Hormone Receptor Card** they have already completed. Likewise, any time a player personally completes a **Steroid Hormone Card**, they will score 1 additional Health Point for each **Steroid Hormone Receptor Card** they have already completed.

ENZYME CARDS

Enzyme Cards (in this game) do **NOT** require the use of a Transport Vesicle Disk. Rather, they are completed by first placing a worker in the Free Ribosome spot to trade black **mRNA cubes** for red **Protein cubes**, and then by placing a worker in the Cytoplasm spot. A player will then reveal the Enzyme Card they are completing, pay the required **Protein cubes** (and **Carbohydrate cube** if required by that Enzyme Card) from their personal resource stock, pay the **ATP** indicated on that Enzyme Card and then gain the Health Points shown on that completed Enzyme Card.

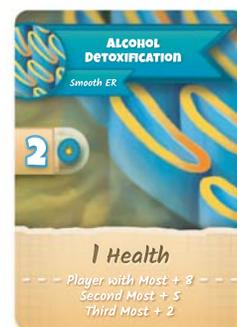


Completed Enzyme Cards should be overlapped and flared so all other players can see them. Sets of Enzyme Cards will score additional points at the end of the game, as shown on the bottom of each Enzyme Card (see **Scoring** for details).

ALCOHOL DETOXIFICATION CARDS

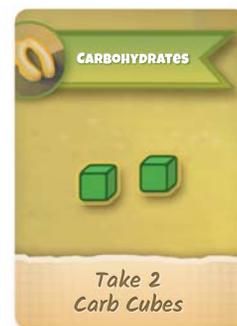
Alcohol Detoxification Cards are completed by placing a worker in the Alcohol Detoxification spot (within the **Smooth ER**) and paying the **ATP** cost indicated on that card. After completing an Alcohol Detoxification Card, a player will gain one Health Point.

At the end of the game, the players with the most Alcohol Detox will gain additional points (see **End Game Points from Alcohol Detoxification Cards** for more details).



ADDITIONAL RESOURCE CARDS

Additional Resource Cards may be kept in a player's hand and played at any time during a player's turn. Once the card is played, that player should immediately take the number of resources shown on the card and place that card in the Cell Component Card discard pile.



GOAL CARDS

After a player places a worker on the spot in Laureates in Biology, they may choose to place a single Goal Marker on any available Goal Card. Once a Goal Marker has been placed, it may never be moved, and a player may never place both of their Goal Markers on the same Goal Card. A maximum of two Goal Markers may be placed on each Goal Card.

Goal Cards may score a player points in two ways.

1. During the Game: The first Goal Marker placed on each Goal Card immediately awards that player 3 Health Points. (The second Goal Marker placed on a Goal Card receives no immediate Health Points.)
2. During End Game Scoring: If a player has placed a Goal Marker on a Goal Card, and that player has completed any number of Cell Component Cards indicated on that Goal Card, they will score End Game points according to the description on that Goal Card.



EVENT CARDS

The purpose of the Event Cards is to change up the game each round. During Phase 2 of each round, 1 Event card will be flipped face up and will affect the game in some way.

There are three types of Event Cards in the Base Game (4 types of Event Cards if including the Virus Expansion):

- (1) **Boost,**
- (2) **Reduce ATP Cost,** and
- (3) **Toxicity**





BOOST

A Boost Event Card adds 1 resource to a specific area of the board. That resource is awarded for free to the first player to place on any spot within that location, in addition to the resources that spot usually awards. Any resources added to a specific area of the board remain in that area until awarded.



TOXICITY

A Toxicity Event Card forces players to return macromolecule cubes from their personal resource stock to the general resource stock. If any player has 5 or more of any certain macromolecule, they lose 1. If they have 7 or more, they lose 2. If they have 10 or more, they lose 4.



REDUCE ATP COST

A Reduce **ATP** Cost Event Card **reduces** the cost of each Cell Component Card purchased that round by 1 **ATP**.

