

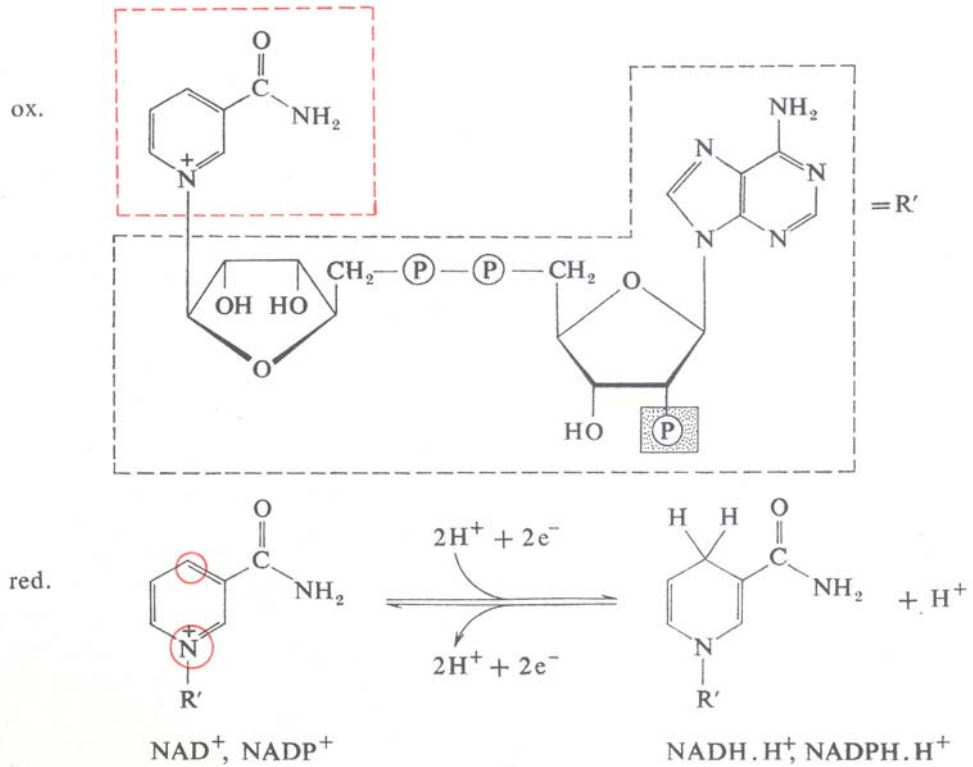
CLASSIFICATION OF COENZYMES

<i>ENZYME CLASS</i>	<i>COENZYME</i>	<i>VITAMIN PRECURSOR</i>	<i>FUNCTION / EXAMPLE</i>
Oxido-reductases	NAD (nikotinamide-adenine-dinucleotide)	Nicotinic acid	Lactate dehydrogenase
	NADP	Nicotinic acid	Glucose-6-phosphate-dehydrogenase
	FAD (flavin-adenine-dinucleotide)	Riboflavine / vitamin B ₂	Succinate dehydrogenase
	FMN (flavine mononucleotide)	B ₂	Terminal oxidation (cytochromes)
	Lipoic acid		Pyruvate dehydrogenase enzyme complex
	THB (tetrahydrobiopterin)		Phe hydroxylase
Trans-ferases	SAM (S-adenosyl methionine)		Transfer of methyl group noradrenaline→adrenaline
	THF (tetrahydrofolic acid)		Transport of one-carbon groups
	Biotin	Vitamin H	CO ₂ fixation Acetyl-CoA carboxylase
	TPP (thiamine pyrophosphate)	Thiamin / vitamin B ₁	Pyruvate dehydrogenase enzyme complex
	CoA (coenzyme A)	Pantothenic acid / vitamin B ₅	Transfer of acyl group
	PLP (pyridoxal phosphate)	Vitamin / B ₆ adermin	Amino acid metabolism-transamination
	ATP		Kinases
	CTP/CDP/CMP		Activation of choline
	UTP/UDP		Activation of hexoses (glucose, galactose)
	GTP		Activation of mannose, fucose
	PAPS (phosphoadenosine-phosphosulfate)		Sulfation reactions
	Lipoic acid		
	Hydrolases	Do not require coenzymes	
Liases	PLP		Decarboxylation of aminoacids
Izomerases	Glucose-1,6-bisphosphate		Glucose-phosphate-mutase
	Deoxyadenosyl-cobalamine / vitamin B ₁₂		Methyl-malonyl CoA mutase
Ligases	ATP		Glutamine synthetase

