

Optogenetic Tool to Control Kinase Signaling

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Max Wilson Lab

The Department of Molecular, Cellular,
and Developmental Biology

MCDB
UC SANTA BARBARA



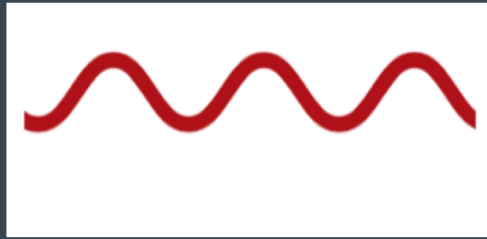
GORMAN
RESEARCH SCHOLARS



Central Dogma



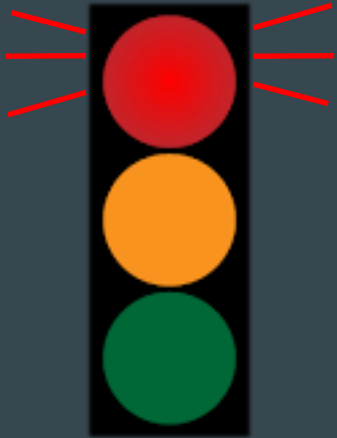
DNA



RNA



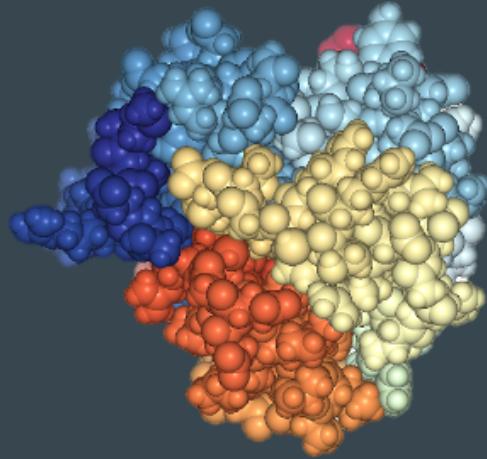
Protein



What is the long term vision?



What is the long term vision?



ERK

What is the long term vision?



Normal Cell

What is the long term vision?



