

Question 1

Not yet answered

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Flag question

You used 0.01M phosphate buffer to elute a hydroxyapatite column having repetitive DNA melted at 65°C and cooled to 50°C. Which fraction of the DNA will be eluted by this buffer?

- a. Only single stranded DNA
- b. Fewer single stranded DNA and more double stranded DNA
- c. More single stranded DNA and fewer double stranded DNA
- d. No eluant
- e. Only double stranded DNA

[Clear my choice](#)

Question 2

Not yet answered

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Use this preamble to answer questions 1-6

The genome sizes of the E. coli 4.55×10^6 bp, Arabidopsis 135×10^6 bp, rice 389×10^6 bp, and mouse 2.5×10^9 bp Predict how long it will take to anneal the denatured DNA.

- a. E. coli < Arabidopsis < Rice < Mouse
- b. Rice < Mouse < E. coli < Arabidopsis
- c. Arabidopsis < Mouse < Rice < E. coli
- d. Mouse < E. coli < Rice < Mouse
- e. Mouse < Rice < Arabidopsis < E. coli

Question 3

Not yet answered

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Given that a DNA fragment of *E. coli* of $Cot^{1/2}$ of $5.4 \text{ moles}^{-1} \text{ s}$ has a length of 1.8×10^6 bp, find the length of DNA fragment of polyU DNA with $Cot^{1/2}$ $6.4 \times 10^{-5} \text{ moles}^{-1} \text{ s}$.

- a. 2.13×10^1 bp
- b. 0.21×10^3 bp
- c. 1.92×10^{-10} bp
- d. 1.51×10^{11} bp
- e. 2.31×10^5 bp

Question **4**

Not yet answered

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Pick the odd statement out concerning information revealed about Cot curves


- a. Copy number of moderately repetitive sequences
- b. Guide to primer sequences in noncoding regions
- c. Melting temperature of DNA
- d. Number of genes in genome
- e. Copy number of highly repetitive sequences

[Clear my choice](#)

Question 5

Not yet answered

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Given that a DNA fragment of *E. coli* of $Cot^{1/2}$ of $1.82 \text{ moles}^{-1} \text{ s}$ has a length of 4.2×10^5 bp, find the length of DNA fragment of mouse satellite DNA with $Cot^{1/2}$ $7.6 \times 10^{-3} \text{ moles}^{-1} \text{ s}$.

- ☐ a. $1.75 \times 10^{-3} \text{ bp}$
- ☐ b. $1.92 \times 10^{-10} \text{ bp}$
- ☐ c. $1.00 \times 10^8 \text{ bp}$
- ☐ d. $1.70 \times 10^{-4} \text{ bp}$
- ☐ e. $3.29 \times 10^{-8} \text{ bp}$

Question **6**

Not yet answered

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Approximately how many times larger can the $\text{Cot}^{1/2}$ of Arabidopsis be compared to E. coli?

- ☐ a. 19
- ☐ b. 6,000
- ☐ c. 30
- ☐ d. 85
- ☐ e. 6

Question **7**

Not yet answered

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You used 5M phosphate buffer to elute a hydroxyapatite column having repetitive DNA melted at 65°C and cooled to 60°C. Which fraction of the DNA will be eluted by this buffer?

- ☐ a. Only double stranded DNA
- ☐ b. Only single stranded DNA
- ☐ c. More single stranded DNA and fewer double stranded DNA
- ☐ d. Fewer single stranded DNA and more double stranded DNA
- ☐ e. No eluant

Question 8

Not yet answered

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Analysis of a eukaryotic genome of a recently identified organism gave two major kinetic components with $Cot^{1/2}$ values $0.002 \text{ moles}^{-1} \text{ s}$ and $2.4 \text{ moles}^{-1} \text{ s}$. Predict the complexity of the DNA sequences for the $Cot^{1/2}$ values, respectively.

- ☐ a. Single copy DNA and moderately repetitive DNA
- ☐ b. Single copy and highly repetitive DNA
- ☐ c. Moderately repetitive and highly repetitive DNA
- ☐ d. Highly repetitive and moderately repetitive DNA
- ☐ e. Moderately repetitive and single copy DNA

Question 9

Not yet answered

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Analysis of a eukaryotic genome of a recently identified organism gave two major kinetic components with $Cot_{1/2}$ values 2.3 moles-1s and 615 *moles*⁻¹s. Predict the complexity of the DNA sequences for the $Cot_{1/2}$ values, respectively.