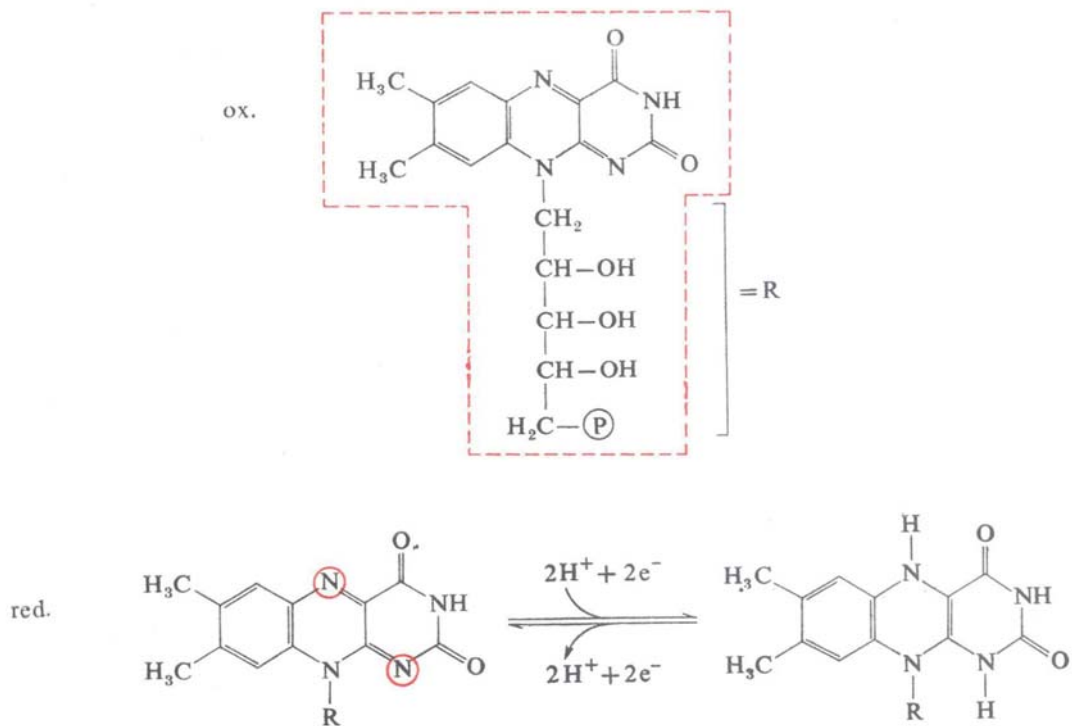
CLASSIFICATION OF COENZYMES

REDOX COENZYMES

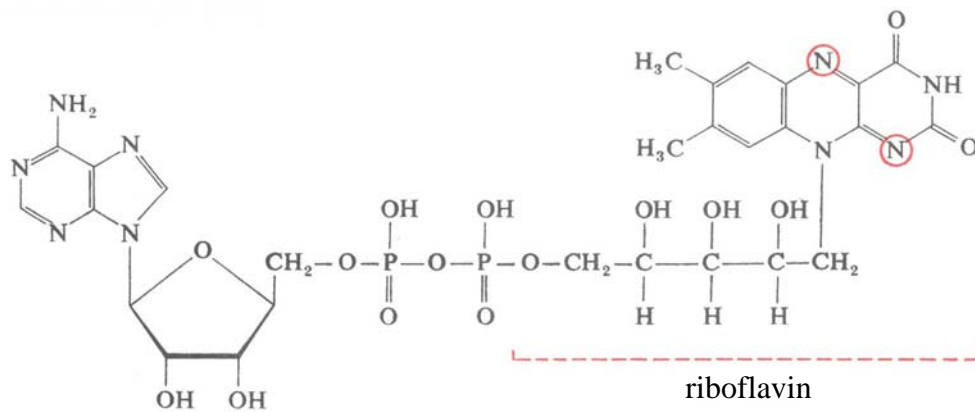
1. Nikotinamide-adenine-dinucleotide (phosphate) (NAD^+ and NADP^+ ; niacin)



