|  |  |  |  |
| --- | --- | --- | --- |
| Predicted genes  | Blastp results | CD-Search results | Accession |
| *Tupanvirus DEEP OCEAN* |
| TPV-SL\_51 | Putative ORFan | - | - |
| TPV-SL\_82 | Putative ORFan | - | - |
| TPV-SL\_101 | hypothetical protein | - | - |
| TPV-SL\_106 | Putative ORFan | - | - |
| TPV-SL\_113 | Putative ORFan | Nucleotydylyl transferase | cl00015 |
| TPV-SL\_125 | Hypothetical protein | Beta\_helix | pfam13229 |
| TPV-SL\_126 | Putative HNH endonuclease | HNH endonuclease | cd00085 |
| TPV-SL\_127 | Hypothetical protein | - | - |
| TPV-SL\_156 | NAD dependent dehydratase | Epimerase | pfam01370 |
| TPV-SL\_161 | Putative ORFan | - | - |
| TPV-SL\_195 | NAD dependent DNA ligase | Helicase\_C | pfam00271 |
| TPV-SL\_240 | Putative ORFan | - | - |
| TPV-SL\_259 | Putative ORFan | - | - |
| TPV-SL\_285 | Hypothetical protein | - | - |
| TPV-SL\_291 | Alkaline phosphatase | Phosphodiesterase/alkaline phosphatase D | COG3540 |
| TPV-SL\_307 | Putative membrane protein | - | - |
| TPV-SL\_338 | Hypothetical protein | Band\_7 | pfam01145 |
| TPV-SL\_339 | Hypothetical protein | Band\_7 | pfam01145 |
| TPV-SL\_361 | Transposase | DDE\_3 | pfam13358 |
| TPV-SL\_394 | Mg386 protein | - | - |
| TPV-SL\_455 | Hypothetical protein | - | - |
| TPV-SL\_456 | Hypothetical protein | - | - |
| TPV-SL\_474 | Putative ORFan | - | - |
| TPV-SL\_518 | Hypothetical protein | - | - |
| TPV-SL\_543 | Hypothetical protein | Cysteine proteinase | Ssf54001 |
| TPV-SL\_553 | Putative ORFan | - | - |
| TPV-SL\_555 | Hypothetical protein | - | - |
| TPV-SL\_569 | Hypothetical protein | - | - |
| TPV-SL\_575 | Putative ORFan | - | - |
| TPV-SL\_655 | Leucine rich repeat protein | Leucin rich repeat protein | COG4886 |
| TPV-SL\_665 | Hypothetical protein | DUF2263 | pfam10021 |
| TPV-SL\_671 | Putative ORFan | - | - |
| TPV-SL\_720 | Putative ORFan | - | - |
| TPV-SL\_731 | Putative ORFan | - | - |
| TPV-SL\_740 | Hypothetical protein | - | - |
| TPV-SL\_771 | Putative ORFan | - | - |
| TPV-SL\_778 | Putative ORFan | - | - |
| TPV-SL\_787 | Hypothetical protein | Myo-inositol oxygenase | pfam05153 |
| TPV-SL\_896 | Putative HNH endonuclease | HNH endonuclease | Pfam13392 |
| TPV-SL\_944 | putative orfan | - | - |
| TPV-SL\_946 | T5orf172 domain containing protein | Zf\_C2H2\_type  | Pfam00096 |
| TPV-SL\_948 | hypothetical protein | - | - |
| TPV-SL\_952 | EstA family serine hydrolase | Beta-lactamase | Pfam00144 |
| TPV-SL\_953 | Endotype 6-aminohexoate-oligomer hydrolase | nyC-like family | cd02252 |
| TPV-SL\_958 | Putative ORFan | - | - |
| TPV-SL\_959 | Phosphatase II | Dual-specificity phosphatase domain | cd14498 |
| TPV-SL\_961 | Hypothetical protein | - | - |
| TPV-SL\_965 | Putative ORFan | - | - |
| TPV-SL\_969 | Putative ORFan | - | - |
| TPV-SL\_971 | hypothetical protein | C-term E3 ligase | cl26018 |
| TPV-SL\_983 | Putative ORFan | - | - |
| TPV-SL\_984 | Putative ORFan | - | - |
| TPV-SL\_986 | Putative ORFan | - | - |
| TPV-SL\_987 | Putative ORFan | - | - |
