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# Exploring viral aetiology in upper respiratory tract infections: insights from metagenomic next-generation sequencing in Swiss outpatients before and during the SARS-CoV-2 pandemic

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## Summary

AIMS OF THE STUDY: Upper respiratory tract infections are among the most common reasons for primary care consultations. They are diagnosed predominantly based on clinical assessment. Here, we investigated the benefit of viral metagenomic next-generation sequencing (mNGS) in an outpatient setting.

METHODS: This prospective cross-sectional study included immunocompetent patients with acute upper respiratory tract infections. General practitioners collected pharyngeal swabs and demographic and clinical data. Specimens were analysed using viral mNGS and conventional tests.

RESULTS: Two hundred seventy-seven patients were recruited by 21 general practitioners between 10/2019 and 12/2020, of which 91% had a suspected viral aetiology. For 138 patients (49.8%), mNGS identified one or more respiratory viruses. The mNGS showed a high overall agreement with conventional routine diagnostic tests. Rhinoviruses were the most frequently detected respiratory viruses (20.2% of patients). Viral mNGS reflected the influenza wave in early 2020 and the SARS-CoV-2 pandemic outbreak in Switzerland in March 2020. Notably, rhinoviruses continued to circulate despite non-pharmaceutical hygiene measures.

CONCLUSIONS: Viral mNGS allowed the initial diagnosis to be retrospectively re-evaluated. Assuming reduced turnaround times, mNGS has the potential to directly guide the treatment of upper respiratory tract infections. On an epidemiological level, our study highlights the utility of mNGS in respiratory infection surveillance, allowing early detection of epidemics and providing information crucial for prevention.

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## Introduction

Acute respiratory tract infections are among the most common reasons for consultations in the outpatient setting [1] and the leading cause of antibiotic prescription and use [2–4]. While patients with pneumonia and chronic obstructive pulmonary disease (COPD) exacerbations benefit from antibiotic treatment, most respiratory tract infections will resolve spontaneously [3] since they are predominantly caused by viruses [4]. Rapid and comprehensive diagnostic testing, informing healthcare workers about the suspected cause of disease, may reduce diagnostic uncertainty. Currently, acute respiratory tract infections are diagnosed predominantly based on clinical assessment. Microbial studies other than influenza-specific assays or rapid antigen detection for *Streptococcus pyogenes* are not routinely performed. Consequently, the causal pathogen is rarely identified. Therefore, timely pan-pathogen detection could greatly help direct the treatment choice.

Metagenomic next-generation sequencing (mNGS) allows for the comprehensive analysis of microbial material from a clinical specimen. Unlike conventional diagnostic tests, which target specific pathogens and rely on a working hypothesis, mNGS enables the detection of unexpected or even unknown pathogens [5]. The utility of mNGS in identifying infectious agents has previously been demonstrated for diseases such as meningitis and encephalitis [6–8], respiratory infections [9, 10], joint infection [11], and endocarditis [12]. Falling sequencing costs and methods adapted for diagnostic use have now made it financially feasible for routine testing. Nonetheless, mNGS is mainly used in difficult-to-diagnose cases in an inpatient setting.

Here, we evaluated the potential of viral mNGS as a diagnostic tool in primary care for immunocompetent patients suffering from a respiratory tract infection.

## Material and methods

### Study design

This prospective cross-sectional study included patients presenting to their general practitioner with symptoms of a respiratory tract infection from October 2019 to December

2020. Its primary outcome was the identification of viral pathogens from throat swabs by viral mNGS. Its secondary outcomes were the frequency of viral pathogen detection and the correlation between the routine clinical diagnosis and the detected viral pathogens. Written informed consent was obtained from all study participants. The study protocol was approved by the Ethics Committee of the canton of Zurich (BASEC-Nr. 2019-01120, 19.08.2018).

### Patient eligibility and recruitment

Twenty-one primary care physicians from the cantons of Zurich and Basel-Landschaft were selected from physicians known to the authors based on their interest in the study and willingness to enrol patients in a busy environment. Patients aged ≥18 years with clinically suspected respiratory tract infections were eligible for enrollment. Exclusion criteria were limited German language skills, pregnancy, previous enrollment in the trial, and immunosuppression (treatment with biologicals, cytostatic drugs, prednisone >20 mg for >4 weeks, or glucocorticoid therapy at equivalent dosage). Patients within practices were randomly selected based on their presentation time and according to the inclusion/exclusion criteria.

### Sampling and data collection

During the consultation, the primary care physician or a nurse collected throat swabs (FLOQSwabs with UTM-RT transport medium for viruses; Copan, Italy) from all study participants. The physician also completed a questionnaire gathering demographic and medical data, including information about the suspected disease aetiology and planned treatment. Routine care was provided at the general practitioner's discretion.

On day 14 after the initial consultation, a trained study physician collected information on the clinical course through a structured telephone interview with the participant. Unavailable patients were repeatedly called with at least four attempts.

### Viral mNGS

Throat swabs were analysed at the Institute of Medical Virology (Zurich, Switzerland) using a viral mNGS approach, as previously described [8] (https://github.com/medvir/virome-protocols/releases/tag/v2.2.1). Briefly, samples were pre-processed upon arrival by centrifugation and filtration (0.45 µm) and stored at –80 °C. Total nucleic acids were extracted using the NucliSENS EasyMAG System (BioMérieux, Craponne, France). Next, reverse transcription with random hexamers and second-strand synthesis were performed separately for the RNA and DNA genomes. Then, sequencing libraries were constructed using the NexteraXT protocol (Illumina, San Diego, CA, USA) and sequenced on an Illumina MiSeq system for 1 × 151 single-end cycles using version 3 chemistry. A maximum of five samples (plus a negative control) were sequenced per run. Reads were analysed with a dedicated bioinformatic pipeline called VirMet (github.com/medvir/VirMet/releases/tag/v1.1.1). Samples sequenced after June 2020 included an internal RNA positive control. All runs included a negative control. Viral sequence data has been uploaded to Zenodo (doi 10.5281/zenodo.7185259).

The VirMet output for each sequencing run was evaluated for total and quality filtered reads per sample, the distribution of reads into different taxonomic categories (viral, bacterial, human, and unknown origin), and viruses detected at the species level and corresponding reference sequences. Positive virus hits were based on the number of reads with a threshold of at least three reads per species, distribution of the reads across the viral genome, and detection in the corresponding workflow (DNA/RNA), as previously described [8]. Final sequencing results were made available to the general practitioner retrospectively.

### Validation of mNGS results using conventional diagnostic testing

The respiratory viruses detected by mNGS were validated using a conventional syndromic testing panel and a SARS-CoV-2 polymerase chain reaction (PCR) assay. The FDA and CE-IVD-approved ePlex Respiratory Pathogen Panel (GenMark Diagnostics, Carlsbad, CA, USA) can detect 25 respiratory pathogens using an electrochemical detection system. Viral targets include human adenovirus, human coronaviruses 299E/HKU1//NL63/OC43, Middle East respiratory syndrome coronavirus, human bocavirus, human metapneumovirus, human rhinovirus/enterovirus, influenza A virus, influenza B virus, parainfluenza viruses 1/2/3/4, and respiratory syncytial viruses A/B. The tests were performed according to the manufacturer's instructions on all available throat swabs with archived material (n = 275). All available samples collected after January 2020 (n = 111) were validated for SARS-CoV-2 using the Cobas SARS-CoV-2 IVD test (Roche Diagnostics GmbH) on a Cobas 6800, as previously described [13]. The performance of mNGS was evaluated by calculating the positive and negative percentage agreement (PPA/NPA).

Discrepant results between mNGS and ePlex were confirmed using the five-tube multiplex FTD Respiratory Pathogens 21 RT-PCR assay run on a ViiA7 Real-Time PCR System (Life Technologies, Carlsbad, CA, USA) using AgPath-ID™ One-Step RT-PCR Reagents (Ambion, Thermo Fisher Scientific, Waltham, MA, USA). The following targets of the FTD21-assay were included in the analysis: human adenovirus, human coronavirus HKU1, human rhinovirus, human enterovirus, influenza A virus, and parainfluenza viruses 2/4. For sensitivity reasons, an additional RT-PCR to detect human rhinovirus was included in the multiplex assay, as described previously [14].

### Statistics

Descriptive summaries are reported as counts and percentages for categorical variables and median and interquartile range (IQR) for continuous variables. The Shapiro-Wilk test for normality was performed using the R statistical software (version 4.0.2).

## Results

### Baseline characteristics

Two hundred eighty patients were enrolled from October 2019 to December 2020. Three were subsequently excluded (one due to pregnancy and two due to age <18 years). The remaining 277 patients provided throat swabs, which

were analysed by mNGS. Two hundred sixty-four patients (95%) completed a follow-up on the clinical course. Slightly more women (n = 162, 58.5%) were enrolled (table 1). The participants' median age was 39 years (IQR = 30–52). Ninety-five participants (34%) had one or more known comorbidities. Only 35 participants (12.6%) had been vaccinated against influenza in the respective season. At the first outpatient visit, 188 participants (68%) reported having a "sore throat", which was the most frequently reported symptom. Other common clinical presentations were, in decreasing order of frequency, rhinitis, dry cough, headache, and myalgia. Only 17 of the 241 participants (7%) with recorded body temperature presented with a temperature above 38 °C. The participants' median duration of respiratory tract infection symptoms before the first outpatient visit was five days. The most common postulated clinical diagnoses were common cold/rhinitis, non-streptococcal pharyngitis/tonsillitis, and acute bronchitis (table 1).

Laboratory workup was performed for 153 participants (55.2%). Out of 148 C-reactive protein (CRP) measurements, 99 (66.9%) were elevated above a threshold of 5 mg/l. Leukocytosis (defined as leukocyte count exceeding 10 G/l according to Schernberg et al. [15]) was rarely observed, with 21 cases (14.3%) out of 147 measurements (data not shown).

### Viruses detected by mNGS

Viral mNGS of throat swabs was performed for all 277 participants. DNA and RNA sequencing reads per sample and reads per detected virus are provided in table S1 in the Appendix. At least one virus was detected for 206 participants (74%). mNGS detected 357 viral species overall (figure 1A), with a maximum of six per participant. We found that 164 (46%) virus sequences belonged to the herpesviridae family, of which 120 (73%) were identified as human betaherpesvirus 7 (HHV-7). Most importantly, 145 (40.6%) of the sequences referred to viruses considered causes of respiratory tract infections, detected in 138 participants (49.8%).

In the next step, we only analysed viruses likely to cause respiratory tract infections, which will be referred to as "respiratory viruses" hereafter. We detected one respiratory virus in 131 samples (47.3% of participants) and more than one in only seven samples (2.5% of participants). Rhinoviruses (including rhinovirus A, B, and C) were the most frequently identified respiratory viruses, accounting for 56 sequences and 38.6% of all 145 viruses detected as poten-

**Table 1:**
Participants' demographics and baseline clinical findings.

| | | |
|---|---|---|
| Baseline characteristics | Total number of participants, n | 277 |
| | Age, in years, median (IQR) | 39 (30–52) |
| | Female, n (%) | 162 (58.5%) |
| Comorbidities, n (%) | Total patients with known comorbidities | 95 (34.3%) |
| | Cardiovascular disease | 27 (28.4%) |
| | Pulmonary disease | 23 (24.2%) |
| | Other diseases | 45 (47.4%) |
| | No known comorbidities | 92 (33.6%) |
| | Unknown | 90 (32.1%) |
| Vaccination status, n (%) | Influenza vaccinated | 35 (12.6%) |
| Symptoms/clinical findings | Symptom duration, in days, median (IQR) | 5 (3–7) |
| | Temperature, median (IQR) | 37 (36.6–37.4) |
| | Sore throat, n (%) | 188 (67.9%) |
| | Rhinitis, n (%) | 163 (58.8%) |
| | Dry cough, n (%) | 136 (49.1%) |
| | Headache, n (%) | 133 (48.0%) |
| | Myalgia, n (%) | 120 (43.3%) |
| | Fever, n (%) | 88 (31.8%) |
| | Productive cough, n (%) | 74 (26.7%) |
| | Dysphagia, n (%) | 42 (15.2%) |
| | Ear pain, n (%) | 34 (12.3%) |
| | Dyspnoea, n (%) | 25 (9.0%) |
| | Other, n (%) | 40 (14.4%) |
| Presumed clinical diagnosis, n (%) | Common cold/rhinitis | 136 (49.1%) |
| | Pharyngitis/tonsillitis (non-streptococcal) | 44 (15.9%) |
| | Acute bronchitis | 31 (11.2%) |
| | Influenza | 22 (7.9%) |
| | COVID-19 | 15 (5.4%) |
| | Streptococcal pharyngitis | 6 (2.2%) |
| | Acute sinusitis | 5 (1.8%) |
| | Community-acquired pneumonia | 5 (1.8%) |
| | Exacerbated asthma | 2 (0.7%) |
| | Exacerbated COPD | 2 (0.7%) |
| | Other | 9 (3.2%) |
| | Unknown | 26 (9.4%) |

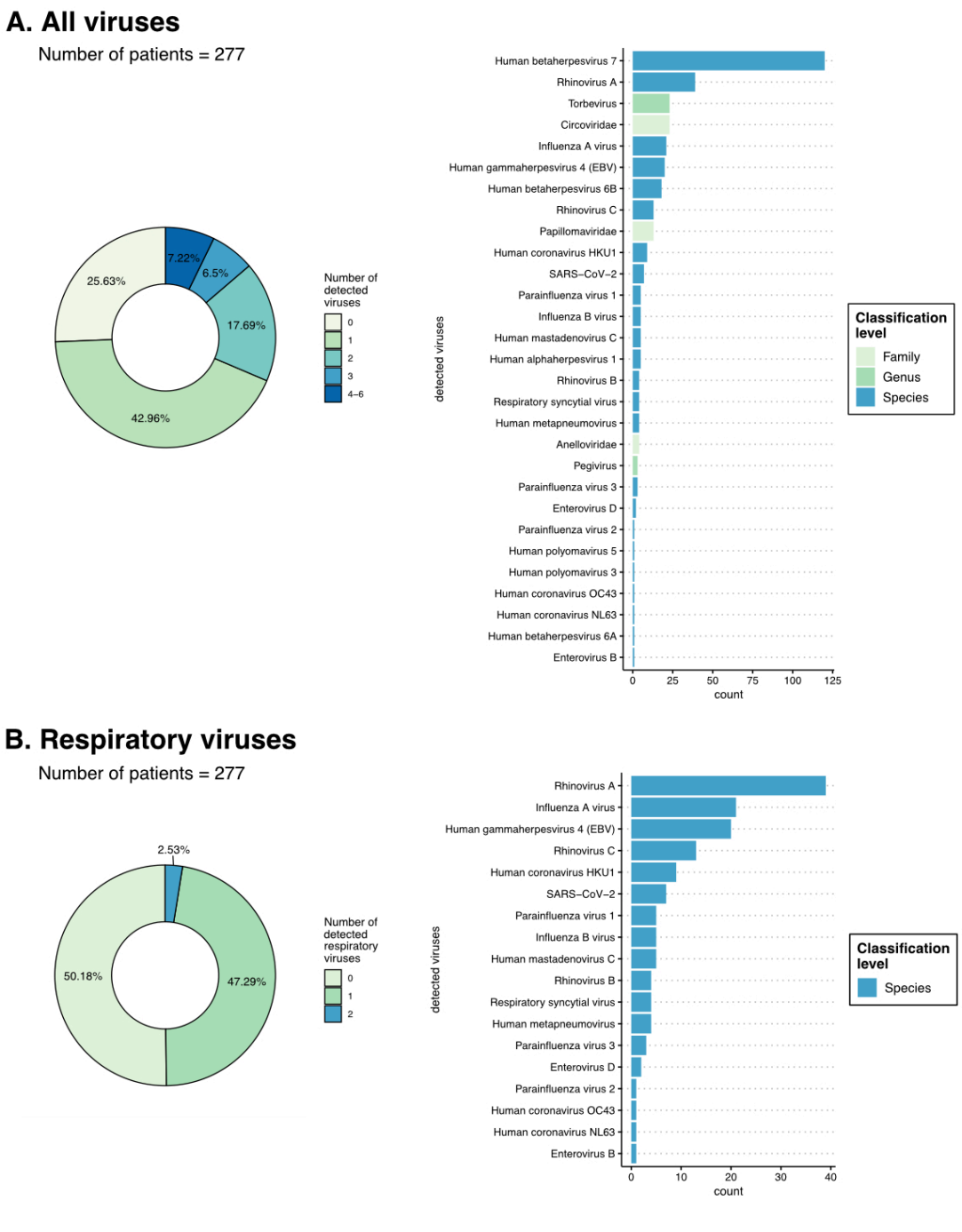
COPD: chronic obstructive pulmonary disease; COVID-19: coronavirus disease 2019; IQR: interquartile range.

tially causing respiratory tract infections (20.2% of participants; figure 1B). Overall, most virus sequences were detected in the winter months of 2019/2020 (figure 2). For example, the influenza virus detections were confined to December to March, correlating with the seasonal pattern of the influenza epidemic in Switzerland [16]. From March 2020, we observed an overall reduction in patient enrollment (figure S1A in the Appendix) and an initial reduction in respiratory virus detections (figure S1B in the Appendix), coinciding with the first SARS-CoV-2 cases. The mean proportion of positive study visits over the entire study period was 46%, with a minimum of 11% in May 2020 (figure S1B in the Appendix). All SARS-CoV-2 detections clustered to the time of the first and second waves of the pandemic in Switzerland in the spring and fall of 2020. Notably, while rhinovirus sequences were detected over the entire study period, the detection of the other respiratory viruses declined after March 2020, including influenza A virus (figure 2).

