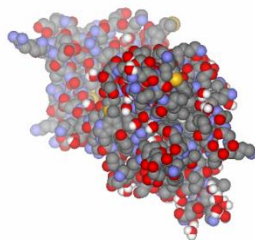


BDNF

SUPPLIES

Collect these cards and match them to the right Goals to win

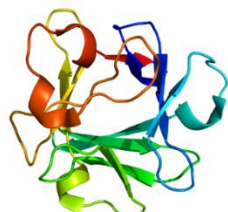


BDNF (**Brain Derived Neurotrophic Factor**) is a protein that encourages the growth of neurons.

bFGF

SUPPLIES

Collect these cards and match them to the right Goals to win

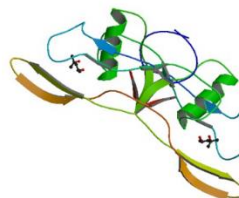


bFGF (**basic Fibroblast Growth Factor**) is a protein that helps control connective tissue cells including cells in your skin. It is related to KGF.

BMP-2

SUPPLIES

Collect these cards and match them to the right Goals to win



BMP-2 (**Bone Morphogenic Protein**) is a protein that signals for bone and cartilage to grow.

Collagen

SUPPLIES

Collect these cards and match them to the right Goals to win

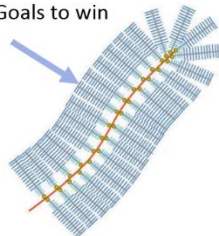


Collagen is a strong protein that looks just like rope. It supports almost all of your cells.

Chondroitin Sulfate

SUPPLIES

Collect these cards and match them to the right Goals to win



Chondroitin Sulfate (CS) is a long molecule that attracts water. Your body uses it to make natural cushions in places like your joints.

Hard Substrate

SUPPLIES

Collect these cards and match them to the right Goals to win

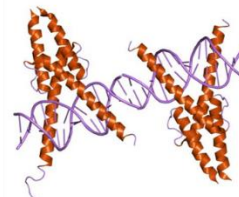


Stem cells respond to the kind of surface they are growing on. **Hard substrates** can make stem cells turn into bone cells, for example, because bone is hard too!

Herculin

SUPPLIES

Collect these cards and match them to the right Goals to win

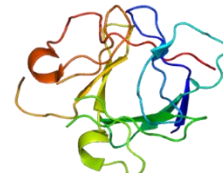


Herculin (or Myf6, **Myogenic Factor 6**) is a protein that controls the way muscle heals after you exercise or get hurt.

KGF

SUPPLIES

Collect these cards and match them to the right Goals to win

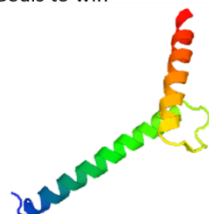


KGF (**Keratinocyte Growth Factor**) is a protein that triggers stem cells in your skin to divide and make cells called keratinocytes. It is related to bFGF.

MyoD

SUPPLIES

Collect these cards and match them to the right Goals to win

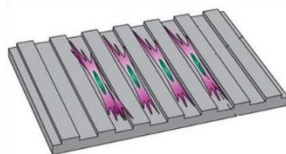


MyoD (**Myogenic Differentiation**) is a transcription factor protein that controls muscle formation. It is related to Herculin.

Patterned Substrate

SUPPLIES

Collect these cards and match them to the right Goals to win



In your body, it's often important for cells (purple) to be lined up with their neighbors. **Patterned substrates** can help us line cells up the right way in our therapy.

Syringe

SUPPLIES

Collect these cards and match them to the right Goals to win

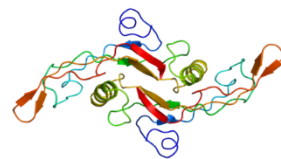


No one likes needles – but believe it or not, using a **syringe** to deliver cells to a patient often means the patient doesn't need surgery or stitches. And that's good!

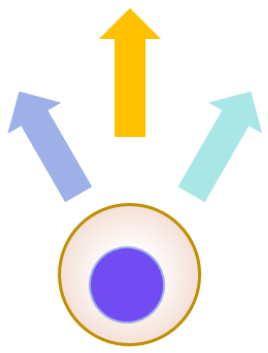
TGF-β

SUPPLIES

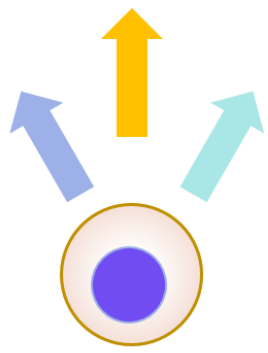
Collect these cards and match them to the right Goals to win



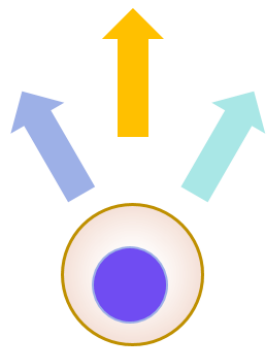
TGF-β (**Transforming Growth Factor Beta**) is a protein that signals for cells to make more extracellular matrix (the stuff around cells).



