# Supplementary Materials
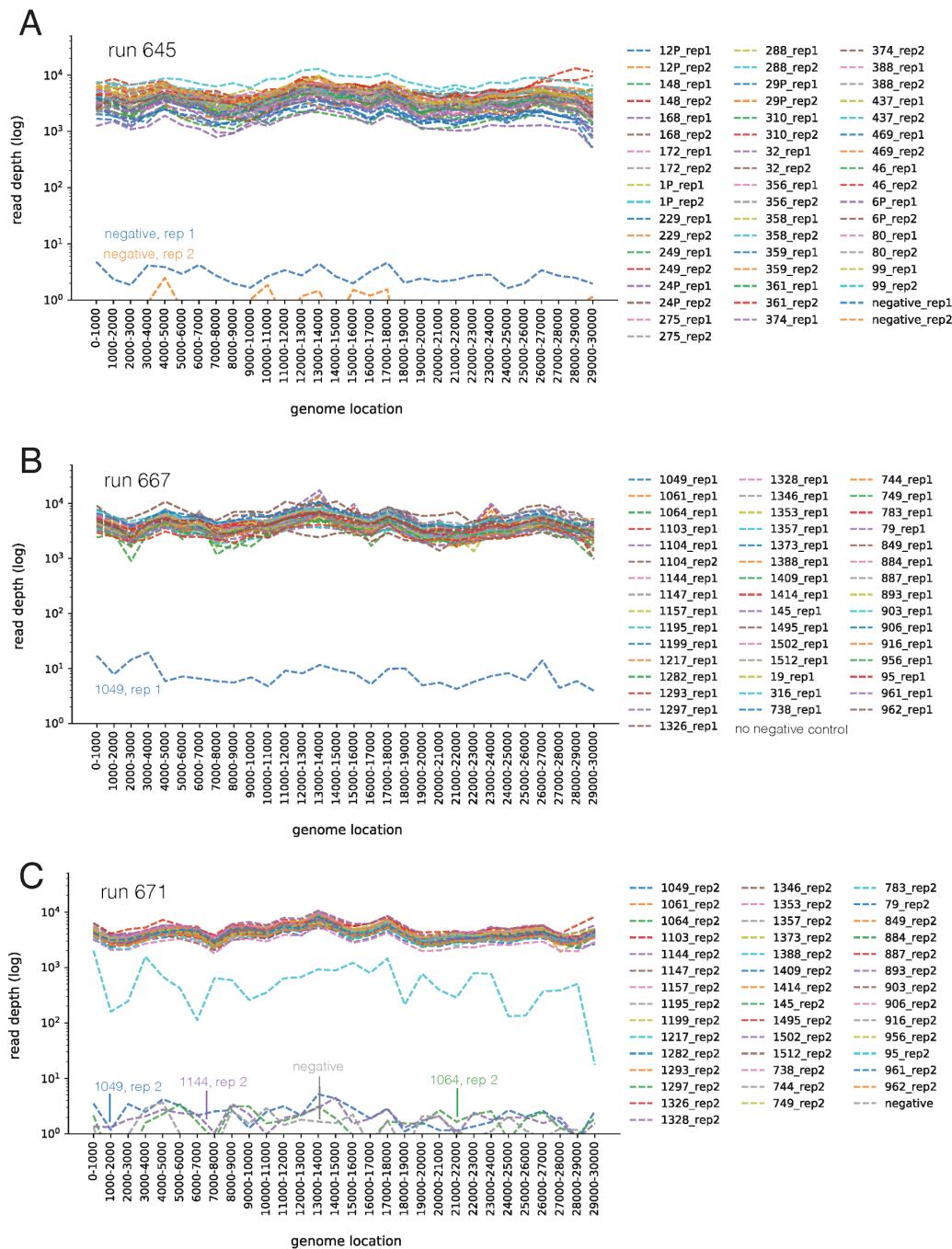

Supplemental Figure 1: Read depth

Read depth by genome location in 1,000-bp bins for MiSeq runs **a.** 627, **b**. 628, **c.** 643, and **d.** 644. Water controls and low-coverage samples are labeled. Samples included in each run are labeled according to the color to the right of each plot.
