

1

vnana	-----	-----	-----	CCAAATAAAG	AGGTACAGCG	CGT-----	G-----	GGA
vnere	---CTGAAA	C-----	GT	GGTTAAAGTG	GCCATTGGGC	AGGCGCG-CG	CGTTGACCGG	-----CGG
vngri	---CTCAGC	TTGCCCCAGT	GGCACCAGTG	GCCCGCGCGC	GLTTAATTGTC	CAACAGCCAG	-----	CGG
vnmel	TTATTGAAAG	TGCCGAAGTT	AG-----	GGGC	ATT-----	ACTTACC-TG	CGT-----	GGA
vnmoj	-----	G	CCGTTTCGCC	AGTCAAGGGC	GCCGCTCACC	GC-TACC-TG	CGT-----	GGA
vnper	---CTGGG	AAGCAAATCT	GTGCGCTGTC	GCGCTGCTGC	GGATACC-TG	CGT-----	G-----	GGA
vnpsc	-----	-----	TCGCGTGTG	GCGCTGCTGC	GGATACC-TG	CGT-----	G-----	GGA
vnsec	-----	CTGAAACGT	GGTTAAAGTG	GCCATTGGGC	AGGCGCG-CG	CGTTGACCGG	-----	CGG
vnsim	TTATTGAAAG	TGCAGAAGTT	AG-----	GGGC	ATT-----	ACTTACC-TG	CGT-----	GGA
vnvir	-----	-----	AGTCAAGGGC	TGCACACACA	CCCTACC-TG	CGT-----	G-----	GGA
vnwil	-----	-----	CTTCCATGTC	ATCAAGTGTC	AAATTTTGTG	TGTGTGTGTG	-----	TGCCCTTGGC
vnyak	-----	-----	GT	AGATTCCGAT	TTCATT-----	TACC-TG	CGT-----	GGA

71

vnana	AAAATCGGAA	AAAGC-----	GAC	TAA-----	T-----	TGGA-----	-----	TAGGAGTT	AGTGGGTTTT
vnere	CAATTTTC	-----	GAT	ATAAAAAAT	-----	T-----	T-----	TTTAGCACAC	GGTCACCT--
vngri	CAATTTTATC	TGCTGTTTTT	TTTGTCTCGC	ATTT-----	T-----	TGTTGTGTTT	TTTAGCACAC	GGTCAGAT--	-----
vnmel	AAATC-----	-----	GAC	TAA-----	T-----	TGCGACCGCC	CCGAG-----	AGTCAGTTTT	-----
vnmoj	AAATATCTTG	AGAGCGAGAC	ATAGAGAGAC	AGAGCGAGAT	TGAGACGGTG	AGAGGGAGAG	AGTAAGCT--	-----	-----
vnpsc	AAATCTCTCG	TTTCCTGGAC	TAA-----	-----	T-----	TGCGACCGCC	CTAAAAGAGTC	AG-----	-----
vnpsc	AAATCTCTCG	TTTCCTGGAC	TAA-----	-----	T-----	TGCGACCGCC	CTAAAAGAGTC	AG-----	-----
vnsec	CAATTTTC	-----	GAT	ATAAAAAAT	-----	T-----	TTTAGCACAC	GGTCACCT--	-----
vnsim	AAATC-----	-----	GAC	TAA-----	T-----	TGCGACCGCC	CCGAG-----	AGTCAGTTTT	-----
vnvir	AAATGTCCA	-----	-----	-----	T-----	TGCG-----	TCTCGGGCTA	AGCTGTTTT	-----
vnwil	TAATCTGTTG	TGGCCTTCTT	CTT-----	-----	T-----	TTTGGG-----	TTTGGCAAAA	AGTCACTG--	-----
vnyak	AAATC-----	-----	GAC	TAA-----	T-----	TGAGACCGCC	TCCGAG-----	AGTCAGTTTG	-----

