

Supplementary Material

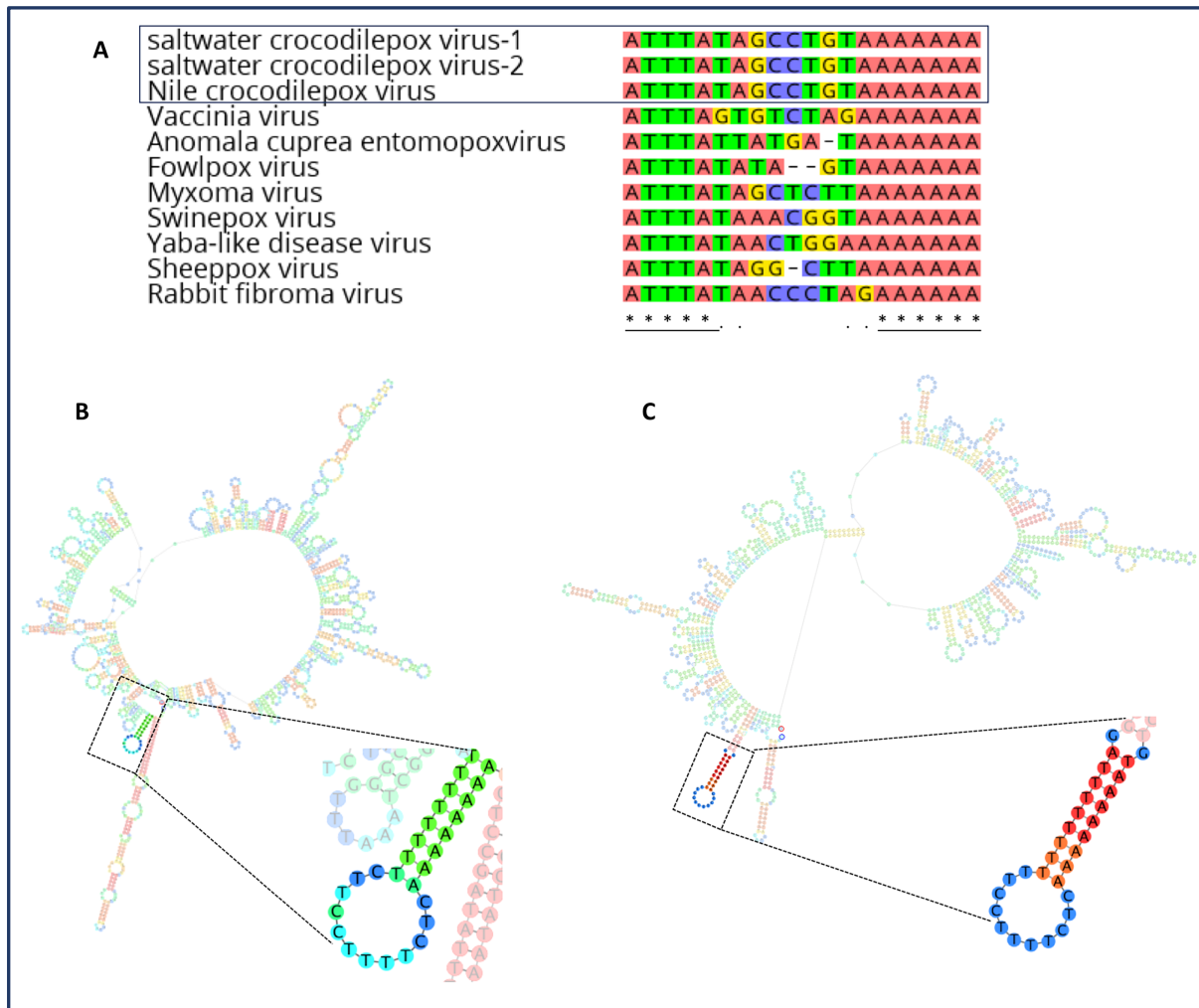
Molecular characterization of the first saltwater crocodilepox virus genome sequences from the world's largest living member of the *Crocodylia*

Subir Sarker^{1,*}, Sally R Isberg^{2,3}, Natalie L Milic³, Peter Lock⁴, Karla J Helbig¹

¹Department of Physiology, Anatomy and Microbiology, School of Life Sciences, La Trobe University, Bundoora, VIC 3086, Australia. ²Centre for Crocodile Research, Noonamah, NT, Australia. ³School of Psychological and Clinical Sciences, Charles Darwin University, Darwin, NT, Australia. ⁴La Trobe Institute for Molecular Science, La Trobe University, Bundoora, VIC, Australia

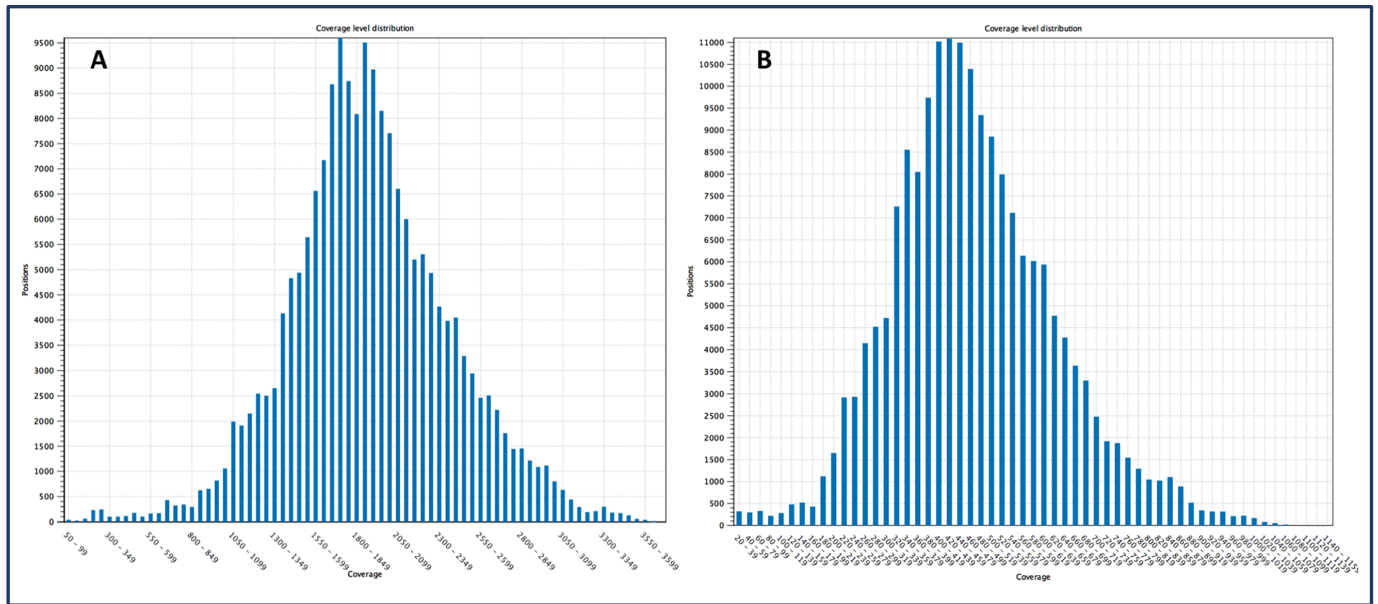
***Author for correspondence:** Dr Subir Sarker, Department of Physiology, Anatomy and Microbiology, School of Life Sciences, La Trobe University, Bundoora, VIC 3086, Australia, email: s.sarker@latrobe.edu.au; phone: +61 3 9479 2317; fax: +61 3 9479 1222.

