

Pokey

A

A-PiggyBac-13_Smed
A-PiggyBac-2_Smed
A-PiggyBac-3_Trub
B-PiggyBac-12_Aaur
B-PiggyBac-12_Acal
B-PiggyBac-15_Acal
B-PiggyBac-16_Acal
B-PiggyBac-17_Acal
B-PiggyBac-18_Atri
B-PiggyBac-19_Atri
B-PiggyBac-2_Ptep
B-PiggyBac-3_Smed
B-PiggyBac-4_Csap
B-PiggyBac-4_Tbim
B-PiggyBac-5_Aamp
B-PiggyBac-5_Lrub
C-PiggyBac-10_Atri
C-PiggyBac-14_Atri
C-PiggyBac-16_Atri
C-PiggyBac-1_Agra
C-PiggyBac-1_Airr
C-PiggyBac-1_Bgla
C-PiggyBac-1_Lpic
C-PiggyBac-1_Lvar
C-PiggyBac-1_Ppalm
C-PiggyBac-20_Atri
C-PiggyBac-21_Atri
C-PiggyBac-27_Acal
C-PiggyBac-2_Agra
C-PiggyBac-2_Bgla
C-PiggyBac-2_Cgig
C-PiggyBac-2_Lvar
C-PiggyBac-2_Oedu
C-PiggyBac-3_Aaur
C-PiggyBac-3_Atri
C-PiggyBac-4_Bgla
C-PiggyBac-4_Lbes
C-PiggyBac-4_Oedu
C-PiggyBac-4_Smed
C-PiggyBac-5_Bgla
C-PiggyBac-6_Cvir
C-PiggyBac-6_Mvir
C-PiggyBac-7_Bgla
C-PiggyBac-8_Bgla
C-PiggyBac-8_Lrub
C-PiggyBac-9_Lrub
D-PiggyBac-1_Cgig
D-PiggyBac-1_Oedu
D-PiggyBac-3_Bgla
D-PiggyBac-4_Tver
D-PiggyBac-6_Aaur
E-PiggyBac-11_Lrub
E-PiggyBac-12_Smed
E-PiggyBac-19_Acal
E-PiggyBac-1_Acal
E-PiggyBac-1_Lrub
E-PiggyBac-20_Acal
E-PiggyBac-26_Acal
E-PiggyBac-28_Acal
E-PiggyBac-2_Ppale
E-PiggyBac-4_Lrub
E-PiggyBac-7_Lrub
E-PiggyBac-7_Tver
F-PiggyBac-10_Acal
F-PiggyBac-1_Alon
F-PiggyBac-1_Tbim
F-PiggyBac-2_Aamp
F-PiggyBac-2_Acal
F-PiggyBac-2_Alon
F-PiggyBac-2_Hrob
F-PiggyBac-3_Aamp
F-PiggyBac-3_Csap
F-PiggyBac-3_Hrob
F-PiggyBac-4_Hrob
F-PiggyBac-5_Hrob
F-PiggyBac-6_Acal
F-PiggyBac-6_Bgla
Pokey-PiggyBac-1_Dobt
Pokey-PiggyBac-1_Dpuli
Pokey-PiggyBac-2_Dobt
Pokey-PiggyBac-2_Dpuli

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Pokey

Phylogenetic tree showing the relationships between Pokey protein variants. The tree is rooted at the top and branches downwards. The variants are grouped into six main clusters (A-F) based on their phylogenetic relationships. The alignment shows the amino acid sequences for each variant, with positions 1-169. Variants are color-coded: red for those with a mutation at position 1, green for those with a mutation at position 169, and blue for those with a mutation at position 168. The alignment is presented in a grid format with 169 columns and 169 rows. The first column shows the variant name, and the subsequent columns show the amino acid sequence. The alignment is presented in a grid format with 169 columns and 169 rows. The first column shows the variant name, and the subsequent columns show the amino acid sequence.



A {
A-PiggyBac-13_Smed
A-PiggyBac-2_Smed
A-PiggyBac-3_Trub
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C-PiggyBac-16_Atri
C-PiggyBac-1_Agra
C-PiggyBac-1_Airr
C-PiggyBac-1_Bgla
C-PiggyBac-1_Lpic
C-PiggyBac-1_Lvar
C-PiggyBac-1_Ppalm
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C-PiggyBac-21_Atri
C-PiggyBac-27_Acal
C-PiggyBac-2_Agra
C-PiggyBac-2_Bgla
C-PiggyBac-2_Cgig
C-PiggyBac-2_Lvar
C-PiggyBac-2_Oedu
C-PiggyBac-3_Aaur
C-PiggyBac-3_Atri
C-PiggyBac-4_Bgla
C-PiggyBac-4_Uhes
C-PiggyBac-4_Oedu
C-PiggyBac-4_Smed
C-PiggyBac-5_Bgla
C-PiggyBac-6_Cvir
C-PiggyBac-6_Mvir
C-PiggyBac-7_Bgla
C-PiggyBac-8_Bgla
C-PiggyBac-8_Lrub
C-PiggyBac-9_Lrub
D-PiggyBac-1_Cgig
D-PiggyBac-1_Oedu
D-PiggyBac-3_Bgla
D-PiggyBac-4_Tver
D-PiggyBac-6_Aaur
E-PiggyBac-11_Lrub
E-PiggyBac-11_Smed
E-PiggyBac-12_Smed
E-PiggyBac-19_Acal
E-PiggyBac-1_Acal
E-PiggyBac-1_Lrub
E-PiggyBac-20_Acal
E-PiggyBac-26_Acal
E-PiggyBac-28_Acal
E-PiggyBac-2_Ppale
E-PiggyBac-4_Lrub
E-PiggyBac-7_Lrub
E-PiggyBac-7_Tver
F-PiggyBac-10_Acal
F-PiggyBac-1_Alon
F-PiggyBac-1_Tbim
F-PiggyBac-2_Aamp
F-PiggyBac-2_Acal
F-PiggyBac-2_Alon
F-PiggyBac-2_Hrob
F-PiggyBac-3_Aamp
F-PiggyBac-3_Csap
F-PiggyBac-3_Hrob
F-PiggyBac-4_Hrob
F-PiggyBac-5_Hrob
F-PiggyBac-6_Acal
F-PiggyBac-6_Bgla
Pokey {
Pokey-PiggyBac-1_Dobt
Pokey-PiggyBac-1_Dpuli
Pokey-PiggyBac-2_Dobt
Pokey-PiggyBac-2_Dpuli