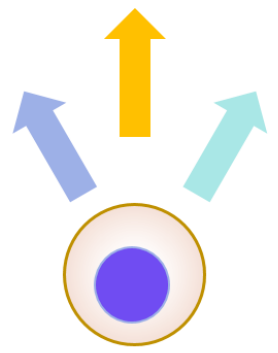
STEM CELL
FLUXX



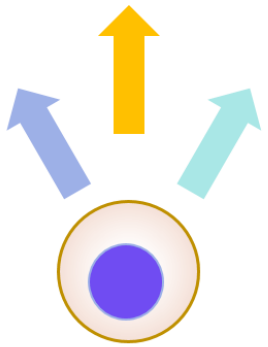
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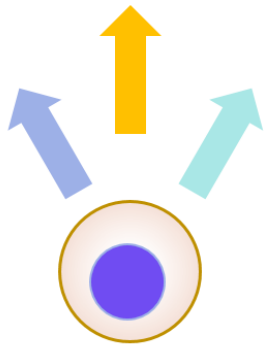
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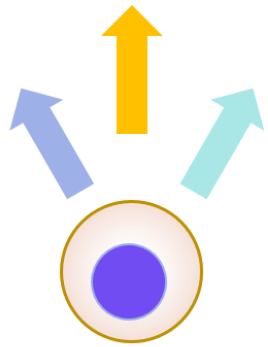
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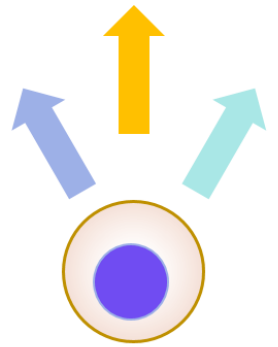
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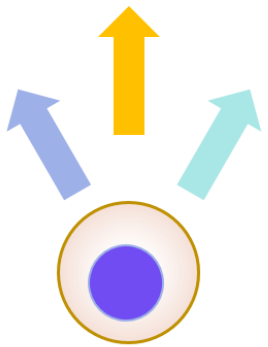
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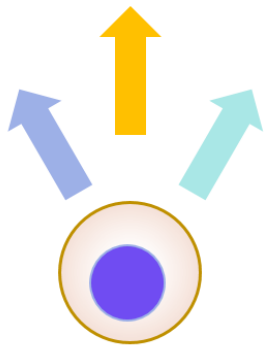
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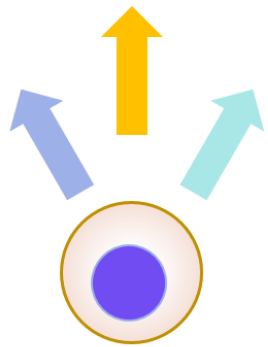
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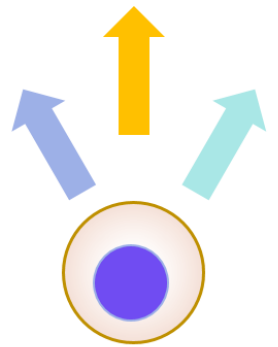
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VEG-F

SUPPLIES

Collect these cards and match them to the right Goals to win

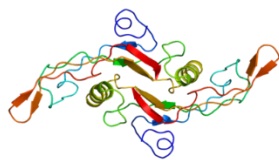


VEG-F (**Vascular Endothelial Growth Factor**) is a protein that signals for new blood vessels to grow.

TGF-β

SUPPLIES

Collect these cards and match them to the right Goals to win

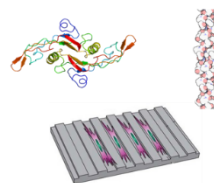


TGF-β (**Transforming Growth Factor Beta**) is a protein that signals for cells to make more extracellular matrix.

Achilles Heel

GOAL

You win if you have:
TGF-β + Collagen
+ Patterned Substrate

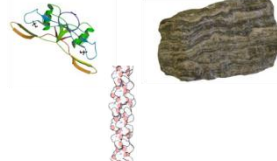


To help heal **injured tendons**: we need keratinocytes, which are long, skinny connective tissue cells that make keratin, that are lined up.