Supplementary Figure: S1



Supplementary Figure S1: Analysis of concatemer resolution motif and prediction of hairpin loop-like secondary structure of SwCRV genomes. (A) Alignment of the putative SwCRV concatemer resolution motif with those of other poxviruses. The motif is underlined. The analysis was performed by using Geneious software (version 10.2.3) and the resultant alignment was slightly modified manually. Asterisks and dots indicates 100% and >65% nucleotide identity, respectively, among the aligned sequences. Box highlights 100% similarity of concatemer resolution motif between CRV and SwCRV. GenBank accession details for poxviruses were used: Shope (Rabbit) fibroma virus (AF170722); myxoma virus (AF170726); Yaba-like disease virus (AY386371); sheeppox virus (M28823); fowlpox virus (AJ581527); swinepox virus (AF410153); vaccinia virus (AY243312); crocodilepox virus (DQ356948); saltwater crocodilepox virus subtype 1 (MG450915); saltwater crocodilepox virus subtype 2 (MG450916). (B) Predicted hairpin loop-like secondary structure of SwCRV-1 formed by a 28 nucleotide (nt position 139-166; highlighted). (C) Predicted hairpin loop-like secondary structure of SwCRV-2 formed by a 31 nucleotide (nt position 90-120; highlighted). Colours of nucleotides represent base-pair probabilities (red=high, green=mid, blue=low).

Supplementary Figure: S3



Supplementary Figure S3: Coverage level distribution for the genome sequences of SwCRV-1 (A) and SwCRV-2 (B). The horizontal axis represents the range of coverage, whereas the vertical axis represents the number of nucleotide position.

Supplementary Table S1: saltwater crocodilepox virus (SwCRV) genome annotations and comparative analysis of ORFs relative to CRV genome

| SwCRV1 synteny | SwCRV2 synteny | CRV synteny | Best PSI-BLASTP hits | SwCRV1 PI % | SwCRV 2 PI % | SwCRV1 AA size | SwCRV2 AA size | CRV AA size | Orthologs, comments, notes |
|----------------|----------------|-------------|----------------------|-------------|--------------|----------------|----------------|-------------|--|
| SwCRV1-001 | SwCRV2-001 | CRV001 | hypothetical protein | 62.8 | 62.8 | 71 | 71 | 78 | CRV-ORF001 |
| SwCRV1-002 | SwCRV2-002 | | hypothetical protein | | | 238 | 303 | | unique to SwCRV-1 and -2, 2 transmembrane helices* |
| SwCRV1-003 | SwCRV2-003 | | hypothetical protein | | | 117 | 101 | | unique to SwCRV-1 and -2, 1 transmembrane helix* |
| SwCRV1-004 | SwCRV2-004 | CRV002 | hypothetical protein | 64.0 | 63.6 | 698 | 698 | 760 | CRV-ORF002 |
| SwCRV1-005 | SwCRV2-005 | | hypothetical protein | | | 75 | 75 | | unique to SwCRV-1 and -2 |
| SwCRV1-006 | SwCRV2-006 | CRV003 | hypothetical protein | 84.8 | 84.8 | 334 | 334 | 329 | CRV-ORF003 |
| SwCRV1-007 | SwCRV2-007 | CRV004 | hypothetical protein | 81.7 | 81.9 | 473 | 473 | 484 | CRV-ORF004 |
| SwCRV1-008 | SwCRV2-008 | CRV005 | hypothetical protein | 80.7 | 80.7 | 242 | 242 | 242 | CRV-ORF005 |
| SwCRV1-009 | SwCRV2-009 | CRV006 | hypothetical protein | 63.2 | 63.2 | 67 | 67 | 68 | CRV-ORF006 |
| SwCRV1-010 | SwCRV2-010 | CRV007 | hypothetical protein | 79.1 | 79.1 | 67 | 67 | 67 | CRV-ORF007 |
| SwCRV1-011 | SwCRV2-011 | CRV008 | hypothetical protein | 72.1 | 72.1 | 537 | 537 | 498 | CRV-ORF008 |
| SwCRV1-012 | SwCRV2-012 | CRV009 | F-box domain protein | 87.8 | 87.8 | 189 | 189 | 189 | CRV-ORF009 |
| SwCRV1-013 | SwCRV2-013 | CRV010 | F-box domain protein | 77.7 | 77.7 | 288 | 288 | 276 | CRV-ORF010 |
| SwCRV1-014 | SwCRV2-014 | CRV011 | F-box domain protein | 83.5 | 83.5 | 244 | 244 | 265 | CRV-ORF011 |
| SwCRV1-015 | SwCRV2-015 | CRV012 | F-box domain protein | 96.9 | 96.9 | 196 | 196 | 196 | CRV-ORF012 |
| SwCRV1-016 | SwCRV2-016 | | hypothetical protein | | | 304 | 304 | | unique to SwCRV-1 and -2 |
| SwCRV1-017 | SwCRV2-017 | CRV013 | F-box domain protein | 93.5 | 93.5 | 230 | 230 | 225 | CRV-ORF013 |
| SwCRV1-018 | SwCRV2-018 | CRV014 | F-box domain protein | 91.5 | 91.5 | 200 | 200 | 196 | CRV-ORF014 |
| SwCRV1-019 | SwCRV2-019 | CRV015 | F-box domain protein | 90.5 | 90.5 | 196 | 205 | 206 | CRV-ORF015 |
| SwCRV1-020 | SwCRV2-020 | | hypothetical protein | | | 132 | 132 | | unique to SwCRV-1 and -2 |
| SwCRV1-021 | SwCRV2-021 | CRV016 | hypothetical protein | 75.8 | 75.8 | 426 | 439 | 444 | CRV-ORF016 |
| SwCRV1-022 | SwCRV2-022 | CRV017 | hypothetical protein | 83.6 | 83.6 | 171 | 171 | 170 | CRV-ORF017 |
| SwCRV1-023 | SwCRV2-023 | CRV018 | hypothetical protein | 69.8 | 69.8 | 178 | 178 | 172 | CRV-ORF018 |