TEIAS--DG-----TIWTRIEEGSA--GRSPH-----HSAF--K-.-.-D
IELSA--DG-----TVWRKLNEGSG--GRLPL-----HNIF--K-.-.-D
TETAK--DG-----TVWHEEOVGTGP--HFTPP-----S-.-.-YN
FFVVK--DK-----TTKWQKEFRNQ--KRIPV-----QNIIT--K-.-.-Q
LYESK--NG-----KEVWLKTFYVST--GRQPS-----RNVVM--K-.-.-Q
TIVDR--TG-----RNWTTETPVI--HRRQV-----QDII--R-.-.-Q
LMTGK--NG-----FLWETQPPAS--GRRRV-----QDII--R-.-.-T
GYKSR--TG-----ROWSKTISKKK--GRASA-----RDVL--R-.-.-P
FYIGK--DR-----VTKWQKEKYRQN--VRKPS-----RNIIT--S-.-.-K
DYVGK--DG-----ITWHKKEPRKN--VRTPA-----HNIIT--S-.-.-K
FYIGK--DK-----VTKWKLKKYSQS--VRKPA-----RNIIT--S-.-.-K
SYISK--DG-----TEWNSVVIK--GRTAA-----HNIIT--R-.-.-G
SRCAR--DK-----TYWSRTPLRSI--PLQPS-----HNIT--T-.-.-Q
DRFSK--NG-----SYWNEPTHT--GRTKS-----HNIIT--R-.-.-S
THIVR--RG-----GQVAAEWTVEENVQ--RRRDR-----ANIIT--R-.-.-E
TIVDR--TG-----RHWTTETPLI--HRRQV-----QDII--R-.-.-Q
--DLS--SV-----RIFTEVDVKNP--PVCF-----RFKF--T-.-.-G
--DLF--AA-----QWCAIQKTKV--FPAPV-----RFAF--T-.-.-A
--NLD--SV-----QWCKVSSA--TAPF-----RFQF--D-.-.-G
RTFVRVFDGHH-----AFVWEEKINNRS--TAPF-----MRNF--A-.-.-E
--NV-----DNWVEGQKEPS--TFTF--T-.-.-G
--SA-----EEWTVDDH--DCGPR-----VLF--T-.-.-A
--DG-----GAGAGLWTRVNNLDD--DETP-----RRRF--R-.-.-A
--DG-----GAGAGLWTRVNNLDD--DETP-----RRRF--R-.-.-A
--HE-----CDWTDNLTDYF--DIFINQ--D-.-.-A
DIHVS--DH-----SSWVDVSKQ--DNYYP--NIDF--TT-.-.-G
--DG-----DWTEYVGRQK--VFEF--I-.-.-G
SASAV--DE-----WTWERTFQKK--DIF--W-.-.-G
--NEME--EIGGRCPNNNWRIDTDPV--DSPTYTDTSWCPQFMQS--G
RRIATA--DV-----LHVEQTEWEEVDLDEL--HAPS--THNNF--RFLDKD
--DG-----HTWIQGLDLVN--AIF--R-.-.-G
QLPQQ--QP--DMWIDLDE--DWAPSWQ--QNSY--Q-.-.-E
--DG-----DTWVQGNMDVR--NLRF--R-.-.-G
--SLD--DA-----RDWCRLEDNL--GPSPP--RFPF--T-.-.-A
--TLS--AA-----RCWCIDLQAP--SAPF--NFQF--T-.-.-L
STSNS--DSAD--PLWDHITYTT--ENN--RFHLLK
--DLL--AA-----QWCTIQKTKL--PAPA--RFPF--T-.-.-A
--DG-----NEWAKENFQLRM--ESRY--R-.-.-N
--RA-----GERIWSKEG--NFVYK--LHQF--Q-.-.-E
RRTSGNNDG--WQWERVADN--CVST--ANTF--RMSQPS
--NE-----DLWAGDRTGH--QLTF--T-.-.-G
--LFWFRIRFP--EMED--GIIF--A-.-.-E
KKRKLN--DNHNV--VINRSISDWIMVDFET--KNQF--SFAKN
SSTSKF--DSGWSLNTFTIT--QRSS--NRTF--T-.-.-E
--SAYD--RW--LMDF--T-.-.-A
--DST--SA--FQWSEKDVHRE--RFTF--T-.-.-G
--DY--NRWTENLRDIN--VAF--N-.-.-G
--DY--NRWTDNIRDIN--APF--C-.-.-G
--DS--GDSATTDDVV--VENF--T-.-.-E
STAS--EE--ITWTKVIDRSKV--DLDK--NLDF--SSR--QI--IEWNSNLIENKNI--FIK--D-.-.-Q
--RP--LRWKLRD--KFEEN--LVTL--Q-.-.-Q
KPSKS--KD--ILWQKKN--L--KNEE--QLHF--C-.-.-G
APFNS--RN--LVWRVKN--M--DMVQN--AFQF--A-.-.-G
--KR--NFWKKT--LFLPT--VASF--S-.-.-G
AAKVK--RS--LLWKTSK--DTVER--RSF--S-.-.-G
QVTDK--KN--ISWSRLFCGN--AEKF--S-.-.-G
--KGWTKKR--SFSK--ISDY--V-.-.-G
--RP--LRWKLRD--KFEEN--LVTL--Q-.-.-G
KANKE--RKLRL--YKWKHGTINK--DVFF--D-.-.-G
GKSA--RP--TWHKVDLNNTA--LFEY--Q-.-.-G
RKKG--QS--LKWKAHN--I--KVGVTCT--SSVF--S-.-.-E
QQRKL--EG--NNWVEGR--L--DNFTK--QMFF--S-.-.-G
NATLK--KD--IKWFMKNDF--TQAE--S-.-.-G
AKKKM--KV--YTWRKG--L--ALSP--T-.-.-S
--P--NEE--V-.-.-D
--TE--HDWNDGL--PFTT--PSFPCS--S
RKVS--SQ--KWRKKQ--PEYTKL--ELK--D-.-.-G
KRKTL--IF--RKWVKKD--I--QNW--DFNT--P-.-.-G
AKNRR--ET--KWKRI--T--YDNPL--POTA--P-.-.-Q
KKSIS--IE--RNWKS--I--LNVEF--IVF--S-.-.-G
RHHQAH--HT--VTWMPA--SSGKTRLPF--EANF--S-.-.-Q
KKQMI--KV--RDWKAQD--L--VTTNIPY--YKPF--M-.-.-A
KKCKK--PE--KWTKKI--NFTGKS--STG--P-.-.-E
KRSKKDGTPQ--KWMKKN--N--FEKPL--KSK--P-.-.-K
QYTTF--EK--KWTKSD--F--SSASST--SNS--D-.-.-E
KKAAS--PE--QWVKTD--I--REFDL--SW-.-.-G
RKIER--KK--RLWKSQVD--IE--QMW--CD-.-.-G
NMQKRA--DAKKVAHHKAVNRRNWKECKVWDDVRRSRS--DDVPRPQFOER--AIKF--V-.-.-LE
NMQKKA--DAKKVAQHKAVNRRNWKECKVWSDVRRQSRA--DDSPRPQFOER--AIOT--A-.-.-LE
RMQRKA--DAKLIAHHKAINKHWDVSYWTDVDEEYSNDDEGEPQFKEY--SHPF--T-.-.-TE
KMQRKA--DAKLIAHHKAINKHWDVSYWTDVDEEDQENDDENQKPHNQY--SYPE--T-.-.-AKE

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A-PiggyBac-13_Smed
A-PiggyBac-2_Smed