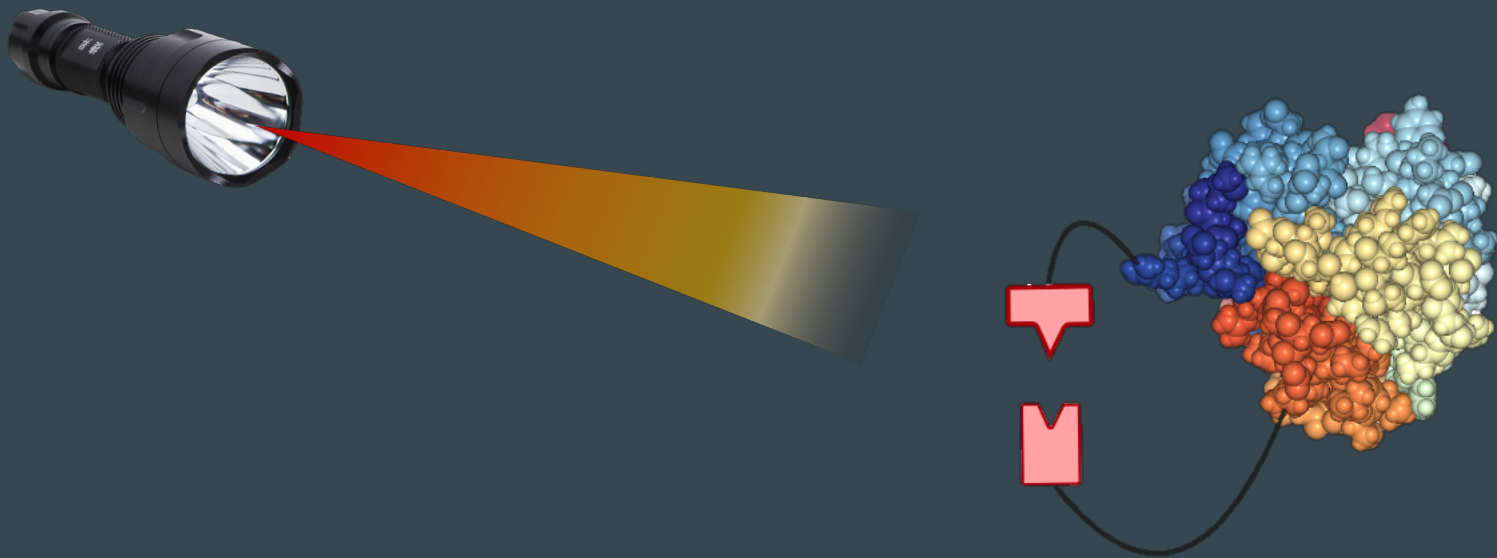


Normal Cell

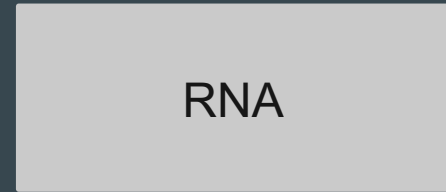
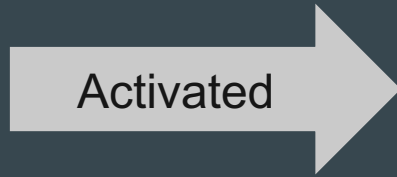
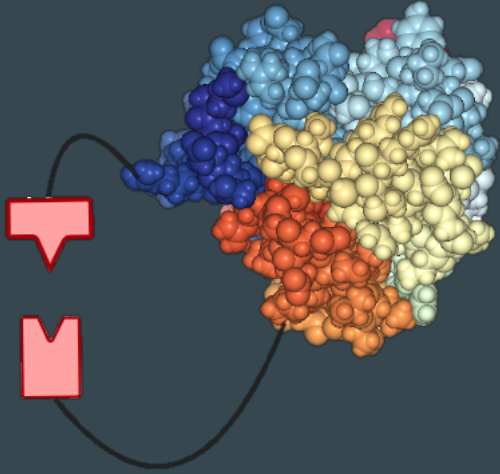


Cancerous Cell

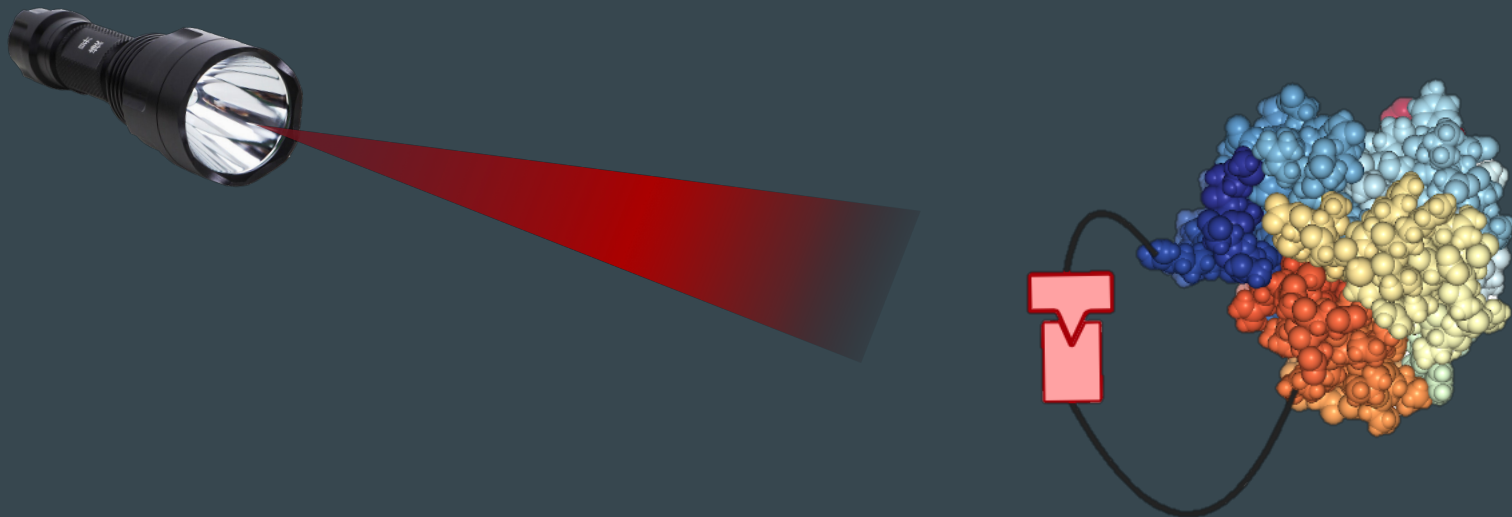
What is the technique?



