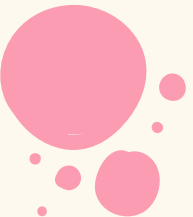
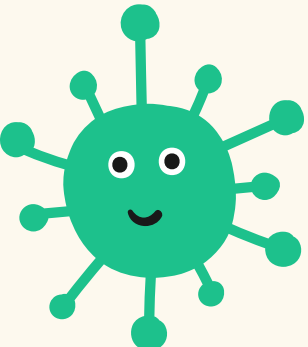
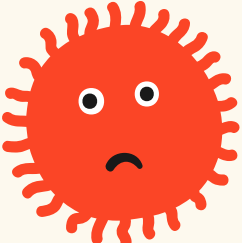


Genetic Engineering

An Introduction to DNA



Khan Lab iGEM

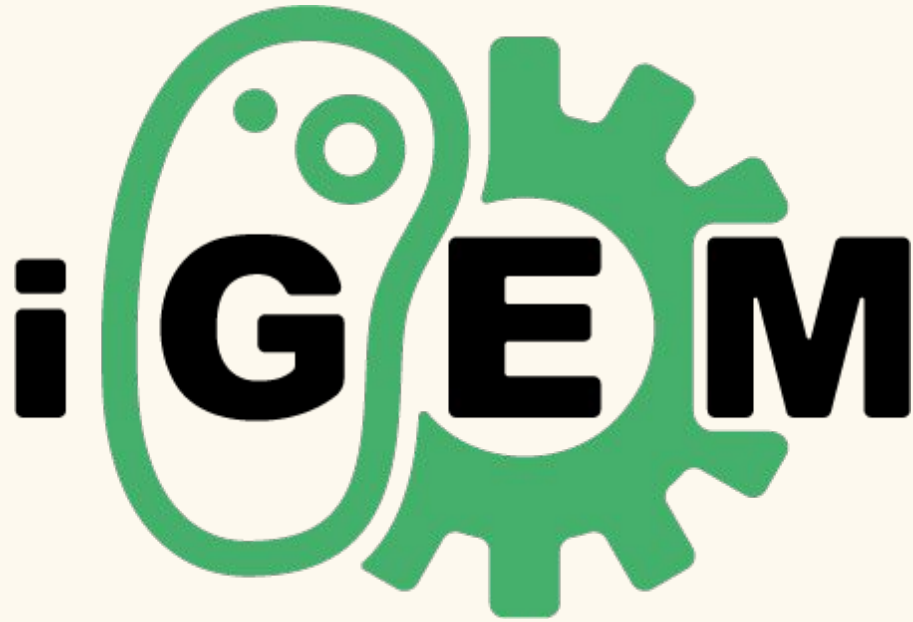


This is Paris, France..





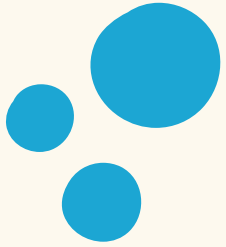
And this is us!



**international
Genetically
Engineered
Machine**

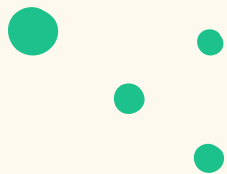
...

(Competition)



What's a “gene?”





