SUPPLEMENTARY MATERIALS

Unknown areas of activity of human ribonuclease Dicer: a putative deoxyribonuclease activity

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Figure S1. Analysis of sequencing data.

Sanger sequence analysis of the obtained genetic constructs: hDcr, ΔPAZ_hDcr and ΔPPC_hDcr in SureVector system. All primers used for sequencing were designed based on the full-length cDNA encoding transcript variant 2 of *DICER1* (NM_030621.4). Sequence data analysis was carried out using DNADynamo DNA Sequencing and Analysis Software. Note: alignment of the full-lenght hDcr sequence (pages:2-33), alignment of ΔPAZ_hDcr sequence (pages:34-65) and alignment of ΔPPC_hDcr sequence (pages:66-97). The reference sequence is full-lenght hDcr cDNA (indicated as *ref*).

AatII

ZraI

ref/sequencing hDcr CCAAGTCTCCACCCCATTGACGTCAATGGGAGTTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTCCGCCCCATTGACGCAAA

P S L H P I D V N G S L F W H Q N Q R D F P K C R N N S A P L T Q

3_Seq1.ab1   CCAAGTCTCCACCCCATTGACGTCAATGGGAGTTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTCCGCCCCATTGACGCAAA
kol3_1.ab1   ---
kol3_P3.ab1   ---
kol3_P4.ab1   ---
kol3_P6.ab1   ---
kol3_P8.ab1   ---
kol3_P10.ab1 ---
kol3_P12.ab1 ---
3_P13.ab1   ---

BglII

ref/sequencing hDcr TGGGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTGGTTTAGTGAACCGTCAGATCAGATCTTTGTCGATCCTACCATCCACTCGACACAC

M G G R R V R W E V Y I S R A G L V N R Q I R S L S I L P S T R H T

Start

3_Seq1.ab1   TGGGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTGGTTTAGTGAACCGTCAGATCAGATCTTTGTCGATCCTACCATCCACTCGACACAC
kol3_1.ab1   ---
kol3_P3.ab1   ---
kol3_P4.ab1   ---
kol3_P6.ab1   ---
kol3_P8.ab1   ---
kol3_P10.ab1 ---
kol3_P12.ab1 ---
3_P13.ab1   ---

```
                                    ┃NotI        ┃HindIII   ┃SacI                    ┃KpnI
                                                             ┃EcoICRI┃EcoRI        ┃Acc65I        ┃DraI
ref/sequencing hDcr CCGCCAGCGGCCGCTGCCAAGCTTCCGAGCTCTCGAATTCAAAGGAGGTACCCACCCTTGTTTAAACTTTAAGAGGAGGGCCACCATGAAAAGCCCTGCT
                     R  Q  R  P  L  P  S  F  R  A  L  E  F  K  G  G  T  H  P  C  L  N  F  K  R  R  A  T  M  K  S  P  A
```

```
3_Seq1.ab1     CCGCCAGCGGCCGCTGCCAAGCTTCCGAGCTCTCGAATTCAAAGGAGGTACCCACCCTTGTTTAAACTTTAAGAGGAGGGCCACCATGAAAAGCCCTGCT
kol3_1.ab1     ----------------------------------------------------------------------------------------------------
kol3_P3.ab1    ----------------------------------------------------------------------------------------------------
kol3_P4.ab1    ----------------------------------------------------------------------------------------------------
kol3_P6.ab1    ----------------------------------------------------------------------------------------------------
kol3_P8.ab1    ----------------------------------------------------------------------------------------------------
kol3_P10.ab1   ----------------------------------------------------------------------------------------------------
kol3_P12.ab1   ----------------------------------------------------------------------------------------------------
3_P13.ab1      ----------------------------------------------------------------------------------------------------
```

```
                     ┃Bpu10I        ┃StuI   ┃PstI                                              ┃NcoI
ref/sequencing hDcr TTGCAACCCCTCAGCATGGCAGGCCTGCAGCTCATGACCCCTGCTTCCTCACCAATGGGTCCTTTCTTTGGACTGCCATGGCAACAAGAAGCAATTCATG
                     L  Q  P  L  S  M  A  G  L  Q  L  M  T  P  A  S  S  P  M  G  P  F  F  G  L  P  W  Q  Q  E  A  I  H
```

```
3_Seq1.ab1     TTGCAACCCCTCAGCATGGCAGGCCTGCAGCTCATGACCCCTGCTTCCTCACCAATGGGTCCTTTCTTTGGACTGCCATGGCAACAAGAAGCAATTCATG
kol3_1.ab1     ----------------------------------------GACCCCTGCTTCCTCACCAATGGGTCCTTTCTTTGGACTGCCATGGCAACAAGAAGCAATTCATG
kol3_P3.ab1    ----------------------------------------------------------------------------------------------------
kol3_P4.ab1    ----------------------------------------------------------------------------------------------------
kol3_P6.ab1    ----------------------------------------------------------------------------------------------------
kol3_P8.ab1    ----------------------------------------------------------------------------------------------------
kol3_P10.ab1   ----------------------------------------------------------------------------------------------------
kol3_P12.ab1   ----------------------------------------------------------------------------------------------------
3_P13.ab1      ----------------------------------------------------------------------------------------------------
```

```
                                                                            ▌DraI              ▌Bpu10I
ref/sequencing hDcr ATAACATTTATACGCCAAGAAAATATCAGGTTGAACTGCTTGAAGCAGCTCTGGATCATAATACCATCGTCTGTTTAAACACTGGCTCAGGGAAGACATT
                     D  N  I  Y  T  P  R  K  Y  Q  V  E  L  L  E  A  A  L  D  H  N  T  I  V  C  L  N  T  G  S  G  K  T  F

3_Seq1.ab1          ATAACATTTATACGCCAAGAAAATATCAGGTTGAACTGCTTGAAGCAGCTCTGGATCATAATACCATCGTCTGTTTAAACACTGGCTCAGGGAAGACATT
kol3_1.ab1          ATAACATTTATACGCCAAGAAAATATCAGGTTGAACTGCTTGAAGCAGCTCTGGATCATAATACCATCGTCTGTTTAAACACTGGCTCAGGGAAGACATT
kol3_P3.ab1         -----------------------------------------------------------------------------------------------------
kol3_P4.ab1         -----------------------------------------------------------------------------------------------------
kol3_P6.ab1         -----------------------------------------------------------------------------------------------------
kol3_P8.ab1         -----------------------------------------------------------------------------------------------------
kol3_P10.ab1        -----------------------------------------------------------------------------------------------------
kol3_P12.ab1        -----------------------------------------------------------------------------------------------------
3_P13.ab1           -----------------------------------------------------------------------------------------------------
```

```
                     ▌ScaI
ref/sequencing hDcr TATTGCAGTACTACTCACTAAAGAGCTGTCCTATCAGATCAGGGGAGACTTCAGCAGAAATGGAAAAAGGACGGTGTTCTTGGTCAACTCTGCAAACCAG
                     I  A  V  L  L  T  K  E  L  S  Y  Q  I  R  G  D  F  S  R  N  G  K  R  T  V  F  L  V  N  S  A  N  Q

3_Seq1.ab1          TATTGCAGTACTACTCACTAAAGAGCTGTCCTATCAGATCAGGGGAGACTTCAGCAGAAATGGAAAAAGGACGGTGTTCTTGGTCAACTCTGCAAACCAG
kol3_1.ab1          TATTGCAGTACTACTCACTAAAGAGCTGTCCTATCAGATCAGGGGAGACTTCAGCAGAAATGGAAAAAGGACGGTGTTCTTGGTCAACTCTGCAAACCAG
kol3_P3.ab1         -----------------------------------------------------------------------------------------------------
kol3_P4.ab1         -----------------------------------------------------------------------------------------------------
kol3_P6.ab1         -----------------------------------------------------------------------------------------------------
kol3_P8.ab1         -----------------------------------------------------------------------------------------------------
kol3_P10.ab1        -----------------------------------------------------------------------------------------------------
kol3_P12.ab1        -----------------------------------------------------------------------------------------------------
3_P13.ab1           -----------------------------------------------------------------------------------------------------
```

```
                                          |PvuII              |BglII                                        |NsiI
ref/sequencing hDcr GTTGCTCAACAAGTGTCAGCTGTCAGAACTCATTCAGATCTCAAGGTTGGGGAATACTCAAACCTAGAAGTAAATGCATCTTGGACAAAAGAGAGATGGA
                     V  A  Q  Q  V  S  A  V  R  T  H  S  D  L  K  V  G  E  Y  S  N  L  E  V  N  A  S  W  T  K  E  R  W


3_Seq1.ab1          GTTGCTCAACAAGTGTCAGCTGTCAGAACTCATTCAGATCTCAAGGTT----------------------------------------------------
kol3_1.ab1          GTTGCTCAACAAGTGTCAGCTGTCAGAACTCATTCAGATCTCAAGGTTGGGGAATACTCAAACCTAGAAGTAAATGCATCTTGGACAAAAGAGAGATGGA
kol3_P3.ab1         ----------------------------------------------------------------------------------------------------
kol3_P4.ab1         ----------------------------------------------------------------------------------------------------
kol3_P6.ab1         ----------------------------------------------------------------------------------------------------
kol3_P8.ab1         ----------------------------------------------------------------------------------------------------
kol3_P10.ab1        ----------------------------------------------------------------------------------------------------
kol3_P12.ab1        ----------------------------------------------------------------------------------------------------
3_P13.ab1           ----------------------------------------------------------------------------------------------------
```

```
ref/sequencing hDcr ACCAAGAGTTTACTAAGCACCAGGTTCTCATTATGACTTGCTATGTCGCCTTGAATGTTTTGAAAAATGGTTACTTATCACTGTCAGACATTAACCTTTT
                     N  Q  E  F  T  K  H  Q  V  L  I  M  T  C  Y  V  A  L  N  V  L  K  N  G  Y  L  S  L  S  D  I  N  L  L


3_Seq1.ab1          ----------------------------------------------------------------------------------------------------
kol3_1.ab1          ACCAAGAGTTTACTAAGCACCAGGTTCTCATTATGACTTGCTATGTCGCCTTGAATGTTTTGAAAAATGGTTACTTATCACTGTCAGACATTAACCTTTT
kol3_P3.ab1         ----------------------------------------------------------------------------------------------------
kol3_P4.ab1         ----------------------------------------------------------------------------------------------------
kol3_P6.ab1         ----------------------------------------------------------------------------------------------------
kol3_P8.ab1         ----------------------------------------------------------------------------------------------------
kol3_P10.ab1        ----------------------------------------------------------------------------------------------------
kol3_P12.ab1        ----------------------------------------------------------------------------------------------------
3_P13.ab1           ----------------------------------------------------------------------------------------------------
```

ref/sequencing hDcr GGTGTTTGATGAGTGTCATCTTGCAATCCTAGACCACCCCTATCGAGAAATTATGAAGCTCTGTGAAAATTGTCCATCATGTCCTCGCATTTTGGGACTA
                       V F D E C H L A I L D H P Y R E I M K L C E N C P S C P R I L G L

3_Seq1.ab1   --
kol3_1.ab1   GGTGTTTGATGAGTGTCATCTTGCAATCCTAGACCACCCCTATCGAGAAATTATGAAGCTCTGTGAAAATTGTCCATCATGTCCTCGCATTTTGGGACTA
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   --
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

                |DraI |AflII
ref/sequencing hDcr ACTGCTTCCATTTTAAATGGGAAATGTGATCCAGAGGAATTGGAAGAAAAGATTCAGAAACTAGAGAAAATTCTTAAGAGTAATGCTGAAACTGCAACTG
                       T A S I L N G K C D P E E L E E K I Q K L E K I L K S N A E T A T

3_Seq1.ab1   --
kol3_1.ab1   ACTGCTTCCATTTTAAATGGGAAATGTGATCCAGAGGAATTGGAAGAAAAGATTCAGAAACTAGAGAAAATTCTTAAGAGTAATGCTGAAACTGCAACTG
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   --
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

ref/sequencing hDcr ACCTGGTGGTCTTAGACAGGTATACTTCTCAGCCATGTGAGATTGTGGTGGATTGTGGACCATTTACTGACAGAAGTGGGCTTTATGAAAGACTGCTGAT

D L V V L D R Y T S Q P C E I V V D C G P F T D R S G L Y E R L L M

3_Seq1.ab1	---
kol3_1.ab1	ACCTGGTGGTCTTAGACAGGTATACTTCTCAGCCATGTGAGATTGTGGTGGATTGTGGACCATTTACTGACAGAAGTGGGCTTTATGAAAGACTGCTGAT
kol3_P3.ab1	---
kol3_P4.ab1	---
kol3_P6.ab1	---
kol3_P8.ab1	---
kol3_P10.ab1	---
kol3_P12.ab1	---
3_P13.ab1	---

ref/sequencing hDcr GGAATTAGAAGAAGCACTTAATTTTATCAATGATTGTAATATATCTGTACATTCAAAAGAAAGAGATTCTACTTTAATTTCGAAACAGATACTATCAGAC

E L E E A L N F I N D C N I S V H S K E R D S T L I S K Q I L S D

3_Seq1.ab1	---
kol3_1.ab1	GGAATTAGAAGAAGCACTTAATTTTATCAATGATTGTAATATATCTGTACATTCAAAAGAAAGAGATTCTACTTTAATTTCGAAACAGATACTATCAGAC
kol3_P3.ab1	---
kol3_P4.ab1	---
kol3_P6.ab1	---
kol3_P8.ab1	---
kol3_P10.ab1	---
kol3_P12.ab1	---
3_P13.ab1	---

ref/sequencing hDcr TGTCGTGCCGTATTGGTAGTTCTGGGACCCTGGTGTGCAGATAAAGTAGCTGGAATGATGGTAAGAGAACTACAGAAATACATCAAACATGAGCAAGAGG

C R A V L V V L G P W C A D K V A G M M V R E L Q K Y I K H E Q E

```
3_Seq1.ab1      ------------------------------------------------------------------------------------------------------
kol3_1.ab1      TGTCGTGCCGTATTGGTAGTTCTGGGACCCTGGTGTGCAGATAAAGTAGCTGGAATGATGGTAAGAGAACTACAGAAATACATCAAACATGAGCAAGAGG
kol3_P3.ab1     --------------------------------------------------TGATGGTAAGAGAACTACAGAAATACATCAAACATGAGCAAGAGG
kol3_P4.ab1     ------------------------------------------------------------------------------------------------------
kol3_P6.ab1     ------------------------------------------------------------------------------------------------------
kol3_P8.ab1     ------------------------------------------------------------------------------------------------------
kol3_P10.ab1    ------------------------------------------------------------------------------------------------------
kol3_P12.ab1    ------------------------------------------------------------------------------------------------------
3_P13.ab1       ------------------------------------------------------------------------------------------------------
```

DraIII

ref/sequencing hDcr AGCTGCACAGGAAATTTTTATTGTTTACAGACACTTTCCTAAGGAAAATACATGCACTATGTGAAGAGCACTTCTCACCTGCCTCACTTGACCTGAAATT

E L H R K F L L F T D T F L R K I H A L C E E H F S P A S L D L K F

```
3_Seq1.ab1      ------------------------------------------------------------------------------------------------------
kol3_1.ab1      AGCTGCACAGGAAATTTTTATTGTTTACAGACACTTTCCTAAGGAAAATACATGCACTATGTGAAGAGCACTTCTCACCTGCCTCACTTGACCTGAAATT
kol3_P3.ab1     AGCTGCACAGGAAATTTTTATTGTTTACAGACACTTTCCTAAGGAAAATACATGCACTATGTGAAGAGCACTTCTCACCTGCCTCACTTGACCTGAAATT
kol3_P4.ab1     ------------------------------------------------------------------------------------------------------
kol3_P6.ab1     ------------------------------------------------------------------------------------------------------
kol3_P8.ab1     ------------------------------------------------------------------------------------------------------
kol3_P10.ab1    ------------------------------------------------------------------------------------------------------
kol3_P12.ab1    ------------------------------------------------------------------------------------------------------
3_P13.ab1       ------------------------------------------------------------------------------------------------------
```

```
                                                                      NdeI
ref/sequencing hDcr TGTAACTCCTAAAGTAATCAAACTGCTCGAAATCTTACGCAAATATAAACCATATGAGCGACAGCAGTTTGAAAGCGTTGAGTGGTATAATAATAGAAAT
                     V  T  P  K  V  I  K  L  L  E  I  L  R  K  Y  K  P  Y  E  R  Q  Q  F  E  S  V  E  W  Y  N  N  R  N


3_Seq1.ab1          -------------------------------------------------------------------------------------------------------
kol3_1.ab1          TGTAACTCCTAAAGTAATCAAACTGCTCGAAATCTTACGCAAATATAAACCATATGAGCGACAGCAGTTTGAAAGCGTTGAGTGGTATAATAATAGAAAT
kol3_P3.ab1         TGTAACTCCTAAAGTAATCAAACTGCTCGAAATCTTACGCAAATATAAACCATATGAGCGACAGCAGTTTGAAAGCGTTGAGTGGTATAATAATAGAAAT
kol3_P4.ab1         -------------------------------------------------------------------------------------------------------
kol3_P6.ab1         -------------------------------------------------------------------------------------------------------
kol3_P8.ab1         -------------------------------------------------------------------------------------------------------
kol3_P10.ab1        -------------------------------------------------------------------------------------------------------
kol3_P12.ab1        -------------------------------------------------------------------------------------------------------
3_P13.ab1           -------------------------------------------------------------------------------------------------------
```

```
ref/sequencing hDcr CAGGATAATTATGTGTCATGGAGTGATTCTGAGGATGATGATGAGGATGAAGAAATTGAAGAAAAAGAGAAGCCAGAGACAAATTTTCCTTCTCCTTTTA
                     Q  D  N  Y  V  S  W  S  D  S  E  D  D  D  E  D  E  E  I  E  E  K  E  K  P  E  T  N  F  P  S  P  F


3_Seq1.ab1          -------------------------------------------------------------------------------------------------------
kol3_1.ab1          CAGGATAATTATGTGTCATGGAGTGATTCTGAGGATGATGATGAGGATGAAGAAA
kol3_P3.ab1         CAGGATAATTATGTGTCATGGAGTGATTCTGAGGATGATGATGAGGATGAAGAAATTGAAGAAAAAGAGAAGCCAGAGACAAATTTTCCTTCTCCTTTTA
kol3_P4.ab1         -------------------------------------------------------------------------------------------------------
kol3_P6.ab1         -------------------------------------------------------------------------------------------------------
kol3_P8.ab1         -------------------------------------------------------------------------------------------------------
kol3_P10.ab1        -------------------------------------------------------------------------------------------------------
kol3_P12.ab1        -------------------------------------------------------------------------------------------------------
3_P13.ab1           -------------------------------------------------------------------------------------------------------
```

ref/sequencing hDcr `CCAACATTTTGTGCGGAATTATTTTTGTGGAAAGAAGATACACAGCAGTTGTCTTAAACAGATTGATAAAGGAAGCTGGCAAACAAGATCCAGAGCTGGC`

`T N I L C G I I F V E R R Y T A V V L N R L I K E A G K Q D P E L A`

```
3_Seq1.ab1      -----------------------------------------------------------------------------------------------------
kol3_1.ab1      -----------------------------------------------------------------------------------------------------
kol3_P3.ab1     CCAACATTTTGTGCGGAATTATTTTTGTGGAAAGAAGATACACAGCAGTTGTCTTAAACAGATTGATAAAGGAAGCTGGCAAACAAGATCCAGAGCTGGC
kol3_P4.ab1     ------------------------------------------------------------------------------CAAGATCCAGAGCTGGC
kol3_P6.ab1     -----------------------------------------------------------------------------------------------------
kol3_P8.ab1     -----------------------------------------------------------------------------------------------------
kol3_P10.ab1    -----------------------------------------------------------------------------------------------------
kol3_P12.ab1    -----------------------------------------------------------------------------------------------------
3_P13.ab1       -----------------------------------------------------------------------------------------------------
```

EcoRI

ref/sequencing hDcr `TTATATCAGTAGCAATTTCATAACTGGACATGGCATTGGGAAGAATCAGCCTCGCAACAAACAGATGGAAGCAGAATTCAGAAAACAGGAAGAGGTACTT`

