Abstract

Ricin is a poison that is derived from the castor bean. The castor bean is produced on the castor oil plant. Ricin is one of the most deadly substances to humans know to humans. A dose as small as 22 micrograms per kilogram, if the toxin is injected in to the blood stream or inhaled, is known to be lethal. It is far less lethal when ingested and a lethal dose is more around the lines of 30-40 milligrams per kilogram. Ricin is this lethal because of the ability of 1 ricin molecule to do a lot of damage to a cell, inactivating 1,500 ribosomes per second. Ricin is composed of two chains; the alpha chain which is poisonous, and the beta chain which is the locator. The beta chain attaches to a carbohydrate which is then taken into the cell by endocytosis. Then, some of the ricin goes to the Trans Golgi network where the disulfide bridge that bonds the two chains is broken. This then releases the A chain into the cytosol. Here the A chain can effectively destroy ribosomes leading to cell death. Ricin can be used in therapeutic ways to target and kill cancer cells.