DNA is the

BLUEPRINT

for *you*



DNA Structure



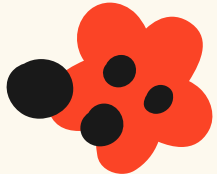
A - Adenine



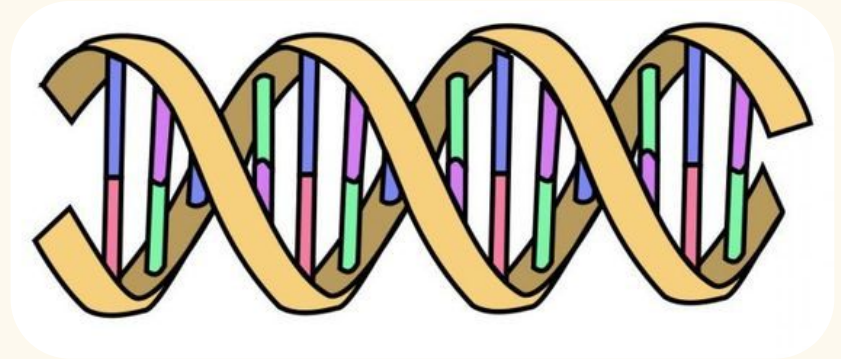
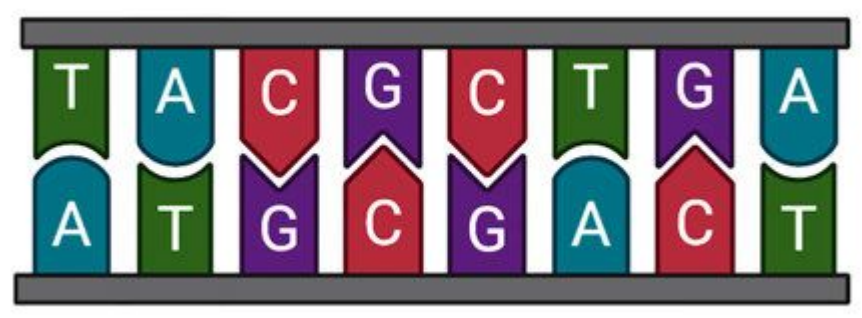
T - Thymine



G - Guanine



C - Cytosine



Base Pairing Rule



A - Adenine



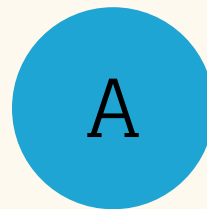
T - Thymine



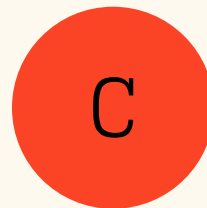
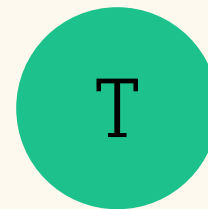
G - Guanine