| SwCRV1 synteny | SwCRV2 synteny | CRV synteny | Best PSI-BLASTP hits | SwCRV1 PI % | SwCRV 2 PI % | SwCRV1 AA size | SwCRV2 AA size | CRV AA size | Orthologs, comments, notes |
|----------------|----------------|-------------|----------------------|-------------|--------------|----------------|----------------|-------------|----------------------------|
| SwCRV1-024 | SwCRV2-024 | | hypothetical protein | | | 94 | 94 | | unique to SwCRV-1 and -2 |
| SwCRV1-025 | SwCRV2-025 | CRV019 | hypothetical protein | 89.5 | 89.5 | 159 | 159 | 162 | CRV-ORF019 |
| SwCRV1-026 | SwCRV2-026 | | hypothetical protein | | | 126 | 126 | | unique to SwCRV-1 and -2 |
| SwCRV1-027 | SwCRV2-027 | CRV020 | hypothetical protein | 88.9 | 88.9 | 135 | 135 | 135 | CRV-ORF020 |
| SwCRV1-028 | SwCRV2-028 | CRV021 | SORF2 domain protein | 90 | 90 | 442 | 442 | 438 | CRV-ORF021 |
| SwCRV1-029 | SwCRV2-029 | | hypothetical protein | | | 217 | 217 | | unique to SwCRV-1 and -2 |
| SwCRV1-030 | SwCRV2-030 | CRV022 | hypothetical protein | 94.7 | 94.7 | 301 | 301 | 302 | CRV-ORF022 |
| SwCRV1-031 | SwCRV2-031 | CRV023 | hypothetical protein | 79.7 | 79.7 | 271 | 271 | 305 | CRV-ORF023 |
| SwCRV1-032 | SwCRV2-032 | CRV025 | hypothetical protein | 96.7 | 96.7 | 123 | 123 | 123 | CRV-ORF025 |
| SwCRV1-033 | SwCRV2-033 | CRV026 | F-box domain protein | 81.7 | 81.7 | 233 | 233 | 251 | CRV-ORF026 |
| SwCRV1-034 | SwCRV2-034 | CRV027 | hypothetical protein | 98.8 | 98.8 | 248 | 248 | 248 | CRV-ORF027 |
| SwCRV1-035 | SwCRV2-035 | | hypothetical protein | | | 81 | 81 | | unique to SwCRV-1 and -2 |
| SwCRV1-036 | SwCRV2-036 | | hypothetical protein | | | 70 | 70 | | unique to SwCRV-1 and -2 |
| SwCRV1-037 | SwCRV2-037 | CRV028 | hypothetical protein | 77.3 | 77.3 | 311 | 311 | 316 | CRV-ORF028 |
| SwCRV1-038 | SwCRV2-038 | CRV030 | J-domain protein | 85.5 | 85.5 | 237 | 237 | 229 | CRV-ORF030 |
| SwCRV1-039 | SwCRV2-039 | CRV031 | hypothetical protein | 97 | 97 | 66 | 66 | 68 | CRV-ORF031 |
| SwCRV1-040 | SwCRV2-040 | CRV032 | hypothetical protein | 92.8 | 92.8 | 248 | 248 | 250 | CRV-ORF032 |
| SwCRV1-041 | SwCRV2-041 | | hypothetical protein | | | 86 | 86 | | unique to SwCRV-1 and -2 |
| SwCRV1-042 | SwCRV2-042 | CRV033 | hypothetical protein | 75.8 | 76.5 | 438 | 438 | 476 | CRV-ORF033 |
| SwCRV1-043 | SwCRV2-043 | CRV034 | hypothetical protein | 62.8 | 54 | 612 | 284 | 688 | CRV-ORF034 |
| SwCRV1-044 | | | hypothetical protein | | | 65 | | | unique to SwCRV-1 |
| | SwCRV2-044 | CRV036 | hypothetical protein | | 88 | | 410 | 213 | CRV-ORF036 |
| SwCRV1-045 | | CRV035 | hypothetical protein | 78.7 | | 551 | | 548 | CRV-ORF035 |
| SwCRV1-046 | | CRV036 | hypothetical protein | 89.7 | | 214 | | 213 | CRV-ORF036 |