`Y I S S N F I T G H G I G K N Q P R N K Q M E A E F R K Q E E V L`

```
3_Seq1.ab1      -----------------------------------------------------------------------------------------------------
kol3_1.ab1      -----------------------------------------------------------------------------------------------------
kol3_P3.ab1     TTATATCAGTAGCAATTTCATAACTGGACATGGCATTGGGAAGAATCAGCCTCGCAACAAACAGATGGAAGCAGAATTCAGAAAACAGGAAGAGGTACTT
kol3_P4.ab1     TTATATCAGTAGCAATTTCATAACTGGACATGGCATTGGGAAGAATCAGCCTCGCAACAAACAGATGGAAGCAGAATTCAGAAAACAGGAAGAGGTACTT
kol3_P6.ab1     -----------------------------------------------------------------------------------------------------
kol3_P8.ab1     -----------------------------------------------------------------------------------------------------
kol3_P10.ab1    -----------------------------------------------------------------------------------------------------
kol3_P12.ab1    -----------------------------------------------------------------------------------------------------
3_P13.ab1       -----------------------------------------------------------------------------------------------------
```

```
ref/sequencing hDcr AGGAAATTTCGAGCACATGAGACCAACCTGCTTATTGCAACAAGTATTGTAGAAGAGGGTGTTGATATACCAAAATGCAACTTGGTGGTTCGTTTTGATT
                     R  K  F  R  A  H  E  T  N  L  L  I  A  T  S  I  V  E  E  G  V  D  I  P  K  C  N  L  V  V  R  F  D
```

```
3_Seq1.ab1          ----------------------------------------------------------------------------------------------------
kol3_1.ab1          ----------------------------------------------------------------------------------------------------
kol3_P3.ab1         AGGAAATTTCGAGCACATGAGACCAACCTGCTTATTGCAACAAGTATTGTAGAAGAGGGTGTTGATATACCAAAATGCAACTTGGTGGTTCGTTTTGATT
kol3_P4.ab1         AGGAAATTTCGAGCACATGAGACCAACCTGCTTATTGCAACAAGTATTGTAGAAGAGGGTGTTGATATACCAAAATGCAACTTGGTGGTTCGTTTTGATT
kol3_P6.ab1         ----------------------------------------------------------------------------------------------------
kol3_P8.ab1         ----------------------------------------------------------------------------------------------------
kol3_P10.ab1        ----------------------------------------------------------------------------------------------------
kol3_P12.ab1        ----------------------------------------------------------------------------------------------------
3_P13.ab1           ----------------------------------------------------------------------------------------------------
```

```
                                         ClaI*
ref/sequencing hDcr TGCCCACAGAATATCGATCCTATGTTCAATCTAAAGGAAGAGCAAGGGCACCCATCTCTAATTATATAATGTTAGCGGATACAGACAAAATAAAAAGTTT
                     L  P  T  E  Y  R  S  Y  V  Q  S  K  G  R  A  R  A  P  I  S  N  Y  I  M  L  A  D  T  D  K  I  K  S  F
```

```
3_Seq1.ab1          ----------------------------------------------------------------------------------------------------
kol3_1.ab1          ----------------------------------------------------------------------------------------------------
kol3_P3.ab1         TGCCCACAGAATATCGATCCTATGTTCAATCTAAAGGAAGAGCAAGGGCACCCATCTCTAATTATATAATGTTAGCGGATACAGACAAAATAAAAAGTTT
kol3_P4.ab1         TGCCCACAGAATATCGATCCTATGTTCAATCTAAAGGAAGAGCAAGGGCACCCATCTCTAATTATATAATGTTAGCGGATACAGACAAAATAAAAAGTTT
kol3_P6.ab1         ----------------------------------------------------------------------------------------------------
kol3_P8.ab1         ----------------------------------------------------------------------------------------------------
kol3_P10.ab1        ----------------------------------------------------------------------------------------------------
kol3_P12.ab1        ----------------------------------------------------------------------------------------------------
3_P13.ab1           ----------------------------------------------------------------------------------------------------
```

BglII

```
ref/sequencing hDcr  TGAAGAAGACCTTAAAACCTACAAAGCTATTGAAAAGATCTTGAGAAACAAGTGTTCCAAGTCGGTTGATACTGGTGAGACTGACATTGATCCTGTCATG
                      E  E  D  L  K  T  Y  K  A  I  E  K  I  L  R  N  K  C  S  K  S  V  D  T  G  E  T  D  I  D  P  V  M

3_Seq1.ab1           --------------------------------------------------------------------------------------------------------
kol3_1.ab1           --------------------------------------------------------------------------------------------------------
kol3_P3.ab1          TGAAGAAGACCTTAAA----------------------------------------------------------------------------------------
kol3_P4.ab1          TGAAGAAGACCTTAAAACCTACAAAGCTATTGAAAAGATCTTGAGAAACAAGTGTTCCAAGTCGGTTGATACTGGTGAGACTGACATTGATCCTGTCATG
kol3_P6.ab1          --------------------------------------------------------------------------------------------------------
kol3_P8.ab1          --------------------------------------------------------------------------------------------------------
kol3_P10.ab1         --------------------------------------------------------------------------------------------------------
kol3_P12.ab1         --------------------------------------------------------------------------------------------------------
3_P13.ab1            --------------------------------------------------------------------------------------------------------
```

NdeI   StuI

```
ref/sequencing hDcr  GATGATGATGACGTTTTCCCACCATATGTGTTGAGGCCTGACGATGGTGGTCCACGAGTCACAATCAACACGGCCATTGGACACATCAATAGATACTGTG
                      D  D  D  D  V  F  P  P  Y  V  L  R  P  D  D  G  G  P  R  V  T  I  N  T  A  I  G  H  I  N  R  Y  C

3_Seq1.ab1           --------------------------------------------------------------------------------------------------------
kol3_1.ab1           --------------------------------------------------------------------------------------------------------
kol3_P3.ab1          --------------------------------------------------------------------------------------------------------
kol3_P4.ab1          GATGATGATGACGTTTTCCCACCATATGTGTTGAGGCCTGACGATGGTGGTCCACGAGTCACAATCAACACGGCCATTGGACACATCAATAGATACTGTG
kol3_P6.ab1          --------------------------------------------------------------------------------------------------------
kol3_P8.ab1          --------------------------------------------------------------------------------------------------------
kol3_P10.ab1         --------------------------------------------------------------------------------------------------------
kol3_P12.ab1         --------------------------------------------------------------------------------------------------------
3_P13.ab1            --------------------------------------------------------------------------------------------------------
```

ref/sequencing hDcr CTAGATTACCAAGTGATCCGTTTACTCATCTAGCTCCTAAATGCAGAACCCGAGAGTTGCCTGATGGTACATTTTATTCAACTCTTTATCTGCCAATTAA

A R L P S D P F T H L A P K C R T R E L P D G T F Y S T L Y L P I N

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   CTAGATTACCAAGTGATCCGTTTACTCATCTAGCTCCTAAATGCAGAACCCGAGAGTTGCCTGATGGTACATTTTATTCAACTCTTTATCTGCCAATTAA
kol3_P6.ab1   --
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

ref/sequencing hDcr CTCACCTCTTCGAGCCTCCATTGTTGGTCCACCAATGAGCTGTGTACGATTGGCTGAAAGAGTTGTAGCTCTCATTTGCTGTGAGAAACTGCACAAAATT

S P L R A S I V G P P M S C V R L A E R V V A L I C C E K L H K I

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   CTCACCTCTTCGAGCCTCCATTGTTGGTCCACCAATGAGCTGTGTACGATTGGCTGAAAGAGTTGTAGCTCTCATTTGCTGTGAGAAACTGCACAAAATT
kol3_P6.ab1   --
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

ref/sequencing hDcr GGCGAACTGGATGACCATTTGATGCCAGTTGGGAAAGAGACTGTTAAATATGAAGAGGAGCTTGATTTGCATGATGAAGAAGAGACCAGTGTTCCAGGAA
                    G E L D D H L M P V G K E T V K Y E E E L D L H D E E E T S V P G

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   GGCGAACTGGATGACCATTTGATGCCAGTTGGGAAAGAGACTGTTAAATATGAAGAGGAGCTTGATTTGCATGATGAAGAAGAGACCAGTGTTCCAGGAA
kol3_P6.ab1   --
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

                                                                                                     ▌BclI*
ref/sequencing hDcr GACCAGGTTCCACGAAACGAAGGCAGTGCTACCCAAAAGCAATTCCAGAGTGTTTGAGGGATAGTTATCCCAGACCTGATCAGCCCTGTTACCTGTATGT
                    R P G S T K R R Q C Y P K A I P E C L R D S Y P R P D Q P C Y L Y V

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   GACCAGGTTCCACGAAACGAAGGCAGTGCTACCCAAAAGCAATTCCAGAGTGTTTGAGGGATAGTTATCCCAGACCTGATCAGCCCTGTTACCTGTATGT
kol3_P6.ab1   --
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

ref/sequencing hDcr GATAGGAATGGTTTTAACTACACCTTTACCTGATGAACTCAACTTTAGAAGGCGGAAGCTCTATCCTCCTGAAGATACCACAAGATGCTTTGGAATACTG
                    I G M V L T T P L P D E L N F R R R K L Y P P E D T T R C F G I L

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   GATAGGAATGGTTTTAACTACACCTTTACCTGATGAACTCAACTTTAGAAGGCGGAAGCTCTATCCTCCTGAAGATACCACAAGATGCTTTGGAATACTG
kol3_P6.ab1   ---TACTG
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

                                                                                                  ▌BstEII
ref/sequencing hDcr ACGGCCAAACCCATACCTCAGATTCCACACTTTCCTGTGTACACACGCTCTGGAGAGGTTACCATATCCATTGAGTTGAAGAAGTCTGGTTTCATGTTGT
                    T A K P I P Q I P H F P V Y T R S G E V T I S I E L K K S G F M L

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   ACGGCCAAACCCATACCTCAGATTCCACACTTTCCTGTGTACACACGCTCTGGAGAGGTTACCATATCCATTGAGTTGAAGAAGTCTGGTTTCATGTTGT
kol3_P6.ab1   ACGGCCAAACCCATACCTCAGATTCCACACTTTCCTGTGTACACACGCTCTGGAGAGGTTACCATATCCATTGAGTTGAAGAAGTCTGGTTTCATGTTGT
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

DraI

ref/sequencing hDcr CTCTACAAATGCTTGAGTTGATTACAAGACTTCACCAGTATATATTCTCACATATTCTTCGGCTTGAAAAACCTGCACTAGAATTTAAACCTACAGACGC

S L Q M L E L I T R L H Q Y I F S H I L R L E K P A L E F K P T D A

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   CTCTACAAATGCTTGAGTTGATTACAAGACTTCACCAGTATATATTCTCACATATTCTTCGGCTTGAAAAACCTGCACTAGAATTTAAACCTACAGACGC
kol3_P6.ab1   CTCTACAAATGCTTGAGTTGATTACAAGACTTCACCAGTATATATTCTCACATATTCTTCGGCTTGAAAAACCTGCACTAGAATTTAAACCTACAGACGC
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

BstXI   DraI

ref/sequencing hDcr TGATTCAGCATACTGTGTTCTACCTCTTAATGTTGTTAATGACTCCAGCACTTTGGATATTGACTTTAAATTCATGGAAGATATTGAGAAGTCTGAAGCT

D S A Y C V L P L N V V N D S S T L D I D F K F M E D I E K S E A

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   TGATTCAGCATACTG---
kol3_P6.ab1   TGATTCAGCATACTGTGTTCTACCTCTTAATGTTGTTAATGACTCCAGCACTTTGGATATTGACTTTAAATTCATGGAAGATATTGAGAAGTCTGAAGCT
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

BsmI   DraI   EcoRV
ref/sequencing hDcr CGCATAGGCATTCCCAGTACAAAGTATACAAAAGAAACACCCTTTGTTTTTAAATTAGAAGATTACCAAGATGCCGTTATCATTCCAAGATATCGCAATT
R I G I P S T K Y T K E T P F V F K L E D Y Q D A V I I P R Y R N

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   CGCATAGGCATTCCCAGTACAAAGTATACAAAAGAAACACCCTTTGTTTTTAAATTAGAAGATTACCAAGATGCCGTTATCATTCCAAGATATCGCAATT
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

BclI*   ClaI   SspI
ref/sequencing hDcr TTGATCAGCCTCATCGATTTTATGTAGCTGATGTGTACACTGATCTTACCCCACTCAGTAAATTTCCTTCCCCTGAGTATGAAACTTTTGCAGAATATTA
F D Q P H R F Y V A D V Y T D L T P L S K F P S P E Y E T F A E Y Y

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   TTGATCAGCCTCATCGATTTTATGTAGCTGATGTGTACACTGATCTTACCCCACTCAGTAAATTTCCTTCCCCTGAGTATGAAACTTTTGCAGAATATTA
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

ref/sequencing hDcr TAAAACAAAGTACAACCTTGACCTAACCAATCTCAACCAGCCACTGCTGGATGTGGACCACACATCTTCAAGACTTAATCTTTTGACACCTCGACATTTG
                    K T K Y N L D L T N L N Q P L L D V D H T S S R L N L L T P R H L

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   TAAAACAAAGTACAACCTTGACCTAACCAATCTCAACCAGCCACTGCTGGATGTGGACCACACATCTTCAAGACTTAATCTTTTGACACCTCGACATTTG
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

                                               |Eco47III |PstI
ref/sequencing hDcr AATCAGAAGGGGAAAGCGCTTCCTTTAAGCAGTGCTGAGAAGAGGAAAGCCAAATGGGAAAGTCTGCAGAATAAACAGATACTGGTTCCAGAACTCTGTG
                    N Q K G K A L P L S S A E K R K A K W E S L Q N K Q I L V P E L C

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   AATCAGAAGGGGAAAGCGCTTCCTTTAAGCAGTGCTGAGAAGAGGAAAGCCAAATGGGAAAGTCTGCAGAATAAACAGATACTGGTTCCAGAACTCTGTG
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

PstI

ref/sequencing hDcr CTATACATCCAATTCCAGCATCACTGTGGAGAAAAGCTGTTTGTCTCCCCAGCATACTTTATCGCCTTCACTGCCTTTTGACTGCAGAGGAGCTAAGAGC

A I H P I P A S L W R K A V C L P S I L Y R L H C L L T A E E L R A

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   CTATACATCCAATTCCAGCATCACTGTGGAGAAAAGCTGTTTGTCTCCCCAGCATACTTTATCGCCTTCACTGCCTTTTGACTGCAGAGGAGCTAAGAGC
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

ref/sequencing hDcr CCAGACTGCCAGCGATGCTGGCGTGGGAGTCAGATCACTTCCTGCGGATTTTAGATACCCTAACTTAGACTTCGGGTGGAAAAAATCTATTGACAGCAAA

Q T A S D A G V G V R S L P A D F R Y P N L D F G W K K S I D S K

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   CCAGACTGCCAGCGATGCTGGCGTGGGAGTCAGATCACTTCCTGCGGATTTTAGATACCCTAACTTAGACTTCGGGTGGAAAAAATCTATTGACAGCAAA
kol3_P8.ab1   --
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

|PvuII |MunI
ref/sequencing hDcr TCTTTCATCTCAATTTCTAACTCCTCTTCAGCTGAAAATGATAATTACTGTAAGCACAGCACAATTGTCCCTGAAAATGCTGCACATCAAGGTGCTAATA
S F I S I S N S S S A E N D N Y C K H S T I V P E N A A H Q G A N

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3_Seq1.ab1      ------------------------------------------------------------------------------------------------------
kol3_1.ab1      ------------------------------------------------------------------------------------------------------
kol3_P3.ab1     ------------------------------------------------------------------------------------------------------
kol3_P4.ab1     ------------------------------------------------------------------------------------------------------
kol3_P6.ab1     TCTTTCATCTCAATTTCTAACTCCTCTTCAGCTGAAAATGATAATTACTGTAAGCACAGCACAATTGTCCCTGAAAATGCTGCACATCAAGGTGCTAATA
kol3_P8.ab1     TCTTTCATCTCAATTTCTAACTCCTCTTCAGCTGAAAATGATAATTACTGTAAGCACAGCACAATTGTCCCTGAAAATGCTGCACATCAAGGTGCTAATA
kol3_P10.ab1    ------------------------------------------------------------------------------------------------------
kol3_P12.ab1    ------------------------------------------------------------------------------------------------------
3_P13.ab1       ------------------------------------------------------------------------------------------------------
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|XbaI |AclII |BglII
                                               |PstI
ref/sequencing hDcr GAACCTCCTCTCTAGAAAATCATGACCAAATGTCTGTGAACTGCAGAACGTTGCTCAGCGAGTCCCCTGGTAAGCTCCACGTTGAAGTTTCAGCAGATCT
R T S S L E N H D Q M S V N C R T L L S E S P G K L H V E V S A D L

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3_Seq1.ab1      ------------------------------------------------------------------------------------------------------
kol3_1.ab1      ------------------------------------------------------------------------------------------------------
kol3_P3.ab1     ------------------------------------------------------------------------------------------------------
kol3_P4.ab1     ------------------------------------------------------------------------------------------------------
kol3_P6.ab1     GAACCTCCTCTCTAGAAAATCATGACCAAATGTCTGTGAACTGCAGAACGTTGCTCAGCGAGTCCCCTGGTAAGCTCCACGTTGAAGTTTCAGCAGATCT
kol3_P8.ab1     GAACCTCCTCTCTAGAAAATCATGACCAAATGTCTGTGAACTGCAGAACGTTGCTCAGCGAGTCCCCTGGTAAGCTCCACGTTGAAGTTTCAGCAGATCT
kol3_P10.ab1    ------------------------------------------------------------------------------------------------------
kol3_P12.ab1    ------------------------------------------------------------------------------------------------------
3_P13.ab1       ------------------------------------------------------------------------------------------------------
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VspI

ref/sequencing hDcr TACAGCAATTAATGGTCTTTCTTACAATCAAAATCTCGCCAATGGCAGTTATGATTTAGCTAACAGAGACTTTTGCCAAGGAAATCAGCTAAATTACTAC

T A I N G L S Y N Q N L A N G S Y D L A N R D F C Q G N Q L N Y Y

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   TACAGCAATTAATGGTCTTTCTTACAATCAAAATCTCGCCAATGGCAGTTATGATTTAGCTAACAGAGACTTTTGCCAAGGAAATCAGCTAAATTACTAC
kol3_P8.ab1   TACAGCAATTAATGGTCTTTCTTACAATCAAAATCTCGCCAATGGCAGTTATGATTTAGCTAACAGAGACTTTTGCCAAGGAAATCAGCTAAATTACTAC
kol3_P10.ab1 --
kol3_P12.ab1 --
3_P13.ab1   --

ref/sequencing hDcr AAGCAGGAAATACCCGTGCAACCAACTACCTCATATTCCATTCAGAATTTATACAGTTACGAGAACCAGCCCCAGCCCAGCGATGAATGTACTCTCCTGA

K Q E I P V Q P T T S Y S I Q N L Y S Y E N Q P Q P S D E C T L L

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   AAGCAGGAAATACCCGTGCAACCAACTACCTCATATTCCATTCAGAATTTATACAGTTACGAGAACCAGCCCCAGCCCAGCGATGAATGTACTCTCCTGA
kol3_P8.ab1   AAGCAGGAAATACCCGTGCAACCAACTACCTCATATTCCATTCAGAATTTATACAGTTACGAGAACCAGCCCCAGCCCAGCGATGAATGTACTCTCCTGA
kol3_P10.ab1 --
kol3_P12.ab1 --
3_P13.ab1   --

ref/sequencing hDcr GTAATAAATACCTTGATGGAAATGCTAACAAATCTACCTCAGATGGAAGTCCTGTGATGGCCGTAATGCCTGGTACGACAGACACTATTCAAGTGCTCAA
                    S N K Y L D G N A N K S T S D G S P V M A V M P G T T D T I Q V L K

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   GTAATAAATACCTT--
kol3_P8.ab1   GTAATAAATACCTTGATGGAAATGCTAACAAATCTACCTCAGATGGAAGTCCTGTGATGGCCGTAATGCCTGGTACGACAGACACTATTCAAGTGCTCAA
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

                                                                                                              |Tth111I
ref/sequencing hDcr GGGCAGGATGGATTCTGAGCAGAGCCCTTCTATTGGGTACTCCTCAAGGACTCTTGGCCCCAATCCTGGACTTATTCTTCAGGCTTTGACTCTGTCAAAC
                    G R M D S E Q S P S I G Y S S R T L G P N P G L I L Q A L T L S N

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   --
kol3_P8.ab1   GGGCAGGATGGATTCTGAGCAGAGCCCTTCTATTGGGTACTCCTCAAGGACTCTTGGCCCCAATCCTGGACTTATTCTTCAGGCTTTGACTCTGTCAAAC
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

|DraI |SphI

ref/sequencing hDcr GCTAGTGATGGATTTAACCTGGAGCGGCTTGAAATGCTTGGCGACTCCTTTTTAAAGCATGCCATCACCACATATCTATTTTGCACTTACCCTGATGCGC

A S D G F N L E R L E M L G D S F L K H A I T T Y L F C T Y P D A

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1
kol3_P8.ab1   GCTAGTGATGGATTTAACCTGGAGCGGCTTGAAATGCTTGGCGACTCCTTTTTAAAGCATGCCATCACCACATATCTATTTTGCACTTACCCTGATGCGC
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

|BstXI

ref/sequencing hDcr ATGAGGGCCGCCTTTCATATATGAGAAGCAAAAAGGTCAGCAACTGTAATCTGTATCGCCTTGGAAAAAAGAAGGGACTACCCAGCCGCATGGTGGTGTC

H E G R L S Y M R S K K V S N C N L Y R L G K K K G L P S R M V V S

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1
kol3_P8.ab1   ATGAGGGCCGCCTTTCATATATGAGAAGCAAAAAGGTCAGCAACTGTAATCTGTATCGCCTTGGAAAAAAGAAGGGACTACCCAGCCGCATGGTGGTGTC
kol3_P10.ab1   --
kol3_P12.ab1   --
3_P13.ab1   --

ɪSspI
ref/sequencing hDcr AATATTTGATCCCCCTGTGAATTGGCTTCCTCCTGGTTATGTAGTAAATCAAGACAAAAGCAACACAGATAAATGGGAAAAAGATGAAATGACAAAAGAC
                    I F D P P V N W L P P G Y V V N Q D K S N T D K W E K D E M T K D

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1
kol3_P8.ab1   AATATTTGATCCCCCTGTGAATTGGCTTCCTCCTGGTTATGTAGTAAATCAAGACAAAAGCAACACAGATAAATGGGAAAAAGATGAAATGACAAAAGAC
kol3_P10.ab1 --
kol3_P12.ab1 --
3_P13.ab1   --

ɪSphI
ref/sequencing hDcr TGCATGCTGGCGAATGGCAAACTGGATGAGGATTACGAGGAGGAGGATGAGGAGGAGGAGAGCCTGATGTGGAGGGCTCCGAAGGAAGAGGCTGACTATG
                    C M L A N G K L D E D Y E E E D E E E E S L M W R A P K E E A D Y

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1
kol3_P8.ab1   TGCATGCTGGCGAATGGCAAACTGGATGAGGATTACGAGGAGGAGGATGAGGAGGAGGAGAGCCTGATGTGGAGGGCTCCGAAGGAAGAGGCTGACTATG
kol3_P10.ab1   CTGGATGAGGATTACGAGGAGGAGGATGAGGAGGAGGAGAGCCTGATGTGGAGGGCTCCGAAGGAAGAGGCTGACTATG
kol3_P12.ab1 --
3_P13.ab1   --