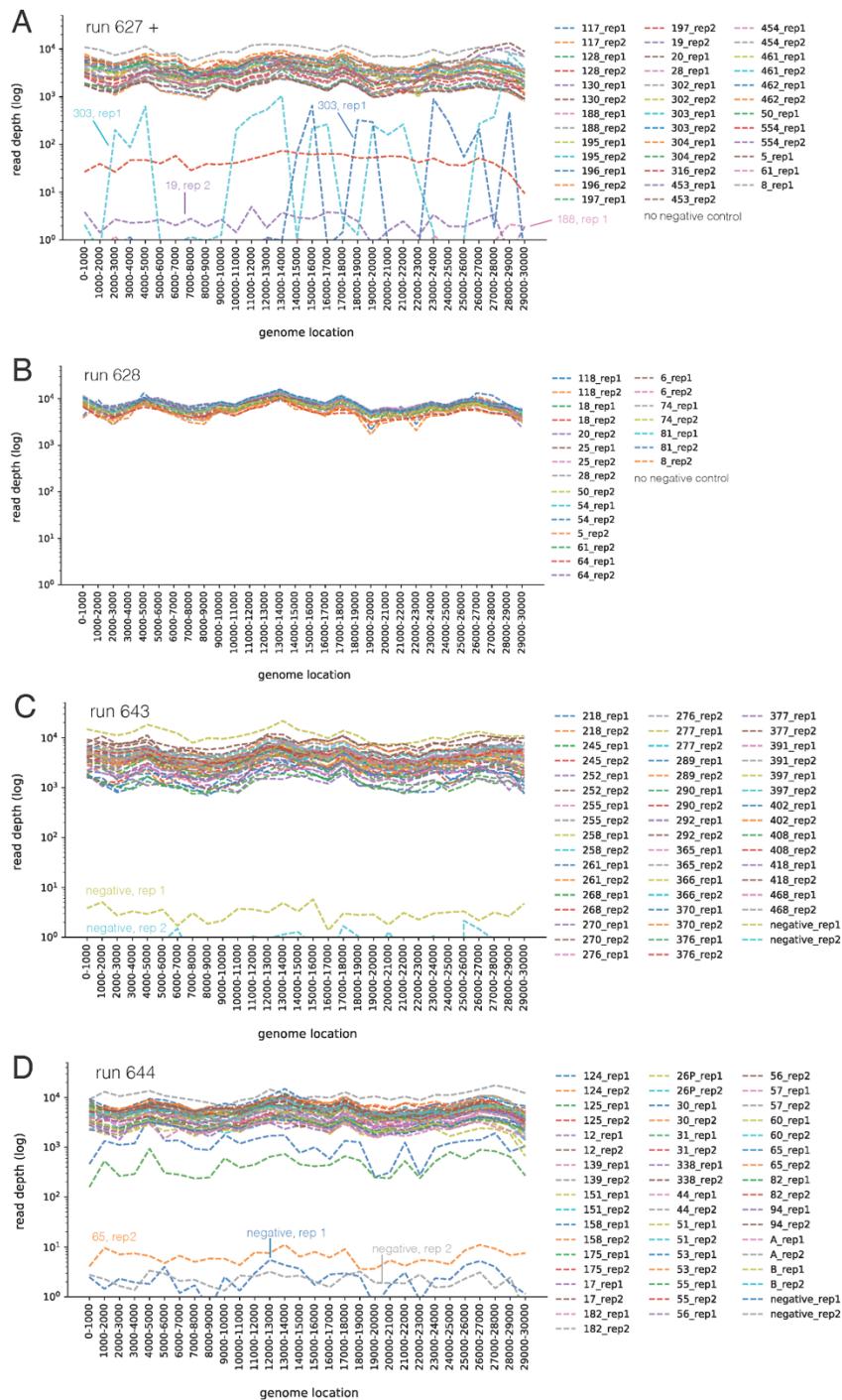
Supplemental Figure 2: Read depth

Read depth by genome location in 1,000-bp bins for MiSeq runs **a.** 645, **b**. 667, and **c.** 671. Water

controls and low-coverage samples are labeled within each plot. Samples included in each run are

labeled according to the color to the right of each plot.