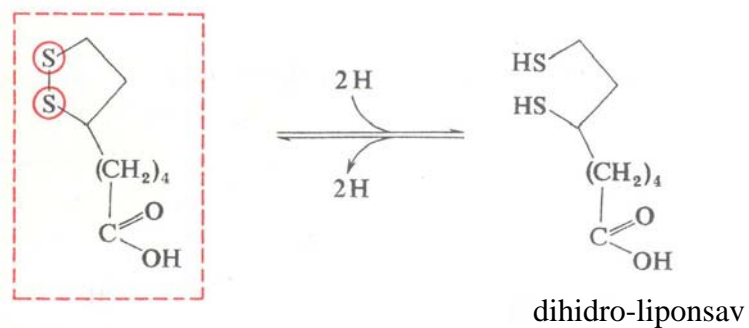
2. a) Flavin-mononucleotide (FMN); (Vitamin B₂, riboflavine)



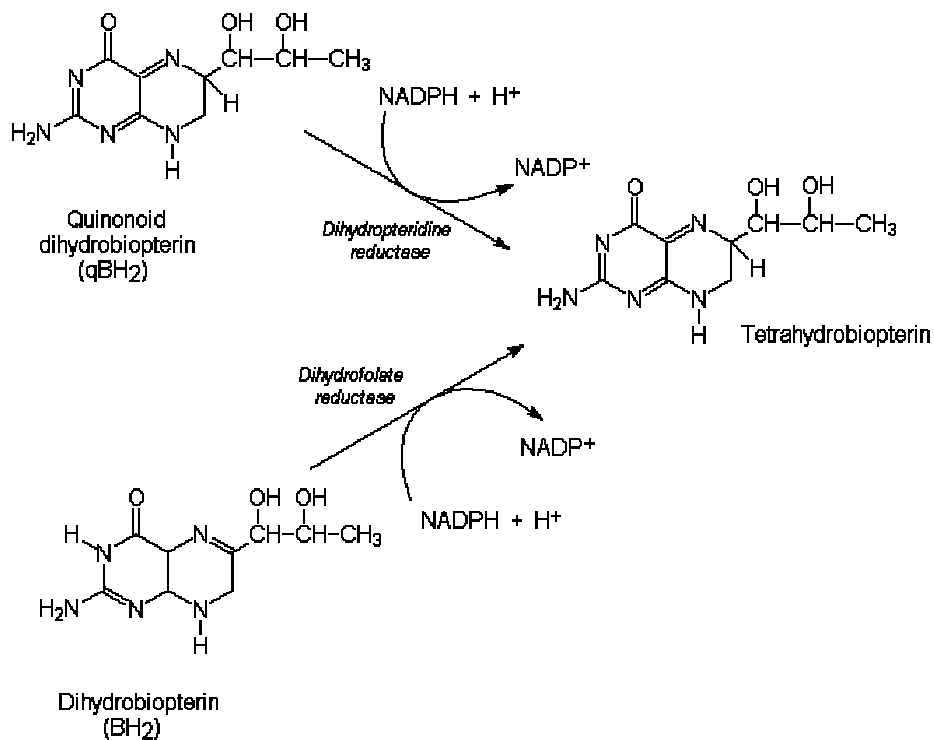
b) Flavin-adenine-dinucleotide (FAD)



3. lipoic acid (dithio-oktánsav)