141

vnana	ACGGAGGACG	AC-----	G	ACAGGTAAAG	GGCCA-----	-----	-----	-----	-----
vnere	-CGCCGGCCG	GCGGAAATTC	ACAGGGGGGG	GAGGGT-----	-----	-----	-----	-----	-----
vngri	-TGCCGGCCG	GC-----	CG	GCAGGAACG	GC-----	-----	-----	-----	-----
vnmel	TGTTTTTGA	GCGGTAAAGG	ACAGGTAAAG	-----	-----	-----	-----	-----	-----
vnmoj	-GCTGGGTGG	GC-----	ACA	ACAGGTAAAA	GGCAAGTGCC	AATCGAGTGC	GTTCACACA	AATGCATACG	-----
vnpsc	-GTTCCAAAG	GTCCAAGCGG	ACAGGTAACT	-----	-----	-----	-----	-----	-----
vnpsc	-GTTCCAAAG	GCCCCAAGCG	ACAGGTAACT	-----	-----	-----	-----	-----	-----
vnsec	-TGCCGGCCG	GCGGAAATTC	ACAGGGAGGC	GGGGGGTTTT	-----	-----	-----	-----	-----
vnsim	TGTTTTTGA	GCGGTAAAGG	ACAGGTAAAG	-----	-----	-----	-----	-----	-----
vnvir	-GGTTGGCGG	GC-----	ACAGGTAAAC	GGCGGTAGGG	CAACGTTGCA	ACCGGCAAAAT	GTGGCTG--	-----	-----
vnwil	-TGTCACAAG	AT-----	TG	ACAGGTAAAG	-----	-----	-----	-----	-----
vnyak	CCTCTTGTCA	AC--AACAGG	ACAGGTAACT	-----	-----	-----	-----	-----	-----

211

vnana	---GGCCACA	T-----	GTCTG-----	---GCCGGAAG	TTCCC-----	TTTC	CCTCTGTCCA	GTGCAGACCT
vnere	---AACCACCT	TCAAACTGCA	GATTG-----	---GGTGCAAT	TTGGCGGATG	CTTCCGCCAA	TAAAACACAT	-----
vngri	---TGCAAGGA	T-----	GATTG-----	---GACGCAAT	TTGGCAATTA	-----	TAATACACAT	-----
vnmel	---GGCCACA	T-----	GTCTG-----	---GCCGGAAG	TTCCC-----	-----	GTTCAGCCC--	-----
vnmoj	GCAATGCCACA	T-----	GTCTGTG	---GCCGGAAG	TTCCCCGTCC	GCCCCTGCCCA	GCCCCGTGCC	-----
vnpsc	---GGCCACA	T-----	GTCTG-----	---GCCGGAAG	TTCCCCATGCG	CCTC-----	TGTGCTGCCT	-----
vnpsc	---GGCCACA	T-----	GTCTG-----	---GCCGGAAG	TTCCCCATGCG	CCTC-----	TGTGCTGCCT	-----
vnsec	---AAGCACT	TCAAACTGCA	GATTG-----	---GGTGCAAT	TTGGCGGATG	CTTCCGCTAA	TAAAACACTG	-----
vnsim	---GGCCACA	T-----	GTCTG-----	---GCCGGAAG	TTCCC-----	-----	GTTCAGCCC--	-----
vnvir	---TGCCACA	T-----	GTCTG-----	---GCCGGAAG	TTCCC-----	-----	CGTGCACGC	-----
vnwil	---AGACATG	T-----	GTCTGTCTG	ATGCCGGAAG	TTCCC-----	-----	-----	-----
vnyak	---GGCCACA	T-----	GTCTG-----	---GCCGGAAG	TTCCC-----	-----	GTTCAGCCC--	-----