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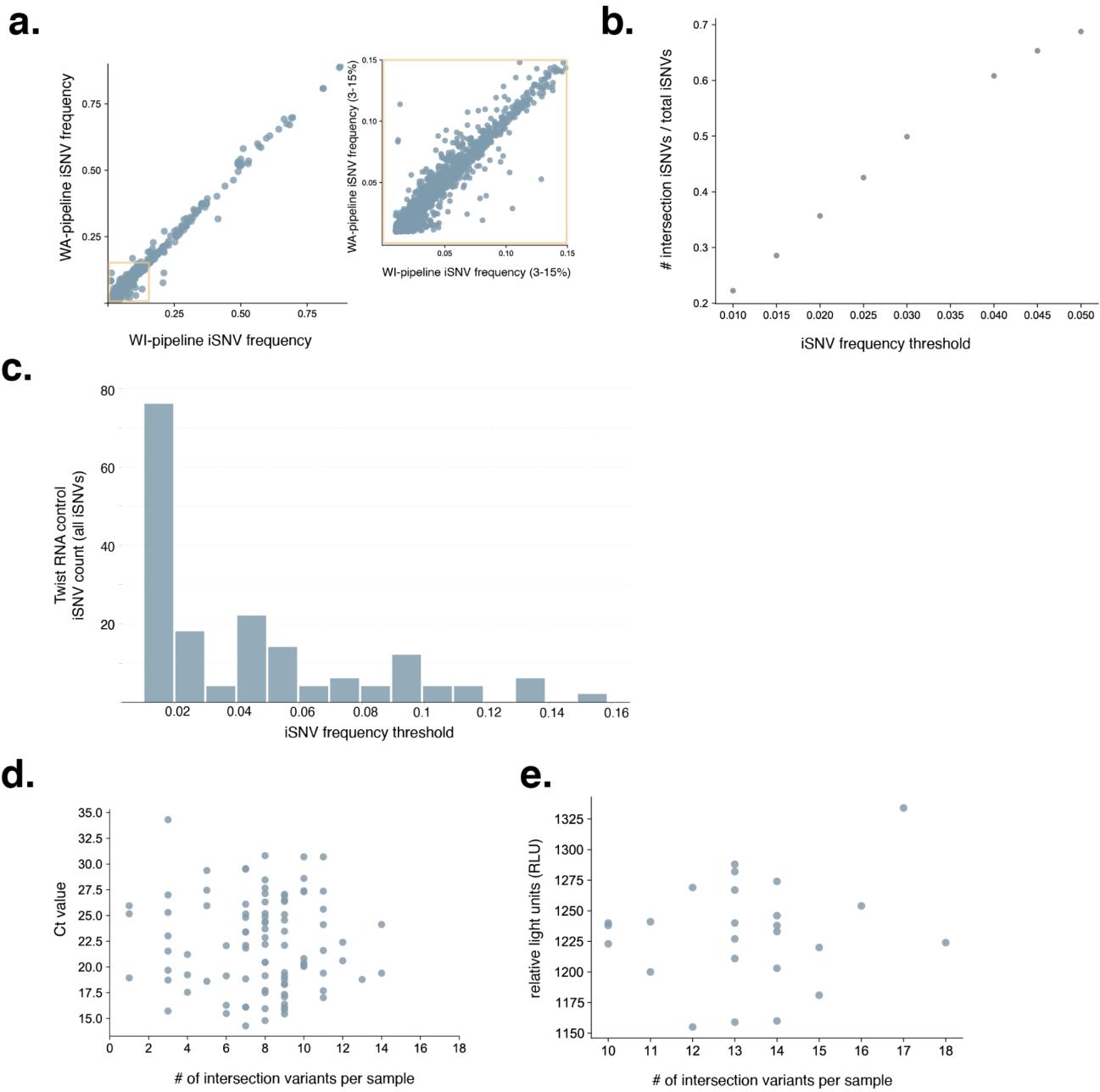
Supplemental Figure 3: Additional iSNV quality control information

Subplot **a**. shows variant frequencies generated using the Wisconsin bioinformatic pipelines are shown on

the x-axis and frequencies generated using the Washington bioinformatic pipeline are shown on the y-

axis. The yellow box highlights low-frequency variants (3-15%), which is expanded out to the right. **b**.

