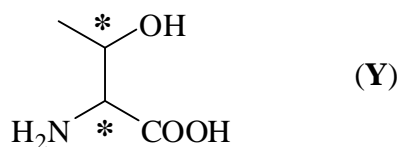


Marks
4

- Threonine (**Y**) is an amino acid. On the structure of (**Y**) below, identify all stereocentres in threonine with an asterisk (*).

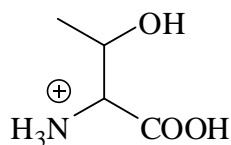


How many possible stereoisomers of threonine are there?

Two chiral centres so 4 possible stereoisomers (*RR*, *SS*, *RS* and *SR*)

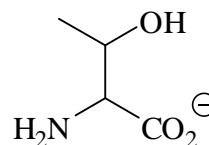
Give the structures of the products obtained when threonine is treated with the following reagents.

1 M HCl



(HCl is a strong acid so will protonate the amine – a weak base. It will not protonate the very, very weakly acidic oxygen atoms at this concentration).

1 M NaOH



OH⁻ is a strong base and will deprotonate the carboxylic acid – a weak acid. It will not deprotonate the very, very weakly acidic N-H or alcohol O-H groups.