281

vnana	CTGACCTTT	---GGCCATTG	TC-----	CTT	ATGAGG-AAAT	TC-----	GTCACTT	GGCGT--GAG
vnere	CT-----	-----	TC	TTT	ATAGCGCAGC	GCATAC	ATCACT--	-----
vngri	TTTATATAA	-----	TT	TC	AAGCGCAAAAT	GT-----	TGCACTC	GTTC
vnmel	CTGACCCCG	-----	TG	TC	ATTAGCG-AAAT	TC-----	GTCACTT	GGCGT--GAG
vnmoj	CTACCCGGGG	CTCTGTCTGT	TCAGCTTTT	ATGTTG-AAAT	TTCTGC	-----	GTCACTT	GGCGT--GAG
vnpsc	CTGACCTCGT	CCTGACATTG	TC-----	CTT	ATGACG-AAAT	TC-----	GTCACTT	GGCGT--GAG
vnpsc	CTGACCTCGT	CCTGACATTG	TC-----	CTT	ATGACG-AAAT	TC-----	GTCACTT	GGCGT--GAG
vnsec	CTGCTTCTG	-----	CT	TC	TTT	-----	ATCAAT	-----
vnsim	CTGACCCCG	-----	TG	TC	CTT	ATGACG-AAAT	TC-----	GTCACTT
vnvir	CTTACCCCG	-----	TG	CC	TTTTT	ATGTTGAAAT	TTTTCG	-----
vnwil	---CCG	-----	CG	TC	CTT	ATGATGAAT	TCTCCAAAC	GTTCACCTT
vnyak	CTGACCCCG	-----	TG	TC	CTT	ATGACG-AAAT	TC-----	GTCACTT

351

vnana	CATGTCCTGTG	GGTATTTCCG	GGTGGTCTAA	GCAG	GGAAATTTCCA	C	AGAT	CCTTCCAGCC
vnere	-----	TTTCAG	GGCCGATGAG	CCGGTGGGTC	GGAGGTGTTC	TGG	AAAT	TCCGCTGGCT
vngri	-----	GAATTTCCG	GGCAGTG	-----	GGCAGTGCCC	GGAA	AAAC	CCGCCAAGTG
vnmel	CACACCT	GGATTTCCG	ACC-GGTTAG	CCAG	GGAAATTTCCA	-----	AAAC	ACCTCCGGCC
vnmoj	CACGGCGG	GTTTTTCCG	GCC-----A	CTGG	GGAAATTTCCA	CTGGCCAATC	-----	GCCACAGGCA
vnper	-----	TTCCCT	ACTGCTCTCA	-----	GGCATTTTCCA	G	-----	-----
vnpsc	-----	TTCCCT	ACTGCTCTCA	-----	GGCATTTTCCA	G	-----	-----
vnsec	-----	TTTGAG	GGC	CAGTGGGCC	GGAGGTGTTC	TGG	AAAT	TCCGCTGGCT
vnsim	CACACCT	GGATTTCCG	AGC-GGTTAG	CCAG	GGAAATTTCCA	-----	GAAC	ACCTCCGGCC
vnvir	-----	GTTTTTCCG	GGC-----CA	CTGG	GGAAATTTCCA	CAA	TCCT	GCCACTGGCC
vnwil	CTGGTTCCGGG	ATTTTCCCAGC	AATGCCCTAG	CCAA	GGAAATTTCCG	T	ACAC	ACACACACAC
vnyak	CACACCT	GGATTTCCC	AGC-GGTTAG	CCAG	GGAAATTTCCA	-----	GAAC	ACCTCTGGCC

421

vnana	-----	-----	GGC	TGTTTAAAGT	TTTTCTCTCT	CTTGGTGATC	TCGAAAA	-----
vnere	A	-----	AGGCTGGGA	AATC	CAGG	TGTGTCACG	CCAAGTGACG	-----
vngri	A	-----	-----	-----	CAAA	TACACACATA	GCTCAC	-----
vnmel	-----	-----	-----	CACT	GGCCCTCA	-----	-----	-----
vnmoj	ACTCAAGCAG	CAGCAGCAAC	AGTCGCCGAG	TGCAGCCAAA	T-CGCTTATA	-----	-----	-----
vnper	-----	-----	-----	CATT	TGCGCTTGCC	TTGC	-----	-----
vnpsc	-----	-----	-----	CATT	TGCGCTTGCC	TTGC	-----	-----
vnsec	A	-----	AGGCTGGGA	AATCCAGGTG	TGCTCTCAGG	CCAAGTGACG	-----	-----
vnsim	-----	-----	-----	CACT	GGCCCTCA	-----	-----	-----
vnvir	AC	-----	AGGCAGAAAG	TGCAACCCAAA	CGCGCTTACA	A	-----	-----
vnwil	ACACACACAGC	ACACACATAG	AGACCAAGGCA	TTTCAATATT	TGCCTCCTCG	ACAAAAAAG	AAGAAGAACA	-----
vnyak	-----	-----	-----	CATC	GGCCCTGAAA	AGTAGTGATG	TAGT	-----