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                                    ▌BclI*
ref/sequencing hDcr AAGATGATTTCCTGGAGTATGATCAGGAACATATCAGATTTATAGATAATATGTTAATGGGGTCAGGAGCTTTTGTAAAGAAAATCTCTCTTTCTCCTTT
                     E  D  D  F  L  E  Y  D  Q  E  H  I  R  F  I  D  N  M  L  M  G  S  G  A  F  V  K  K  I  S  L  S  P  F
```

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3_Seq1.ab1          --------------------------------------------------------------------------------------------------------
kol3_1.ab1          --------------------------------------------------------------------------------------------------------
kol3_P3.ab1         --------------------------------------------------------------------------------------------------------
kol3_P4.ab1         --------------------------------------------------------------------------------------------------------
kol3_P6.ab1
kol3_P8.ab1         AAGATGATTTCCTGGAGTATGATCAGGAACATATCAGATTTATAGATAATATGTTAATGGGGTCAGGAGCTTTTGTAAAGAAAATCTCTCTTTCTCCTTT
kol3_P10.ab1        AAGATGATTTCCTGGAGTATGATCAGGAACATATCAGATTTATAGATAATATGTTAATGGGGTCAGGAGCTTTTGTAAAGAAAATCTCTCTTTCTCCTTT
kol3_P12.ab1        --------------------------------------------------------------------------------------------------------
3_P13.ab1           --------------------------------------------------------------------------------------------------------
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                                    ▌NdeI
ref/sequencing hDcr TTCAACCACTGATTCTGCATATGAATGGAAAATGCCCAAAAAATCCTCCTTAGGTAGTATGCCATTTTCATCAGATTTTGAGGATTTTGACTACAGCTCT
                     S  T  T  D  S  A  Y  E  W  K  M  P  K  K  S  S  L  G  S  M  P  F  S  S  D  F  E  D  F  D  Y  S  S
```

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3_Seq1.ab1          --------------------------------------------------------------------------------------------------------
kol3_1.ab1          --------------------------------------------------------------------------------------------------------
kol3_P3.ab1         --------------------------------------------------------------------------------------------------------
kol3_P4.ab1         --------------------------------------------------------------------------------------------------------
kol3_P6.ab1
kol3_P8.ab1         TTCAACCACTGATTCTGCATATGAATGGAAAATGCCCAAAAAATCCTCCTTAGGTAGTATGCCATTTTCATCAGATTTTGAGGATTTTGACTACAGCTCT
kol3_P10.ab1        TTCAACCACTGATTCTGCATATGAATGGAAAATGCCCAAAAAATCCTCCTTAGGTAGTATGCCATTTTCATCAGATTTTGAGGATTTTGACTACAGCTCT
kol3_P12.ab1        --------------------------------------------------------------------------------------------------------
3_P13.ab1           --------------------------------------------------------------------------------------------------------
```

|BamHI

ref/sequencing hDcr TGGGATGCAATGTGCTATCTGGATCCTAGCAAAGCTGTTGAAGAAGATGACTTTGTGGTGGGGTTCTGGAATCCATCAGAAGAAAACTGTGGTGTTGACA

W D A M C Y L D P S K A V E E D D F V V G F W N P S E E N C G V D

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1
kol3_P8.ab1   TGGGATGCAATGTGCTATCTGGATCCTAGCAAAGCTGTTGAAGAAGATGACTTTGTGGTGGGGTTCTGGAATCCATCAGAAGAAAACT-------------
kol3_P10.ab1   TGGGATGCAATGTGCTATCTGGATCCTAGCAAAGCTGTTGAAGAAGATGACTTTGTGGTGGGGTTCTGGAATCCATCAGAAGAAAACTGTGGTGTTGACA
kol3_P12.ab1   --
3_P13.ab1   --

ref/sequencing hDcr CGGGAAAGCAGTCCATTTCTTACGACTTGCACACTGAGCAGTGTATTGCTGACAAAAGCATAGCGGACTGTGTGGAAGCCCTGCTGGGCTGCTATTTAAC

T G K Q S I S Y D L H T E Q C I A D K S I A D C V E A L L G C Y L T

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   --
kol3_P8.ab1
kol3_P10.ab1   CGGGAAAGCAGTCCATTTCTTACGACTTGCACACTGAGCAGTGTATTGCTGACAAAAGCATAGCGGACTGTGTGGAAGCCCTGCTGGGCTGCTATTTAAC
kol3_P12.ab1   --
3_P13.ab1   --

PvuII

ref/sequencing hDcr CAGCTGTGGGGAGAGGGCTGCTCAGCTTTTCCTCTGTTCACTGGGGCTGAAGGTGCTCCCGGTAATTAAAAGGACTGATCGGGAAAAGGCCCTGTGCCCT

S C G E R A A Q L F L C S L G L K V L P V I K R T D R E K A L C P

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   --
kol3_P8.ab1   --
kol3_P10.ab1   CAGCTGTGGGGAGAGGGCTGCTCAGCTTTTCCTCTGTTCACTGGGGCTGAAGGTGCTCCCGGTAATTAAAAGGACTGATCGGGAAAAGGCCCTGTGCCCT
kol3_P12.ab1   --
3_P13.ab1   --

BalI

ref/sequencing hDcr ACTCGGGAGAATTTCAACAGCCAACAAAAGAACCTTTCAGTGAGCTGTGCTGCTGCTTCTGTGGCCAGTTCACGCTCTTCTGTATTGAAAGACTCGGAAT

T R E N F N S Q Q K N L S V S C A A A S V A S S R S S V L K D S E

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   --
kol3_P8.ab1   --
kol3_P10.ab1   ACTCGGGAGAATTTCAACAGCCAACAAAAGAACCTTTCAGTGAGCTGTGCTGCTGCTTCTGTGGCCAGTTCACGCTCTTCTGTATTGAAAGACTCGGAAT
kol3_P12.ab1   --
3_P13.ab1   --

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                                                              ▮BclI*
ref/sequencing hDcr ATGGTTGTTTGAAGATTCCACCAAGATGTATGTTTGATCATCCAGATGCAGATAAAACACTGAATCACCTTATATCGGGGTTTGAAAATTTTGAAAAGAA
                     Y  G  C  L  K  I  P  P  R  C  M  F  D  H  P  D  A  D  K  T  L  N  H  L  I  S  G  F  E  N  F  E  K  K


3_Seq1.ab1          ------------------------------------------------------------------------------------------------------
kol3_1.ab1          ------------------------------------------------------------------------------------------------------
kol3_P3.ab1         ------------------------------------------------------------------------------------------------------
kol3_P4.ab1         ------------------------------------------------------------------------------------------------------
kol3_P6.ab1         ------------------------------------------------------------------------------------------------------
kol3_P8.ab1         ------------------------------------------------------------------------------------------------------
kol3_P10.ab1        ATGGTTGTTTGAAGATTCCACCAAGATGTATGTTTGATCATCCAGATGCAGATAAAACACTGAATCACCTTATATCGGGGTTTGAAAATTTTGAAAAGAA
kol3_P12.ab1        ------------------------------------------------------------------------------------------------------
3_P13.ab1           ------------------------------------------------------------------------------------------------------
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                                                                                         ▮Eco47III▮ Ec
ref/sequencing hDcr AATCAACTACAGATTCAAGAATAAGGCTTACCTTCTCCAGGCTTTTACACATGCCTCCTACCACTACAATACTATCACTGATTGTTACCAGCGCTTAGAA
                     I  N  Y  R  F  K  N  K  A  Y  L  L  Q  A  F  T  H  A  S  Y  H  Y  N  T  I  T  D  C  Y  Q  R  L  E


3_Seq1.ab1          ------------------------------------------------------------------------------------------------------
kol3_1.ab1          ------------------------------------------------------------------------------------------------------
kol3_P3.ab1         ------------------------------------------------------------------------------------------------------
kol3_P4.ab1         ------------------------------------------------------------------------------------------------------
kol3_P6.ab1         ------------------------------------------------------------------------------------------------------
kol3_P8.ab1         ------------------------------------------------------------------------------------------------------
kol3_P10.ab1        AATCAACTACAGATTCAAGAATAAGGCTTACCTTCTCCAGGCTTTTACACATGCCTCCTACCACTACAATACTATCACTGATTGTTACCAGCGCTTAGAA
kol3_P12.ab1        ------------------------------------------------------------------------------------------------------
3_P13.ab1           ------------------------------------------------------------------------------------------------------
```

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                      oRI                                                    |SacII            |SmaI
                                                                                             |XmaI
ref/sequencing hDcr  TTCCTGGGAGATGCGATTTTGGACTACCTCATAACCAAGCACCTTTATGAAGACCCGCGGCAGCACTCCCCGGGGGTCCTGACAGACCTGCGGTCTGCCC
                      F  L  G  D  A  I  L  D  Y  L  I  T  K  H  L  Y  E  D  P  R  Q  H  S  P  G  V  L  T  D  L  R  S  A
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3_Seq1.ab1      ------------------------------------------------------------------------------------------------
kol3_1.ab1      ------------------------------------------------------------------------------------------------
kol3_P3.ab1     ------------------------------------------------------------------------------------------------
kol3_P4.ab1     ------------------------------------------------------------------------------------------------
kol3_P6.ab1     ------------------------------------------------------------------------------------------------
kol3_P8.ab1     ------------------------------------------------------------------------------------------------
kol3_P10.ab1    TTCCTGGGAGATGCGATTTTGGACTACCTCATAACCAAGCACCTTTATGAAGACCCGCGGCAGCACTCCCCGGGGGTCCTGACAGACCTGCGGTCTGCCC
kol3_P12.ab1    -------------------------------------------------------GCGGCAGCACTCCCCGGGGGTCCTGACAGACCTGCGGTCTGCCC
3_P13.ab1       ------------------------------------------------------------------------------------------------
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                                                           |ScaI             |EcoICRI
                                                                      |Bpu10I |SacI
ref/sequencing hDcr  TGGTCAACAACACCATCTTTGCATCGCTGGCTGTAAAGTACGACTACCACAAGTACTTCAAAGCGTGTCTCTCCTGAGCTCTTCCATGTCATTGATGACTT
                      L  V  N  N  T  I  F  A  S  L  A  V  K  Y  D  Y  H  K  Y  F  K  A  V  S  P  E  L  F  H  V  I  D  D  F
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3_Seq1.ab1      -----------------------------------------------------------------------------------------------------
kol3_1.ab1      -----------------------------------------------------------------------------------------------------
kol3_P3.ab1     -----------------------------------------------------------------------------------------------------
kol3_P4.ab1     -----------------------------------------------------------------------------------------------------
kol3_P6.ab1     -----------------------------------------------------------------------------------------------------
kol3_P8.ab1     -----------------------------------------------------------------------------------------------------
kol3_P10.ab1    TGGTCAACAACACCATCTTTGCATCGCTGGCTGTAAAGTACGACTACCACAAGTACTTCAAAGCGTGTCTCTCCTGAGCTCTTCCATGTCATTGATGACTT
kol3_P12.ab1    TGGTCAACAACACCATCTTTGCATCGCTGGCTGTAAAGTACGACTACCACAAGTACTTCAAAGCGTGTCTCTCCTGAGCTCTTCCATGTCATTGATGACTT
3_P13.ab1       -----------------------------------------------------------------------------------------------------
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Bpu10I   BglII

ref/sequencing hDcr TGTGCAGTTTCAGCTTGAGAAGAATGAAATGCAAGGAATGGATTCTGAGCTTAGGAGATCTGAGGAGGATGAAGAGAAAGAAGAGGATATTGAAGTTCCA
V Q F Q L E K N E M Q G M D S E L R R S E E D E E K E E D I E V P

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   --
kol3_P8.ab1   --
kol3_P10.ab1   TGTGCAGTTTCAGCTTGAGAAGAATGAAATGCAAGGAATGGATTCTGAGCTTAGGAGATCTGAGGAGGATGAAGAGAAAGAAGAGGATATTGAAGTTCCA
kol3_P12.ab1   TGTGCAGTTTCAGCTTGAGAAGAATGAAATGCAAGGAATGGATTCTGAGCTTAGGAGATCTGAGGAGGATGAAGAGAAAGAAGAGGATATTGAAGTTCCA
3_P13.ab1   --

NcoI   BstXI

ref/sequencing hDcr AAGGCCATGGGGGATATTTTTGAGTCGCTTGCTGGTGCCATTTACATGGATAGTGGGATGTCACTGGAGACAGTCTGGCAGGTGTACTATCCCATGATGC
K A M G D I F E S L A G A I Y M D S G M S L E T V W Q V Y Y P M M

3_Seq1.ab1   --
kol3_1.ab1   --
kol3_P3.ab1   --
kol3_P4.ab1   --
kol3_P6.ab1   --
kol3_P8.ab1   --
kol3_P10.ab1   AAGGCCATGGGGGATATTTTTGAGTCGCTTGCTGGTGCCATTTACATGGATAGTGGGATGTCACTGGA------------------------------------
kol3_P12.ab1   AAGGCCATGGGGGATATTTTTGAGTCGCTTGCTGGTGCCATTTACATGGATAGTGGGATGTCACTGGAGACAGTCTGGCAGGTGTACTATCCCATGATGC
3_P13.ab1   --

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ref/sequencing hDcr  GGCCACTAATAGAAAAGTTTTCTGCAAATGTACCCCGTTCCCCTGTGCGAGAATTGCTTGAAATGGAACCAGAAACTGCCAAATTTAGCCCGGCTGAGAG
                      R  P  L  I  E  K  F  S  A  N  V  P  R  S  P  V  R  E  L  L  E  M  E  P  E  T  A  K  F  S  P  A  E  R


3_Seq1.ab1           --------------------------------------------------------------------------------------------------------
kol3_1.ab1           --------------------------------------------------------------------------------------------------------
kol3_P3.ab1          --------------------------------------------------------------------------------------------------------
kol3_P4.ab1          --------------------------------------------------------------------------------------------------------
kol3_P6.ab1          --------------------------------------------------------------------------------------------------------
kol3_P8.ab1          --------------------------------------------------------------------------------------------------------
kol3_P10.ab1
kol3_P12.ab1         GGCCACTAATAGAAAAGTTTTCTGCAAATGTACCCCGTTCCCCTGTGCGAGAATTGCTTGAAATGGAACCAGAAACTGCCAAATTTAGCCCGGCTGAGAG
3_P13.ab1            ----------------------TGTACCCCGTTCCCCTGTGCGAGAATTGCTTGAAATGGAACCAGAAACTGCCAAATTTAGCCCGGCTGAGAG
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                                                                                  ⎸DraI                              ⎸PstI
ref/sequencing hDcr  AACTTACGACGGGAAGGTCAGAGTCACTGTGGAAGTAGTAGGAAAGGGGAAATTTAAAGGTGTTGGTCGAAGTTACAGGATTGCCAAATCTGCAGCAGCA
                      T  Y  D  G  K  V  R  V  T  V  E  V  V  G  K  G  K  F  K  G  V  G  R  S  Y  R  I  A  K  S  A  A  A


3_Seq1.ab1           --------------------------------------------------------------------------------------------------------
kol3_1.ab1           --------------------------------------------------------------------------------------------------------
kol3_P3.ab1          --------------------------------------------------------------------------------------------------------
kol3_P4.ab1          --------------------------------------------------------------------------------------------------------
kol3_P6.ab1          --------------------------------------------------------------------------------------------------------
kol3_P8.ab1          --------------------------------------------------------------------------------------------------------
kol3_P10.ab1
kol3_P12.ab1         AACTTACGACGGGAAGGTCAGAGTCACTGTGGAAGTAGTAGGAAAGGGGAAATTTAAAGGTGTTGGTCGAAGTTACAGGATTGCCAAATCTGCAGCAGCA
3_P13.ab1            AACTTACGACGGGAAGGTCAGAGTCACTGTGGAAGTAGTAGGAAAGGGGAAATTTAAAGGTGTTGGTCGAAGTTACAGGATTGCCAAATCTGCAGCAGCA
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ref/sequencing hDcr AGAAGAGCCCTCCGAAGCCTCAAAGCTAATCAACCTCAGGTTCCCAATAGCGGTGGCGGAGGTTCTGGAGGCGGTGGAAGTGACTACAAGGACGACGATG

R R A L R S L K A N Q P Q V P N S G G G G S G G G G S D Y K D D D

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3_Seq1.ab1       ----------------------------------------------------------------------------------------------------
kol3_1.ab1       ----------------------------------------------------------------------------------------------------
kol3_P3.ab1      ----------------------------------------------------------------------------------------------------
kol3_P4.ab1      ----------------------------------------------------------------------------------------------------
kol3_P6.ab1      ----------------------------------------------------------------------------------------------------
kol3_P8.ab1      ----------------------------------------------------------------------------------------------------
kol3_P10.ab1
kol3_P12.ab1     AGAAGAGCCCTCCGAAGCCTCAAAGCTAATCAACCTCAGGTTCCCAATAGCGGTGGCGGAGGTTCTGGAGGCGGTGGAAGTGACTACAAGGACGACGATG
3_P13.ab1        AGAAGAGCCCTCCGAAGCCTCAAAGCTAATCAACCTCAGGTTCCCAATAGCGGTGGCGGAGGTTCTGGAGGCGGTGGAAGTGACTACAAGGACGACGATG
```

XhoI

ref/sequencing hDcr ACAAGGATTACAAAGACGATGATGACAAGGACTATAAGGACGATGACGATAAGTAACATTTGGTTTAGTGTACAATATCTCCTCGAGCATTTGGTTTAGT

D K D Y K D D D D K D Y K D D D D K * H L V * C T I S P R A F G L V

Stop

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3_Seq1.ab1       ----------------------------------------------------------------------------------------------------
kol3_1.ab1       ----------------------------------------------------------------------------------------------------
kol3_P3.ab1      ----------------------------------------------------------------------------------------------------
kol3_P4.ab1      ----------------------------------------------------------------------------------------------------
kol3_P6.ab1      ----------------------------------------------------------------------------------------------------
kol3_P8.ab1      ----------------------------------------------------------------------------------------------------
kol3_P10.ab1
kol3_P12.ab1     ACAAGGATTACAAAGACGATGATGACAAGGACTATAAGGACGATGACGATAAGTAACATTTGGTTTAGTGTACAATATCTCCTCGA-------------
3_P13.ab1        ACAAGGATTACAAAGACGATGATGACAAGGACTATAAGGACGATGACGATAAGTAACATTTGGTTTAGTGTACAATATCTCCTCGAG------------
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XhoI

ref/sequencing hDcr GTACAATATCTCCTCGAGGGCTCGTGGCCTCGACTGTGCCTTCTAGTTGCCAGCCATCTGTTGTTTGC

Y N I S S R A R G L D C A F * L P A I C C L

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3_Seq1.ab1      --------------------------------------------------------------------
kol3_1.ab1      --------------------------------------------------------------------
kol3_P3.ab1     --------------------------------------------------------------------
kol3_P4.ab1     --------------------------------------------------------------------
kol3_P6.ab1     --------------------------------------------------------------------
kol3_P8.ab1     --------------------------------------------------------------------
kol3_P10.ab1    --------------------------------------------------------------------
kol3_P12.ab1    --------------------------------------------------------------------
3_P13.ab1       --------------------------------------------------------------------
```

ref/sequencing hDcr

3_Seq1.ab1
kol3_1.ab1
kol3_P3.ab1
kol3_P4.ab1
kol3_P6.ab1
kol3_P8.ab1
kol3_P10.ab1
kol3_P12.ab1
3_P13.ab1

	AatII
	ZraI

ref/seq delPAZ_hDcr CCAAGTCTCCACCCCATTGACGTCAATGGGAGTTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTCCGCCCCATTGACGCAAA

P S L H P I D V N G S L F W H Q N Q R D F P K C R N N S A P L T Q

PAZ4_SeqP2.abi   CCAAGTCTCCACCCCATTGACGTCAATGGGAGTTTGTTTTGGCACCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTCCGCCCCATTGACGCAAA
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

	BglII

ref/seq delPAZ_hDcr TGGGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTGGTTTAGTGAACCGTCAGATCAGATCTTTGTCGATCCTACCATCCACTCGACACAC

