ADAM10

ABSTRACT

A Disintegrin and metalloproteinase domain-containing protein 10, also known as ADAM10 or CDw156 or CD156c is a protein that in humans is encoded by the *ADAM10* gene. Members of the ADAM family are cell surface proteins with a unique structure possessing both potential adhesion and protease domains. Sheddase, a generic name for the ADAM metallopeptidase, functions primarily to cleave membrane proteins at the cellular surface. Once cleaved, the sheddases release soluble ectodomains with an altered location and function.

Although a single sheddase may "shed" a variety of substances, multiple sheddases can cleave the same substrate resulting in different consequences.This gene encodes an ADAM family member that cleaves many proteins including TNF-alpha and E-cadherin.

Although no crystallographic x-ray diffraction analyses have been published that depict the entire structure of ADAM10, one domain has been studied using this technique. The disintigrin and cysteine-rich domain (shown to the right) plays an essential role in regulation of protease activity in vivo. Recent experimental evidence suggests that this region, which is distinct from the active site, may be responsible for substrate specificity of the enzyme. It is proposed that this domain binds to particular regions of the enzyme's substrate, allowing peptide bond hydrolysis to occur in well defined locations on certain substrate proteins