491

vnana	-----	ATTA	TGTTGTATG	-----	G	CAATGAG	-----	ATGTTTTTA	TAG	-----	GCG
vnere	-----	AATT	CGTCATA	-----	-----	AGGACA	-----	CGGGGTCA	GGGGTCAACG	-----	-----
vngri	-----	AATT	CATCATA	-----	-----	AAAG	-----	GCAGGCTG	GCAAAAGGCG	-----	-----
vnmel	-----	AAAT	TGTTATATGC	TCTGTACGA	TGAAGCAGAA	GCAGAAGCAG	CAGTGTTTTTA	TTG	-----	-----	GCG
vnmoj	-----	GAAA	TTATATA	-----	-----	AAAT	-----	GTATATTA	TTA	-----	-----
vnper	-----	AAAA	TGATATA	-----	TGA	AAAAAAT	-----	ATGTATTA	TTA	-----	GCG
vnpsc	-----	AAAA	TGATATA	-----	TGA	AAAAAAT	-----	ATGTATTA	TTA	-----	GCG
vnsec	-----	AATT	CGTCATA	TCTGTACGA	AGAAGCAG	AGCAGCA	-----	CGGGGTG	GGGGTCAACG	-----	-----
vnsim	-----	AAAT	TGATGTATGC	TCTGTACGA	AGAAGCAG	AGCAGCA	-----	GTGTTTTTA	TTA	-----	GCG
vnvir	-----	AAAT	TATATATA	-----	-----	AAAT	-----	GTGTATTA	TTAAATGCC	-----	-----
vnwil	TACACCAAAAA	TGATATA	-----	-----	-----	AAAT	-----	ATGTATTA	TTATAAGGCT	-----	-----
vnyak	GCTC	TGCTATA	-----	-----	AAGAA	AAGAGAT	-----	GTGTTTTTA	TTG	-----	GCG

561

vnana	GAAGCA	-----	GCAACCAAAA	TTGCATCCAA	TCTT	TAG	CCATT	-----	TACC	CACTCGATT
vnere	GGG	-----	AAAT	TTCCGGCCAG	ACATGTG	-----	-----	-----	-----	-----
vngri	CGCGGGG	-----	AAAT	TTCCGGCCAA	ACATGT	-----	-----	-----	-----	-----
vnmel	GAAGCA	-----	TTGCCCAAA	TTGCATCCAA	T	CTG	CAGTT	-----	TGAA	GTGCTCAAAA
vnmoj	-----	A	ATTGACCAAA	TTGCATCCAA	TCAAT	-----	-----	-----	-----	-----
vnper	GAAGAAGCGG	-----	GCCACC	TTGCATCCAA	TCAATGGCCAA	TATCTGCCCC	TGCCACTGCC	ACTGCTACTG	-----	-----
vnpsc	GAAGAAGCGG	-----	GCCACC	TTGCATCCAA	TCAATGGCCAA	TATCTGCCCC	TGCCACTGCC	ACTACTACTG	-----	-----
vnsec	GGG	-----	AAAT	TTCCGGCCAG	ACATGT	-----	-----	-----	-----	-----
vnsim	GAAGCA	-----	TTCCGCC	TTGCATCCAA	T	CTG	CAGTT	-----	TGAA	GTGCTTAAAA
vnvir	-----	-----	AAA	TTGGGTCCAA	TCAAT	CCG	CAGTT	-----	-----	-----
vnwil	GCCGCCTGTT	TTGGTCTAAA	TTGGGTCCAA	TCAATAAAAG	TTTTG	-----	-----	-----	-----	-----
vnyak	GAAGCA	-----	TTCCGCC	TTGCATCCAA	T	CTG	CAGTT	-----	TGAA	GTGGTTGCGC