### Postulated cause of respiratory infection and mNGS results

Out of all respiratory tract infections (n = 277), the general practitioners suspected a viral cause in 252 cases (91%), whereas 21 (7.6%) were believed to be of bacterial origin,

**Figure 1:** The distribution of the number of viruses detected per participant (doughnut chart) and the number of different virus species detected overall (bar chart) is shown for (A) all viruses and (B) viruses causing respiratory tract infections.



one (0.4%) was thought to have another cause, and three (1%) were not specified. mNGS detected a respiratory virus in 133 participants (52.8%) with an initially postulated viral cause (n = 252), and 119 participants (47.2%) remained negative for respiratory viruses (table 2). For participants where the general practitioner suspected a bacterial cause (n = 21), mNGS detected a respiratory virus in five (23.8%), and 16 (76.2%) remained negative for respiratory viruses. The presumed clinical diagnoses were acute bronchitis in two of the mNGS-positive participants with detection of influenza A virus and rhinovirus A, pneumonia in one participant with detection of human metapneumovirus, streptococcal pharyngitis in one participant with detection of enterovirus B, and tonsillitis in one participant with detection of human mastadenovirus C (table S2 in the Appendix). Overall, 138 infections (49.8%) could have been attributed to a viral cause based on mNGS, and antibiotic prescription could have been avoided in five (20.8%) of the 24 participants with a suspected bacterial cause who were prescribed antibiotics.

### Performance comparison of mNGS and conventional testing for respiratory pathogens

We reanalysed all available samples using the ePlex Respiratory Pathogen Panel and the Cobas SARS-CoV-2 IVD assay to assess the performance of mNGS compared to conventional testing for detecting respiratory pathogens. For the 275 samples and 17 viral targets tested, PPA (sensitivity) was 89.1%, and NPA (specificity) was 99.8% (table 3). To disentangle differences in performance regarding specific viral targets, we calculated PPA and NPA for the most frequently detected viruses in the tested panel: human rhinovirus/enterovirus, influenza A virus, human coronavirus HKU1, and SARS-CoV-2. PPA was lowest for the influenza A virus at 83.3%, and NPA was lowest for the human rhinovirus/enterovirus at 98.6%. Overall, the percentage agreement was at least 97.8% for all four targets (table 3).

**Table 2:**
Postulated cause of respiratory infection and mNGS results for respiratory viruses.

| Postulated cause | n (%) | mNGS positive | mNGS negative |
|---|---|---|---|
| Viral | 252 (91.0%) | 133 | 119 |
| Bacterial | 21 (7.6%) | 5 | 16 |
| Other/not specified | 4 (1.4%) | 0 | 4 |

mNGS: metagenomic next-generation sequencing

In total, 23 discrepancies were observed, which were resolved using specific PCR for the respective viruses as the reference standard. Of the 14 samples that tested positive by ePlex but not by mNGS, six could not be confirmed by specific PCR and were rated as false positive by ePlex, five had respective viral reads detected by mNGS but below our internal threshold of at least three reads, and three had low total mNGS read counts in the affected RNA sample (<15,000). Of nine samples that tested positive by mNGS but not by ePlex, eight could be confirmed by specific PCR and were rated as false negative by ePlex, and one was false positive with mNGS. A low initial viral load or nucleic acid degradation before retesting on the ePlex might explain this presumably false positive result for this sample.

## Discussion

In this study, we investigated the application of mNGS for identifying viral pathogens in outpatients with upper respiratory tract infections. Half of the suspected respiratory tract infections in the studied patients could be ascribed to a viral origin through mNGS. The identification of numerous respiratory virus species underscores the comprehensive character of the metagenomic approach and its potential to directly guide upper respiratory tract infection treatment and prevent unnecessary antibiotic prescription. Moreover, we were able to highlight the seasonality of viruses circulating in the community, as demonstrated by the examples of influenza and other respiratory viruses. As

**Figure 2:** A timeline of the study visits and detected viruses throughout the study period from October 2019 to December 2020. Negative and positive sequencing results (grey and coloured circles, respectively) are shown for each study visit. The detection of influenza viruses (green), rhinoviruses (orange), SARS-CoV-2 (blue), respiratory viruses other than rhinoviruses and SARS-CoV-2 (pink), and other non-respiratory viruses (green) is highlighted separately. The two SARS-CoV-2 waves in Switzerland within the studied period are indicated by blue bars.

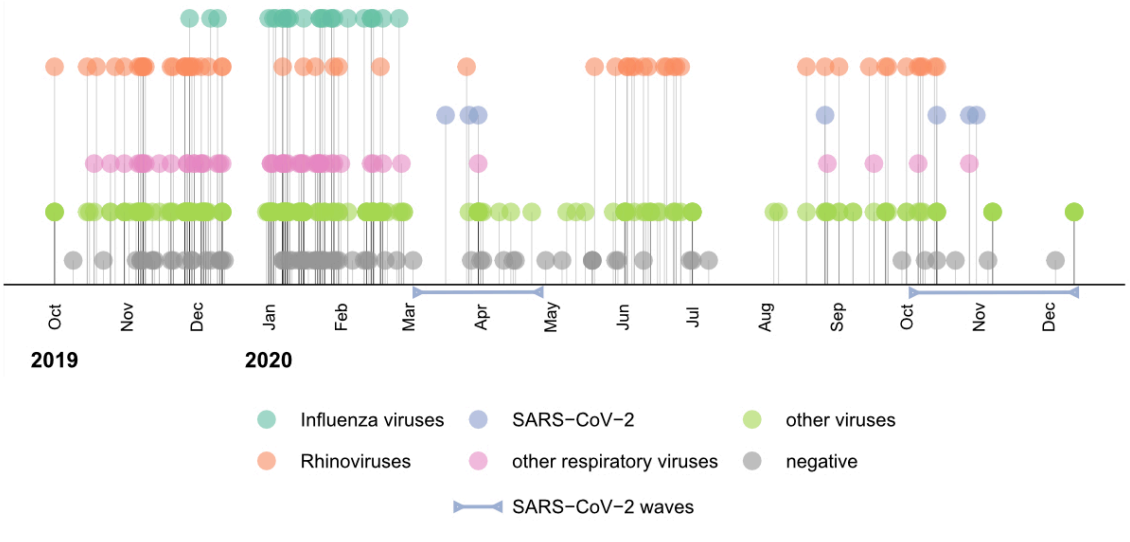


**Table 3:**
Performance comparison between mNGS and conventional testing for respiratory infections (ePlex and SARS-CoV-2 IVD test) for all targets and the most frequently detected targets in the panel.

| | | | | Conventional test (ePlex, Cobas) | |
|---|---|---|---|---|---|
| | | | | + | – |
| All targets | OPA = 99.5% | PPA = 89.1% | mNGS + | 115 | 9 |
| | | NPA = 99.8% | mNGS – | 14 | 4373 |
| Rhino/enterovirus | OPA = 97.8% | PPA = 94.8% | mNGS + | 55 | 3 |
| | | NPA = 98.6% | mNGS – | 3 | 214 |
| Influenza A | OPA = 98.2% | PPA = 83.3% | mNGS + | 20 | 1 |
| | | NPA = 99.6% | mNGS – | 4 | 250 |
| huCoV HKU1 | OPA = 99.3% | PPA = 88.9% | mNGS + | 8 | 1 |
| | | NPA = 99.6% | mNGS – | 1 | 265 |
| SARS-CoV-2 | OPA = 99.1% | PPA = 87.5% | mNGS + | 7 | 0 |
| | | NPA = 100% | mNGS – | 1 | 103 |

huCoV HKU1: human coronavirus HKU1; mNGS: metagenomic next-generation sequencing; NPA: negative percentage agreement; OPA: overall percentage agreement; PPA: positive percentage agreement; SARS-CoV-2: severe acute respiratory syndrome-related coronavirus type 2.

highlighted by our study's early detection of SARS-CoV-2, mNGS is beneficial for identifying novel pathogens. Indeed, SARS-CoV-2 was identified using mNGS [17]. Further into the pandemic, we likely underestimate the number of SARS-CoV-2 infections due to the many easily accessible testing opportunities.

Both early identification and surveillance of respiratory viruses are essential to guide disease mitigation and public health interventions [18, 19]. The comprehensive pathogen detection by mNGS could provide further insight into the effect and implementation of non-pharmaceutical hygienic measures. Despite interventions such as social distancing, hand hygiene, and mandatory use of facemasks implemented by the Swiss government [20, 21], continuous circulation of rhinoviruses was observed.

Notably, while mask policies were implemented later in Switzerland than elsewhere, the lifting of COVID-19 non-pharmaceutical interventions led to an inter-seasonal surge in respiratory syncytial virus (RSV) infection internationally and in Switzerland in 2021 [22]. The comprehensive character of mNGS, while not planned but still demonstrated in our study, would be ideal to rapidly detect such upcoming epidemics when used in a sentinel surveillance approach for respiratory and emerging viruses in the community, allowing the detection of novel or even unknown pathogens.

The performance comparison of mNGS and conventional testing showed high agreement, with an overall PPA of 89.1%. Discrepant results were primarily due to decreased sensitivity in either platform. However, the advantage of mNGS over syndromic panels is the inclusion of an unlimited number of pathogens, the detection of potential novel viruses, and even the definition of variants and subtypes if coverage is sufficient.

Overall, most detected sequences were for viruses not known to cause respiratory tract infections. The abundance of herpesvirus sequences, with a clear dominance of HHV-7, is a consequence of herpesvirus latency. The salivary glands have been proposed to be the anatomic location of HHV-7 latency. Continuous shedding of HHV-7 in healthy adults has been reported, with a frequency of about 34% [23, 24], comparable to our results. These findings also show that the clinical significance of pathogens detected by mNGS must be carefully interpreted.

In this study, we provided the clinician and patient with retrospective information on detected virus sequences and potential causes of the respiratory tract infection. Today, mNGS remains a time-consuming and complex method requiring benchtop sequencers and bioinformatic analysis. Technological advances are needed to reduce the turnaround time, complexity, and costs of mNGS to provide timely and actionable results. These advances are within reach with real-time data from Nanopore sequencing, which provides results in as little as six hours [25, 26]. While further improvements are needed for mNGS to fully develop as a primary diagnostic tool at the patient level, its retrospective analysis and surveillance capabilities are already insurmountable and must be leveraged for epidemiologic surveillance.

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# Appendix

**Figure S1**
A timeline showing (A) the total number of study visits per month over the whole study period and (B) the fraction of positive study visits per month. Positive study visits correspond to the detection of at least one respiratory virus per patient and visit.

