**Supplementary Table 1** Virus taxonomy and representation by RNA-seq samples in the analyzed data of this study.

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| --- | --- | --- |
| **Virus name** | **Number of samples** | **Virus Taxonomy** |
| Aura virus | 4 | Viruses; Riboviria; Orthornavirae; Kitrinoviricota; Alsuviricetes; Martellivirales; Togaviridae; Alphavirus |
| Chikungunya virus | 31 | Viruses; Riboviria; Orthornavirae; Kitrinoviricota; Alsuviricetes; Martellivirales; Togaviridae; Alphavirus |
| Enterovirus D | 4 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus |
| Enterovirus D68 | 4 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Enterovirus D |
| Hepacivirus hominis | 1 | Viruses; Riboviria; Orthornavirae; Kitrinoviricota; Flasuviricetes; Amarillovirales; Flaviviridae; Hepacivirus |
| Human coronavirus 229E | 2 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Nidovirales; Cornidovirineae; Coronaviridae; Orthocoronavirinae; Alphacoronavirus; Duvinacovirus |
| Human coronavirus HKU1 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Nidovirales; Cornidovirineae; Coronaviridae; Orthocoronavirinae; Betacoronavirus; Embecovirus |
| Human coronavirus OC43 | 3 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Nidovirales; Cornidovirineae; Coronaviridae; Orthocoronavirinae; Betacoronavirus; Embecovirus; Betacoronavirus 1 |
| Human immunodeficiency virus 1 | 56 | Viruses; Riboviria; Pararnavirae; Artverviricota; Revtraviricetes; Ortervirales; Retroviridae; Orthoretrovirinae; Lentivirus |
| Human metapneumovirus | 5 | Viruses; Riboviria; Orthornavirae; Negarnaviricota; Haploviricotina; Monjiviricetes; Mononegavirales; Pneumoviridae; Metapneumovirus; Metapneumovirus hominis |
| Human parainfluenza virus 4a | 3 | Viruses; Riboviria; Orthornavirae; Negarnaviricota; Haploviricotina; Monjiviricetes; Mononegavirales; Paramyxoviridae; Rubulavirinae; Orthorubulavirus; Human orthorubulavirus 4 |
| Human parainfluenza virus 4b | 3 | Viruses; Riboviria; Orthornavirae; Negarnaviricota; Haploviricotina; Monjiviricetes; Mononegavirales; Paramyxoviridae; Rubulavirinae; Orthorubulavirus; Human orthorubulavirus 4 |
| Human respiratory syncytial virus A | 5 | Viruses; Riboviria; Orthornavirae; Negarnaviricota; Haploviricotina; Monjiviricetes; Mononegavirales; Pneumoviridae; Orthopneumovirus; Orthopneumovirus hominis; Human orthopneumovirus |
| Human respiratory syncytial virus B | 2 | Viruses; Riboviria; Orthornavirae; Negarnaviricota; Haploviricotina; Monjiviricetes; Mononegavirales; Pneumoviridae; Orthopneumovirus; Orthopneumovirus hominis; Human orthopneumovirus |
| Human respirovirus 1 | 2 | Viruses; Riboviria; Orthornavirae; Negarnaviricota; Haploviricotina; Monjiviricetes; Mononegavirales; Paramyxoviridae; Orthoparamyxovirinae; Respirovirus; Respirovirus laryngotracheitidis |
| Human respirovirus 3 | 18 | Viruses; Riboviria; Orthornavirae; Negarnaviricota; Haploviricotina; Monjiviricetes; Mononegavirales; Paramyxoviridae; Orthoparamyxovirinae; Respirovirus; Respirovirus pneumoniae |
| Influenza A virus | 43 | Viruses; Riboviria; Orthornavirae; Negarnaviricota; Polyploviricotina; Insthoviricetes; Articulavirales; Orthomyxoviridae; Alphainfluenzavirus; Alphainfluenzavirus influenzae |