Bad to the Bone

GOAL

You win if you have:
BMP-2 + Hard Substrate
+ Collagen

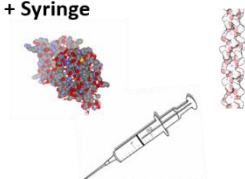


To **grow new bones**: BMP-2 and collagen will cause differentiation into bone cells (**osteoblasts**), especially on a hard substrate that mimics natural bone.

Brain Power

GOAL

You win if you have:
BDNF + Collagen
+ Syringe

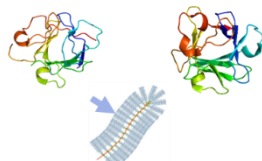


To **treat a stroke**, which can leave an open space in the brain: we want to encourage neurons to grow, and stabilize the space with a soft, injectable collagen gel.

Ice for that Burn?

GOAL

You win if you have:
KGF + bFGF
+ Chondroitin Sulfate

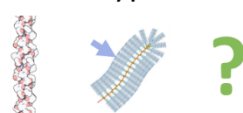


To **treat a burn**: we need 2 types of cells (**fibroblasts** and **keratinocytes**) to rebuild the 2 layers that make up skin, and we need a material that holds in water to support them.

Extracellular Matrix

GOAL

You win if you have:
Collagen + Chondroitin Sulfate + any protein card

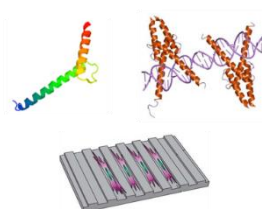


Extracellular matrix (ECM) is a collection of molecules that supports cells and provides important signals for them. Cells in different tissues regularly break down old ECM and replace it with new ECM.

Get Buff

GOAL

You win if you have:
MyoD + Herculin
+ Patterned Substrate

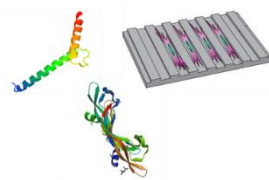


To help heal **damaged muscle**: we need to make muscle cells (**myocytes**) that are lined up, like natural muscle.

Heart of Gold

GOAL

You win if you have:
MyoD + Patterned Substrate
+ VEG-F

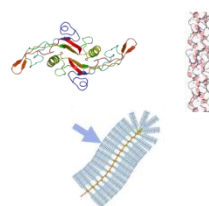


To regenerate **damaged heart muscle**: we need heart cells (**cardiomyocytes**) that are aligned and beat together, plus new blood vessels to bring nutrients to cells.

Joint Effort

GOAL

You win if you have:
TGF-β + Collagen
+ Chondroitin Sulfate

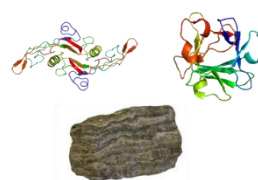


To treat **injured cartilage**: we need cartilage cells (**chondrocytes**) and a smooth but tough material for them to live in.

Old Scars

GOAL

You win if you have:
TGF-β + bFGF
+ Hard Substrate

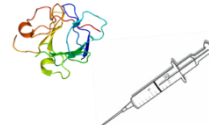


The same proteins can be helpful in some situations but can cause scarring in others! It all depends on the combination of signals that are around.

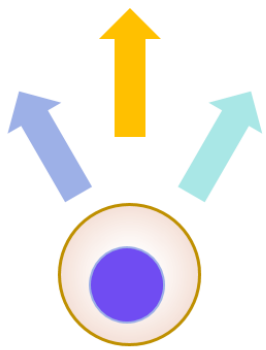
Seeing Clear

GOAL

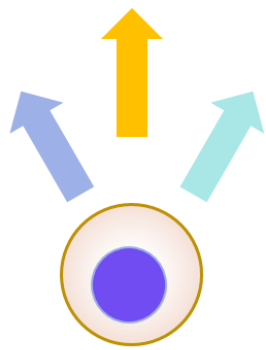
You win if you have:
KGF+ Syringe



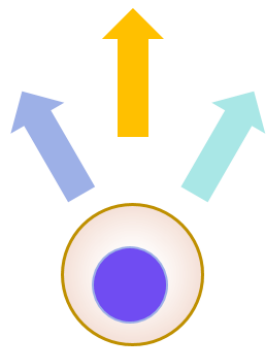
To treat **corneal scarring**, where damaged collagen makes part of the eye opaque: we need stem cells to differentiate into keratinocytes in the cornea that can remodel misplaced collagen.



