

# When should scientists keep their mouths shut?



Tina Liu – Censorship in the past:  
recombinant DNA research



Ann Fiegen – Censorship today: A dangerous  
flu virus created? How and why.



Kevin Bonham – Weighing the risks: how do  
we proceed?

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# What's the Harm?

- The danger of an outbreak – worst case scenario (1918)
- How could the virus be released?
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# The 1918 Spanish Flu

- Lasted from Jan 1918 to Dec 1920
- Between 50-100 million people killed (3-6% of the world population)
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# Recipe for Danger

Highly transmissible + High mortality = Deadly pandemic



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# Spanish Flu, Bird Flu and “Ferret Flu”

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# Brief Interlude on Mortality

$$\frac{\text{\# of deaths attributed to H5N1}}{\text{\# of clinically confirmed cases of H5N1}} = \text{H5N1 Mortality} \quad (\sim 60\%)$$

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# QUESTIONS?

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# Biosafety containment

BSL2



BSL3



BSL4

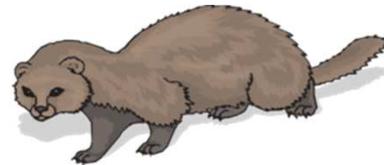
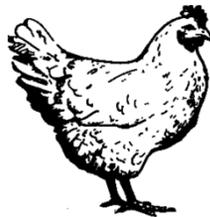
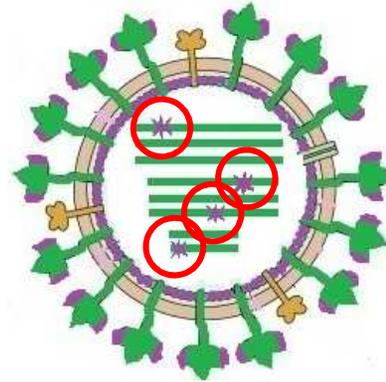
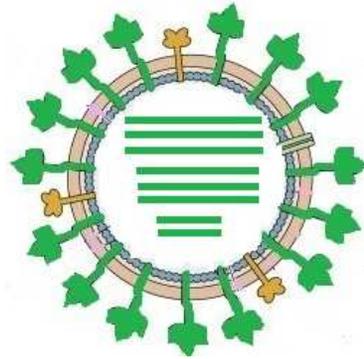


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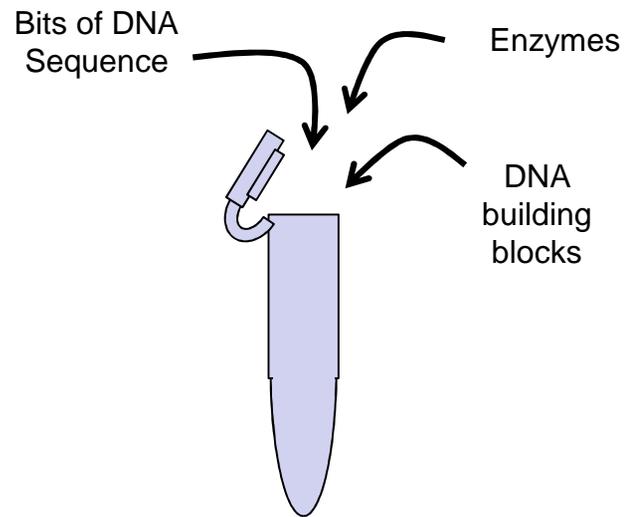
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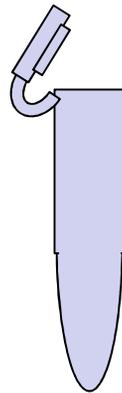
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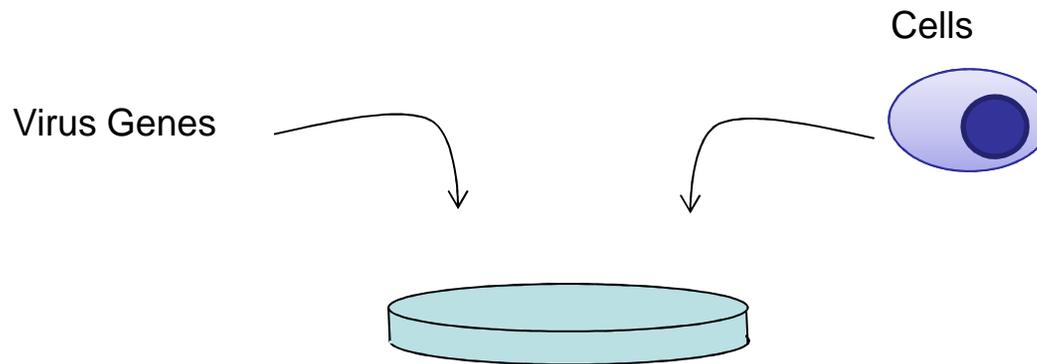
# How do you turn a genetic sequence into virus?