B-PiggyBac-18_Atri
B-PiggyBac-19_Atri
B-PiggyBac-2_Ptcp

C-PiggyBac-2_Cgig
C-PiggyBac-2_Lvar
C-PiggyBac-2_Oedu

D-PiggyBac-1_Oedu
D-PiggyBac-3_Bgla
D-PiggyBac-4_Twer

E-PiggyBac-1_Lrub
E-PiggyBac-20_Acal
E-PiggyBac-26_Acal

F-PiggyBac-2_Alon
F-PiggyBac-2_Hrob
F-PiggyBac-3_Aamp

Pokey

A-PiggyBac-13_Smed
A-PiggyBac-2_Smed

B-PiggyBac-18_Atri
B-PiggyBac-19_Atri
B-PiggyBac-2_Ptcp

C-PiggyBac-2_Cgig
C-PiggyBac-2_Lvar
C-PiggyBac-2_Oedu

D-PiggyBac-1_Oedu
D-PiggyBac-3_Bgla
D-PiggyBac-4_Twer

E-PiggyBac-1_Lrub
E-PiggyBac-20_Acal
E-PiggyBac-26_Acal

F-PiggyBac-2_Alon
F-PiggyBac-2_Hrob
F-PiggyBac-3_Aamp

Pokey-PiggyBac-1_Dpuli
Pokey-PiggyBac-2_Dobt
Pokey-PiggyBac-2_Dpuli

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

IS RV LK G - - - - - NWT - - - - - I T Q E K L K A F L A I L Y A R G A Y
 R F V F K - - - - - KWT - - - - - L T E E K L A F M A I V C A R G A Y
 K F T D V - - - - - DWF - - - - - M G L S L F A P I S I I M R G I T
 E S I S N F N T R - E - - - - - R - - - - - D A K F L - - - - - I K E F E C A F V G L L Y I A G L I
 E R C Y R E W N S - - - - - I H Q D N Q K - - - - - R W K T F - - - - - D W T E C E A F I G L L L A G V Y
 R R R I R A W N E - - - - - Q N P E N Q R A - - - - - E W K F V - - - - - N D K E M I A F I G L C L A G V Y
 E S V Y Q K N S - - - - - K R I S L R F N - - - - - G F O L L - - - - - E E M E V E A I G L L I F Q G L C
 D S V R E R F T R - E - - - - - R - - - - - D A K E T - - - - - D E T E I K A F L G L L Y C G L I
 Q S I A C K F P R - E - - - - - R - - - - - D A L H T - - - - - K N S E I K A F I G L L Y P G G L I
 E S I Q E R F T R - E - - - - - R - - - - - D A R K T - - - - - D E T E I K A F I G L L Y C G L I
 R T V L K - - - - - - - - - - - N W K E T - - - - - D Q M E I L A I G L L I D A G L K
 E E K E K R G F A K D D - - - - - Q - - - - - S Y S K T - - - - - V T E I T R A F I G L I T Q A G A K
 R R A A A V K K - - - - - - - - - - - D W K S I - - - - - D K E E F L A F I D L I L A G G D
 R I I A E K S - - - - - S D E Q R K K K Y - - - - - I L A E L - - - - - D E T E L R A F I G M V L R G I
 E R C Y R E W N S - - - - - N H Q D N Q K - - - - - R W K T F - - - - - D W T E C E A F I G L L L A G V Y
 K D S I Q S S V A - - - - - R Q F S K S - - - - - F W E E T - - - - - V E E L H V F F A I N I L G V I
 E R K A R R L N - - - - - S K - - - - - P W C S T - - - - - S E N E I R V F L G I I L Q G V I
 E E F L R K N R S - - - - - V L K F R S R V H - - - - - K W K F V - - - - - V T E I W I L Y L L L L L G V I
 E S K R E N T - - - - - - - - - - - K N R G - - - - - K W E N V - - - - - G T E M K V F I A L V I S L G I I
 A T Y S E T H D - - - - - L P S H S R Y R - - - - - K W T D T - - - - - I T E M K A F I A M I A M G L V
 R A R F I E D N H E N L - - - - - E T T P R S R V H - - - - - K W T F I - - - - - K E E F R A F L G V M N M G L N
 N K V I S A A K N R Y A R D H N G E A I L S P R S R Y R - - - - - R W T L K S Q E L N V I M L A F L A L F L N M G I
 N K V I S A A K N R Y A R D H - G E A I L S P R S R Y R - - - - - O N T K L S Q E L N V I M L A F L A L F L N M G I
 G C R Q H E K - - - - - - - - - - - K G R K H S - - - - - F W E V E - - - - - I T E K L W G L L L I N G L V
 A N I L A T K N - - - - - I S T Y S I W K - - - - - T W T D V - - - - - N E I M K A F L G V V I N M G L
 G C I S S Q K - - - - - L E H S R I N - - - - - R W N E T - - - - - N H E E M K K F L O L M M W M G L V
 M G S R H D T S T M - - - - - - - - - - - S W V E - - - - - I R O E M A A F L G L I A M G V A
 L I Y F D D P L - - - - - E L L I N S R L W - - - - - E W C E T - - - - - N P G E I R A F V A L E M A M G L C
 E H M I V K N S P - - - - - A L S R S R F N R - - - - - D N W N H - - - - - E Y E W L K F L A V I N M G I D
 A D F F N S P G - - - - - R N L K P Q S R F R - - - - - K W D V D - - - - - D I D D M K R F I A I V I M G L V
 K K T I E R L G V - - - - - L Q O H S R L - - - - - K W T D T - - - - - I P A E L K A F I A M O M A M G L V
 Q D D F F N S P G - - - - - O N L K P Q S R F R - - - - - K W N V A - - - - - I S D D M K R F I A M O M G L V
 E D F I E N N E - - - - - L T P S S R L - - - - - D W R D T - - - - - D S S E I R V F L A L I L Q G L I
 E E F F N K S D - - - - - L T P S S R A L - - - - - S W K N T - - - - - D I K E L R Q F G L L L L G I M
 R K K C Q L N S D - - - - - P R K R S V F G - - - - - R W T D V - - - - - I R S E L D K F M A V L I K I G I E
 E R K A R R L H - - - - - S K - - - - - P W C S T - - - - - S Q N E I R V F L G I I L Q G V I
 H E R E K N E P - - - - - P H Y A A - - - - - K W T F I - - - - - E K N E L K A F L A C F A M G L I
 Q Q H - - - - - P L I S Q K M A - - - - - K W D V - - - - - I S N E L S Y F A I V M L I G L Y
 K I V I Q K H N P - - - - - P T V R S T F N - - - - - N W T D T - - - - - N V A E M K Y F A V F I I G L O
 A D F L H D K V - - - - - L E K S R F Q - - - - - K W D T - - - - - C A S E M K K F A I L A M G L I
 S P I E S R E R - - - - - I R R F S R L H - - - - - E W Y K I - G V V - - - - - I T E L K A F F A V I L N M G I
 L K K V Q N T P - - - - - L R R R S R F Q - - - - - N W K F V - - - - - I K Y E M I K F L A M A M G L I
 S V K Q K N - - - - - - - - - - - S Y A - - - - - K D F I L L - - - - - I V P E L K A F F G L R L O M E Q C
 A S I A N A V - - - - - L P H A R A N - - - - - K W T D V - - - - - I N D M Q A F L A L I M I G L V
 Q L M E A P G - - - - - L R R R S R M N - - - - - N W S D T - - - - - R D E V R V L F A L I Y O G I I
 Q L C I R A K A N - - - - - P - - - - - G W Y D T - - - - - I P E E I R A F L G C L V M G I I
 Q I C I R S K A N - - - - - S - - - - - G W Y N T - - - - - I P E E M R A F L G S V M G I I
 N Y R Q Q K E K - - - - - V D R - - - - - A W O P T - - - - - I A S E I K L F H I Y I M G I I
 E Y I Q R S K N I - - - - - E D K - - - - - K W M P I - - - - - I C C E E I W N I S I L F I M S I
 D Y C A K O R Y - - - - - E D K - - - - - S W Y E I - - - - - A S I K E I W A F F T V F M S L V
 T L L T L - - - - - - - - - - - K S L D T - - - - - I P A L M M I F F G M N L M M S C L
 V K H A D - - - - - P M A F - - - - - I T S D I K Q I I G V I V F M S V
 F K N N - - - - - F I P V - - - - - I V L E R K F I G I L I F S Y V
 V A Y S G - - - - - R S L N T - - - - - I S E I Q R F V G A S I L M S L
 V I R I R E - - - - - K P L K L - - - - - I V L E E K F L O I M M M S L
 V T N N T R - - - - - K H S T - - - - - I A N E M V L V G L H M S G L I
 T V A T G - - - - - R S L N T - - - - - C Y T E I F E F L G A I Y M S A I
 T L L T L - - - - - K S L D T - - - - - I P A L M M I F F G M N L M M S C L
 F I L R Q - - - - - K L W S V - - - - - I L T D I Q G F I G A G M L M S I I
 V K D I N - - - - - T F S T - - - - - S E N E I M K F A I L I Y M G V V
 V O O T G - - - - - S L F G V - - - - - S E E V E Q F I G I H I L T G I V
 T O O R E - - - - - K P L K L - - - - - I D N E L Q O F L G C V L W M S L I
 A L K G I - - - - - S F K P C - - - - - K E E I E I V V G L H I I M G S L
 A A R K N - - - - - K N L D M - - - - - V E E L K C F I G I L L S O Y V
 A M K G - - - - - F E Y E I - - - - - I R K I G O F F G L L L F S O Y H
 K L V T K G - - - - - K Q L N L - - - - - S M D E L L I F X G I L I A S O Y
 S A T K N D - - - - - P L F S M - - - - - I A E K L F I G I L I L S O Y
 R V K H D - - - - - H A F E T - - - - - D A E E I R C F A L I L L L S O Y
 L R G - - - - - C Q Y E I - - - - - G C F I A O F G L L L F S O Y H
 S A K L - - - - - K Q L N A - - - - - I E E E M K F L A V L L L S V A
 L L R N G R - - - - - Q D Q O L - - - - - S R E D I A F I G I L V L T S V A
 V N G N - - - - - H F F T L - - - - - I S D E M K F I G I L L V S O Y
 G D K N N - - - - - N K F E F - - - - - N H L D I D K F V G I L L T G Y H
 R O K L - - - - - S S V D T - - - - - I A D E L V R F G I I I F S O Y H
 R D K N N - - - - - H F F T I - - - - - E P E E L R F L A I L Y F T G Y N
 S O H S - - - - - R Q L G V - - - - - I E E I R L V L S I L L I S O Y V
 I I K K K - - - - - H Q F S T - - - - - S A S E I K A C I A L L L S O Y S
 A E F W N Y R K T - - - - - P P S R K V G G K P E G R R I G P V L P A G G L V D H E L A A F F G I O F I I G Y H
 A E F W N S R K T - - - - - P P S R K V G G K P E G R I G R L P A G G V D H E L I A F F G I O F I I G Y H
 R D S W S Y V K K - - - - - G D P P S R K F G G R P E G K E S S L P G - G L V D K Y E L V A E L G I O F L M G L H

