

Laboratory of Molecular Cell Biology: Prof. Kenji Irie (kirie@md.tsukuba.ac.jp)

Medical Science Bldg. 4F
Room 205 (Tel # 3066)



Post-transcriptional Regulation of Gene Expression

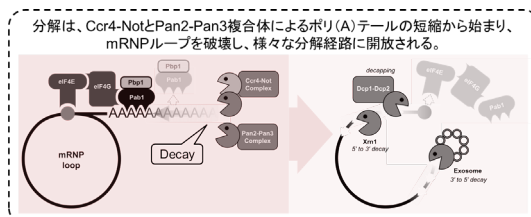
The diagram illustrates the process of protein production and mRNA degradation. It is divided into two main regions: the **Nucleus** and the **Cytoplasm**.

Nucleus: DNA is transcribed into **spliced mRNA**. This process is labeled **transcription**.

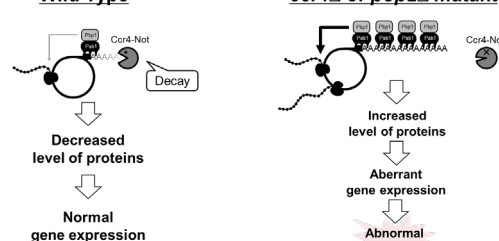
Cytoplasm: The **spliced mRNA** moves to the cytoplasm. It can follow two pathways:

- Protein Production:** The **spliced mRNA** is translated into **protein production**. This process is labeled **translation**.
- mRNA Degradation:** The **spliced mRNA** can be degraded. This process is labeled **degradation**.

The **spliced mRNA** is shown with a **5' cap** and a **3' poly(A) tail**. The **degradation** pathway leads to **inactive mRNA**.



***ccr4Δ* or *pop2Δ* mutant**



Signaling Pathway Regulating ER Stress Response

ER stress

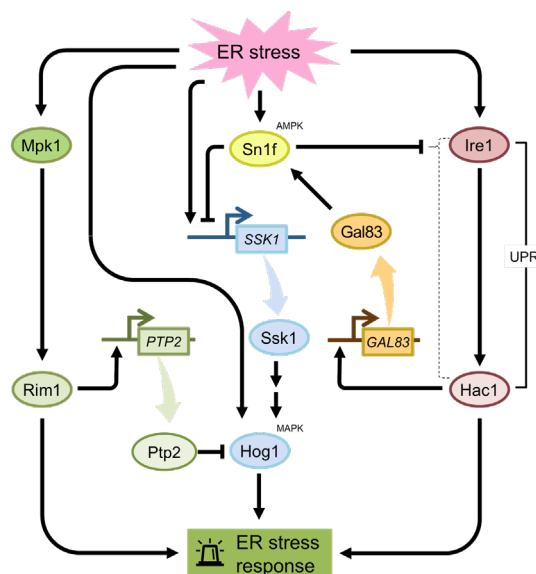
- Secretory cells
- Altered metabolism
- Genetic Mutation
- Pathogens
- Chemical insult

ER

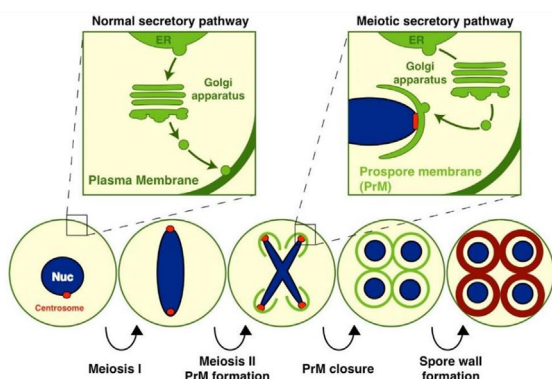
異常タンパク質の蓄積

ER stress response

- Transcriptional activation
 - chaperones
 - secretory pathway
 - degradation
- Global translation attenuation



Prospore Membrane Formation by Vesicle Docking



Sporulation is when daughter cells are formed within the cytoplasm of the mother cell. It involves the **de novo membrane formation**.

