



# SYNTHETIC BIOLOGY TRIVIA NIGHT

— Presented By: Waterloo iGEM —



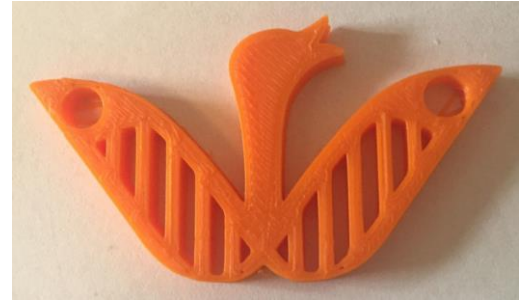
# How will this work?

- 4 rounds of 10 questions + Bonus 5 questions
- Questions repeated after each round
- Marking after Round 2 and at the very end
- Of course, no use of electronic devices please

Prizes:

1st place TEAM: \$20 UW Stores Gift card + Waterloo iGEM Goose Keychains

2nd place TEAM: Waterloo iGEM Goose Keychains



# Round 1 - Q1

TRUE OR FALSE?

The optimal temperature for growing E.Coli is 25°C



# Round 1 - Q2

TRUE OR FALSE?

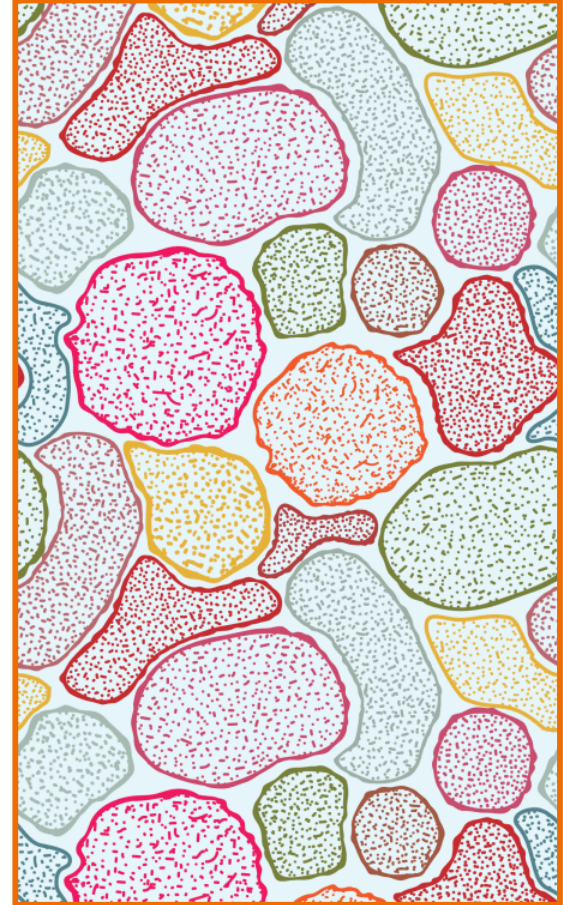
Waterloo iGEM originally  
was a joint team with  
UofT in 2005



# Round 1 - Q3

TRUE OR FALSE?

The human body has  
more human cells than  
microbes



# Round 1 - Q4

TRUE OR FALSE?

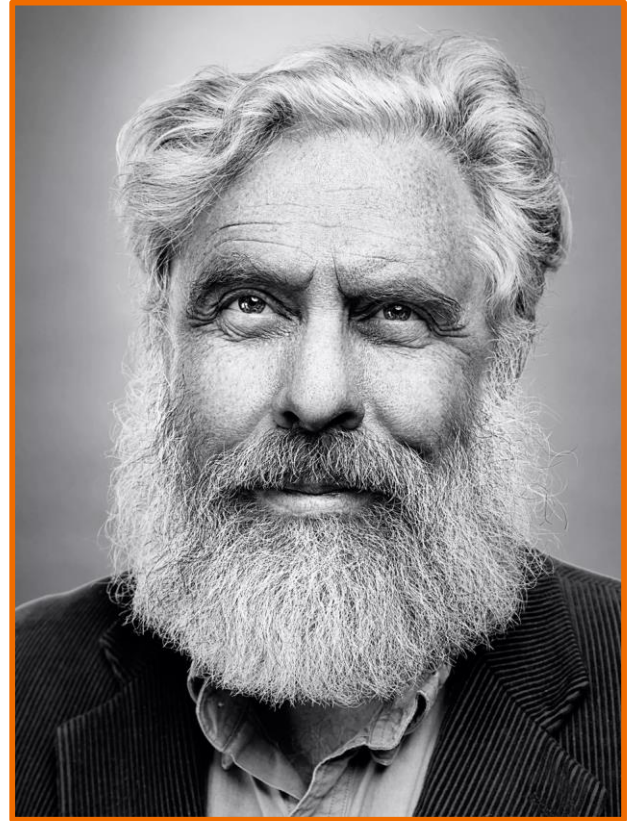
The length of E.Coli is 0.5  
- 2 microns



