TERMINATION:

stop codon is encountered: UAA, UGA, UAG stop codon only recognized by release factors RF facilitate the attack of water molecule on ester linkage between the polypeptide chain and the tRNA in the P site, releasing the protein. EFG dissociates the ribosome through GTP Hydrolysis Two release factors in prokaryotes; one in eukaryotes

LECTURE 24

Differences b/w initiation of translation:

- ribosome size 80S vs 70S 1.
- 2. met-tRNA vs methionine
- 3. mRNA in eukaryotes is circular
- 4. bacteria have two RF; eukaryotes have one

EUKARYOTES - INITIATION TRANSLATION

40S complex binds 5' cap 1.

subunit, 5' cap, Met-tRNA

- esalemplex: 405 40S complex scans mRNA fo 2.
- 3. 60S subunit binds kiching off IFs to form 80S Smplex

es in the cyto mBNA circulari

EIF-4E and EIF-4 a coordarize the mRNA 1.

EIF2 - delivers the tRNA forming the 40S complex; has GTP bound to 2. it

Mutation in EIF2 causes vanishing white matter disease (VWM).

Prokaryotes:

Streptomycin - interferes with binding of fMet-tRNA and inhibits initiation Tetracycline, Chloramphenicol, and Erythromycin affect elongation

Eukaryotes: Cycloheximide

Puromycin: both eukaryotes and prokaryotes

- premature termination
- resembles the aminoacyl terminus of amino-acyl tRNA
- protein then degrades -

Diphtheria toxin blocks protein synthesis in eukaryotes by inhibiting

to form biofilms (large communities of resistant bacteria).

The bacteria synthesizes an enzyme called luciferase that fluorescences the squid, protecting it.

bacteria releases an autoinducer. other cells as well as this cell both recognize this.

upon uptake by neighboring cells, they express the luciferase gene

homoserine lactones (HSL)

Lambda Phage:

- 1. Lytic: lyses the cell and produce active viruses
- 2. Lysogenic: virus is latent, only producing genomes

Lambda repressor represses the transcription of all the genes that came lotesale.co.uk from the virus in lysogenic growth.

Induction: switch from lysogenic to lytic

of 23 Lytic: express all genes except reple Lysogenic: only represser (s) apressed

Lambda represeor has highest trinity for OR1. OR1 > OR2 > OR3When it binds OR1, the City promoter site is blocked. repressor is bound. repressor binds to the operator.

As repressor increases in concentration, it binds to second and then third. Cooperative binding.

binding to OR1 - blocks CRO transcription binding to OR2 - activates lambda transcription; facilitates RNA polymerase binding to OR3 - inhibits lambda transcription

Lysogenic: blocks expression of CRO Lytic: chew up the repressor. free up OR1. cro expressed. binds OR3. inhibits transcription of lambda.

Riboswitches

Guanine

Hormones go into the nucleus and inhibit transcription.

Estradiol binds to estrogen receptor (nuclear hormone receptor) which is activated by binding of small molecules or ligands.

ERE: estradiol response elements

- has two half sites
- DNA binding domain
- Ligand binding domain binds small molecule hormones

DNA binding domain

- binds as 2 dimers in major group
- is in center

Ligand binding

- has a pocket to cause a conformational change when ligand binds

COACTIVATORS REGULATION - CHROMOSOME REMODELLING

- nuclear hormone receptor always bound to the DNA CO
- when the estradiol binds in the pocket, the helicat Gructure snaps up, forming another binding site for the coactivater **P**5

(inding)

- when the ligand binds, ANOTHIN POTEIN IS RECRUITED.....

It can recruit the seactivator

ESTROGEN RECEPTOR RECRUITS A COACTIVATOR

ressors (up

DRUGS

It can bi

activate: agonist (estrogen receptor is example and steroids) inhibit: antagonist (chemotherapy)

When antagonist binds, helix 12 forms a different conformation. the drug is inhibiting the growth since the coactivator can't bind

IRON

transferrin - transport protein storage - ferritin

ABSENCE OF IRON