GREY WORKERS

Before a player places their worker during their turn, they may pay 4 ATP to place a Grey Worker first. (This is in addition to their normal worker placement).

After paying 4 ATP, a player may take an available Grey Worker from the Grey Worker Area of the board and place that Grey Worker in any worker placement spot (available or unavailable), and then take the action associated with that spot.

Restrictions: A player may pay to place only **one** Grey Worker per turn and must be able to take the action associated with that spot. Only Grey Workers in the Grey Worker area are available for this action.



ENDING THE GAME

The last round is signaled when the **last Event Card** is flipped face-up. Players should play through Phase 1 one last time and then skip directly to **Scoring**.

SCORING

At the end of the game, players will score additional End Game points for **macromolecule cubes** still in their personal resource stock, **Alcohol Detoxification Cards** completed, **Enzyme Cards** completed, as well as any **Goal Cards** on which they've placed any of their Goal Markers during the game. Players should move their Health Marker along the Health Track for all End Game Points earned.

END GAME POINTS FROM MACROMOLECULE CUBES

Macromolecule (**Protein**, **Lipid**, **mRNA**, and **Carbohydrate**) cubes left in a player's personal resource stock earn that player 1 Health Point for every 3 macromolecule cubes of the same type/color.

END GAME POINTS FROM ALCOHOL DETOXIFICATION CARDS

The player with the most **Alcohol Detox** gains an additional 8 Health Points, the player with the second most gains an additional 5 Health Points, and the player with the third most gains an additional 2 Health Points. The most Alcohol Detox is determined by adding together the number of **ATP** on all of the Alcohol Detoxification Cards completed by that player (Alcohol Detoxification Cards still in a player's hand do not add to this total). If a player has completed no Alcohol Detoxification Cards, they automatically score no points for Alcohol Detoxification Cards.

For example, a player who built three separate Alcohol Detoxification Cards requiring 2 **ATP** would have an equal amount of Alcohol Detox as the player who built two Alcohol Detoxification Cards both requiring 3 **ATP**. However, in case of a tie, the tying player with the most completed Alcohol Detoxification Cards wins.



If there is still a tie, tying players should add the points allotted to the position of those two tying players and the position directly below it and divide those points equally between them, rounding down to the nearest whole number. In case of a three way tie, add the position of those tying players and all positions below it, and divide those points equally among the tying players, again rounding down.

In a 2 player game, the player with the most Alcohol Detox will gain 6 Health Points, and the player with the second most Alcohol Detox will gain 3 Health Points.

- - Player with Most + 8 - -
 - - Second Most + 5 - -
 - - Third Most + 2 - -
Two players tied for 2nd
Current position (5) +
Position Below (2) = 7
Divide by 2 = 3

END GAME POINTS FROM ENZYME SETS

Sets consist of Enzyme Cards of different colors. Any sets of Enzyme Cards a player has completed during the game earn End Game points according to the table below:

# OF UNIQUE ENZYMES COMPLETED	2	3	4	5
HEALTH POINTS EARNED	2	5	9	14



Completed Enzyme Cards

+5 POINTS DURING
END GAME SCORING

Two Enzyme Cards of the same color may not belong to the same set, however a player may score points for two sets.

END GAME POINTS FROM GOAL CARDS

If a player has placed a Goal Marker on a Goal Card, and that player has completed any number of the Cell Component Cards indicated on that Goal Card, they will score End Game points according to the description on that Goal Card. Each player should reference the Goal Card(s) on which they have placed their Goal Marker(s) for details on points scored.

FINAL SCORING

Whoever has the most total **Health Points** wins the game!

If there is a tie, the player with the most completed Cell Component Cards wins (only Alcohol Detoxification Cards, Enzyme Cards, Hormone Cards, and Hormone Receptor Cards count). And if there is still a tie, the tying player in the last position from the player holding the First Player Card wins the tie!