| SwCRV1 synteny | SwCRV2 synteny | CRV synteny | Best PSI-BLASTP hits | SwCRV1 PI % | SwCRV 2 PI % | SwCRV1 AA size | SwCRV2 AA size | CRV AA size | Orthologs, comments, notes |
|----------------|----------------|-------------|--|-------------|--------------|----------------|----------------|-------------|----------------------------|
| SwCRV1-047 | SwCRV2-045 | CRV037 | serine/threonine protein kinase | 97.2 | 97.2 | 458 | 458 | 457 | CRV-ORF037 |
| SwCRV1-048 | SwCRV2-046 | CRV038 | IEV protein | 92.9 | 92.7 | 683 | 683 | 688 | CRV-ORF038 |
| SwCRV1-049 | SwCRV2-047 | CRV039 | palmitylated EEV envelope lipase | 98.7 | 98.7 | 371 | 371 | 371 | CRV-ORF039 |
| SwCRV1-050 | SwCRV2-048 | | hypothetical protein | | | 57 | 57 | | unique to SwCRV-1 and -2 |
| SwCRV1-051 | SwCRV2-049 | CRV040 | B22R-like protein | 84.7 | 84.8 | 1853 | 1853 | 1908 | CRV-ORF040 |
| SwCRV1-052 | SwCRV2-050 | CRV041 | B22R-like protein | 80 | 80 | 1880 | 1880 | | CRV-ORF041, fragmented |
| SwCRV1-053 | SwCRV2-051 | CRV041 | B22R-like protein | 67.2 | 67.1 | 1385 | 1385 | 1874 | CRV-ORF041, fragmented |
| SwCRV1-054 | SwCRV2-052 | | hypothetical protein | | | 71 | 89 | | unique to SwCRV-1 and -2 |
| SwCRV1-055 | SwCRV2-053 | CRV043 | B22R-like protein | 86.2 | 86.3 | 1894 | 1893 | 1941 | CRV-ORF042 |
| SwCRV1-056 | SwCRV2-054 | CRV042 | RING-like motif protein | 84.3 | 84.3 | 490 | 490 | 555 | CRV-ORF043 |
| SwCRV1-057 | SwCRV2-055 | CRV044 | hypothetical protein | 86.4 | 86.4 | 81 | 81 | 81 | CRV-ORF044 |
| SwCRV1-058 | SwCRV2-056 | | hypothetical protein | | | 294 | 294 | | unique to SwCRV-1 and -2 |
| SwCRV1-059 | SwCRV2-057 | CRV045 | RING-like motif protein | 95.1 | 95.1 | 603 | 603 | 604 | CRV-ORF045 |
| SwCRV1-060 | SwCRV2-058 | CRV046 | hypothetical protein | 88.5 | 88.1 | 215 | 215 | 215 | CRV-ORF046 |
| SwCRV1-061 | SwCRV2-059 | CRV047 | Apc11-like protein | 92.6 | 93.8 | 79 | 79 | 81 | CRV-ORF047 |
| SwCRV1-062 | SwCRV2-060 | CRV048 | hypothetical protein | 94.7 | 94.7 | 643 | 643 | 643 | CRV-ORF048 |
| SwCRV1-063 | SwCRV2-061 | | hypothetical protein | | | 660 | 660 | | unique to SwCRV-1 and -2 |
| SwCRV1-064 | SwCRV2-062 | CRV049 | hypothetical protein | 89.4 | 89.8 | 473 | 476 | 482 | CRV-ORF049 |
| SwCRV1-065 | SwCRV2-063 | CRV050 | hypothetical protein | 88.1 | 88.1 | 243 | 243 | 241 | CRV-ORF050 |
| SwCRV1-066 | SwCRV2-064 | CRV051 | site-specific recombinase-like protein | 99.6 | 99.6 | 229 | 229 | 229 | CRV-ORF051 |
| SwCRV1-067 | SwCRV2-065 | CRV052 | NAD ⁺ -dependent DNA ligase | 78.1 | 78.3 | 322 | 322 | 360 | CRV-ORF052 |
| SwCRV1-068 | SwCRV2-066 | | hypothetical protein | | | 531 | 531 | | unique to SwCRV-1 and -2 |
| SwCRV1-069 | SwCRV2-067 | | hypothetical protein | | | 159 | 159 | | unique to SwCRV-1 and -2 |

| SwCRV1 synteny | SwCRV2 synteny | CRV synteny | Best PSI-BLASTP hits | SwCRV1 PI % | SwCRV 2 PI % | SwCRV1 AA size | SwCRV2 AA size | CRV AA size | Orthologs, comments, notes |
|----------------|----------------|-------------|----------------------------------|-------------|--------------|----------------|----------------|-------------|----------------------------|
| SwCRV1-070 | SwCRV2-068 | CRV053 | DNA-binding virion core protein | 85.5 | 85.5 | 110 | 110 | 117 | CRV-ORF053 |
| SwCRV1-071 | SwCRV2-069 | CRV054 | poly(A) polymerase large subunit | 99.2 | 99.2 | 473 | 473 | 473 | CRV-ORF054 |
| SwCRV1-072 | SwCRV2-070 | | hypothetical protein | | | 492 | 492 | | unique to SwCRV-1 and -2 |
| SwCRV1-073 | SwCRV2-071 | CRV055 | E2L/O1L-like protein | 88.7 | 89 | 776 | 776 | 777 | CRV-ORF055 |
| SwCRV1-074 | SwCRV2-072 | | hypothetical protein | | | 218 | 218 | | unique to SwCRV-1 and -2 |
| SwCRV1-075 | SwCRV2-073 | | hypothetical protein | | | 219 | 219 | | unique to SwCRV-1 and -2 |
| SwCRV1-076 | SwCRV2-074 | CRV056 | RNA polymerase subunit RP030 | 99.5 | 99.5 | 188 | 188 | 188 | CRV-ORF056 |
| SwCRV1-077 | SwCRV2-075 | CRV057 | hypothetical protein | 98.8 | 98.8 | 566 | 566 | 566 | CRV-ORF057 |
| SwCRV1-078 | SwCRV2-076 | CRV058 | virion core protein | 97 | 75 | 570 | 570 | | CRV-ORF058, fragmented |
| SwCRV1-079 | SwCRV2-077 | CRV058 | virion core protein | 51.4 | 51.4 | 496 | 496 | 794 | CRV-ORF058, fragmented |
| SwCRV1-080 | SwCRV2-078 | CRV059 | DNA polymerase | 96.7 | 96.7 | 989 | 989 | 988 | CRV-ORF059 |
| SwCRV1-081 | SwCRV2-079 | CRV060 | IMV redox protein | 99 | 99 | 97 | 97 | 97 | CRV-ORF060 |
| SwCRV1-082 | SwCRV2-080 | CRV061 | virion core protein | 96.9 | 96.9 | 128 | 128 | 128 | CRV-ORF061 |
| SwCRV1-083 | SwCRV2-081 | CRV062 | E2L/O1L-like protein | 92.6 | 92.6 | 729 | 729 | 727 | CRV-ORF062 |
| SwCRV1-084 | SwCRV2-082 | CRV063 | E2L/O1L-like protein | 95.7 | 95.7 | 766 | 766 | 765 | CRV-ORF063 |
| SwCRV1-085 | SwCRV2-083 | | hypothetical protein | | | 546 | 546 | | unique to SwCRV-1 and -2 |
| SwCRV1-086 | SwCRV2-084 | CRV064 | E2L/O1L-like protein | 93.2 | 93.2 | 755 | 755 | 755 | CRV-ORF064 |
| SwCRV1-087 | SwCRV2-085 | CRV065 | DNA-binding virion core protein | 99.7 | 99.7 | 309 | 309 | 309 | CRV-ORF065 |
| SwCRV1-088 | SwCRV2-086 | CRV066 | hypothetical protein | 93.8 | 93.8 | 65 | 65 | 65 | CRV-ORF066 |
| SwCRV1-089 | SwCRV2-087 | CRV067 | DNA-binding phosphoprotein | 96.2 | 96.2 | 239 | 239 | 240 | CRV-ORF067 |
| SwCRV1-090 | SwCRV2-088 | | hypothetical protein | | | 608 | 608 | | unique to SwCRV-1 and -2 |
| SwCRV1-091 | SwCRV2-089 | CRV068 | IMV membrane protein | 98.7 | 98.7 | 79 | 79 | 79 | CRV-ORF068 |