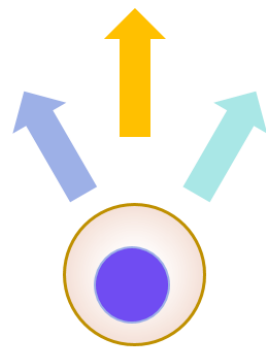
STEM CELL FLUXX



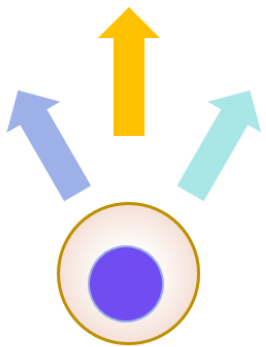
STEM CELL
FLUXX



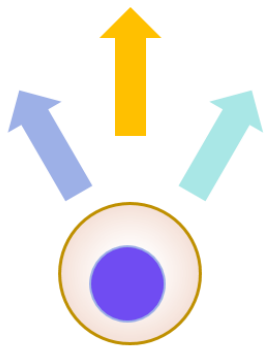
STEM CELL
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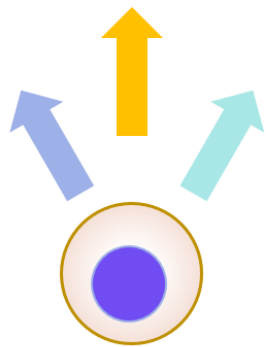
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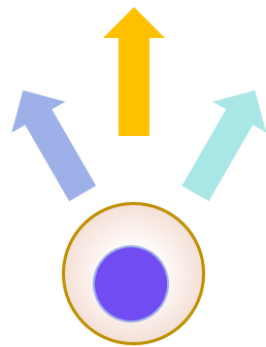
STEM CELL
FLUXX



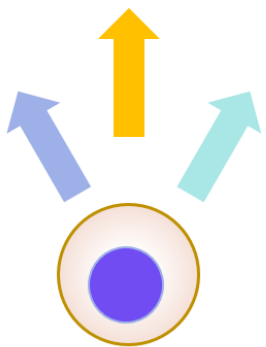
STEM CELL
FLUXX



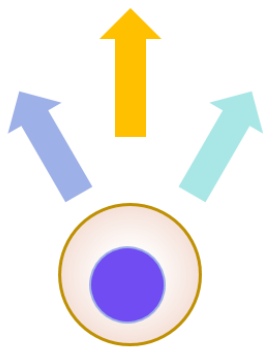
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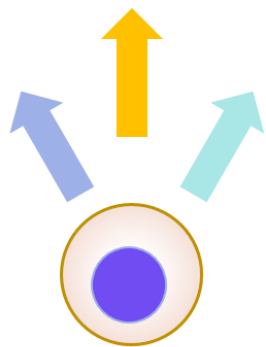
STEM CELL
FLUXX



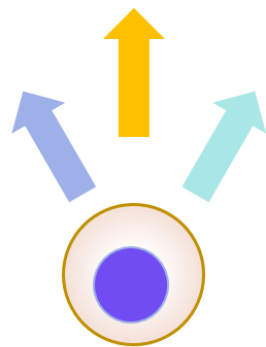
STEM CELL
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STEM CELL
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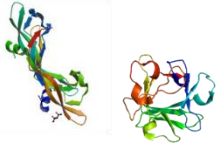
STEM CELL
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STEM CELL
FLUXX

GOAL

You win if you have:
VEG-F + bFGF



Cells everywhere in your body get their nutrients delivered through your blood. **Building new blood vessels** to feed implanted cells is a major challenge in tissue engineering!

Collaboration

ACTION

When you play this card, do what it says, then discard it

Collaboration

For the next round, pool your Supplies with the player to your left. If your combined Supplies fulfil the current Goal during this round, you both may claim this Goal during your own future turns.

Discard and Draw

ACTION

When you play this card, do what it says, then discard it

Discard + Draw

Discard your entire hand, then draw as many cards as you discarded. Do not count this card when determining how many cards to draw.

Draw 2 and Use 'Em

ACTION

When you play this card, do what it says, then discard it

Draw 2 and Use 'Em

Set your hand aside. Draw 2 cards and play them in any order you choose. Pick up your hand and continue with your turn. This card, and all cards played because of it, are counted as one play.

Draw 3, Play 2

ACTION

When you play this card, do what it says, then discard it

Draw 3, Play 2 of them

Set your hand aside. Draw 3 cards and play 2 of them immediately. Discard the last card. This all counts as a single play. Pick up your hand and continue with your turn.