# Round 1 - Q5

TRUE OR FALSE?

**George Church is known  
as the "Father of  
Synthetic Biology"**

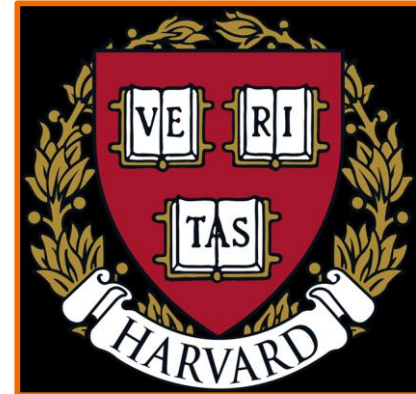
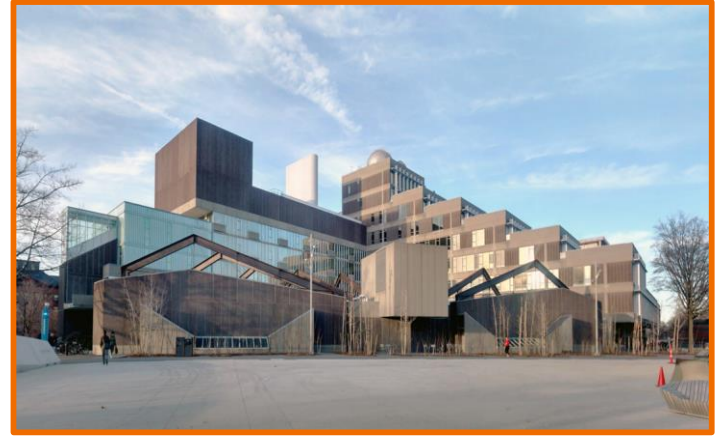




# Round 1 - Q6

TRUE OR FALSE?

The first iGEM competition  
was held at Harvard  
University in 2004





# Round 1 - Q7

TRUE OR FALSE?

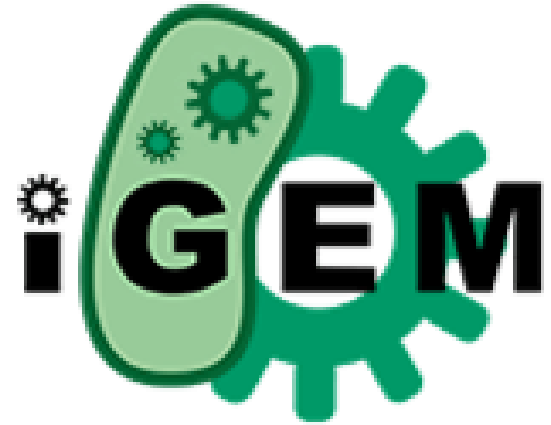


It is illegal in Canada to perform any procedure that would identify the sex of an in vitro embryo except to prevent, diagnose or treat a sex-linked disorder or disease

# Round 1 - Q8

TRUE OR FALSE?

iGEM stands for the  
International Genetically  
Engineered Machine



# Round 1 - Q9

TRUE OR FALSE?