| SwCRV1 synteny | SwCRV2 synteny | CRV synteny | Best PSI-BLASTP hits | SwCRV1 PI % | SwCRV 2 PI % | SwCRV1 AA size | SwCRV2 AA size | CRV AA size | Orthologs, comments, notes |
|----------------|----------------|-------------|-----------------------------------|-------------|--------------|----------------|----------------|-------------|----------------------------|
| SwCRV1-092 | SwCRV2-090 | CRV069 | telomere binding protein | 97.7 | 97.7 | 387 | 387 | 388 | CRV-ORF069 |
| SwCRV1-093 | SwCRV2-091 | CRV070 | virion core proteinase | 98.6 | 98.6 | 430 | 430 | 431 | CRV-ORF070 |
| SwCRV1-094 | SwCRV2-092 | CRV071 | RNA helicase NPH-II | 99 | 99 | 674 | 674 | 674 | CRV-ORF071 |
| SwCRV1-095 | SwCRV2-093 | CRV072 | metalloprotease | 95.6 | 95.6 | 624 | 624 | 633 | CRV-ORF072 |
| SwCRV1-096 | SwCRV2-094 | CRV073 | hypothetical protein | 97.2 | 97.2 | 106 | 106 | 106 | CRV-ORF073 |
| SwCRV1-097 | SwCRV2-095 | CRV074 | transcriptional elongation factor | 97 | 97 | 234 | 234 | 233 | CRV-ORF074 |
| SwCRV1-098 | SwCRV2-096 | CRV075 | glutaredoxin 2 | 94.8 | 94.8 | 115 | 115 | 116 | CRV-ORF075 |
| SwCRV1-099 | SwCRV2-097 | CRV076 | virion core protein | 95.6 | 95.6 | 453 | 453 | 455 | CRV-ORF076 |
| SwCRV1-100 | SwCRV2-098 | CRV077 | RNA polymerase subunit RPO7 | 100 | 100 | 63 | 63 | 63 | CRV-ORF077 |
| SwCRV1-101 | SwCRV2-099 | CRV078 | hypothetical protein | | | 188 | 188 | 194 | CRV-ORF078 |
| SwCRV1-102 | SwCRV2-100 | CRV079 | virion core protein | 96.5 | 96.5 | 347 | 347 | 344 | CRV-ORF079 |
| SwCRV1-103 | SwCRV2-101 | CRV080 | late transcription factor VLTF-1 | 100 | 100 | 258 | 258 | 258 | CRV-ORF080 |
| SwCRV1-104 | SwCRV2-102 | CRV081 | myristylated protein | 93 | 93 | 329 | 329 | 328 | CRV-ORF081 |
| SwCRV1-105 | SwCRV2-103 | CRV082 | myristylated IMV envelope protein | 99.2 | 99.2 | 251 | 251 | 251 | CRV-ORF082 |
| SwCRV1-106 | SwCRV2-104 | | hypothetical protein | | | 89 | 89 | | unique to SwCRV-1 and -2 |
| SwCRV1-107 | SwCRV2-105 | CRV083 | hypothetical protein | 93.3 | 93.3 | 89 | 89 | 89 | CRV-ORF083 |
| SwCRV1-108 | SwCRV2-106 | | hypothetical protein | | | 58 | 58 | | unique to SwCRV-1 and -2 |
| SwCRV1-109 | SwCRV2-107 | CRV084 | GyrB-like ATPase domain protein | 84.7 | 84.7 | 467 | 467 | 494 | CRV-ORF084 |
| SwCRV1-110 | SwCRV2-108 | CRV085 | GyrB-like ATPase domain protein | 84.4 | 84.4 | 462 | 462 | 481 | CRV-ORF085 |
| SwCRV1-111 | SwCRV2-109 | | hypothetical protein | | | 422 | 422 | | unique to SwCRV-1 and -2 |
| SwCRV1-112 | SwCRV2-110 | CRV086 | GyrB-like ATPase domain protein | 87.1 | 87.1 | 393 | 393 | 392 | CRV-ORF086 |
| SwCRV1-113 | SwCRV2-111 | | hypothetical protein | | | 57 | 57 | | unique to SwCRV-1 and -2 |

