

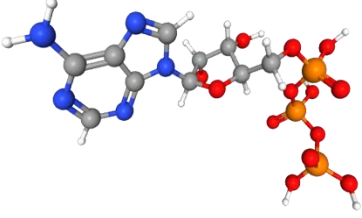
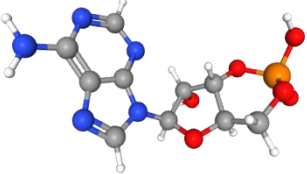
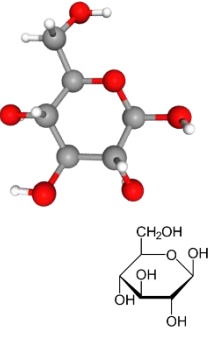
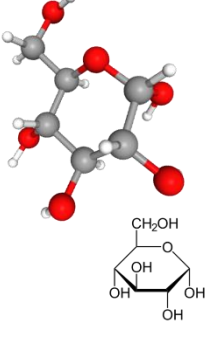
Biochemistry cards

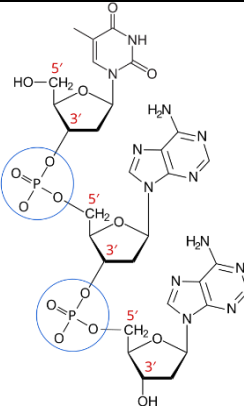
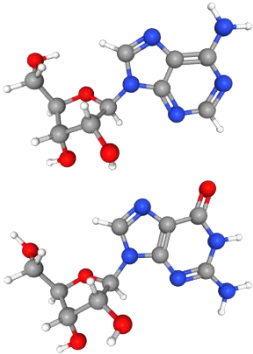
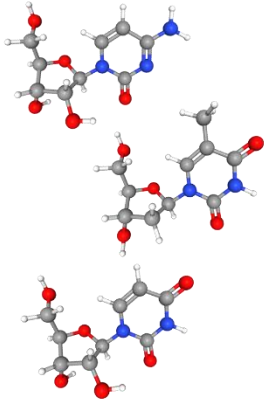
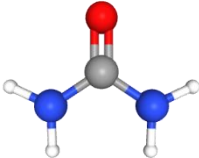
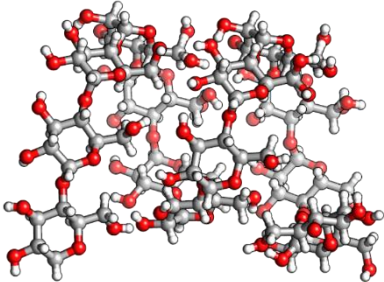
These cards are intended to test students' knowledge in basic biochemistry (but you can also play Poker).





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You can order fully personalised playing cards measure 63mm x 88mm (standard Poker size) from <https://www.etsy.com/listing/922993614/personalised-playing-cards-with?variation0=3596497696&variation1=3613051325> or from other printing providers

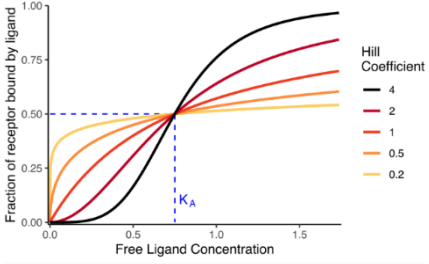
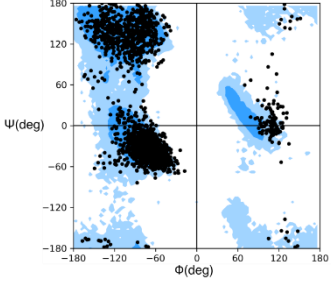
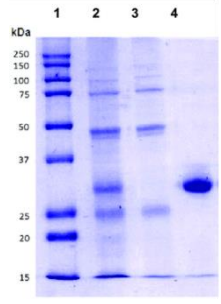
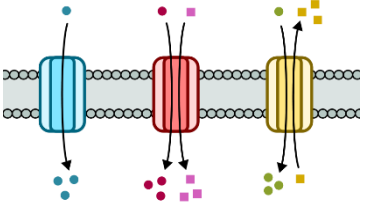
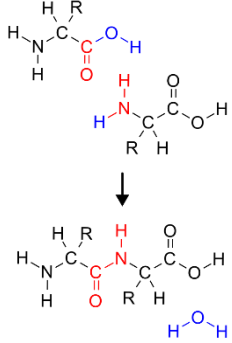
Clubs (♣)