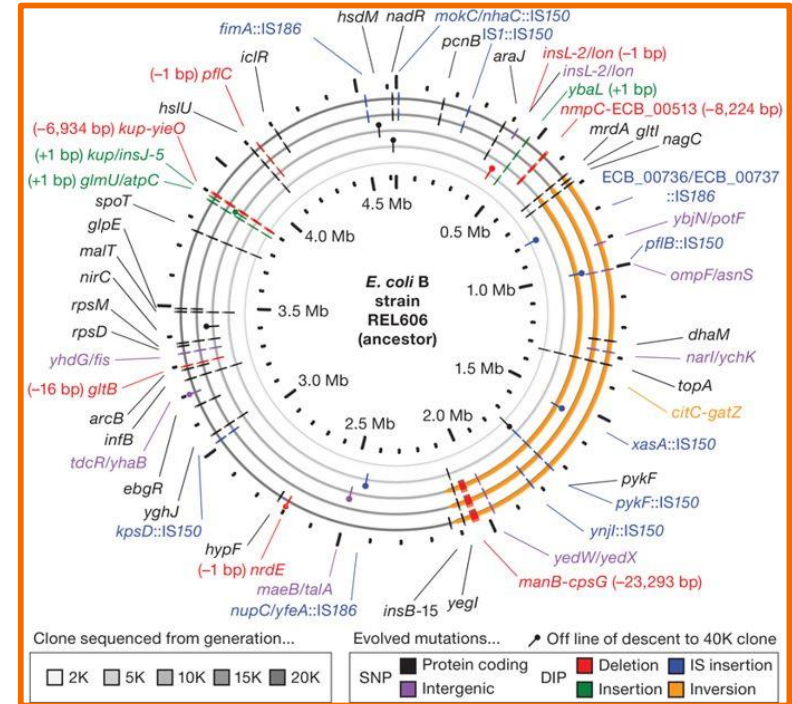
**The first patent filed for a  
human-made microorganism  
was in April of 1963**



# Round 1 - Q10

TRUE OR FALSE?

E.Coli was the first living organism to have its entire genome sequenced.



**Repeats from Round 1**

# Round 2 - Matching

Match the words in Column 1 to their definitions in Column 2

Column 1		Column 2	
1. Twist Bioscience	6. Polymerase Chain Reaction	a) company that sequences your DNA and allows you to share your information for money.	h) an innovation network for people to connect in the synbio universes
2. Transformation	7. Monsanto	b) reading DNA	i) the largest DNA supplier company in the world
3. Hyasynth Bio	8. Sequencing	c) company using silicon-based DNA synthesis techniques	j) amplifying DNA through use of thermocycling and primers
4. Southern blot	9. SynBioBeta	d) genome extraction	k) Company using yeast to produce cannabinoids
5. Miniprep	10. Nebula Genomics	e) a modern agriculture company that recently joined with Bayer	l) procedure for identifying specific sequences of DNA
~\_(\ツ)\_/		f) a company that focuses on the creation of artificial meat	m) plasmid extraction
		g) the assembly of a DNA oligonucleotide	n) inserting DNA into an organism

# Answers from Rounds 1 and 2

**(please trade with another team)**



# Round 3 - Q1

MULTIPLE CHOICE:

*Rhizobia are bacteria known for fixing what type of gas?*

- a) Nitrogen
- b) Carbon Dioxide
- c) Oxygen
- d) Hydrogen



## Round 3 - Q2

MULTIPLE CHOICE:

*The Biological Weapons Convention (BWC) is the first multilateral disarmament treaty initiated by which organization?*

- a) iGEM Foundation
- b) WHO
- c) United Nations
- d) FDA



# Round 3 - Q3

MULTIPLE CHOICE:

*In 2017, Josiah Zayner ran into trouble with the FDA when he started selling kits that let people make what?*

- a) Glow-in-the-dark beer
- b) Caffeinated broccoli
- c) Blue carrots
- d) Wearable fruit leather