Exchange Supplies

ACTION

When you play this card, do what it says, then discard it

Exchange Supplies

Pick any Supplies card another player has on the table, and exchange it for one you have in front of you. If you have no Supplies cards, or if no one else has any Supplies, nothing happens.

Grab something

ACTION

When you play this card, do what it says, then discard it

Grab Something

Take your choice of Supplies card from in front of another player and put it in front of you. If no one has any Supplies in play, nothing happens.

Jackpot!

ACTION

When you play this card, do what it says, then discard it

Jackpot!

Draw 3 extra cards!

Let's Simplify

ACTION

When you play this card, do what it says, then discard it

Let's Simplify

Discard your choice of up to half (rounded up) of the New Rule cards in play.

Mix It Up!

ACTION

When you play this card, do what it says, then discard it

Mix It Up!

Gather up all of the Supplies on the table and shuffle them together. Keeping the cards face down, deal them back out to all players, starting with yourself.

Random Tax

ACTION

When you play this card, do what it says, then discard it

Random Tax

Take a card at random from the hand of each other player and add these cards to your own hand.

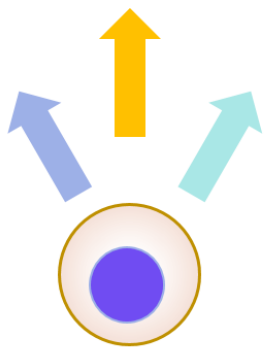
Rewind

ACTION

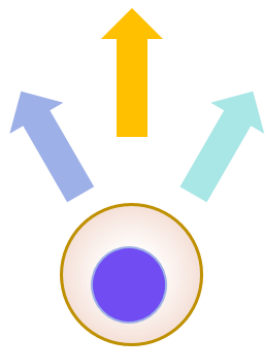
When you play this card, do what it says, then discard it

Rewind

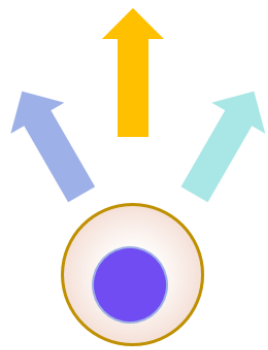
Look through the discard pile, choose any Goal you find there, and play it again.



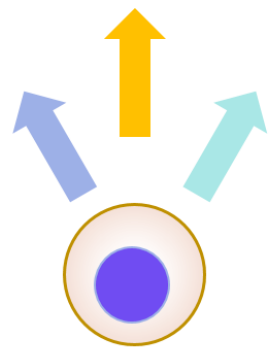
STEM CELL FLUXX



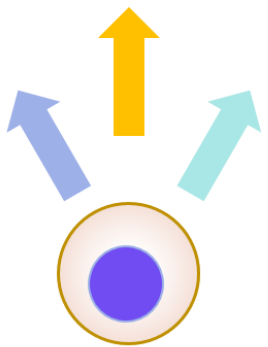
STEM CELL
FLUXX



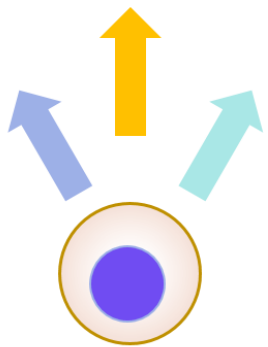
STEM CELL
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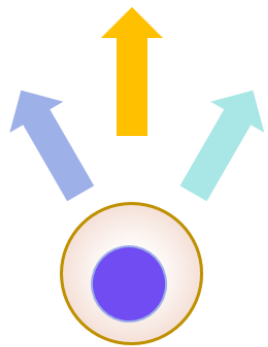
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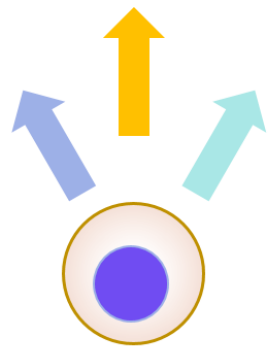
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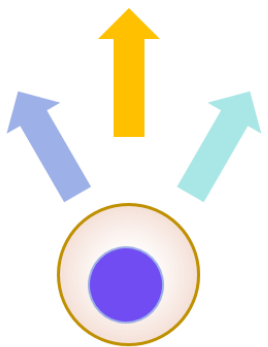
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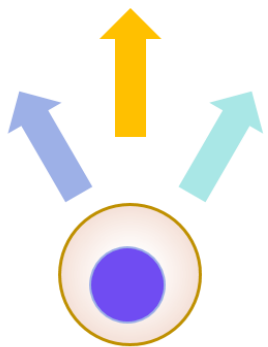
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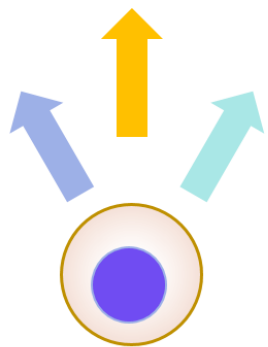
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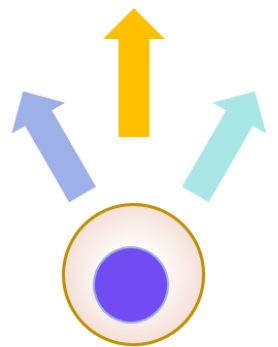
STEM CELL
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Rules Reset