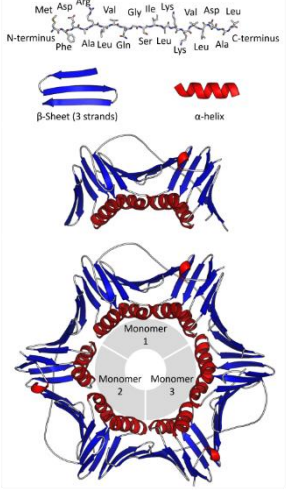
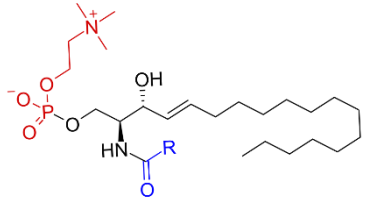
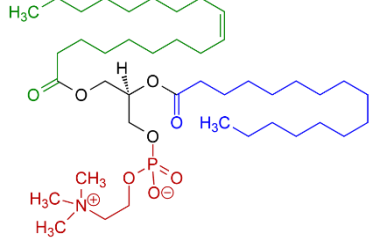
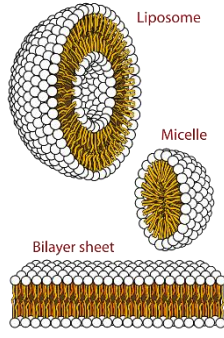
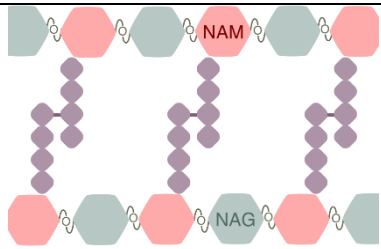
A♣		Adenosine-5'-triphosphate (ATP)
2♣		Adenosine 3',5'-cyclic monophosphate (cAMP)
3♣	 <chem>O[C@H]1O[C@@H](O)[C@H](O)[C@@H](O)[C@H]1O</chem>	beta-D-glucopyranose <i>β-D-glucose</i>
4♣	 <chem>O[C@H]1O[C@H](O)[C@@H](O)[C@@H](O)[C@H]1O</chem>	alpha-D-glucopyranose <i>α-D-glucose</i>

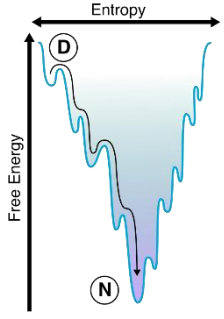
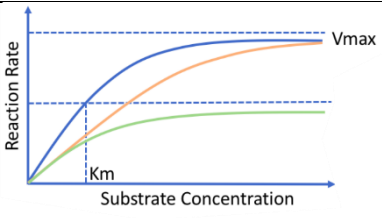
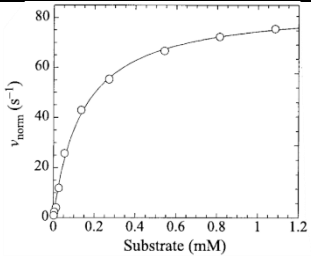
<p>5♣</p>		<p>Phosphodiester bonds Credits: https://commons.wikimedia.org/ File authors</p>
<p>6♣</p>		<p>Purine nucleosides</p>
<p>7♣</p>		<p>Pyrimidine nucleosides</p>
<p>8♣</p>		<p>Urea</p>
<p>9♣</p>		<p>Amylose <i>Helical structure</i> PDB id: 1C58</p>

10♣		Rosalind Elsie Franklin
J♣		Max Ferdinand Perutz
Q♣		Maud Leonora Menten
K♣		Sir Hans Adolf Krebs

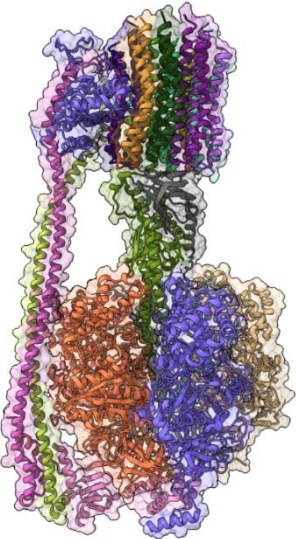
Diamonds (♦)