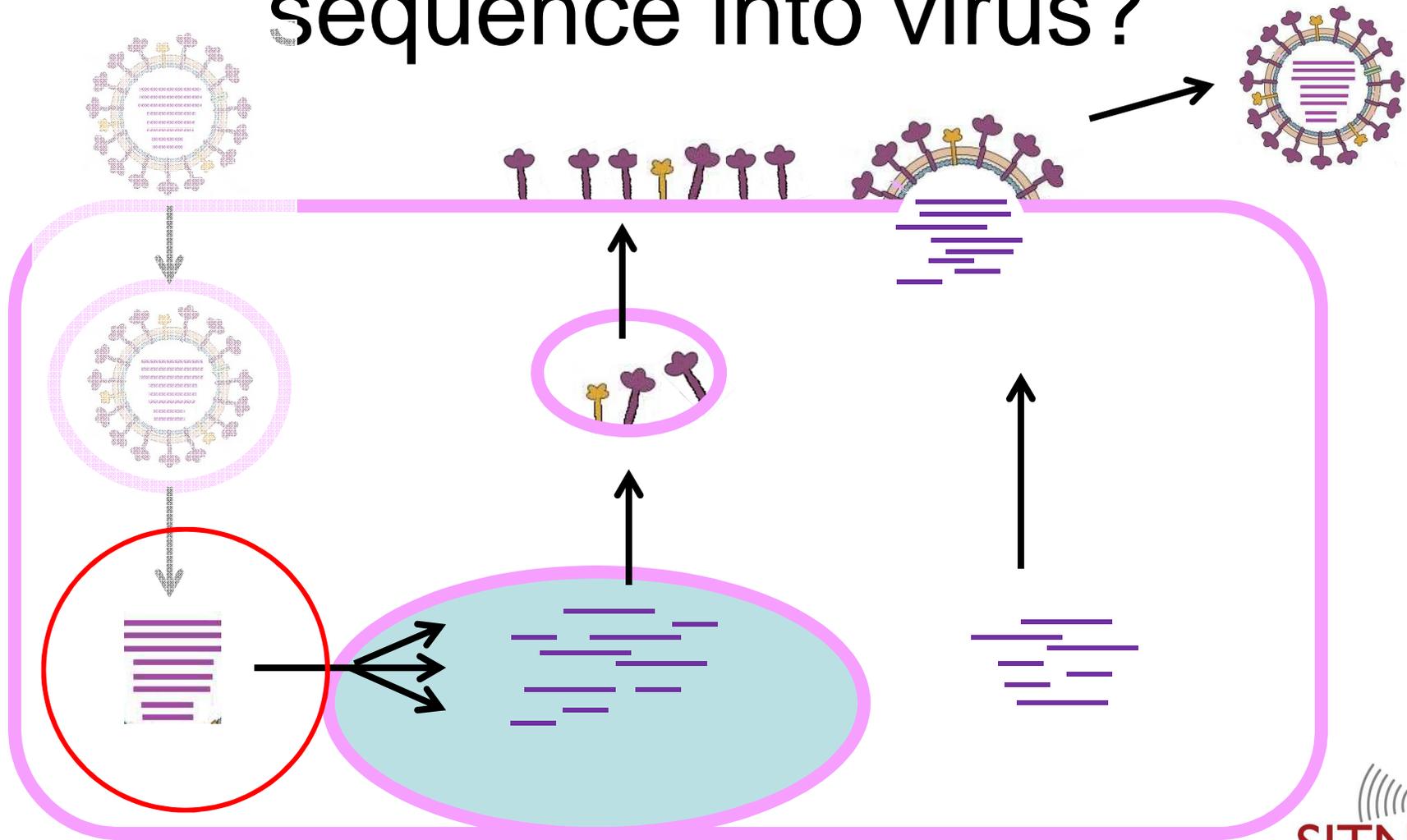
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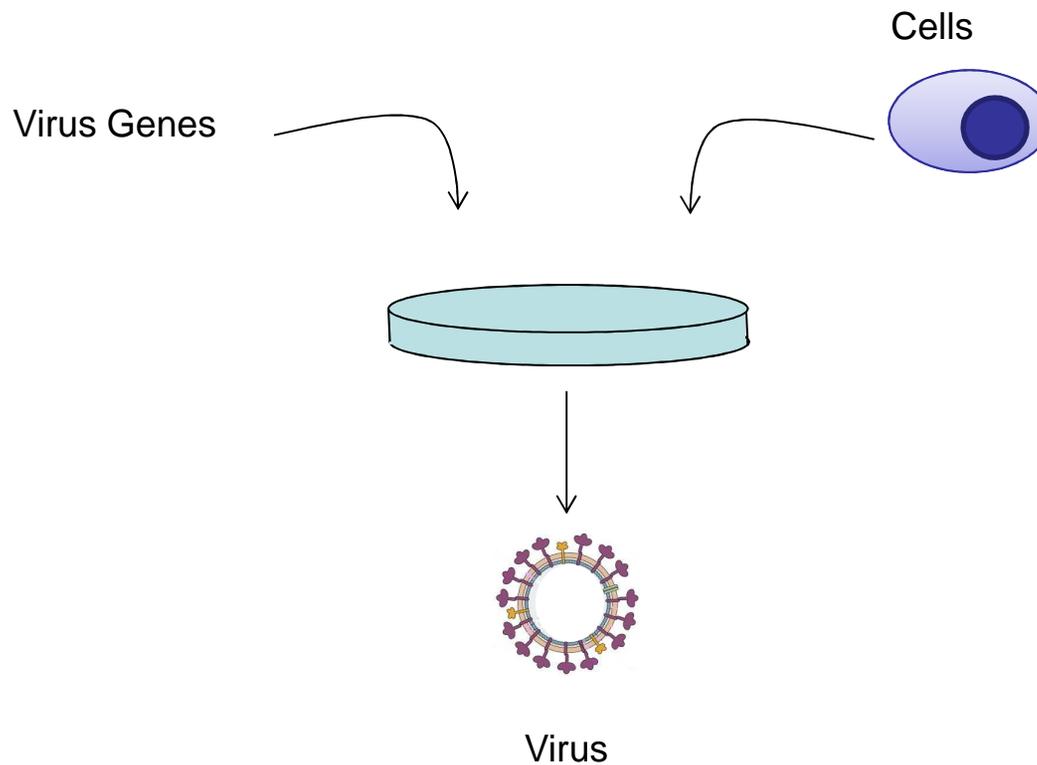
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