NNLRLQYLWNV --- KWGPFSSNTMSRRDFTETILRYIRFD --- KKNQ - 112
 KNLKLSYLWNK --- KWGPKFADTMSRRDFTETILRYIRFD --- NKNS - 112
 P - SLRDCWSK - NLGSGRIETMSRRDFTETILRYIRFD --- DRDT - 108
 HVNVRDLWATD - GTGLDIFRKTNNYKRFQILRLVLRFD --- D1KT - 116
 8
 NQESLEELWSR - KYGRPIFLATMSLKKRFQILHYCRFD --- NKNT - 119
 NHREPOSSLWE - REGRPVEVATMSRDFRCIMKYRFD --- DKAT - 120
 RETKHELWT - LSSHPYRAVMSRDFKLLKFLRFD --- DFHT - 120
 HTNKLKDLVATD - GTGLDIFRKTMSRDFELFLMRCFLRD --- NIND - 116
 HVN - GPLATD - GTGLDIFRKTMSYKRFELFLMRCVFRD --- D1RD - 114
 HTNKLKDLVATD - GTGLDIFRKTMSRDFELFLMRCFLRD --- NIND - 116
 GLFDDEFWTD - LFGQTYLRACMSRNFPAALSRLRFRD --- D1LS - 112
 NHRTVEEMFSN - OHGAPLYRAVLARRNFNLLRCLFRD --- DTTD - 119
 WQVALREFLFD - ELONPILYKATMGVGRNENRFRFRD --- DRRT - 112
 P - GVDLFSR - KNGPILFLRAAMGQQLALLAHFRFD --- D1AT - 123
 NQESLEELWSR - KYGRPIFLATMSLKKRFQILHYCRFD --- NKNT - 119
 P - GDHYSWKRY - SINTNPFFSIKMSRDFCLQIRYHFS --- D1NAEF - 121
 Q - DLDQYSKQ - LWNTPFGAKTMSYRRCQIKQNLHFN --- NDNDAY - 114
 P - VAWYWKKK - ILSTPFGAEVMSRDFSLISKFLHS --- NNEMT - 123
 P - TLGAYWKKK - WFDIPSFNMVMSRDFNQIWRYHFC --- NETAA - 119
 L - DLDQYSKQ - VINTNPFERSVMSRDFSLISVHLFA --- D1NSGA - 127
 P - NNAYWDS CN - LSQETFWFVHMNRDQVQILKFLHFA --- DNTLL - 126
 P - SVSDYWNQDD - WSQFTPCWAE --- - - - 116
 P - SVSDYWNQDD - WSQFTPCWAEVMPDHELLLMREFLOFY --- D1CED - 104
 K - RLGEYWSHFN - LSTDPGFSVTMNRNLFHLIRYHFN --- NNED - 121
 P - ELQDYSWTHF - HSNIPFGRIFFRRMFQILRWLHLK --- T1JK - 121
 P - RLEDYWSQNG - VYNNTPDRAIMSNKQFQILLTMLHFN --- NNET - 120
 P - E1HDYWSTE - ALLEGWYSVMPDRDFTQILRLHCS --- GT1SK - 116
 P - ALSSVFEKYW - L1ATPAFGVTMSRNFQOLRSLFHMN --- VNDVR - 125
 P - SIRDFSTAD - NLYTFGYHMKFORFETIYSMLHFN --- D1PGA - 128
 Q - DLDQYSKDE - M1RTPFGNTMKNKLLFLMLHFN --- NDNDQ - 125
 P - ADQYWEENW - L1LTPGFSVTMCKNQLVLLNMLHLV --- D1NELR - 121
 H - DLDQYSKDE - M1LETFFEGKTMSRKNLFLMLSLHFN --- NDNDQ - 125
 P - IQKLYWSQNG - F1YTFFGQIMSRNFRFALLMKFLHFT --- NNAT - 120
 P - VEAWNYSIR - V1NTPFGQIMSKKSLMLKFLHFE --- NSDEF - 125
 P - ALSDYWTAA - EFYAFWIHVNIRKDFD1YHMLHCG --- DEAS - 124
 P - DLDQYSKQ - L1NTPFGAKTMSYRRCQIKQNLHFS --- NDNDAY - 114
 P - EKTDRWSQK - WMFVTFNHVMSRDFHQIWRRLHFN --- NNEEQ - 119
 N - EKDYSWVD - L1NTPLEKFTTNKFLQIMRLHFLHA --- NNEQ - 116
 K - SVRDFWSKND - I1YQVWNTMTARFELFFSFMHVG --- D1EVS - 124
 M - DYSEYWTYN - V1STDFPSVMSRDFLLLLALINLN --- D1NSNH - 121
 P - V1SEYWNTKC - ASQSTKWRDMTNRNFQILRLKFLHV --- D1NTT - 127
 P - S1QDYFSTD - I1FTPFSEMEERDFSLFPCSMHCG --- D1EDA - 123
 P - R1MEDYSSSSKSF - L1ETPGFRSMDRDFSLVYTHLHFV --- NELN - 124
 P - S1MEDYTTDN - I1LEMPGLRSTNRNFEELISLHLN --- NNANN - 120
 P - EMSFWSYTK - L1ETPYVRQIMSKRFSLSLWKLHFN --- D1NTTL - 121
 P - AQDLYSKDK - L1FLHSCEIERTFRFENQOIRYHFA --- D1TRQN - 116
 P - AQDLYSKDK - L1FLHSCEIERTFRFENQOIRYHFA --- NT1QN - 116
 P - EKMSWASDE - LR1RVDGVA1SMGRTFEKLSQYHFN --- D1ATTF - 117
 P - SLKYSWSNR - M1GNSL1KETMSRDFMKILRYHLS --- DREME - 117
 P - RLTDYWAKTA - T1GNRVSMSMGMHFLK1KHYHFS --- DRESE - 118
 P - SVRMVWKS - L1RVR1LSEAMGNRFRIRSLFKVYV --- IDAH - 107
 P - N1RCYSWK - L1YQVPYNSVMNVEKRLRYHFN --- D1NSTF - 109
 R - SVRSWSNI - K1FED1AQTNMRNDFDKIRQ1FMN --- D1DSKH - 109
 P - H1KMFQHS - LR1P1IAKTIRNDFRIRN1KLVV --- VD1D - 108
 P - SARRWNAK - K1VNNVSEVMNVEWEEKIRYHFN --- D1NTA - 108
 P - RVRMWSGL - MK1V1EVSGMSRDFFKR1SNWIFV --- NNL1 - 110
 P - RVNMFQNN - RV1Q1ADV1TRKFFKIR1SNLKVV --- ID1S - 107
 P - SVRMVWKS - LR1V1LSEAMGNRFRIRSLFKVYV --- IDAH - 107
 P - Q1RMWR1E - FL1VA1E1ANF1VKKFE1K1RFLHFA --- D1NTV - 108
 P - S1VEDYAME - R1R1OVANLMSRKRFLK1RL1HFN --- D1NTQ - 105
 P - SVRQWADA - R1R1S1ADVMRNRDFKRL1HFN --- D1NSKM - 101
 P - S1RRYRAR - YD1KV1ST1K1R1K1R1YHFS --- D1NS - 108
 P - RYSLYWDKT - I1GLT1FT1MA1DR1FQ1L1R1HFN --- D1VND - 107
 P - R1RMVWQSE - D1HNS1VA1N1K1DE1M1SCLHT --- D1NDR - 109
 P - N1NLW1STSH - DM1N1Y1Q1M1P1NS1K1K1QYHFN --- D1NSK - 108
 P - R1RMVW1DN - DYHNE1S1S1AM1R1ED1M1A1YHFN --- D1NSK - 119
 P - S1RHHWSLED - DL1GE1Y1RR1MS1R1K1K1AYHFN --- NNET - 113
 P - R1RMVW1EDT - E1FNS1V1SR1MR1R1D1K1RYHFS --- D1NSH - 106
 P - N1KMW1STS - DM1N1Y1Q1M1P1NS1K1K1QYHFN --- D1NST - 108
 P - N1RMVW1EQSN - DVHNL1V1SN1S1V1N1FEEL1R1HFC --- D1NEK - 104
 V - N1RFYWEAA - D1HNL1IQ1AM1R1N1D1K1RNLHFS --- SEED - 101
 P - Q1RLW1QKO - DYHNE1I1AES1MR1N1DE1M1K1H1AA --- D1NTK - 101
 P - R1RMVW1NDE - D1R1T1FA1EQ1MS1R1F1K1RYHFN --- D1NDK - 109
 P - E1DHYW1TAD - D1LSN1I1SK1VMS1R1K1R1K1FLHFN --- D1NLN - 107
 P - R1ERLW1SLDE - DL1GVS1CVY1NMS1R1LE1K1RFLHFA --- D1SK - 109
 V - N1RMFWESE - D1HNE1V1S1AL1PLN1FEEL1RFLHVC --- D1NDN - 108
 P - R1RMVWERSE - DC1G1K1AVY1NMS1R1N1FEEL1RYHLS --- D1NNN - 110
 P - E1LSMFWEQDD - TG1GLG1I1Q1AM1R1K1K1K1H1ACAS1WSD1S --- VSDSDS - 145
 P - E1LSYF1WQDD - TG1GLG1I1Q1AM1R1K1K1K1H1ACAS1WDD1V --- YD1NS - 143
 P - E1LSMYWERO - D1SGY1GLG1I1YH1Q1AM1R1K1K1K1H1ACAS1 --- D1HDEL - 139