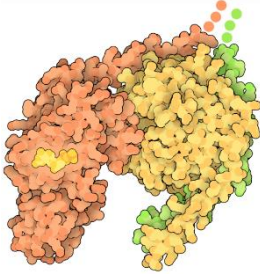
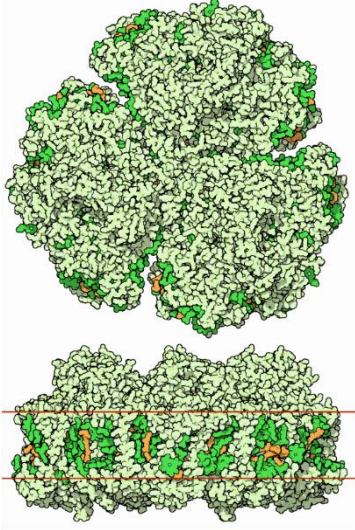
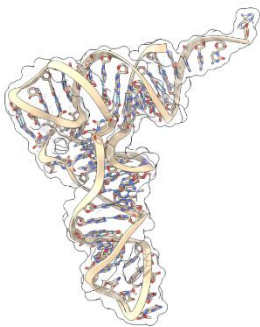
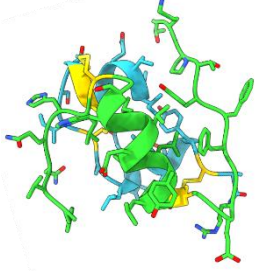
<p>A ♦</p>		<p>Hill's plot Credits: https://en.wikipedia.org/wiki/User:D_Wells</p>
<p>2 ♦</p>		<p>Ramachandran plot Credits: https://docs.mdanalysis.org/</p>
<p>3 ♦</p>		<p>Polyacrylamide gel electrophoresis with sodium dodecyl sulfate (SDS PAGE)</p>
<p>4 ♦</p>		<p>Membrane transport <i>The collection of mechanisms that regulate the passage of solutes such as ions and small molecules through biological membranes</i></p>
<p>5 ♦</p>		<p>Amino acid condensation <i>Peptide bond formation</i></p>

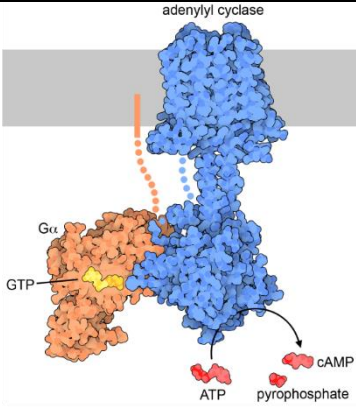
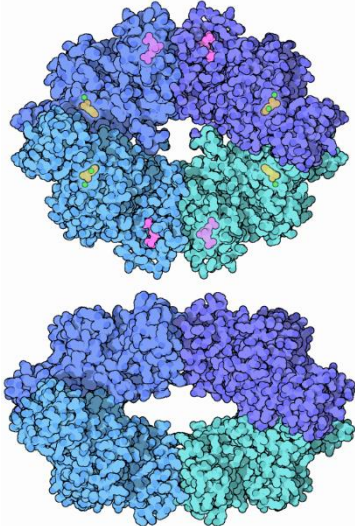
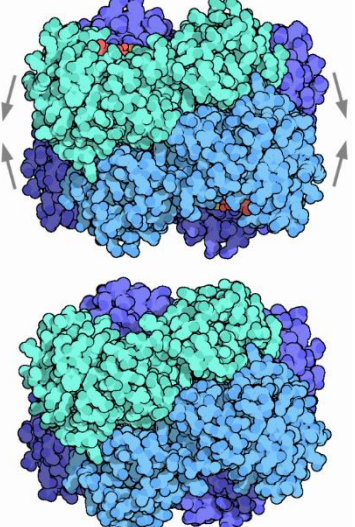
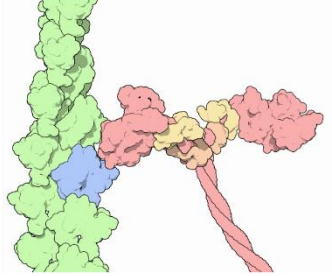
6♦		<p>The 4 levels of protein structure Credits: https://commons.wikimedia.org/ Author: Thomas Shafee</p>
7♦		<p>Sphingomyelin Black: Sphingosine Red: Phosphocholine Blue: Fatty acid</p>
8♦		<p>Glycerophospholipids 1-Oleoyl-2-palmitoyl-phosphatidylcholine Credits: https://commons.wikimedia.org/ Author: Jü</p>
9♦		<p>Biological membranes Credits: https://commons.wikimedia.org/ Author: Mariana Ruiz Villarreal</p>
10♦		<p>Peptidoglycan</p>