M G G R R V R W E V Y I S R A G L V N R Q I R S L S I L P S T R H T

Start

PAZ4_SeqP2.abi   TGGGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTGGTTTAGTGAACCGTCAGATCAGATCTTTGTCGATCCTACCATCCACTCGACACAC
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

|NotI |HindIII |SacI |KpnI
                                         |EcoICRI|EcoRI |Acc65I |DraI

ref/seq delPAZ_hDcr CCGCCAGCGGCCGCTGCCAAGCTTCCGAGCTCTCGAATTCAAAGGAGGTACCCACCCTTGTTTAAACTTTAAGAGGAGGGCCACCATGAAAAGCCCTGCT

R Q R P L P S F R A L E F K G G T H P C L N F K R R A T M K S P A

PAZ4_SeqP2.abi   CCGCCAGCGGCCGCTGCCAAGCTTCCGAGCTCTCGAATTCAAAGGAGGTACCCACCCTTGTTTAAACTTTAAGAGGAGGGCCACCATGAAAAGCCCTGCT
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

|Bpu10I |StuI |PstI |NcoI

ref/seq delPAZ_hDcr TTGCAACCCCTCAGCATGGCAGGCCTGCAGCTCATGACCCCTGCTTCCTCACCAATGGGTCCTTTCTTTGGACTGCCATGGCAACAAGAAGCAATTCATG

L Q P L S M A G L Q L M T P A S S P M G P F F G L P W Q Q E A I H

PAZ4_SeqP2.abi   TTGCAACCCCTCAGCATGGCAGGCCTGCAGCTCATGACCCCTGCTTCCTCACCAATGGGTCCTTTCTTTGGACTGCCATGGCAACAAGAAGCAATTCATG
PAZ4_1.abi   -------------------------------------TGACCCCTGCTTCCTCACCAATGGGTCCTTTCTTTGGACTGCCATGGCAACAAGAAGCAATTCATG
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

|DraI |Bpu10I

ref/seq delPAZ_hDct ATAACATTTATACGCCAAGAAAATATCAGGTTGAACTGCTTGAAGCAGCTCTGGATCATAATACCATCGTCTGTTTAAACACTGGCTCAGGGAAGACATT

D N I Y T P R K Y Q V E L L E A A L D H N T I V C L N T G S G K T F

PAZ4_SeqP2.abi   ATAACATTTATACGCCAAGAAAATATCAGGTTGAACTGCTTGAAGCAGCTCTGGATCATAATACCATCGTCTGTTTAAACACTGGCTCAGGGAAGACATT
PAZ4_1.abi   ATAACATTTATACGCCAAGAAAATATCAGGTTGAACTGCTTGAAGCAGCTCTGGATCATAATACCATCGTCTGTTTAAACACTGGCTCAGGGAAGACATT
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

|ScaI

ref/seq delPAZ_hDct TATTGCAGTACTACTCACTAAAGAGCTGTCCTATCAGATCAGGGGAGACTTCAGCAGAAATGGAAAAAGGACGGTGTTCTTGGTCAACTCTGCAAACCAG

I A V L L T K E L S Y Q I R G D F S R N G K R T V F L V N S A N Q

PAZ4_SeqP2.abi   TATTGCAGTACTACTCACTAAAGAGCTGTCCTATCAGATCAGGGGAGACTTCAGCAGAAATGGAAAAAGGACGGTGTTCTTGGTCAACTCTGCAAACCAG
PAZ4_1.abi   TATTGCAGTACTACTCACTAAAGAGCTGTCCTATCAGATCAGGGGAGACTTCAGCAGAAATGGAAAAAGGACGGTGTTCTTGGTCAACTCTGCAAACCAG
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

PvuII   BglII   NsiI

ref/seq delPAZ_hDct GTTGCTCAACAAGTGTCAGCTGTCAGAACTCATTCAGATCTCAAGGTTGGGGAATACTCAAACCTAGAAGTAAATGCATCTTGGACAAAAGAGAGATGGA

V A Q Q V S A V R T H S D L K V G E Y S N L E V N A S W T K E R W

PAZ4_SeqP2.abi   GTTGCTCAACAAGTGTCAGCTGTCAGAACTCATTCAGATCTCAAGGTTGGG--
PAZ4_1.abi   GTTGCTCAACAAGTGTCAGCTGTCAGAACTCATTCAGATCTCAAGGTTGGGGAATACTCAAACCTAGAAGTAAATGCATCTTGGACAAAAGAGAGATGGA
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

ref/seq delPAZ_hDct ACCAAGAGTTTACTAAGCACCAGGTTCTCATTATGACTTGCTATGTCGCCTTGAATGTTTTGAAAAATGGTTACTTATCACTGTCAGACATTAACCTTTT

N Q E F T K H Q V L I M T C Y V A L N V L K N G Y L S L S D I N L L

PAZ4_SeqP2.abi   --
PAZ4_1.abi   ACCAAGAGTTTACTAAGCACCAGGTTCTCATTATGACTTGCTATGTCGCCTTGAATGTTTTGAAAAATGGTTACTTATCACTGTCAGACATTAACCTTTT
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

ref/seq delPAZ_hDcr GGTGTTTGATGAGTGTCATCTTGCAATCCTAGACCACCCCTATCGAGAAATTATGAAGCTCTGTGAAAATTGTCCATCATGTCCTCGCATTTTGGGACTA
V F D E C H L A I L D H P Y R E I M K L C E N C P S C P R I L G L

PAZ4_SeqP2.abi   --
PAZ4_1.abi   GGTGTTTGATGAGTGTCATCTTGCAATCCTAGACCACCCCTATCGAGAAATTATGAAGCTCTGTGAAAATTGTCCATCATGTCCTCGCATTTTGGGACTA
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

|DraI |AflII
ref/seq delPAZ_hDcr ACTGCTTCCATTTTAAATGGGAAATGTGATCCAGAGGAATTGGAAGAAAAGATTCAGAAACTAGAGAAAATTCTTAAGAGTAATGCTGAAACTGCAACTG
T A S I L N G K C D P E E L E E K I Q K L E K I L K S N A E T A T

PAZ4_SeqP2.abi   --
PAZ4_1.abi   ACTGCTTCCATTTTAAATGGGAAATGTGATCCAGAGGAATTGGAAGAAAAGATTCAGAAACTAGAGAAAATTCTTAAGAGTAATGCTGAAACTGCAACTG
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

ref/seq delPAZ_hDct ACCTGGTGGTCTTAGACAGGTATACTTCTCAGCCATGTGAGATTGTGGTGGATTGTGGACCATTTACTGACAGAAGTGGGCTTTATGAAAGACTGCTGAT

D L V V L D R Y T S Q P C E I V V D C G P F T D R S G L Y E R L L M

PAZ4_SeqP2.abi   --
PAZ4_1.abi   ACCTGGTGGTCTTAGACAGGTATACTTCTCAGCCATGTGAGATTGTGGTGGATTGTGGACCATTTACTGACAGAAGTGGGCTTTATGAAAGACTGCTGAT
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

ref/seq delPAZ_hDct GGAATTAGAAGAAGCACTTAATTTTATCAATGATTGTAATATATCTGTACATTCAAAAGAAAGAGATTCTACTTTAATTTCGAAACAGATACTATCAGAC

E L E E A L N F I N D C N I S V H S K E R D S T L I S K Q I L S D

PAZ4_SeqP2.abi   --
PAZ4_1.abi   GGAATTAGAAGAAGCACTTAATTTTATCAATGATTGTAATATATCTGTACATTCAAAAGAAAGAGATTCTACTTTAATTTCGAAACAGATACTATCAGAC
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

ref/seq delPAZ_hDct TGTCGTGCCGTATTGGTAGTTCTGGGACCCTGGTGTGCAGATAAAGTAGCTGGAATGATGGTAAGAGAACTACAGAAATACATCAAACATGAGCAAGAGG

C R A V L V V L G P W C A D K V A G M M V R E L Q K Y I K H E Q E

PAZ4_SeqP2.abi   ---
PAZ4_1.abi   TGTCGTGCCGTATTGGTAGTTCTGGGACCCTGGTGTGCAGATAAAGTAGCTGGAATGATGGTAAGAGAACTACAGAAATACATCAAACATGAGCAAGAGG
PAZ4_P3.abi   ---------------------------------------GTAGCTGGAATGATGGTAAGAGAACTACAGAAATACATCAAACATGAGCAAGAGG
PAZ4_P4.abi   ---
PAZ4_P6.abi   ---
PAZ4_P8.abi   ---
PAZ4_P10.abi   ---
PAZ4_P12.abi   ---

|DraIII

ref/seq delPAZ_hDct AGCTGCACAGGAAATTTTTATTGTTTACAGACACTTTCCTAAGGAAAATACATGCACTATGTGAAGAGCACTTCTCACCTGCCTCACTTGACCTGAAATT

E L H R K F L L F T D T F L R K I H A L C E E H F S P A S L D L K F

PAZ4_SeqP2.abi   ---
PAZ4_1.abi   AGCTGCACAGGAAATTTTTATTGTTTACAGACACTTTCCTAAGGAAAATACATGCACTATGTGAAGAGCACTTCTCACCTGCCTCACTTGACCTGAAATT
PAZ4_P3.abi   AGCTGCACAGGAAATTTTTATTGTTTACAGACACTTTCCTAAGGAAAATACATGCACTATGTGAAGAGCACTTCTCACCTGCCTCACTTGACCTGAAATT
PAZ4_P4.abi   ---
PAZ4_P6.abi   ---
PAZ4_P8.abi   ---
PAZ4_P10.abi   ---
PAZ4_P12.abi   ---

| NdeI

ref/seq delPAZ_hDct TGTAACTCCTAAAGTAATCAAACTGCTCGAAATCTTACGCAAATATAAACCATATGAGCGACAGCAGTTTGAAAGCGTTGAGTGGTATAATAATAGAAAT

V T P K V I K L L E I L R K Y K P Y E R Q Q F E S V E W Y N N R N

PAZ4_SeqP2.abi   --
PAZ4_1.abi   TGTAACTCCTAAAGTAATCAAACTGCTCGAAATCTTACGCAAATATAAACCATATGAGCGACAGCAGTTTGAAAGCGTTGAGTGGTATAATAATAGAAAT
PAZ4_P3.abi   TGTAACTCCTAAAGTAATCAAACTGCTCGAAATCTTACGCAAATATAAACCATATGAGCGACAGCAGTTTGAAAGCGTTGAGTGGTATAATAATAGAAAT
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

ref/seq delPAZ_hDct CAGGATAATTATGTGTCATGGAGTGATTCTGAGGATGATGATGAGGATGAAGAAATTGAAGAAAAAGAGAAGCCAGAGACAAATTTTCCTTCTCCTTTTA

Q D N Y V S W S D S E D D D E D E E I E E K E K P E T N F P S P F

PAZ4_SeqP2.abi   --
PAZ4_1.abi   CAGGATAATTATGTGTCATGGAGTGATTCTGAGGATGATGATGAGGATGAAGAA--
PAZ4_P3.abi   CAGGATAATTATGTGTCATGGAGTGATTCTGAGGATGATGATGAGGATGAAGAAATTGAAGAAAAAGAGAAGCCAGAGACAAATTTTCCTTCTCCTTTTA
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

ref/seq delPAZ_hDct CCAACATTTTGTGCGGAATTATTTTTGTGGAAAGAAGATACACAGCAGTTGTCTTAAACAGATTGATAAAGGAAGCTGGCAAACAAGATCCAGAGCTGGC

T N I L C G I I F V E R R Y T A V V L N R L I K E A G K Q D P E L A

PAZ4_SeqP2.abi   --
PAZ4_1.abi
PAZ4_P3.abi   CCAACATTTTGTGCGGAATTATTTTTGTGGAAAGAAGATACACAGCAGTTGTCTTAAACAGATTGATAAAGGAAGCTGGCAAACAAGATCCAGAGCTGGC
PAZ4_P4.abi   CAAGATCCAGAGCTGGC
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

| EcoRI
ref/seq delPAZ_hDct TTATATCAGTAGCAATTTCATAACTGGACATGGCATTGGGAAGAATCAGCCTCGCAACAAACAGATGGAAGCAGAATTCAGAAAACAGGAAGAGGTACTT

Y I S S N F I T G H G I G K N Q P R N K Q M E A E F R K Q E E V L

PAZ4_SeqP2.abi   --
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PAZ4_P3.abi   TTATATCAGTAGCAATTTCATAACTGGACATGGCATTGGGAAGAATCAGCCTCGCAACAAACAGATGGAAGCAGAATTCAGAAAACAGGAAGAGGTACTT
PAZ4_P4.abi   TTATATCAGTAGCAATTTCATAACTGGACATGGCATTGGGAAGAATCAGCCTCGCAACAAACAGATGGAAGCAGAATTCAGAAAACAGGAAGAGGTACTT
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

ref/seq delPAZ_hDct AGGAAATTTCGAGCACATGAGACCAACCTGCTTATTGCAACAAGTATTGTAGAAGAGGGTGTTGATATACCAAAATGCAACTTGGTGGTTCGTTTTGATT
                    R K F R A H E T N L L I A T S I V E E G V D I P K C N L V V R F D

PAZ4_SeqP2.abi   --
PAZ4_1.abi
PAZ4_P3.abi   AGGAAATTTCGAGCACATGAGACCAACCTGCTTATTGCAACAAGTATTGTAGAAGAGGGTGTTGATATACCAAAATGCAACTTGGTGGTTCGTTTTGATT
PAZ4_P4.abi   AGGAAATTTCGAGCACATGAGACCAACCTGCTTATTGCAACAAGTATTGTAGAAGAGGGTGTTGATATACCAAAATGCAACTTGGTGGTTCGTTTTGATT
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

|ClaI*

ref/seq delPAZ_hDct TGCCCACAGAATATCGATCCTATGTTCAATCTAAAGGAAGAGCAAGGGCACCCATCTCTAATTATATAATGTTAGCGGATACAGACAAAATAAAAAGTTT
                    L P T E Y R S Y V Q S K G R A R A P I S N Y I M L A D T D K I K S F

PAZ4_SeqP2.abi   --
PAZ4_1.abi
PAZ4_P3.abi   TGCCCACAGAATATCGATCCTATGTTCAATCTAAAGGAAGAGCAAGGGCACCCATCTCTAATTATATAATGTTAGCGGATACAGACAAAATAAAAAGTTT
PAZ4_P4.abi   TGCCCACAGAATATCGATCCTATGTTCAATCTAAAGGAAGAGCAAGGGCACCCATCTCTAATTATATAATGTTAGCGGATACAGACAAAATAAAAAGTTT
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

| BglII
ref/seq delPAZ_hDct TGAAGAAGACCTTAAAACCTACAAAGCTATTGAAAAGATCTTGAGAAACAAGTGTTCCAAGTCGGTTGATACTGGTGAGACTGACATTGATCCTGTCATG

E E D L K T Y K A I E K I L R N K C S K S V D T G E T D I D P V M

PAZ4_SeqP2.abi   ---
PAZ4_1.abi   ---
PAZ4_P3.abi   TGAAGAAGACCTTAAAACCTACAAAGCTATTGAAAAGATCTTGAGAAACAAGTGTTCCAAGTCGGTTGATACTGGTGAGACTGACATTGATCCTGTCATG
PAZ4_P4.abi   TGAAGAAGACCTTAAAACCTACAAAGCTATTGAAAAGATCTTGAGAAACAAGTGTTCCAAGTCGGTTGATACTGGTGAGACTGACATTGATCCTGTCATG
PAZ4_P6.abi   ---
PAZ4_P8.abi   ---
PAZ4_P10.abi   ---
PAZ4_P12.abi   ---

| NdeI | StuI
ref/seq delPAZ_hDct GATGATGATGACGTTTTCCCACCATATGTGTTGAGGCCTGACGATGGTGGTCCACGAGTCACAATCAACACGGCCATTGGACACATCAATAGATACTGTG

D D D D V F P P Y V L R P D D G G P R V T I N T A I G H I N R Y C

PAZ4_SeqP2.abi   ---
PAZ4_1.abi   ---
PAZ4_P3.abi   GATGATGATGACGTTTTCCCACCATATGTGTTGAGGCCTGACGATGGTGGTCCACGAGTCACAATCAACACGGCCATTGGACACATCAATAGATACTGTG
PAZ4_P4.abi   GATGATGATGACGTTTTCCCACCATATGTGTTGAGGCCTGACGATGGTGGTCCACGAGTCACAATCAACACGGCCATTGGACACATCAATAGATACTGTG
PAZ4_P6.abi   ---
PAZ4_P8.abi   ---
PAZ4_P10.abi   ---
PAZ4_P12.abi   ---

ref/seq delPAZ_hDct CTAGATTACCAAGTGATCCGTTTACTCATCTAGCTCCTAAATGCAGAACCCGAGAGTTGCCTGATGGTACATTTTATTCAACTCTTTATCTGCCAATTAA

A R L P S D P F T H L A P K C R T R E L P D G T F Y S T L Y L P I N

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PAZ4_SeqP2.abi   ----------------------------------------------------------------------------------------------------
PAZ4_1.abi       ----------------------------------------------------------------------------------------------------
PAZ4_P3.abi      CTAGATTACCAAGTGATCCGTTTACTCATCTAGCTCCTAAATGCAGAACCCGAGAGTTGCCTGATGGTACATTTTATTCAACTCTT--------------
PAZ4_P4.abi      CTAGATTACCAAGTGATCCGTTTACTCATCTAGCTCCTAAATGCAGAACCCGAGAGTTGCCTGATGGTACATTTTATTCAACTCTTTATCTGCCAATTAA
PAZ4_P6.abi      ----------------------------------------------------------------------------------------------------
PAZ4_P8.abi      ----------------------------------------------------------------------------------------------------
PAZ4_P10.abi     ----------------------------------------------------------------------------------------------------
PAZ4_P12.abi     ----------------------------------------------------------------------------------------------------
```

ref/seq delPAZ_hDct CTCACCTCTTCGAGCCTCCATTGTTGGTCCACCAATGAGCTGTGTACGATTGGCTGAAAGAGTTGTAGCTCTCATTTGCTGTGAGAAACTGCACAAAATT

S P L R A S I V G P P M S C V R L A E R V V A L I C C E K L H K I

```
PAZ4_SeqP2.abi   ----------------------------------------------------------------------------------------------------
PAZ4_1.abi       ----------------------------------------------------------------------------------------------------
PAZ4_P3.abi      ----------------------------------------------------------------------------------------------------
PAZ4_P4.abi      CTCACCTCTTCGAGCCTCCATTGTTGGTCCACCAATGAGCTGTGTACGATTGGCTGAAAGAGTTGTAGCTCTCATTTGCTGTGAGAAACTGCACAAAATT
PAZ4_P6.abi      ----------------------------------------------------------------------------------------------------
PAZ4_P8.abi      ----------------------------------------------------------------------------------------------------
PAZ4_P10.abi     ----------------------------------------------------------------------------------------------------
PAZ4_P12.abi     ----------------------------------------------------------------------------------------------------
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ref/seq delPAZ_hDct GGCGAACTGGATGACCATTTGATGCCAGTTGGGAAAGAGACTGTTAAATATGAAGAGGAGCTTGATTTGCATGATGAAGAAGAGACCAGTGTTCCAGGAA

G E L D D H L M P V G K E T V K Y E E E L D L H D E E E T S V P G

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi
PAZ4_P4.abi   GGCGAACTGGATGACCATTTGATGCCAGTTGGGAAAGAGACTGTTAAATATGAAGAGGAGCTTGATTTGCATGATGAAGAAGAGACCAGTGTTCCAGGAA
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

|BclI*

ref/seq delPAZ_hDct GACCAGGTTCCACGAAACGAAGGCAGTGCTACCCAAAAGCAATTCCAGAGTGTTTGAGGGATAGTTATCCCAGACCTGATCAGCCCTGTTACCTGTATGT

R P G S T K R R Q C Y P K A I P E C L R D S Y P R P D Q P C Y L Y V

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi
PAZ4_P4.abi   GACCAGGTTCCACGAAACGAAGGCAGTGCTACCCAAAAGCAATTCCAGAGTGTTTGAGGGATAGTTATCCCAGACCTGATCAGCCCTGTTACCTGTATGT
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

ref/seq delPAZ_hDct GATAGGAATGGTTTTAACTACACCTTTACCTGATGAACTCAACTTTAGAAGGCGGAAGCTCTATCCTCCTGAAGATACCACAAGATGCTTTGGAATACTG

I G M V L T T P L P D E L N F R R R K L Y P P E D T T R C F G I L

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   GATAGGAATGGTTTTAACTACACCTTTACCTGATGAACTCAACTTTAGAAGGCGGAAGCTCTATCCTCCTGAAGATACCACAAGATGCTTTGGAATACTG
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

BstEII

ref/seq delPAZ_hDct ACGGCCAAACCCATACCTCAGATTCCACACTTTCCTGTGTACACACGCTCTGGAGAGGTTACCATATCCATTGAGTTGAAGAAGTCTGGTTTCATGTTGT

T A K P I P Q I P H F P V Y T R S G E V T I S I E L K K S G F M L

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   ACGGCCAAACCCATACCTCAGATTCCACACTTTCCTGTGTACACACGCTCTGGAGAGGTTACCATATCCATTGAGTTGAAGAAGTCTGGTTTCATGTTGT
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

DraI

ref/seq delPAZ_hDcr CTCTACAAATGCTTGAGTTGATTACAAGACTTCACCAGTATATATTCTCACATATTCTTCGGCTTGAAAAACCTGCACTAGAATTTAAACCTACAGACGC

S L Q M L E L I T R L H Q Y I F S H I L R L E K P A L E F K P T D A

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   CTCTACAAATGCTTGAGTTGATTACAAGACTTCACCAGTATATATTCTCACATATTCTTCGGCTTGAAAAACCTGCACTAGAATTTAAACCTACAGACGC
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

