Solution key - 7.012 Recitation 8 - 2010

Questions:

1. You are interested in four different proteins in a yeast cell: protein 1 is a cytosolic protein, protein 2 is a secreted protein, protein 3 is a nuclear protein and protein 4 is a transmembrane protein. You plan to study how the proteins are localized to their specific destination by creating the following mutations in the genes encoding proteins 1-4.

a) Mutation A inactivates the SRP (signal recognition particle). Indicate how the localization of each protein (1-4) will be affected by this mutation. In additional state whether each protein will function as it does in a wild-type cell.

Protein 1: *No effect*
Protein 2: *Will not be translocated to the ER and hence will not be made.*
Protein 3: *No effect*
Protein 4: *Will not be translocated to the ER and hence will not be made*

b) Mutation B prevents the fusion of vesicles to the golgi body membrane.
Indicate how the localization of each protein (1-4) will be affected by this mutation. In additional state whether each protein will function as it does in a wild-type cell.

Protein 1: *No effect*
Protein 2: *The protein will not be able to undergo further post-translational modifications in golgi body that its critical for its function. Note: Please note all the proteins do not undergo post-translational modification and are therefore not translocated to gogi).*
Protein 3: *No effect*
Protein 4: . *(Note: Please note all the proteins do not undergo post-translational modification and are therefore not translocated to gogi).*