

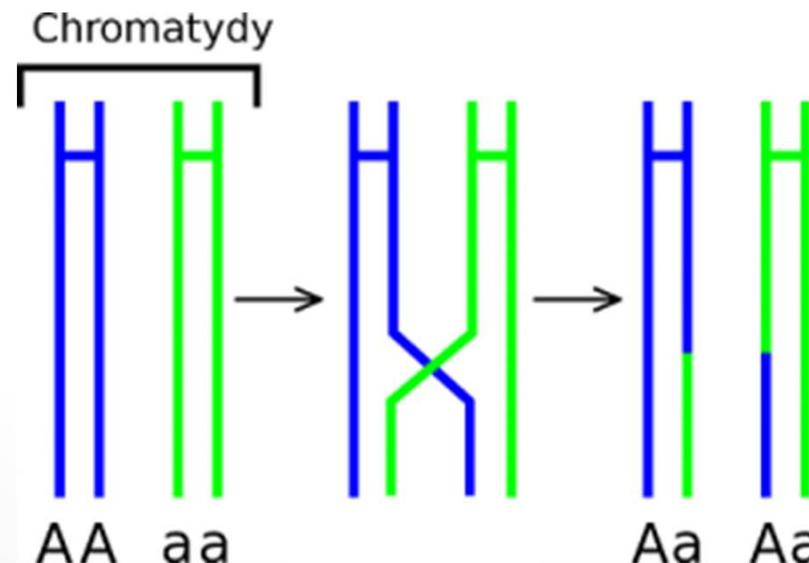
Gene Recombination and Cloning

Chatraporn & Yumin



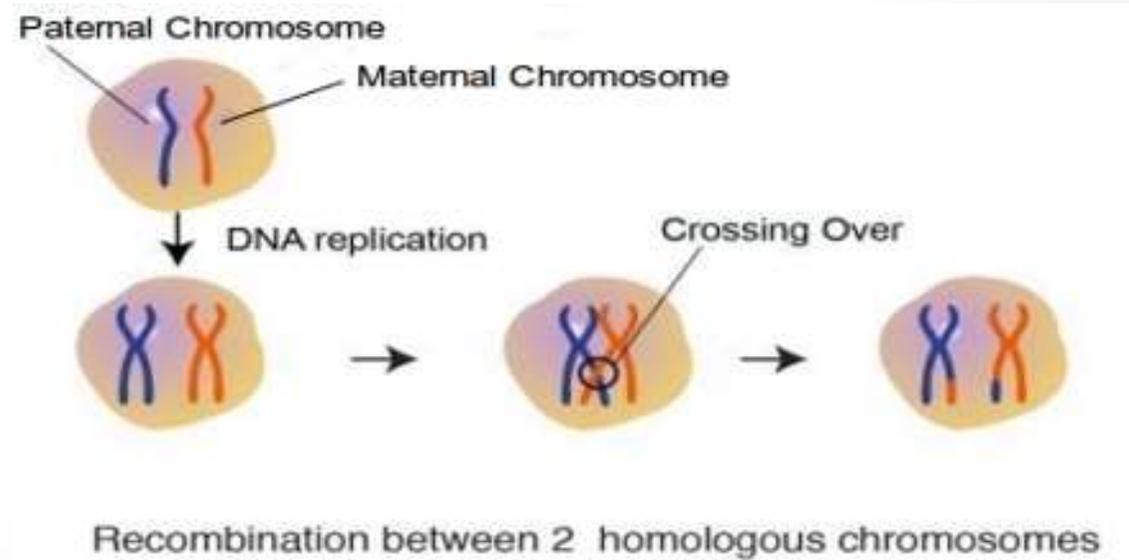
Genetic Recombination

- Occurs when genetic material is exchanged between 2 chromosomes or between different regions within the same chromosome
- Sequences have to be homologous
- Increases genetic diversity



