

Welcome back students. In this lecture we will learn the 17th module conjugation, Part 2. The outline for this lecture is HFR donor, an F prime state.

The learning outcomes are you will be able to explain how HFR cells arise. You'll be able to distinguish between F + HFR and F prime cells. And he will be able to outline the events that occur when an HFR cell encounters an FSL each of Arduino.

So now what is this HF? I don't know when the F factor integrates into the bacterial chromosome. HFR strains are formed. It means the F factor which has entered the bacterial cell when it integrates into the chromosome, it will form in HFR strain which is known as the high frequency recombination send strain. Plasmids such as F that is your F plasmids are also capable of integrating into the bacterial chromosomes and when F plasmids integrate into the bacterial chromosome, it is called as an episome.

When the AFFECTOR is integrated, it no longer replicates independently, but it is replicated as a part of the host chromosome. So here you can see in the picture how a cell converts itself into an HFR cell. This is Wendy F. Plasmid enters into the chromosome. Once the F plasmid has integrated

into the chromosome, it will replicate along with the chromosome. Now what will happen if we made an HFR an F minus?

So we have seen earlier that

when F Plus cell is made with an F minus cell. The

F minus cell is converted into an F plus cell.

But here in HFR meetings the cell almost never acquires the

H^F type. It means if an HFR cell is crossed with an F

minus cell that F minus cell will not turn into it, each of

our cell. Surely?

To become each of power, the recipient cell must receive a

complete copy of the effector, but only part of the effector is

transferred at the beginning of the conjugation. The rest lies

at the end of the donor chromosome. That's why the

entire chromosome of the donor cell has to be transferred to

the recipient. Only then will the recipient become an HFR

cell. All of the donor chromosome would have to be

transferred. Complete functional F factor to be found in the

recipient and that would take about 100 minutes at 37 degrees

Celsius. This is an extremely rare event. Because mating pairs

typically break apart long before the second part of the

factor is transferred, so it says that this will require 100

minutes and conjugation does

not. Last, for so long now we will see what is it F prime the

F factor produced may have a small section of the host

chromosome that was adjacent to the integrated F factor. So

since the HFR cell contains the F plasmid and the chromosomes

which are both joined, the F prime is a.

But is the effector which contains the chromosome.

Chinzan, also the effector

genes. So because the F factor integrates at one of many sites

on the chromosome, many different host chromosome

segments can be picked up in this way. For example, equalized

train in which the F factor has integrated next to the Lac

region. You can see in the figure the effect are shown in

red and a.

Lac gene is shown in green since they are very close

to each other.

They can be transferred together if the looping out is not

precise, then the edges and lack host chromosomal genes may be

included in the loop. Then by a single crossover the looped out

DNA is separated from the host chromosome to produce an F

factor carrying the lac genes of

the host. F factors containing bacterial genes are called F prime factors, and they are named for the genes that they have picked up.

For example, if there is an F prime factor which contains Lac genes, then it is called as the F prime lac.

Sense with F prime factors can conjugate with cells.

As in F conjugation, a copy of the factor is transferred to the cell, which then becomes F minus. If we made an F plus an F minus the F, minus will become F plus. So the recipient also receives a copy of the bacterial genes on the F prime factor.

AB Duction recipient is partially diploid. It has 2 copies of one or few genes, a only one copy of the other genes. So this cell it already contains its own Genotype, so it will get 2 copies of the same gene if it undergoes this conjugation. This particular type of conjugation is called F duction of *** duction. It provides a way to study particular genes in a diploid state in equal I. Now we will summarize everything that we have studied. The donor F plus plasmid is also known as a fertility factor. It contains genetic material

for gene exchange and it's known as the male cell.

Now the CP and that is F minus.

Is a.

It does not contain a fertility factor and it receives the genetic material and therefore this is called a female cell.

Then we have the conjugate HFR which is the high frequency recombinant which results from this genetic recombinant. It transfers genomic DNA when mixed with F minus cells.

So in today's video we have learned about F plus cells, F minus cells, HFR cells and.

F prime cells, we have also learned what other?

Consequences of the meeting in between these cells and F plus cell when measured with an F minus cell will give you. It will convert the F minus cell into a F plus cell.

An HFR cell when mated with an F minus cell will not give you an HFR cell because in an HFR cell the F factor is integrated into the chromosome and the entire chromosome will not be transferred to the recipient cell within the time which is within the required time.

And F prime plasmid consists of the F factor and.

The host chromosome changes.

And this specter is named based on the genes it consists.

Thank you.