A {
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C {
D {
E {
F {
Pokey {

A-PiggyBac-13_Smed
A-PiggyBac-2_Smed
A-PiggyBac-3_Trub
B-PiggyBac-12_Aaur
B-PiggyBac-12_Acal
B-PiggyBac-15_Acal
B-PiggyBac-16_Acal
B-PiggyBac-17_Acal
B-PiggyBac-18_Atri
B-PiggyBac-19_Atri
B-PiggyBac-2_Ptep
B-PiggyBac-3_Smed
B-PiggyBac-4_Csap
B-PiggyBac-4_Tbim
B-PiggyBac-5_Aamp
B-PiggyBac-5_Lrub
C-PiggyBac-10_Atri
C-PiggyBac-14_Atri
C-PiggyBac-16_Atri
C-PiggyBac-1_Agra
C-PiggyBac-1_Airr
C-PiggyBac-1_Bgla
C-PiggyBac-1_Lpic
C-PiggyBac-1_Lvar
C-PiggyBac-1_Ppalm
C-PiggyBac-20_Atri
C-PiggyBac-21_Atri
C-PiggyBac-27_Acal
C-PiggyBac-2_Agra
C-PiggyBac-2_Bgla
C-PiggyBac-2_Cgig
C-PiggyBac-2_Lvar
C-PiggyBac-2_Oedu
C-PiggyBac-3_Aaur
C-PiggyBac-3_Atri
C-PiggyBac-4_Bgla
C-PiggyBac-4_Lbes
C-PiggyBac-4_Oedu
C-PiggyBac-4_Smed
C-PiggyBac-5_Bgla
C-PiggyBac-6_Cvir
C-PiggyBac-6_Mvir
C-PiggyBac-7_Bgla
C-PiggyBac-8_Bgla
C-PiggyBac-8_Lrub
C-PiggyBac-9_Lrub
D-PiggyBac-1_Cgig
D-PiggyBac-1_Oedu
D-PiggyBac-3_Bgla
D-PiggyBac-4_Tver
D-PiggyBac-6_Aaur
E-PiggyBac-11_Lrub
E-PiggyBac-11_Smed
E-PiggyBac-12_Smed
E-PiggyBac-19_Acal
E-PiggyBac-1_Acal
E-PiggyBac-1_Lrub
E-PiggyBac-20_Acal
E-PiggyBac-26_Acal
E-PiggyBac-28_Acal
E-PiggyBac-2_Ppale
E-PiggyBac-4_Lrub
E-PiggyBac-7_Lrub
E-PiggyBac-7_Tver
F-PiggyBac-10_Acal
F-PiggyBac-1_Alon
F-PiggyBac-1_Tbim
F-PiggyBac-2_Aamp
F-PiggyBac-2_Acal
F-PiggyBac-2_Alon
F-PiggyBac-2_Hrob
F-PiggyBac-3_Aamp
F-PiggyBac-3_Csap
F-PiggyBac-3_Hrob
F-PiggyBac-4_Hrob
F-PiggyBac-5_Hrob
F-PiggyBac-6_Acal
F-PiggyBac-6_Bgla
Pokey-PiggyBac-1_Dobt
Pokey-PiggyBac-1_Dpuli
Pokey-PiggyBac-2_Dobt
Pokey-PiggyBac-2_Dpuli

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A-PiggyBac-13_Smed
A-PiggyBac-2_Smed
A-PiggyBac-13_Trub
B-PiggyBac-12_Aaur
B-PiggyBac-16_Acal
B-PiggyBac-15_Acal
B-PiggyBac-16_Acal
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B-PiggyBac-18_Atri
B-PiggyBac-19_Atri
B-PiggyBac-2_Ptep
B-PiggyBac-13_Smed
B-PiggyBac-13_Csap
B-PiggyBac-2_Thim
B-PiggyBac-5_Aamp
B-PiggyBac-5_Lrub
C-PiggyBac-10_Atri
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C-PiggyBac-1_Agra
C-PiggyBac-1_Airr
C-PiggyBac-1_Bla
C-PiggyBac-1_Lpic
C-PiggyBac-1_Lvar
C-PiggyBac-1_Ppaln
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C-PiggyBac-2_Bla
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C-PiggyBac-2_Lvar
C-PiggyBac-2_Oedu
C-PiggyBac-3_Aaur
C-PiggyBac-3_Atri
C-PiggyBac-3_Bla
C-PiggyBac-3_Lhes
C-PiggyBac-3_Oedu
C-PiggyBac-3_Smed
C-PiggyBac-3_Bla
C-PiggyBac-3_Cvir
C-PiggyBac-6_Mvir
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D-PiggyBac-3_Bla
D-PiggyBac-3_Tver
D-PiggyBac-6_Aaur
E-PiggyBac-11_Lrub
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E-PiggyBac-28_Acal
E-PiggyBac-2_Ppale
E-PiggyBac-4_Lrub
E-PiggyBac-7_Lrub
E-PiggyBac-7_Tver
F-PiggyBac-10_Acal
F-PiggyBac-1_Alon
F-PiggyBac-1_Thim
F-PiggyBac-2_Aamp
F-PiggyBac-2_Acal
F-PiggyBac-2_Alon
F-PiggyBac-2_Hrob
F-PiggyBac-3_Aamp
F-PiggyBac-3_Csap
F-PiggyBac-3_Hrob
F-PiggyBac-4_Hrob
F-PiggyBac-6_Acal
F-PiggyBac-6_Bla
Pokey-PiggyBac-1_Dobt
Pokey-PiggyBac-1_Dpuli
Pokey-PiggyBac-2_Dobt
Pokey-PiggyBac-2_Dpuli