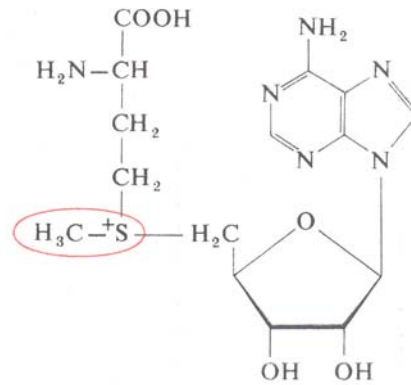


4. Tetrahydrobiopterin (THB, BH₄)

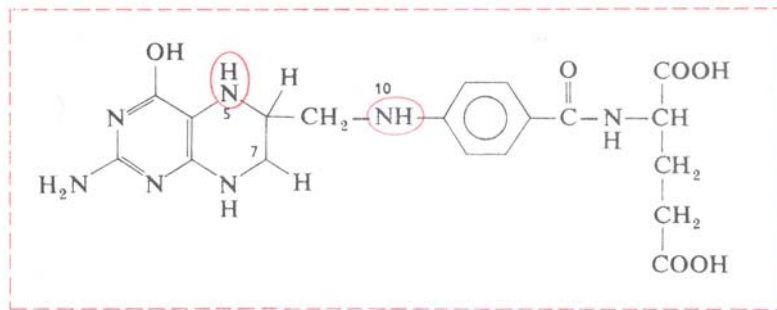


COENZYMES INVOLVED IN GROUP TRANSFER REACTIONS

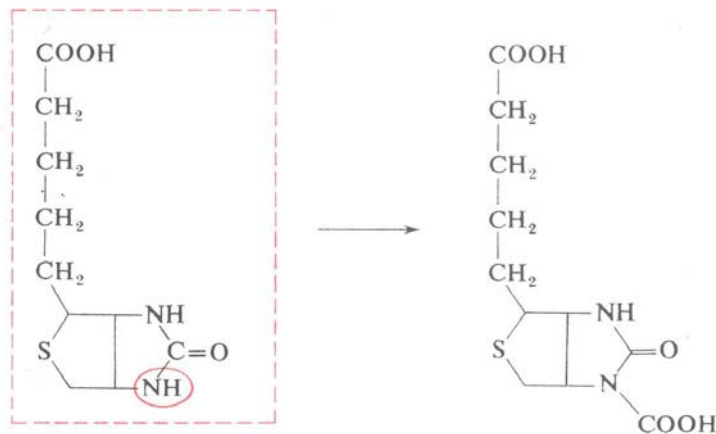
1. S-adenosyl methionine (SAM)



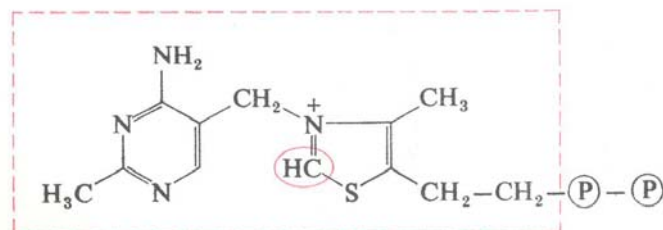
2. Tetrahydrofolic acid (THF, FH₄; folic acid, pteroilglutamic acid)



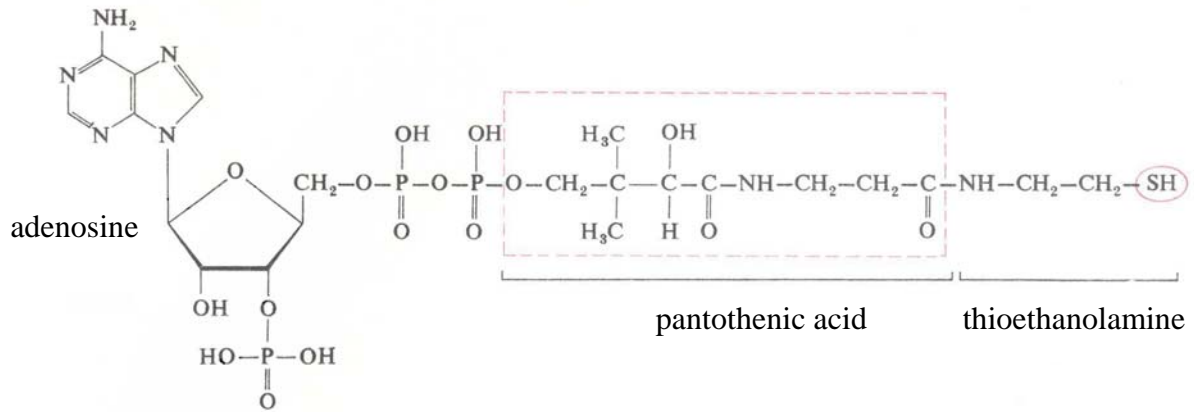
3. Biotin (Vitamin H)