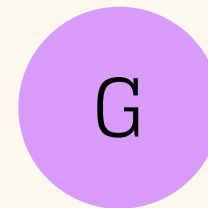
C - Cytosine

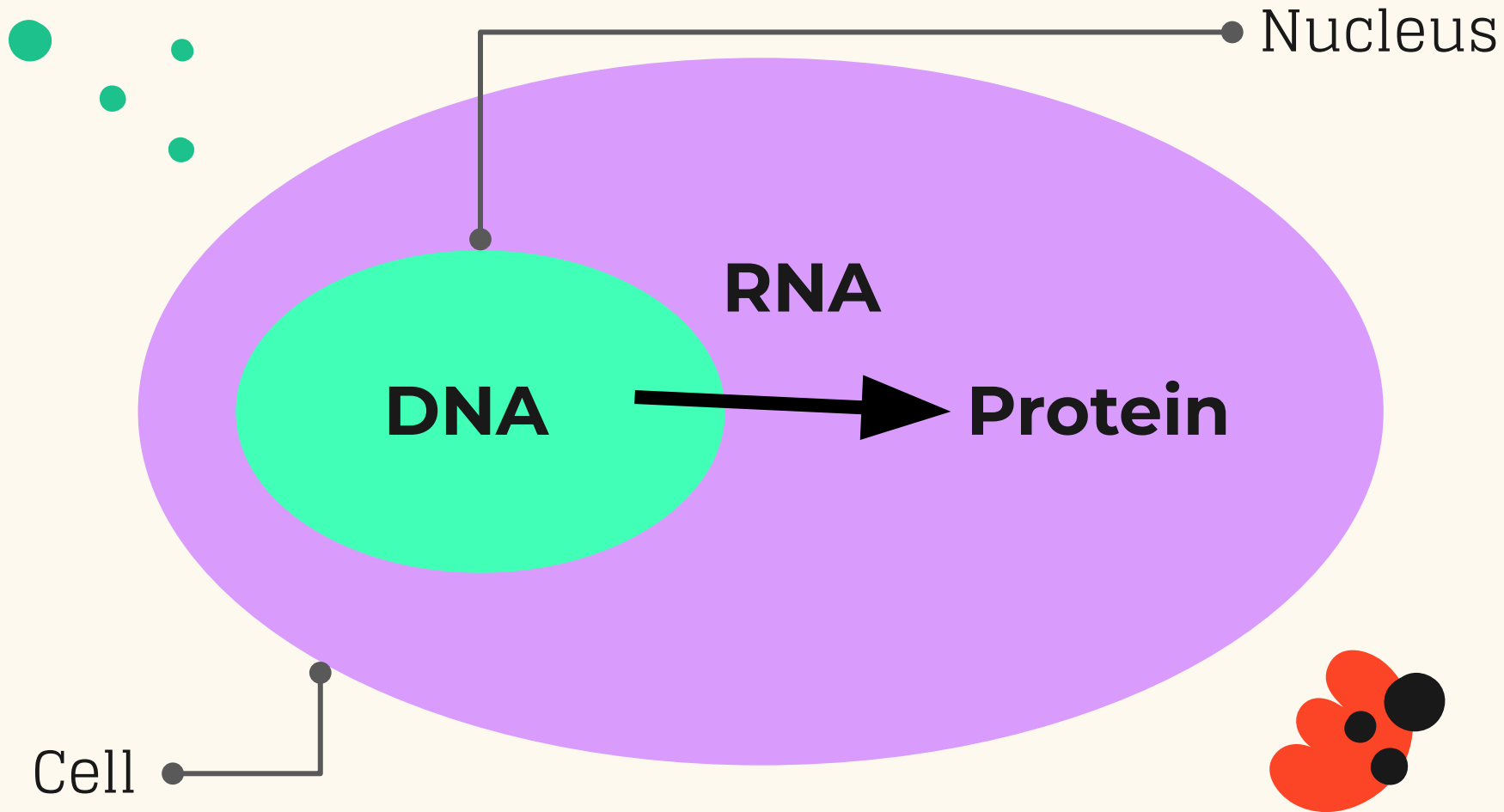


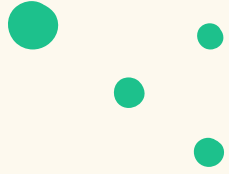
pairs with



pairs with







Central Dogma

DNA → **RNA** → **Protein**



What's RNA?



