

30 - Design and Materials

Q-1) Chirality in pharmaceutical synthesis.

> Most drugs contain at least one chiral centre.

It can exist as two ^{optical} isomers (mirror image) which are known as enantiomers.

Most chiral drugs extracted from natural resources often contain a single optical isomer.

One enantiomer can be useful, while the other may be harmful.

Producing drugs consisting of a single optically active isomer is beneficial because:

- ▶ minimises risk of side effects
- ▶ patient can be given smaller doses if all the drug is active.
- ▶ it's cheaper since it'll be a waste of money producing a drug half of which won't be useful.

Pure enantiomers can be prepared by:

- optical resolution
- using optically active starting materials.
- using chiral catalysts.