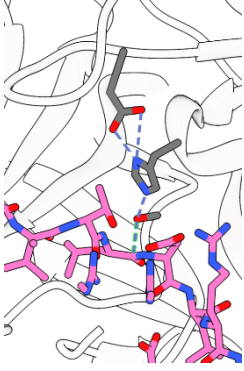
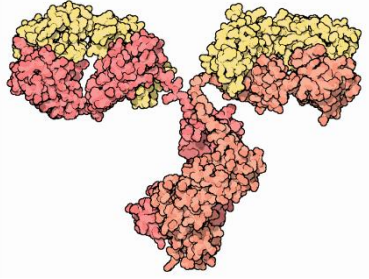
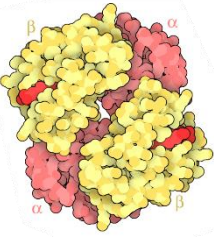
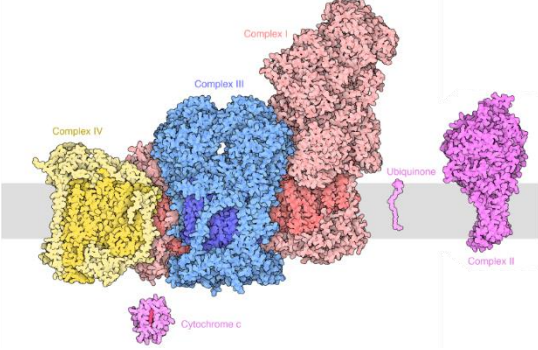
<p>J ♦</p>		<p>Protein folding funnel <i>Based on the stochastic idea of protein intermediate conformations forming an “energy landscape” or “folding funnel” in which folding properties are related to free energy and that the accessible conformations of a protein are reduced as it approaches native-like structure</i></p>
<p>Q ♦</p>		<p>Enzyme inhibition <i>MM plot for non-inhibited (blue) and inhibited enzyme (green and orange)</i> <i>Credits: https://commons.wikimedia.org/</i></p>
<p>K ♦</p>		<p>Michaelis Menten plot of enzyme kinetics</p>

Hearts (♥)

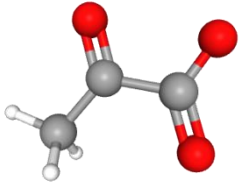
<p>A ♥</p>		<p>ATP Synthase <i>Pdb id: 6OQR</i></p>
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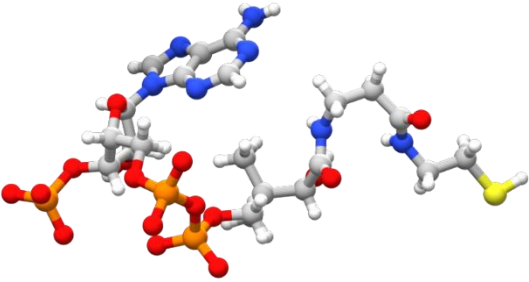
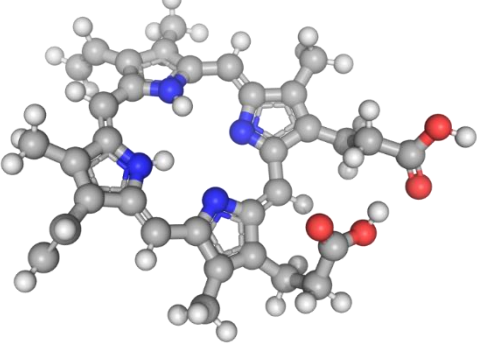
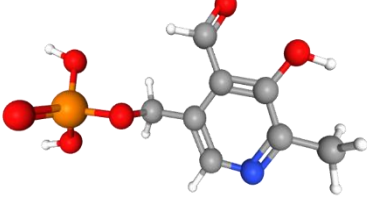
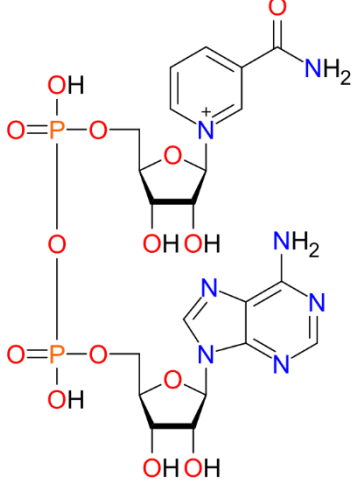
<p>2♥</p>		<p>G-Protein PDB id: 1GG2 Credits: https://pdb101.rcsb.org/motm/58</p>
<p>3♥</p>		<p>Photosystem I PDB id: 1JB0 Credits: https://pdb101.rcsb.org/motm/22</p>
<p>4♥</p>		<p>Transfer RNA (tRNA) PDB id: 4TNA</p>
<p>5♥</p>		<p>Insulin PDB id: 2HIU Chain A (Blue) Chain-B (Green) Disulfide bonds (Yellow)</p>