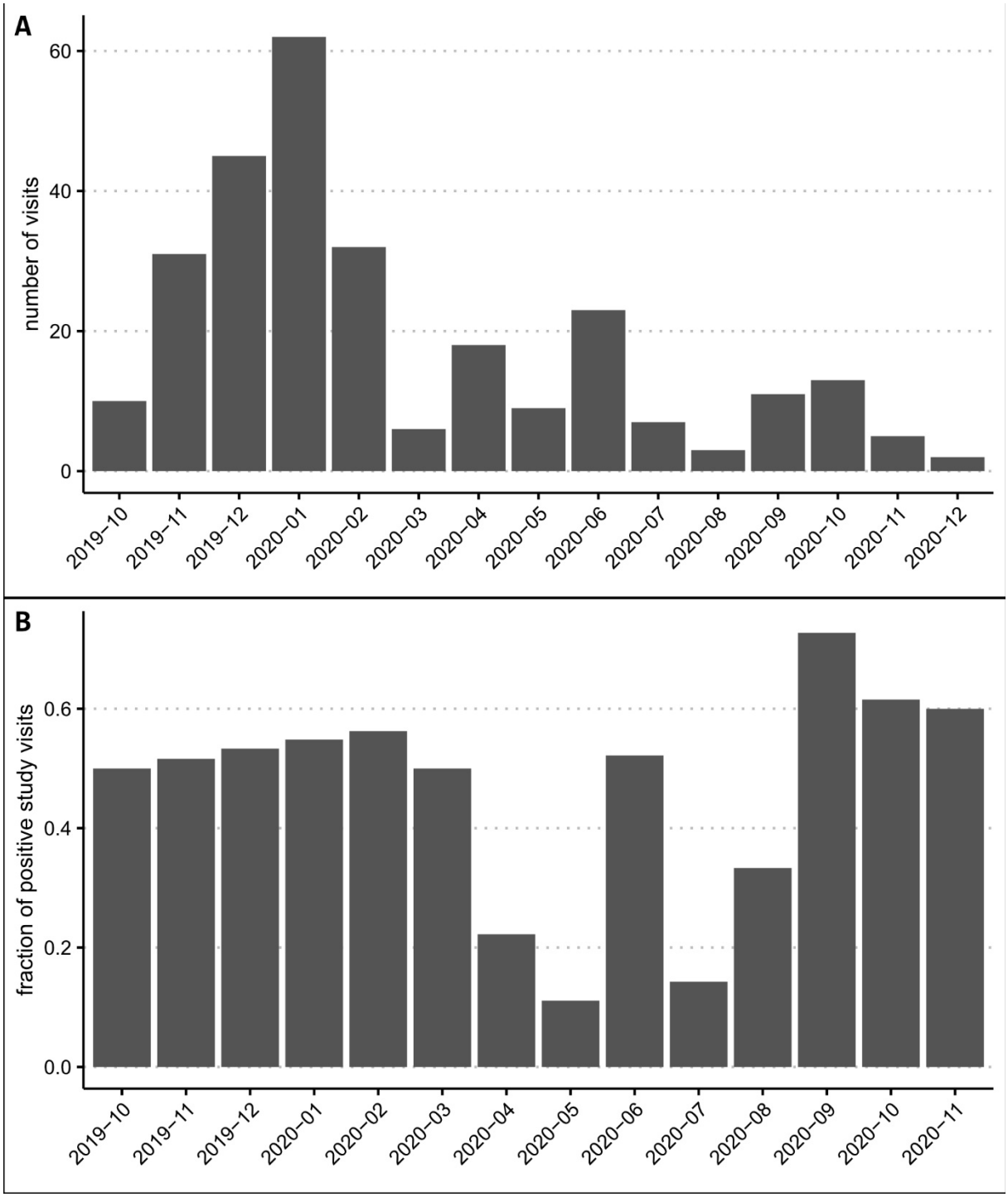

**Table S1**
Viral mNGS results – total sequencing reads and reads per detected virus.

| patient_ code | total_ reads_ dna | total_ reads_ rna | virus | virus_ classification_ level | virus_ reads_ dna | virus_ reads_ rna |
|---|---|---|---|---|---|---|
| Z01-132 | 2969671 | 3579064 | Human respirovirus 1 | Species | 0 | 161 |
| Z01-132 | 2969671 | 3579064 | Human betaherpes-virus 7 | Species | 20 | 0 |
| Z01-203 | 3691544 | 5083078 | Rhinovirus A | Species | 0 | 27 |
| Z01-203 | 3691544 | 5083078 | Human gam-maherpesvirus 4 | Species | 11 | 0 |
| Z01-240 | 6093956 | 3786376 | Rhinovirus C | Species | 2 | 10547 |
| Z01-240 | 6093956 | 3786376 | Circoviridae | Family | 235 | 19 |
| Z01-240 | 6093956 | 3786376 | Torbevirus | Genus | 199 | 3 |
| Z01-240 | 6093956 | 3786376 | Human betaherpes-virus 7 | Species | 16 | 0 |
| Z01-268 | 3548662 | 3656846 | Circoviridae | Family | 236 | 10 |
| Z01-268 | 3548662 | 3656846 | Torbevirus | Genus | 189 | 11 |
| Z01-268 | 3548662 | 3656846 | Rhinovirus A | Species | 0 | 33 |
| Z01-268 | 3548662 | 3656846 | Human betaherpes-virus 7 | Species | 6 | 0 |
| Z01-277 | 4183414 | 1641644 | Human betaherpes-virus 7 | Species | 8 | 0 |
| Z01-422 | 8881748 | 2000836 | NA | NA | NA | NA |
| Z01-558 | 4029941 | 841661 | Human respirovirus 1 | Species | 0 | 91 |
| Z01-677 | 3614342 | 948895 | Human betaherpes-virus 7 | Species | 42 | 0 |
| Z01-733 | 3570442 | 803177 | NA | NA | NA | NA |
| Z01-923 | 2125058 | 985700 | Human betaherpes-virus 7 | Species | 5 | 0 |
| Z02-138 | 4071550 | 898864 | Enterovirus D | Species | 0 | 37748 |
| Z02-169 | 4154496 | 1345195 | Influenza A virus | Species | 28 | 743737 |
| Z02-171 | 4359615 | 1069683 | Human respirovirus 1 | Species | 0 | 17 |
| Z02-171 | 4359615 | 1069683 | Pegivirus | Genus | 0 | 10 |
| Z02-440 | 3072659 | 2554416 | Rhinovirus A | Species | 10 | 524787 |
| Z02-597 | 3347332 | 2918898 | NA | NA | NA | NA |
| Z02-734 | 2920655 | 509246 | NA | NA | NA | NA |
| Z02-748 | 8064592 | 2670291 | Rhinovirus A | Species | 0 | 228 |
| Z02-748 | 8064592 | 2670291 | Human betaherpes-virus 7 | Species | 4 | 0 |
| Z02-807 | 4728529 | 2813640 | NA | NA | NA | NA |
| Z02-971 | 4632952 | 1437789 | Human respirovirus 1 | Species | 2 | 96305 |
| Z02-971 | 4632952 | 1437789 | Human betaherpes-virus 6B | Species | 8 | 0 |
| Z02-976 | 2294844 | 1108192 | NA | NA | NA | NA |
| Z03-163 | 3854710 | 1339793 | Rhinovirus A | Species | 0 | 92 |

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|---|---|---|---|---|---|---|
| Z03-163 | 3854710 | 1339793 | Human betaherpesvirus 7 | Species | 56 | 0 |
| Z03-172 | 5345896 | 131414 | Human betaherpesvirus 7 | Species | 7 | 0 |
| Z03-281 | 3201973 | 694922 | Human betaherpesvirus 7 | Species | 22 | 0 |
| Z03-281 | 3201973 | 694922 | Rhinovirus A | Species | 1 | 17 |
| Z03-295 | 3292781 | 1278651 | Human betaherpesvirus 7 | Species | 20 | 0 |
| Z03-295 | 3292781 | 1278651 | Rhinovirus A | Species | 0 | 17 |
| Z03-295 | 3292781 | 1278651 | Torbevirus | Genus | 11 | 4 |
| Z03-295 | 3292781 | 1278651 | Circoviridae | Family | 5 | 6 |
| Z03-364 | 2885295 | 873643 | NA | NA | NA | NA |
| Z03-386 | 3550124 | 1482836 | Human betaherpesvirus 7 | Species | 7 | 0 |
| Z03-402 | 2898554 | 2478011 | Rhinovirus A | Species | 0 | 8 |
| Z03-588 | 5093906 | 822250 | Influenza A virus | Species | 0 | 763 |
| Z03-588 | 5093906 | 822250 | Human betaherpesvirus 7 | Species | 8 | 0 |
| Z03-588 | 5093906 | 822250 | Circoviridae | Family | 2 | 2 |
| Z03-588 | 5093906 | 822250 | Torbevirus | Genus | 2 | 3 |
| Z03-681 | 4241696 | 290207 | Human betaherpesvirus 7 | Species | 10 | 0 |
| Z03-681 | 4241696 | 290207 | Torbevirus | Genus | 16 | 1 |
| Z03-681 | 4241696 | 290207 | Circoviridae | Family | 5 | 0 |
| Z03-681 | 4241696 | 290207 | Pegivirus | Genus | 0 | 3 |
| Z03-926 | 2645991 | 2873812 | Influenza A virus | Species | 0 | 1611 |
| Z03-926 | 2645991 | 2873812 | Torbevirus | Genus | 3 | 5 |
| Z03-926 | 2645991 | 2873812 | Circoviridae | Family | 1 | 3 |
| Z04-213 | 4863754 | 2042619 | Rhinovirus C | Species | 0 | 467 |
| Z04-213 | 4863754 | 2042619 | Human betaherpesvirus 7 | Species | 64 | 0 |
| Z04-213 | 4863754 | 2042619 | Torbevirus | Genus | 58 | 4 |
| Z04-213 | 4863754 | 2042619 | Human gammaherpesvirus 4 | Species | 20 | 0 |
| Z04-213 | 4863754 | 2042619 | Circoviridae | Family | 23 | 2 |
| Z04-243 | 6853847 | 3030698 | Human betaherpesvirus 7 | Species | 16 | 0 |
| Z04-353 | 4518138 | 731590 | Anelloviridae | Family | 7 | 0 |
| Z04-371 | 2189666 | 328299 | NA | NA | NA | NA |
| Z04-398 | 3017844 | 2276793 | Human betaherpesvirus 7 | Species | 4 | 0 |
| Z04-460 | 3465915 | 1449397 | Human betaherpesvirus 7 | Species | 71 | 0 |
| Z04-466 | 527633 | 1109072 | Rhinovirus A | Species | 3 | 17659 |
| Z04-889 | 4081812 | 499853 | Human betaherpesvirus 7 | Species | 8 | 0 |
| Z04-918 | 4292377 | 2513500 | Rhinovirus C | Species | 0 | 2745 |
| Z04-918 | 4292377 | 2513500 | Human betaherpesvirus 7 | Species | 3 | 0 |
| Z05-114 | 3171129 | 1184745 | Papillomaviridae | Family | 17 | 0 |

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|---|---|---|---|---|---|---|
| Z05-114 | 3171129 | 1184745 | Human betaherpesvirus 7 | Species | 11 | 0 |
| Z05-125 | 2578374 | 1704826 | Human respirovirus 1 | Species | 0 | 4262 |
| Z05-184 | 3838858 | 3439519 | Rhinovirus B | Species | 3 | 100484 |
| Z05-184 | 3838858 | 3439519 | Circoviridae | Family | 0 | 3 |
| Z05-206 | 3845391 | 1880115 | Human gammaherpesvirus 4 | Species | 7 | 0 |
| Z05-206 | 3845391 | 1880115 | Human betaherpesvirus 7 | Species | 5 | 0 |
| Z05-244 | 2389191 | 142378 | NA | NA | NA | NA |
| Z05-321 | 3888799 | 2618471 | NA | NA | NA | NA |
| Z05-344 | 3464303 | 358262 | Severe acute respiratory syndrome-related coronavirus | Species | 0 | 1224 |
| Z05-368 | 1708010 | 3097371 | NA | NA | NA | NA |
| Z05-462 | 1540871 | 1125026 | Human betaherpesvirus 7 | Species | 6 | 0 |
| Z05-482 | 4292601 | 5028547 | Rhinovirus A | Species | 0 | 216 |
| Z05-592 | 2895766 | 1801148 | Rhinovirus C | Species | 28 | 284344 |
| Z05-628 | 5121704 | 4417881 | NA | NA | NA | NA |
| Z05-638 | 3367865 | 420929 | NA | NA | NA | NA |
| Z05-698 | 2954101 | 8424375 | NA | NA | NA | NA |
| Z05-726 | 3583237 | 1077239 | Influenza A virus | Species | 0 | 3342 |
| Z05-726 | 3583237 | 1077239 | Human betaherpesvirus 7 | Species | 26 | 0 |
| Z05-767 | 5603447 | 3010066 | Human betaherpesvirus 7 | Species | 5 | 0 |
| Z05-790 | 4553029 | 1227666 | Rhinovirus A | Species | 3 | 32764 |
| Z05-980 | 3273291 | 2429489 | Rhinovirus C | Species | 15 | 348936 |
| Z05-980 | 3273291 | 2429489 | Human betaherpesvirus 7 | Species | 27 | 0 |
| Z06-147 | 4950785 | 2209904 | Influenza A virus | Species | 0 | 626 |
| Z06-227 | 2955091 | 826772 | Human betaherpesvirus 7 | Species | 6 | 0 |
| Z06-253 | 4733311 | 1011149 | Influenza B virus | Species | 2 | 15014 |
| Z06-254 | 4828302 | 955635 | Human coronavirus HKU1 | Species | 7 | 30134 |
| Z06-254 | 4828302 | 955635 | Human betaherpesvirus 7 | Species | 3 | 0 |
| Z06-280 | 3105029 | 1140793 | Human alphaherpesvirus 1 | Species | 43 | 0 |
| Z06-299 | 3805638 | 2832542 | NA | NA | NA | NA |
| Z06-442 | 4525991 | 442020 | Human gammaherpesvirus 4 | Species | 306 | 0 |
| Z06-442 | 4525991 | 442020 | Human betaherpesvirus 7 | Species | 18 | 0 |
| Z06-442 | 4525991 | 442020 | Human betaherpesvirus 6B | Species | 3 | 0 |
| Z06-442 | 4525991 | 442020 | Papillomaviridae | Family | 8 | 0 |
| Z06-538 | 3780872 | 570455 | Human betaherpesvirus 7 | Species | 4 | 0 |

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|---|---|---|---|---|---|---|
| Z06-538 | 3780872 | 570455 | Human mastadenovirus C | Species | 3 | 0 |
| Z06-564 | 3391844 | 2323303 | Circoviridae | Family | 4 | 1 |
| Z06-564 | 3391844 | 2323303 | Torbevirus | Genus | 3 | 0 |
| Z06-838 | 3374813 | 2910042 | Human gammaherpesvirus 4 | Species | 418 | 0 |
| Z06-838 | 3374813 | 2910042 | Human betaherpesvirus 7 | Species | 14 | 0 |
| Z06-852 | 4736897 | 3825634 | NA | NA | NA | NA |
| Z07-137 | 3188867 | 516519 | NA | NA | NA | NA |
| Z07-267 | 3941636 | 3693701 | NA | NA | NA | NA |
| Z07-304 | 3658039 | 3952013 | NA | NA | NA | NA |
| Z07-438 | 1478647 | 1437145 | Human coronavirus HKU1 | Species | 0 | 71 |
| Z07-471 | 4744602 | 790457 | Human rubulavirus 4 | Species | 0 | 46 |
| Z07-477 | 2943698 | 1458767 | Human coronavirus HKU1 | Species | 0 | 1186 |
| Z07-484 | 3358614 | 4571342 | NA | NA | NA | NA |
| Z07-571 | 3950559 | 1375494 | Human betaherpesvirus 7 | Species | 22 | 0 |
| Z07-571 | 3950559 | 1375494 | Human betaherpesvirus 6B | Species | 13 | 0 |
| Z07-571 | 3950559 | 1375494 | Human polyomavirus 3 | Species | 10 | 0 |
| Z07-571 | 3950559 | 1375494 | Papillomaviridae | Family | 4 | 0 |
| Z07-771 | 5119849 | 830381 | NA | NA | NA | NA |
| Z07-799 | 3797514 | 1658431 | Rhinovirus C | Species | 0 | 12 |
| Z07-820 | 3281324 | 1785965 | Human betaherpesvirus 7 | Species | 28 | 0 |
| Z07-820 | 3281324 | 1785965 | Papillomaviridae | Family | 5 | 0 |
| Z07-820 | 3281324 | 1785965 | Human betaherpesvirus 6B | Species | 4 | 0 |
| Z07-820 | 3281324 | 1785965 | Human alphaherpesvirus 1 | Species | 3 | 0 |
| Z07-946 | 2546230 | 28073 | Torbevirus | Genus | 27 | 0 |
| Z07-946 | 2546230 | 28073 | Circoviridae | Family | 13 | 0 |
| Z07-946 | 2546230 | 28073 | Human betaherpesvirus 7 | Species | 4 | 0 |
| Z07-955 | 3083905 | 2848822 | Rhinovirus A | Species | 0 | 741 |
| Z07-955 | 3083905 | 2848822 | Human betaherpesvirus 7 | Species | 9 | 0 |
| Z07-984 | 2705348 | 1246607 | NA | NA | NA | NA |
| Z08-166 | 5277666 | 550910 | Human betaherpesvirus 7 | Species | 305 | 0 |
| Z08-166 | 5277666 | 550910 | Human betaherpesvirus 6A | Species | 110 | 0 |
| Z08-166 | 5277666 | 550910 | Circoviridae | Family | 5 | 0 |
| Z08-166 | 5277666 | 550910 | Torbevirus | Genus | 4 | 0 |
| Z08-201 | 5067828 | 2305908 | NA | NA | NA | NA |
| Z08-367 | 2763137 | 2153498 | Enterovirus B | Species | 0 | 1313 |
| Z08-418 | 1278858 | 4116923 | Betacoronavirus 1 | Species | 0 | 9 |