Pokey

A {
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Pokey {

A-PiggyBac-13_Smed
A-PiggyBac-2_Smed
A-PiggyBac-3_Trub
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E-PiggyBac-26_Acal
E-PiggyBac-28_Acal
E-PiggyBac-2_Ppale
E-PiggyBac-4_Lrub
E-PiggyBac-7_Lrub
E-PiggyBac-7_Tver
F-PiggyBac-10_Acal
F-PiggyBac-1_Acal
F-PiggyBac-1_Tbim
F-PiggyBac-2_Aamp
F-PiggyBac-2_Acal
F-PiggyBac-2_Alon
F-PiggyBac-2_Hrob
F-PiggyBac-3_Aamp
F-PiggyBac-3_Csap
F-PiggyBac-3_Hrob
F-PiggyBac-4_Hrob
F-PiggyBac-5_Hrob
F-PiggyBac-6_Acal
F-PiggyBac-6_Bgla
Pokey-PiggyBac-1_Dobt
Pokey-PiggyBac-1_Dpuli
Pokey-PiggyBac-2_Dobt
Pokey-PiggyBac-2_Dpuli

YKSKFN--KVLVLLSKKHKIKIDKAAK--
YKSKFO--KVLVLLSKKHKSQVINKNK--
YAFKRK--RTVYVLSMMSMIQIQDTTK--
YMTKKN--NCVNLLSTMHNDNHIDESTG--
YVFKKG--KSVILLSSMHTDAQISNRE--
YVFKKG--KSVILLSTMHDKVVDGLK--
FVFKPG--KAVLAISTLHHDATDAQMS--
WVFKRH--KTVLLSSMHHDAAVID--
YAAKKN--KNVVMLSMHTDDKIDETTM--
YVKKKN--KCVVLLSMHNDSDASTA--
YSAKKN--KNVVMLSMHTDDKIDETTM--
YVKKKN--RAVLLSTMHHTSEVDNTN--
YKAKMN--KIVLLSSYHHEEIDGSEN--
YVFKKG--KSVVLLSTMHDDKAVDES NHK--
YCFRRG--KVVLVASTMHKQSLIDORS--
YVFKKG--KSVILLSTMHDKVVDGLK--
WMDK--KKVSLISTIHNTENVQIQV--
WKDK--KDVSLISTIHTIDMDVNTNR--
WKDK--KDVHLLSTIHNIEMSKVSCN--
WLDT--KAVYFLSTMHPPIHPDTPRELRFVKRRGGQD--
YADK--KDVHLLSTIHKGVMEDSGKDDQE--
YQUN--SRKPIILLSTASKAGLIDTVNSR--
FRQKASQKPGVCLLSTKGSARWYKKKTGEN--VTTAD--
FRQKASQKPGVCLLSTKGSARWYKKKTGEN--VATAD--
--KTCAYVKLKR--
WCDT--RVVTLLSTETSDSOTIQRRLA--KAKRGNIG--
WKDT--RDVRLSTKHAIFVYVAFKKRALQMEQKNTNQHAATTSTSQSLQSMSTSANQFAVISTNLSEQSTSTKTNRQYRRLEKFEAILAANKAGIDLSDOMGAYAT--
WKDK--RDVYCLSSLHGSEIDALSNSSGD--AGVKLRLVCDYNTMHGGVDLHDLQVYYS--
WQDN--KTVRLLSTVHGNDVTSKEIKKR--GGAGGE--GRIVHKQAVVOYKYMGGVDKDLRLAYYS--
WKDKKA--KKEVILASTSATAEADVTVQRG--KVKPGAIHAYYSMNGCDRADDMIGYGG--
WKDK--RDVHMCTTVHTAEFIDVPGVVD--KTI--QATQRRCIVAYDKYMGAVDRCDMISYFA--
WHDT--KRVSALSTIHPSGCQQRQVDR--RSAGG--VRQVTKTAICGYSSMGGVDLLDOL--
WKDK--RDVHMCTTIHDASFVEVPGVVD--RTS--GDFIQRACILAYDKYMGAVDRCDMITYFA--
YMDK--KEIHMMLSTIHTIDFVEQCKKK--KSNGN--EIKKKKAVLDYRTMGGVDMADQCLSYYP--
WKDK--KILTMLSTIHTALVSVESKRS--TIKQKPKVYVDYRSMGGVDKDDCLSYYP--
FKDKKA--KNVIMYSTDAEVGTAK--VNDVKPSMVDYTRNMNGCDKLDKVTYNC--
WKDK--KDVSLISTIHTIEMODVTNQR--ETKSRPKCVVDYDKMGGVDKVDHLAAYS--
WQDT--KQVCVLFNHDHARRQVIRV--AE--NIVQYPKLLSDYQKMKGVDLCDMIGYGM--
WMDK--KEVFMMLSTIHRNGLVESTKTNF--QS--FEKIMKPKVIDLSLFMGGVDYDMRMSFE--
WQDKKA--KKECIMYSTKSNRIINVQK--RSYEMKPEMVHDYKMMNGCDRADDMLSYYS--
YQDS--KTVYLLSTETSNIVTTSNHDF--HT--NETKIRSMVHYVKKMGAYDRNOMVENNK--
YKEGRR--KRPVRLSTLGRAE--LTVNGPKVYIETYSKMGVDLADOLTSAYV--
WQDKKA--KRPVAIVSTMAKAENREIKN--VKPAAVDYTKMYGCDLYDKIGYGG--
WMDQ--REIHFISSYHNTHQTLKRN--KDG--TVDVTPQLCIDYTKYMGCDVNDVYCRLNK--
WFDK--KQVNLISSTIHTMFERKTYRTK--STAGH--MREVDKPAALIELYSRYMOGVDRDOLLWYNL--
WMDK--KEVSMMLSTYHRSEMQTVQTHR--KDKKPAALVITYKNMGAVDADOMLVAYF--
WRDK--RKLTIISTINQSDQEVQRQK--DGT--VKNVTCPMKVKLYSAYMNGVDHADQLRSYTN--
WRDK--RNLTIISTINQSNQEVMRQK--DGS--VKNVTCPMKVKLYSAYMNGVDHADQLRSYTN--
WKDK--KCVTLSTNTSGTEITRGG--GG--NFQKVPYSAVNTYKSMGGVDRFDOLSYYP--
WKDK--KEIIVLSTGGEMEIVKVNRI--GGI--VNEVTCPEIIRNYSNFMGGVDLADONRHYD--
WLDK--KQISISTNNKNEICEVYRK--AE--KLSVQCPVVFQAYRNMGVDLADRRKYE--
WFDN--KCIITLGSCHSTOQDTCRW--RKQKK--YISVTRFDIVNOYANMGGVDLMDRMISYR--
WKDN--KYVTLLVSFAGTHPESVVR--RKMKK--VIEVNCFYIQEYRHMGGVDLLDSHTRK--
WKDN--KQVLLSTYVGAEPKTICTYE--KLLKA--NQVSWPRVKEYNAHMGIDLMDSFGRYR--
WFDN--KPIIMASSVHAKIPEDICQ--KKEKR--YVEVKRPSIVRAYNAKMGVDLCDRMISFYR--
WYDN--KVVNLLSTYVGTETRIKVMWF--SAQKA--RKEIDCQITISTYNOHMGVDLLDSLMGLYR--
WYDN--RFTVLASFNGVAVDDVRWD--KRSRS--FVMVRFEIVHRYNTSMGGVDKLDLISLYR--
WFDK--KPIILIASAAHGEIQLDKRW--KRTKS--YIEVERFEIROYYSKMGVDLCDRMISYR--
WFDN--KCIITLGSCHSTOQDTCRW--RKQKK--YISVTRFDIVNOYANMGGVDLMDRMISYR--
WCDN--KCVTFLSTFVGGOPELSQLWD--GESR--YKSVTCPLVKYKXHMGGVDLIDSLIGLYR--
WKDN--RTVTLLSTDMGVEPSSVIRYC--SETKM--KEPVSCPAVKSYSATMGGIDKSDMLVHLYR--
WFDN--KRVHLISSYAGINPQLARWS--LKDKK--VVMNQPHIVKEYRFMGGVDLHDMVALYR--
WYDN--KVVSLYSTFVGAEPCQIRF--KKEQT--RKEISCRIISYKXHMGGVDNLDLSLLGLYR--
WIDT--KSVILASFVGIIEEDEVO--KEKKE--YIKKRFPEVVKRYRKMGGVDLMDLIALYR--
WNDN--SVVSIANALSVPFLHNVTYS--QKKKK--NISVTPHLVRYVENMGGVDRCDNISLYR--
WNDN--SVVTIGNHLSHSLGKAKKYS--RKDKK--KVDISQPHLTKRYNEGMGGVDLDRLLGLYK--
WKDN--NIVTVANMEEKYETS VKWN--RHRR--FDNQVQPKCISRYNEHMGVDLHDLQVRYH--
WNDN--KCVTMNSNFDSQPLARVKWD--RSQRA--HKYEQPRMVNYSKFMGGVDAHDWLCCKYS--
WNDH--SVVHILSNVYGVPITSLRW--KSEKR--KIDIMPFLVSMYNTYMGVDLMDNIGNRYR--
WNDN--SVVTIGNHLSHSLGKAKKYS--RKDKK--KIEICQNLIKKYNEMGGVDLDRLLGLAYR--
WNDN--SVVSISSCNGLEPMKEVKWS--SANKK--HVLISQFYIINOYKYMGGDRMDNINENR--
WQDN--ARVTLASTCYGVPPQKVRYS--RVQKR--HVEVDRPHVGYKXEMGGIDRMDNINENR--
WHDN--GIVTMASSEFGVSPVRAERC--ASQKK--RMKYSMPNVIIHYKNMGVDLMDNIAQYR--
WNDN--GCMVYASNDNILLQKARWS--STKKA--SVDNPOALIKRYNTHMGVDLDRFMAKYR--
WNDN--SVVTLISNWLGLALQNVMSYS--AKQKQ--KVAVKQPEVVAAMONMGGVDLDRLLSAYR--
WYDN--SACSMLSNWDISKPLNNVKWS--RTTKS--KENILQPKLFASYSNEMGGVDNHDCLSLYR--
WMDN--NVVSMNLNCCGKPLSQVRWS--AAQKK--HIFISQPMVAOYRFMGGIDRMDNIAKLR--
WNDN--SVVSIANFAGDMLKAVO--KKEKK--FIQVTPNIIISLYONMGGVDRADONVAKYR--
WRDT--KAFRYASNYHGSDIVKVLK--QRDGS--YKTKSCPAIDDYVNNMGGVDANOLRSYR--
WRDT--KAFRYASNYHGSDIVKVRK--QRDGS--FSKSCPAIDDYVNNMGGVDANOLRSYR--
WKDT--KPFRLASFNGSEIVKVRK--QRDGS--FRTKSCPAIADYVNNMGGVDANOLHSYR--
ERDT--KAFRYASNENGSKYKVRK--QRDGS--FRTKSCPAIGDYVNNMGGVDANOLRSYR--