BstXI   DraI

ref/seq delPAZ_hDcr TGATTCAGCATACTGTGTTCTACCTCTTAATGTTGTTAATGACTCCAGCACTTTGGATATTGACTTTAAATTCATGGAAGATATTGAGAAGTCTGAAGCT

D S A Y C V L P L N V V N D S S T L D I D F K F M E D I E K S E A

PAZ domain deletion

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   TGATTCAGCATACTGTGTTCTACCTCTTAATGTTGTTAATGACTCCAGCACTTTG---
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

| BsmI | DraI | EcoRV |

ref/seq delPAZ_hDct CGCATAGGCATTCCCAGTACAAAGTATACAAAAGAAACACCCTTTGTTTTTAAATTAGAAGATTACCAAGATGCCGTTATCATTCCAAGATATCGCAATT

R I G I P S T K Y T K E T P F V F K L E D Y Q D A V I I P R Y R N

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

| BclI* | ClaI | SspI |

ref/seq delPAZ_hDct TTGATCAGCCTCATCGATTTTATGTAGCTGATGTGTACACTGATCTTACCCCACTCAGTAAATTTCCTTCCCCTGAGTATGAAACTTTTGCAGAATATTA

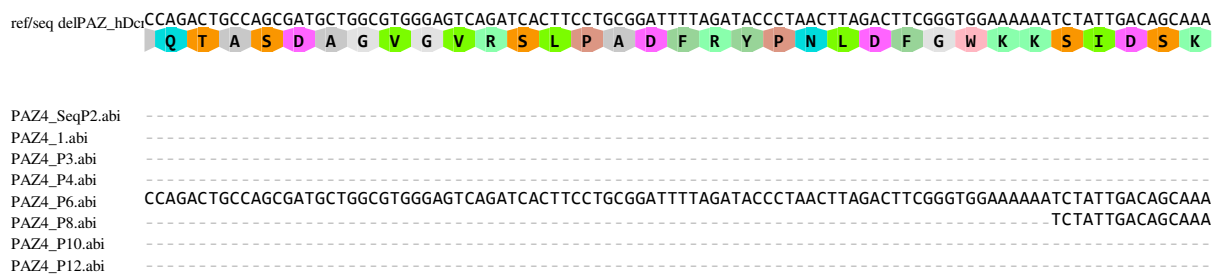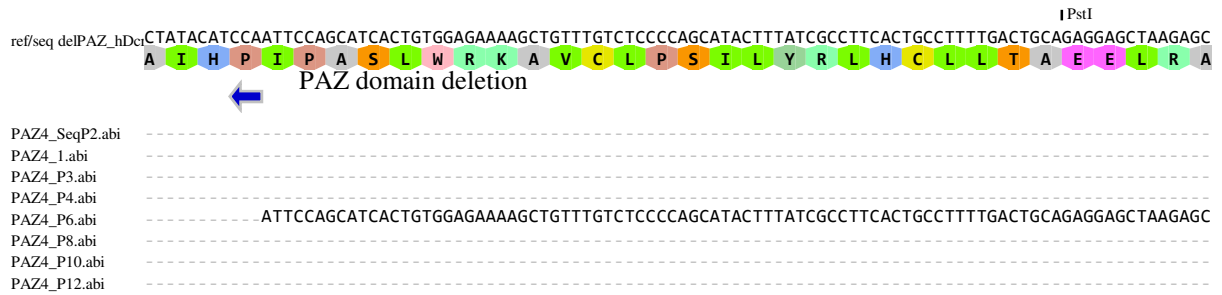F D Q P H R F Y V A D V Y T D L T P L S K F P S P E Y E T F A E Y Y

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

ref/seq delPAZ_hDct TAAAACAAAGTACAACCTTGACCTAACCAATCTCAACCAGCCACTGCTGGATGTGGACCACACATCTTCAAGACTTAATCTTTTGACACCTCGACATTTG
                    K T K Y N L D L T N L N Q P L L D V D H T S S R L N L L T P R H L

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

                                        ▌Eco47III   ▌PstI
ref/seq delPAZ_hDct AATCAGAAGGGGAAAGCGCTTCCTTTAAGCAGTGCTGAGAAGAGGAAAGCCAAATGGGAAAGTCTGCAGAATAAACAGATACTGGTTCCAGAACTCTGTG
                    N Q K G K A L P L S S A E K R K A K W E S L Q N K Q I L V P E L C

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   --

PstI

ref/seq delPAZ_hDct CTATACATCCAATTCCAGCATCACTGTGGAGAAAAGCTGTTTGTCTCCCCAGCATACTTTATCGCCTTCACTGCCTTTTGACTGCAGAGGAGCTAAGAGC

A I H P I P A S L W R K A V C L P S I L Y R L H C L L T A E E L R A

← PAZ domain deletion

PAZ4_SeqP2.abi	--
PAZ4_1.abi	--
PAZ4_P3.abi	--
PAZ4_P4.abi	--
PAZ4_P6.abi	--------- ATTCCAGCATCACTGTGGAGAAAAGCTGTTTGTCTCCCCAGCATACTTTATCGCCTTCACTGCCTTTTGACTGCAGAGGAGCTAAGAGC
PAZ4_P8.abi	--
PAZ4_P10.abi	--
PAZ4_P12.abi	--

ref/seq delPAZ_hDct CCAGACTGCCAGCGATGCTGGCGTGGGAGTCAGATCACTTCCTGCGGATTTTAGATACCCTAACTTAGACTTCGGGTGGAAAAAATCTATTGACAGCAAA

Q T A S D A G V G V R S L P A D F R Y P N L D F G W K K S I D S K

PAZ4_SeqP2.abi	--
PAZ4_1.abi	--
PAZ4_P3.abi	--
PAZ4_P4.abi	--
PAZ4_P6.abi	CCAGACTGCCAGCGATGCTGGCGTGGGAGTCAGATCACTTCCTGCGGATTTTAGATACCCTAACTTAGACTTCGGGTGGAAAAAATCTATTGACAGCAAA
PAZ4_P8.abi	-- TCTATTGACAGCAAA
PAZ4_P10.abi	--
PAZ4_P12.abi	--

|PvuII |MunI

ref/seq delPAZ_hDct TCTTTCATCTCAATTTCTAACTCCTCTTCAGCTGAAAATGATAATTACTGTAAGCACAGCACAATTGTCCCTGAAAATGCTGCACATCAAGGTGCTAATA

S F I S I S N S S S A E N D N Y C K H S T I V P E N A A H Q G A N

PAZ4_SeqP2.abi --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   TCTTTCATCTCAATTTCTAACTCCTCTTCAGCTGAAAATGATAATTACTGTAAGCACAGCACAATTGTCCCTGAAAATGCTGCACATCAAGGTGCTAATA
PAZ4_P8.abi   TCTTTCATCTCAATTTCTAACTCCTCTTCAGCTGAAAATGATAATTACTGTAAGCACAGCACAATTGTCCCTGAAAATGCTGCACATCAAGGTGCTAATA
PAZ4_P10.abi   --
PAZ4_P12.abi   --

|XbaI |AclI

                                         |PstI |BglII

ref/seq delPAZ_hDct GAACCTCCTCTCTAGAAAATCATGACCAAATGTCTGTGAACTGCAGAACGTTGCTCAGCGAGTCCCCTGGTAAGCTCCACGTTGAAGTTTCAGCAGATCT

R T S S L E N H D Q M S V N C R T L L S E S P G K L H V E V S A D L

PAZ4_SeqP2.abi --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   GAACCTCCTCTCTAGAAAATCATGACCAAATGTCTGTGAACTGCAGAACGTTGCTCAGCGAGTCCCCTGGTAAGCTCCACGTTGAAGTTTCAGCAGATCT
PAZ4_P8.abi   GAACCTCCTCTCTAGAAAATCATGACCAAATGTCTGTGAACTGCAGAACGTTGCTCAGCGAGTCCCCTGGTAAGCTCCACGTTGAAGTTTCAGCAGATCT
PAZ4_P10.abi   --
PAZ4_P12.abi   --

┃VspI

ref/seq delPAZ_hDct TACAGCAATTAATGGTCTTTCTTACAATCAAAATCTCGCCAATGGCAGTTATGATTTAGCTAACAGAGACTTTTGCCAAGGAAATCAGCTAAATTACTAC

T A I N G L S Y N Q N L A N G S Y D L A N R D F C Q G N Q L N Y Y

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   TACAGCAATTAATGGTCTTTCTTACAATCAAAATCTCGCCAATGGCAGTTATGATTTAGCTAACAGAGACTTTTGCCAAGGAAATCAGCTAAATTACTAC
PAZ4_P8.abi   TACAGCAATTAATGGTCTTTCTTACAATCAAAATCTCGCCAATGGCAGTTATGATTTAGCTAACAGAGACTTTTGCCAAGGAAATCAGCTAAATTACTAC
PAZ4_P10.abi   --
PAZ4_P12.abi   --

ref/seq delPAZ_hDct AAGCAGGAAATACCCGTGCAACCAACTACCTCATATTCCATTCAGAATTTATACAGTTACGAGAACCAGCCCCAGCCCAGCGATGAATGTACTCTCCTGA

K Q E I P V Q P T T S Y S I Q N L Y S Y E N Q P Q P S D E C T L L

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   AAGCAGGAAATACCCGTGCAACCAACTACCTCATATTCCATTCAGAATTTATACAGTTACGAGAACCAGCCCCAGCCCAGCGATGAATGTACTCTCCTGA
PAZ4_P8.abi   AAGCAGGAAATACCCGTGCAACCAACTACCTCATATTCCATTCAGAATTTATACAGTTACGAGAACCAGCCCCAGCCCAGCGATGAATGTACTCTCCTGA
PAZ4_P10.abi   --
PAZ4_P12.abi   --

ref/seq delPAZ_hDct GTAATAAATACCTTGATGGAAATGCTAACAAATCTACCTCAGATGGAAGTCCTGTGATGGCCGTAATGCCTGGTACGACAGACACTATTCAAGTGCTCAA

S N K Y L D G N A N K S T S D G S P V M A V M P G T T D T I Q V L K

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   GTAATAAATACCTTGATGGAAATGCTAACAAATCTACCTCAGATGGAAGTCCTGTGATGGCCGTAATGCCTGGTACGACAGACACTATTCAAGTGCTCAA
PAZ4_P8.abi   GTAATAAATACCTTGATGGAAATGCTAACAAATCTACCTCAGATGGAAGTCCTGTGATGGCCGTAATGCCTGGTACGACAGACACTATTCAAGTGCTCAA
PAZ4_P10.abi   --
PAZ4_P12.abi   --

Tth111I

ref/seq delPAZ_hDct GGGCAGGATGGATTCTGAGCAGAGCCCTTCTATTGGGTACTCCTCAAGGACTCTTGGCCCCAATCCTGGACTTATTCTTCAGGCTTTGACTCTGTCAAAC

G R M D S E Q S P S I G Y S S R T L G P N P G L I L Q A L T L S N

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   GGGCAGGATGGATTCTGAGCAGAGCCCTTCTATTGGGTACTCCTCAAGGACTCTTGGCCCCAATCCTGGACTTATTCTTCAG------------------
PAZ4_P8.abi   GGGCAGGATGGATTCTGAGCAGAGCCCTTCTATTGGGTACTCCTCAAGGACTCTTGGCCCCAATCCTGGACTTATTCTTCAGGCTTTGACTCTGTCAAAC
PAZ4_P10.abi   --
PAZ4_P12.abi   --

|DraI |SphI

ref/seq delPAZ_hDct GCTAGTGATGGATTTAACCTGGAGCGGCTTGAAATGCTTGGCGACTCCTTTTTAAAGCATGCCATCACCACATATCTATTTTGCACTTACCCTGATGCGC

A S D G F N L E R L E M L G D S F L K H A I T T Y L F C T Y P D A

PAZ4_SeqP2.abi --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi
PAZ4_P8.abi   GCTAGTGATGGATTTAACCTGGAGCGGCTTGAAATGCTTGGCGACTCCTTTTTAAAGCATGCCATCACCACATATCTATTTTGCACTTACCCTGATGCGC
PAZ4_P10.abi   --
PAZ4_P12.abi   --

|BstXI

ref/seq delPAZ_hDct ATGAGGGCCGCCTTTCATATATGAGAAGCAAAAAGGTCAGCAACTGTAATCTGTATCGCCTTGGAAAAAAGAAGGGACTACCCAGCCGCATGGTGGTGTC

H E G R L S Y M R S K K V S N C N L Y R L G K K K G L P S R M V V S

PAZ4_SeqP2.abi --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi
PAZ4_P8.abi   ATGAGGGCCGCCTTTCATATATGAGAAGCAAAAAGGTCAGCAACTGTAATCTGTATCGCCTTGGAAAAAAGAAGGGACTACCCAGCCGCATGGTGGTGTC
PAZ4_P10.abi   --
PAZ4_P12.abi   --

| SspI
ref/seq delPAZ_hDcr AATATTTGATCCCCCTGTGAATTGGCTTCCTCCTGGTTATGTAGTAAATCAAGACAAAAGCAACACAGATAAATGGGAAAAAGATGAAATGACAAAAGAC

I F D P P V N W L P P G Y V V N Q D K S N T D K W E K D E M T K D

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   AATATTTGATCCCCCTGTGAATTGGCTTCCTCCTGGTTATGTAGTAAATCAAGACAAAAGCAACACAGATAAATGGGAAAAAGATGAAATGACAAAAGAC
PAZ4_P10.abi   --
PAZ4_P12.abi   --

| SphI
ref/seq delPAZ_hDcr TGCATGCTGGCGAATGGCAAACTGGATGAGGATTACGAGGAGGAGGATGAGGAGGAGGAGAGCCTGATGTGGAGGGCTCCGAAGGAAGAGGCTGACTATG

C M L A N G K L D E D Y E E E D E E E E S L M W R A P K E E A D Y

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   TGCATGCTGGCGAATGGCAAACTGGATGAGGATTACGAGGAGGAGGATGAGGAGGAGGAGAGCCTGATGTGGAGGGCTCCGAAGGAAGAGGCTGACTATG
PAZ4_P10.abi   -------------------------CTGGATGAGGATTACGAGGAGGAGGATGAGGAGGAGGAGAGCCTGATGTGGAGGGCTCCGAAGGAAGAGGCTGACTATG
PAZ4_P12.abi   --

┃BclI*

ref/seq delPAZ_hDct AAGATGATTTCCTGGAGTATGATCAGGAACATATCAGATTTATAGATAATATGTTAATGGGGTCAGGAGCTTTTGTAAAGAAAATCTCTCTTTCTCCTTT

E D D F L E Y D Q E H I R F I D N M L M G S G A F V K K I S L S P F

PAZ4_SeqP2.abi --

PAZ4_1.abi --

PAZ4_P3.abi --

PAZ4_P4.abi --

PAZ4_P6.abi

PAZ4_P8.abi AAGATGATTTCCTGGAGTATGATCAGGAACATATCAGATTTATAGATAATATGTTAATGGGGTCAGGAGCTTTTGTAAAGAAAATCTCTCTTTCTCCTTT

PAZ4_P10.abi AAGATGATTTCCTGGAGTATGATCAGGAACATATCAGATTTATAGATAATATGTTAATGGGGTCAGGAGCTTTTGTAAAGAAAATCTCTCTTTCTCCTTT

PAZ4_P12.abi --

┃NdeI

ref/seq delPAZ_hDct TTCAACCACTGATTCTGCATATGAATGGAAAATGCCCAAAAAATCCTCCTTAGGTAGTATGCCATTTTCATCAGATTTTGAGGATTTTGACTACAGCTCT

S T T D S A Y E W K M P K K S S L G S M P F S S D F E D F D Y S S

PAZ4_SeqP2.abi --

PAZ4_1.abi --

PAZ4_P3.abi --

PAZ4_P4.abi --

PAZ4_P6.abi

PAZ4_P8.abi TTCAACCACTGATTCTGCATATGAATGGAAAATGCCCAAAAAATCCTCCTTAGGTAGTATGCCATTTTCATCAGATTTTGAGGATTTTGACTACAGCTCT

PAZ4_P10.abi TTCAACCACTGATTCTGCATATGAATGGAAAATGCCCAAAAAATCCTCCTTAGGTAGTATGCCATTTTCATCAGATTTTGAGGATTTTGACTACAGCTCT

PAZ4_P12.abi --

| BamHI

ref/seq delPAZ_hDct TGGGATGCAATGTGCTATCTGGATCCTAGCAAAGCTGTTGAAGAAGATGACTTTGTGGTGGGGTTCTGGAATCCATCAGAAGAAAACTGTGGTGTTGACA

W D A M C Y L D P S K A V E E D D F V V G F W N P S E E N C G V D

PAZ4_SeqP2.abi   ---
PAZ4_1.abi   ---
PAZ4_P3.abi   ---
PAZ4_P4.abi   ---
PAZ4_P6.abi   ---
PAZ4_P8.abi   TGGGATGCAATGTGCTATCTGGATCCTAGCAAAGCTGTTGAAGAA--
PAZ4_P10.abi   TGGGATGCAATGTGCTATCTGGATCCTAGCAAAGCTGTTGAAGAAGATGACTTTGTGGTGGGGTTCTGGAATCCATCAGAAGAAAACTGTGGTGTTGACA
PAZ4_P12.abi   ---

ref/seq delPAZ_hDct CGGGAAAGCAGTCCATTTCTTACGACTTGCACACTGAGCAGTGTATTGCTGACAAAAGCATAGCGGACTGTGTGGAAGCCCTGCTGGGCTGCTATTTAAC

T G K Q S I S Y D L H T E Q C I A D K S I A D C V E A L L G C Y L T

PAZ4_SeqP2.abi   ---
PAZ4_1.abi   ---
PAZ4_P3.abi   ---
PAZ4_P4.abi   ---
PAZ4_P6.abi   ---
PAZ4_P8.abi   ---
PAZ4_P10.abi   CGGGAAAGCAGTCCATTTCTTACGACTTGCACACTGAGCAGTGTATTGCTGACAAAAGCATAGCGGACTGTGTGGAAGCCCTGCTGGGCTGCTATTTAAC
PAZ4_P12.abi   ---

|PvuII

ref/seq delPAZ_hDct CAGCTGTGGGGAGAGGGCTGCTCAGCTTTTCCTCTGTTCACTGGGGCTGAAGGTGCTCCCGGTAATTAAAAGGACTGATCGGGAAAAGGCCCTGTGCCCT

S C G E R A A Q L F L C S L G L K V L P V I K R T D R E K A L C P

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   CAGCTGTGGGGAGAGGGCTGCTCAGCTTTTCCTCTGTTCACTGGGGCTGAAGGTGCTCCCGGTAATTAAAAGGACTGATCGGGAAAAGGCCCTGTGCCCT
PAZ4_P12.abi   --

|BalI

ref/seq delPAZ_hDct ACTCGGGAGAATTTCAACAGCCAACAAAAGAACCTTTCAGTGAGCTGTGCTGCTGCTTCTGTGGCCAGTTCACGCTCTTCTGTATTGAAAGACTCGGAAT

T R E N F N S Q Q K N L S V S C A A A S V A S S R S S V L K D S E

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   ACTCGGGAGAATTTCAACAGCCAACAAAAGAACCTTTCAGTGAGCTGTGCTGCTGCTTCTGTGGCCAGTTCACGCTCTTCTGTATTGAAAGACTCGGAAT
PAZ4_P12.abi   --

BclI*

ref/seq delPAZ_hDct ATGGTTGTTTGAAGATTCCACCAAGATGTATGTTTGATCATCCAGATGCAGATAAAACACTGAATCACCTTATATCGGGGTTTGAAAATTTTGAAAAGAA

Y G C L K I P P R C M F D H P D A D K T L N H L I S G F E N F E K K

PAZ4_SeqP2.abi ---
PAZ4_1.abi   ---
PAZ4_P3.abi   ---
PAZ4_P4.abi   ---
PAZ4_P6.abi   ---
PAZ4_P8.abi   ---
PAZ4_P10.abi   ATGGTTGTTTGAAGATTCCACCAAGATGTATGTTTGATCATCCAGATGCAGATAAAACACTGAATCACCTTATATCGGGGTTTGAAAATTTTGAAAAGAA
PAZ4_P12.abi   ---

Eco47III Ec

ref/seq delPAZ_hDct AATCAACTACAGATTCAAGAATAAGGCTTACCTTCTCCAGGCTTTTACACATGCCTCCTACCACTACAATACTATCACTGATTGTTACCAGCGCTTAGAA

I N Y R F K N K A Y L L Q A F T H A S Y H Y N T I T D C Y Q R L E

PAZ4_SeqP2.abi ---
PAZ4_1.abi   ---
PAZ4_P3.abi   ---
PAZ4_P4.abi   ---
PAZ4_P6.abi   ---
PAZ4_P8.abi   ---
PAZ4_P10.abi   AATCAACTACAGATTCAAGAATAAGGCTTACCTTCTCCAGGCTTTTACACATGCCTCCTACCACTACAATACTATCACTGATTGTTACCAGCGCTTAGAA
PAZ4_P12.abi   ---

EcoRI

ref/seq delPAZ_hDct TTCCTGGGAGATGCGATTTTGGACTACCTCATAACCAAGCACCTTTATGAAGACCCGCGGCAGCACTCCCCGGGGGTCCTGACAGACCTGCGGTCTGCCC

F L G D A I L D Y L I T K H L Y E D P R Q H S P G V L T D L R S A

SacII   SmaI / XmaI

```
PAZ4_SeqP2.abi   --------------------------------------------------------------------------------------------------------
PAZ4_1.abi       --------------------------------------------------------------------------------------------------------
PAZ4_P3.abi      --------------------------------------------------------------------------------------------------------
PAZ4_P4.abi      --------------------------------------------------------------------------------------------------------
PAZ4_P6.abi      --------------------------------------------------------------------------------------------------------
PAZ4_P8.abi      --------------------------------------------------------------------------------------------------------
PAZ4_P10.abi     TTCCTGGGAGATGCGATTTTGGACTACCTCATAACCAAGCACCTTTATGAAGACCCGCGGCAGCACTCCCCGGGGGTCCTGACAGACCTGCGGTCTGCCC
PAZ4_P12.abi     --------------------------------------------------------------------------------------------------------
```

ScaI   EcoICRI / Bpu10I / SacI

ref/seq delPAZ_hDct TGGTCAACAACACCATCTTTGCATCGCTGGCTGTAAAGTACGACTACCACAAGTACTTCAAAGCTGTCTCTCCTGAGCTCTTCCATGTCATTGATGACTT

L V N N T I F A S L A V K Y D Y H K Y F K A V S P E L F H V I D D F

```
PAZ4_SeqP2.abi   --------------------------------------------------------------------------------------------------------
PAZ4_1.abi       --------------------------------------------------------------------------------------------------------
PAZ4_P3.abi      --------------------------------------------------------------------------------------------------------
PAZ4_P4.abi      --------------------------------------------------------------------------------------------------------
PAZ4_P6.abi      --------------------------------------------------------------------------------------------------------
PAZ4_P8.abi      --------------------------------------------------------------------------------------------------------
PAZ4_P10.abi     TGGTCAACAACACCATCTTTGCATCGCTGGCTGTAAAGTACGACTACCACAAGTACTTCAAAGCTGTCTCTCCTGAGCTCTTCCATGTCATTGATGACTT
PAZ4_P12.abi     -----------CATCTTTGCATCGCTGGCTGTAAAGTACGACTACCACAAGTACTTCAAAGCTGTCTCTCCTGAGCTCTTCCATGTCATTGATGACTT
```

| | Bpu10I | BglII |

ref/seq delPAZ_hDct TGTGCAGTTTCAGCTTGAGAAGAATGAAATGCAAGGAATGGATTCTGAGCTTAGGAGATCTGAGGAGGATGAAGAGAAAGAAGAGGATATTGAAGTTCCA

V Q F Q L E K N E M Q G M D S E L R R S E E D E E K E E D I E V P

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   TGTGCAGTTTCAGCTTGAGAAGAATGAAATGCAAGGAATGGATTCTGAGCTTAGGAGATCTGAGGAGGATGAAGAGA-----------------------
PAZ4_P12.abi   TGTGCAGTTTCAGCTTGAGAAGAATGAAATGCAAGGAATGGATTCTGAGCTTAGGAGATCTGAGGAGGATGAAGAGAAAGAAGAGGATATTGAAGTTCCA

| | NcoI | BstXI |

ref/seq delPAZ_hDct AAGGCCATGGGGGGATATTTTTTGAGTCGCTTGCTGGTGCCATTTACATGGATAGTGGGATGTCACTGGAGACAGTCTGGCAGGTGTACTATCCCATGATGC

