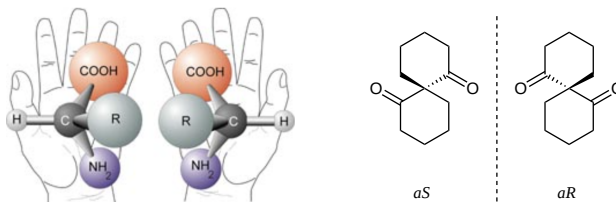


5.0: CHAPTER OBJECTIVES AND INTRODUCTION

The opposite of chiral is **achiral**. Achiral objects are superimposable with their mirror images. If the molecules are superimposable, they are identical to each other. For example, two pieces of paper are achiral. In contrast, **chiral** objects, like our hands, are non-superimposable mirror images of each other. Try to line up your left hand perfectly with your right hand, so that the palms are both facing in the same directions. Spend about a minute doing this. Do you see that they cannot line up exactly?



The same thing applies to some molecules. A chiral molecule has a mirror image that cannot line up with it perfectly - the mirror images are non-superimposable. This pair of non-superimposable mirror image molecules are called **enantiomers**. But why are chiral molecules so interesting? Just like your left hand will not fit properly in your right glove, one of the enantiomers of a molecule may not work the same way in your body, as the other. It turns out that many of the biological molecules such as our DNA, amino acids and sugars, are chiral molecules.

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