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|---|---|---|---|---|---|---|
| Z08-679 | 3553070 | 1142783 | Human coronavirus HKU1 | Species | 5 | 52601 |
| Z08-679 | 3553070 | 1142783 | Human mastadeno-virus C | Species | 7 | 6 |
| Z08-713 | 4168536 | 551943 | Human coronavirus HKU1 | Species | 0 | 104 |
| Z08-833 | 3599931 | 4206881 | Rhinovirus A | Species | 0 | 18898 |
| Z08-905 | 2572794 | 1911474 | Rhinovirus A | Species | 0 | 30 |
| Z08-905 | 2572794 | 1911474 | Human betaherpes-virus 7 | Species | 5 | 0 |
| Z08-951 | 2447923 | 2498136 | Human coronavirus HKU1 | Species | 0 | 15 |
| Z08-951 | 2447923 | 2498136 | Human betaherpes-virus 6B | Species | 6 | 0 |
| Z08-967 | 5028759 | 971161 | Papillomaviridae | Family | 34 | 0 |
| Z08-967 | 5028759 | 971161 | Influenza A virus | Species | 0 | 12 |
| Z09-256 | 2486646 | 688874 | Influenza A virus | Species | 0 | 16 |
| Z09-278 | 3119479 | 1112755 | Rhinovirus A | Species | 4 | 55026 |
| Z09-278 | 3119479 | 1112755 | Human betaherpes-virus 7 | Species | 48 | 0 |
| Z09-329 | 1167264 | 538546 | Human betaherpes-virus 7 | Species | 64 | 0 |
| Z09-329 | 1167264 | 538546 | Papillomaviridae | Family | 62 | 0 |
| Z09-329 | 1167264 | 538546 | Circoviridae | Family | 3 | 0 |
| Z09-329 | 1167264 | 538546 | Torbevirus | Genus | 3 | 0 |
| Z09-382 | 4138207 | 1178352 | Human betaherpes-virus 7 | Species | 3 | 0 |
| Z09-384 | 2450849 | 1560679 | Human betaherpes-virus 7 | Species | 42 | 0 |
| Z09-384 | 2450849 | 1560679 | Human betaherpes-virus 6B | Species | 17 | 0 |
| Z09-384 | 2450849 | 1560679 | Circoviridae | Family | 14 | 2 |
| Z09-384 | 2450849 | 1560679 | Torbevirus | Genus | 25 | 1 |
| Z09-404 | 2948995 | 5100625 | Rhinovirus A | Species | 0 | 196 |
| Z09-404 | 2948995 | 5100625 | Human betaherpes-virus 7 | Species | 18 | 0 |
| Z09-493 | 3384699 | 712940 | Human gam-maherpesvirus 4 | Species | 5 | 0 |
| Z09-509 | 3279171 | 736468 | Human betaherpes-virus 7 | Species | 4 | 0 |
| Z09-611 | 5018388 | 1543100 | Human betaherpes-virus 7 | Species | 659 | 0 |
| Z09-611 | 5018388 | 1543100 | Human gam-maherpesvirus 4 | Species | 19 | 0 |
| Z09-611 | 5018388 | 1543100 | Human betaherpes-virus 6B | Species | 3 | 0 |
| Z09-687 | 4788453 | 1547888 | Rhinovirus A | Species | 0 | 417 |
| Z09-687 | 4788453 | 1547888 | Human betaherpes-virus 6B | Species | 3 | 0 |
| Z09-692 | 1561919 | 549412 | Human betaherpes-virus 7 | Species | 5 | 0 |
| Z09-730 | 2955211 | 1310823 | Human betaherpes-virus 7 | Species | 8 | 0 |

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|---|---|---|---|---|---|---|
| Z09-768 | 9031167 | 1472008 | Human betaherpesvirus 7 | Species | 148 | 0 |
| Z09-768 | 9031167 | 1472008 | Rhinovirus A | Species | 0 | 13 |
| Z09-809 | 6416781 | 3676009 | Human alphaherpesvirus 1 | Species | 8056 | 78 |
| Z09-809 | 6416781 | 3676009 | Human betaherpesvirus 7 | Species | 19 | 0 |
| Z09-809 | 6416781 | 3676009 | Human gammaherpesvirus 4 | Species | 15 | 0 |
| Z09-866 | 3409730 | 398496 | Human betaherpesvirus 7 | Species | 4 | 0 |
| Z09-877 | 5377097 | 5044132 | Rhinovirus A | Species | 0 | 15 |
| Z09-895 | 1900382 | 1650543 | Human betaherpesvirus 7 | Species | 173 | 0 |
| Z09-895 | 1900382 | 1650543 | Human betaherpesvirus 6B | Species | 6 | 0 |
| Z09-895 | 1900382 | 1650543 | Human gammaherpesvirus 4 | Species | 4 | 0 |
| Z09-913 | 2374814 | 720156 | Circoviridae | Family | 92 | 53 |
| Z09-913 | 2374814 | 720156 | Torbevirus | Genus | 49 | 12 |
| Z09-913 | 2374814 | 720156 | Human betaherpesvirus 7 | Species | 5 | 0 |
| Z09-927 | 5080007 | 1558708 | Human mastadenovirus C | Species | 20947 | 1842 |
| Z10-129 | 4330501 | 5182740 | Rhinovirus A | Species | 0 | 11 |
| Z10-129 | 4330501 | 5182740 | Human betaherpesvirus 7 | Species | 6 | 0 |
| Z10-186 | 2776287 | 2089896 | NA | NA | NA | NA |
| Z10-255 | 3215391 | 366410 | Rhinovirus C | Species | 0 | 10 |
| Z10-323 | 2113603 | 2909447 | NA | NA | NA | NA |
| Z10-409 | 3796448 | 3996136 | Papillomaviridae | Family | 11 | 0 |
| Z10-424 | 1716099 | 1163696 | NA | NA | NA | NA |
| Z10-455 | 4281784 | 269311 | Rhinovirus C | Species | 0 | 136 |
| Z10-486 | 1921124 | 681658 | Human rubulavirus 2 | Species | 0 | 243 |
| Z10-486 | 1921124 | 681658 | Human betaherpesvirus 7 | Species | 7 | 0 |
| Z10-513 | 4466682 | 1626546 | Rhinovirus A | Species | 0 | 193 |
| Z10-513 | 4466682 | 1626546 | Human betaherpesvirus 7 | Species | 11 | 0 |
| Z10-542 | 4647867 | 3677571 | NA | NA | NA | NA |
| Z10-607 | 4024608 | 534554 | NA | NA | NA | NA |
| Z10-722 | 4125854 | 1299164 | Human betaherpesvirus 7 | Species | 75 | 0 |
| Z10-723 | 1670553 | 977173 | Human mastadenovirus C | Species | 8 | 1 |
| Z10-731 | 3438884 | 882579 | Human betaherpesvirus 7 | Species | 7 | 0 |
| Z10-885 | 1993533 | 2310837 | Human gammaherpesvirus 4 | Species | 45 | 0 |
| Z10-885 | 1993533 | 2310837 | Human polyomavirus 5 | Species | 10 | 0 |

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|---|---|---|---|---|---|---|
| Z10-885 | 1993533 | 2310837 | Human betaherpesvirus 7 | Species | 7 | 0 |
| Z10-890 | 3867568 | 2388422 | Human betaherpesvirus 7 | Species | 22 | 0 |
| Z10-901 | 4132896 | 733298 | Human betaherpesvirus 7 | Species | 17 | 0 |
| Z10-922 | 3217141 | 715695 | Rhinovirus A | Species | 0 | 3249 |
| Z10-922 | 3217141 | 715695 | Human gammaherpesvirus 4 | Species | 13 | 0 |
| Z10-922 | 3217141 | 715695 | Human betaherpesvirus 7 | Species | 11 | 0 |
| Z10-957 | 3531279 | 1687622 | Human betaherpesvirus 7 | Species | 6 | 0 |
| Z10-962 | 2793751 | 1592044 | Circoviridae | Family | 115 | 4 |
| Z10-962 | 2793751 | 1592044 | Human betaherpesvirus 7 | Species | 27 | 0 |
| Z10-962 | 2793751 | 1592044 | Torbevirus | Genus | 91 | 0 |
| Z11-136 | 2320368 | 1065894 | Human betaherpesvirus 7 | Species | 24 | 0 |
| Z11-136 | 2320368 | 1065894 | Papillomaviridae | Family | 9 | 0 |
| Z11-158 | 7159993 | 261956 | Rhinovirus C | Species | 0 | 381 |
| Z11-158 | 7159993 | 261956 | Papillomaviridae | Family | 6 | 0 |
| Z11-158 | 7159993 | 261956 | Human betaherpesvirus 7 | Species | 6 | 0 |
| Z11-158 | 7159993 | 261956 | Human gammaherpesvirus 4 | Species | 5 | 0 |
| Z11-164 | 4367636 | 557116 | Rhinovirus C | Species | 0 | 653 |
| Z11-164 | 4367636 | 557116 | Human betaherpesvirus 7 | Species | 15 | 0 |
| Z11-164 | 4367636 | 557116 | Anelloviridae | Family | 5 | 0 |
| Z11-221 | 4096448 | 677540 | Rhinovirus C | Species | 1 | 103 |
| Z11-221 | 4096448 | 677540 | Human betaherpesvirus 7 | Species | 37 | 0 |
| Z11-246 | 3343805 | 997177 | Human betaherpesvirus 7 | Species | 5 | 0 |
| Z11-363 | 3382411 | 1779643 | Rhinovirus A | Species | 0 | 25 |
| Z11-363 | 3382411 | 1779643 | Human betaherpesvirus 7 | Species | 3 | 0 |
| Z11-401 | 4779158 | 1714049 | Human betaherpesvirus 7 | Species | 40 | 0 |
| Z11-414 | 3129016 | 502279 | Human rubulavirus 4 | Species | 0 | 831 |
| Z11-414 | 3129016 | 502279 | Human betaherpesvirus 7 | Species | 7 | 0 |
| Z11-480 | 2342150 | 1988078 | Human betaherpesvirus 7 | Species | 6 | 0 |
| Z11-497 | 4457557 | 1206643 | Influenza A virus | Species | 0 | 781 |
| Z11-497 | 4457557 | 1206643 | Human betaherpesvirus 7 | Species | 93 | 0 |
| Z11-497 | 4457557 | 1206643 | Human betaherpesvirus 6B | Species | 17 | 0 |
| Z11-520 | 3137116 | 696211 | Human coronavirus HKU1 | Species | 0 | 709 |

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|---|---|---|---|---|---|---|
| Z11-637 | 3517112 | 2421413 | Rhinovirus A | Species | 0 | 53 |
| Z11-646 | 1426182 | 507512 | Rhinovirus A | Species | 0 | 81 |
| Z11-678 | 3085502 | 552451 | Rhinovirus C | Species | 0 | 8745 |
| Z11-678 | 3085502 | 552451 | Human gammaherpesvirus 4 | Species | 115 | 0 |
| Z11-678 | 3085502 | 552451 | Human betaherpesvirus 7 | Species | 31 | 0 |
| Z11-741 | 3352795 | 2592361 | Human betaherpesvirus 7 | Species | 10 | 0 |
| Z11-784 | 3421924 | 2526865 | Rhinovirus A | Species | 0 | 28 |
| Z11-804 | 2838968 | 331236 | Human betaherpesvirus 7 | Species | 15 | 0 |
| Z11-804 | 2838968 | 331236 | Human rubulavirus 4 | Species | 0 | 8 |
| Z11-821 | 5281103 | 1785188 | Rhinovirus A | Species | 0 | 7845 |
| Z11-821 | 5281103 | 1785188 | Human betaherpesvirus 7 | Species | 92 | 0 |
| Z11-821 | 5281103 | 1785188 | Human betaherpesvirus 6B | Species | 3 | 0 |
| Z11-850 | 3228166 | 1257939 | Human metapneumovirus | Species | 0 | 5557 |
| Z11-850 | 3228166 | 1257939 | Human betaherpesvirus 7 | Species | 18 | 0 |
| Z11-935 | 3211125 | 3622014 | NA | NA | NA | NA |
| Z12-190 | 6504490 | 848428 | Human betaherpesvirus 7 | Species | 17 | 0 |
| Z12-205 | 3007260 | 247734 | Human gammaherpesvirus 4 | Species | 6 | 0 |
| Z12-210 | 1175847 | 1382461 | Human betaherpesvirus 7 | Species | 22 | 0 |
| Z12-403 | 2244230 | 888056 | Human alphaherpesvirus 1 | Species | 12 | 0 |
| Z12-600 | 2879654 | 1185310 | Enterovirus D | Species | 0 | 3784 |
| Z12-682 | 5405262 | 1126148 | NA | NA | NA | NA |
| Z12-816 | 3309521 | 500252 | Human betaherpesvirus 7 | Species | 119 | 0 |
| Z12-911 | 3782139 | 737179 | NA | NA | NA | NA |
| Z12-938 | 3923060 | 835440 | NA | NA | NA | NA |
| Z12-943 | 3173727 | 2005575 | Human betaherpesvirus 7 | Species | 3 | 0 |
| Z13-106 | 2971114 | 1350476 | NA | NA | NA | NA |
| Z13-251 | 4589942 | 2857746 | NA | NA | NA | NA |
| Z13-285 | 3082657 | 667437 | NA | NA | NA | NA |
| Z13-297 | 3020655 | 560831 | Human betaherpesvirus 7 | Species | 15 | 0 |
| Z13-309 | 3383244 | 2364951 | Rhinovirus A | Species | 1 | 246 |
| Z13-309 | 3383244 | 2364951 | Human betaherpesvirus 7 | Species | 3 | 0 |
| Z13-392 | 3893134 | 1289001 | Rhinovirus A | Species | 0 | 149 |
| Z13-427 | 5144452 | 327854 | Human betaherpesvirus 7 | Species | 32 | 0 |
| Z13-478 | 2008711 | 460465 | Influenza A virus | Species | 0 | 156 |
| Z13-491 | 3504120 | 828490 | Circoviridae | Family | 6 | 1 |

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|---|---|---|---|---|---|---|
| Z13-491 | 3504120 | 828490 | Torbevirus | Genus | 11 | 0 |
| Z13-495 | 5355227 | 1690789 | Human betaherpesvirus 7 | Species | 13 | 0 |
| Z13-510 | 5249581 | 4515127 | Human betaherpesvirus 7 | Species | 145 | 0 |
| Z13-510 | 5249581 | 4515127 | Rhinovirus A | Species | 0 | 52 |
| Z13-510 | 5249581 | 4515127 | Papillomaviridae | Family | 3 | 0 |
| Z13-510 | 5249581 | 4515127 | Human betaherpesvirus 6B | Species | 3 | 0 |
| Z13-589 | 3918092 | 1127870 | Influenza B virus | Species | 0 | 640 |
| Z13-664 | 3514645 | 557661 | Human orthopneumovirus | Species | 0 | 1206 |
| Z13-664 | 3514645 | 557661 | Human betaherpesvirus 7 | Species | 122 | 0 |
| Z13-664 | 3514645 | 557661 | Torbevirus | Genus | 98 | 2 |
| Z13-664 | 3514645 | 557661 | Circoviridae | Family | 46 | 3 |
| Z13-719 | 3964015 | 290635 | Human gammaherpesvirus 4 | Species | 7 | 0 |
| Z13-719 | 3964015 | 290635 | Human betaherpesvirus 7 | Species | 3 | 0 |
| Z13-719 | 3964015 | 290635 | Torbevirus | Genus | 4 | 1 |
| Z13-739 | 5340482 | 3015356 | Rhinovirus A | Species | 0 | 939 |
| Z13-757 | 4737312 | 1172877 | Influenza A virus | Species | 16 | 86911 |
| Z13-825 | 5136947 | 2959971 | Rhinovirus B | Species | 0 | 5 |
| Z13-892 | 2606045 | 1262505 | Human coronavirus NL63 | Species | 0 | 702 |
| Z13-892 | 2606045 | 1262505 | Human betaherpesvirus 7 | Species | 24 | 0 |
| Z13-892 | 2606045 | 1262505 | Anelloviridae | Family | 18 | 0 |
| Z13-892 | 2606045 | 1262505 | Torbevirus | Genus | 23 | 1 |
| Z13-892 | 2606045 | 1262505 | Circoviridae | Family | 8 | 1 |
| Z13-892 | 2606045 | 1262505 | Papillomaviridae | Family | 3 | 0 |
| Z13-968 | 3415274 | 2845107 | Influenza A virus | Species | 2 | 8012 |
| Z13-968 | 3415274 | 2845107 | Human betaherpesvirus 7 | Species | 31 | 0 |
| Z14-231 | 5545397 | 2977742 | NA | NA | NA | NA |
| Z14-261 | 5020824 | 1020664 | Rhinovirus C | Species | 0 | 103 |
| Z14-261 | 5020824 | 1020664 | Human betaherpesvirus 7 | Species | 3 | 0 |
| Z14-294 | 2170728 | 1667703 | Human betaherpesvirus 7 | Species | 297 | 0 |
| Z14-294 | 2170728 | 1667703 | Rhinovirus B | Species | 0 | 286 |
| Z14-294 | 2170728 | 1667703 | Human betaherpesvirus 6B | Species | 30 | 0 |
| Z14-332 | 4695289 | 1375642 | Human betaherpesvirus 7 | Species | 237 | 0 |
| Z14-332 | 4695289 | 1375642 | Rhinovirus B | Species | 0 | 4 |
| Z14-385 | 3458028 | 3050696 | Human metapneumovirus | Species | 0 | 27 |
| Z14-415 | 3969358 | 1543877 | Severe acute respiratory syndrome-related coronavirus | Species | 4 | 17542 |