K A M G D I F E S L A G A I Y M D S G M S L E T V W Q V Y Y P M M

PAZ4_SeqP2.abi   ---
PAZ4_1.abi   ---
PAZ4_P3.abi   ---
PAZ4_P4.abi   ---
PAZ4_P6.abi   ---
PAZ4_P8.abi   ---
PAZ4_P10.abi   ---
PAZ4_P12.abi   AAGGCCATGGGGGGATATTTTTTGAGTCGCTTGCTGGTGCCATTTACATGGATAGTGGGATGTCACTGGAGACAGTCTGGCAGGTGTACTATCCCATGATGC

ref/seq delPAZ_hDct GGCCACTAATAGAAAAGTTTTCTGCAAATGTACCCCGTTCCCCTGTGCGAGAATTGCTTGAAATGGAACCAGAAACTGCCAAATTTAGCCCGGCTGAGAG

R P L I E K F S A N V P R S P V R E L L E M E P E T A K F S P A E R

PAZ4_SeqP2.abi --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi
PAZ4_P12.abi   GGCCACTAATAGAAAAGTTTTCTGCAAATGTACCCCGTTCCCCTGTGCGAGAATTGCTTGAAATGGAACCAGAAACTGCCAAATTTAGCCCGGCTGAGAG

|DraI |PstI
ref/seq delPAZ_hDct AACTTACGACGGGAAGGTCAGAGTCACTGTGGAAGTAGTAGGAAAGGGGAAATTTAAAGGTGTTGGTCGAAGTTACAGGATTGCCAAATCTGCAGCAGCA

T Y D G K V R V T V E V V G K G K F K G V G R S Y R I A K S A A A

PAZ4_SeqP2.abi --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   AACTTACGACGGGAAGGTCAGAGTCACTGTGGAAGTAGTAGGAAAGGGGAAATTTAAAGGTGTTGGTCGAAGTTACAGGATTGCCAAATCTGCAGCAGCA

ref/seq delPAZ_hDct AGAAGAGCCCTCCGAAGCCTCAAAGCTAATCAACCTCAGGTTCCCAATAGCGGTGGCGGAGGTTCTGGAGGCGGTGGAAGTGACTACAAGGACGACGATG

R R A L R S L K A N Q P Q V P N S G G G G S G G G G S D Y K D D D

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi
PAZ4_P12.abi   AGAAGAGCCCTCCGAAGCCTCAAAGCTAATCAACCTCAGGTTCCCAATAGCGGTGGCGGAGGTTCTGGAGGCGGTGGAAGTGACTACAAGGACGACGATG

XhoI

ref/seq delPAZ_hDct ACAAGGATTACAAAGACGATGATGACAAGGACTATAAGGACGATGACGATAAGTAACATTTGGTTTAGTGTACAATATCTCCTCGAGCATTTGGTTTAGT

D K D Y K D D D D K D Y K D D D D K * H L V * C T I S P R A F G L V

Stop

PAZ4_SeqP2.abi   --
PAZ4_1.abi   --
PAZ4_P3.abi   --
PAZ4_P4.abi   --
PAZ4_P6.abi   --
PAZ4_P8.abi   --
PAZ4_P10.abi   --
PAZ4_P12.abi   ACAAGGATTACAAAGACGATGATGACAAGGACTATAAGGACGATGACGATAAGTAACATTTGGTTTAGTGTACAATATCTCCTCGA----------------

ref/seq delPAZ_hDcı GTACAATATCTCCTCGAGGGCTCGTGGCCTCGACTGTGCCTTCTAGTTGCCAGCCATCTGTTGTTTGC

XhoI

Y N I S S R A R G L D C A F * L P A I C C L

PAZ4_SeqP2.abi
PAZ4_1.abi
PAZ4_P3.abi
PAZ4_P4.abi
PAZ4_P6.abi
PAZ4_P8.abi
PAZ4_P10.abi
PAZ4_P12.abi

ref/seq delPAZ_hDcı

PAZ4_SeqP2.abi
PAZ4_1.abi
PAZ4_P3.abi
PAZ4_P4.abi
PAZ4_P6.abi
PAZ4_P8.abi
PAZ4_P10.abi
PAZ4_P12.abi

AatII
ZraI

ref/seq delPPC_hDcr CCAAGTCTCCACCCCATTGACGTCAATGGGAGTTTGTTTTGGCACCCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTCCGCCCCATTGACGCAAA

P S L H P I D V N G S L F W H Q N Q R D F P K C R N N S A P L T Q

mK2kol10_SqrP2.ab CCAAGTCTCCACCCCATTGACGTCAATGGGAGTTTGTTTTGGCACCCAAAATCAACGGGACTTTCCAAAATGTCGTAACAACTCCGCCCCATTGACGCAAA

mK2kol10_1.abi   --

mK2kol10_P3.abi   --

mK2kol10II_P3.abi   --

mK2kol10_P4.abi   --

mK2kol10II_P4.abi   --

mK2kol10_P5.abi   --

mK2kol10_P8.abi   --

mK2kol10_P10.abi   --

mK2kol10_P12.abi   --

BglII

ref/seq delPPC_hDcr TGGGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTGGTTTAGTGAACCGTCAGATCAGATCTTTGTCGATCCTACCATCCACTCGACACAC

M G G R R V R W E V Y I S R A G L V N R Q I R S L S I L P S T R H T

Start

mK2kol10_SqrP2.ab TGGGCGGTAGGCGTGTACGGTGGGAGGTCTATATAAGCAGAGCTGGTTTAGTGAACCGTCAGATCAGATCTTTGTCGATCCTACCATCCACTCGACACAC

mK2kol10_1.abi   --

mK2kol10_P3.abi   --

mK2kol10II_P3.abi   --

mK2kol10_P4.abi   --

mK2kol10II_P4.abi   --

mK2kol10_P5.abi   --

mK2kol10_P8.abi   --

mK2kol10_P10.abi   --

mK2kol10_P12.abi   --

| NotI | HindIII | SacI EcoICRI EcoRI | KpnI Acc65I | DraI |

ref/seq delPPC_hDcr CCGCCAGCGGCCGCTGCCAAGCTTCCGAGCTCTCGAATTCAAAGGAGGTACCCACCCTTGTTTAAACTTTAAGAGGAGGGCCACCATGAAAAGCCCTGCT

R Q R P L P S F R A L E F K G G T H P C L N F K R R A T M K S P A

mK2kol10_SqrP2.ab CCGCCAGCGGCCGCTGCCAAGCTTCCGAGCTCTCGAATTCAAAGGAGGTACCCACCCTTGTTTAAACTTTAAGAGGAGGGCCACCATGAAAAGCCCTGCT
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi   --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi   --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi   --
mK2kol10_P12.abi   --

| Bpu10I | StuI | PstI | NcoI |

ref/seq delPPC_hDcr TTGCAACCCCTCAGCATGGCAGGCCTGCAGCTCATGACCCCTGCTTCCTCACCAATGGGTCCTTTCTTTGGACTGCCATGGCAACAAGAAGCAATTCATG

L Q P L S M A G L Q L M T P A S S P M G P F F G L P W Q Q E A I H

mK2kol10_SqrP2.ab TTGCAACCCCTCAGCATGGCAGGCCTGCAGCTCATGACCCCTGCTTCCTCACCAATGGGTCCTTTCTTTGGACTGCCATGGCAACAAGAAGCAATTCATG
mK2kol10_1.abi   -----------------------------CTGCAGCTCATGACCCCTGCTTCCTCACCAATGGGTCCTTTCTTTGGACTGCCATGGCAACAAGAAGCAATTCATG
mK2kol10_P3.abi   --
mK2kol10II_P3.abi   --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi   --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi   --
mK2kol10_P12.abi   --

|DraI |Bpu10I

ref/seq delPPC_hDcr ATAACATTTATACGCCAAGAAAATATCAGGTTGAACTGCTTGAAGCAGCTCTGGATCATAATACCATCGTCTGTTTAAACACTGGCTCAGGGAAGACATT
D N I Y T P R K Y Q V E L L E A A L D H N T I V C L N T G S G K T F

mK2kol10_SqrP2.ab ATAACATTTATACGCCAAGAAAATATCAGGTTGAACTGCTTGAAGCAGCTCTGGATCATAATACCATCGTCTGTTTAAACACTGGCTCAGGGAAGACATT
mK2kol10_1.abi   ATAACATTTATACGCCAAGAAAATATCAGGTTGAACTGCTTGAAGCAGCTCTGGATCATAATACCATCGTCTGTTTAAACACTGGCTCAGGGAAGACATT
mK2kol10_P3.abi   --
mK2kol10II_P3.abi --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi --
mK2kol10_P12.abi --

|ScaI

ref/seq delPPC_hDcr TATTGCAGTACTACTCACTAAAGAGCTGTCCTATCAGATCAGGGGAGACTTCAGCAGAAATGGAAAAAGGACGGTGTTCTTGGTCAACTCTGCAAACCAG
I A V L L T K E L S Y Q I R G D F S R N G K R T V F L V N S A N Q

mK2kol10_SqrP2.ab TATTGCAGTACTACTCACTAAAGAGCTGTCCTATCAGATCAGGGGAGACTTCAGCAGAAATGGAAAAAGGACGGTGTTCTTGGTCAACTCTGCAAACCAG
mK2kol10_1.abi   TATTGCAGTACTACTCACTAAAGAGCTGTCCTATCAGATCAGGGGAGACTTCAGCAGAAATGGAAAAAGGACGGTGTTCTTGGTCAACTCTGCAAACCAG
mK2kol10_P3.abi   --
mK2kol10II_P3.abi --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi --
mK2kol10_P12.abi --

PvuII   BglII   NsiI

ref/seq delPPC_hDcr GTTGCTCAACAAGTGTCAGCTGTCAGAACTCATTCAGATCTCAAGGTTGGGGAATACTCAAACCTAGAAGTAAATGCATCTTGGACAAAAGAGAGATGGA

V A Q Q V S A V R T H S D L K V G E Y S N L E V N A S W T K E R W

mK2kol10_SqrP2.ab GTTGCTCAACAAGTGTCAGCTGTCAGAACTCATTCAGATCTCAAGGTTGGGGAATACTCAAAC- -

mK2kol10_1.abi   GTTGCTCAACAAGTGTCAGCTGTCAGAACTCATTCAGATCTCAAGGTTGGGGAATACTCAAACCTAGAAGTAAATGCATCTTGGACAAAAGAGAGATGGA

mK2kol10_P3.abi   -

mK2kol10II_P3.abi -

mK2kol10_P4.abi   -

mK2kol10II_P4.abi -

mK2kol10_P5.abi   -

mK2kol10_P8.abi   -

mK2kol10_P10.abi -

mK2kol10_P12.abi -

ref/seq delPPC_hDcr ACCAAGAGTTTACTAAGCACCAGGTTCTCATTATGACTTGCTATGTCGCCTTGAATGTTTTGAAAAATGGTTACTTATCACTGTCAGACATTAACCTTTT

N Q E F T K H Q V L I M T C Y V A L N V L K N G Y L S L S D I N L L

mK2kol10_SqrP2.ab -

mK2kol10_1.abi   ACCAAGAGTTTACTAAGCACCAGGTTCTCATTATGACTTGCTATGTCGCCTTGAATGTTTTGAAAAATGGTTACTTATCACTGTCAGACATTAACCTTTT

mK2kol10_P3.abi   -

mK2kol10II_P3.abi -

mK2kol10_P4.abi   -

mK2kol10II_P4.abi -

mK2kol10_P5.abi   -

mK2kol10_P8.abi   -

mK2kol10_P10.abi -

mK2kol10_P12.abi -

ref/seq delPPC_hDcr GGTGTTTGATGAGTGTCATCTTGCAATCCTAGACCACCCCTATCGAGAAATTATGAAGCTCTGTGAAAATTGTCCATCATGTCCTCGCATTTTGGGACTA
V F D E C H L A I L D H P Y R E I M K L C E N C P S C P R I L G L

mK2kol10_SqrP2.ab --
mK2kol10_1.abi   GGTGTTTGATGAGTGTCATCTTGCAATCCTAGACCACCCCTATCGAGAAATTATGAAGCTCTGTGAAAATTGTCCATCATGTCCTCGCATTTTGGGACTA
mK2kol10_P3.abi   --
mK2kol10II_P3.abi --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi --
mK2kol10_P12.abi --

|DraI |AflII
ref/seq delPPC_hDcr ACTGCTTCCATTTTAAATGGGAAATGTGATCCAGAGGAATTGGAAGAAAAGATTCAGAAACTAGAGAAAATTCTTAAGAGTAATGCTGAAACTGCAACTG
T A S I L N G K C D P E E L E E K I Q K L E K I L K S N A E T A T

mK2kol10_SqrP2.ab --
mK2kol10_1.abi   ACTGCTTCCATTTTAAATGGGAAATGTGATCCAGAGGAATTGGAAGAAAAGATTCAGAAACTAGAGAAAATTCTTAAGAGTAATGCTGAAACTGCAACTG
mK2kol10_P3.abi   --
mK2kol10II_P3.abi --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi --
mK2kol10_P12.abi --

ref/seq delPPC_hDcr ACCTGGTGGTCTTAGACAGGTATACTTCTCAGCCATGTGAGATTGTGGTGGATTGTGGACCATTTACTGACAGAAGTGGGCTTTATGAAAGACTGCTGAT

D L V V L D R Y T S Q P C E I V V D C G P F T D R S G L Y E R L L M

mK2kol10_SqrP2.ab --
mK2kol10_1.abi   ACCTGGTGGTCTTAGACAGGTATACTTCTCAGCCATGTGAGATTGTGGTGGATTGTGGACCATTTACTGACAGAAGTGGGCTTTATGAAAGACTGCTGAT
mK2kol10_P3.abi   --
mK2kol10II_P3.abi --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi   --
mK2kol10_P12.abi   --

ref/seq delPPC_hDcr GGAATTAGAAGAAGCACTTAATTTTATCAATGATTGTAATATATCTGTACATTCAAAAGAAAGAGATTCTACTTTAATTTCGAAACAGATACTATCAGAC

E L E E A L N F I N D C N I S V H S K E R D S T L I S K Q I L S D

mK2kol10_SqrP2.ab --
mK2kol10_1.abi   GGAATTAGAAGAAGCACTTAATTTTATCAATGATTGTAATATATCTGTACATTCAAAAGAAAGAGATTCTACTTTAATTTCGAAACAGATACTATCAGAC
mK2kol10_P3.abi   --
mK2kol10II_P3.abi --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi   --
mK2kol10_P12.abi   --

ref/seq delPPC_hDcr `TGTCGTGCCGTATTGGTAGTTCTGGGACCCTGGTGTGCAGATAAAGTAGCTGGAATGATGGTAAGAGAACTACAGAAATACATCAAACATGAGCAAGAGG`

C R A V L V V L G P W C A D K V A G M M V R E L Q K Y I K H E Q E

mK2kol10_SqrP2.ab	--
mK2kol10_1.abi	TGTCGTGCCGTATTGGTAGTTCTGGGACCCTGGTGTGCAGATAAAGTAGCTGGAATGATGGTAAGAGAACTACAGAAATACATCAAACATGAGCAAGAGG
mK2kol10_P3.abi	--GTAGCTGGAATGATGGTAAGAGAACTACAGAAATACATCAAACATGAGCAAGAGG
mK2kol10II_P3.abi	--TGATGGTAAGAGAACTACAGAAATACATCAAACATGAGCAAGAGG
mK2kol10_P4.abi	--
mK2kol10II_P4.abi	--
mK2kol10_P5.abi	--
mK2kol10_P8.abi	--
mK2kol10_P10.abi	--
mK2kol10_P12.abi	--

▐DraIII

ref/seq delPPC_hDcr `AGCTGCACAGGAAATTTTTATTGTTTACAGACACTTTCCTAAGGAAAATACATGCACTATGTGAAGAGCACTTCTCACCTGCCTCACTTGACCTGAAATT`

E L H R K F L L F T D T F L R K I H A L C E E H F S P A S L D L K F

mK2kol10_SqrP2.ab	--
mK2kol10_1.abi	AGCTGCACAGGAAATTTTTATTGTTTACAGACACTTTCCTAAGGAAAATACATGCACTATGTGAAGAGCACTTCTCACCTGCCTCACTTGACCTGAAATT
mK2kol10_P3.abi	AGCTGCACAGGAAATTTTTATTGTTTACAGACACTTTCCTAAGGAAAATACATGCACTATGTGAAGAGCACTTCTCACCTGCCTCACTTGACCTGAAATT
mK2kol10II_P3.abi	AGCTGCACAGGAAATTTTTATTGTTTACAGACACTTTCCTAAGGAAAATACATGCACTATGTGAAGAGCACTTCTCACCTGCCTCACTTGACCTGAAATT
mK2kol10_P4.abi	--
mK2kol10II_P4.abi	--
mK2kol10_P5.abi	--
mK2kol10_P8.abi	--
mK2kol10_P10.abi	--
mK2kol10_P12.abi	--

NdeI

ref/seq delPPC_hDcr TGTAACTCCTAAAGTAATCAAACTGCTCGAAATCTTACGCAAATATAAACCATATGAGCGACAGCAGTTTGAAAGCGTTGAGTGGTATAATAATAGAAAT

V T P K V I K L L E I L R K Y K P Y E R Q Q F E S V E W Y N N R N

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mK2kol10_SqrP2.ab   ------------------------------------------------------------------------------------------------------
mK2kol10_1.abi      TGTAACTCCTAAAGTAATCAAACTGCTCGAAATCTTACGCAA------------------------------------------------------------
mK2kol10_P3.abi     TGTAACTCCTAAAGTAATCAAACTGCTCGAAATCTTACGCAAATATAAACCATATGAGCGACAGCAGTTTGAAAGCGTTGAGTGGTATAATAATAGAAAT
mK2kol10II_P3.abi   TGTAACTCCTAAAGTAATCAAACTGCTCGAAATCTTACGCAAATATAAACCATATGAGCGACAGCAGTTTGAAAGCGTTGAGTGGTATAATAATAGAAAT
mK2kol10_P4.abi     ------------------------------------------------------------------------------------------------------
mK2kol10II_P4.abi   ------------------------------------------------------------------------------------------------------
mK2kol10_P5.abi     ------------------------------------------------------------------------------------------------------
mK2kol10_P8.abi     ------------------------------------------------------------------------------------------------------
mK2kol10_P10.abi    ------------------------------------------------------------------------------------------------------
mK2kol10_P12.abi    ------------------------------------------------------------------------------------------------------
```

ref/seq delPPC_hDcr CAGGATAATTATGTGTCATGGAGTGATTCTGAGGATGATGATGAGGATGAAGAAATTGAAGAAAAAGAGAAGCCAGAGACAAATTTTCCTTCTCCTTTTA

Q D N Y V S W S D S E D D D E D E E I E E K E K P E T N F P S P F