- ☐ a. Highly repetitive and moderately repetitive DNA
- ☐ b. Moderately repetitive and single copy DNA
- ☐ c. Single copy and highly repetitive DNA
- ☐ d. Moderately repetitive and highly repetitive DNA
- ☐ e. Single copy DNA and moderately repetitive DNA

Question 10

Not yet answered

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Given that a DNA fragment of *E. coli* of $Cot^{1/2}$ of $16.9 \text{ moles}^{-1} \text{ s}$ has a length of $7.0 \times 10^6 \text{ bp}$, find the length of DNA fragment of T4 DNA with $Cot^{1/2}$ $0.81 \text{ moles}^{-1} \text{ s}$.

- ☐ a. $4.47 \times 10^5 \text{ bp}$
- ☐ b. $1.50 \times 10^8 \text{ bp}$
- ☐ c. $3.45 \times 10^5 \text{ bp}$
- ☐ d. $1.90 \times 10^{-6} \text{ bp}$
- ☐ e. $4.89 \times 10^{-4} \text{ bp}$

Not yet answered

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You want to separate out a protein sample by SDS-PAGE gradient gel. Which of these systems would give best resolution from top of the gel to bottom?

- ☐ a. 3% stacking gel combined with 5 %, 7.5 %, 12.5 % resolving gel
- ☐ b. 3% stacking gel combined with 12.5 %, 7.5 %, 5 %, resolving gel
- ☐ c. 3% stacking gel combined with 7.5 %, 12.5%, 5% resolving gel
- ☐ d. 5% stacking gel combined with 12.5 %, 7.5 %, 5 % resolving gel
- ☐ e. 5% stacking gel combined with 5 %, 7.5 %, 12.5 % resolving gel

Not yet answered

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You used 5M phosphate buffer to elute a hydroxyapatite column having repetitive DNA melted at 65°C and cooled to 55°C. Which fraction of the DNA will be eluted by this buffer?


- ☐ a. No eluant
- ☐ b. More single stranded DNA and fewer double stranded DNA
- ☐ c. Only single stranded DNA
- ☐ d. Only double stranded DNA
- ☐ e. Fewer single stranded DNA and more double stranded DNA

Select the statements that are not true about DNA renaturation I. Moderately repetitive DNA sequences are ribosomal genes II. Mismatched DNA have low melting temperature III. Highly repetitive sequences are ribosomal Genes IV. Highly repetitive sequences are found around centromeres V. Mismatched DNA have high melting temperature

- ☐ a. V only
- ☐ b. III and V
- ☐ c. II only
- ☐ d. II and IV
- ☐ e. I only

Not yet answered

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 Flag question

You used 0.01M phosphate buffer to elute a hydroxyapatite column having repetitive DNA melted at 65°C and cooled to 55°C. Which fraction of the DNA will be eluted by this buffer?

- ☐ a. Only double stranded DNA
- ☐ b. More single stranded DNA and fewer double stranded DNA
- ☐ c. Only single stranded DNA
- ☐ d. Fewer single stranded DNA and more double stranded DNA
- ☐ e. No eluant

Not yet answered

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You used 0.01M phosphate buffer to elute a hydroxyapatite column having repetitive DNA melted at 65°C and cooled to 60°C. Which fraction of the DNA will be eluted by this buffer?

- ☐ a. Fewer single stranded DNA and more double stranded DNA
- ☐ b. No eluant
- ☐ c. Only single stranded DNA
- ☐ d. Only double stranded DNA
- ☐ e. More single stranded DNA and fewer double stranded DNA

Question **16**

Not yet answered

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 Flag question

You used 5M phosphate buffer to elute a hydroxyapatite column having repetitive DNA melted at 65°C and cooled to 50°C. Which fraction of the DNA will be eluted by this buffer?

- ☐ a. No eluant
- ☐ b. Only single stranded DNA
- ☐ c. Fewer single stranded DNA and more double stranded DNA
- ☐ d. More single stranded DNA and fewer double stranded DNA
- ☐ e. Only double stranded DNA

Some mixture of nonrepetitive DNA sequences was melted at 70 °C and cooled to 50 °C and eluted with 0.01M phosphate buffer and 2M phosphate buffer sequentially. Which of these concentrations will best represent your eluants?

- ☐ a. Equal concentrations of single and double stranded DNA
- ☐ b. Higher concentration of the double stranded DNA
- ☐ c. Low concentration of the double stranded DNA
- ☐ d. Higher concentration of single stranded DNA
- ☐ e. Low concentration of the single stranded DNA

Question **18**

Not yet answered

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How many times larger will the $\text{Cot}^{1/2}$ of rice be compared to Arabidopsis?

- ☐ a. 3
- ☐ b. 30
- ☐ c. 19
- ☐ d. 85
- ☐ e. 6

Question **19**

Not yet answered

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 Flag question

You used 0.01M phosphate buffer to elute a hydroxyapatite column having repetitive DNA melted at 65°C and cooled to 40°C. Which fraction of the DNA will be eluted by this buffer?