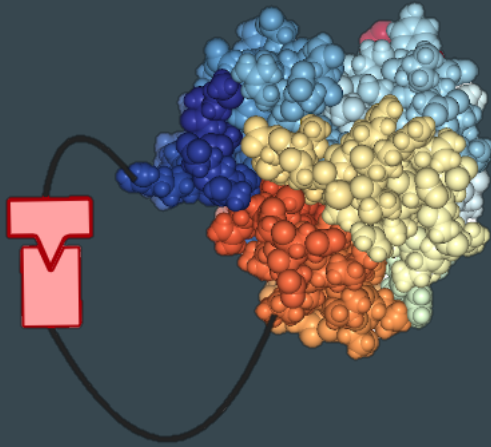
What is the technique?



What is the technique?



What is the technique?



Deactivate

DNA



RNA

Designing a plasmid



Cloning



Insert plasmid to a virus



Using virus to inject stem cells

Designing a plasmid

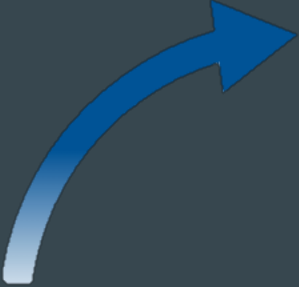
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graph TD; A[Designing a plasmid] --> B[Cloning]; B --> C[Insert plasmid to a virus]; C --> D[Using virus to inject stem cells];
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Cloning

Insert plasmid to a virus

Using virus to inject stem cells

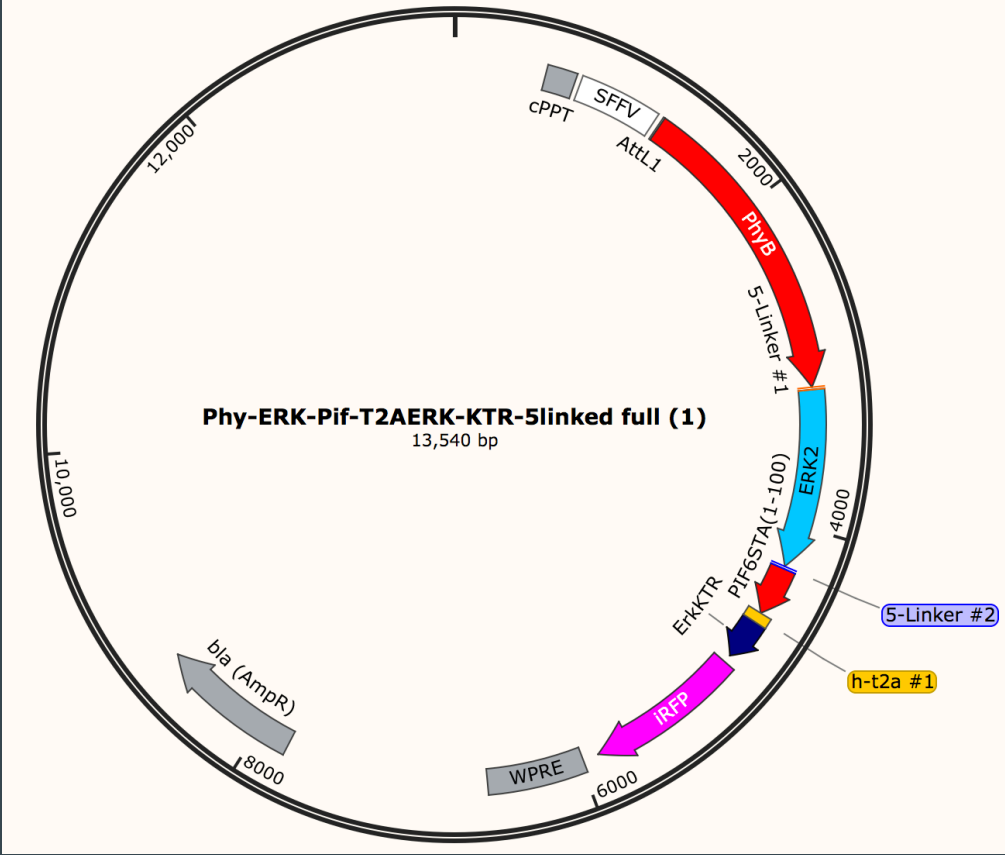
Designing a plasmid



Designing a plasmid



Designing a plasmid



Designing a plasmid

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graph TD; A[Designing a plasmid] --> B[Cloning]; B --> C[Insert plasmid to a virus]; C --> D[Using virus to inject stem cells];
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Cloning