ACTION

When you play this card, do what it says, then discard it

Rules Reset

Reset to the Basic Rules.
Discard all New Rule cards and leave only the Basic Rules card.
Do not discard the current Goal.

Trade Hands

ACTION

When you play this card, do what it says, then discard it

Trade Hands

Trade your hand for the hand of one of your opponents.

Trash a New Rule

ACTION

When you play this card, do what it says, then discard it

Trash a New Rule

Select one of the New Rule cards in play and place it in the discard pile.

Trash Something

ACTION

When you play this card, do what it says, then discard it

Trash Something

Pick one Supplies card in front of any player and put it on the discard pile.
If no one has any Supplies in play, nothing happens.

Zap a Card

ACTION

When you play this card, do what it says, then discard it

Zap a Card

Choose any card in play, anywhere on the table (except the Basic Rules) and add it to your hand.

Double Agenda

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.

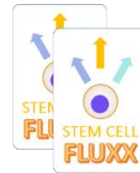


Two Goals can now be in play at the same time. Any player that plays a new Goal now must decide which old Goal to replace.

Draw 2

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.

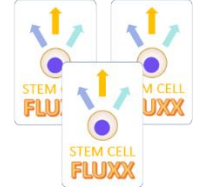


Draw 2 cards per turn. This card overrides the Basic Rules and any New "Draw" Rules currently in play.

Draw 3

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.

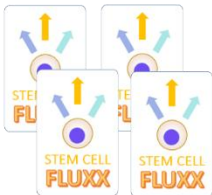


Draw 3 cards per turn. This card overrides the Basic Rules and any New "Draw" Rules currently in play.

Draw 4

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.

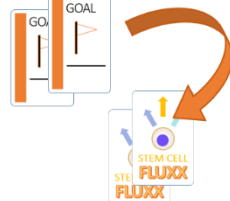


Draw 4 cards per turn. This card overrides the Basic Rules and any New "Draw" Rules currently in play.

Goal Mill

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.



Once per turn, discard as many of your Goal cards as you choose, and then draw that many cards.

Hand Limit 1

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.



At the end of your turn, you are only allowed to have 1 card in your hand. If you have more than 1, discard some cards.

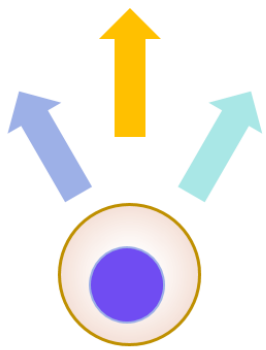
Hand Limit 2

NEW RULE

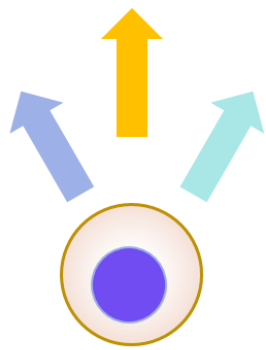
To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.



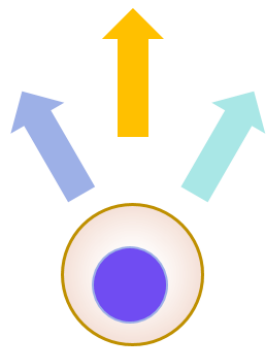
At the end of your turn, you are only allowed to have 2 cards in your hand. If you have more than 2, discard some cards.