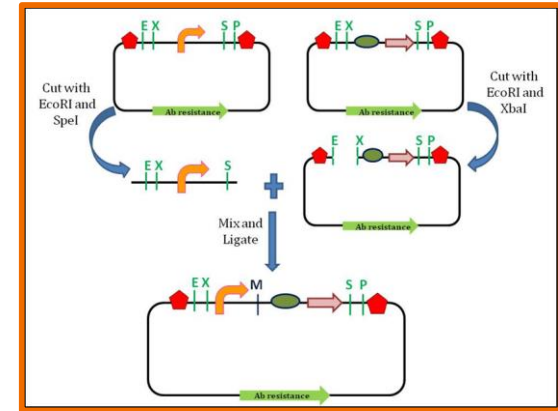


# Round 3 - Q4

MULTIPLE CHOICE:

*This term describes a string of DNA designed to be pieced in synbio applications.*

- a) DoNAtors
- b) BaseBoxes
- c) DuploCaters
- d) BioBricks



promoter	primer binding site
cds	restriction site
ribosome entry site	blunt restriction site
terminator	5' sticky restriction site
operator	3' sticky restriction site
insulator	5' overhang
ribonuclease site	3' overhang
rna stability element	assembly scar
protease site	signature
protein stability element	user defined
origin of replication	

## Round 3 - Q5

MULTIPLE CHOICE:



*Which of the following artificial sweeteners was developed using synthetic biology?*

- a) Nutrasweet
- b) Steviva
- c) Splenda
- d) Sweet'N Low



## Round 3 - Q6



MULTIPLE CHOICE:

*Which country is not an active party to the Cartagena Protocol on Biosafety?*

- a) USA
- b) Austria
- c) Ecuador
- d) Sweden



## Round 3 - Q7



MULTIPLE CHOICE:

*The Human Genome Project was an international research project with what aim?*

- a) To determine the absolute genetic ancestry of Homo sapiens
- b) To determine the factors impacting the expression of genes within the human genome
- c) To determine the sequence of the entirety of human DNA
- d) To optimize the storage of genetic information within the human genome



## Round 3 - Q8

MULTIPLE CHOICE:

*What is the name of the crop that was genetically modified to contain more Vitamin A?*

- a) EverGreen Spinach
- b) Golden Rice
- c) AquAdvantage Salmon
- d) InGen Beef
- e) Sweet Corn



## Round 3 - Q9

MULTIPLE CHOICE:

*What organization claimed to have created the first fully synthetic organism?*

- a) Humane Technologies Limited
- b) Stanford iGEM
- c) Harvard Stem-Cell Institute
- d) J. Craig Venter Institute
- e) Twist Bioscience



# Round 3 - Q10

MULTIPLE CHOICE:

*What California-based synthetic biology company recently secured \$400M in funding?*

- a) Gingko Bioworks
- b) Zymergen
- c) Twist Bioscience
- d) SunBio
- e) Human Technologies Limited



**Repeats from Round 3**

# Round 4 - Q1

FILL-IN-THE-BLANK:

The technique used to join two strands of DNA is called \_\_\_\_\_



# Round 4 - Q2

FILL-IN-THE-BLANK:

\_\_\_\_\_ is the common name of *Sacchromyces cerevisiae*



## Round 4 - Q3

FILL-IN-THE-BLANK:

The very first national Canadian Synthetic Biology conference was held in the year

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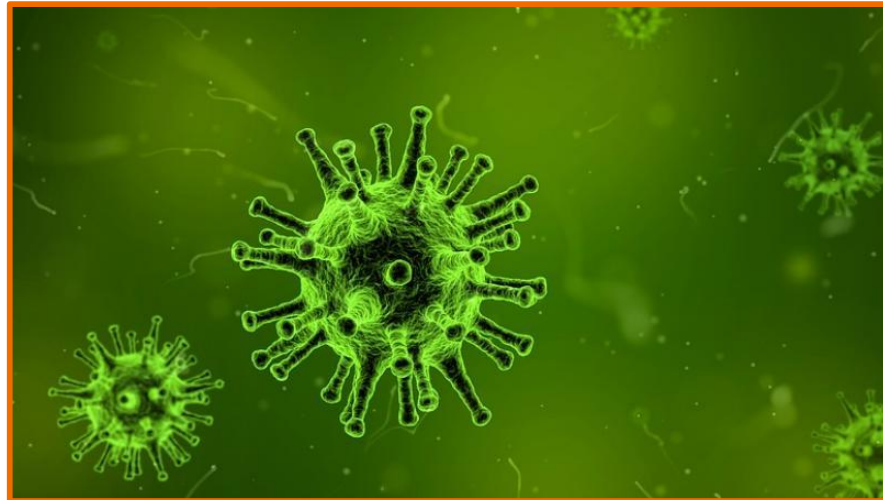




