CARBOXYPEPTIDASE A (CPA)

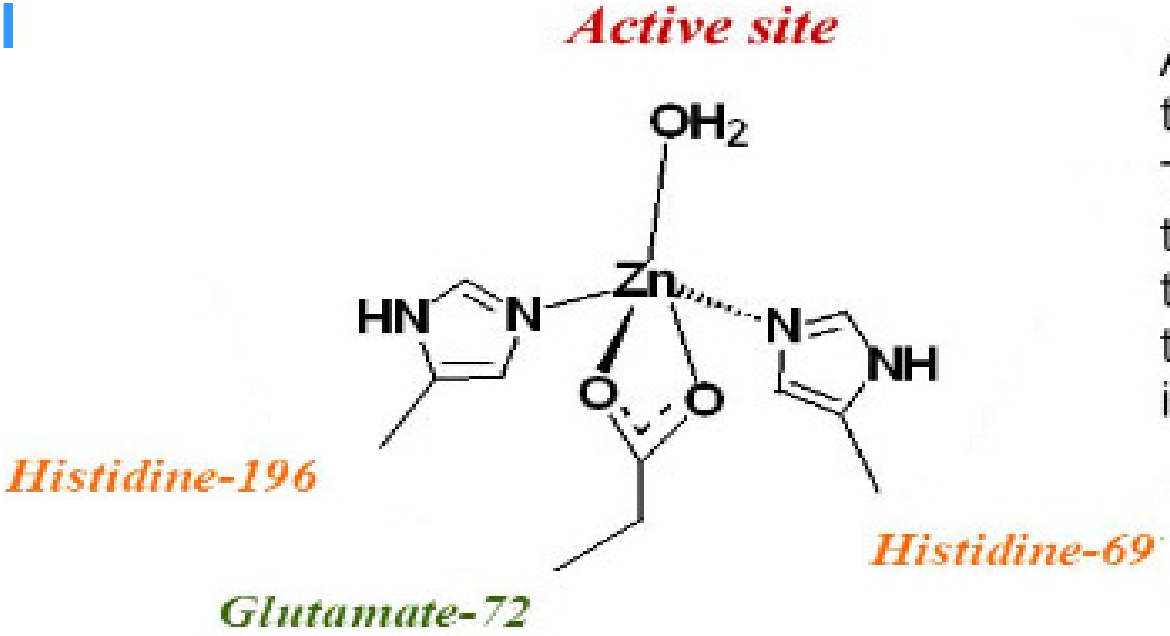
- Carboxypeptidase A (CPA) is a pancreatic metalloexopeptidase that hydrolyzes the peptide bond adjacent to the C-terminal end of a protein or polypeptide chain.This is in contrast to an aminopeptidase which cleave peptide bonds at the N-terminal of proteins.
- Carboxypeptidase A (CPA) employ a zinc ion within the protein for hydrolysis of the peptide bond at the C-terminal end of an amino acid residue. Loss of the zinc leads to loss of activity, which can be replaced easily by zinc, and also by some other divalent metals (Co,Ni).

FUNCTIONS OF CARBOXYPEPTIDASE A (CPA)

- Carboxypeptidase A is produced in the pancreas and is crucial to many processes in the human body to include digestion, mature proteins,blood clotting, reproduction,growth factor production,wound healing and many other processes.
- Humans, animals, bacteria and plants contain several types of carboxypeptidases that have diverse functions ranging from catabolism to protein maturation

ACTIVE SITE OF CARBOXYPEPTIDASEA (CPA)

Carboxypeptidase A (CPA) contains a zinc (Zn^{2+}) metal center in a tetrahedral geometry with amino acid residues in close proximity around zinc to facilitate catalysis and binding.



A cleft on one side contains the Zn^{2+} ion = active site

The zinc ion is coordinated by two N atoms (histidines) and two O atoms (glutamate) in the protein chain; the fifth site is H_2O.

CATALYTIC CYCLE OF CARBOXY PEPTIDASE A