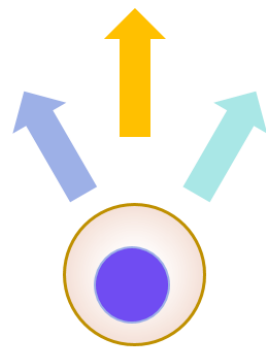
STEM CELL FLUXX



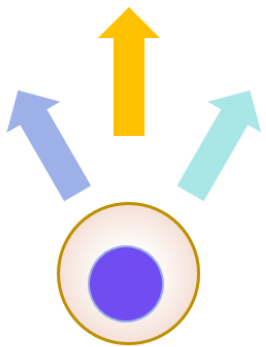
STEM CELL
FLUXX



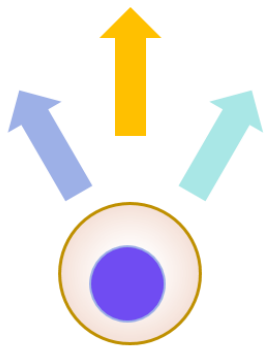
STEM CELL
FLUXX



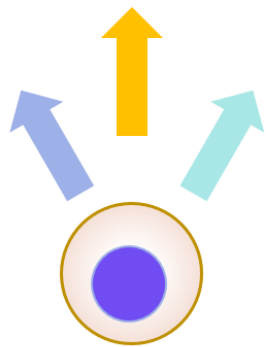
STEM CELL
FLUXX



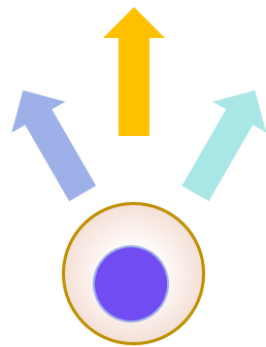
STEM CELL
FLUXX



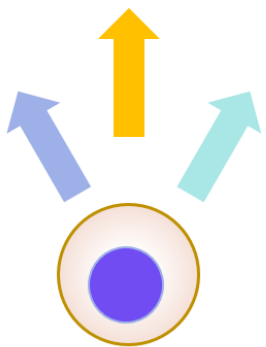
STEM CELL
FLUXX



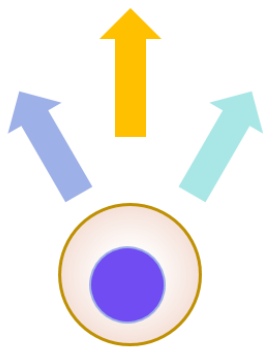
STEM CELL
FLUXX



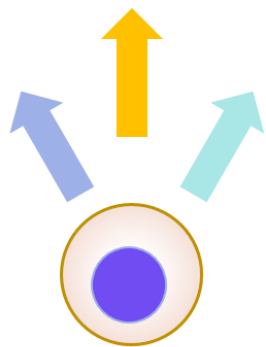
STEM CELL
FLUXX



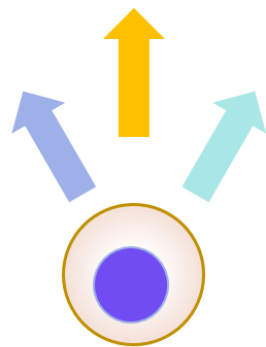
STEM CELL
FLUXX



STEM CELL
FLUXX



STEM CELL
FLUXX



STEM CELL
FLUXX

Hand Limit 3

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.



At the end of your turn, you are only allowed to have 3 cards in your hand. If you have more than 3, discard some cards.

Hand Limit 4

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.



At the end of your turn, you are only allowed to have 4 cards in your hand. If you have more than 4, discard some cards.

Play All

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.

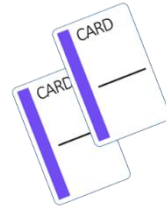


Play all of the cards in your hand per turn. This card overrides the Basic Rules and any New "Play" Rules currently in play.

Play 2

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.

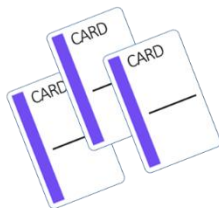


Play 2 cards per turn. This card overrides the Basic Rules and any New "Play" Rules currently in play.

Play 3

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.

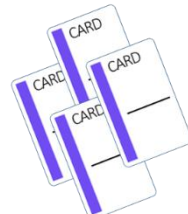


Play 3 cards per turn. This card overrides the Basic Rules and any New "Play" Rules currently in play.

Play 4

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.

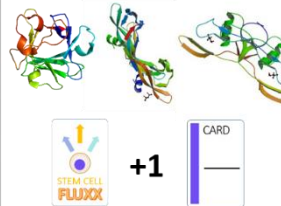


Play 4 cards per turn. This card overrides the Basic Rules and any New "Play" Rules currently in play.

Transcription Bonus

NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.