- ☐ a. More single stranded DNA and fewer double stranded DNA
- ☐ b. Only double stranded DNA
- ☐ c. Only single stranded DNA
- ☐ d. No eluant
- ☐ e. Fewer single stranded DNA and more double stranded DNA

Question **20**

Not yet answered

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How many times larger can the $\text{Cot}^{1/2}$ of mouse be compared to Arabidopsis?

- ☐ a. 6
- ☐ b. 30
- ☐ c. 19
- ☐ d. 85
- ☐ e. 3

Not yet answered

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 Flag question

Select the statements that are true about DNA renaturation I. Highly repetitive sequences are not transcribed II. Moderately repetitive sequences are transcribed but not translated III. Moderately repetitive sequences are transcribed and translated IV. Single copy DNA are longer sequences

- ☐ a. III only
- ☐ b. I only
- ☐ c. IV only
- ☐ d. III and IV
- ☐ e. II only

Question **22**

Not yet answered

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Approximately how many times larger can the $Cot\frac{1}{2}$ of mouse be compared to rice E. coli?

- ☐ a. 3
- ☐ b. 30
- ☐ c. 6000
- ☐ d. 85
- ☐ e. 6

Question **23**

Not yet answered

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🚩 Flag question

Approximately how many times larger will the $Cot^{1/2}$ of rice be compared to *E. coli*?

- ☐ a. 6
- ☐ b. 3
- ☐ c. 19
- ☐ d. 30
- ☐ e. 85

Question **24**

Not yet answered

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Choose the kinetics that best represents the order of renaturation of melted DNA with genome sizes A 4.2×10^6 bp, B 6.3×10^7 bp, C, 1.0×10^9 bp

- ☐ a. B, A, C
- ☐ b. C, A, B
- ☐ c. A, C, B
- ☐ d. A, B, C
- ☐ e. B, C, A

Question **25**

Not yet answered

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Which of these forces is not a destabilizing noncovalent interaction in DNA molecule

- ☐ a. Repulsion of phosphate groups between strands
- ☐ b. Electrostatic repulsion between phosphate groups within same strand
- ☐ c. Steric effects between purines and pyrimidines across strands
- ☐ d. Steric effects between purines in same strand
- ☐ e. Steric effects between pyrimidines in same strand

Question 26

Not yet answered

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Based on your knowledge in the interrelationship between Daltons, base pairs, and length of DNA, select the odd relationship from the list. I 3.3×10^7 Daltons 5×10^4 bp, $13 \mu\text{m}$ II 3.1×10^9 Daltons 4.65×10^6 bp $42 \mu\text{m}$ III 1.2×10^{11} Daltons 1.8×10^8 bp 6.0 cm IV 4.4×10^{12} Daltons 7.1×10^{10} bp 2.2 m

- ☐ a. II and IV
- ☐ b. IV only
- ☐ c. II only
- ☐ d. I only
- ☐ e. III only

Not yet answered

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In which of these conditions are DNA bases held tightly together?

- ☐ a. More AT with positive supercoiling
- ☐ b. More GC than AT in a relaxed conformation
- ☐ c. More GC with positive supercoiling
- ☐ d. More GC with negative supercoiling
- ☐ e. More AT with negative supercoiling

Not yet answered

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 Flag question

Analysis of a eukaryotic genome of a recently identified organism gave two major kinetic components with 296 bp values and 7.8×10^4 bp sizes. Predict the complexity of the kinetic components, respectively.

- ☐ a. Moderately repetitive and highly repetitive DNA
- ☐ b. Highly repetitive and moderately repetitive DNA
- ☐ c. Moderately repetitive and single copy DNA
- ☐ d. Single copy DNA and moderately repetitive DNA
- ☐ e. Single copy and highly repetitive DNA

Question **29**

Not yet answered

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You used 5M phosphate buffer was elute a hydroxyapatite column having repetitive DNA melted at 65oC and cooled to 40oC. Which fraction of the DNA will be eluted by this buffer?

- ☐ a. No eluant
- ☐ b. Only double stranded DNA
- ☐ c. More single stranded DNA and fewer double stranded DNA
- ☐ d. Only single stranded DNA
- ☐ e. Fewer single stranded DNA and more double stranded DNA

Question **30**

Not yet answered

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Given that a DNA fragment of *E. coli* of $Cot^{1/2}$ of $78.7 \text{ moles}^{-1} \text{ s}$ has a length of 8.3×10^7 bp, find the length of DNA fragment of calf DNA with $Cot^{1/2}$ $7.6 \times 10^{-3} \text{ moles}^{-1} \text{ s}$.

- ☐ a. 6.48×10^9 bp
- ☐ b. 8.30×10^{-3} bp
- ☐ c. 9.55×10^{-4} bp
- ☐ d. 1.06×10^{10} bp
- ☐ e. 0.16×10^{10} bp