| Influenza B virus | 2 | Viruses; Riboviria; Orthornavirae; Negarnaviricota; Polyploviricotina; Insthoviricetes; Articulavirales; Orthomyxoviridae; Betainfluenzavirus; Betainfluenzavirus influenzae |
| Mayaro virus | 7 | Viruses; Riboviria; Orthornavirae; Kitrinoviricota; Alsuviricetes; Martellivirales; Togaviridae; Alphavirus |
| Measles morbillivirus | 6 | Viruses; Riboviria; Orthornavirae; Negarnaviricota; Haploviricotina; Monjiviricetes; Mononegavirales; Paramyxoviridae; Orthoparamyxovirinae; Morbillivirus |
| Onyong-nyong virus | 1 | Viruses; Riboviria; Orthornavirae; Kitrinoviricota; Alsuviricetes; Martellivirales; Togaviridae; Alphavirus |
| Rhinovirus A | 10 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus |
| Rhinovirus B | 3 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus |
| Rhinovirus C | 3 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus |
| Sindbis virus | 5 | Viruses; Riboviria; Orthornavirae; Kitrinoviricota; Alsuviricetes; Martellivirales; Togaviridae; Alphavirus |
| Venezuelan equine encephalitis virus | 13 | Viruses; Riboviria; Orthornavirae; Kitrinoviricota; Alsuviricetes; Martellivirales; Togaviridae; Alphavirus |
| Zika virus | 14 | Viruses; Riboviria; Orthornavirae; Kitrinoviricota; Flasuviricetes; Amarillovirales; Flaviviridae; Orthoflavivirus; Orthoflavivirus zikaense |
| rhinovirus A101 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus A |
| rhinovirus A103 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus A |
| rhinovirus A15 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus A |
| rhinovirus A21 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus A |
| rhinovirus A29 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus A |
| rhinovirus A53 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus A |
| rhinovirus A54 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus A |
| rhinovirus A59 | 3 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus A |
| rhinovirus A60 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus A |
| rhinovirus A62 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus A |
| rhinovirus A85 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus A |
| rhinovirus A94 | 2 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus A |
| rhinovirus B14 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus B |
| rhinovirus B3 | 2 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus B |
| rhinovirus B4 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus B |
| rhinovirus C15 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus C |
| rhinovirus C34 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus C |
| rhinovirus C56 | 1 | Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes; Picornavirales; Picornaviridae; Ensavirinae; Enterovirus; Rhinovirus C |

**Supplementary Table 2** Frequency and taxonomy of the most contaminant species in the examined RNA-seq samples.

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| **Samples mostly contaminaned by the species** | **Percentile of samples with rRNA-virus chimeras** | **Contaminant species taxonomy** |