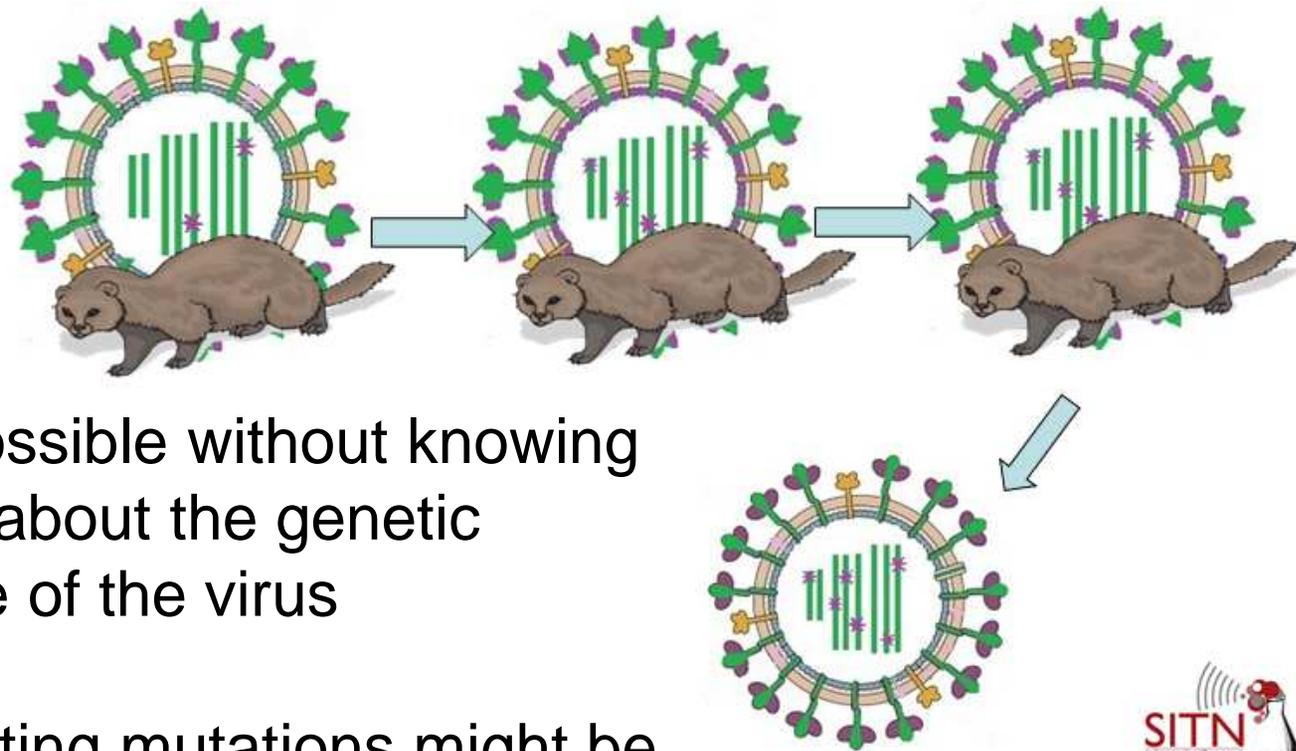
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# How do you turn a genetic sequence into virus?



