Introductory slides for
Session 3

“ERAD”
ER ASSOCIATED DEGRADATION
"RIP": REGULATED INTRAMEMBRANE PROTEOLYSIS

- Site-specific membrane-localized proteases
- Substrates activated by proteolytic processing
  - e.g. SREBP → TF controlling sterol metabolism
  - IRE1 → unfolded protein response
  - Notch
  - APP

"RIP": REGULATED UBIQUITIN/PROTEASOME-DEPENDENT PROCESSING → a type of ERAD (ER associated degradation) process involving proteolytic processing:

- p20 (precurser)
- Rsp5p
- E3 ligase
- Ubiquitination
- Retrotranslocation to the cytosol
- Recognition by Ubc13/V Sullivan Npl4
- UbCubulation
- UbCubilization
- Release from ubiquitin
- 26S PROTEASOME

ESSENTIAL PATHWAY FOR SURVIVAL
(biosynthesis and optimal fluidity of membranes)

TRANSCRIPTION FACTORS ACTIVATION (Spt23p, Hgg1p)
The MHC class I and class II pathways for presentation of intracellular and extracellular antigens.

CD4 is the major cellular receptor for HIV-1.

- β-TrCP is a F-box protein, part of a SCF E3 ligase complex. It doesn't normally interact with CD4.

Vpu mediates degradation of CD4 and contributes to the decrease in the expression of major histocompatibility complex (MHC) class I molecules on the surface of HIV-1 infected cells.