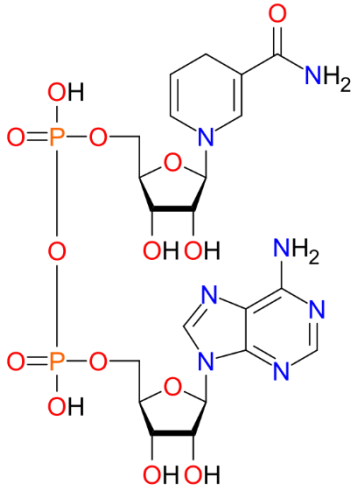
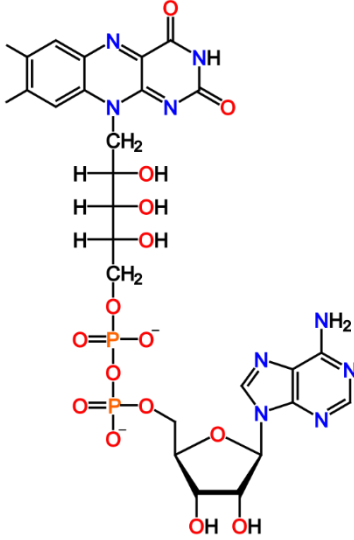
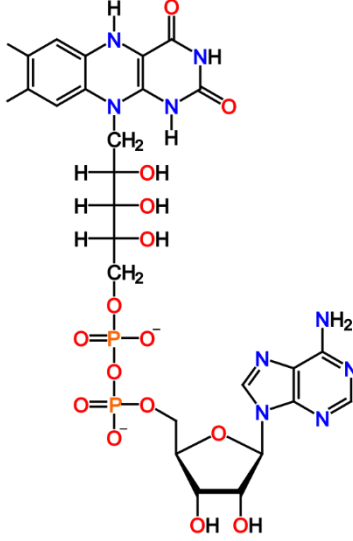
<p>6♥</p>	 <p>The diagram shows a blue adenylyl cyclase protein embedded in a grey membrane. An orange Gα protein is bound to the cytoplasmic side, with a red dotted line representing a signal pathway. Labels include 'adenylyl cyclase', 'Gα', 'GTP', 'ATP', 'pyrophosphate', and 'cAMP'.</p>	<p>Adenylyl cyclase PDB id: 6R3Q Credits: https://pdb101.rcsb.org/motm/251</p>
<p>7♥</p>	 <p>Two views of a pyruvate kinase dimer. The top view shows the active state with a more open conformation, while the bottom view shows the inactive state with a more closed conformation. The protein is colored in shades of blue and purple.</p>	<p>Pyruvate kinase PDB id: 1E0U, 1A3W Allosteric motions in pyruvate kinase: inactive state (bottom) and active state (top). Credits: https://pdb101.rcsb.org/motm/50</p>
<p>8♥</p>	 <p>Two views of a phosphofructokinase dimer. The top view shows the active state with a more open conformation, while the bottom view shows the inactive state with a more closed conformation. The protein is colored in shades of blue and purple. Arrows indicate the direction of conformational change.</p>	<p>Phosphofructokinase PDB id: 4PKF, 6PKF Allosteric motions in phosphofructokinase: active state (top) and inactive state (bottom). Credits: https://pdb101.rcsb.org/motm/50</p>
<p>9♥</p>	 <p>A diagram showing the interaction between actin (green) and myosin (red). The myosin head is shown in a pre-power stroke conformation, with a red filament (actin) bound to it.</p>	<p>Actin-Myosin interaction Pre-power stroke conformation PDB id: 1BR1, 1ATN Credits: https://pdb101.rcsb.org/motm/18</p>

