

# *HISTORY OF CELL AND MOLECULAR BIOLOGY*

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# Friedrich Miescher (1844-1895)

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- ✓ Friedrich Miescher was a Swiss physician and biologist. He was the first scientist to isolate nucleic acid (DNA) from WBC in the year of 1869.
- Is it the DNA, which is responsible for HEREDITY?

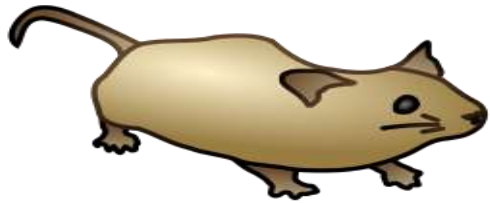
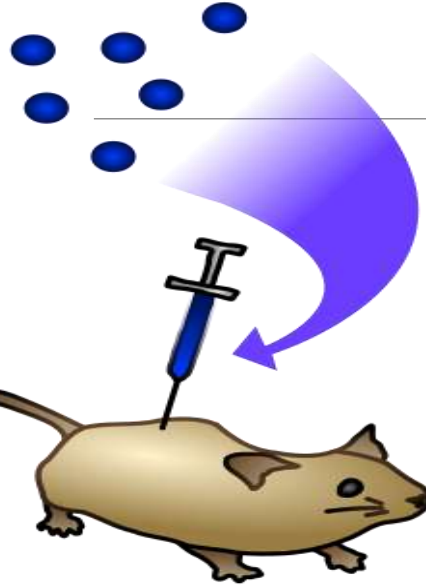
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- ✓ During the period of 1900's scientists realized that the chromosomes contain DNA and proteins.
  - Which is responsible for HEREDITY? (DNA or PROTIENS)

# Frederick Griffith (1877–1941)

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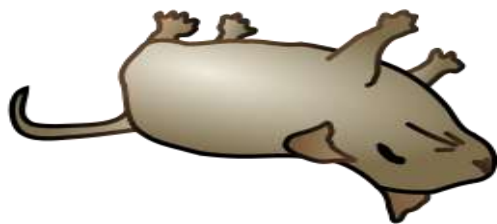
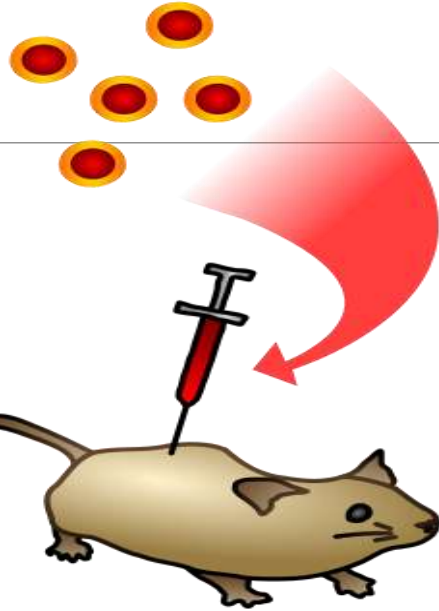
- ✓ Frederick Griffith was a British bacteriologist whose focus was the epidemiology and pathology of bacterial pneumonia.

**rough strain  
(nonvirulent)**



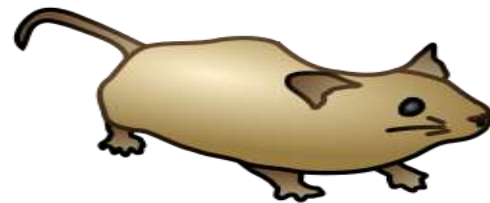
**mouse lives**

**smooth strain  
(virulent)**



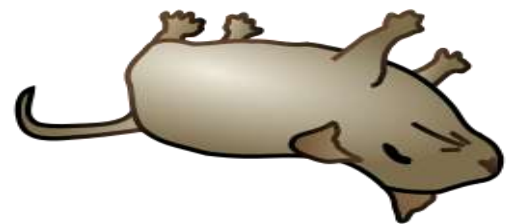
**mouse dies**

**heat-killed  
smooth strain**



**mouse lives**

**rough strain &  
heat-killed  
smooth strain**



**mouse dies**

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- How did the non-pathogenic bacteria turned into pathogenic bacteria?

# Oswald Avery (1877 -1955)

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- ✓ Oswald Avery was a Canadian-American physician and medical researcher.
- ✓ Avery was one of the first molecular biologists and a pioneer in immunochemistry, but he is best known for the experiment that isolated DNA as the material of which genes and chromosomes are made.

In the first step, he took the smooth strain (Virulent) and killed them by using heat.

Following that, he separated bacterial components into

Protiens



Lipids



Carbohydrates



RNA



DNA



Added rough strain  
(non-virulent)



**THANK  
YOU**