| SwCRV1 synteny | SwCRV2 synteny | CRV synteny | Best PSI-BLASTP hits | SwCRV1 PI % | SwCRV 2 PI % | SwCRV1 AA size | SwCRV2 AA size | CRV AA size | Orthologs, comments, notes |
|----------------|----------------|-------------|-------------------------------------|-------------|--------------|----------------|----------------|-------------|--|
| SwCRV1-114 | SwCRV2-112 | CRV087 | GyrB-like ATPase domain protein | 81.3 | 81.3 | 366 | 366 | 417 | CRV-ORF087 |
| SwCRV1-115 | SwCRV2-113 | | hypothetical protein | | | 166 | 166 | | unique to SwCRV-1 and -2, 1 transmembrane helix* |
| SwCRV1-116 | SwCRV2-114 | CRV088 | GyrB-like ATPase domain protein | 95.2 | 95.2 | 415 | 415 | 415 | CRV-ORF088 |
| SwCRV1-117 | SwCRV2-115 | CRV089 | GyrB-like ATPase domain protein | 84.8 | 84.8 | 503 | 503 | 509 | CRV-ORF089 |
| SwCRV1-118 | SwCRV2-116 | | hypothetical protein | | | 115 | 115 | | unique to SwCRV-1 and -2 |
| SwCRV1-119 | SwCRV2-117 | CRV090 | GyrB-like ATPase domain protein | 91.2 | 91.2 | 1017 | 1017 | 1017 | CRV-ORF090 |
| SwCRV1-120 | SwCRV2-118 | CRV091 | hypothetical protein | 97.9 | 97.9 | 97 | 97 | 97 | CRV-ORF091 |
| SwCRV1-121 | SwCRV2-119 | CRV092 | hypothetical protein | 97 | 97 | 302 | 302 | 302 | CRV-ORF092 |
| SwCRV1-122 | SwCRV2-120 | CRV093 | DNA-binding virion core protein | 94.3 | 94.3 | 245 | 245 | 245 | CRV-ORF093 |
| SwCRV1-123 | SwCRV2-121 | CRV094 | IMV membrane protein | 95.4 | 95.4 | 129 | 129 | 130 | CRV-ORF094 |
| SwCRV1-124 | SwCRV2-122 | CRV095 | IMV membrane protein | 98.7 | 98.7 | 156 | 156 | 156 | CRV-ORF095 |
| SwCRV1-125 | SwCRV2-123 | CRV096 | poly(A) polymerase small subunit | 98.6 | 98.6 | 294 | 294 | 294 | CRV-ORF096 |
| SwCRV1-126 | SwCRV2-124 | CRV097 | RNA polymerase subunit RPO22 | 98.9 | 98.9 | 189 | 189 | 189 | CRV-ORF097 |
| SwCRV1-127 | SwCRV2-125 | CRV098 | hypothetical protein | 97.7 | 97.7 | 132 | 132 | 132 | CRV-ORF098 |
| SwCRV1-128 | SwCRV2-126 | CRV099 | RNA polymerase subunit RPO147 | 99.5 | 99.5 | 1289 | 1289 | 1289 | CRV-ORF099 |
| SwCRV1-129 | SwCRV2-127 | CRV100 | hypothetical protein | 97.3 | 97.3 | 75 | 75 | 75 | CRV-ORF100 |
| SwCRV1-130 | SwCRV2-128 | CRV101 | tyrosine/serine protein phosphatase | 98.8 | 98.8 | 167 | 167 | 167 | CRV-ORF101 |
| SwCRV1-131 | SwCRV2-129 | CRV102 | IMV membrane protein | 96.1 | 96.1 | 233 | 233 | 233 | CRV-ORF102 |
| SwCRV1-132 | SwCRV2-130 | CRV103 | IMV envelope protein | 95.7 | 95.7 | 278 | 278 | 278 | CRV-ORF103 |
| SwCRV1-133 | SwCRV2-131 | CRV104 | RNA-polymerase associated protein | 99.1 | 99.1 | 800 | 800 | 800 | CRV-ORF104 |

| SwCRV1 synteny | SwCRV2 synteny | CRV synteny | Best PSI-BLASTP hits | SwCRV1 PI % | SwCRV 2 PI % | SwCRV1 AA size | SwCRV2 AA size | CRV AA size | Orthologs, comments, notes |
|----------------|----------------|-------------|--|-------------|--------------|----------------|----------------|-------------|----------------------------|
| SwCRV1-134 | SwCRV2-132 | | hypothetical protein | | | 85 | 85 | | unique to SwCRV-1 and -2 |
| SwCRV1-135 | SwCRV2-133 | CRV105 | late transcription factor VLTF-4 | 94.3 | 94.3 | 123 | 123 | 123 | CRV-ORF105 |
| SwCRV1-136 | SwCRV2-134 | CRV106 | DNA topoisomerase IB | 98.5 | 98.8 | 324 | 324 | 324 | CRV-ORF106 |
| SwCRV1-137 | SwCRV2-135 | CRV107 | hypothetical protein | 95.8 | 95.8 | 142 | 142 | 142 | CRV-ORF107 |
| SwCRV1-138 | SwCRV2-136 | CRV108 | hypothetical protein | 95.8 | 95.8 | 119 | 119 | 119 | CRV-ORF108 |
| SwCRV1-139 | SwCRV2-137 | CRV109 | mRNA capping enzyme large subunit | 98.2 | 98.2 | 848 | 848 | 848 | CRV-ORF109 |
| SwCRV1-140 | SwCRV2-138 | CRV110 | virion core protein | 90.8 | 90.8 | 118 | 118 | 118 | CRV-ORF110 |
| SwCRV1-141 | SwCRV2-139 | CRV111 | virion core protein | 87.1 | 87.7 | 302 | 300 | 292 | CRV-ORF111 |
| SwCRV1-142 | SwCRV2-140 | | hypothetical protein | | | 272 | 270 | | unique to SwCRV-1 and -2 |
| SwCRV1-143 | SwCRV2-141 | CRV112 | uracil DNA glycosylase | 98.2 | 98.2 | 225 | 225 | 225 | CRV-ORF112 |
| SwCRV1-144 | SwCRV2-142 | | hypothetical protein | | | 151 | 151 | | unique to SwCRV-1 and -2 |
| SwCRV1-145 | SwCRV2-143 | CRV113 | NTPase | 98.9 | 98.9 | 782 | 782 | 781 | CRV-ORF113 |
| | SwCRV2-144 | | early transcription factor VETFs | 50 | | | 80 | | ORFV PP69 |
| SwCRV1-146 | | | virion protein | 50 | | 731 | | | ORFV PP66 |
| SwCRV1-147 | | | early transcription factor VETFs | 51 | | 80 | | | ORFV PP69 |
| SwCRV1-148 | SwCRV2-145 | CRV114 | early transcription factor small subunit | 99.7 | 99.7 | 633 | 633 | 633 | CRV-ORF114 |
| | SwCRV2-146 | | virion protein | | | | 213 | | ORFV PP66 |
| SwCRV1-149 | SwCRV2-147 | CRV115 | RNA polymerase subunit RPO18 | 98.8 | 98.8 | 165 | 165 | 165 | CRV-ORF115 |
| SwCRV1-150 | SwCRV2-148 | | hypothetical protein | | | 138 | 138 | | unique to SwCRV-1 and -2 |
| SwCRV1-151 | SwCRV2-149 | CRV116 | MutT motif protein | 92.7 | 92.7 | 245 | 245 | 232 | CRV-ORF116 |
| SwCRV1-152 | SwCRV2-150 | CRV117 | MutT motif protein | 88.8 | 88.8 | 233 | 233 | 250 | CRV-ORF117 |
| SwCRV1-153 | SwCRV2-151 | CRV118 | NPH-1 | 98.4 | 98.4 | 625 | 625 | 626 | CRV-ORF118 |