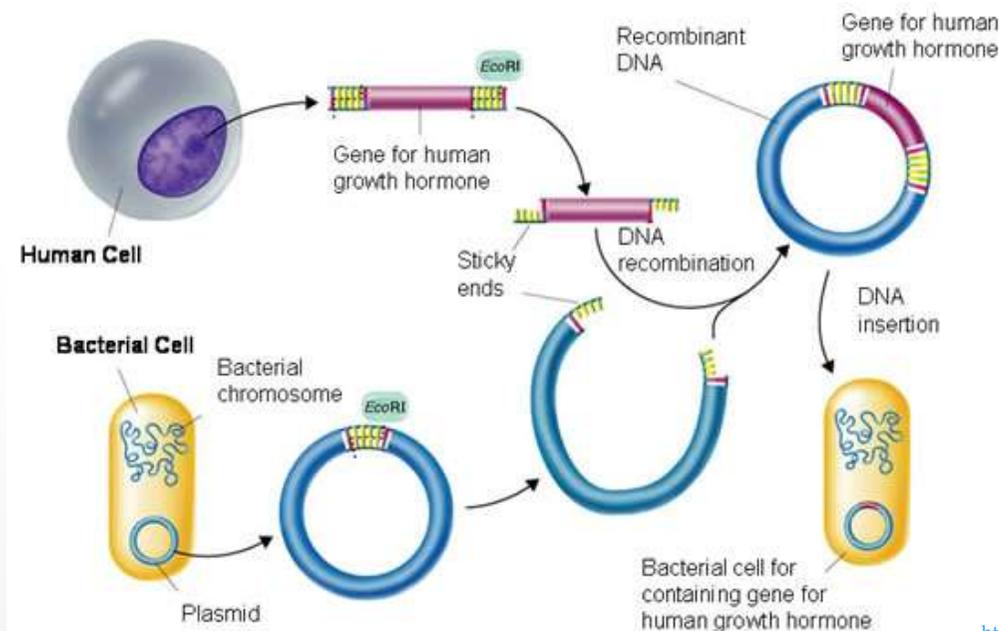
Types of Genetic Recombination

- Homologous recombination
- Nonhomologous recombination
- Site-specific recombination
- Mitotic recombination
- Prokaryotic cells:
 - Conjugation
 - Transformation
 - Transduction



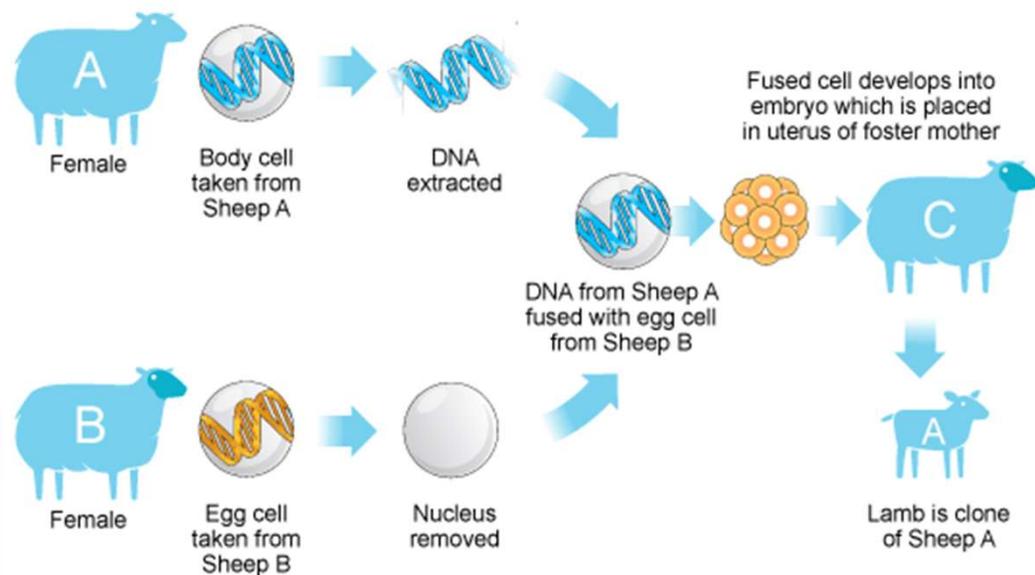
Recombinant DNA Technology

- Allows scientists to change genes by manipulating DNA
- Isolate one gene or any segment of DNA
- Improved our understanding of diseases and ways of fighting them



Cloning

- Process of producing clones – organisms that have exact genetic copies
- 3 Types of artificial cloning: Gene cloning, Reproductive cloning, Therapeutic cloning
- Clones does not always look identical, depends on environment also



Pros and Cons

- Copies of animals with potential benefits for medicine and agriculture
- Testing new drugs and treatment strategies
- Animals with desirable agricultural traits
- Build populations of endangered species
- Low efficiency, most cloned animal embryos cannot develop into healthy individuals
- Health effects
- Shorter life span
- Ethical issues



References

- https://en.wikipedia.org/wiki/Genetic_recombination
- <https://www.britannica.com/science/recombinant-DNA-technology>
- <https://biologydictionary.net/genetic-recombination/>
- <https://en.wikipedia.org/wiki/Cloning>
- <https://www.genome.gov/25020028/cloning-fact-sheet/>
- <https://learn.genetics.utah.edu/content/cloning/whatiscloning/>