Proportion of intersection iSNVs relative to the total number of iSNVs increases as variant frequency

threshold increases. **c**. The total number of iSNVs detected across both Twist RNA control replicates

compared to the iSNV frequency threshold. The majority of iSNVs detected in these clonal samples occur

63   <3% frequency. Note that the iSNVs reported in **Supplemental Table 1** are intersection iSNVs only. The

64   identities of all iSNVs detected ≥1% frequency in the Twist RNA control can be found in the GitHub

65   accompanything this manuscript. **d.** The number of intersection variants is compared to the Ct value for

66   all samples where a Ct value was available. Out of 133 total samples, Ct values were available for 94. **e.**

67   The number of intersection variants is compared to the RLU (relative light unit) value for all samples

68   where a RLU value was available.

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$r^2 = 0.992$

iSNV frequency replicate #2 (all variants)

iSNV frequency replicate #1 (all variants)

b.

iSNV frequency replicate #2

iSNV frequency replicate #1
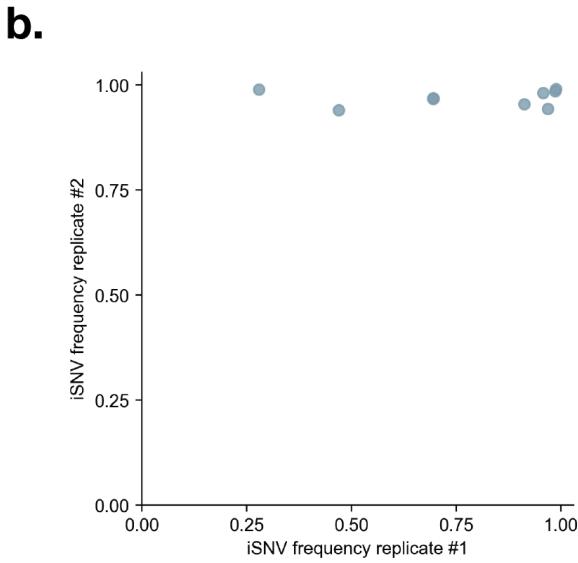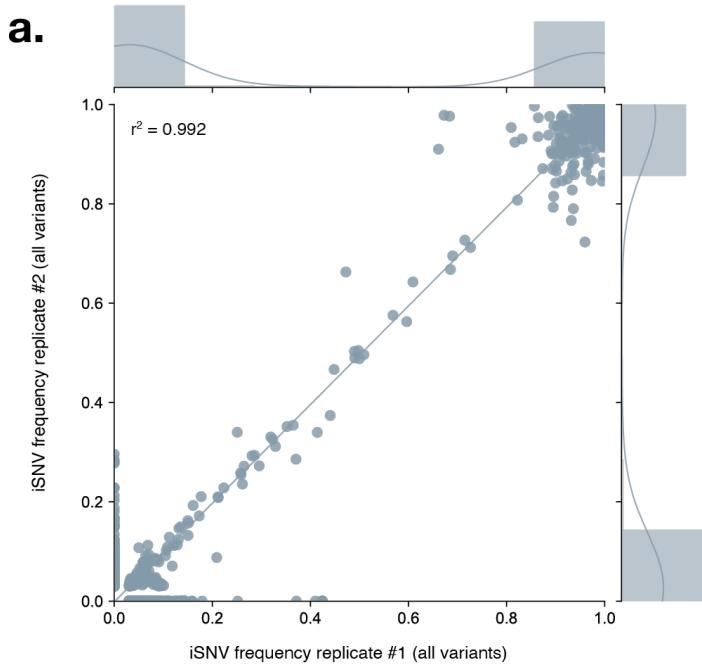
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91 **Supplemental Figure 4: iSNVs in technical replicates across all samples. a.** Variant frequencies in