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F

F-PiggyBac-2_Alone
F-PiggyBac-2_Hrob
F-PiggyBac-3_Aamp
F-PiggyBac-3_Csap
F-PiggyBac-3_Hrob
F-PiggyBac-4_Hrob
F-PiggyBac-5_Hrob
F-PiggyBac-6_Acal
F-PiggyBac-6_Bgla
Pokey-PiggyBac-1_Do
Pokey-PiggyBac-1_Dp
Pokey-PiggyBac-2_Do
Pokey-PiggyBac-2_Dp

Pokey

A

B

C

D

E

F

Pokey

A-PiggyBac-13_Smed

A-PiggyBac-2_Smed

A-PiggyBac-3_Trub

B-PiggyBac-12_Aaur

B-PiggyBac-12_Acal

B-PiggyBac-15_Acal

B-PiggyBac-16_Acal

B-PiggyBac-17_Acal

B-PiggyBac-18_Atri

B-PiggyBac-19_Atri

B-PiggyBac-2_Ptup

B-PiggyBac-3_Smed

B-PiggyBac-4_Csap

B-PiggyBac-4_Tbim

B-PiggyBac-5_Aamp

B-PiggyBac-5_Lrub

C-PiggyBac-10_Atri

C-PiggyBac-14_Atri

C-PiggyBac-16_Atri

C-PiggyBac-1_Agra

C-PiggyBac-1_Airr

C-PiggyBac-1_Bgla

C-PiggyBac-1_Lpic

C-PiggyBac-1_Lvar

C-PiggyBac-1_Ppaln

C-PiggyBac-20_Atri

C-PiggyBac-21_Atri

C-PiggyBac-27_Acal

C-PiggyBac-2_Agra

C-PiggyBac-2_Bgla

C-PiggyBac-2_Cgig

C-PiggyBac-2_Lvar

C-PiggyBac-2_Oedu

C-PiggyBac-3_Aaur

C-PiggyBac-3_Atri

C-PiggyBac-4_Bgla

C-PiggyBac-4_Lhes

C-PiggyBac-4_Oedu

C-PiggyBac-4_Smed

C-PiggyBac-5_Bgla

C-PiggyBac-6_Cvir

C-PiggyBac-6_Mvir

C-PiggyBac-7_Bgla

C-PiggyBac-8_Bgla

C-PiggyBac-8_Lrub

C-PiggyBac-9_Lrub

D-PiggyBac-1_Cgig

D-PiggyBac-1_Oedu

D-PiggyBac-3_Bgla

D-PiggyBac-4_Tver

D-PiggyBac-6_Aaur

E-PiggyBac-11_Lrub

E-PiggyBac-11_Smed

E-PiggyBac-12_Smed

E-PiggyBac-19_Acal

E-PiggyBac-1_Acal

E-PiggyBac-1_Lrub

E-PiggyBac-20_Acal

E-PiggyBac-26_Acal

E-PiggyBac-28_Acal

E-PiggyBac-2_Ppale

E-PiggyBac-4_Lrub

E-PiggyBac-7_Lrub

F-PiggyBac-7_Tver

F-PiggyBac-10_Acal

F-PiggyBac-1_Alon

F-PiggyBac-1_Tbim

F-PiggyBac-2_Aamp

F-PiggyBac-2_Acal

F-PiggyBac-2_Alon

F-PiggyBac-2_Hrob

F-PiggyBac-3_Aamp

F-PiggyBac-3_Csap

F-PiggyBac-3_Hrob

F-PiggyBac-4_Hrob

F-PiggyBac-5_Hrob

F-PiggyBac-6_Acal

F-PiggyBac-6_Bgla

Pokey-PiggyBac-1_Dobt

Pokey-PiggyBac-1_Dpuli

Pokey-PiggyBac-2_Dobt

Pokey-PiggyBac-2_Dpuli

YVR - KWCQIG - YCN - NNK - TNICNK - KKS LCGKCTRSKIY - TCRNCEQQYVN - N

TNTR - KQCQTG - FCN - KKK - TTMCDK - KRYVCGKISVKKI - ICKRCEE -

- KR - GKCAKI - CCK - DNHA - TVRCVDC - YRY LCGKRKEQW - QCQDC -

KLSY - RRCY - LCREK - DKK - KTTCLK - EKNICREHSVIEA - VCTNCKOSNY - SDCT - P

KRKQ - GRCI - LCDRSK - DKK - RTTCHRC - GSACAYHLVA - LCTGCA -

KRTQ - GRCH - LCREC - DRK - RKFCDK - SRPACFAHSVNNL - LCDCKLI -

KAKR - RRCS - LCGDN - DKA - ARECTL - NRVCGEHSQQQA - VDCSCY -

IAGR - GCCY - YCAKR - KKK - KQLCDG - EKHYCGEHSRVKMSRRCCNCATEND - Q

KANY - KRCA - FCPNK - DRK - RFMCQK - EKSLGVEHOFV - ICNCL -

- RN - ENCD - FPQKK - NKKFLERDAM - YVVR - ENKKVYVVKKM - YAGNIAALFA - ANVSK - M

KETY - KRCA - FCPNK - DRK - RFICOK - EKSLGVEHOFV - ICNCL -

TNIR - RRCY - LCPAK - GRA - KQCCGC - GKNVCEHSQKIV - VCKTCLNK -

- GK - KRCH - ICWKT - ASKC - RTVCTR - HKVVCQQHYRI - YCTDCQYM -

QKKR - KRCA - ICTTSK - DRKA - SCWFSQ - TRVCKEHRHVLL - FGRNV -

GHER - GRRC - ICMEESHG - GFK - RRRG - AMGSSRCEG - GQYVCANHSNK - VCNSTCE -

KKTQ - GRCH - LCREC - DRK - RKFCDK - FRPACFAHSVNNL - LCDCKM -

LRFPA - RQCA - VCCSKRNNEX - KRIRKE - RYFC - DVLGCI - TFCFKLYH - TQKDF -

SNPT - RQCT - LCSRKRDSRX -

REPT - RRCV - VCVASKNNG - KIRKE - RIWCD - EVALCN - ICFCKIYH - TQRNY -

- NS - LVCK - VCSKITSETFKQQYQHT - KQDRKMMYVSR - QIGCEEC - NVBLCLTKD - RNCCKAWH - TKAEYWR -

NHAK - RRCV - VCGFAEAELEFRSA - NPEE - VPKRMRE - CFQCKG - QVALCI - ECFCELFH - TKAEYVLAYKRLKSVL - EBYTLKLHQNCIYS - STVLLLTILLQTVTADNFTTNCYC -

