Abstract

Protein disulfide isomerase cleaves ricin chain B and ricin chain B. PDI is an enzyme that breaks disulfide bonds like the one between the two ricin chains. Human disulfide isomerase, or hPDI, is found in the endoplasmic reticulum of humans. Ricin is only toxic when the b-chain is present. In order to inactivate ribosomes and function cytotoxically, the two chains must be separated. By cleaving the two chains, a steric block occurs in the active site of the A chain’s active sight. After the cleaving occurs, the detached ricin chain A then buries itself in endoplasmic reticulum membrane and mimics a misfolded membrane protein. ERAD is a molecule that is meant to remove misfolded membrane proteins in the endoplasmic reticulum so that they may be destroyed. The A chain avoides the destruction and is planted in the membrane where it is very dangerous. Without the cleaving of the two chains, the ricin would not be harmful to humans.