# Is this process easier than repeating serial passage experiment?



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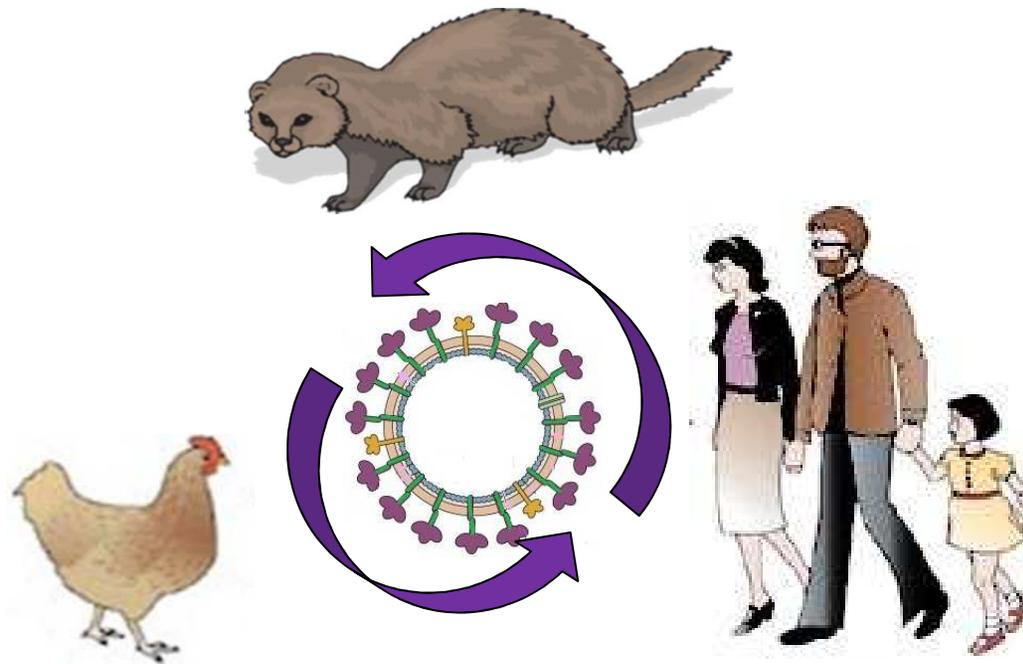
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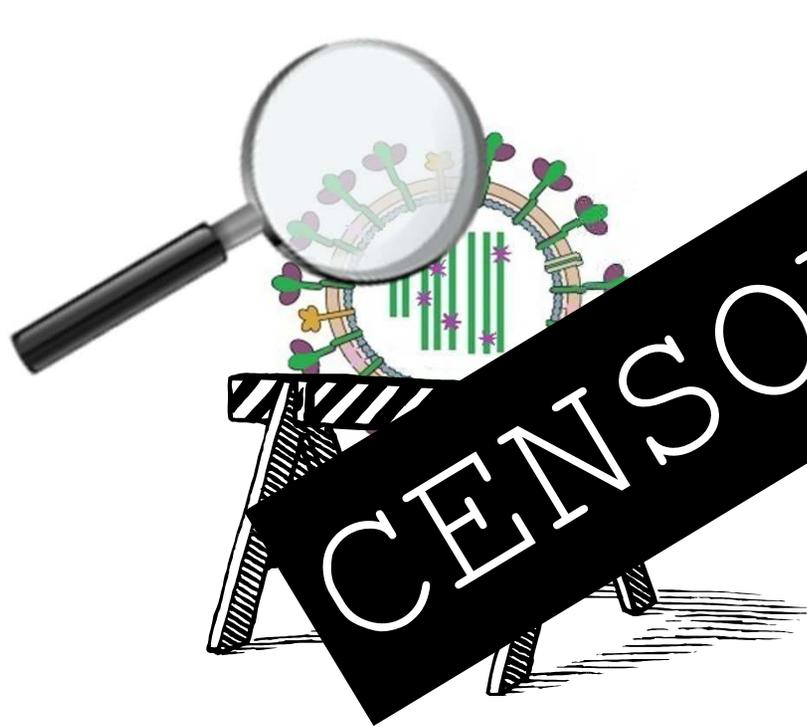
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## H5NI Studies: Benefits

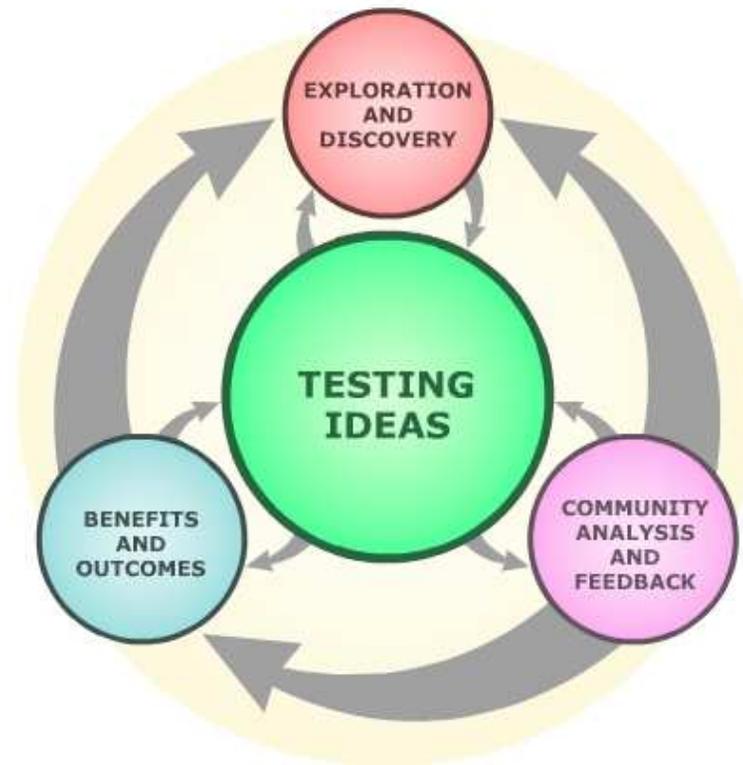


Surveillance

Pandemic control

- Virus evolution
  - Vaccines
  - Drugs
-

# Science Works Best When Information is Freely Shared



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# The Life of Risky Research

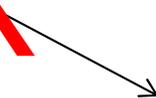
Funding?