- KK - RQCV - GWECTG - KVLG - ECFCAKYL - RQL -

- KS - RECT - VCSDRKGD - RKR - SFGLRC - GVAVC - ECKNSQHK - K -

- KY - RECT - VCSDRKGD - RKR - SFGLRC - GVAVC - ECKNSQHK - K -

- TQ - SKCA - VCSDRKGD - VHTRRVD - LYAGVC - KVRMC - VCFCHRYH - YMSDYTYDD - QKASSA - RRRKHCSVSS -

- VR - RKCH - IYINISKTE - GREQARKKA - KLITYCDN - DQOMC - RNCFNAKI -

- VR - KRCR - VCAQKNSQT - GNSRDTR - VMRCCK - DVLGV - GECFELWH - TKATI -

- YR - DCN - VCSDRNV - RRVO - TFYCKC - NVPLCKMS - KNCFERYH - TVLNY -

- OD - RRCK - VCSYKO - VKRC - NFICKG - EHPHLH - KHCFEIWH - TKVNF -

SKPL - RTCG - VCSITTKRKTVD - DRKTVR - SYECKVC - DVLGV - DPCFKLYH - TKKDFKQAYNRLQEON - VESSDD -

- GRYY - DCV - VCSKKNNG - RKT - SYECKVC - DVLGV - DPCFKLYH - TKKDFKQAYNRLQEON - VESSDD -

SKPL - RTCG - VCSITTKRKSVD - DRKTVR - SYECKVC - DVLGV - DPCFKLYH - TKKDYKQAIQRYRQON - AESDDSD -

KTLS - RVCI - VCGKKFDNK - RRLRKE - RFECCK - KVALCI - TPCFERYH - TVMDY -

KYST - RRCA - VCSKTNANS - KVRRE - RFECVIC - KPYLEQF - TESNFLRS - NRFQNSL - WRATSYV - LG - LRKIRWDFLRSKRSK -

- RD - RDCV - FCSTSTK - RAR - HFFCSG - EAKPHLH - KGCFSKFFH - EAQ -

SNPT - RQCT - LCSRKRDCRG - KVRKE - RYQCTEC - QVSLCV - VPCFKNYH - TKTNI -

- KN - KVCR - ECLSQSSE - RKG - KFCQOC - NVAHV - LECSSKHJ - MRMMTV -

DNGK - KCCV - VCSRSS - RKR - TIMQLC - DVLGCI - VPCFKDYH - TKVNL -

- ND - RCV - YCKSSQ - RKR - RFCCSC - SQRLGV - KHCFLRYH - EDLAKI -

- LH - RQCI - VCGFAERKMCDAV - RGE - KRRF - HMT - SYCKOC - NVPLCI - TCEEFH - TKQEF - FLAYKRMKSAE - ANCNTTE -

- KE - KDCC - ACSERHGWG - RKR - RTICVIC - GKGLH - KMRONHY - CVSED -

- KE - NRCK - VCSYKK - RAR - HMT - DRPHLH - KDCFKWH - TQVHF -

- GN - NLGV - VCAYKFNKHVKQF - DMDYNSR - VKKIK - KFWKLC - QIYLCIKE - STCWEDWH - TKKEYWR -

KSR - DCE - VCSNRSVK - RHQV - QTMCKC - KLFMCA - VPCFERYH - TLDYKAKCTAEYHA -

KART - RCK - VCSHLG - DG - KIRKE - VFMADC - DVLGV - EPCFERYH - TKYNY -

- KK - RRCK - QCTKSQV - RRE - LSGCQC - DYNLC - NDCFKF - LENFP - Q

- KK - RRCK - QCTKSQV - RRE - LSGCQC - DYNLC - NDCFKF - LDNFP - Q

- NK - RACH - WCMKNKQF - RNRHAE - VYGCNL - QIRLCK - ECFCKF - NSLTL - SH - V

- RK - RNCH - ECKMMNKTR - SNL - IQ - TWMCKT - KLCLC - LKCF - F - KMNNLD -

- RK - RTGV - RCRKLGLKTA - AGRSIE - SWECTG - KICLC - QNCFVDN -

- IK - MRCK - YNC - KGF - RTCKEC - GVLCLNKN - NNCCKNFH - TQ -

- SR - NKCK - FNNC - RKL - SWFKKC - KVS LCDNKN - NCCFALFH - A

- VKNAMRCR - NSGC - SSK - KVKCQC - KVVLCRAE - RNCFEQFH - RD -

- ER - LRCR - LGC - SGO - RVSCCK - NISLCFSKD - KNCFKREH - TE -

- KKEATRCK - RSLC - SSK - HVGCDK - NVHVCVPG - RNCFKMEH - RQ -

- VKN -

- VKSAMRCR - NLAC - KYK - MIRCKT - DMFLCLTIS - RNCFAQFH - KK -

- KR - NRQV - QSLC - TGI - RVSCCK - NVALCCNKK - KNCFYDYH - VSK -

- QR -

- VK - HRCA - MCK - YAK - RVRLIC - NVALCCTKE - KNHFEAYH - KHE -

- KK - TRCR - TAS - Y - TKCP -

- LKNETRCK - YNNC - KFK - NMMLCK - KVHLCLKR - RNCFKAFH - ENK -

- KO - TRCR - HQKC - TTRCKC - NIGLHVK - CFIDYH - KK -

- TO - GRCA - EC - MKN - KCFG - DKRLHON - CFTFYHQI - QANNK -

- RF - QRCR - EC - EKR - TYACEK - KVLHLE - CFKLYH - QV -

- KO - RRCK - GGGC - SSK - RSYCEK - CAVLCI - CFKLYH - TK -

- KO - NRCA - NC - KKN - KKKCAK - NINLES - CFHFFH - KTH -

- TO - GRCA - QC - MSN - RKKLAC - DKRLHVN - CFAIYHKI - ITTNN -

- GR - KRCK - LC - HKV - SKKCLK - DVALHLE - CFEHFF - RK -

- SS - SRPHGGPTTEG - TAKV - GCKVC - AVFLGVN - CFAFEH - GVAQ -

- SR - RRCK - QC - KSN - VOMSKY -

- KO - SRC -

- TO - RCS - LC - QKN - RKWCEIC - GKRLHEK - CFKFFH - NL -

- KO - LKCT - FC - HMKA - RWMCKK - GKTLCIE - KCFEKYH - LASA -

- GO - KRCA - AC - KKV - QRKCTK - NVPLHVN - CFERFH - TK -

- TT - RRCA - LC - KKT - NCKSGV - NVGLHPK - CFRLFH - GHTM -

- AR - GRCE - WQATRK - NKL - ESR - FSKCK - NVFLCLGKK - RNCFVEFH - DNNYTSSEAH - LDEVEAVYSASEES - GQASDHE - TNKECSSSSADSDELE - NSNRRE - YMIDD - YDDFQ - Q

- AR - GRCE - WQATRK - NKL - ESR - FSKCK - NVFLCLGKK - RNCFVEFH - DNNYTSSEAH - LDEVEAVYSASEES - GQASDHE - TNKECSSSSADSDELE - NSNRRE - YMIDD - YDDFQ - Q

RNCFLEFH - DDRILD - TKAA - ETVLAVD - EEEI - IAVQTVETDHL - GIFYSS - SSS