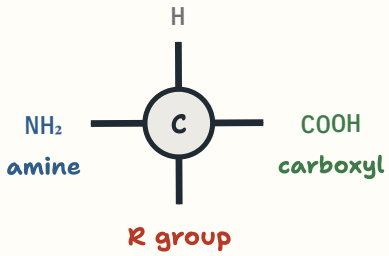
Amino Acids and Peptide Bonds Explained

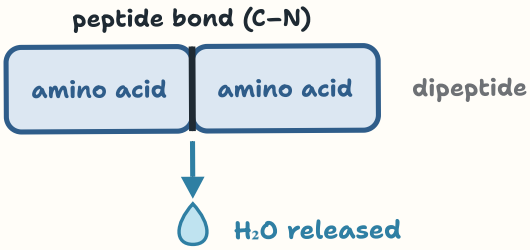
Amino acids differ only in the R group; condensation joins them with a peptide bond.

AMINO ACID: four arms on one carbon



only the R group differs

CONDENSATION: peptide bond forms



carboxyl of one joins amine of the other

Key terms

amino acid	the monomer of proteins; a central carbon bonded to an amine group, a carboxyl group, a hydrogen atom and an R group.
amine group	NH_2, one of the four groups on the central carbon.
carboxyl group	COOH, one of the four groups on the central carbon.
R group (side chain)	the only part that differs between the twenty amino acids.
peptide bond	the covalent bond between the carbon of one amino acid and the nitrogen of the next.
dipeptide / polypeptide	two amino acids joined / many amino acids joined by peptide bonds.

I can...

- [ ] Amino acids are the monomers of proteins
- [ ] General structure: amine group NH2, carboxyl group COOH, R side chain
- [ ] Twenty amino acids common to all organisms differ only in side group
- [ ] Condensation of two amino acids forms a peptide bond
- [ ] Dipeptides and polypeptides

EXAM TRAP

Amino acids differ only in the R group. Never say they differ in their amine or carboxyl groups. The peptide bond is not a glycosidic or ester bond.

4 marks: what earns them

1. Central carbon bonded to an amine group, a carboxyl group, a hydrogen atom and an R group
   Not: amine and carboxyl only, no hydrogen or R group
2. The twenty amino acids differ only in the R group (side chain / side group)
   Not: differ in their amine / carboxyl group
3. A condensation reaction, releasing a molecule of water
   Not: hydrolysis; water is added
4. A peptide bond forms between the carboxyl group of one amino acid and the amine group of the other (giving a dipeptide)
   Not: glycosidic bond; ester bond; bond between the R groups

Remember

Amine, carboxyl, hydrogen, R: four on one carbon.

Condensation: peptide bond in, water out.

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