Insert plasmid to a virus

Using virus to inject stem cells

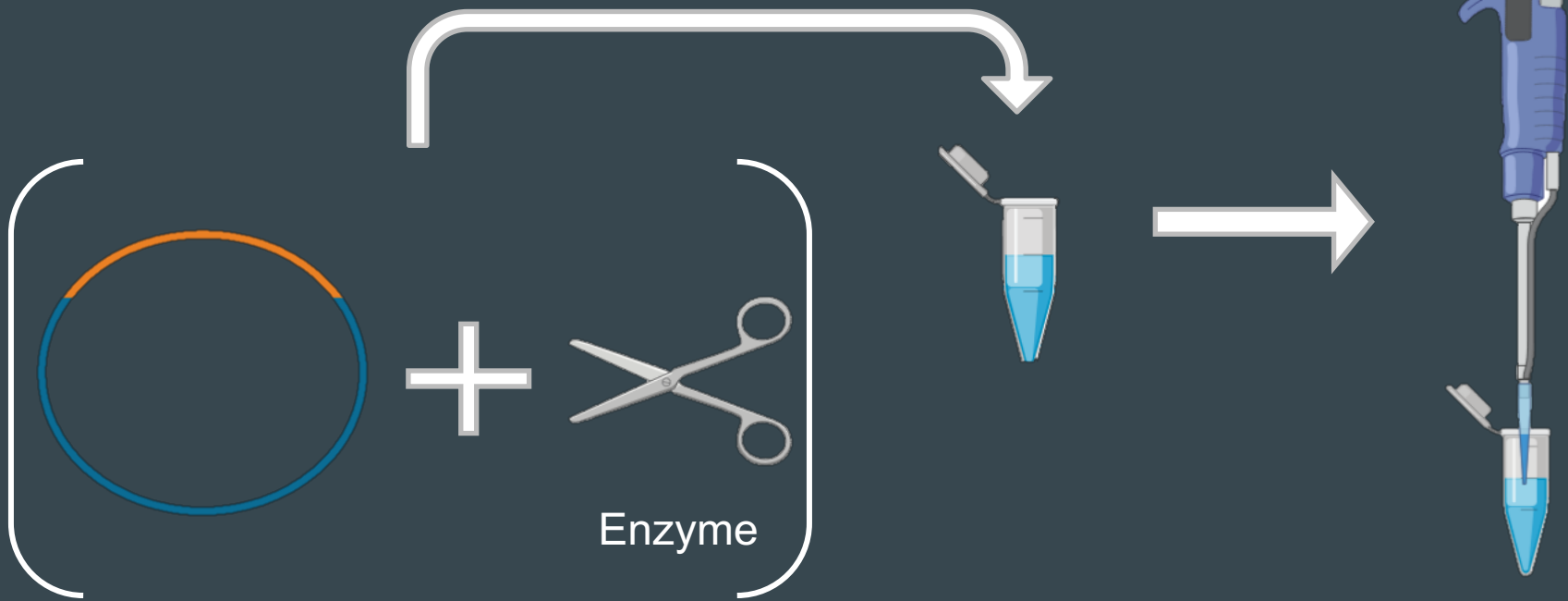
Cloning