| TPV-SL\_988 | Putative ORFan | - | - |
| TPV-SL\_992 | Family 25 protein | Glycosyltransferase family 25 | Cd06532 |
| TPV-SL\_1005 | Putative ORFan | - | - |
| TPV-SL\_1020 | Hypothetical protein | - | - |
| TPV-SL\_1028 | Putative ORFan | - | - |
| TPV-SL\_1034 | Putative ORFan | - | - |
| TPV-SL\_1036 | Putative ORFan | - | - |
| TPV-SL\_1038 | Mg586 protein | Nucleotidyltransferase\_POLXc | Cd00141 |
| TPV-SL\_1048 | Putative ORFan | - | - |
| TPV-SL\_1050 | CHDR domain protein | CHRD domain | Pfam07452 |
| TPV-SL\_1052 | Putative ORFan | - | - |
| TPV-SL\_1057 | Putative ORFan | - | - |
| TPV-SL\_1097 | Putative ORFan | - | - |
| TPV-SL\_1101 | Putative ORFan | - | - |
| TPV-SL\_1108 | Putative ORFan | - | - |
| TPV-SL\_1124 | Putative ORFan | - | - |
| TPV-SL\_1177 | Putative ORFan | - | - |
| TPV-SL\_1250 | Putative ORFan | T5orf172 | pfam10544 |
| *Tupanvirus SODA LAKE* |
| TPV-SL\_11 | hypothetical protein  | - | - |
| TPV-SL\_49 | putative orfan | - | - |
| TPV-SL\_50 | Copine | vWA\_copine-like | cd01459 |
| TPV-SL\_51 | hypothetical protein  | Phytanoyl-CoA dioxygenase | pfam05721 |
| TPV-SL\_74 | putative orfan | - | - |
| TPV-SL\_83 | Ankyrin | Ankyrin\_2 | pfam12796 |
| TPV-SL\_84 | Ankyrin repeat protein | Ankyrin repeat-containing domain | Ssf48403 |
| TPV-SL\_90 | glycogen debranching enzyme alpha-1,6-glucosidase | Amylo-alpha-1,6-glucosidase | pfam06202 |
| TPV-SL\_100 | putative orfan | - | - |
| TPV-SL\_130 | putative orfan | - | - |
| TPV-SL\_140 | putative orfan | - | - |
| TPV-SL\_141 | putative orfan | - | - |
| TPV-SL\_142 | putative orfan | - | - |
| TPV-SL\_143 | putative orfan | - | - |
| TPV-SL\_144 | putative orfan | - | - |
| TPV-SL\_145 | putative orfan | - | - |
| TPV-SL\_161 | Zn-dependent alcohol dehydrogenase  | Cinnamyl alcohol dehydrogenase | cd05283 |
| TPV-SL\_178 | putative orfan | - | - |
| TPV-SL\_183 | putative orfan | - | - |
| TPV-SL\_201 | methyltransferase FkbM family protein | methyltransferase, FkbM family | TIGR01444 |
| TPV-SL\_242 | putative orfan | - | - |
| TPV-SL\_243 | putative orfan | - | - |
| TPV-SL\_253 | I cysteine dioxygenase | Cysteine dioxygenase type I | pfam05995 |
| TPV-SL\_255 | Hypothetical protein | - | - |
| TPV-SL\_256 | putative orfan | - | - |
| TPV-SL\_280 | Hypothetical protein | - | - |
| TPV-SL\_286 | monooxygenase | 2-polyprenyl-6-methoxyphenol hydroxylase and related FAD-dependent oxidoreductase family | COG0654 |
| TPV-SL\_292 | hypothetical protein  | - | - |
| TPV-SL\_295 | putative orfan | - | - |
| TPV-SL\_312 | putative orfan | - | - |
| TPV-SL\_330 | T2 family ribonuclease | RNase\_T2\_euk | cd01061 |
| TPV-SL\_350 | triacylglycerol lipase  | Abhydrolase\_3 | pfam07859 |
| TPV-SL\_351 | putative alpha/beta hydrolase | Acetyl esterase/lipase | COG0657 |
| TPV-SL\_374 | putative orfan | - | - |
| TPV-SL\_388 | putative orfan | - | - |
| TPV-SL\_391 | putative orfan | - | - |
| TPV-SL\_392 | putative orfan | - | - |
| TPV-SL\_404 | putative orfan | - | - |