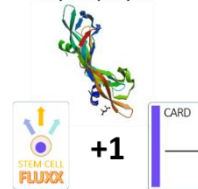


Any player that has a protein Supplies card in front of them may draw and play one additional card per turn.

Well-Fed Cells

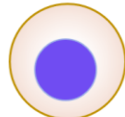
NEW RULE

To play this card, put it face up in the middle of the table. The New Rule applies as soon as you play it.



The player with the VEG-F Supplies card currently in front of them can Draw 1 extra card and Play 1 extra card per turn.

BASIC RULES



To begin, shuffle the cards and deal 3 to each player. Keep this card on the table.

DRAW 1



Draw 1 card at the start of your turn.

PLAY 1



Play 1 card per turn.

Start out as a stem cell. Collect Supplies to change into new cell types!

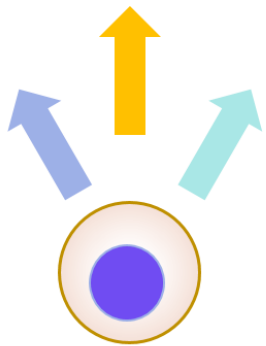
Collagen

SUPPLIES

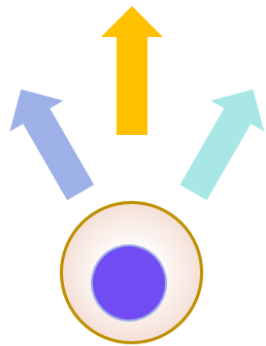
Collect these cards and match them to the right Goals to win



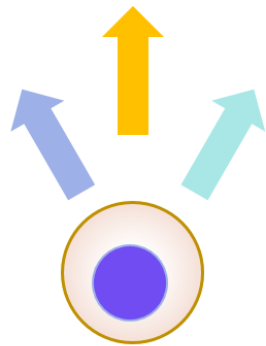
Collagen is a strong protein that looks just like rope. It supports almost all of your cells.



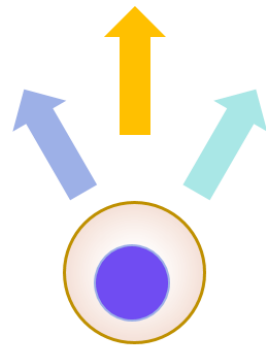
STEM CELL
FLUXX



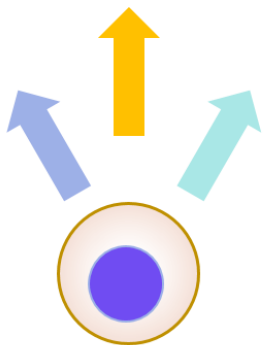
STEM CELL
FLUXX



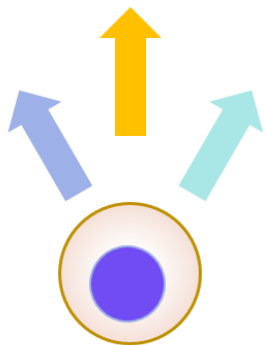
STEM CELL
FLUXX



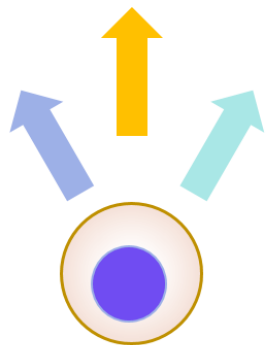
STEM CELL
FLUXX



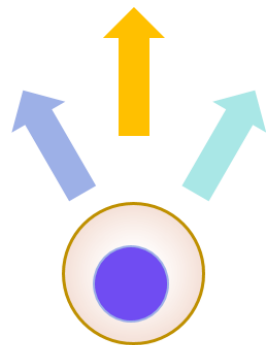
STEM CELL
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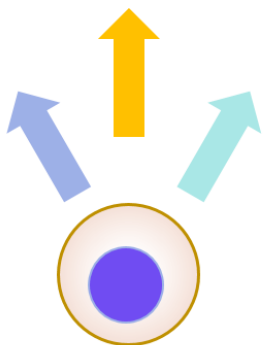
STEM CELL
FLUXX



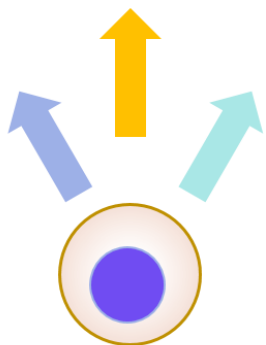
STEM CELL
FLUXX



STEM CELL
FLUXX



STEM CELL
FLUXX



STEM CELL
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