| 135 | 49.451 | Bacteria;Firmicutes;Clostridia;Peptostreptococcales;Peptostreptococcaceae;Clostridioides;Clostridioides difficile |
| 51 | 18.681 | Bacteria;Bacteroidota;Bacteroidia;Cytophagales;Microscillaceae;Hassallia;metagenome |
| 32 | 11.722 | Bacteria;Firmicutes;Bacilli;Lactobacillales;Lactobacillaceae;Weissella;Weissella viridescens |
| 26 | 9.524 | Eukaryota;Amorphea;Obazoa;Opisthokonta;Holozoa;Choanozoa;Metazoa;Animalia;BCP clade;Bilateria;Deuterostomia;Chordata;Vertebrata;Gnathostomata;Euteleostomi;Tetrapoda;Mammalia;Homo sapiens |
| 10 | 3.663 | Bacteria;Bacteroidota;Bacteroidia;Cytophagales;Microscillaceae;Ohtaekwangia;metagenome |
| 2 | 0.733 | Eukaryota;Archaeplastida;Chloroplastida;Charophyta;Phragmoplastophyta;Streptophyta;Embryophyta;Tracheophyta;Spermatophyta;Magnoliophyta;Brassicales;Brassica;Brassica juncea var. tumida |
| 2 | 0.733 | Eukaryota;Amorphea;Obazoa;Opisthokonta;Nucletmycea;Fungi;Dikarya;Ascomycota;Saccharomycotina;Saccharomycetes;Saccharomycetales;synthetic construct |
| 2 | 0.733 | Eukaryota;Amorphea;Obazoa;Opisthokonta;Nucletmycea;Fungi;Dikarya;Ascomycota;Pezizomycotina;Sordariomycetes;metagenome |
| 2 | 0.733 | Bacteria;Proteobacteria;Gammaproteobacteria;Xanthomonadales;Xanthomonadaceae;Stenotrophomonas;[Pseudomonas] geniculata |
| 1 | 0.366 | Eukaryota;Archaeplastida;Chloroplastida;Charophyta;Phragmoplastophyta;Streptophyta;Embryophyta;Tracheophyta;Spermatophyta;Magnoliophyta;Caryophyllales;Limonium;Limonium bicolor |
| 1 | 0.366 | Eukaryota;Archaeplastida;Chloroplastida;Charophyta;Phragmoplastophyta;Alosa alosa |
| 1 | 0.366 | Eukaryota;Amorphea;Obazoa;Opisthokonta;Holozoa;Choanozoa;Metazoa;Animalia;BCP clade;Bilateria;Protostomia;Lophotrochozoa;Platyhelminthes;Cestoda;Eucestoda;Cyclophyllidea;Raillietina mitchelli |
| 1 | 0.366 | Eukaryota;Amorphea;Obazoa;Opisthokonta;Holozoa;Choanozoa;Metazoa;Animalia;BCP clade;Bilateria;Deuterostomia;Chordata;Vertebrata;Gnathostomata;Euteleostomi;Tetrapoda;Mammalia;Monodelphis domestica |
| 1 | 0.366 | Eukaryota;Amorphea;Obazoa;Opisthokonta;Holozoa;Choanozoa;Metazoa;Animalia;BCP clade;Bilateria;Deuterostomia;Chordata;Vertebrata;Gnathostomata;Euteleostomi;Tetrapoda;Mammalia;Malaclemys terrapin terrapin |
| 1 | 0.366 | Eukaryota;Amorphea;Obazoa;Opisthokonta;Holozoa;Choanozoa;Metazoa;Animalia;BCP clade;Bilateria;Deuterostomia;Chordata;Vertebrata;Gnathostomata;Euteleostomi;Tetrapoda;Mammalia;Ensifer sp. CCBAU 251167 |
| 1 | 0.366 | Eukaryota;Amorphea;Obazoa;Opisthokonta;Holozoa;Choanozoa;Metazoa;Animalia;BCP clade;Bilateria;Deuterostomia;Chordata;Vertebrata;Gnathostomata;Euteleostomi;Tetrapoda;Aves;Gallus gallus |
| 1 | 0.366 | Eukaryota;Amorphea;Obazoa;Opisthokonta;Holozoa;Choanozoa;Metazoa;Animalia;BCP clade;Bilateria;Deuterostomia;Chordata;Vertebrata;Gnathostomata;Euteleostomi;Gorilla gorilla gorilla |
| 1 | 0.366 | Eukaryota;Amorphea;Obazoa;Opisthokonta;Holozoa;Choanozoa;Metazoa;Animalia;BCP clade;Bilateria;Deuterostomia;Chordata;Vertebrata;Gnathostomata;Euteleostomi;Callithrix jacchus |
| 1 | 0.366 | Bacteria;Proteobacteria;Gammaproteobacteria;Pseudomonadales;Pseudomonadaceae;Pseudomonas;Pseudomonas sp. bs2935 |
| 1 | 0.366 | Bacteria;Actinobacteriota;Actinobacteria;Micrococcales;Micrococcaceae;Rothia;Rothia mucilaginosa ATCC 25296 |