| TPV-SL\_413 | putative orfan | - | - |
| TPV-SL\_477 | hypothetical protein  | - | - |
| TPV-SL\_491 | hypothetical protein  | - | - |
| TPV-SL\_500 | hypothetical protein  | O-acetyl-ADP-ribose deacetylase | COG2110 |
| TPV-SL\_506 | putative orfan | - | - |
| TPV-SL\_545 | hypothetical protein  | S-adenosylmethionine-dependent methyltransferase | cd02440 |
| TPV-SL\_557 | hypothetical protein  | - | - |
| TPV-SL\_560 | hypothetical protein  | - | - |
| TPV-SL\_593 | hypothetical protein  | - | - |
| TPV-SL\_600 | putative orfan | - | - |
| TPV-SL\_601 | putative orfan | - | - |
| TPV-SL\_613 | hypothetical protein  | - | - |
| TPV-SL\_615 | putative orfan | - | - |
| TPV-SL\_617 | hypothetical protein  | Ankyrin\_2 | pfam12796 |
| TPV-SL\_618 | DnaJ-like subfamily C member 3 | DnaJ | cd06257 |
| TPV-SL\_626 | putative orfan | - | - |
| TPV-SL\_644 | putative orfan | - | - |
| TPV-SL\_670 | putative orfan | - | - |
| TPV-SL\_678 | dynamin family protein | Dynamin like-protein\_1 | cd08771 |
| TPV-SL\_682 | putative orfan | - | - |
| TPV-SL\_699 | hypothetical protein  | - | - |
| TPV-SL\_717 | putative orfan | - | - |
| TPV-SL\_724 | hypothetical protein  | - | - |
| TPV-SL\_822 | putative orfan | - | - |
| TPV-SL\_847 | putative orfan | - | - |
| TPV-SL\_850 | Aldehyde activiting protein | - | - |
| TPV-SL\_883 | hypothetical protein  | - | - |
| TPV-SL\_923 | hypothetical protein  | Nudix hydrolase 18 | cd04677 |
| TPV-SL\_963 | putative orfan | - | - |
| TPV-SL\_1008 | alcohol deshydrogenase | Cinnamyl alcohol dehydrogenase | cd05283 |
| TPV-SL\_1011 | hypothetical protein  | Glyco\_tranf\_GTA\_type | cd00761 |
| TPV-SL\_1021 | hypothetical protein  | - | - |
| TPV-SL\_1023 | putative orfan | - | - |
| TPV-SL\_1025 | putative orfan | - | - |
| TPV-SL\_1026 | putative orfan | - | - |
| TPV-SL\_1040 | putative orfan | - | - |
| TPV-SL\_1041 | putative orfan | - | - |
| TPV-SL\_1042 | zf-C2H2-N-terminal protein | zf-C2H2 | pfam00096 |
| TPV-SL\_1043 | hypothetical protein  | - | - |
| TPV-SL\_1044 | dolichyldiphosphatase | PAP2\_dolichyldiphosphatase | cd03382 |
| TPV-SL\_1054 | Hypothetical protein | - | - |
| TPV-SL\_1074 | putative orfan | - | - |
| TPV-SL\_1075 | putative orfan | - | - |
| TPV-SL\_1076 | F-box domain protein | AMN1 domain | cd09293 |
| TPV-SL\_1077 | S-phase kinase-associated protein 2 | F-box domain | pfam00646 |
| TPV-SL\_1078 | hypothetical protein  | F-box domain | smart00256 |
| TPV-SL\_1079 | hypothetical protein  | F-box domain | smart00256 |
| TPV-SL\_1080 | F-box domain protein | AMN1 domain | cd09293 |
| TPV-SL\_1081 | hypothetical protein  | F-box domain | smart00256 |
| TPV-SL\_1084 | putative orfan | Thioredoxin reductase | COG0492 |
| TPV-SL\_1085 | hypothetical protein  | - | - |
| TPV-SL\_1086 | cytochrome P450 CYP736A12-like protein | p450 | pfam00067 |
| TPV-SL\_1087 | putative orfan | - | - |
| TPV-SL\_1092 | putative ankyrin repeat protein | Ankyrin\_2 | pfam12796 |
