

Guide Questions for Topic: Nuclear Localization - One Example of Post-translational Protein Sorting

1. Which of the following proteins would you predict to have a nuclear localization signal (NLS)?
2. CREB is a transcription factor that we will discuss in greater detail during Topic: Cell Signaling. Which of the following experiments would help you identify CREB's nuclear localization signal?
3. If all you had access to was the amino acid sequence of CREB, how could you use that information to predict its nuclear localization signal?
4. What role do importins play in cells?
5. Transport of proteins from the cytoplasm to the nucleus takes place through the _____.
6. What role do the cytoplasmic filaments play in the transport of proteins into the nucleus?
7. The protein Ran belongs to what class of proteins?
8. Upon movement of Ran/___ from the nucleus to the cytoplasm, it is converted to Ran/___ by _____.
9. Upon movement of Ran/___ from the cytoplasm to the nucleus, it is converted to Ran/___ by _____.
10. What role does Ran/GTP play during nuclear import of proteins?
11. Why is RanGAP essential to ongoing nuclear import of proteins?
12. How does the protein I κ B affect nuclear import of the transcription factor NF- κ B?
13. Which of the following mutations would you predict to cause constitutive expression of NF- κ B target genes?
14. How does Pho4 phosphorylation affect its nuclear import?
15. Which of the following mutations would you predict to cause constitutive expression of Pho4 target genes?