# Round 4 - Q4

FILL-IN-THE-BLANK:

A microbe that can cause disease is known as a \_\_\_\_\_



# Round 4 - Q5

NAME THAT:

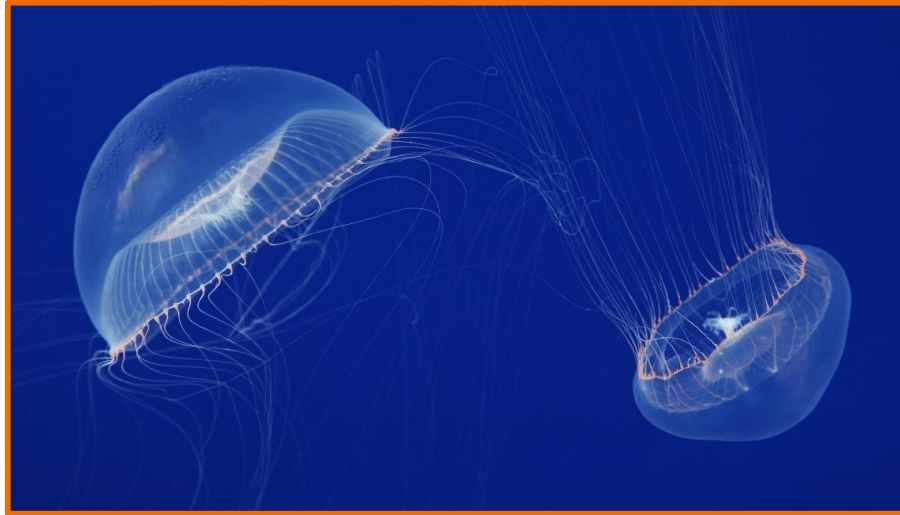
Everyday person performing experiments on themselves with biological materials is known as a \_\_\_\_\_



# Round 4 - Q6

NAME THAT:

Species from whom GFP was isolated



# Round 4 - Q7

Name That:

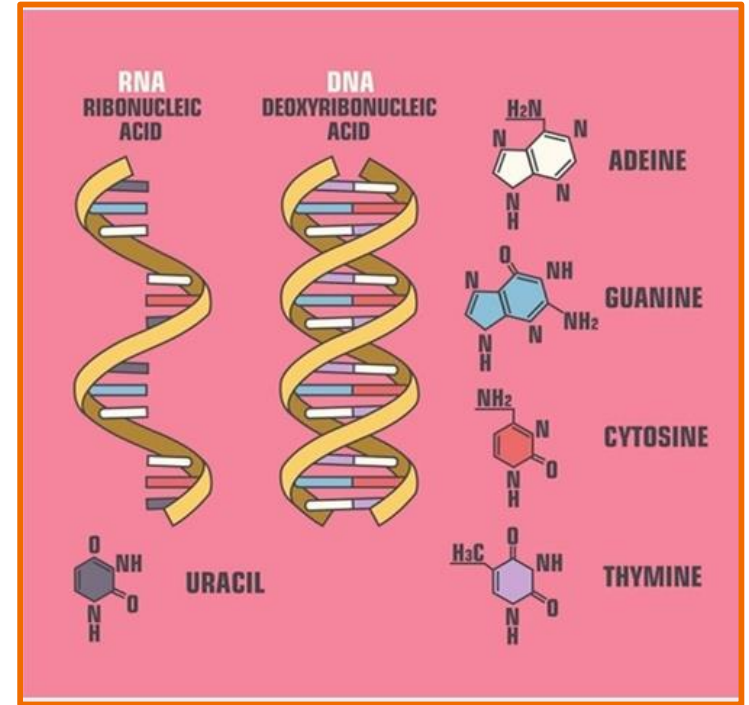
Word used to describe purified DNA as well as snow