| SwCRV1 synteny | SwCRV2 synteny | CRV synteny | Best PSI-BLASTP hits | SwCRV1 PI % | SwCRV 2 PI % | SwCRV1 AA size | SwCRV2 AA size | CRV AA size | Orthologs, comments, notes |
|----------------|----------------|-------------|--|-------------|--------------|----------------|----------------|-------------|----------------------------|
| SwCRV1-154 | SwCRV2-152 | CRV119 | mRNA capping enzyme small subunit | 98.3 | 97.9 | 289 | 289 | 289 | CRV-ORF119 |
| SwCRV1-155 | SwCRV2-153 | | hypothetical protein | | | 282 | 271 | | unique to SwCRV-1 and -2 |
| SwCRV1-156 | | | hypothetical protein | | | 551 | | | ORFV PP219 |
| SwCRV1-157 | SwCRV2-154 | CRV120 | rifampin resistance protein | 99.3 | 99.3 | 544 | 544 | 544 | CRV-ORF120 |
| SwCRV1-158 | SwCRV2-155 | CRV121 | late transcription factor VLTF-2 | 97.9 | 97.9 | 146 | 146 | 146 | CRV-ORF121 |
| SwCRV1-159 | SwCRV2-156 | | hypothetical protein | | | 147 | 147 | | unique to SwCRV-1 and -2 |
| SwCRV1-160 | SwCRV2-157 | CRV122 | late transcription factor VLTF-3 | 99.1 | 99.1 | 225 | 225 | 225 | CRV-ORF122 |
| SwCRV1-161 | SwCRV2-158 | CRV123 | virion redox protein | 100 | 100 | 69 | 69 | 69 | CRV-ORF123 |
| SwCRV1-162 | SwCRV2-159 | CRV124 | virion core protein P4b | 97.8 | 97.6 | 673 | 672 | 675 | CRV-ORF124 |
| SwCRV1-163 | SwCRV2-160 | CRV125 | virion core protein | 87.8 | 87.8 | 88 | 88 | 90 | CRV-ORF125 |
| SwCRV1-164 | SwCRV2-161 | CRV126 | RNA polymerase subunit RPO19 | 99.4 | 98.7 | 158 | 158 | 158 | CRV-ORF126 |
| SwCRV1-165 | SwCRV2-162 | CRV127 | hypothetical protein | 89.5 | 89.5 | 520 | 520 | 530 | CRV-ORF127 |
| SwCRV1-166 | SwCRV2-163 | CRV128 | early transcription factor large subunit | 99.4 | 99.4 | 699 | 699 | 699 | CRV-ORF128 |
| SwCRV1-167 | SwCRV2-164 | CRV129 | intermediate transcription factor VITF-3 | 99 | 99 | 292 | 292 | 292 | CRV-ORF129 |
| SwCRV1-168 | SwCRV2-165 | CRV130 | IMV membrane protein | 100 | 100 | 74 | 74 | 74 | CRV-ORF130 |
| SwCRV1-169 | SwCRV2-166 | | hypothetical protein | | | 876 | 876 | | unique to SwCRV-1 and -2 |
| SwCRV1-170 | SwCRV2-167 | CRV131 | virion core protein P4a | 97.5 | 97.5 | 903 | 903 | 908 | CRV-ORF131 |
| SwCRV1-171 | SwCRV2-168 | CRV132 | nonstructural protein | 89.5 | 89.5 | 296 | 296 | 315 | CRV-ORF132 |
| SwCRV1-172 | SwCRV2-169 | CRV133 | virion core protein | 94.3 | 94.3 | 137 | 137 | 140 | CRV-ORF133 |
| SwCRV1-173 | SwCRV2-170 | CRV134 | hypothetical protein | 76.4 | 76.4 | 113 | 113 | 127 | CRV-ORF134 |
| SwCRV1-174 | SwCRV2-171 | CRV135 | IMV membrane protein | 91 | 91 | 65 | 65 | 67 | CRV-ORF135 |
| SwCRV1-175 | SwCRV2-172 | CRV136 | IMV membrane protein | 96.9 | 96.9 | 96 | 96 | 96 | CRV-ORF136 |

| SwCRV1 synteny | SwCRV2 synteny | CRV synteny | Best PSI-BLASTP hits | SwCRV1 PI % | SwCRV 2 PI % | SwCRV1 AA size | SwCRV2 AA size | CRV AA size | Orthologs, comments, notes |
|----------------|----------------|-------------|--|-------------|--------------|----------------|----------------|-------------|----------------------------|
| SwCRV1-176 | SwCRV2-173 | | hypothetical protein | | | 152 | 152 | | unique to SwCRV-1 and -2 |
| SwCRV1-177 | SwCRV2-174 | CRV137 | IMV membrane protein | 98.1 | 98.1 | 53 | 53 | 53 | CRV-ORF137 |
| SwCRV1-178 | SwCRV2-175 | CRV138 | virion core protein | 94.7 | 94.7 | 95 | 95 | 95 | CRV-ORF138 |
| SwCRV1-179 | SwCRV2-176 | CRV139 | Myristylated membrane protein | 93.6 | 93.6 | 388 | 388 | 388 | CRV-ORF139 |
| SwCRV1-180 | SwCRV2-177 | CRV140 | IMV membrane protein | 98.3 | 98.3 | 175 | 175 | 175 | CRV-ORF140 |
| SwCRV1-181 | SwCRV2-178 | CRV141 | DNA helicase | 99.6 | 99.6 | 459 | 459 | 459 | CRV-ORF141 |
| SwCRV1-182 | SwCRV2-179 | CRV142 | hypothetical protein | 88.6 | 88.6 | 87 | 87 | 88 | CRV-ORF142 |
| SwCRV1-183 | SwCRV2-180 | CRV143 | IMV membrane protein | 98.1 | 98.1 | 104 | 104 | 104 | CRV-ORF143 |
| SwCRV1-184 | SwCRV2-181 | CRV144 | DNA polymerase processivity factor | 96.2 | 96.4 | 444 | 444 | 444 | CRV-ORF144 |
| SwCRV1-185 | SwCRV2-182 | CRV145 | holliday junction resolvase | 91.9 | 91.9 | 156 | 156 | 160 | CRV-ORF145 |
| SwCRV1-186 | SwCRV2-183 | CRV146 | intermediate transcription factor VITF-3 | 96.1 | 96.1 | 379 | 379 | 383 | CRV-ORF146 |
| SwCRV1-187 | SwCRV2-184 | CRV147 | RNA polymerase subunit RPO132 | 99.8 | 99.8 | 1149 | 1149 | 1149 | CRV-ORF147 |
| SwCRV1-188 | SwCRV2-185 | CRV148 | IMV A type inclusion-like protein P4c | 86.3 | 62.3 | 444 | 318 | 446 | CRV-ORF148 |
| SwCRV1-189 | SwCRV2-186 | CRV149 | IMV membrane protein | 98.6 | 97.8 | 139 | 139 | 139 | CRV-ORF149 |
| SwCRV1-190 | SwCRV2-187 | CRV150 | RNA polymerase subunit RPO35 | 98 | 98 | 303 | 303 | 303 | CRV-ORF150 |
| SwCRV1-191 | SwCRV2-188 | CRV151 | virion core protein | 95.8 | 95.8 | 71 | 71 | 71 | CRV-ORF151 |
| SwCRV1-192 | SwCRV2-189 | CRV152 | hypothetical protein | 97.3 | 97.3 | 111 | 111 | 111 | CRV-ORF152 |
| SwCRV1-193 | SwCRV2-190 | | hypothetical protein | | | 117 | 117 | | unique to SwCRV-1 and -2 |
| SwCRV1-194 | SwCRV2-191 | CRV153 | hypothetical protein | 97.5 | 97.5 | 119 | 119 | 119 | CRV-ORF153 |
| SwCRV1-195 | SwCRV2-192 | CRV154 | ATPase | 98.8 | 98.8 | 249 | 249 | 249 | CRV-ORF154 |
| SwCRV1-196 | SwCRV2-193 | | hypothetical protein | | | 212 | 212 | | unique to SwCRV-1 and -2 |
| SwCRV1-197 | SwCRV2-194 | CRV155 | hypothetical protein | 96.9 | 96.9 | 226 | 226 | 226 | CRV-ORF155 |