92 replicate 1 are shown on the x-axis and frequencies in replicate 2 are shown on y-axis. This plot includes

93 all variants found in both replicates and not just the intersection variants as shown **Figure 1a**. **b.** Example

94 of one sample with very poor overlap between technical replicates; this sample (sample 1104) was

95 excluded from the experimental dataset.

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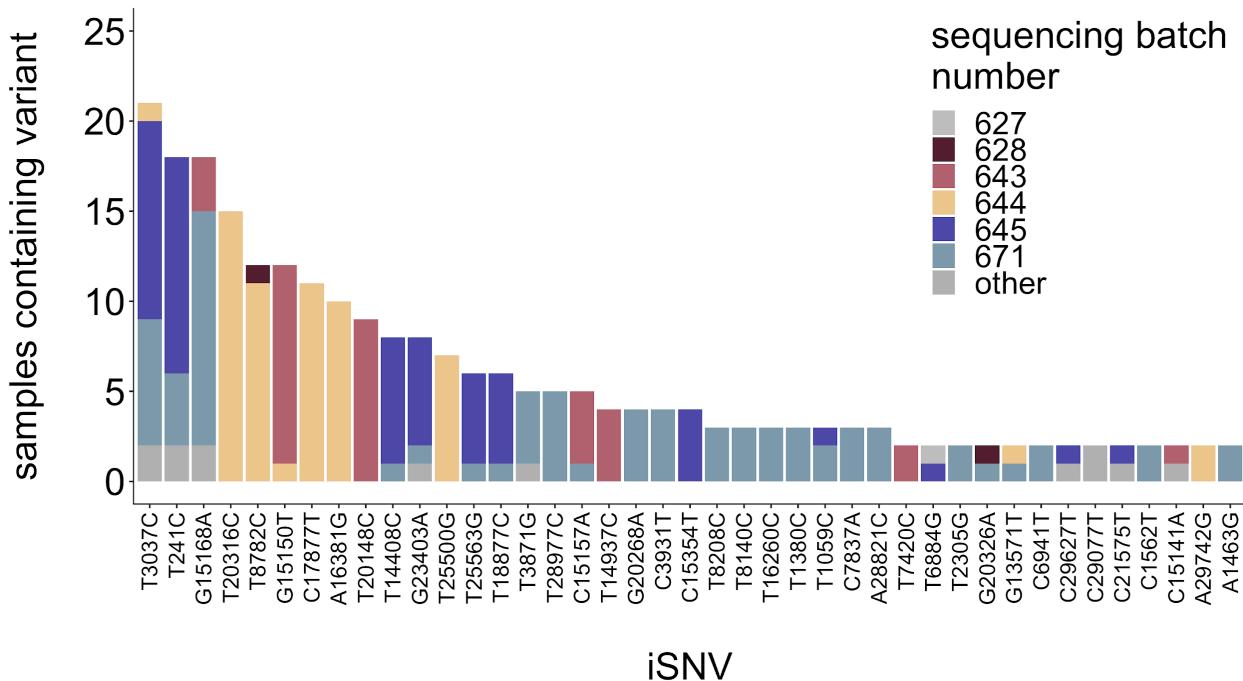
Supplemental Figure 5: iSNVs do not cluster by sequencing run. iSNVs detected in at least 2

samples are shown on the x-axis and are plotted against the number of times they are detected in our

dataset. Each iSNV bar is colored according to the number of times it was detected within each

sequencing batch.