631

vnana	AAGAGCTTCC	TTTTTTTGAAG	TTTTACCTTT	TGTACTTT	TTTTTTTTTTG	TTTGTTGAATT	TCCGCCGGCC	-----
vnere	-----	-----	-----	-----	-----	-----	-----	-----
vngri	-----	-----	-----	-----	-----	-----	-----	-----
vnmel	CCCCCACC	TTCCCTG	-----	-----	-----	TGAATTT	CC	-----
vnmoj	-----	-----	-----	-----	-----	-----	CT	-----
vnper	CCAGTGCCAC	TGCCCCCAGC	TTGGGCCACT	GTGCCCATC	CTCTTCTTTC	TCTCAGGCTG	CT	-----
vnpsc	CCAGTGCCAC	TGCCCCCAGC	TTGGGCCACT	GTGCCCATC	CTCTTCTTTC	TCTCAGGCTG	CT	-----
vnsec	-----	-----	-----	-----	-----	-----	-----	-----
vnsim	CCCCCCTGCC	CCCTGTG	-----	-----	-----	AAATTT	CC	-----
vnvir	-----	-----	-----	-----	-----	CT	CT	-----
vnwil	-----	-----	-----	-----	G	CTTCTATCTA	TCTGTCCCTC	TTCTTCTACC
vnyak	CACCCCCCCC	TCCTCCC	-----	-----	T	CTGTGAATTT	CC	-----

701

vnana	GGCCGGCA	---	---	---	AGGTGACCG	T	---	GC	GGC	---	---	TAAAAAC	---	AAAATTTTT
vnere	TGTCGGTT	---	---	---	ACCTGTCCG	T	TCTAAAC	GA	ACCGCTC	---	---	TAAAAAC	---	GAAAACTGAC
vngri	AAACAGCATT	TGTGTGTGTG	---	---	TGGGTGTGTG	T	---	GT	GTGTGCGTTG	---	---	CACITGCAAC	---	CGCCCCCTTAC
vnmel	GGCCGGCA	---	---	---	AGGTGACCG	T	---	GT	G	---	---	CTAAAAAC	---	AAAATTTTT
vnmoj	GGCCGGCG	---	---	---	AGCTGACCG	T	---	GT	G	---	---	CCCAAAAT	---	AAAAA
vnper	GGCCGGCA	---	---	---	AGGTGACCG	T	---	GT	G	---	---	CTATAAC	---	AAAATTTTT
vnpsc	GGCCGGCA	---	---	---	AGGTGACCG	T	---	GT	G	---	---	CTATAAC	---	AAAATTTTT
vnsec	GGCCCGTT	---	---	---	ACCTGTCCG	T	---	T	ACCGCTC	---	---	TAATAAC	---	AAAAACTGAC
vnsim	GGCCGGCA	---	---	---	AGGTGACCG	T	---	GT	G	---	---	CTAAAAAC	---	AAAATTTTT
vnvir	GGCCGGCA	---	---	---	AGCTGACCG	T	---	GT	GCTAAACAAA	---	---	AATCAAAAAA	---	AAAAAAA
vnwil	GGCCGGTA	---	---	---	AGATGACCA	T	---	GT	G	---	---	CCGAAAA	---	GA
vnyak	GGCCGGCA	---	---	---	AGGTGACCG	T	---	GT	G	---	---	CTAAAAAC	---	AAAATTTTT