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|---|---|---|---|---|---|---|
| Z14-415 | 3969358 | 1543877 | Human betaherpesvirus 7 | Species | 21 | 0 |
| Z14-437 | 4133075 | 626954 | Human betaherpesvirus 7 | Species | 159 | 0 |
| Z14-437 | 4133075 | 626954 | Human coronavirus HKU1 | Species | 0 | 8 |
| Z14-602 | 4619255 | 2154277 | Human gammaherpesvirus 4 | Species | 3 | 0 |
| Z14-764 | 4158042 | 1676457 | NA | NA | NA | NA |
| Z14-920 | 4289060 | 1460448 | Severe acute respiratory syndrome-related coronavirus | Species | 1 | 109 |
| Z14-920 | 4289060 | 1460448 | Torbevirus | Genus | 55 | 1 |
| Z14-920 | 4289060 | 1460448 | Human betaherpesvirus 7 | Species | 11 | 0 |
| Z14-920 | 4289060 | 1460448 | Circoviridae | Family | 15 | 0 |
| Z15-276 | 4954527 | 2073665 | NA | NA | NA | NA |
| Z15-290 | 3540906 | 3275731 | NA | NA | NA | NA |
| Z15-301 | 1542979 | 527742 | NA | NA | NA | NA |
| Z15-647 | 2213003 | 319882 | Rhinovirus A | Species | 0 | 23 |
| Z15-744 | 6991594 | 1961003 | Human mastadenovirus C | Species | 4 | 0 |
| Z15-810 | 3426970 | 400938 | Human betaherpesvirus 7 | Species | 6 | 0 |
| Z15-835 | 4999027 | 2050191 | Influenza A virus | Species | 0 | 146 |
| Z15-884 | 4235337 | 930529 | NA | NA | NA | NA |
| Z15-930 | 6264256 | 1341785 | NA | NA | NA | NA |
| Z16-148 | 1598729 | 751929 | NA | NA | NA | NA |
| Z16-215 | 3964736 | 1296651 | Human betaherpesvirus 7 | Species | 3 | 0 |
| Z16-336 | 2285449 | 2350091 | Human betaherpesvirus 7 | Species | 11 | 0 |
| Z16-351 | 5831897 | 5464506 | Human orthopneumovirus | Species | 0 | 127 |
| Z16-352 | 5478348 | 1351906 | Human betaherpesvirus 7 | Species | 10 | 0 |
| Z16-387 | 2144014 | 537224 | Human coronavirus HKU1 | Species | 0 | 2409 |
| Z16-387 | 2144014 | 537224 | Human betaherpesvirus 7 | Species | 904 | 0 |
| Z16-387 | 2144014 | 537224 | Human gammaherpesvirus 4 | Species | 298 | 0 |
| Z16-387 | 2144014 | 537224 | Torbevirus | Genus | 87 | 0 |
| Z16-387 | 2144014 | 537224 | Circoviridae | Family | 27 | 1 |
| Z16-387 | 2144014 | 537224 | Human betaherpesvirus 6B | Species | 5 | 0 |
| Z16-445 | 3838543 | 639055 | Human betaherpesvirus 7 | Species | 21 | 0 |
| Z16-506 | 2692515 | 932088 | Human betaherpesvirus 7 | Species | 4 | 0 |
| Z16-516 | 3485066 | 973518 | Papillomaviridae | Family | 3 | 0 |
| Z16-569 | 3304840 | 1712795 | Rhinovirus A | Species | 0 | 404 |
| Z16-576 | 4207778 | 3341693 | Influenza A virus | Species | 2 | 6638 |

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|---|---|---|---|---|---|---|
| Z16-580 | 4185423 | 18293 | Human gammaherpesvirus 4 | Species | 20 | 0 |
| Z16-644 | 3169612 | 1159209 | Human betaherpesvirus 7 | Species | 11 | 0 |
| Z16-695 | 3389276 | 462028 | NA | NA | NA | NA |
| Z16-709 | 3695649 | 401347 | NA | NA | NA | NA |
| Z16-724 | 4196422 | 781889 | NA | NA | NA | NA |
| Z16-891 | 4237490 | 3337745 | Rhinovirus A | Species | 0 | 5 |
| Z16-891 | 4237490 | 3337745 | Human betaherpesvirus 7 | Species | 3 | 0 |
| Z16-948 | 2759687 | 3248697 | Human betaherpesvirus 7 | Species | 50 | 0 |
| Z16-948 | 2759687 | 3248697 | Anelloviridae | Family | 7 | 0 |
| Z16-973 | 4685464 | 2321598 | NA | NA | NA | NA |
| Z16-985 | 2304405 | 2712265 | Rhinovirus A | Species | 0 | 10574 |
| Z17-170 | 4980992 | 1748833 | Influenza A virus | Species | 0 | 4952 |
| Z17-308 | 3896644 | 665024 | Influenza B virus | Species | 0 | 11662 |
| Z17-308 | 3896644 | 665024 | Gammapapillomavirus 15 | Species | 26 | 0 |
| Z17-308 | 3896644 | 665024 | Human betaherpesvirus 7 | Species | 18 | 0 |
| Z17-379 | 1049315 | 1098161 | NA | NA | NA | NA |
| Z17-524 | 310348 | 22271 | Influenza A virus | Species | 0 | 228 |
| Z17-615 | 4640875 | 5137834 | Human betaherpesvirus 7 | Species | 3 | 0 |
| Z17-641 | 4246158 | 398469 | Human betaherpesvirus 6B | Species | 3 | 0 |
| Z17-653 | 3195053 | 2572881 | NA | NA | NA | NA |
| Z17-658 | 5182595 | 3392853 | NA | NA | NA | NA |
| Z17-665 | 4045642 | 1903068 | Influenza B virus | Species | 0 | 347 |
| Z17-665 | 4045642 | 1903068 | Human betaherpesvirus 7 | Species | 337 | 0 |
| Z17-672 | 1450825 | 3256577 | NA | NA | NA | NA |
| Z17-707 | 2830720 | 2102384 | Pegivirus | Genus | 0 | 36 |
| Z17-707 | 2830720 | 2102384 | Torbevirus | Genus | 6 | 6 |
| Z17-707 | 2830720 | 2102384 | Circoviridae | Family | 3 | 1 |
| Z17-708 | 2538737 | 281574 | Influenza A virus | Species | 11 | 136882 |
| Z17-778 | 4499197 | 2361238 | NA | NA | NA | NA |
| Z17-782 | 3087545 | 1111693 | NA | NA | NA | NA |
| Z17-796 | 2579140 | 961525 | Human betaherpesvirus 7 | Species | 69 | 0 |
| Z17-796 | 2579140 | 961525 | Human betaherpesvirus 6B | Species | 4 | 0 |
| Z17-817 | 5114456 | 1516628 | Severe acute respiratory syndrome-related coronavirus | Species | 2 | 9176 |
| Z17-841 | 3210335 | 1932101 | NA | NA | NA | NA |
| Z17-861 | 3984777 | 3003097 | Human alphaherpesvirus 1 | Species | 135 | 59 |
| Z17-898 | 7126541 | 1144081 | Influenza A virus | Species | 0 | 6349 |
| Z17-924 | 2949398 | 22315 | NA | NA | NA | NA |
| Z18-327 | 5283805 | 5147215 | NA | NA | NA | NA |

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|---|---|---|---|---|---|---|
| Z18-356 | 3440904 | 4222893 | NA | NA | NA | NA |
| Z18-492 | 2635977 | 429365 | NA | NA | NA | NA |
| Z18-648 | 3473606 | 4064 | NA | NA | NA | NA |
| Z18-697 | 4091265 | 1819756 | Severe acute respiratory syndrome-related coronavirus | Species | 0 | 313 |
| Z18-704 | 2136447 | 312949 | NA | NA | NA | NA |
| Z18-774 | 3171470 | 1599290 | NA | NA | NA | NA |
| Z18-964 | 3912347 | 1213595 | NA | NA | NA | NA |
| Z18-972 | 2623071 | 586066 | Severe acute respiratory syndrome-related coronavirus | Species | 0 | 62 |
| Z19-178 | 4354275 | 1235421 | Influenza B virus | Species | 2 | 13853 |
| Z19-188 | 2989600 | 1090376 | NA | NA | NA | NA |
| Z19-498 | 2530578 | 1832810 | Human gammaherpesvirus 4 | Species | 3 | 0 |
| Z19-532 | 3895722 | 931753 | Human metapneumovirus | Species | 0 | 15 |
| Z19-714 | 2819839 | 725079 | Rhinovirus A | Species | 0 | 3008 |
| Z19-714 | 2819839 | 725079 | Human betaherpesvirus 7 | Species | 20 | 0 |
| Z19-714 | 2819839 | 725079 | Circoviridae | Family | 5 | 0 |
| Z19-714 | 2819839 | 725079 | Human betaherpesvirus 6B | Species | 4 | 0 |
| Z19-714 | 2819839 | 725079 | Torbevirus | Genus | 3 | 0 |
| Z19-865 | 2973874 | 927796 | Influenza A virus | Species | 7 | 91002 |
| Z19-865 | 2973874 | 927796 | Human betaherpesvirus 7 | Species | 5 | 0 |
| Z19-876 | 3629976 | 2608090 | Influenza A virus | Species | 39 | 472166 |
| Z19-896 | 3533285 | 691830 | NA | NA | NA | NA |
| Z19-931 | 1694651 | 1711428 | Rhinovirus A | Species | 0 | 2801 |
| Z19-931 | 1694651 | 1711428 | Human betaherpesvirus 7 | Species | 140 | 0 |
| Z19-931 | 1694651 | 1711428 | Human betaherpesvirus 6B | Species | 3 | 0 |
| Z20-113 | 1884924 | 1886612 | Rhinovirus A | Species | 0 | 521 |
| Z20-189 | 2164045 | 713694 | Human betaherpesvirus 7 | Species | 7 | 0 |
| Z20-202 | 4774881 | 870293 | Human betaherpesvirus 7 | Species | 14 | 0 |
| Z20-229 | 3717240 | 2133213 | Human betaherpesvirus 7 | Species | 4 | 0 |
| Z20-242 | 2738588 | 1671294 | NA | NA | NA | NA |
| Z20-314 | 4790515 | 1621774 | Influenza A virus | Species | 0 | 231 |
| Z20-314 | 4790515 | 1621774 | Circoviridae | Family | 130 | 75 |
| Z20-314 | 4790515 | 1621774 | Torbevirus | Genus | 180 | 50 |
| Z20-314 | 4790515 | 1621774 | Human betaherpesvirus 7 | Species | 9 | 0 |
| Z20-350 | 4745522 | 2303984 | Influenza A virus | Species | 0 | 15 |
| Z20-350 | 4745522 | 2303984 | Human betaherpesvirus 7 | Species | 6 | 0 |
| Z20-360 | 2148120 | 3441358 | NA | NA | NA | NA |

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|---|---|---|---|---|---|---|
| Z20-362 | 3893015 | 3232816 | Human gammaherpesvirus 4 | Species | 4 | 0 |
| Z20-391 | 2323232 | 832676 | NA | NA | NA | NA |
| Z20-501 | 3833349 | 1575704 | NA | NA | NA | NA |
| Z20-511 | 5468212 | 956376 | Human betaherpesvirus 7 | Species | 27 | 0 |
| Z20-522 | 3995910 | 1760927 | Human metapneumovirus | Species | 0 | 116 |
| Z20-522 | 3995910 | 1760927 | Human betaherpesvirus 7 | Species | 10 | 0 |
| Z20-581 | 2816187 | 1115160 | NA | NA | NA | NA |
| Z20-640 | 4629903 | 2381419 | Rhinovirus A | Species | 0 | 2627 |
| Z20-755 | 611459 | 22448 | NA | NA | NA | NA |
| Z20-791 | 4209127 | 3431201 | Severe acute respiratory syndrome-related coronavirus | Species | 4 | 42 |
| Z20-851 | 4679342 | 1001592 | Human orthopneumovirus | Species | 0 | 114 |
| Z20-914 | 4329 | 3351819 | NA | NA | NA | NA |
| Z20-986 | 5047552 | 1059589 | Human orthopneumovirus | Species | 0 | 64 |

**Table S2**

Patients' demographic and medical data, presumed causes and mNGS results.