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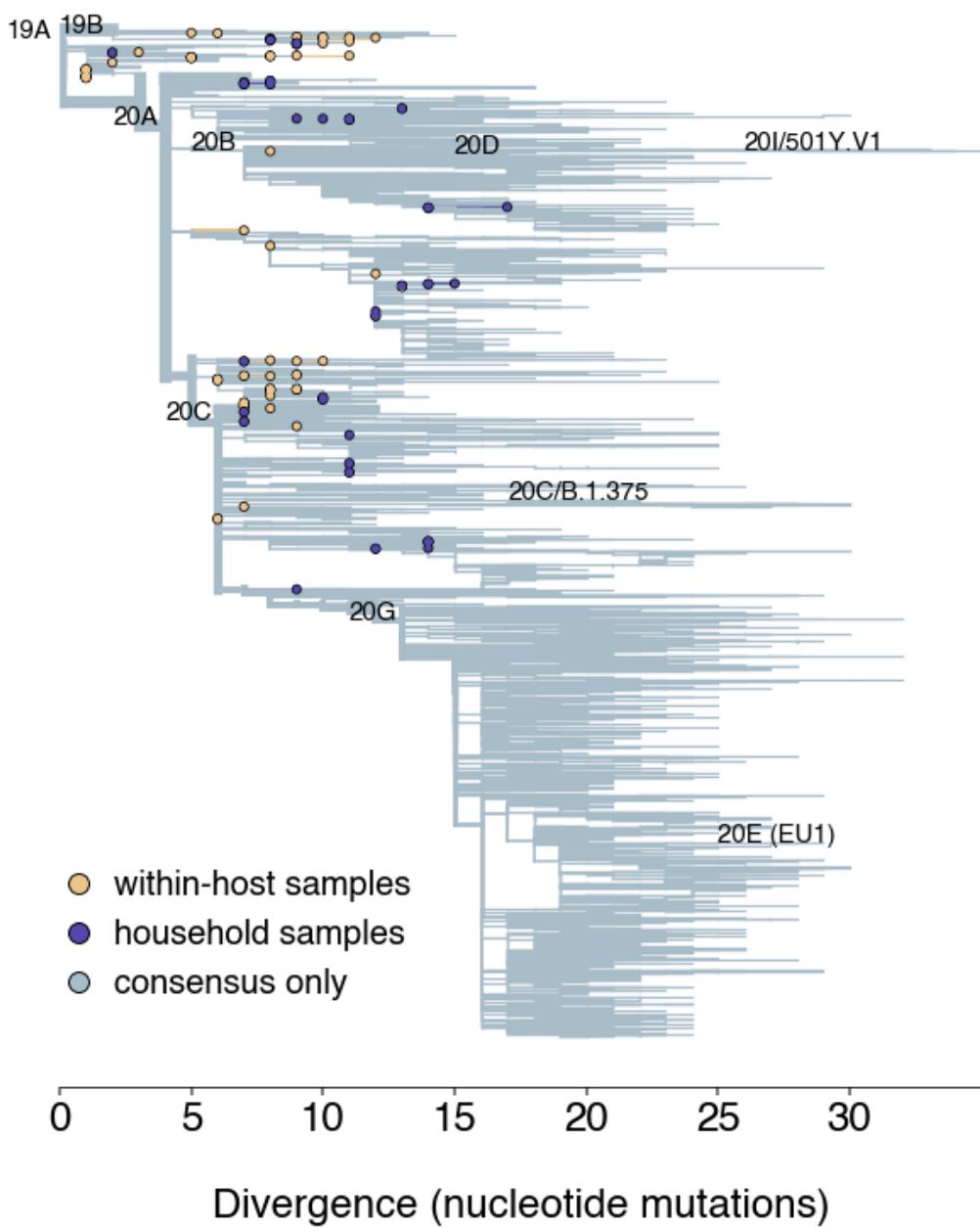
Supplemental Figure 6: Wisconsin divergence phylogeny

A full-genome phylogenetic tree built showing X Wisconsin consensus sequences with the Nextstrain

pipeline is shown. The x-axis represents divergence expressed as the number of nucleotide mutations.

Nextstrain clade labels are shown on the corresponding branch. Yellow tips represent Wisconsin samples

that were Illumina sequenced in duplicate and analyzed in this manuscript. Purple tips represent samples

from households.