| SwCRV1 synteny | SwCRV2 synteny | CRV synteny | Best PSI-BLASTP hits | SwCRV1 PI % | SwCRV 2 PI % | SwCRV1 AA size | SwCRV2 AA size | CRV AA size | Orthologs, comments, notes |
|----------------|----------------|-------------|----------------------|-------------|--------------|----------------|----------------|-------------|----------------------------|
| SwCRV1-198 | SwCRV2-195 | CRV157 | hypothetical protein | 89.8 | 89 | 127 | 127 | 127 | CRV-ORF157 |
| SwCRV1-199 | SwCRV2-196 | CRV158 | EEV envelope protein | 95.1 | 95.1 | 162 | 162 | 162 | CRV-ORF158 |
| SwCRV1-200 | SwCRV2-197 | CRV159 | hypothetical protein | 90.7 | 91.7 | 108 | 108 | 108 | CRV-ORF159 |
| SwCRV1-201 | SwCRV2-198 | CRV160 | hypothetical protein | 79.5 | 78.7 | 244 | 244 | 250 | CRV-ORF160 |
| SwCRV1-202 | SwCRV2-199 | CRV161 | hypothetical protein | 88 | 88 | 132 | 132 | 133 | CRV-ORF161 |
| SwCRV1-203 | SwCRV2-200 | CRV162 | hypothetical protein | 86.9 | 85.9 | 99 | 99 | 96 | CRV-ORF162 |
| SwCRV1-204 | SwCRV2-201 | CRV163 | hypothetical protein | 72.4 | 72.2 | 460 | 460 | 477 | CRV-ORF163 |
| SwCRV1-205 | SwCRV2-202 | | hypothetical protein | | | 50 | 50 | | unique to SwCRV-1 and -2 |
| SwCRV1-206 | SwCRV2-203 | CRV164 | hypothetical protein | 69 | 68.6 | 115 | 118 | 111 | CRV-ORF164 |
| SwCRV1-207 | SwCRV2-204 | | hypothetical protein | | | 54 | 54 | | unique to SwCRV-1 and -2 |
| SwCRV1-208 | SwCRV2-205 | CRV165 | KDEL motif protein | 77.4 | 77 | 243 | 243 | 234 | CRV-ORF165 |
| SwCRV1-209 | SwCRV2-206 | CRV166 | hypothetical protein | 81.7 | 81.7 | 188 | 188 | 189 | CRV-ORF166 |
| SwCRV1-210 | SwCRV2-207 | | hypothetical protein | | | 70 | 70 | | unique to SwCRV-1 and -2 |
| SwCRV1-211 | SwCRV2-208 | CRV167 | F-box domain protein | 77 | 76.6 | 263 | 263 | 273 | CRV-ORF167 |
| SwCRV1-212 | SwCRV2-209 | CRV168 | hypothetical protein | 68.1 | 68.5 | 623 | 623 | 645 | CRV-ORF168 |
| SwCRV1-213 | SwCRV2-210 | CRV169 | hypothetical protein | 70.7 | 70.7 | 170 | 170 | 177 | CRV-ORF169 |
| SwCRV1-214 | SwCRV2-211 | | hypothetical protein | | | 60 | 60 | | unique to SwCRV-1 and -2 |
| SwCRV1-215 | SwCRV2-212 | CRV170 | hypothetical protein | 80.9 | 80.9 | 196 | 196 | 199 | CRV-ORF170 |
| SwCRV1-216 | SwCRV2-213 | | hypothetical protein | | | 285 | 192 | | unique to SwCRV-1 and -2 |
| SwCRV1-217 | SwCRV2-214 | | hypothetical protein | | | 238 | 230 | | unique to SwCRV-1 and -2 |
| SwCRV1-218 | SwCRV2-215 | CRV173 | hypothetical protein | 62.8 | 62.8 | 71 | 71 | 78 | CRV-ORF173 |

The percent identity and alignment length are taken directly from BLASTP searches. The abbreviations for poxviruses were used: ORFV, Orf virus; CRV; Nile crocodilepox virus; SwCRV-1, saltwater crocodilepox virus subtype 1; SwCRV-2, Saltwater crocodilepox virus subtype 2. Grey shading highlighted box represents the translocated genes between SwCRV and CRV genomes.

*Transmembrane helices are predicted by HHpred software package using default parameters.