| patient_ code | age | tem-pera-ture | dura-tion_ symp-toms_ be-fore_ visit | study_ visit | postu-lated_ cause | presumed_ clinical_ diagnosis | mNGS_ result | classifi-cation_ level |
|---|---|---|---|---|---|---|---|---|
| Z01-132 | 56 | 36 | 5 | 09.12.19 | viral | acute sinusitis | Human respirovirus 1 | Species |
| Z01-132 | 56 | 36 | 5 | 09.12.19 | viral | acute sinusitis | Human betaherpesvirus 7 | Species |
| Z01-203 | 22 | 36.7 | 5 | 26.11.19 | viral | acute bronchitis | Rhinovirus A | Species |
| Z01-203 | 22 | 36.7 | 5 | 26.11.19 | viral | acute bronchitis | Human gammaherpesvi-rus 4 | Species |
| Z01-240 | 57 | 36.1 | 7 | 07.10.19 | viral | common cold | Rhinovirus C | Species |
| Z01-240 | 57 | 36.1 | 7 | 07.10.19 | viral | common cold | Circoviridae | Family |
| Z01-240 | 57 | 36.1 | 7 | 07.10.19 | viral | common cold | Torbevirus | Genus |
| Z01-240 | 57 | 36.1 | 7 | 07.10.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z01-268 | 38 | 36.4 | 6 | 12.11.19 | viral | pharyngitis | Circoviridae | Family |
| Z01-268 | 38 | 36.4 | 6 | 12.11.19 | viral | pharyngitis | Torbevirus | Genus |
| Z01-268 | 38 | 36.4 | 6 | 12.11.19 | viral | pharyngitis | Rhinovirus A | Species |
| Z01-268 | 38 | 36.4 | 6 | 12.11.19 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z01-277 | 29 | 37.1 | 5 | 07.10.19 | viral | acute sinusitis | Human betaherpesvirus 7 | Species |
| Z01-422 | 26 | 37.1 | 17 | 15.10.19 | viral | common cold | negative | not availa-ble |
| Z01-558 | 40 | 36.6 | 35 | 06.12.19 | viral | pharyngitis | Human respirovirus 1 | Species |
| Z01-677 | 23 | 36.3 | 7 | 09.12.19 | viral | acute bronchitis | Human betaherpesvirus 7 | Species |
| Z01-733 | 60 | 36 | 12 | 18.11.19 | viral | common cold | negative | not availa-ble |
| Z01-923 | 25 | 37.8 | 5 | 08.11.19 | viral | acute bronchitis | Human betaherpesvirus 7 | Species |
| Z02-138 | 32 | 37 | 3 | 13.11.19 | viral | influenza | Enterovirus D | Species |
| Z02-169 | 70 | 38.7 | 2 | 16.12.19 | viral | influenza | Influenza A virus | Species |
| Z02-171 | 29 | 35.8 | 2 | 24.10.19 | viral | pharyngitis | Human respirovirus 1 | Species |
| Z02-171 | 29 | 35.8 | 2 | 24.10.19 | viral | pharyngitis | Pegivirus | Genus |
| Z02-440 | 38 | 37.5 | 2 | 04.12.19 | viral | common cold | Rhinovirus A | Species |
| Z02-597 | 24 | 36.4 | 1 | 11.12.19 | bacterial | streptococcal pharyngitis | negative | not availa-ble |
| Z02-734 | 63 | 36.7 | 14 | 18.11.19 | viral | common cold/acute bron-chitis/postinfectious cough | negative | not availa-ble |
| Z02-748 | 19 | 36 | 11 | 21.10.19 | viral | common cold | Rhinovirus A | Species |
| Z02-748 | 19 | 36 | 11 | 21.10.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z02-807 | 24 | 37.8 | 7 | 28.10.19 | viral | common cold/pharyngitis | negative | not availa-ble |
| Z02-971 | 29 | 37.1 | 6 | 31.10.19 | viral | pharyngitis | Human respirovirus 1 | Species |
| Z02-971 | 29 | 37.1 | 6 | 31.10.19 | viral | pharyngitis | Human betaherpesvirus 6B | Species |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Z02-976 | 53 | 37.1 | 13 | 13.11.19 | viral | common cold | negative | not available |
| Z03-163 | 19 | 31 | 3 | 06.12.19 | viral | pharyngitis | Rhinovirus A | Species |
| Z03-163 | 19 | 31 | 3 | 06.12.19 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z03-172 | 55 | 37.3 | 3 | 11.12.19 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z03-281 | 66 | 36.4 | not recorded | 05.12.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z03-281 | 66 | 36.4 | not recorded | 05.12.19 | viral | common cold | Rhinovirus A | Species |
| Z03-295 | 25 | 36.7 | not recorded | 04.12.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z03-295 | 25 | 36.7 | not recorded | 04.12.19 | viral | common cold | Rhinovirus A | Species |
| Z03-295 | 25 | 36.7 | not recorded | 04.12.19 | viral | common cold | Torbevirus | Genus |
| Z03-295 | 25 | 36.7 | not recorded | 04.12.19 | viral | common cold | Circoviridae | Family |
| Z03-364 | 67 | 37.2 | 7 | 13.01.20 | viral | acute bronchitis | negative | not available |
| Z03-386 | 58 | 37 | 12 | 10.12.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z03-402 | 83 | 37 | 10 | 02.12.19 | viral | common cold | Rhinovirus A | Species |
| Z03-588 | 51 | 37 | 4 | 04.12.19 | viral | common cold | Influenza A virus | Species |
| Z03-588 | 51 | 37 | 4 | 04.12.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z03-588 | 51 | 37 | 4 | 04.12.19 | viral | common cold | Circoviridae | Family |
| Z03-588 | 51 | 37 | 4 | 04.12.19 | viral | common cold | Torbevirus | Genus |
| Z03-681 | 25 | 38.6 | not recorded | 22.01.20 | viral | common cold/influenza | Human betaherpesvirus 7 | Species |
| Z03-681 | 25 | 38.6 | not recorded | 22.01.20 | viral | common cold/influenza | Torbevirus | Genus |
| Z03-681 | 25 | 38.6 | not recorded | 22.01.20 | viral | common cold/influenza | Circoviridae | Family |
| Z03-681 | 25 | 38.6 | not recorded | 22.01.20 | viral | common cold/influenza | Pegivirus | Genus |
| Z03-926 | 28 | 37.2 | 2 | 13.01.20 | viral | common cold | Influenza A virus | Species |
| Z03-926 | 28 | 37.2 | 2 | 13.01.20 | viral | common cold | Torbevirus | Genus |
| Z03-926 | 28 | 37.2 | 2 | 13.01.20 | viral | common cold | Circoviridae | Family |
| Z04-213 | 41 | 36.7 | 3 | 06.11.19 | viral | common cold | Rhinovirus C | Species |
| Z04-213 | 41 | 36.7 | 3 | 06.11.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z04-213 | 41 | 36.7 | 3 | 06.11.19 | viral | common cold | Torbevirus | Genus |
| Z04-213 | 41 | 36.7 | 3 | 06.11.19 | viral | common cold | Human gammaherpesvirus 4 | Species |
| Z04-213 | 41 | 36.7 | 3 | 06.11.19 | viral | common cold | Circoviridae | Family |
| Z04-243 | 71 | 36.8 | 56 | 22.10.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z04-353 | 30 | 38.2 | 4 | 27.11.19 | bacterial | pharyngitis | Anelloviridae | Family |
| Z04-371 | 45 | 36.7 | not recorded | 17.12.19 | viral | common cold | negative | not available |
| Z04-398 | 20 | 36.5 | 5 | 26.11.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z04-460 | 28 | 36.3 | 10 | 26.11.19 | viral | chronic sinusitis | Human betaherpesvirus 7 | Species |
| Z04-466 | 71 | 37 | 2 | 25.10.19 | viral | common cold | Rhinovirus A | Species |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Z04-889 | 30 | 37.8 | not recorded | 02.12.19 | bacterial | streptococcal pharyngitis | Human betaherpesvirus 7 | Species |
| Z04-918 | 27 | 37 | not recorded | 15.11.19 | viral | common cold | Rhinovirus C | Species |
| Z04-918 | 27 | 37 | not recorded | 15.11.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z05-114 | 49 | 36.6 | 60 | 19.06.20 | viral | not specified | Papillomaviridae | Family |
| Z05-114 | 49 | 36.6 | 60 | 19.06.20 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z05-125 | 49 | 36.8 | 5 | 18.12.19 | viral | common cold | Human respirovirus 1 | Species |
| Z05-184 | 52 | 36.3 | 6 | 14.10.20 | viral | common cold | Rhinovirus B | Species |
| Z05-184 | 52 | 36.3 | 6 | 14.10.20 | viral | common cold | Circoviridae | Family |
| Z05-206 | 55 | 36.6 | 5 | 12.10.20 | viral | not specified | Human gammaherpesvirus 4 | Species |
| Z05-206 | 55 | 36.6 | 5 | 12.10.20 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z05-244 | 45 | 37.6 | 6 | 24.01.20 | bacterial | pneumonia | negative | not available |
| Z05-321 | 38 | 37 | 4 | 13.01.20 | viral | pharyngitis | negative | not available |
| Z05-344 | 77 | 37.3 | 7 | 06.11.20 | viral | covid | Severe acute respiratory syndrome-related coronavirus | Species |
| Z05-368 | 32 | 37.2 | 13 | 28.10.20 | viral | not specified | negative | not available |
| Z05-462 | 27 | 36.8 | 35 | 29.06.20 | viral | covid | Human betaherpesvirus 7 | Species |
| Z05-482 | 63 | 37.3 | 4 | 02.12.19 | viral | common cold | Rhinovirus A | Species |
| Z05-592 | 26 | 36.9 | 3 | 02.11.19 | viral | common cold | Rhinovirus C | Species |
| Z05-628 | 36 | 36.5 | 2 | 20.10.20 | viral | common cold/coronavirus infection | negative | not available |
| Z05-638 | 23 | not recorded | 6 | 05.05.20 | viral | not specified | negative | not available |
| Z05-698 | 60 | 37.2 | 10 | 17.12.19 | viral | common cold | negative | not available |
| Z05-726 | 43 | 36.8 | 3 | 13.01.20 | viral | common cold | Influenza A virus | Species |
| Z05-726 | 43 | 36.8 | 3 | 13.01.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z05-767 | 48 | 37.3 | not recorded | 06.01.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z05-790 | 24 | 36.6 | 4 | 12.10.20 | viral | common cold | Rhinovirus A | Species |
| Z05-980 | 27 | 37.7 | 3 | 02.12.19 | viral | common cold | Rhinovirus C | Species |
| Z05-980 | 27 | 37.7 | 3 | 02.12.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z06-147 | 33 | 37.3 | 3 | 29.01.20 | viral | common cold | Influenza A virus | Species |
| Z06-227 | 36 | 37 | 5 | 27.02.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z06-253 | 25 | 36.9 | 6 | 22.01.20 | viral | common cold | Influenza B virus | Species |
| Z06-254 | 24 | 36.6 | 4 | 28.01.20 | viral | influenza | Human coronavirus HKU1 | Species |
| Z06-254 | 24 | 36.6 | 4 | 28.01.20 | viral | influenza | Human betaherpesvirus 7 | Species |
| Z06-280 | 35 | 36.5 | 3 | 24.02.20 | viral | common cold | Human alphaherpesvirus 1 | Species |
| Z06-299 | 22 | 36.6 | 4 | 05.12.19 | viral | common cold | negative | not |

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| | | | | | | | | available |
| Z06-442 | 45 | not recorded | 24 | 20.02.20 | viral | common cold/streptococcal pharyngitis | Human gammaherpesvirus 4 | Species |
| Z06-442 | 45 | not recorded | 24 | 20.02.20 | viral | common cold/streptococcal pharyngitis | Human betaherpesvirus 7 | Species |
| Z06-442 | 45 | not recorded | 24 | 20.02.20 | viral | common cold/streptococcal pharyngitis | Human betaherpesvirus 6B | Species |
| Z06-442 | 45 | not recorded | 24 | 20.02.20 | viral | common cold/streptococcal pharyngitis | Papillomaviridae | Family |
| Z06-538 | 31 | 37.4 | 5 | 02.12.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z06-538 | 31 | 37.4 | 5 | 02.12.19 | viral | common cold | Human mastadenovirus C | Species |
| Z06-564 | 52 | 36.7 | 1 | 05.03.20 | viral | common cold | Circoviridae | Family |
| Z06-564 | 52 | 36.7 | 1 | 05.03.20 | viral | common cold | Torbevirus | Genus |
| Z06-838 | 20 | 37.3 | 5 | 04.03.20 | viral | common cold | Human gammaherpesvirus 4 | Species |
| Z06-838 | 20 | 37.3 | 5 | 04.03.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z06-852 | 22 | 36.6 | 5 | 10.12.20 | viral | covid | negative | not available |
| Z07-137 | 40 | 37.5 | 7 | 27.01.20 | viral | pharyngitis | negative | not available |
| Z07-267 | 33 | not recorded | 3 | 14.07.20 | viral | pharyngitis | negative | not available |
| Z07-304 | 39 | 36.8 | 6 | 11.11.20 | viral | acute bronchitis/covid | negative | not available |
| Z07-438 | 29 | 37.6 | 3 | 29.01.20 | viral | common cold | Human coronavirus HKU1 | Species |
| Z07-471 | 30 | 36.6 | 7 | 04.02.20 | viral | not specified | Human rubulavirus 4 | Species |
| Z07-477 | 28 | 36 | 2 | 29.01.20 | viral | common cold | Human coronavirus HKU1 | Species |
| Z07-484 | 55 | not recorded | 30 | 04.02.20 | viral | not specified | negative | not available |
| Z07-571 | 47 | 37.1 | 5 | 13.11.20 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z07-571 | 47 | 37.1 | 5 | 13.11.20 | viral | pharyngitis | Human betaherpesvirus 6B | Species |
| Z07-571 | 47 | 37.1 | 5 | 13.11.20 | viral | pharyngitis | Human polyomavirus 3 | Species |
| Z07-571 | 47 | 37.1 | 5 | 13.11.20 | viral | pharyngitis | Papillomaviridae | Family |
| Z07-771 | 75 | 36.4 | 9 | 22.01.20 | viral | acute bronchitis | negative | not available |
| Z07-799 | 34 | 36.3 | 5 | 27.01.20 | viral | pharyngitis | Rhinovirus C | Species |
| Z07-820 | 38 | 37.1 | 5 | 18.12.20 | viral | pharyngitis/covid/pharyngitis sicca | Human betaherpesvirus 7 | Species |
| Z07-820 | 38 | 37.1 | 5 | 18.12.20 | viral | pharyngitis/covid/pharyngitis sicca | Papillomaviridae | Family |
| Z07-820 | 38 | 37.1 | 5 | 18.12.20 | viral | pharyngitis/covid/pharyngitis sicca | Human betaherpesvirus 6B | Species |

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| Z07-820 | 38 | 37.1 | 5 | 18.12.20 | viral | pharyngitis/covid/pharyngitis sicca | Human alphaherpesvirus 1 | Species |
| Z07-946 | 36 | not recorded | 21 | 18.02.20 | viral | common cold | Torbevirus | Genus |
| Z07-946 | 36 | not recorded | 21 | 18.02.20 | viral | common cold | Circoviridae | Family |
| Z07-946 | 36 | not recorded | 21 | 18.02.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z07-955 | 23 | 36.3 | 4 | 04.02.20 | viral | common cold | Rhinovirus A | Species |
| Z07-955 | 23 | 36.3 | 4 | 04.02.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z07-984 | 58 | 37.5 | 3 | 29.01.20 | viral | common cold | negative | not available |
| Z08-166 | 44 | 37 | 5 | 02.12.19 | viral | acute bronchitis | Human betaherpesvirus 7 | Species |
| Z08-166 | 44 | 37 | 5 | 02.12.19 | viral | acute bronchitis | Human betaherpesvirus 6A | Species |
| Z08-166 | 44 | 37 | 5 | 02.12.19 | viral | acute bronchitis | Circoviridae | Family |
| Z08-166 | 44 | 37 | 5 | 02.12.19 | viral | acute bronchitis | Torbevirus | Genus |
| Z08-201 | 35 | 36.3 | 2 | 13.12.19 | bacterial | streptococcal pharyngitis | negative | not available |
| Z08-367 | 49 | 38.9 | not recorded | 03.12.19 | bacterial | streptococcal pharyngitis | Enterovirus B | Species |
| Z08-418 | 51 | 37.4 | 2 | 22.01.20 | viral | common cold/pharyngitis | Betacoronavirus 1 | Species |
| Z08-679 | 20 | 37.1 | not recorded | 13.01.20 | viral | common cold | Human coronavirus HKU1 | Species |
| Z08-679 | 20 | 37.1 | not recorded | 13.01.20 | viral | common cold | Human mastadenovirus C | Species |
| Z08-713 | 30 | 36.3 | 2 | 17.12.19 | viral | common cold | Human coronavirus HKU1 | Species |
| Z08-833 | 53 | 36.9 | 6 | 12.12.19 | viral | common cold | Rhinovirus A | Species |
| Z08-905 | 59 | 36.6 | 5 | 18.12.19 | viral | common cold | Rhinovirus A | Species |
| Z08-905 | 59 | 36.6 | 5 | 18.12.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z08-951 | 36 | 37.8 | 4 | 15.01.20 | viral | common cold/pharyngitis/influenza | Human coronavirus HKU1 | Species |
| Z08-951 | 36 | 37.8 | 4 | 15.01.20 | viral | common cold/pharyngitis/influenza | Human betaherpesvirus 6B | Species |
| Z08-967 | 52 | 3 | 4 | 07.01.20 | viral | influenza | Papillomaviridae | Family |
| Z08-967 | 52 | 3 | 4 | 07.01.20 | viral | influenza | Influenza A virus | Species |
| Z09-256 | 26 | 37.6 | 6 | 13.12.19 | viral | common cold | Influenza A virus | Species |
| Z09-278 | 37 | 37.2 | not recorded | 14.11.19 | viral | pharyngitis | Rhinovirus A | Species |
| Z09-278 | 37 | 37.2 | not recorded | 14.11.19 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z09-329 | 55 | 36.8 | 28 | 08.06.20 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z09-329 | 55 | 36.8 | 28 | 08.06.20 | viral | pharyngitis | Papillomaviridae | Family |
| Z09-329 | 55 | 36.8 | 28 | 08.06.20 | viral | pharyngitis | Circoviridae | Family |
| Z09-329 | 55 | 36.8 | 28 | 08.06.20 | viral | pharyngitis | Torbevirus | Genus |
| Z09-382 | 29 | 37.2 | 9 | 31.10.19 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z09-384 | 22 | 37.1 | 2 | 07.07.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z09-384 | 22 | 37.1 | 2 | 07.07.20 | viral | common cold | Human betaherpesvirus | Species |