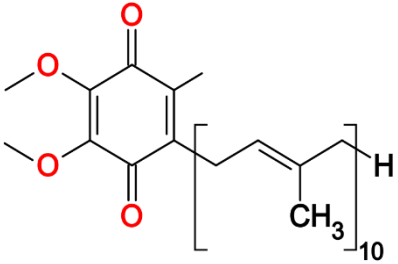
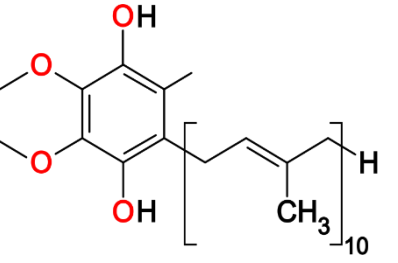
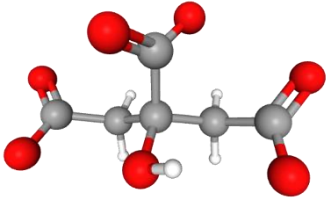
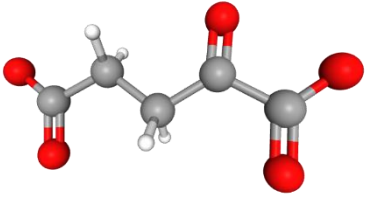
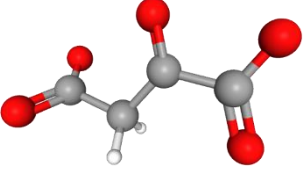
10♥		<p>Serine Protease Chymotrypsin-C PDB id: 4H4F</p>
J♥		<p>Antibodies Pdb id: 1IGT Credits: https://pdb101.rcsb.org/motm/21</p>
Q♥		<p>Hemoglobin (Hb) Pdb id: 4HHB Credits: https://pdb101.rcsb.org/motm/257</p>
K♥		<p>Respiratory chain PDB id: 5XTH, 1ZOY, 7V2C, 3ZCF Credits: https://pdb101.rcsb.org/motm/273</p>

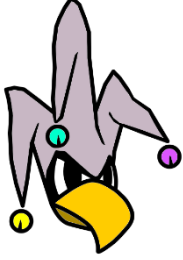
Spades (♠)

A♠		<p>Pyruvate 2-oxopropanoate</p>
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<p>2♠</p>		<p>Coenzyme A (CoA) [[(2R,3S,4R,5R)-5-(6-aminopurin-9-yl)-4-hydroxy-3-phosphonooxyoxolan-2-yl]methoxy-hydroxyphosphoryl] [(3R)-3-hydroxy-2,2-dimethyl-4-oxo-4-[[3-oxo-3-(2-sulfanylethylamino)propyl]amino]butyl] hydrogen phosphate</p>
<p>3♠</p>		<p>Protoporphyrin-IX 3-[18-(2-carboxyethyl)-8,13-bis(ethenyl)-3,7,12,17-tetramethyl-22,23-dihydroporphyrin-2-yl]propanoic acid</p>
<p>4♠</p>		<p>pyridoxal 5'-phosphate (PLP) (4-formyl-5-hydroxy-6-methylpyridin-3-yl)methyl dihydrogen phosphate</p>
<p>5♠</p>		<p>Nicotinamide adenine dinucleotide (NAD⁺) <i>Oxidised form</i></p>

<p>6♠</p>		<p>Nicotinamide adenine dinucleotide (NADH) <i>Reduced form</i></p>
<p>7♠</p>		<p>Flavin adenine dinucleotide (FAD) <i>Oxidized form</i></p>
<p>8♠</p>		<p>Flavin adenine dinucleotide (FADH₂) <i>Reduced form</i></p>

<p>9♠</p>		<p>Coenzyme Q Ubiquinone <i>Oxidized form</i> coenzyme Q₁₀ CoQ₁₀</p>
<p>10♠</p>		<p>Coenzyme QH₂ Ubiquinol <i>Reduced form</i></p>
<p>J♠</p>		<p>Citrate 2-hydroxypropane-1,2,3-tricarboxylate</p>
<p>Q♠</p>		<p>α-Ketoglutarate Ketoglutarate 2-oxoglutarate 2-ketoglutarate</p>
<p>K♠</p>		<p>Oxalacetate Oxobutanedioate 2-oxobutanedioate Oxosuccinate</p>

<p>Joker</p>	 <p>Choose your TOPIC</p>
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