

Self Assessment Lecture 34: Nucleotide Catabolism

- Please state the function of the following:
 - Nucleotidase__ **Removes the phosphate from a nucleotide to form a nucleoside**__
 - Nucleoside Phosphorylase__ **Forms a free base and ribose 1-P from a nucleoside**__
 - Phosphoribomutase_____ **Forms ribose 5-P from ribose 1-P**__
- Catabolism of both purine bases forms this common intermediate, which is also a nitrogenous base:_____ **Xanthine**_____
- What is the final product purine catabolism? _____ **Urate**_____
- What advantage does the high serum urate seen in humans offer? _____
_____ **Urate is a potent antioxidant.** _____
- What is the disadvantage of having serum urate concentrations that are too high? _____
Urate can precipitate to result in gout _____
- How does allopurinol function? _____ **An inhibitor of xanthine oxidase that decreases urate production** _____
- What is the most prevalent cause of SCID (severe combine immunodeficiency)? _____
Deficiency in adenosine deaminase _____
- What is the handedness (R or L) of the following DNAs A=**R**__ B=**R**__ Z=**L**__
- Most DNA under physiologic conditions is in what form, A, B, or Z?__ **B**_____.
- Number of bases in one 360° turn of DNA=__ **10.4** __Angstroms in one turn=__ **34** _____
- Differenced in B and **{A/Z}**__ arise due to DNA sequence; runs of dCGCGCGCG can favor this DNA conformation.
- Circular genomic DNA is found in **{prokaryotes, eukaryotes, both}**_; circular extra-genomic DNA is found in **{prokaryotes, eukaryotes, both}**_____.
- Please place the following in order, from most simple to most complex higher order eukaryotic structure: _____ **BFAEDC** _____
 - DNA 10 nm fiber
 - DNA helix
 - highly condensed metaphase chromosome
 - loops attached to scaffold proteins
 - solenoid
 - nucleosome
- This genomic DNA component in eukaryotes consists of 147 base-pairs of DNA wrapped ~1.7 times around a histone core._____ **Nucleosome** _____
- Histone cores are comprised of: 2(**H1, H2A, H2B, H3, H4, H5, H6, H7**) (choose all that apply)

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16. Higher order structure of DNA is promoted through electrostatic interactions between _____ **Lysines in histone tails and phosphate groups in the DNA backbone** _____
17. Histone Transacetylase is an enzyme that transfers an acetyl group to _____ **Lysines in histone tails** _____ and **{promotes, inhibits}** _____ access to the DNA
18. What class of enzymes reverses the modification seen in Q18? _____ **Histone Deacetylase (HDAC)**
19. Which of the following is NOT a valid histone modification:
- ADP-ribosylation
 - phosphorylation
 - methylation
 - ubiquitination /sumolyation
 - acetylation
 - None of these are valid histone modifications.
 - All of these are valid histone modifications.**