

1 Crime Investigation

Suspect 1: **Alpha-S1-casein**

Organism: *Bos taurus* (Bovine)

Function: It has an important role in the ingredients of milk to transport calcium phosphate.

Suspect 2: **Alpha-amylase 1B**

Organism: *Homo sapiens* (Human)

Function: It is a calcium-binding enzyme which initiates starch digestion in the oral cavity. Also catalyzes the hydrolysis of internal glucosidic bonds, yielding a mixture of maltose, isomaltose, small amounts of glucose etc.

Suspect 3: **Snake venom metalloproteinase atrolysin-D (or Metalloprotease)**

Organism: *Crotalus atrox* (Western diamondback rattlesnake)

Function: Metalloproteinase which is also a snake venom zinc, causes hemorrhage by provoking the degradation of the sub-endothelial matrix proteins like fibronectin, laminin, gelatins etc.

Suspect 4: **Beta-lactoglobulin**

Organism: *Bos taurus* (Bovine)

Function: This protein is the primary component of whey, it binds to retinol protein and involved in the transport of that molecule.

Among these four suspect proteins within the fluid found in crime scene, metalloprotease is the cause of the death of the tourist clearly. Suspect one is an ingredient of milk since it is responsible for transporting calcium phosphate. Suspect 2 is a digestion initiative, calcium-binding enzyme and suspect 4 is primary component of whey which is a liquid by product of milk that remains after milk has curdled and strained. Evidently, while the rest 3 seems to be harmless, metalloprotease causes hemorrhage which describes the blood loss and it can refer to blood loss both inside the body and outside the body. As we know that the victim suffered from internal bleeding and convulsions, it can be said that it is metalloproteinase that cause this internal bleeding.

Bleeding, also called **hemorrhage**, is the name used to describe blood loss. It can refer to blood loss inside the body, called internal bleeding, or to blood loss outside of the body, called external bleeding. Blood loss can occur in almost any area of the body.