# Round 4 - Q8

NAME THAT:

Direction used to describe the RNA blot



## Round 4 - Q9

FILL-IN-THE-BLANK:

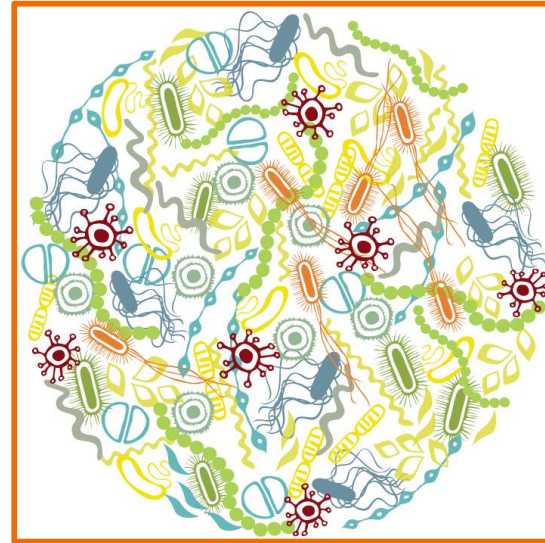
The first ever commercially available GM animal was the \_\_\_\_\_



# Round 4 - Q10

FILL-IN-THE-BLANK:

The use of microbes or their enzymes for increasing efficiency of industrial processes is called \_\_\_\_\_





**Repeats from Round 4**

# Answers from Rounds 3 and 4

**(please trade with another team again)**

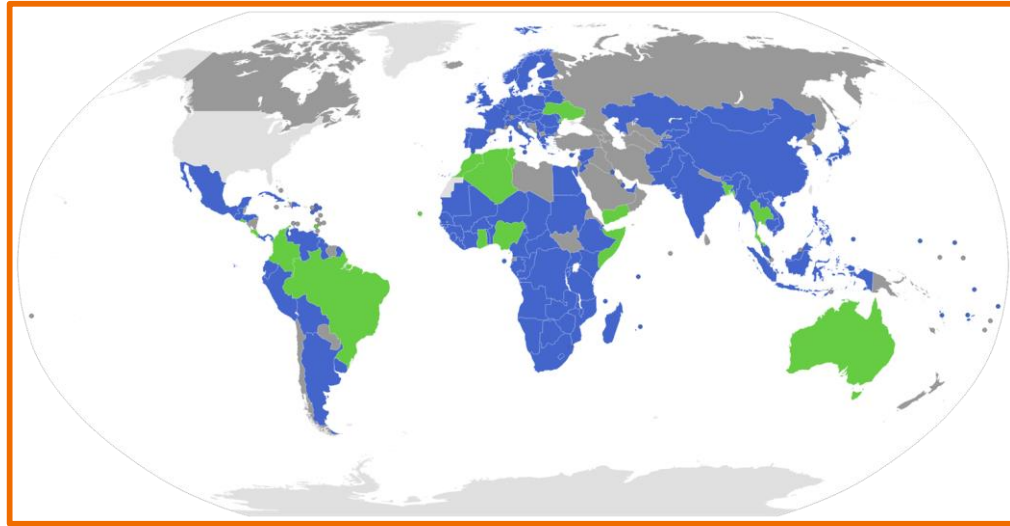
## Bonus Round - Q1

Within 2 billion dollars, how much is the synthetic biology market predicted to be worth in 2020?



## Bonus Round - Q2

What is the name of international agreement that aims to ensure equitable and fair distribution of genetic resources?



## Bonus Round - Q3

Within 5, how many teams competed in the 2018 iGEM competition?



## Bonus Round - Q4

A Chinese scientist became first person to gene-edit babies, braking multiple laws but successfully editing embryonic genes of twin girls. What technology did he use to accomplish this?



# Bonus Round - Q5

What company is known for its development of a biological foundry?



# Answers from the Bonus Round

**(please trade with another team one last time)**