Risky Research



Positive outcomes



Negative Consequences

Threat of Inaction

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# The Path Forward is Up to Us

- Scientists have an obligation to communicate the risks and rewards of their research
- Policy makers and the public should try to stay informed
- Scientists need to be proactive in addressing risk and self-regulating

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# Summary

- The dangers of pandemic flu are real (though often exaggerated)
- “Ferret flu” research has a risk of releasing dangerous virus (due to accident or malicious intent)
  - Risk is unknown
  - The withheld data does not necessarily eliminate the risk
- There are also dangers to not doing the research
- Scientists must engage with the public and with policy makers to communicate risks and benefits of dual-use research

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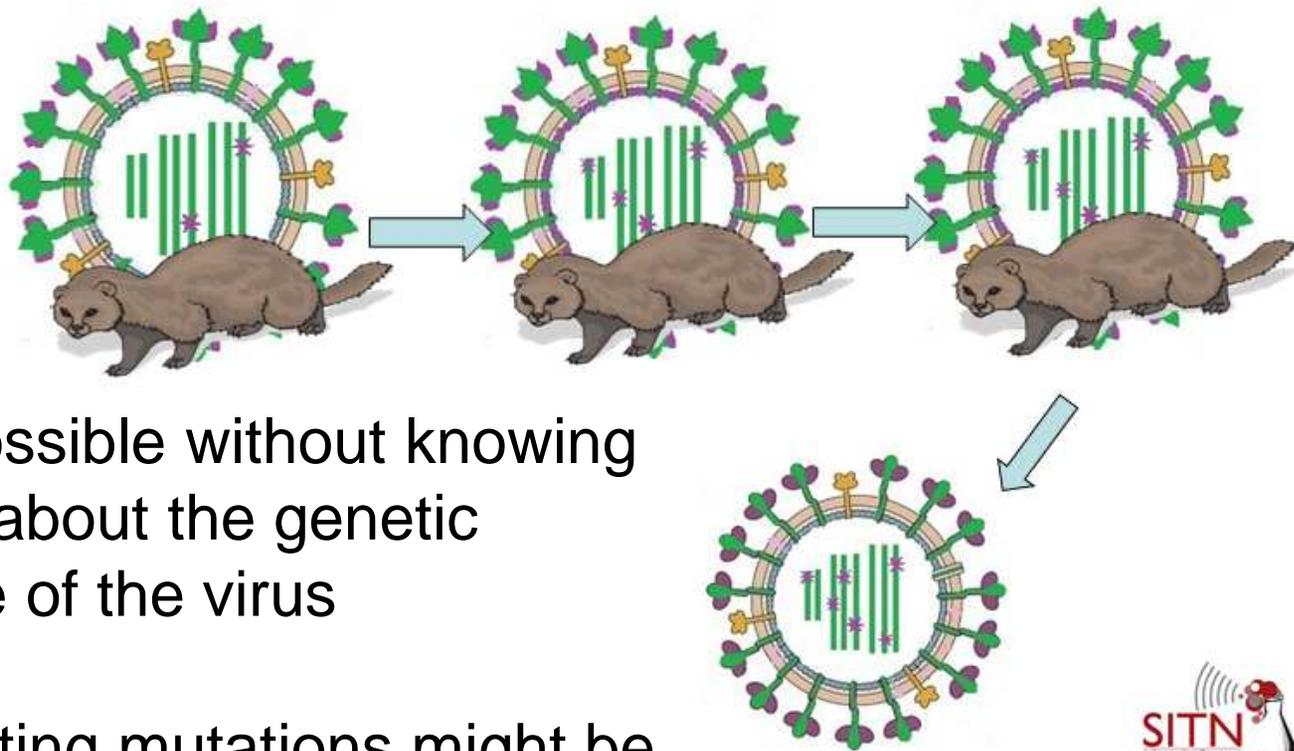


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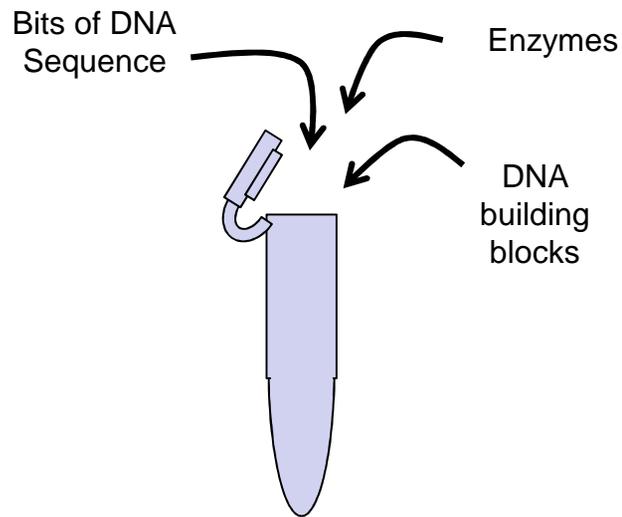
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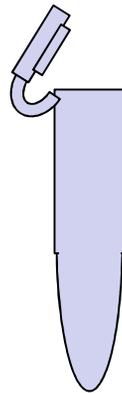