```
mK2kol10_SqrP2.ab   ------------------------------------------------------------------------------------------------------
mK2kol10_1.abi      ------------------------------------------------------------------------------------------------------
mK2kol10_P3.abi     CAGGATAATTATGTGTCATGGAGTGATTCTGAGGATGATGATGAGGATGAAGAAATTGAAGAAAAAGAGAAGCCAGAGACAAATTTTCCTTCTCCTTTTA
mK2kol10II_P3.abi   CAGGATAATTATGTGTCATGGAGTGATTCTGAGGATGATGATGAGGATGAAGAAATTGAAGAAAAAGAGAAGCCAGAGACAAATTTTCCTTCTCCTTTTA
mK2kol10_P4.abi     ------------------------------------------------------------------------------------------------------
mK2kol10II_P4.abi   ------------------------------------------------------------------------------------------------------
mK2kol10_P5.abi     ------------------------------------------------------------------------------------------------------
mK2kol10_P8.abi     ------------------------------------------------------------------------------------------------------
mK2kol10_P10.abi    ------------------------------------------------------------------------------------------------------
mK2kol10_P12.abi    ------------------------------------------------------------------------------------------------------
```

ref/seq delPPC_hDcr CCAACATTTTGTGCGGAATTATTTTTGTGGAAAGAAGATACACAGCAGTTGTCTTAAACAGATTGATAAAGGAAGCTGGCAAACAAGATCCAGAGCTGGC

T N I L C G I I F V E R R Y T A V V L N R L I K E A G K Q D P E L A

mK2kol10_SqrP2.ab   -
mK2kol10_1.abi
mK2kol10_P3.abi   CCAACATTTTGTGCGGAATTATTTTTGTGGAAAGAAGATACACAGCAGTTGTCTTAAACAGATTGATAAAGGAAGCTGGCAAACAAGATCCAGAGCTGGC
mK2kol10II_P3.abi   CCAACATTTTGTGC
mK2kol10_P4.abi   ATCCAGAGCTGGC
mK2kol10II_P4.abi   CAAGATCCAGAGCTGGC
mK2kol10_P5.abi   -
mK2kol10_P8.abi   -
mK2kol10_P10.abi   -
mK2kol10_P12.abi   -

‖ EcoRI

ref/seq delPPC_hDcr TTATATCAGTAGCAATTTCATAACTGGACATGGCATTGGGAAGAATCAGCCTCGCAACAAACAGATGGAAGCAGAATTCAGAAAACAGGAAGAGGTACTT

Y I S S N F I T G H G I G K N Q P R N K Q M E A E F R K Q E E V L

mK2kol10_SqrP2.ab   -
mK2kol10_1.abi   -
mK2kol10_P3.abi   TTATATCAGTAGCAATTTCATAACTGGACATGGCATTGGGAAGAATCAGCCTCGCAACAAACAGATGGAAGCAGAATTCAGAAAACAGGAAGAGGTACTT
mK2kol10II_P3.abi   -
mK2kol10_P4.abi   TTATATCAGTAGCAATTTCATAACTGGACATGGCATTGGGAAGAATCAGCCTCGCAACAAACAGATGGAAGCAGAATTCAGAAAACAGGAAGAGGTACTT
mK2kol10II_P4.abi   TTATATCAGTAGCAATTTCATAACTGGACATGGCATTGGGAAGAATCAGCCTCGCAACAAACAGATGGAAGCAGAATTCAGAAAACAGGAAGAGGTACTT
mK2kol10_P5.abi   -
mK2kol10_P8.abi   -
mK2kol10_P10.abi   -
mK2kol10_P12.abi   -

ref/seq delPPC_hDcr AGGAAATTTCGAGCACATGAGACCAACCTGCTTATTGCAACAAGTATTGTAGAAGAGGGTGTTGATATACCAAAATGCAACTTGGTGGTTCGTTTTGATT

R K F R A H E T N L L I A T S I V E E G V D I P K C N L V V R F D

mK2kol10_SqrP2.ab   ---
mK2kol10_1.abi   ---
mK2kol10_P3.abi   AGGAAATTTCGAGCACATGAGACCAACCTGCTTATTGCAACAAGTATTGTAGAAGAGGGTGTTGATATACCAAAATGCAACTTGGTGGTTCGTTTTGATT
mK2kol10II_P3.abi
mK2kol10_P4.abi   AGGAAATTTCGAGCACATGAGACCAACCTGCTTATTGCAACAAGTATTGTAGAAGAGGGTGTTGATATACCAAAATGCAACTTGGTGGTTCGTTTTGATT
mK2kol10II_P4.abi   AGGAAATTTCGAGCACATGAGACCAACCTGCTTATTGCAACAAGTATTGTAGAAGAGGGTGTTGATATACCAAAATGCAACTTGGTGGTTCGTTTTGATT
mK2kol10_P5.abi   ---
mK2kol10_P8.abi   ---
mK2kol10_P10.abi   ---
mK2kol10_P12.abi   ---

| ClaI*
ref/seq delPPC_hDcr TGCCCACAGAATATCGATCCTATGTTCAATCTAAAGGAAGAGCAAGGGCACCCATCTCTAATTATATAATGTTAGCGGATACAGACAAAATAAAAAGTTT

L P T E Y R S Y V Q S K G R A R A P I S N Y I M L A D T D K I K S F

mK2kol10_SqrP2.ab   ---
mK2kol10_1.abi   ---
mK2kol10_P3.abi   TGCCCACAGAATATCGATCCTATGTTCAATCTAAAGGAAGAGCAAGGGCACCCATCTCTAATTATATAATGTTAGCGGATACAGACAAAATAAAAAGTTT
mK2kol10II_P3.abi
mK2kol10_P4.abi   TGCCCACAGAATATCGATCCTATGTTCAATCTAAAGGAAGAGCAAGGGCACCCATCTCTAATTATATAATGTTAGCGGATACAGACAAAATAAAAAGTTT
mK2kol10II_P4.abi   TGCCCACAGAATATCGATCCTATGTTCAATCTAAAGGAAGAGCAAGGGCACCCATCTCTAATTATATAATGTTAGCGGATACAGACAAAATAAAAAGTTT
mK2kol10_P5.abi   ---
mK2kol10_P8.abi   ---
mK2kol10_P10.abi   ---
mK2kol10_P12.abi   ---

BglII

ref/seq delPPC_hDcr TGAAGAAGACCTTAAAACCTACAAAGCTATTGAAAAGATCTTGAGAAACAAGTGTTCCAAGTCGGTTGATACTGGTGAGACTGACATTGATCCTGTCATG

E E D L K T Y K A I E K I L R N K C S K S V D T G E T D I D P V M

mK2kol10_SqrP2.ab --
mK2kol10_1.abi --
mK2kol10_P3.abi TGAAGAAGACCTTAAAACCTACAAAGCTATTGAAAAGATCTTGAGAAACAAGTGTTCCAAGTCGGTTGATACTGGTGAGACTGACATTGATCCTGTCATG
mK2kol10II_P3.abi
mK2kol10_P4.abi TGAAGAAGACCTTAAAACCTACAAAGCTATTGAAAAGATCTTGAGAAACAAGTGTTCCAAGTCGGTTGATACTGGTGAGACTGACATTGATCCTGTCATG
mK2kol10II_P4.abi TGAAGAAGACCTTAAAACCTACAAAGCTATTGAAAAGATCTTGAGAAACAAGTGTTCCAAGTCGGTTGATACTGGTGAGACTGACATTGATCCTGTCATG
mK2kol10_P5.abi --
mK2kol10_P8.abi --
mK2kol10_P10.abi --
mK2kol10_P12.abi --

NdeI   StuI

ref/seq delPPC_hDcr GATGATGATGACGTTTTCCCACCATATGTGTTGAGGCCTGACGATGGTGGTCCACGAGTCACAATCAACACGGCCATTGGACACATCAATAGATACTGTG

D D D D V F P P Y V L R P D D G G P R V T I N T A I G H I N R Y C

mK2kol10_SqrP2.ab --
mK2kol10_1.abi --
mK2kol10_P3.abi GATGATGATGACGTTTTCCCA--
mK2kol10II_P3.abi
mK2kol10_P4.abi GATGATGATGACGTTTTCCCACCATATGTGTTGAGGCCTGACGATGGTGGTCCACGAGTCACAATCAACACGGCCATTGGACACATCAATAGATACTGTG
mK2kol10II_P4.abi GATGATGATGACGTTTTCCCACCATATGTGTTGAGGCCTGACGATGGTGGTCCACGAGTCACAATCAACACGGCCATTGGACACATCAATAGATACTGTG
mK2kol10_P5.abi --
mK2kol10_P8.abi --
mK2kol10_P10.abi --
mK2kol10_P12.abi --

ref/seq delPPC_hDcr CTAGATTACCAAGTGATCCGTTTACTCATCTAGCTCCTAAATGCAGAACCCGAGAGTTGCCTGATGGTACATTTTATTCAACTCTTTATCTGCCAATTAA
                    A R L P S D P F T H L A P K C R T R E L P D G T F Y S T L Y L P I N

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mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi   --
mK2kol10_P4.abi   CTAGATTACCAAGTGATCCGTTTACTCATCTAGCTCCTAAATGCAGAACCCGAGAGTTGCCTGATGGTACATTTTATTCAACTCTTTATCTGCCAATTAA
mK2kol10II_P4.abi   CTAGATTACCAAGTGATCCGTTTACTCATCTAGCTCCTAAATGCAGAACCCGAGAGTTGCCTGATGGTACATTTTATTCAACTCTTTATCTGCCAATTAA
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi   --
mK2kol10_P12.abi   --

ref/seq delPPC_hDcr CTCACCTCTTCGAGCCTCCATTGTTGGTCCACCAATGAGCTGTGTACGATTGGCTGAAAGAGTTGTAGCTCTCATTTGCTGTGAGAAACTGCACAAAATT
                    S P L R A S I V G P P M S C V R L A E R V V A L I C C E K L H K I

mK2kol10_SqrP2.ab   --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi   --
mK2kol10_P4.abi   CTCACCTCTTCGAGCCTCCATTGTTGGTCCACCAATGAGCTGTGTACGATTGGCTGAAAGAGTTGTAGCTCTCATTTGCTGTGAGAAACTGCACAAAATT
mK2kol10II_P4.abi   CTCACCTCTTCGAGCCTCCATTGTTGGTCCACCAATGAGCTGTGTACGATTGGCTGAAAGAGTTGTAGCTCTCATTTGCTGTGAGAAACTGCACAAAATT
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi   --
mK2kol10_P12.abi   --

ref/seq delPPC_hDcr GGCGAACTGGATGACCATTTGATGCCAGTTGGGAAAGAGACTGTTAAATATGAAGAGGAGCTTGATTTGCATGATGAAGAAGAGACCAGTGTTCCAGGAA

G E L D D H L M P V G K E T V K Y E E E L D L H D E E E T S V P G

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mK2kol10_SqrP2.ab    --------------------------------------------------------------------------------------------------------
mK2kol10_1.abi       --------------------------------------------------------------------------------------------------------
mK2kol10_P3.abi      --------------------------------------------------------------------------------------------------------
mK2kol10II_P3.abi    --------------------------------------------------------------------------------------------------------
mK2kol10_P4.abi      GGCGAACTGGATGACCATTTGATGCCAGTTGGGAAAGAGACTGTTAAATATGAAGAGGAGCTTGATTTGCATGATGAAGAAGAGACCAGTGTTCCAGGAA
mK2kol10II_P4.abi    GGCGAACTGGATGACCATTTGATGCCAGTTGGGAAAGAGACTGTTAAATATGAAGAGGAGCTTGATTTGCATGATGAAGAAGAGACCAGTGTTCCAGGAA
mK2kol10_P5.abi      --------------------------------------------------------------------------------------------------------
mK2kol10_P8.abi      --------------------------------------------------------------------------------------------------------
mK2kol10_P10.abi     --------------------------------------------------------------------------------------------------------
mK2kol10_P12.abi     --------------------------------------------------------------------------------------------------------
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BclI*

ref/seq delPPC_hDcr GACCAGGTTCCACGAAACGAAGGCAGTGCTACCCAAAAGCAATTCCAGAGTGTTTGAGGGATAGTTATCCCAGACCTGATCAGCCCTGTTACCTGTATGT

R P G S T K R R Q C Y P K A I P E C L R D S Y P R P D Q P C Y L Y V

PPC domain deletion

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mK2kol10_1.abi       --------------------------------------------------------------------------------------------------------
mK2kol10_P3.abi      --------------------------------------------------------------------------------------------------------
mK2kol10II_P3.abi    --------------------------------------------------------------------------------------------------------
mK2kol10_P4.abi      GACCAGGTTCCACGAAACGAAGGCAGTGCTACCCAAAAGCA
mK2kol10II_P4.abi    GACCAGGTTCCACGAAACGAAGGCAGTGCTACCCAAAAGCA--------------------------------------------------------------
mK2kol10_P5.abi      --------------------------------------------------------------------------------------------------------
mK2kol10_P8.abi      --------------------------------------------------------------------------------------------------------
mK2kol10_P10.abi     --------------------------------------------------------------------------------------------------------
mK2kol10_P12.abi     --------------------------------------------------------------------------------------------------------
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ref/seq delPPC_hDcr GATAGGAATGGTTTTAACTACACCTTTACCTGATGAACTCAACTTTAGAAGGCGGAAGCTCTATCCTCCTGAAGATACCACAAGATGCTTTGGAATACTG

I G M V L T T P L P D E L N F R R R K L Y P P E D T T R C F G I L

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mK2kol10_1.abi ---
mK2kol10_P3.abi ---
mK2kol10II_P3.abi ---
mK2kol10_P4.abi ---
mK2kol10II_P4.abi ---
mK2kol10_P5.abi ---
mK2kol10_P8.abi ---
mK2kol10_P10.abi ---
mK2kol10_P12.abi ---

BstEII

ref/seq delPPC_hDcr ACGGCCAAACCCATACCTCAGATTCCACACTTTCCTGTGTACACACGCTCTGGAGAGGTTACCATATCCATTGAGTTGAAGAAGTCTGGTTTCATGTTGT

T A K P I P Q I P H F P V Y T R S G E V T I S I E L K K S G F M L

mK2kol10_SqrP2.ab ---
mK2kol10_1.abi ---
mK2kol10_P3.abi ---
mK2kol10II_P3.abi ---
mK2kol10_P4.abi ---
mK2kol10II_P4.abi ---
mK2kol10_P5.abi ---
mK2kol10_P8.abi ---
mK2kol10_P10.abi ---
mK2kol10_P12.abi ---

DraI

ref/seq delPPC_hDcr CTCTACAAATGCTTGAGTTGATTACAAGACTTCACCAGTATATATTCTCACATATTCTTCGGCTTGAAAAACCTGCACTAGAATTTAAACCTACAGACGC

S L Q M L E L I T R L H Q Y I F S H I L R L E K P A L E F K P T D A

mK2kol10_SqrP2.ab --
mK2kol10_1.abi --
mK2kol10_P3.abi --
mK2kol10II_P3.abi --
mK2kol10_P4.abi --
mK2kol10II_P4.abi --
mK2kol10_P5.abi --
mK2kol10_P8.abi --
mK2kol10_P10.abi --
mK2kol10_P12.abi --

BstXI   DraI

ref/seq delPPC_hDcr TGATTCAGCATACTGTGTTCTACCTCTTAATGTTGTTAATGACTCCAGCACTTTGGATATTGACTTTAAATTCATGGAAGATATTGAGAAGTCTGAAGCT

D S A Y C V L P L N V V N D S S T L D I D F K F M E D I E K S E A

mK2kol10_SqrP2.ab --
mK2kol10_1.abi --
mK2kol10_P3.abi --
mK2kol10II_P3.abi --
mK2kol10_P4.abi --
mK2kol10II_P4.abi --
mK2kol10_P5.abi --
mK2kol10_P8.abi --
mK2kol10_P10.abi --
mK2kol10_P12.abi --

	BsmI		DraI		EcoRV

ref/seq delPPC_hDcr CGCATAGGCATTCCCAGTACAAAGTATACAAAAGAAACACCCTTTGTTTTTAAATTAGAAGATTACCAAGATGCCGTTATCATTCCAAGATATCGCAATT

R I G I P S T K Y T K E T P F V F K L E D Y Q D A V I I P R Y R N

mK2kol10_SqrP2.ab --

mK2kol10_1.abi --

mK2kol10_P3.abi --

mK2kol10II_P3.abi --

mK2kol10_P4.abi --

mK2kol10II_P4.abi --

mK2kol10_P5.abi --

mK2kol10_P8.abi --

mK2kol10_P10.abi --

mK2kol10_P12.abi --

	BclI*		ClaI		SspI

ref/seq delPPC_hDcr TTGATCAGCCTCATCGATTTTATGTAGCTGATGTGTACACTGATCTTACCCCACTCAGTAAATTTCCTTCCCCTGAGTATGAAACTTTTGCAGAATATTA

F D Q P H R F Y V A D V Y T D L T P L S K F P S P E Y E T F A E Y Y

mK2kol10_SqrP2.ab --

mK2kol10_1.abi --

mK2kol10_P3.abi --

mK2kol10II_P3.abi --

mK2kol10_P4.abi --

mK2kol10II_P4.abi --

mK2kol10_P5.abi --

mK2kol10_P8.abi --

mK2kol10_P10.abi --

mK2kol10_P12.abi --

ref/seq delPPC_hDcr TAAAACAAAGTACAACCTTGACCTAACCAATCTCAACCAGCCACTGCTGGATGTGGACCACACATCTTCAAGACTTAATCTTTTGACACCTCGACATTTG
                    K T K Y N L D L T N L N Q P L L D V D H T S S R L N L L T P R H L

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mK2kol10_1.abi   -
mK2kol10_P3.abi   -
mK2kol10II_P3.abi   -
mK2kol10_P4.abi   -
mK2kol10II_P4.abi   -
mK2kol10_P5.abi   -
mK2kol10_P8.abi   -
mK2kol10_P10.abi   -
mK2kol10_P12.abi   -

                                                   ▌Eco47III   ▌PstI
ref/seq delPPC_hDcr AATCAGAAGGGGAAAGCGCTTCCTTTAAGCAGTGCTGAGAAGAGGAAAGCCAAATGGGAAAGTCTGCAGAATAAACAGATACTGGTTCCAGAACTCTGTG
                    N Q K G K A L P L S S A E K R K A K W E S L Q N K Q I L V P E L C

mK2kol10_SqrP2.ab   -
mK2kol10_1.abi   -
mK2kol10_P3.abi   -
mK2kol10II_P3.abi   -
mK2kol10_P4.abi   -
mK2kol10II_P4.abi   -
mK2kol10_P5.abi   -
mK2kol10_P8.abi   -
mK2kol10_P10.abi   -
mK2kol10_P12.abi   -

PstI

ref/seq delPPC_hDcr CTATACATCCAATTCCAGCATCACTGTGGAGAAAAGCTGTTTGTCTCCCCAGCATACTTTATCGCCTTCACTGCCTTTTGACTGCAGAGGAGCTAAGAGC

A I H P I P A S L W R K A V C L P S I L Y R L H C L L T A E E L R A

PPC do

mK2kol10_SqrP2.ab ---
mK2kol10_1.abi   ---
mK2kol10_P3.abi   ---
mK2kol10II_P3.abi ---
mK2kol10_P4.abi   ---
mK2kol10III_P4.abi ---
mK2kol10_P5.abi   --GAGCTAAGAGC
mK2kol10_P8.abi   ---
mK2kol10_P10.abi   ---
mK2kol10_P12.abi   ---

ref/seq delPPC_hDcr CCAGACTGCCAGCGATGCTGGCGTGGGAGTCAGATCACTTCCTGCGGATTTTAGATACCCTAACTTAGACTTCGGGTGGAAAAAATCTATTGACAGCAAA

Q T A S D A G V G V R S L P A D F R Y P N L D F G W K K S I D S K

main deletion

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mK2kol10_P3.abi   ---
mK2kol10II_P3.abi ---
mK2kol10_P4.abi   ---
mK2kol10III_P4.abi ---
mK2kol10_P5.abi   CCAGACTGCCAGCGATGCTGGCGTGGGAGTCAGATCACTTCCTGCGGATTTTAGATACCCTAACTTAGACTTCGGGTGGAAAAAATCTATTGACAGCAAA
mK2kol10_P8.abi   ---TCTATTGACAGCAAA
mK2kol10_P10.abi   ---
mK2kol10_P12.abi   ---

|PvuII |MunI

ref/seq delPPC_hDcr TCTTTCATCTCAATTTCTAACTCCTCTTCAGCTGAAAATGATAATTACTGTAAGCACAGCACAATTGTCCCTGAAAATGCTGCACATCAAGGTGCTAATA

S F I S I S N S S S A E N D N Y C K H S T I V P E N A A H Q G A N

mK2kol10_SqrP2.ab   --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi   --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi   --
mK2kol10_P5.abi   TCTTTCATCTCAATTTCTAACTCCTCTTCAGCTGAAAATGATAATTACTGTAAGCACAGCACAATTGTCCCTGAAAATGCTGCACATCAAGGTGCTAATA
mK2kol10_P8.abi   TCTTTCATCTCAATTTCTAACTCCTCTTCAGCTGAAAATGATAATTACTGTAAGCACAGCACAATTGTCCCTGAAAATGCTGCACATCAAGGTGCTAATA
mK2kol10_P10.abi   --
mK2kol10_P12.abi   --

|XbaI |AclI |BglII
                                     |PstI

ref/seq delPPC_hDcr GAACCTCCTCTCTAGAAAATCATGACCAAATGTCTGTGAACTGCAGAACGTTGCTCAGCGAGTCCCCTGGTAAGCTCCACGTTGAAGTTTCAGCAGATCT

R T S S L E N H D Q M S V N C R T L L S E S P G K L H V E V S A D L

mK2kol10_SqrP2.ab   --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi   --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi   --
mK2kol10_P5.abi   GAACCTCCTCTCTAGAAAATCATGACCAAATGTCTGTGAACTGCAGAACGTTGCTCAGCGAGTCCCCTGGTAAGCTCCACGTTGAAGTTTCAGCAGATCT
mK2kol10_P8.abi   GAACCTCCTCTCTAGAAAATCATGACCAAATGTCTGTGAACTGCAGAACGTTGCTCAGCGAGTCCCCTGGTAAGCTCCACGTTGAAGTTTCAGCAGATCT
mK2kol10_P10.abi   --
mK2kol10_P12.abi   --

| VspI
ref/seq delPPC_hDcr TACAGCAATTAATGGTCTTTCTTACAATCAAAATCTCGCCAATGGCAGTTATGATTTAGCTAACAGAGACTTTTGCCAAGGAAATCAGCTAAATTACTAC
T A I N G L S Y N Q N L A N G S Y D L A N R D F C Q G N Q L N Y Y

mK2kol10_SqrP2.ab --
mK2kol10_1.abi --
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mK2kol10II_P3.abi --
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mK2kol10II_P4.abi --
mK2kol10_P5.abi TACAGCAATTAATGGTCTTTCTTACAATCAAAATCTCGCCAATGGCAGTTATGATTTAGCTAACAGAGACTTTTGCCAAGGAAATCAGCTAAATTACTAC
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mK2kol10_P10.abi --
mK2kol10_P12.abi --

ref/seq delPPC_hDcr AAGCAGGAAATACCCGTGCAACCAACTACCTCATATTCCATTCAGAATTTATACAGTTACGAGAACCAGCCCCAGCCCAGCGATGAATGTACTCTCCTGA
K Q E I P V Q P T T S Y S I Q N L Y S Y E N Q P Q P S D E C T L L

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mK2kol10_1.abi --
mK2kol10_P3.abi --
mK2kol10II_P3.abi --
mK2kol10_P4.abi --
mK2kol10II_P4.abi --
mK2kol10_P5.abi AAGCAGGAAATACCCGTGCAACCAACTACCTCATATTCCATTCAGAATTTATACAGTTACGAGAACCAGCCCCAGCCCAGCGATGAATGTACTCTCCTGA
mK2kol10_P8.abi AAGCAGGAAATACCCGTGCAACCAACTACCTCATATTCCATTCAGAATTTATACAGTTACGAGAACCAGCCCCAGCCCAGCGATGAATGTACTCTCCTGA
mK2kol10_P10.abi --
mK2kol10_P12.abi --

ref/seq delPPC_hDcr GTAATAAATACCTTGATGGAAATGCTAACAAATCTACCTCAGATGGAAGTCCTGTGATGGCCGTAATGCCTGGTACGACAGACACTATTCAAGTGCTCAA
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mK2kol10_SqrP2.ab   --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi   --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi   --
mK2kol10_P5.abi   GTAATAAATACCTTGATGGAAATGCTAACAAATCTACCTCAGATGGAAGTCCTGTGATGGCCGTAATGCCTGGTACGACAGACACTATTCAAGTGCTCAA
mK2kol10_P8.abi   GTAATAAATACCTTGATGGAAATGCTAACAAATCTACCTCAGATGGAAGTCCTGTGATGGCCGTAATGCCTGGTACGACAGACACTATTCAAGTGCTCAA
mK2kol10_P10.abi   --
mK2kol10_P12.abi   --

                                                                                                    | Tth111I
ref/seq delPPC_hDcr GGGCAGGATGGATTCTGAGCAGAGCCCTTCTATTGGGTACTCCTCAAGGACTCTTGGCCCCAATCCTGGACTTATTCTTCAGGCTTTGACTCTGTCAAAC
                    G R M D S E Q S P S I G Y S S R T L G P N P G L I L Q A L T L S N

mK2kol10_SqrP2.ab   --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi   --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi   --
mK2kol10_P5.abi   GGGCAGGATGGATTCTGAGCAGAGCCCTTCTATTGGGTACTCCTCAAGGAC--
mK2kol10_P8.abi   GGGCAGGATGGATTCTGAGCAGAGCCCTTCTATTGGGTACTCCTCAAGGACTCTTGGCCCCAATCCTGGACTTATTCTTCAGGCTTTGACTCTGTCAAAC
mK2kol10_P10.abi   --
mK2kol10_P12.abi   --

|DraI |SphI

ref/seq delPPC_hDcr GCTAGTGATGGATTTAACCTGGAGCGGCTTGAAATGCTTGGCGACTCCTTTTTAAAGCATGCCATCACCACATATCTATTTTGCACTTACCCTGATGCGC

A S D G F N L E R L E M L G D S F L K H A I T T Y L F C T Y P D A

mK2kol10_SqrP2.ab --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   GCTAGTGATGGATTTAACCTGGAGCGGCTTGAAATGCTTGGCGACTCCTTTTTAAAGCATGCCATCACCACATATCTATTTTGCACTTACCCTGATGCGC
mK2kol10_P10.abi   --
mK2kol10_P12.abi   --

|BstXI

ref/seq delPPC_hDcr ATGAGGGCCGCCTTTCATATATGAGAAGCAAAAAGGTCAGCAACTGTAATCTGTATCGCCTTGGAAAAAAGAAGGGACTACCCAGCCGCATGGTGGTGTC

H E G R L S Y M R S K K V S N C N L Y R L G K K K G L P S R M V V S

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mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   ATGAGGGCCGCCTTTCATATATGAGAAGCAAAAAGGTCAGCAACTGTAATCTGTATCGCCTTGGAAAAAAGAAGGGACTACCCAGCCGCATGGTGGTGTC
mK2kol10_P10.abi   --
mK2kol10_P12.abi   --

| SspI
ref/seq delPPC_hDcr AATATTTGATCCCCCTGTGAATTGGCTTCCTCCTGGTTATGTGAGTAAATCAAGACAAAAGCAACACAGATAAATGGGAAAAAGATGAAATGACAAAAGAC

I F D P P V N W L P P G Y V V N Q D K S N T D K W E K D E M T K D

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mK2kol10_SqrP2.ab  -------------------------------------------------------------------------------------------------------
mK2kol10_1.abi     -------------------------------------------------------------------------------------------------------
mK2kol10_P3.abi    -------------------------------------------------------------------------------------------------------
mK2kol10II_P3.abi  -------------------------------------------------------------------------------------------------------
mK2kol10_P4.abi    -------------------------------------------------------------------------------------------------------
mK2kol10II_P4.abi  -------------------------------------------------------------------------------------------------------
mK2kol10_P5.abi    -------------------------------------------------------------------------------------------------------
mK2kol10_P8.abi     AATATTTGATCCCCCTGTGAATTGGCTTCCTCCTGGTTATGTGAGTAAATCAAGACAAAAGCAACACAGATAAATGGGAAAAAGATGAAATGACAAAAGAC
mK2kol10_P10.abi   -------------------------------------------------------------------------------------------------------
mK2kol10_P12.abi   -------------------------------------------------------------------------------------------------------
```

