

Enzyme cofactors

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This article has been translated from WikiSkripta; ready for the **editor's review**.

Metal ions and trace elements

Cofactor	Examples of enzymes
Zn ²⁺	Peptidases, alcohol dehydrogenase
Mg ²⁺	ATP dependent enzymes, phosphohydrolases
Mn ²⁺	Superoxide dismutase, arginase
Fe ²⁺ / Fe ³⁺	Cytochromes, catalase, peroxidases
Cu ²⁺	Cytochrome oxidase, amino oxidase
Mo ²⁺	Xanthine dehydrogenase

Organic substances

Cofactors of oxidoreductases

Cofactor	Default vitamin	Location/Function
NAD ⁺ , NADP ⁺	Nicotinic acid	Respiratory chain, MK synthesis
FAD, FMN	Riboflavin (B ₂)	Breathing Chain
Ubiquinone/ubiquinol		Respiratory chain
Hem		Cytochromes

Transferase Cofactors

Cofactor	Default vitamin	Location/Function
ATP, GTP	Thiamine (B ₁)	Transfer of a phosphate residue
TDP (thiamine diphosphate)	Thiamine (B ₁)	Transfer of carbon fragments (oxidative decarboxylation)
PALP (pyridoxal phosphate)	Pyridoxine (B ₆)	Transfer of –NH ₂ groups (transamination), decarboxylation of amino acids
THF (tetrahydrofolate)	Folate (folic acid)	Transfer of one-carbon fragments
CoA (coenzyme A)	Pantothenate	Acyl transfer
PAPS (phosphoadenosine phosphosulfate)		Sulfate transfer
SAM (S-adenosylmethionine)		Methylation
B ₁₂ -complex	Cobalamin B ₁₂	Transfer of the CH ₃ group

Cofactors of lyases

Cofactor	Default vitamin	Location/Function
PALP (pyridoxal phosphate)	Pyridoxine (B ₆)	Decarboxylation

Cofactors of ligases

Cofactor	Default vitamin	Location/Function
ATP		
Carboxybiotin	Biotin	CO ₂ transfer (carboxylation)