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| | | | | | | | 6B | |
| Z09-384 | 22 | 37.1 | 2 | 07.07.20 | viral | common cold | Circoviridae | Family |
| Z09-384 | 22 | 37.1 | 2 | 07.07.20 | viral | common cold | Torbevirus | Genus |
| Z09-404 | 24 | 37.1 | not recorded | 29.06.20 | viral | common cold | Rhinovirus A | Species |
| Z09-404 | 24 | 37.1 | not recorded | 29.06.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z09-493 | 28 | 36.8 | not recorded | 06.12.19 | viral | common cold | Human gammaherpesvirus 4 | Species |
| Z09-509 | 32 | 36.9 | 14 | 14.01.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z09-611 | 27 | 37.1 | 6 | 03.09.20 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z09-611 | 27 | 37.1 | 6 | 03.09.20 | viral | not specified | Human gammaherpesvirus 4 | Species |
| Z09-611 | 27 | 37.1 | 6 | 03.09.20 | viral | not specified | Human betaherpesvirus 6B | Species |
| Z09-687 | 33 | 37.1 | 2 | 30.06.20 | viral | common cold | Rhinovirus A | Species |
| Z09-687 | 33 | 37.1 | 2 | 30.06.20 | viral | common cold | Human betaherpesvirus 6B | Species |
| Z09-692 | 20 | 37.6 | 4 | 22.05.20 | viral | common cold/covid | Human betaherpesvirus 7 | Species |
| Z09-730 | 34 | 36.7 | 3 | 08.06.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z09-768 | 44 | 37.4 | 1 | 25.08.20 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z09-768 | 44 | 37.4 | 1 | 25.08.20 | viral | not specified | Rhinovirus A | Species |
| Z09-809 | 30 | 37.7 | 7 | 06.04.20 | viral | influenza | Human alphaherpesvirus 1 | Species |
| Z09-809 | 30 | 37.7 | 7 | 06.04.20 | viral | influenza | Human betaherpesvirus 7 | Species |
| Z09-809 | 30 | 37.7 | 7 | 06.04.20 | viral | influenza | Human gammaherpesvirus 4 | Species |
| Z09-866 | 35 | 37.3 | 14 | 09.01.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z09-877 | 39 | 37.3 | 3 | 26.06.20 | viral | common cold | Rhinovirus A | Species |
| Z09-895 | 49 | 36.7 | 7 | 10.12.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z09-895 | 49 | 36.7 | 7 | 10.12.19 | viral | common cold | Human betaherpesvirus 6B | Species |
| Z09-895 | 49 | 36.7 | 7 | 10.12.19 | viral | common cold | Human gammaherpesvirus 4 | Species |
| Z09-913 | 45 | 37.2 | not recorded | 14.01.20 | viral | acute sinusitis | Circoviridae | Family |
| Z09-913 | 45 | 37.2 | not recorded | 14.01.20 | viral | acute sinusitis | Torbevirus | Genus |
| Z09-913 | 45 | 37.2 | not recorded | 14.01.20 | viral | acute sinusitis | Human betaherpesvirus 7 | Species |
| Z09-927 | 36 | 37.6 | not recorded | 14.01.20 | bacterial | tonsillitis | Human mastadenovirus C | Species |
| Z10-129 | 38 | 37 | 6 | 12.06.20 | viral | not specified | Rhinovirus A | Species |
| Z10-129 | 38 | 37 | 6 | 12.06.20 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z10-186 | 59 | 36.6 | 8 | 05.12.19 | viral | common cold | negative | not available |
| Z10-255 | 68 | 37 | not recorded | 25.06.20 | viral | common cold | Rhinovirus C | Species |
| Z10-323 | 38 | 37 | not recorded | 19.11.19 | not specified | not specified | negative | not available |
| Z10-409 | 66 | 37.4 | 2 | 02.07.20 | viral | not specified | Papillomaviridae | Family |

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| Z10-424 | 43 | 36.8 | 4 | 04.06.20 | viral | pharyngitis | negative | not available |
| Z10-455 | 37 | 36.9 | 3 | 09.06.20 | viral | common cold | Rhinovirus C | Species |
| Z10-486 | 39 | 36.9 | 5 | 12.11.19 | viral | acute laryngitis/tracheitis | Human rubulavirus 2 | Species |
| Z10-486 | 39 | 36.9 | 5 | 12.11.19 | viral | acute laryngitis/tracheitis | Human betaherpesvirus 7 | Species |
| Z10-513 | 64 | 36.5 | 7 | 13.11.19 | viral | common cold | Rhinovirus A | Species |
| Z10-513 | 64 | 36.5 | 7 | 13.11.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z10-542 | 59 | 36.6 | not recorded | 07.07.20 | viral | common cold | negative | not available |
| Z10-607 | 30 | 37.4 | 7 | 26.11.19 | viral | common cold | negative | not available |
| Z10-722 | 32 | 36.6 | 5 | 18.12.19 | viral | common cold/chronic sinusitis | Human betaherpesvirus 7 | Species |
| Z10-723 | 28 | 37.8 | 5 | 03.06.20 | viral | not specified | Human mastadenovirus C | Species |
| Z10-731 | 30 | 36.5 | 14 | 10.12.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z10-885 | 87 | 37 | 21 | 03.12.19 | viral | not specified | Human gammaherpesvirus 4 | Species |
| Z10-885 | 87 | 37 | 21 | 03.12.19 | viral | not specified | Human polyomavirus 5 | Species |
| Z10-885 | 87 | 37 | 21 | 03.12.19 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z10-890 | 66 | 36.8 | not recorded | 02.04.20 | not specified | not specified | Human betaherpesvirus 7 | Species |
| Z10-901 | 73 | 37.1 | 7 | 12.12.19 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z10-922 | 28 | 37.7 | not recorded | 09.12.19 | viral | common cold | Rhinovirus A | Species |
| Z10-922 | 28 | 37.7 | not recorded | 09.12.19 | viral | common cold | Human gammaherpesvirus 4 | Species |
| Z10-922 | 28 | 37.7 | not recorded | 09.12.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z10-957 | 38 | 37.1 | 60 | 14.05.20 | functional/reflux | functional/reflux | Human betaherpesvirus 7 | Species |
| Z10-962 | 34 | 37 | 5 | 06.04.20 | viral | common cold/covid | Circoviridae | Family |
| Z10-962 | 34 | 37 | 5 | 06.04.20 | viral | common cold/covid | Human betaherpesvirus 7 | Species |
| Z10-962 | 34 | 37 | 5 | 06.04.20 | viral | common cold/covid | Torbevirus | Genus |
| Z11-136 | 33 | 36.8 | 3 | 14.09.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z11-136 | 33 | 36.8 | 3 | 14.09.20 | viral | common cold | Papillomaviridae | Family |
| Z11-158 | 81 | 37.1 | 3 | 13.01.20 | viral | common cold | Rhinovirus C | Species |
| Z11-158 | 81 | 37.1 | 3 | 13.01.20 | viral | common cold | Papillomaviridae | Family |
| Z11-158 | 81 | 37.1 | 3 | 13.01.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z11-158 | 81 | 37.1 | 3 | 13.01.20 | viral | common cold | Human gammaherpesvirus 4 | Species |
| Z11-164 | 36 | 35.9 | 5 | 14.11.19 | viral | common cold | Rhinovirus C | Species |
| Z11-164 | 36 | 35.9 | 5 | 14.11.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z11-164 | 36 | 35.9 | 5 | 14.11.19 | viral | common cold | Anelloviridae | Family |
| Z11-221 | 29 | 37.1 | 4 | 09.06.20 | viral | common cold | Rhinovirus C | Species |
| Z11-221 | 29 | 37.1 | 4 | 09.06.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z11-246 | 47 | 37.1 | 5 | 04.12.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z11-363 | 23 | not | 4 | 08.09.20 | viral | common cold | Rhinovirus A | Species |

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| | | rec-orded | | | | | | |
| Z11-363 | 23 | not rec-orded | 4 | 08.09.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z11-401 | 48 | 37 | 3 | 07.04.20 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z11-414 | 82 | 36.9 | 5 | 14.11.19 | viral | common cold | Human rubulavirus 4 | Species |
| Z11-414 | 82 | 36.9 | 5 | 14.11.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z11-480 | 41 | 37.5 | 2 | 18.05.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z11-497 | 45 | 38.2 | 4 | 15.01.20 | viral | common cold | Influenza A virus | Species |
| Z11-497 | 45 | 38.2 | 4 | 15.01.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z11-497 | 45 | 38.2 | 4 | 15.01.20 | viral | common cold | Human betaherpesvirus 6B | Species |
| Z11-520 | 48 | 36.7 | 2 | 16.12.19 | viral | common cold | Human coronavirus HKU1 | Species |
| Z11-637 | 52 | 36 | 6 | 18.12.19 | viral | common cold | Rhinovirus A | Species |
| Z11-646 | 36 | 37.4 | 2 | 04.06.20 | viral | pharyngitis | Rhinovirus A | Species |
| Z11-678 | 48 | 36.8 | 3 | 14.11.19 | viral | common cold | Rhinovirus C | Species |
| Z11-678 | 48 | 36.8 | 3 | 14.11.19 | viral | common cold | Human gammaherpesvi-rus 4 | Species |
| Z11-678 | 48 | 36.8 | 3 | 14.11.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z11-741 | 73 | 37 | 10 | 08.09.20 | viral | acute bronchitis | Human betaherpesvirus 7 | Species |
| Z11-784 | 49 | 36.5 | 3 | 18.06.20 | viral | common cold | Rhinovirus A | Species |
| Z11-804 | 54 | 36.4 | 5 | 21.11.19 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z11-804 | 54 | 36.4 | 5 | 21.11.19 | viral | not specified | Human rubulavirus 4 | Species |
| Z11-821 | 32 | not rec-orded | 2 | 02.09.20 | viral | not specified | Rhinovirus A | Species |
| Z11-821 | 32 | not rec-orded | 2 | 02.09.20 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z11-821 | 32 | not rec-orded | 2 | 02.09.20 | viral | not specified | Human betaherpesvirus 6B | Species |
| Z11-850 | 68 | 37 | 3 | 14.01.20 | bacterial | pneumonia | Human metapneumovirus | Species |
| Z11-850 | 68 | 37 | 3 | 14.01.20 | bacterial | pneumonia | Human betaherpesvirus 7 | Species |
| Z11-935 | 56 | 37 | 7 | 21.04.20 | viral | coronavirus infection | negative | not availa-ble |
| Z12-190 | 70 | 36.8 | 11 | 08.01.20 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z12-205 | 51 | 36.6 | 21 | 09.01.20 | viral | common cold | Human gammaherpesvi-rus 4 | Species |
| Z12-210 | 72 | 36.4 | 7 | 11.12.19 | viral | common cold/exacer-bated COPD | Human betaherpesvirus 7 | Species |
| Z12-403 | 22 | 37.7 | 30 | 18.11.19 | viral | acute bronchitis | Human alphaherpesvirus 1 | Species |
| Z12-600 | 38 | 36.5 | 8 | 15.11.19 | viral | common cold | Enterovirus D | Species |
| Z12-682 | 83 | 36.8 | 10 | 27.11.19 | viral | common cold | negative | not availa-ble |
| Z12-816 | 64 | 37 | 8 | 11.12.19 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z12-911 | 45 | 37.2 | not rec-orded | 13.11.19 | viral | upper RTI | negative | not availa-ble |

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| Z12-938 | 57 | 36 | 5 | 21.01.20 | viral | pharyngitis | negative | not available |
| Z12-943 | 36 | 37.1 | 8 | 25.11.19 | viral | common cold/pharyngitis | Human betaherpesvirus 7 | Species |
| Z13-106 | 19 | 38.8 | 7 | 30.01.20 | viral | acute bronchitis | negative | not available |
| Z13-251 | 29 | not recorded | 4 | 05.10.20 | viral | influenza | negative | not available |
| Z13-285 | 62 | 37.8 | 5 | 17.04.20 | viral | common cold | negative | not available |
| Z13-297 | 18 | not recorded | 2 | 23.09.20 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z13-309 | 26 | not recorded | not recorded | 16.06.20 | viral | pharyngitis | Rhinovirus A | Species |
| Z13-309 | 26 | not recorded | not recorded | 16.06.20 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z13-392 | 64 | not recorded | 2 | 21.09.20 | viral | common cold | Rhinovirus A | Species |
| Z13-427 | 24 | not recorded | 2 | 13.10.20 | viral | Coronavirus infection | Human betaherpesvirus 7 | Species |
| Z13-478 | 48 | not recorded | 4 | 17.02.20 | viral | common cold/acute bronchitis | Influenza A virus | Species |
| Z13-491 | 49 | not recorded | 4 | 18.02.20 | viral | common cold/pharyngitis | Circoviridae | Family |
| Z13-491 | 49 | not recorded | 4 | 18.02.20 | viral | common cold/pharyngitis | Torbevirus | Genus |
| Z13-495 | 49 | not recorded | 3 | 06.04.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z13-510 | 46 | not recorded | 3 | 28.09.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z13-510 | 46 | not recorded | 3 | 28.09.20 | viral | common cold | Rhinovirus A | Species |
| Z13-510 | 46 | not recorded | 3 | 28.09.20 | viral | common cold | Papillomaviridae | Family |
| Z13-510 | 46 | not recorded | 3 | 28.09.20 | viral | common cold | Human betaherpesvirus 6B | Species |
| Z13-589 | 27 | not recorded | 5 | 20.02.20 | viral | acute bronchitis | Influenza B virus | Species |
| Z13-664 | 37 | not | not recorded | 20.01.20 | viral | common cold | Human orthopneumovirus | Species |

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| | | recorded | | | | | | |
| Z13-664 | 37 | not recorded | not recorded | 20.01.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z13-664 | 37 | not recorded | not recorded | 20.01.20 | viral | common cold | Torbevirus | Genus |
| Z13-664 | 37 | not recorded | not recorded | 20.01.20 | viral | common cold | Circoviridae | Family |
| Z13-719 | 43 | not recorded | 6 | 21.01.20 | viral | common cold/acute bronchitis | Human gammaherpesvirus 4 | Species |
| Z13-719 | 43 | not recorded | 6 | 21.01.20 | viral | common cold/acute bronchitis | Human betaherpesvirus 7 | Species |
| Z13-719 | 43 | not recorded | 6 | 21.01.20 | viral | common cold/acute bronchitis | Torbevirus | Genus |
| Z13-739 | 41 | not recorded | 2 | 13.10.20 | viral | coronavirus infection | Rhinovirus A | Species |
| Z13-757 | 76 | 38.2 | 2 | 30.01.20 | viral | common cold | Influenza A virus | Species |
| Z13-825 | 18 | not recorded | 2 | 19.10.20 | viral | common cold | Rhinovirus B | Species |
| Z13-892 | 52 | not recorded | 4 | 21.02.20 | viral | acute bronchitis | Human coronavirus NL63 | Species |
| Z13-892 | 52 | not recorded | 4 | 21.02.20 | viral | acute bronchitis | Human betaherpesvirus 7 | Species |
| Z13-892 | 52 | not recorded | 4 | 21.02.20 | viral | acute bronchitis | Anelloviridae | Family |
| Z13-892 | 52 | not recorded | 4 | 21.02.20 | viral | acute bronchitis | Torbevirus | Genus |
| Z13-892 | 52 | not recorded | 4 | 21.02.20 | viral | acute bronchitis | Circoviridae | Family |
| Z13-892 | 52 | not recorded | 4 | 21.02.20 | viral | acute bronchitis | Papillomaviridae | Family |
| Z13-968 | 20 | 39 | 4 | 03.03.20 | viral | not specified | Influenza A virus | Species |
| Z13-968 | 20 | 39 | 4 | 03.03.20 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z14-231 | 42 | 37.5 | 4 | 20.01.20 | viral | influenza | negative | not available |
| Z14-261 | 76 | not recorded | 7 | 20.10.20 | viral | common cold | Rhinovirus C | Species |
| Z14-261 | 76 | not recorded | 7 | 20.10.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z14-294 | 21 | not | 4 | 07.10.20 | viral | common cold | Human betaherpesvirus 7 | Species |

