

Conjugation, Transformation and Transduction.

CONJUGATION, TRANSFORMATION, AND TRANSDUCTION

All three are forms of recombination.

Transformation

Transformation is the process by which a DNA molecule is taken up from the external environment and incorporated into the genome of the recipient cell. Allows for Recombinant DNA Technology. Involves use of plasmids..

Transduction

Involves transfer genetic material from one bacterium to another by a bacteriophage. Acting as a vector, the virus carries its own genome plus a fragment of DNA from the bacterium it has recently infected. If the host bacterium survives the viral attack, recombination may occur,

Conjugation

Bacterial conjugation is the temporary direct contact between two bacterial cells leading to an exchange of genetic material (DNA). This exchange is unidirectional, i.e. one bacterial cell is the donor of DNA and the other is the recipient. In this way, genes are transferred laterally amongst existing bacterial as opposed to vertical gene transfer in which genes are passed on to offspring.

Fertility Factor

The F (fertility) factor is a circular double stranded DNA molecule of around 100×10^3 base pairs. Bacterial cells with the F factor, denoted as an F^+ cell, are capable of transferring genes to an F^- cell (without F-factor) by means of conjugation (Fig. 1).

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Sources

References

- PASSARGE, Eberhard. *Color Atlas of Genetics*. 3rd Edition edition. 2006. ISBN 1588903362.

Bibliography

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