

Enzyme

Enzyme product	Reaction & Product example
Ketone reductase	$R_1-C(=O)-R_2 \xrightarrow{KRED} R_1-CH(OH)-R_2 \text{ or } R_1-CH(OH)-R_2$ R- or S- alcohols
Transaminase	$R_1-C(=O)-R_2 \xrightarrow{ATA} R_1-CH(NH_2)-R_2 \text{ or } R_1-CH(NH_2)-R_2$ R- or S- amines
Cytochrome P450 monooxygenase	$R-H \longrightarrow R-OH$
Hydrolase (Lipase, Protease, Esterase, etc.)	$R_1-C(=O)-OR_2 \longrightarrow R_1-C(=O)-OH + HO-R_2$ $R_1-C(=O)-NH-R_2 \longrightarrow R_1-C(=O)-OH + H_2N-R_2$
Nitrilase	$R-C\equiv N \xrightarrow{NIT} R-C(=O)-OH$ R=aryl, alkenyl, alkyl
Enoate reductase	$R_1-C(R_2)=C(EWG)-R_3 \xrightarrow{ER} R_1-CH_2-CH(EWG)-R_3$ EWG=aldehydes, ketones, nitro, nitroes
Monoamine oxidase	$R_1-CH(NH_2)-R_2 \longrightarrow R_1-CH(NH)-R_2 + NH_3$
Nitrile hydratase	$R-C\equiv N \xrightarrow{NHT} R-C(=O)-NH_2$ R=aryl, alkenyl, alkyl
Epoxide hydrolase	$R-epoxide \xrightarrow{EH} R-CH(OH)-CH_2(OH) \text{ or } R-CH(OH)-CH_2(OH)$
Imine reductase	$R_1-CH=N-R_2 \longrightarrow R_1-CH_2-NH-R_2 \text{ or } R_1-CH_2-NH-R_2$
Glycosyltransferase	$UDP-sugar + R-OH \xrightarrow{GTF} R-O-sugar$ Sugar=Glucose, Rhamnose, Glucuronic acid
Baeyer-Villiger monooxygenase	$R_1-C(=O)-R_2 \longrightarrow R_1-C(=O)-O-R_2$
2-Deoxy-D-ribose 5-phosphate aldolase	$R-CHO + HCHO \longrightarrow R-CH(OH)-CH_2-CHO$
L-Threonine aldolase	$R_1-CHO + R_2-CH(NH_2)-COOH \longrightarrow R_1-CH(OH)-CH(NH_2)-COOH$
Nitroreductase	$R-NO_2 \xrightarrow{NTR} R-NH_2$
Pyruvate decarboxylase	$R-CHO + CH_3-C(=O)-CO_2H \longrightarrow R-CH(OH)-C(=O)-CH_3$
3-ketosteroid Δ1-dehydrogenase	
Glucose dehydrogenase	$NAD(P)^+ + Glucose \longrightarrow NAD(P)H + Gluconic acid$
Formate dehydrogenase	$NAD(P)^+ + Formate \longrightarrow NAD(P)H + CO_2$