

MBV4010-2008-Exam - Answers (not complete solutions) to problems.

Problem 1

a) Forward Frame 1:

1 G R - C D S
1 GGCAGGTAATGTGATTCA

Forward Frame 2 (open):

1 A G N V I H/Q
2 GCAGGTAATGTGATTCA

Forward Frame 3:

1 Q V M - F
3 CAGGTAATGTGATTCA

e)

i, iii, and v

Problem 3

a) Fwd. primer:

M D C V A N P
TAAAAT**CCATGG**ATTGCGTCGCTAATCC

Rev. complement of rev. primer:

1 L G L K R P
3 TCCTGGGTTTGAAACGGCCC**CTCGAG**ATTTTA

Rev. primer:

TAAAAT**CTCGAG**GGGCCGTTTCAAACCCAGGA

(Note that the S-tag is part of the pET-45b sequence, and that the AtAlkB gene must be cloned without a stop codon in order to obtain an expression plasmid for a S-tagged protein)

b)

G I S A H V D C V
GGGATCAGCGCG**CAT**GTTCGATTGTGTC

Fwd mutant primer:

GGGATC**AGCGCT**TGGGTCGATTGTGTC

c)

- i) $301-176 = \underline{125}$ and $5260-125 = \underline{5135}$
- ii) $\underline{587}$ (AtAlkB-gene - 1 nt) and $\underline{5135}$
- iii) $5260-125+587 = \underline{5722}$
- iv) $\underline{314}$ and $5722-314 = \underline{5408}$