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| | | rec-orded | | | | | | |
| Z14-294 | 21 | not rec-orded | 4 | 07.10.20 | viral | common cold | Rhinovirus B | Species |
| Z14-294 | 21 | not rec-orded | 4 | 07.10.20 | viral | common cold | Human betaherpesvirus 6B | Species |
| Z14-332 | 23 | not rec-orded | 3 | 29.09.20 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z14-332 | 23 | not rec-orded | 3 | 29.09.20 | viral | pharyngitis | Rhinovirus B | Species |
| Z14-385 | 65 | 36.6 | 1 | 21.01.20 | viral | upper and lower RTI | Human metapneumovirus | Species |
| Z14-415 | 18 | 36.4 | 2 | 06.04.20 | viral | not specified | Severe acute respiratory syndrome-related corona-virus | Species |
| Z14-415 | 18 | 36.4 | 2 | 06.04.20 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z14-437 | 50 | 36.9 | 5 | 29.01.20 | viral | influenza | Human betaherpesvirus 7 | Species |
| Z14-437 | 50 | 36.9 | 5 | 29.01.20 | viral | influenza | Human coronavirus HKU1 | Species |
| Z14-602 | 47 | 36.4 | 7 | 23.09.20 | viral | acute sinusitis/pharyngi-tis/exacerbated asthma | Human gammaherpesvi-rus 4 | Species |
| Z14-764 | 70 | not rec-orded | 10 | 03.02.20 | bacterial | pneumonia | negative | not availa-ble |
| Z14-920 | 26 | not rec-orded | 1 | 20.10.20 | viral | covid | Severe acute respiratory syndrome-related corona-virus | Species |
| Z14-920 | 26 | not rec-orded | 1 | 20.10.20 | viral | covid | Torbevirus | Genus |
| Z14-920 | 26 | not rec-orded | 1 | 20.10.20 | viral | covid | Human betaherpesvirus 7 | Species |
| Z14-920 | 26 | not rec-orded | 1 | 20.10.20 | viral | covid | Circoviridae | Family |
| Z15-276 | 54 | 35.9 | 5 | 14.11.19 | viral | common cold | negative | not availa-ble |
| Z15-290 | 40 | 39.4 | 5 | 22.01.20 | viral | common cold | negative | not availa-ble |
| Z15-301 | 40 | 35.9 | 5 | 05.02.20 | viral | influenza | negative | not availa-ble |
| Z15-647 | 44 | not rec-orded | 4 | 27.11.19 | viral | pharyngitis | Rhinovirus A | Species |
| Z15-744 | 37 | 36.2 | not rec-orded | 11.11.19 | viral | common cold/acute bron-chitis/influenza | Human mastadenovirus C | Species |
| Z15-810 | 49 | not rec-orded | 4 | 20.01.20 | viral | influenza | Human betaherpesvirus 7 | Species |

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| Z15-835 | 43 | 36.5 | not recorded | 03.02.20 | viral | influenza | Influenza A virus | Species |
| Z15-884 | 50 | 37.5 | not recorded | 02.12.19 | viral | acute bronchitis/influenza | negative | not available |
| Z15-930 | 77 | 36.3 | 14 | 11.11.19 | viral | acute bronchitis | negative | not available |
| Z16-148 | 76 | 37.7 | 5 | 25.05.20 | viral | not specified | negative | not available |
| Z16-215 | 18 | 36.6 | 4 | 16.01.20 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z16-336 | 48 | 36.7 | 2 | 17.06.20 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z16-351 | 42 | 37.5 | 4 | 27.01.20 | viral | common cold | Human orthopneumovirus | Species |
| Z16-352 | 39 | 36.3 | 4 | 13.08.20 | viral | not specified | Human betaherpesvirus 7 | Species |
| Z16-387 | 25 | 37.1 | 2 | 08.01.20 | viral | common cold | Human coronavirus HKU1 | Species |
| Z16-387 | 25 | 37.1 | 2 | 08.01.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z16-387 | 25 | 37.1 | 2 | 08.01.20 | viral | common cold | Human gammaherpesvirus 4 | Species |
| Z16-387 | 25 | 37.1 | 2 | 08.01.20 | viral | common cold | Torbevirus | Genus |
| Z16-387 | 25 | 37.1 | 2 | 08.01.20 | viral | common cold | Circoviridae | Family |
| Z16-387 | 25 | 37.1 | 2 | 08.01.20 | viral | common cold | Human betaherpesvirus 6B | Species |
| Z16-445 | 27 | 36.7 | 9 | 11.08.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z16-506 | 21 | not recorded | 3 | 08.04.20 | bacterial | pharyngitis | Human betaherpesvirus 7 | Species |
| Z16-516 | 53 | 36.9 | 2 | 29.04.20 | not specified | exacerbated COPD/asthma | Papillomaviridae | Family |
| Z16-569 | 33 | 37.2 | 2 | 11.06.20 | viral | common cold | Rhinovirus A | Species |
| Z16-576 | 76 | 36.6 | 10 | 16.01.20 | viral | common cold | Influenza A virus | Species |
| Z16-580 | 68 | 36.9 | 4 | 13.01.20 | viral | common cold | Human gammaherpesvirus 4 | Species |
| Z16-644 | 45 | not recorded | 3 | 22.06.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z16-695 | 57 | 36.5 | 7 | 17.01.20 | viral | common cold/acute bronchitis | negative | not available |
| Z16-709 | 39 | 37.2 | 3 | 06.07.20 | viral | pharyngitis | negative | not available |
| Z16-724 | 47 | 36.3 | 44 | 16.01.20 | viral | common cold | negative | not available |
| Z16-891 | 33 | 36.6 | 5 | 22.01.20 | viral | acute bronchitis | Rhinovirus A | Species |
| Z16-891 | 33 | 36.6 | 5 | 22.01.20 | viral | acute bronchitis | Human betaherpesvirus 7 | Species |
| Z16-948 | 19 | 37.5 | 2 | 09.01.20 | bacterial | pharyngitis | Human betaherpesvirus 7 | Species |
| Z16-948 | 19 | 37.5 | 2 | 09.01.20 | bacterial | pharyngitis | Anelloviridae | Family |
| Z16-973 | 36 | 36.7 | 14 | 19.12.19 | viral | common cold | negative | not available |
| Z16-985 | 49 | 37 | 3 | 01.04.20 | viral | common cold | Rhinovirus A | Species |
| Z17-170 | 41 | 37.4 | 5 | 20.02.20 | viral | acute bronchitis/influenza | Influenza A virus | Species |

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| Z17-308 | 46 | 38.3 | 2 | 15.01.20 | viral | influenza | Influenza B virus | Species |
| Z17-308 | 46 | 38.3 | 2 | 15.01.20 | viral | influenza | Gammapapillomavirus 15 | Species |
| Z17-308 | 46 | 38.3 | 2 | 15.01.20 | viral | influenza | Human betaherpesvirus 7 | Species |
| Z17-379 | 25 | not recorded | not recorded | 25.05.20 | viral | common cold/allergy | negative | not available |
| Z17-524 | 34 | 36.9 | 5 | 29.01.20 | viral | influenza | Influenza A virus | Species |
| Z17-615 | 36 | 37.2 | 3 | 15.04.20 | viral | other viral infection | Human betaherpesvirus 7 | Species |
| Z17-641 | 32 | 39.4 | 3 | 07.07.20 | viral | common cold | Human betaherpesvirus 6B | Species |
| Z17-653 | 39 | 37.3 | 7 | 08.04.20 | viral | covid | negative | not available |
| Z17-658 | 45 | 37.1 | not recorded | 07.04.20 | viral | common cold | negative | not available |
| Z17-665 | 30 | 39 | 1 | 25.02.20 | viral | influenza | Influenza B virus | Species |
| Z17-665 | 30 | 39 | 1 | 25.02.20 | viral | influenza | Human betaherpesvirus 7 | Species |
| Z17-672 | 34 | 37.4 | 3 | 18.12.19 | bacterial | pharyngitis | negative | not available |
| Z17-707 | 39 | 38.3 | 1 | 07.01.20 | bacterial | angina plaut-vincent | Pegivirus | Genus |
| Z17-707 | 39 | 38.3 | 1 | 07.01.20 | bacterial | angina plaut-vincent | Torbevirus | Genus |
| Z17-707 | 39 | 38.3 | 1 | 07.01.20 | bacterial | angina plaut-vincent | Circoviridae | Family |
| Z17-708 | 42 | 37.8 | 2 | 10.01.20 | viral | common cold/tropical disease | Influenza A virus | Species |
| Z17-778 | 34 | 36.7 | 1 | 15.10.20 | bacterial | pharyngitis | negative | not available |
| Z17-782 | 37 | 37.2 | 7 | 25.05.20 | viral | not specified | negative | not available |
| Z17-796 | 32 | 36.8 | 5 | 18.12.19 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z17-796 | 32 | 36.8 | 5 | 18.12.19 | viral | pharyngitis | Human betaherpesvirus 6B | Species |
| Z17-817 | 38 | 37.2 | 2 | 02.09.20 | viral | coronavirus infection | Severe acute respiratory syndrome-related coronavirus | Species |
| Z17-841 | 44 | 37.7 | 8 | 22.04.20 | bacterial | pneumonia | negative | not available |
| Z17-861 | 33 | 37.8 | 3 | 20.04.20 | viral | pharyngitis | Human alphaherpesvirus 1 | Species |
| Z17-898 | 61 | 37.9 | not recorded | 09.01.20 | viral | influenza | Influenza A virus | Species |
| Z17-924 | 35 | 37.3 | 5 | 19.02.20 | viral | common cold/influenza | negative | not available |
| Z18-327 | 44 | 36.4 | 7 | 28.01.20 | bacterial | streptococcal pharyngitis | negative | not available |
| Z18-356 | 39 | 36.8 | 5 | 27.01.20 | viral | pharyngitis | negative | not available |

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| Z18-492 | 56 | 35.6 | not recorded | 17.02.20 | viral | acute bronchitis/obstructive bronchitis | negative | not available |
| Z18-648 | 45 | 35.5 | not recorded | 12.02.20 | viral | pharyngitis/acute bronchitis | negative | not available |
| Z18-697 | 60 | 36.2 | 7 | 23.03.20 | viral | common cold | Severe acute respiratory syndrome-related coronavirus | Species |
| Z18-704 | 63 | 34.8 | 7 | 18.02.20 | viral | common cold/acute bronchitis | negative | not available |
| Z18-774 | 56 | 38 | 2 | 14.01.20 | bacterial | pneumonia | negative | not available |
| Z18-964 | 32 | 35.1 | 7 | 26.02.20 | viral | pharyngitis | negative | not available |
| Z18-972 | 39 | not recorded | 8 | 02.04.20 | viral | acute bronchitis/covid | Severe acute respiratory syndrome-related coronavirus | Species |
| Z19-178 | 36 | 36.5 | 3 | 21.02.20 | viral | acute bronchitis | Influenza B virus | Species |
| Z19-188 | 44 | 36.6 | 7 | 02.03.20 | bacterial | acute bronchitis | negative | not available |
| Z19-498 | 36 | not recorded | 7 | 07.02.20 | viral | not specified | Human gammaherpesvirus 4 | Species |
| Z19-532 | 64 | not recorded | 7 | 31.01.20 | viral | acute bronchitis | Human metapneumovirus | Species |
| Z19-714 | 38 | 36.8 | 7 | 24.02.20 | bacterial | acute bronchitis | Rhinovirus A | Species |
| Z19-714 | 38 | 36.8 | 7 | 24.02.20 | bacterial | acute bronchitis | Human betaherpesvirus 7 | Species |
| Z19-714 | 38 | 36.8 | 7 | 24.02.20 | bacterial | acute bronchitis | Circoviridae | Family |
| Z19-714 | 38 | 36.8 | 7 | 24.02.20 | bacterial | acute bronchitis | Human betaherpesvirus 6B | Species |
| Z19-714 | 38 | 36.8 | 7 | 24.02.20 | bacterial | acute bronchitis | Torbevirus | Genus |
| Z19-865 | 22 | 38.5 | 1 | 10.02.20 | viral | influenza | Influenza A virus | Species |
| Z19-865 | 22 | 38.5 | 1 | 10.02.20 | viral | influenza | Human betaherpesvirus 7 | Species |
| Z19-876 | 72 | 38.5 | 4 | 03.02.20 | bacterial | acute bronchitis | Influenza A virus | Species |
| Z19-896 | 74 | not recorded | not recorded | 09.03.20 | bacterial | acute bronchitis | negative | not available |
| Z19-931 | 20 | 35.8 | 4 | 06.02.20 | viral | pharyngitis | Rhinovirus A | Species |
| Z19-931 | 20 | 35.8 | 4 | 06.02.20 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z19-931 | 20 | 35.8 | 4 | 06.02.20 | viral | pharyngitis | Human betaherpesvirus 6B | Species |
| Z20-113 | 39 | 35.8 | 7 | 26.05.20 | viral | acute sinusitis | Rhinovirus A | Species |
| Z20-189 | 25 | 36.8 | 1 | 19.06.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z20-202 | 39 | 36.2 | 2 | 03.02.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z20-229 | 26 | 37.8 | 4 | 23.06.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z20-242 | 45 | 37.4 | 5 | 06.02.20 | viral | acute bronchitis | negative | not available |

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| Z20-314 | 48 | 37.4 | 2 | 31.01.20 | viral | common cold | Influenza A virus | Species |
| Z20-314 | 48 | 37.4 | 2 | 31.01.20 | viral | common cold | Circoviridae | Family |
| Z20-314 | 48 | 37.4 | 2 | 31.01.20 | viral | common cold | Torbevirus | Genus |
| Z20-314 | 48 | 37.4 | 2 | 31.01.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z20-350 | 43 | 35.8 | 2 | 04.02.20 | viral | common cold | Influenza A virus | Species |
| Z20-350 | 43 | 35.8 | 2 | 04.02.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z20-360 | 65 | 37.3 | 6 | 16.06.20 | viral | common cold | negative | not available |
| Z20-362 | 38 | 38.1 | 2 | 03.11.20 | viral | covid | Human gammaherpesvirus 4 | Species |
| Z20-391 | 74 | 37.8 | 14 | 05.06.20 | viral | acute bronchitis | negative | not available |
| Z20-501 | 44 | 37.2 | 4 | 31.01.20 | viral | acute bronchitis | negative | not available |
| Z20-511 | 32 | 37.8 | 2 | 28.01.20 | viral | pharyngitis | Human betaherpesvirus 7 | Species |
| Z20-522 | 48 | 37.3 | 7 | 25.02.20 | viral | common cold | Human metapneumovirus | Species |
| Z20-522 | 48 | 37.3 | 7 | 25.02.20 | viral | common cold | Human betaherpesvirus 7 | Species |
| Z20-581 | 62 | 37.3 | 4 | 03.04.20 | viral | common cold | negative | not available |
| Z20-640 | 49 | 37.8 | 2 | 02.07.20 | viral | common cold | Rhinovirus A | Species |
| Z20-755 | 60 | 37.8 | 4 | 30.01.20 | viral | acute bronchitis | negative | not available |
| Z20-791 | 34 | 37.4 | 10 | 03.11.20 | viral | not specified | Severe acute respiratory syndrome-related coronavirus | Species |
| Z20-851 | 55 | 38.2 | 5 | 28.01.20 | viral | common cold | Human orthopneumovirus | Species |
| Z20-914 | 68 | 37.3 | 60 | 12.05.20 | viral | common cold | negative | not available |
| Z20-986 | 24 | 36.2 | 2 | 03.02.20 | viral | common cold | Human orthopneumovirus | Species |