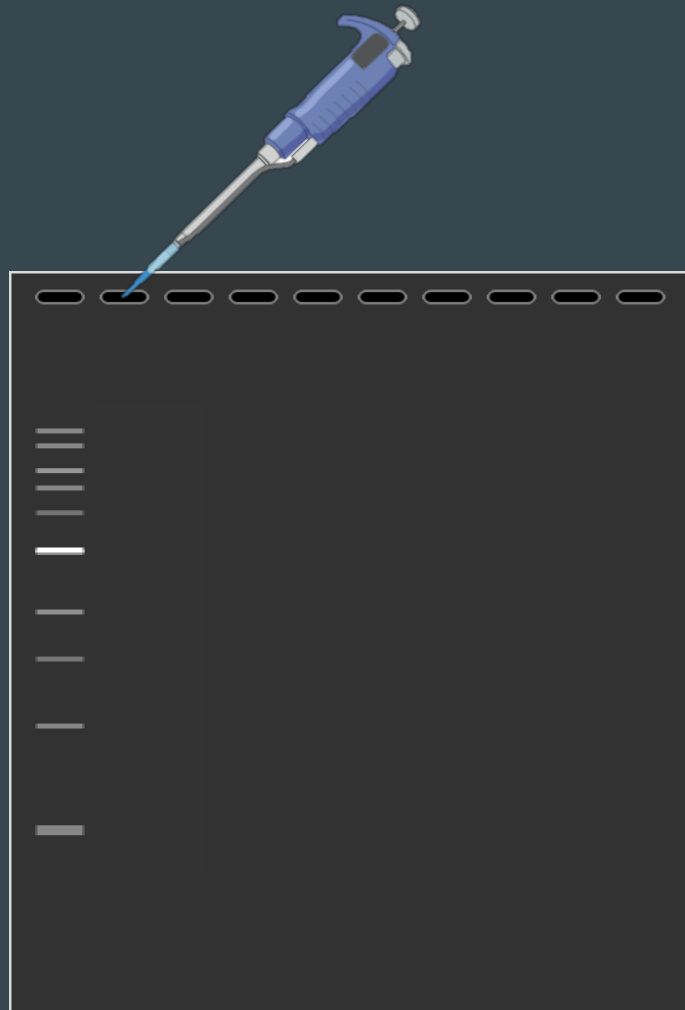
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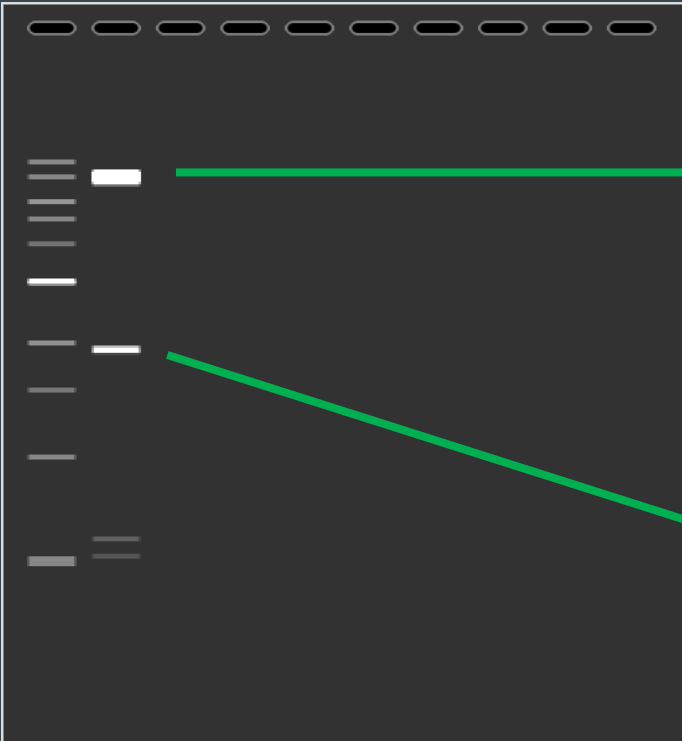
Cloning