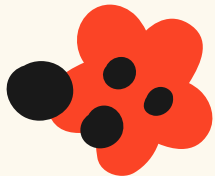
A - Adenine



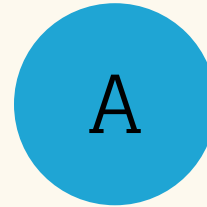
U - Uracil



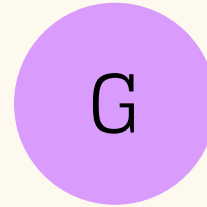
G - Guanine



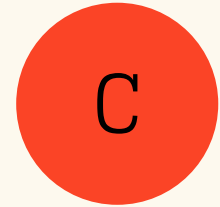
C - Cytosine

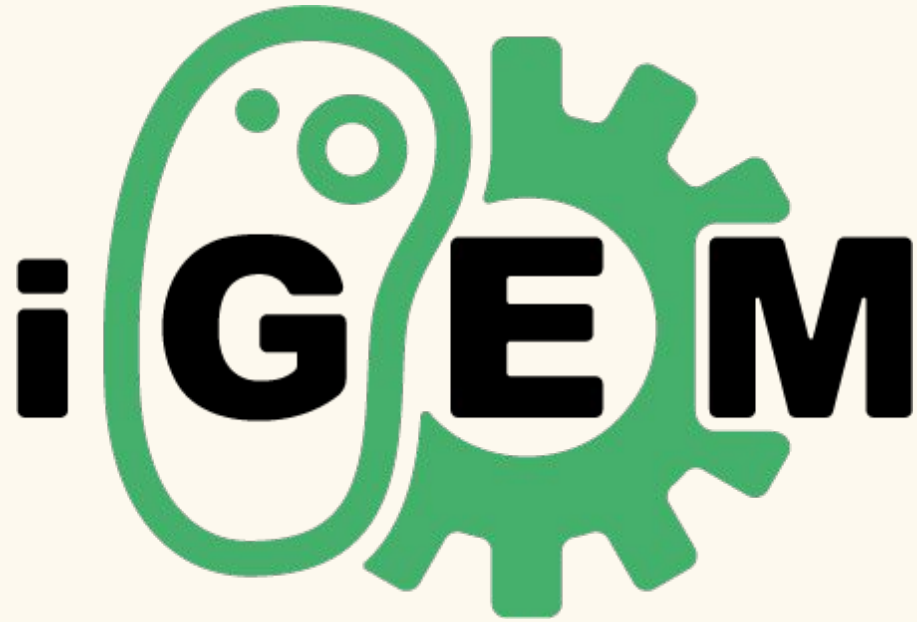


pairs with



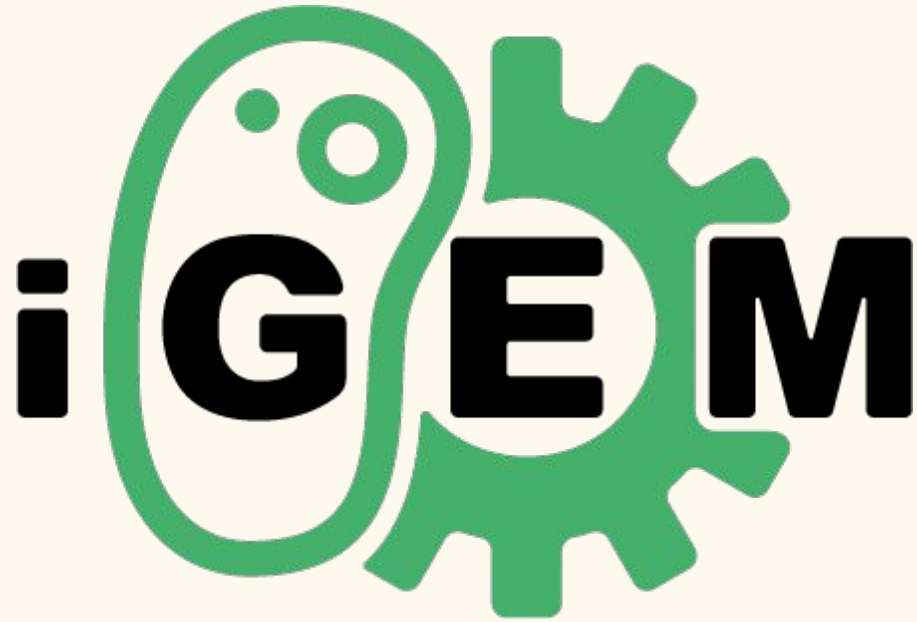
pairs with





international
Genetically
Engineered
Machine





international
Genetically
Engineered
Machine



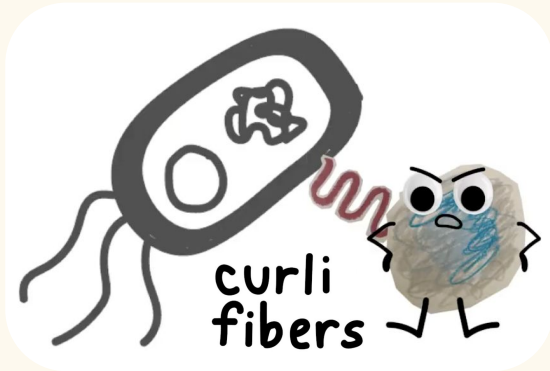


Our iGEM project involved editing DNA!

Why would we do that?

Good question!





+



=



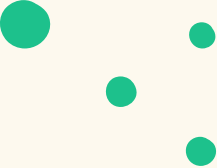




And not just us:

DNA-editing techniques
are responsible for a LOT
of important
innovations.



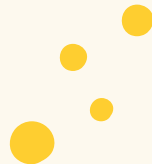


Now, it's your turn!

QUIZ: Who remembers
central dogma?

Base pairing?





01

DNA

Design a genetically modified animal using DNA traits.

02

RNA

Convert your DNA sequence into an RNA bracelet.

03

Protein

Draw another group's genetically engineered creation!



**Find a partner to
work on the packet
in front of you.**





RNA Trait Table & DNA Bases

Dog	UUA	Tail	AUU	Fur	CGU
Cat	UAC	Horns	AGG	Echolocation	GAU
Snake	UCG	Wings	AAC	Night Vision	GCU
Bird	UGG	Whiskers	CAA	Scales	GAC
Fish	UGC	Gills	CCG	Feathers	GGC
Chameleon	UUU	Claws	CUA	Antennas	AAU
Fire Breath	AGC	Super Speed	GUC	Tentacles	GTG
Long Life	CGC	Fangs	GCG	Beak	AUG

A

U

G

C

Questions?

Thank you!



Feedback



- Did you like this activity?
- Do you like biology more now?
- Would you want us to come back?
- Did you learn something new today?

