

Homologous series

Alcohol
Alkane
Alkene
Carboxylic acid
Ester
Alkyne

Functional group

$-C \equiv C-$ Triple covalent bond
$C-H \quad \begin{array}{c} \quad \\ -C-C- \\ \quad \end{array}$ C-H or C-C single covalent bond
$\begin{array}{c} R-O \\ \\ H \end{array}$ Hydroxyl group
$\begin{array}{c} O \\ \\ R-C-OH \end{array}$ Carboxyl group
$\begin{array}{c} O \\ \\ R-C-OR' \end{array}$ Carboxylate group
$\begin{array}{c} \diagup \quad \diagdown \\ C=C \\ \diagdown \quad \diagup \end{array}$ Double covalent bond