Cloning



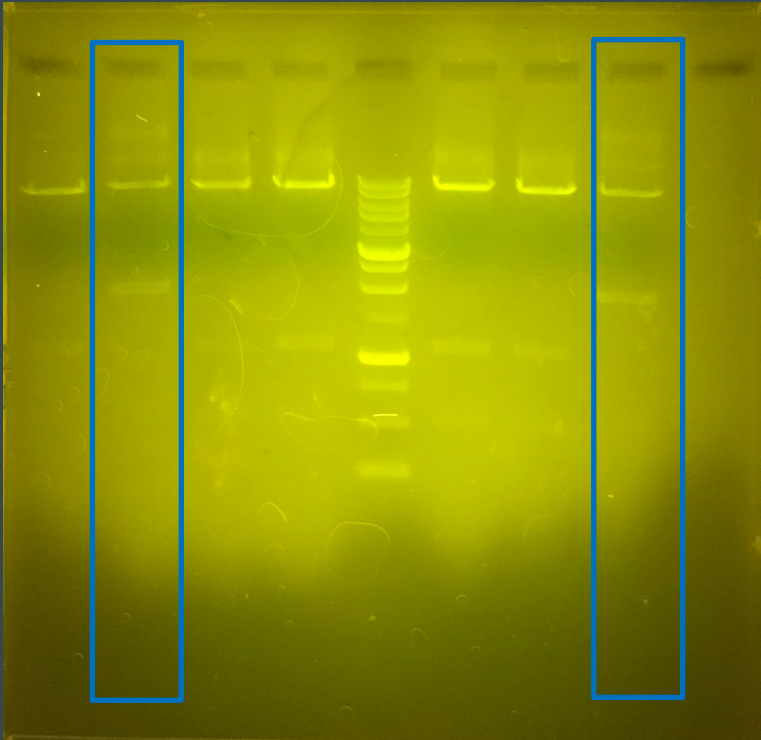
Cloning



Cloning



Expected



Designing a plasmid

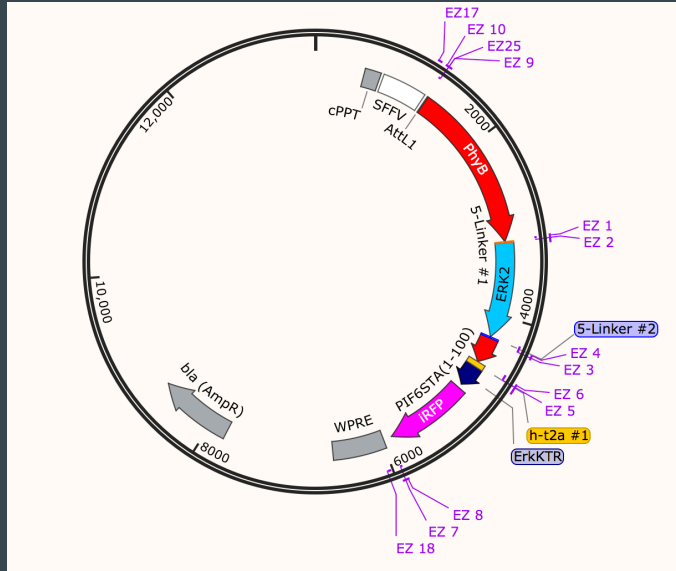
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graph TD; A[Designing a plasmid] --> B[Cloning]; B --> C[Insert plasmid to a virus]; C --> D[Using virus to inject stem cells];
```

Cloning

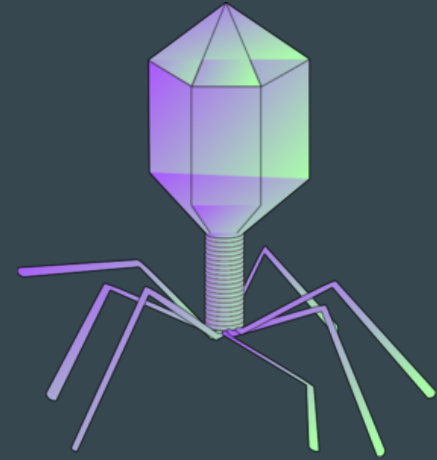
Insert plasmid to a virus

Using virus to inject stem cells

Transformation of plasmid to a virus



Plasmid



Virus

Designing a plasmid

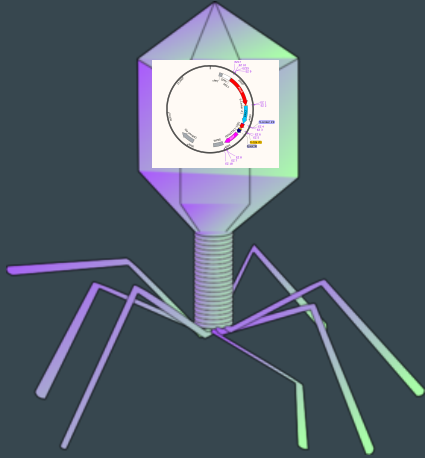
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Cloning

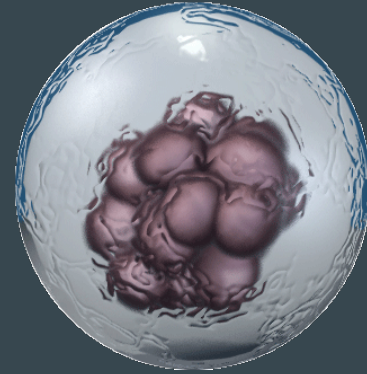