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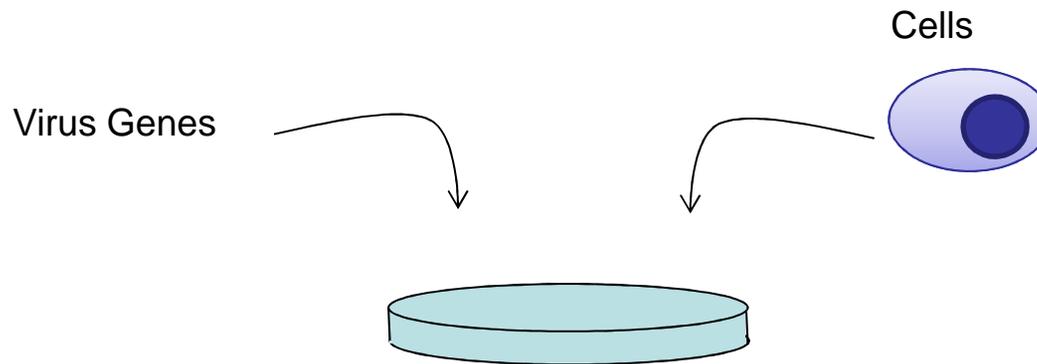
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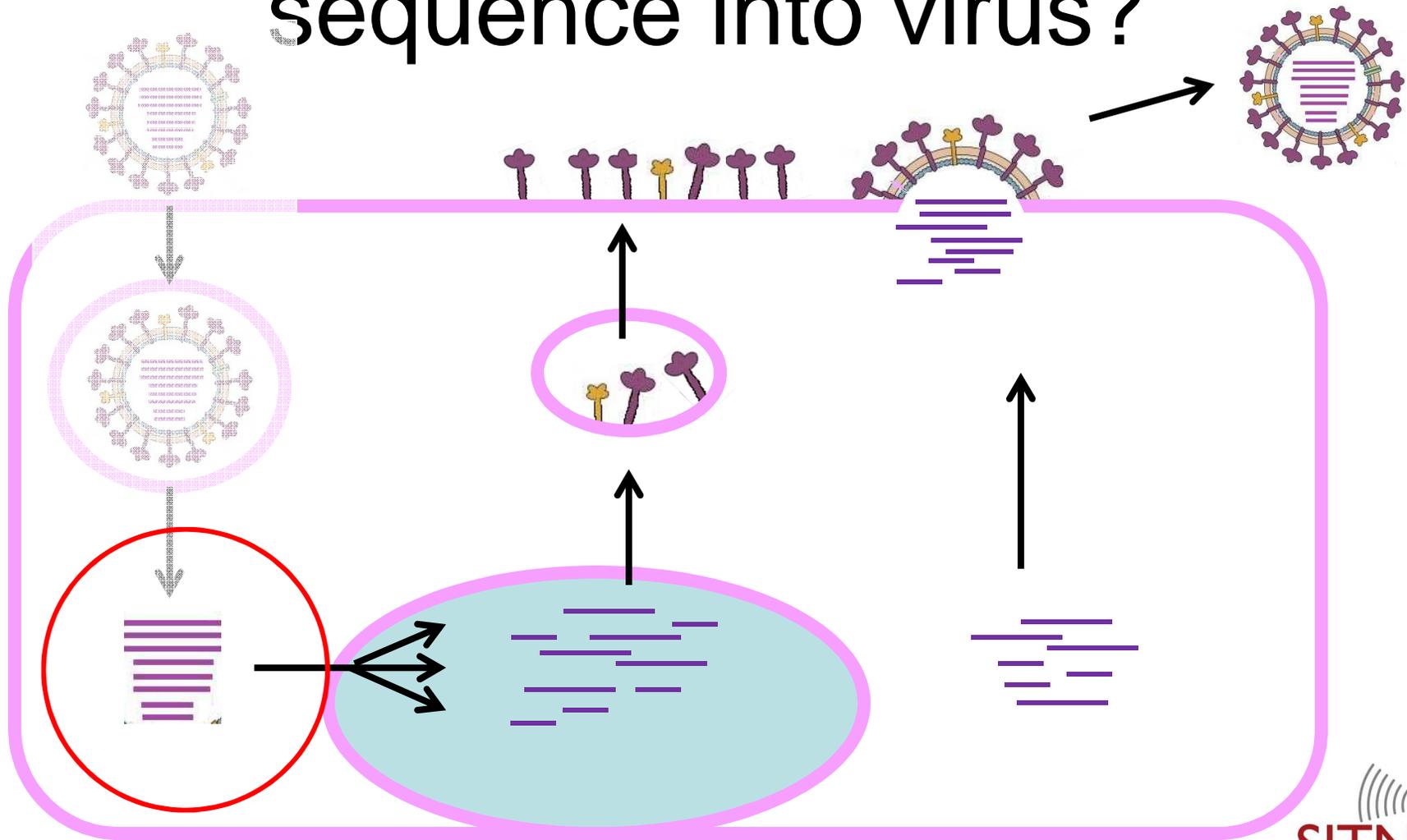
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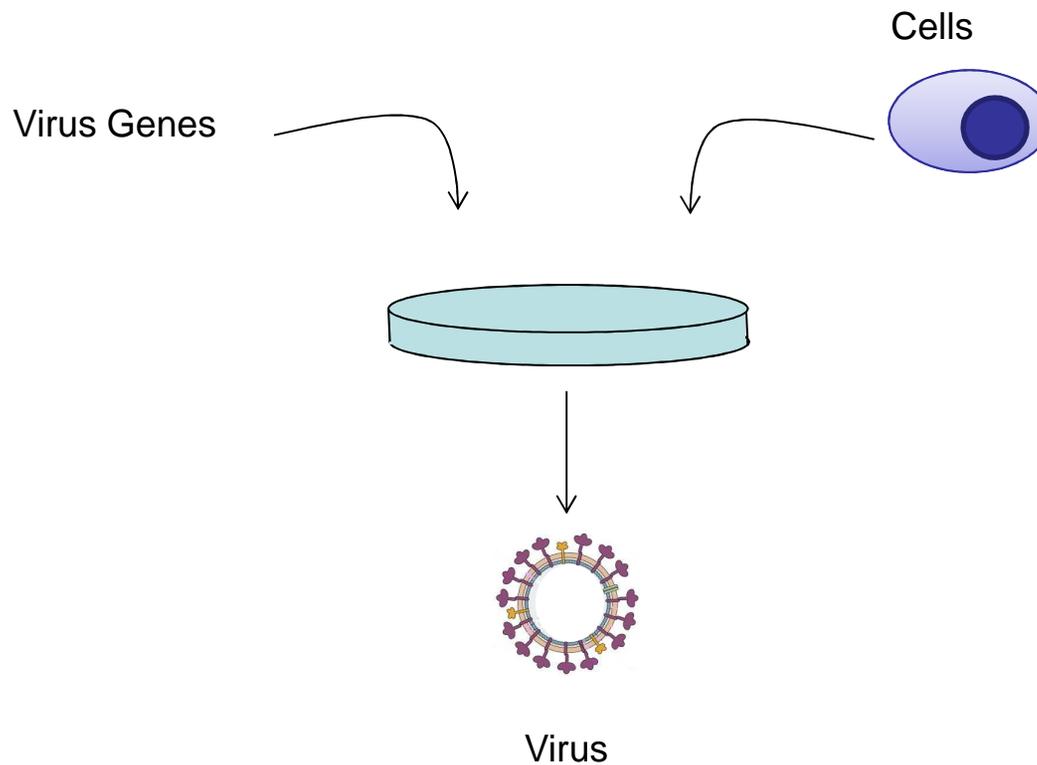