771

vnana	ATATCGAAAT	TGCC	---	---	GCTGGTGAA	---	---	---	GGCGCGCG	CTGCTCACTG	---	GACGCGTG	---
vnere	TCCTCGGGGC	GCTC	---	---	TCAGATTAG	---	---	---	---	TCGATTTT	---	CCCACGCAGG	---
vngri	CTGGCGACAC	CACTA	---	---	ACAGCTTAG	---	---	---	TGCCCCGATC	TTAAGATTTT	---	CCCACGCAGG	---
vnmel	ATATCGAAAT	TGCC	---	---	GCCGGTCAA	---	---	---	CGCGCGCG	CTGCCCCAATG	---	GCCAC	---
vnmoj	---	---	---	---	GCTGTTCAA	ATT	GCCCCG	---	AGGCCACAT	TGTCACITTT	---	GCCACTGGGG	---
vnper	ATATCGAAAT	TGCC	---	---	GCTGGTCAA	---	---	---	CGCGCGCG	CTGCCCCAATG	---	GCCAC	---
vnpsc	ATATCGAAAT	TGCC	---	---	GCTGGTCAA	---	---	---	CGCGCGCG	CTGCCCCAATG	---	GCCAC	---
vnsec	TCCTCGGGGC	GCTC	---	---	GCAGATTAG	---	---	---	---	TCGATTTT	---	CCCACGCAGG	---
vnsim	ATATCGAAAT	TGCC	---	---	GCCGGTCAA	---	---	---	CGCGCGCG	CTGCCCCAATG	---	GCCAC	---
vnvir	CAGCCAAAAAT	TGCCGOTGGC	---	---	TGCTGCACAA	ACAT	GCGAGC	---	GCGCGCGCG	GCTCCCACTG	---	GCCACTGGGG	---
vnwil	---GTCAGGGC	CA	---	---	ACTGAATAT	---	---	---	CAAGTATGG	CAGACTTCTG	---	AATACCCCTAA	---
vnyak	ATATCGAAAT	TGCC	---	---	GCCGGTCAA	---	---	---	CGCGCGCG	CTGGCCAATG	---	GCCAC	---

841

vnana	---	---	---	---	TTGGTTTT	---	---	---	TTGGTTCCCAA	GCTTTGTTTG	---	CCCCAAACAC	---	ACACTCACAC
vnere	TAA	GTGA	AA	TGCACG	CT	TCCTCT	---	---	CGATTCTACA	ACTTTAACTT	---	A	---	---
vngri	TAGCCAGCAA	AAGCAGCCCG	---	---	GCGCCCTTGA	---	---	---	CTGGACCAGA	GA	---	---	---	---
vnmel	---	TTTA	AC	CACGTT	TCAG	---	---	---	---	---	---	---	---	---
vnmoj	CAA	GTGG	AG	CGCGTG	TTTGTCTTTT	---	---	---	CGGTTCCTCCAG	GCTTTGTTTAA	---	TACACCAACA	---	CACACA
vnper	---	GTTA	AG	---	---	---	---	---	---	---	---	---	---	---
vnpsc	---	GTTA	AG	CGCGTG	TTGGCTTTTT	---	---	---	TTGGTTCCCAA	GCTTTGTTTG	---	CCACA	---	---
vnsec	TAA	GTAA	AA	TGCCCCG	CTAACTTTCA	---	---	---	ATAA	---	---	---	---	---
vnsim	---	TTTA	AC	CACGTT	TCAGCGCGTG	---	---	---	TTG	---	---	---	---	---
vnvir	CAAGCTG	---	---	---	---	---	---	---	---	---	---	---	---	---
vnwil	TA	GAAA	ACCACTCCTG	ATGC	---	---	---	---	---	---	---	---	---	---
vnyak	---	TTTA	AC	CACGTT	TCAGCGCGTG	---	---	---	TTGGCTTT	---	---	---	---	---

911

vnana	ACACACTT	---
vnere	---	---
vngri	---	---
vnmel	---	---
vnmoj	---	---
vnper	---	---
vnpsc	---	---
vnsec	---	---
vnsim	---	---
vnvir	---	---
vnwil	---	---
vnyak	---	---