| TPV-SL\_1094 | putative ankyrin repeat protein | Ankyrin\_2 | pfam12796 |
| TPV-SL\_1095 | ankyrin repeat protein | Ankyrin\_2 | pfam12796 |
| TPV-SL\_1096 | putative orfan | - | - |
| TPV-SL\_1097 | hypothetical protein  | - | - |
| TPV-SL\_1098 | hypothetical protein  | - | - |
| TPV-SL\_1099 | putative sérine/threonine protein kinase | PKc\_MKK7 | cd06618 |
| TPV-SL\_1100 | putative orfan | - | - |
| TPV-SL\_1101 | hypothetical protein  | phosphodiesterase | PKR12704 |
| TPV-SL\_1102 | putative orfan | - | - |
| TPV-SL\_1104 | putative orfan | - | - |
| TPV-SL\_1105 | hypothetical protein  | - | - |
| TPV-SL\_1106 | putative orfan | - | - |
| TPV-SL\_1108 | hypothetical protein  | Ras\_like\_GTPase | cd00882 |
| TPV-SL\_1109 | hypothetical protein  | - | - |
| TPV-SL\_1110 | putative orfan | - | - |
| TPV-SL\_1112 | putative orfan | - | - |
| TPV-SL\_1114 | hypothetical protein  | - | - |
| TPV-SL\_1115 | hypothetical protein  | - | - |
| TPV-SL\_1117 | hypothetical protein  | - | - |
| TPV-SL\_1118 | hypothetical protein  | - | - |
| TPV-SL\_1119 | putative orfan | - | - |
| TPV-SL\_1121 | putative orfan | - | - |
| TPV-SL\_1123 | putative orfan | - | - |
| TPV-SL\_1126 | hypothetical protein  | - | - |
| TPV-SL\_1129 | putative orfan | - | - |
| TPV-SL\_1140 | putative orfan | - | - |
| TPV-SL\_1142 | linear amide C-N hydrolase | Penicillin V acylase | cd00542 |
| TPV-SL\_1143 | CLUMA CG011169 isoform A | RFX\_DNA\_binding | pfam02257 |
| TPV-SL\_1144 | putative orfan | - | - |
| TPV-SL\_1145 | hypothetical protein  | CAP\_euk | cd05380 |
| TPV-SL\_1151 | Putative orfan | - | - |
| TPV-SL\_1156 | putative orfan | - | - |
| TPV-SL\_1157 | Nad dependent amine oxidase | Amino\_oxidase | pfam01593 |
| TPV-SL\_1158 | putative orfan | - | - |
| TPV-SL\_1159 | putative orfan | - | - |
| TPV-SL\_1160 | glucose-methanol-choline oxidoreductase | Choline deshydrogenase | COG2303 |
| TPV-SL\_1163 | putative orfan | - | - |
| TPV-SL\_1172 | collagen like protein | Collagen | pfam01391 |
| TPV-SL\_1173 | putative orfan | - | - |
| TPV-SL\_1178 | hypothetical protein  | Exonuclease/endonuclease/ phosphatase EEP\_1 | cd09083 |
| TPV-SL\_1185 | Putative orfan | - | - |
| TPV-SL\_1209 | 1-deoxy-D-xylulose-phosphate synthase | Thiamine pyrophosphate family, Transketolase (TPP\_TK) | cd02012 |
| TPV-SL\_1226 | putative orfan | - | - |
| TPV-SL\_1228 | hypothetical protein  | Peptidase\_S74 | pfam13884 |
| TPV-SL\_1253 | hypothetical protein  | - | - |
| TPV-SL\_1255 | hypothetical protein  | Mth938 domain | cd05126 |
| TPV-SL\_1267 | hypothetical protein  | Ankyrin\_2 | pfam12796 |
| TPV-SL\_1289 | Putative orfan | - | - |
| TPV-SL\_1294 | glycosyltransferase | Glyco\_transf\_GTA\_type | cl11394 |
| TPV-SL\_1365 | Putative orfan | - | - |
| TPV-SL\_1371 | Putative orfan | - | - |

**Supplementary Table 1.** List of unique proteins from Tupanvirus Soda Lake and Tupanvirus Deep Ocean. Results corresponded to analyses with Blastp and CD-Search tools online (threshold e-value > 0,001 for both).