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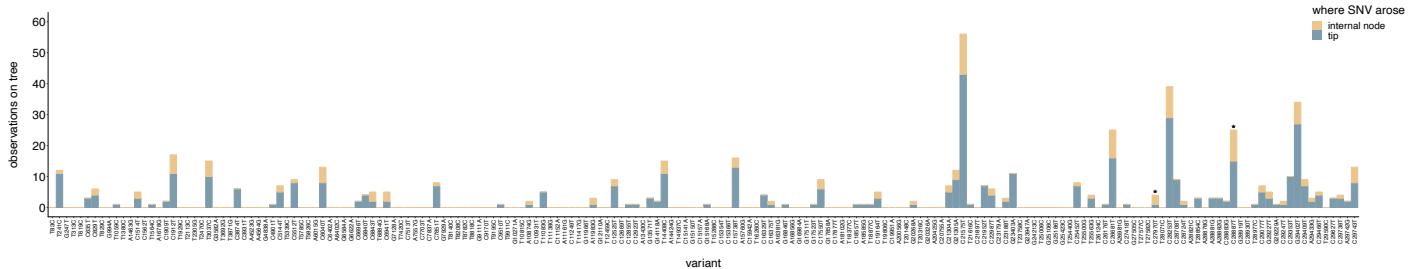
Supplemental Figure 7: Most iSNVs are not detected on the phylogeny

We queried every iSNV that was detected within-host (in at least 1 sample) in the global SARS-CoV-2

phylogenetic tree and quantified the number of times that iSNV was detected on an internal node (yellow

bar heights) or on a terminal node/tip (blue bar heights). Only approximately 1/3 of all SNVs detected

within-host were found on the tree, and none of the indels detected within-host were detected on the

phylogeny. Most SNVs that were detected on the tree were rare, and occurred predominantly on terminal

nodes. Please note you will likely need to zoom into this figure to clearly read the labels along the x-axis.

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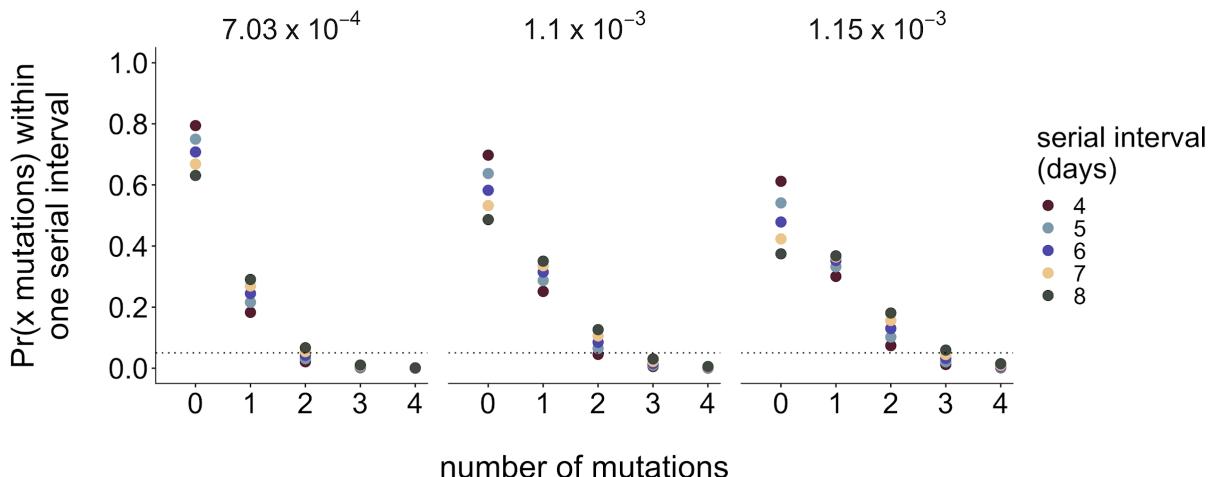
Supplemental Figure 8: Modeling the expected number of mutations distinguishing genomes