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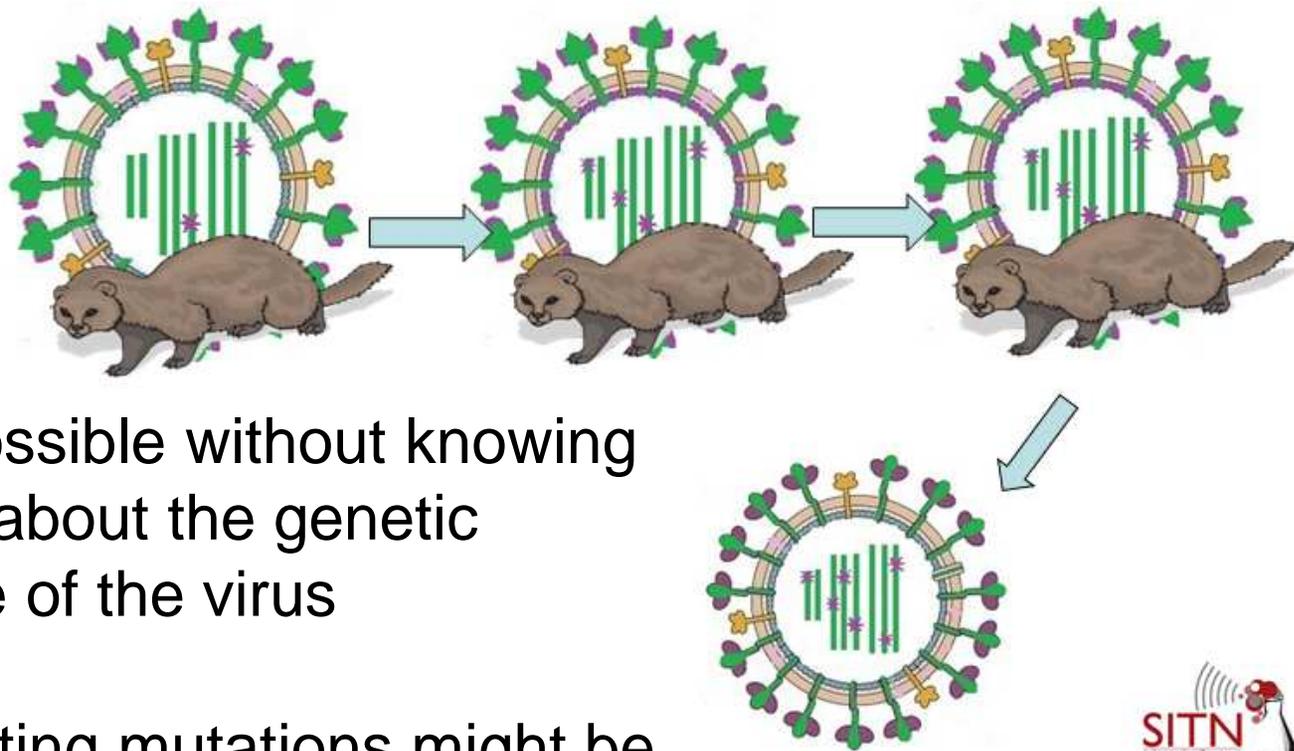
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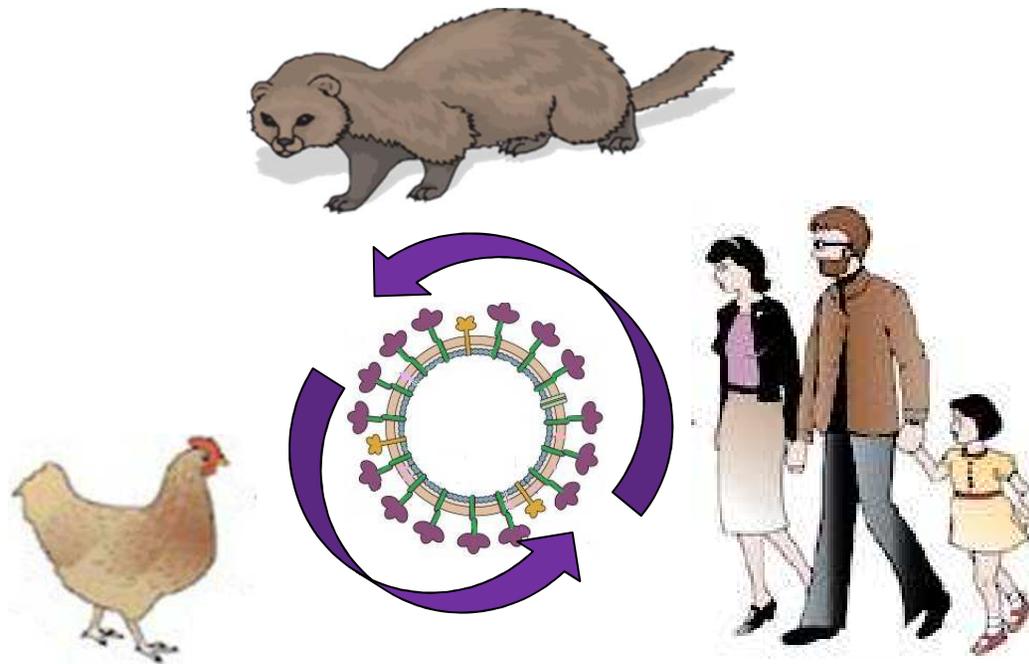
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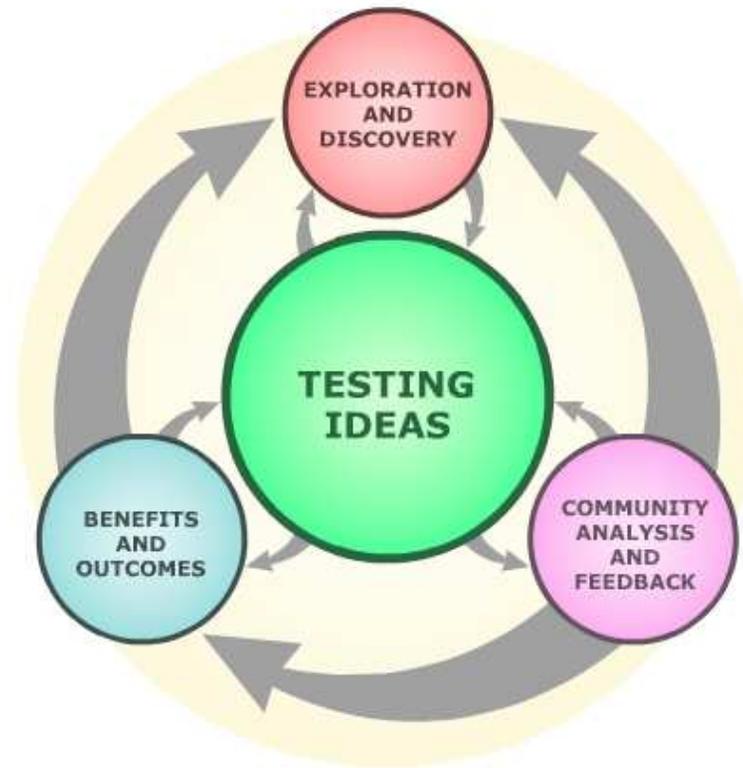
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# Science works as a network



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# Thank you!

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## **Harvard Medical School**

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(BGSO)**

**The Harvard/MIT COOP**