Insert plasmid to a virus

Using virus to inject stem cells

Using virus to inject stem cells

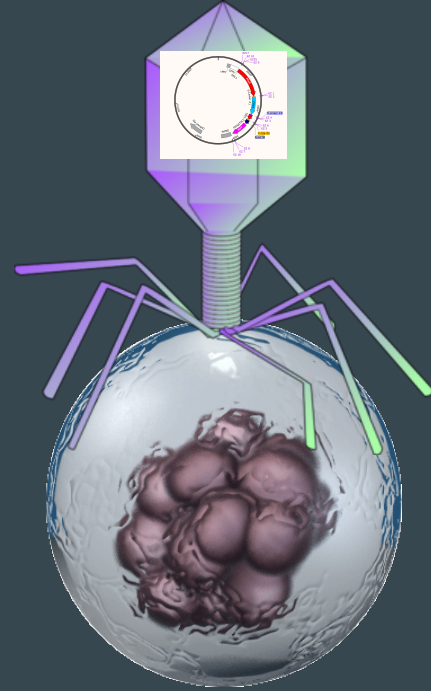


Virus



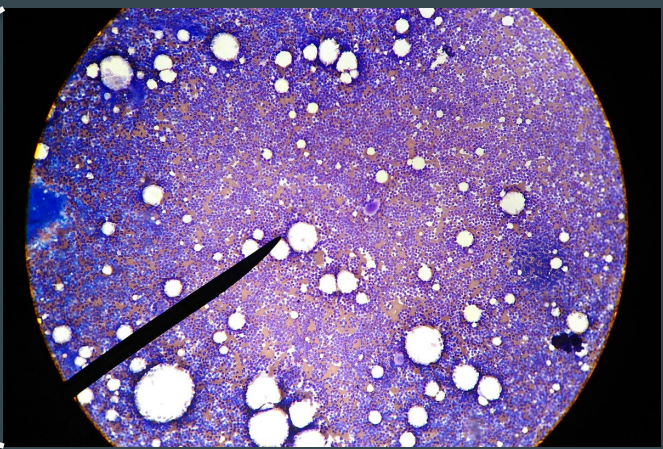
Stem Cell

Using virus to inject stem cells



Virus

Stem Cell



Designing a plasmid

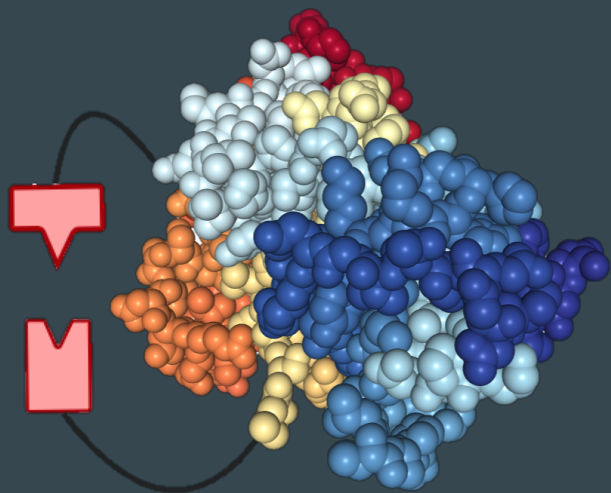
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Cloning

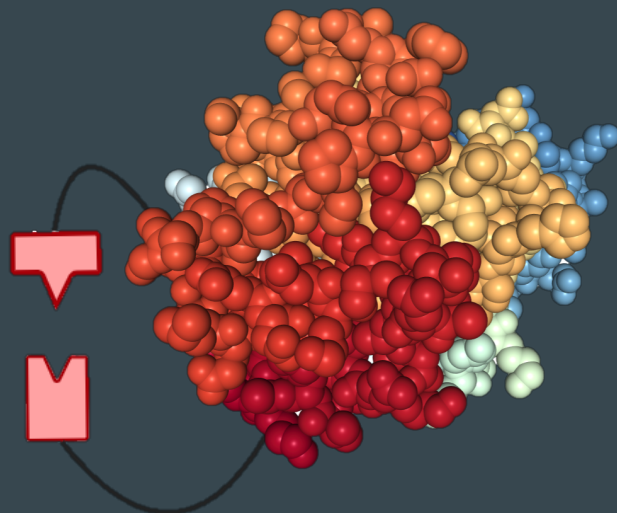
Insert plasmid to a virus

Using virus to inject stem cells

Next Step



RAF



MEK

Max Wilson Lab at UC Santa Barbara



Max Wilson
principal investigator

GORMAN
RESEARCH SCHOLARS



Ryan Lach
Graduate Mentor

Wilson Lab