| SphI
ref/seq delPPC_hDcr TGCATGCTGGCGAATGGCAAACTGGATGAGGATTACGAGGAGGAGGATGAGGAGGAGGAGAGCCTGATGTGGAGGGCTCCGAAGGAAGAGGCTGACTATG

C M L A N G K L D E D Y E E E D E E E E S L M W R A P K E E A D Y

```
mK2kol10_SqrP2.ab  -------------------------------------------------------------------------------------------------------
mK2kol10_1.abi     -------------------------------------------------------------------------------------------------------
mK2kol10_P3.abi    -------------------------------------------------------------------------------------------------------
mK2kol10II_P3.abi  -------------------------------------------------------------------------------------------------------
mK2kol10_P4.abi    -------------------------------------------------------------------------------------------------------
mK2kol10II_P4.abi  -------------------------------------------------------------------------------------------------------
mK2kol10_P5.abi    -------------------------------------------------------------------------------------------------------
mK2kol10_P8.abi     TGCATGCTGGCGAATGGCAAACTGGATGAGGATTACGAGGAGGAGGATGAGGAGGAGGAGAGCCTGATGTGGAGGGCTCCGAAGGAAGAGGCTGACTATG
mK2kol10_P10.abi   -------------------CTGGATGAGGATTACGAGGAGGAGGATGAGGAGGAGGAGAGCCTGATGTGGAGGGCTCCGAAGGAAGAGGCTGACTATG
mK2kol10_P12.abi   -------------------------------------------------------------------------------------------------------
```

|BclI*

ref/seq delPPC_hDcr AAGATGATTTCCTGGAGTATGATCAGGAACATATCAGATTTATAGATAATATGTTAATGGGGTCAGGAGCTTTTGTAAAGAAAATCTCTCTTTCTCCTTT

E D D F L E Y D Q E H I R F I D N M L M G S G A F V K K I S L S P F

mK2kol10_SqrP2.ab --
mK2kol10_1.abi --
mK2kol10_P3.abi --
mK2kol10II_P3.abi --
mK2kol10_P4.abi --
mK2kol10II_P4.abi --
mK2kol10_P5.abi --
mK2kol10_P8.abi AAGATGATTTCCTGGA
mK2kol10_P10.abi AAGATGATTTCCTGGAGTATGATCAGGAACATATCAGATTTATAGATAATATGTTAATGGGGTCAGGAGCTTTTGTAAAGAAAATCTCTCTTTCTCCTTT
mK2kol10_P12.abi --

|NdeI

ref/seq delPPC_hDcr TTCAACCACTGATTCTGCATATGAATGGAAAATGCCCAAAAAATCCTCCTTAGGTAGTATGCCATTTTCATCAGATTTTGAGGATTTTGACTACAGCTCT

S T T D S A Y E W K M P K K S S L G S M P F S S D F E D F D Y S S

mK2kol10_SqrP2.ab --
mK2kol10_1.abi --
mK2kol10_P3.abi --
mK2kol10II_P3.abi --
mK2kol10_P4.abi --
mK2kol10II_P4.abi --
mK2kol10_P5.abi --
mK2kol10_P8.abi
mK2kol10_P10.abi TTCAACCACTGATTCTGCATATGAATGGAAAATGCCCAAAAAATCCTCCTTAGGTAGTATGCCATTTTCATCAGATTTTGAGGATTTTGACTACAGCTCT
mK2kol10_P12.abi --

BamHI

ref/seq delPPC_hDcr TGGGATGCAATGTGCTATCTGGATCCTAGCAAAGCTGTTGAAGAAGATGACTTTGTGGTGGGGTTCTGGAATCCATCAGAAGAAAACTGTGGTGTTGACA

W D A M C Y L D P S K A V E E D D F V V G F W N P S E E N C G V D

mK2kol10_SqrP2.ab --

mK2kol10_1.abi --

mK2kol10_P3.abi --

mK2kol10II_P3.abi --

mK2kol10_P4.abi --

mK2kol10III_P4.abi --

mK2kol10_P5.abi --

mK2kol10_P8.abi --

mK2kol10_P10.abi TGGGATGCAATGTGCTATCTGGATCCTAGCAAAGCTGTTGAAGAAGATGACTTTGTGGTGGGGTTCTGGAATCCATCAGAAGAAAACTGTGGTGTTGACA

mK2kol10_P12.abi --

ref/seq delPPC_hDcr CGGGAAAGCAGTCCATTTCTTACGACTTGCACACTGAGCAGTGTATTGCTGACAAAAGCATAGCGGACTGTGTGGAAGCCCTGCTGGGCTGCTATTTAAC

T G K Q S I S Y D L H T E Q C I A D K S I A D C V E A L L G C Y L T

mK2kol10_SqrP2.ab --

mK2kol10_1.abi --

mK2kol10_P3.abi --

mK2kol10II_P3.abi --

mK2kol10_P4.abi --

mK2kol10III_P4.abi --

mK2kol10_P5.abi --

mK2kol10_P8.abi --

mK2kol10_P10.abi CGGGAAAGCAGTCCATTTCTTACGACTTGCACACTGAGCAGTGTATTGCTGACAAAAGCATAGCGGACTGTGTGGAAGCCCTGCTGGGCTGCTATTTAAC

mK2kol10_P12.abi --

┃PvuII
ref/seq delPPC_hDcr CAGCTGTGGGGAGAGGGCTGCTCAGCTTTTCCTCTGTTCACTGGGGCTGAAGGTGCTCCCGGTAATTAAAAGGACTGATCGGGAAAAGGCCCTGTGCCCT

S C G E R A A Q L F L C S L G L K V L P V I K R T D R E K A L C P

mK2kol10_SqrP2.ab --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi --
mK2kol10_P4.abi   --
mK2kol10III_P4.abi --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi CAGCTGTGGGGAGAGGGCTGCTCAGCTTTTCCTCTGTTCACTGGGGCTGAAGGTGCTCCCGGTAATTAAAAGGACTGATCGGGAAAAGGCCCTGTGCCCT
mK2kol10_P12.abi --

┃BalI
ref/seq delPPC_hDcr ACTCGGGAGAATTTCAACAGCCAACAAAAGAACCTTTCAGTGAGCTGTGCTGCTGCTTCTGTGGCCAGTTCACGCTCTTCTGTATTGAAAGACTCGGAAT

T R E N F N S Q Q K N L S V S C A A A S V A S S R S S V L K D S E

mK2kol10_SqrP2.ab --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi --
mK2kol10_P4.abi   --
mK2kol10III_P4.abi --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi ACTCGGGAGAATTTCAACAGCCAACAAAAGAACCTTTCAGTGAGCTGTGCTGCTGCTTCTGTGGCCAGTTCACGCTCTTCTGTATTGAAAGACTCGGAAT
mK2kol10_P12.abi --

ꟼ BclI*

ref/seq delPPC_hDcr ATGGTTGTTTGAAGATTCCACCAAGATGTATGTTTGATCATCCAGATGCAGATAAAACACTGAATCACCTTATATCGGGGTTTGAAAATTTTGAAAAGAA

Y G C L K I P P R C M F D H P D A D K T L N H L I S G F E N F E K K

mK2kol10_SqrP2.ab   --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi   --
mK2kol10_P4.abi   --
mK2kol10III_P4.abi   --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi   ATGGTTGTTTGAAGATTCCACCAAGATGTATGTTTGATCATCCAGATGCAGATAAAACACTGAATCACCTTATATCGGGGTTTGAAAATTTTGAAAAGAA
mK2kol10_P12.abi   --

ꟼ Eco47III ꟼ Ec

ref/seq delPPC_hDcr AATCAACTACAGATTCAAGAATAAGGCTTACCTTCTCCAGGCTTTTACACATGCCTCCTACCACTACAATACTATCACTGATTGTTACCAGCGCTTAGAA

I N Y R F K N K A Y L L Q A F T H A S Y H Y N T I T D C Y Q R L E

mK2kol10_SqrP2.ab   --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi   --
mK2kol10_P4.abi   --
mK2kol10III_P4.abi   --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi   AATCAACTACAGATTCAAGAATAAGGCTTACCTTCTCCAGGCTTTTACACATGCCTCCTACCACTACAATACTATCACTGATTGTTACCAGCGCTTAGAA
mK2kol10_P12.abi   --

oRI   SacII   SmaI
                                                                                                    XmaI

ref/seq delPPC_hDcr TTCCTGGGAGATGCGATTTTGGACTACCTCATAACCAAGCACCTTTATGAAGACCCGCGGCAGCACTCCCCGGGGGTCCTGACAGACCTGCGGTCTGCCC

F L G D A I L D Y L I T K H L Y E D P R Q H S P G V L T D L R S A

mK2kol10_SqrP2.ab   ---
mK2kol10_1.abi   ---
mK2kol10_P3.abi   ---
mK2kol10II_P3.abi   ---
mK2kol10_P4.abi   ---
mK2kol10III_P4.abi   ---
mK2kol10_P5.abi   ---
mK2kol10_P8.abi   ---
mK2kol10_P10.abi   TTCCTGGGAGATGCGATTTTGGACTACCTCATAACCAAGCACCTTTATGAAGACCCGCGGCAGCACTCCCCGGGGGTCCTGACAGACCTGCGGTCTGCCC
mK2kol10_P12.abi   --GACCCGCGGCAGCACTCCCCGGGGGTCCTGACAGACCTGCGGTCTGCCC

                                                                              ScaI   EcoICRI
                                                                                                Bpu10I SacI

ref/seq delPPC_hDcr TGGTCAACAACACCATCTTTGCATCGCTGGCTGTAAAGTACGACTACCACAAGTACTTCAAAGCTGTCTCTCCTGAGCTCTTCCATGTCATTGATGACTT

L V N N T I F A S L A V K Y D Y H K Y F K A V S P E L F H V I D D F

mK2kol10_SqrP2.ab   ---
mK2kol10_1.abi   ---
mK2kol10_P3.abi   ---
mK2kol10II_P3.abi   ---
mK2kol10_P4.abi   ---
mK2kol10III_P4.abi   ---
mK2kol10_P5.abi   ---
mK2kol10_P8.abi   ---
mK2kol10_P10.abi   TGGTCAACAACACCATCTTTGCATCGCTGGCTGTAAAGTACGACTACCACAAGTACTTCAAAGCTGTC-------------------------------
mK2kol10_P12.abi   TGGTCAACAACACCATCTTTGCATCGCTGGCTGTAAAGTACGACTACCACAAGTACTTCAAAGCTGTCTCTCCTGAGCTCTTCCATGTCATTGATGACTT

Bpu10I BglII

ref/seq delPPC_hDcr TGTGCAGTTTCAGCTTGAGAAGAATGAAATGCAAGGAATGGATTCTGAGCTTAGGAGGAGGATGAAGAGAAAGAAGAGGATATTGAAGTTCCA
V Q F Q L E K N E M Q G M D S E L R R S E E D E E K E E D I E V P

```
mK2kol10_SqrP2.ab   --------------------------------------------------------------------------------------------
mK2kol10_1.abi      --------------------------------------------------------------------------------------------
mK2kol10_P3.abi     --------------------------------------------------------------------------------------------
mK2kol10II_P3.abi   --------------------------------------------------------------------------------------------
mK2kol10_P4.abi     --------------------------------------------------------------------------------------------
mK2kol10II_P4.abi   --------------------------------------------------------------------------------------------
mK2kol10_P5.abi     --------------------------------------------------------------------------------------------
mK2kol10_P8.abi     --------------------------------------------------------------------------------------------
mK2kol10_P10.abi    --------------------------------------------------------------------------------------------
mK2kol10_P12.abi    TGTGCAGTTTCAGCTTGAGAAGAATGAAATGCAAGGAATGGATTCTGAGCTTAGGAGATCTGAGGAGGATGAAGAGAAAGAAGAGGATATTGAAGTTCCA
```

NcoI   BstXI

ref/seq delPPC_hDcr AAGGCCATGGGGGGATATTTTTGAGTCGCTTGCTGGTGCCATTTACATGGATAGTGGGATGTCACTGGAGACAGTCTGGCAGGTGTACTATCCCATGATGC
K A M G D I F E S L A G A I Y M D S G M S L E T V W Q V Y Y P M M

```
mK2kol10_SqrP2.ab   --------------------------------------------------------------------------------------------
mK2kol10_1.abi      --------------------------------------------------------------------------------------------
mK2kol10_P3.abi     --------------------------------------------------------------------------------------------
mK2kol10II_P3.abi   --------------------------------------------------------------------------------------------
mK2kol10_P4.abi     --------------------------------------------------------------------------------------------
mK2kol10II_P4.abi   --------------------------------------------------------------------------------------------
mK2kol10_P5.abi     --------------------------------------------------------------------------------------------
mK2kol10_P8.abi     --------------------------------------------------------------------------------------------
mK2kol10_P10.abi    --------------------------------------------------------------------------------------------
mK2kol10_P12.abi    AAGGCCATGGGGGGATATTTTTGAGTCGCTTGCTGGTGCCATTTACATGGATAGTGGGATGTCACTGGAGACAGTCTGGCAGGTGTACTATCCCATGATGC
```

ref/seq delPPC_hDcr GGCCACTAATAGAAAAGTTTTCTGCAAATGTACCCCGTTCCCCTGTGCGAGAATTGCTTGAAATGGAACCAGAAACTGCCAAATTTAGCCCGGCTGAGAG

R P L I E K F S A N V P R S P V R E L L E M E P E T A K F S P A E R

mK2kol10_SqrP2.ab   --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi   --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi   --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi   --
mK2kol10_P12.abi   GGCCACTAATAGAAAAGTTTTCTGCAAATGTACCCCGTTCCCCTGTGCGAGAATTGCTTGAAATGGAACCAGAAACTGCCAAATTTAGCCCGGCTGAGAG

                                                                                        DraI   PstI
ref/seq delPPC_hDcr AACTTACGACGGGAAGGTCAGAGTCACTGTGGAAGTAGTAGGAAAGGGGAAATTTAAAGGTGTTGGTCGAAGTTACAGGATTGCCAAATCTGCAGCAGCA

T Y D G K V R V T V E V V G K G K F K G V G R S Y R I A K S A A A

mK2kol10_SqrP2.ab   --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi   --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi   --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi   --
mK2kol10_P12.abi   AACTTACGACGGGAAGGTCAGAGTCACTGTGGAAGTAGTAGGAAAGGGGAAATTTAAAGGTGTTGGTCGAAGTTACAGGATTGCCAAATCTGCAGCAGCA

ref/seq delPPC_hDcr AGAAGAGCCCTCCGAAGCCTCAAAGCTAATCAACCTCAGGTTCCCAATAGCGGTGGCGGAGGTTCTGGAGGCGGTGGAAGTGACTACAAGGACGACGATG

R R A L R S L K A N Q P Q V P N S G G G G S G G G G S D Y K D D D

mK2kol10_SqrP2.ab --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi   --
mK2kol10_P12.abi   AGAAGAGCCCTCCGAAGCCTCAAAGCTAATCAACCTCAGGTTCCCAATAGCGGTGGCGGAGGTTCTGGAGGCGGTGGAAGTGACTACAAGGACGACGATG

XhoI

ref/seq delPPC_hDcr ACAAGGATTACAAAGACGATGATGACAAGGACTATAAGGACGATGACGATAAGTAACATTTGGTTTAGTGTACAATATCTCCTCGAGCATTTGGTTTAGT

D K D Y K D D D D K D Y K D D D D K * H L V * C T I S P R A F G L V

Stop

mK2kol10_SqrP2.ab --
mK2kol10_1.abi   --
mK2kol10_P3.abi   --
mK2kol10II_P3.abi --
mK2kol10_P4.abi   --
mK2kol10II_P4.abi --
mK2kol10_P5.abi   --
mK2kol10_P8.abi   --
mK2kol10_P10.abi   --
mK2kol10_P12.abi   ACAAGGATTACAAAGACGATGATGACAAGGACTATAAGGACGATGACGATAAGTAACATTTGGTTTAGTGTACAATATCTCCTCGA--------------

```
                            ▌XhoI
ref/seq delPPC_hDcr GTACAATATCTCCTCGAGGGCTCGTGGCCTCGACTGTGCCTTCTAGTTGCCAGCCATCTGTTGTTTGC
                     Y  N  I  S  S  R  A  R  G  L  D  C  A  F  *  L  P  A  I  C  C  L
```

```
mK2kol10_SqrP2.ab   - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
mK2kol10_1.abi      - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
mK2kol10_P3.abi     - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
mK2kol10II_P3.abi   - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
mK2kol10_P4.abi     - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
mK2kol10II_P4.abi   - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
mK2kol10_P5.abi     - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
mK2kol10_P8.abi     - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
mK2kol10_P10.abi    - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
mK2kol10_P12.abi    - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

ref/seq delPPC_hDcr

mK2kol10_SqrP2.ab
mK2kol10_1.abi
mK2kol10_P3.abi
mK2kol10II_P3.abi
mK2kol10_P4.abi
mK2kol10II_P4.abi
mK2kol10_P5.abi
mK2kol10_P8.abi
mK2kol10_P10.abi
mK2kol10_P12.abi