I. Background
  A. Protein sorting
    1. signal sequences

II. Cotranslational Translocation
  A. Signal sequence
  B. Signal-recognition particle (SRP)
  C. SRP receptor
  D. SRP & SRPr binding
  E. Translocon

III. Integral Membrane Proteins
  A. Topological classes
    1. Type I
    2. Type II
    3. Type III
    4. Type IV
  B. GPI anchored proteins
      a. transamidase
  C. Hydropathy profile

IV. Post-translational Modifications in ER & Golgi
  A. Glycosylation
    1. O-linked
        1) glycoslyatransferases
      a. mucin-type O-linked
      b. proteoglycans
    2. N-linked
      a. oligosaccharyl transferase
        1) N-X-S or N-X-T
      b. glycosidases
      c. tunicamycin
  B. Disulfide bonds
    1. protein disulfide isomerase
  C. Folding
    1. lectins
    2. Genetic Control
      a. Ire1
    3. Destruction

V. Folded Translocation
  A. Nucleus Background
      a. double membrane
        1) inner membrane
          a) nuclear lamina
        2) outer membrane
      b. nuclear pores
        1) Nuclear Pore Complex
          a) nucleoporins
  B. Nuclear localization signal
  C. Transport proteins
    1. Importin
    2. Ran-GTP

D. Nuclear export
    1. exportin

VI. Unfolded Translocation
A. translocon
B. Driving force
    1. Sec63
    2. BiP
C. Mitochondria Transport
    1. Overview
    2. Matrix Targeting sequence
    3. Process - initial step
        a. import receptor
        b. TOM
    4. E for transport
        a. Hsc70
    5. Folding