PLNT 2530 - Plant Biotechnology March 22, 2024

Name

Student ID number

Assignment 3

**1. (6 points) Demonstrate the effect of sequence topology on restriction digests.**

a) *Answer question a here. The data in the boxes is dummy data. Replace it with your actual results.*

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| -----------------------------------------------------------  BACHREST Version 09/30/2012  pBS\_SK-GUS Topology: CIRCULAR Length: 5978 bp  -----------------------------------------------------------  Search parameters:  Recognition sequences between 6 and 21 bp  Ends: 5' protruding, Blunt, 3' protruding  Type: Symmetric, Asymmetric  Minimum fragments: 0 Maximum fragments: 6000  Maximum fragments to print: 30  -----------------------------------------------------------  # of  Enzyme Recognition Sequence Sites Sites Frags Begin End  AarI CACCTGC(4/8) 4  6448 7225 13981 6447  7178 3609 7178 10786  10787 3194 10787 13980  13981 730 6448 7177  OliI CACNN^NNGTG 3  6392 10798 10352 6391  6410 3942 6410 10351  10352 18 6392 6409 |

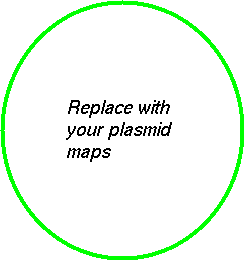
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| -----------------------------------------------------------  BACHREST Version 09/30/2012  pBS\_SK-GUS.fsn Topology: LINEAR Length: 5978 bp  -----------------------------------------------------------  Search parameters:  Recognition sequences between 6 and 21 bp  Ends: 5' protruding, Blunt, 3' protruding  Type: Symmetric, Asymmetric  Minimum fragments: 0 Maximum fragments: 6000  Maximum fragments to print: 30  -----------------------------------------------------------  # of  Enzyme Recognition Sequence Sites Sites Frags Begin End  AarI CACCTGC(4/8) 4  6448 7225 13981 6447  7178 3609 7178 10786  10787 3194 10787 13980  13981 730 6448 7177  OliI CACNN^NNGTG 3  6392 10798 10352 6391  6410 3942 6410 10351  10352 18 6392 6409 |

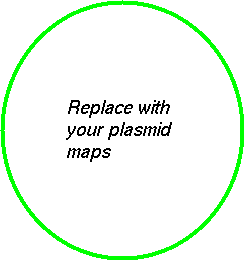
b) *Answer question b here.*

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**2. (6 points) Create a construct using pBluescript SK(+), for comparison with the construct made using pBluescript SK(-). KEEP BOTH MAPS ON THIS PAGE. You may need to resize.**

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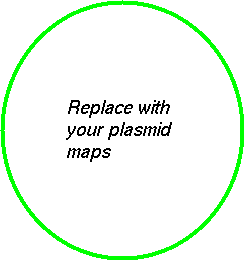


**3. (6 points) Use BACHREST to find restriction digests that would allow us to determine which of the two Bluescript vectors was used in the real construct.** *The data in the boxes is dummy data. Replace it with your actual results.*

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| -----------------------------------------------------------  BACHREST Version 09/30/2012  pBS\_SK+GUS Topology: CIRCULAR Length: 5978 bp  -----------------------------------------------------------  Search parameters:  Recognition sequences between 6 and 21 bp  Ends: 5' protruding, Blunt, 3' protruding  Type: Symmetric, Asymmetric  Minimum fragments: 0 Maximum fragments: 6000  Maximum fragments to print: 30  -----------------------------------------------------------  # of  Enzyme Recognition Sequence Sites Sites Frags Begin End  --------------------------------------------------------------------------------  PstI CTGCA^G 3  3020 7888 4967 12854  4967 4923 12855 3019  12855 1947 3020 4966  PvuI CGAT^CG 3  4025 10677 8106 4024  7730 3705 4025 7729  8106 376 7730 8105  PvuII CAG^CTG 5  3073 5081 12750 3072  4772 4218 8532 12749  8075 3303 4772 8074  8532 1699 3073 4771  12750 457 8075 8531 |

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| -----------------------------------------------------------  BACHREST Version 09/30/2012  pBS\_SK-GUS Topology: CIRCULAR Length: 5978 bp  -----------------------------------------------------------  Search parameters:  Recognition sequences between 6 and 21 bp  Ends: 5' protruding, Blunt, 3' protruding  Type: Symmetric, Asymmetric  Minimum fragments: 0 Maximum fragments: 6000  Maximum fragments to print: 30  -----------------------------------------------------------  # of  Enzyme Recognition Sequence Sites Sites Frags Begin End  --------------------------------------------------------------------------------  PstI CTGCA^G 3  3020 7888 4967 12854  4967 4923 12855 3019  12855 1947 3020 4966  PvuI CGAT^CG 3  4025 10677 8106 4024  7730 3705 4025 7729  8106 376 7730 8105  PvuII CAG^CTG 5  3073 5081 12750 3072  4772 4218 8532 12749  8075 3303 4772 8074  8532 1699 3073 4771  12750 457 8075 8531 |

*Discussion of data for question 3 here.*

**KEEP BOTH MAPS ON THIS PAGE. You may need to resize.**