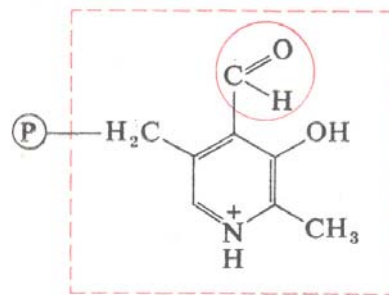
4. Thiamine pyrophosphate (TPP; thiamine, Vitamin B₁)



5. Coenzyme A (CoA; pantothenic acid, Vitamin B₅)

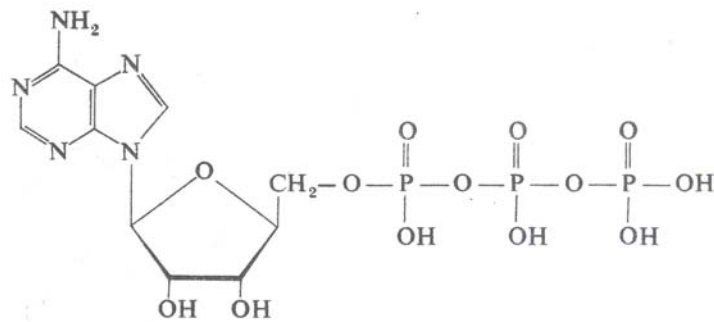


6. Pyridoxal phosphate (PLP; adermin, Vitamin B₆)

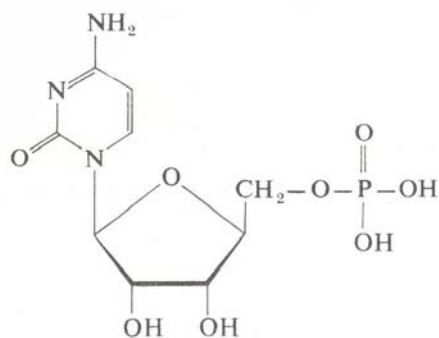


7. Nucleotides

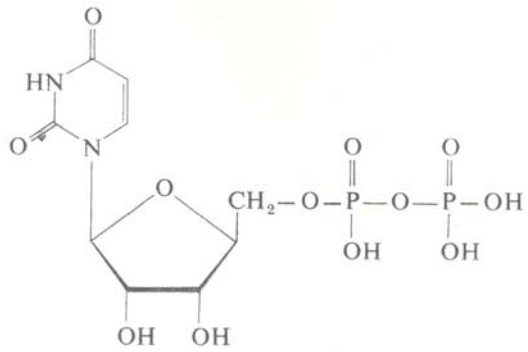
a) Adenosine-triphosphate (ATP)



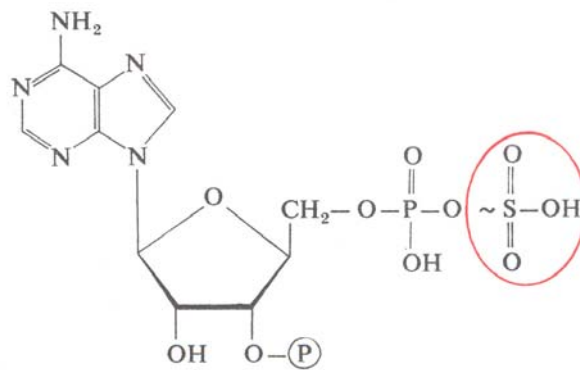
b) Citidine- monophosphate (CMP)



c) Uridine-diphosphate (UDP)



8. 3'-phosphoadenosine-5'-phosphosulfate (PAPS)



9. Lipoic acid

10. Deoxyadenosyl-cobalamine (vitamin B₁₂)