separated by one serial interval

To define whether infections sampled from the same household might be true transmission pairs, we explored the expected number of consensus mutations that should differ between genomes separated by one serial interval. We modeled the probability that 2 consensus genomes will share x mutations as Poisson distributed with lambda equal to the number of mutations expected to accumulate in the SARS-CoV-2 genome over a single serial interval, given a known substitution rate. He et al. estimate a serial interval for SARS-CoV-2 of of 5.8 days, with a 95% confidence interval between 4.8-6.8 days *(35)*. We therefore evaluated serial intervals of 4, 5, 6, 7, and 8 days. For the substitution rate, we use estimates from Duchene et al *(1)*, who estimate a mean substitution rate of 1.10×10^{-3} substitutions per site per year, with a 95% credible interval of 7.03×10^{-4} and 1.15×10^{-3}. We evaluated the probabilities that two consensus genomes differ by 0, 1, 2, 3, and 4 mutations given serial intervals ranging from 4-8, and clock rates at the mean, and upper and lower bounds of the 95% credible interval. For each calculated probability, the serial interval is represented by color and the substitution rate is shown above each plot. The dotted line represents a probability of 0.05. Given these combinations of values, the vast majority of consensus genomes are expected to differ by 0-2 mutations.
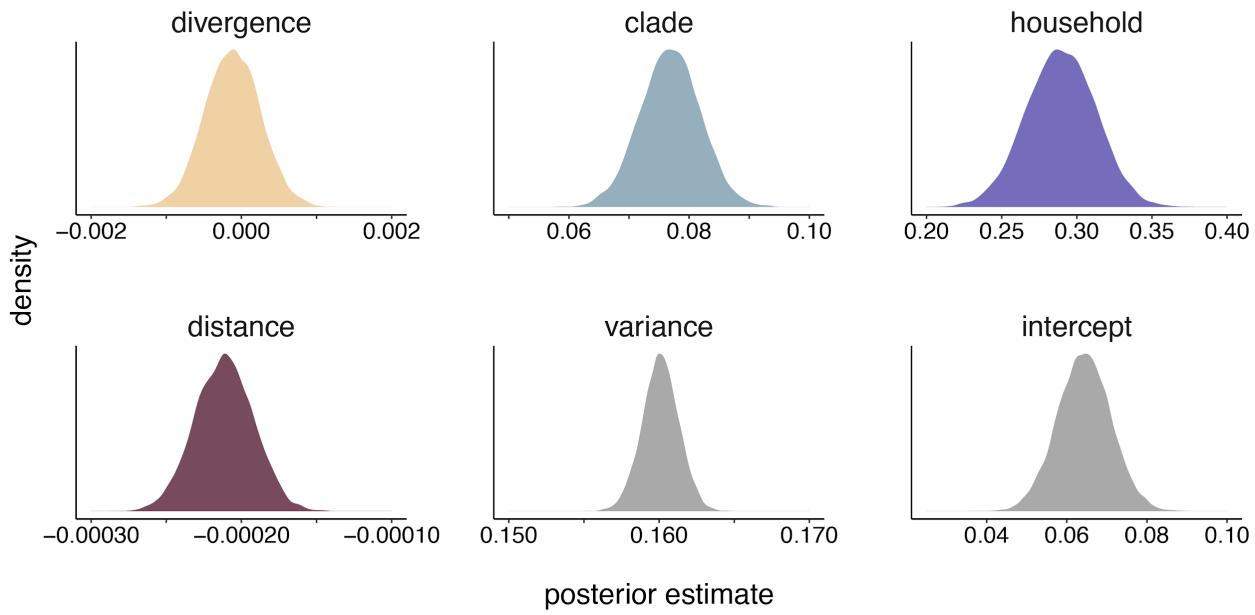
Supplemental Figure 9: Posterior density estimates for regression coefficients

For each regression coefficient evaluated in the combined regression model, the full posterior distribution is shown as a density plot. The posterior distribution of the estimated variance and intercept are also shown.
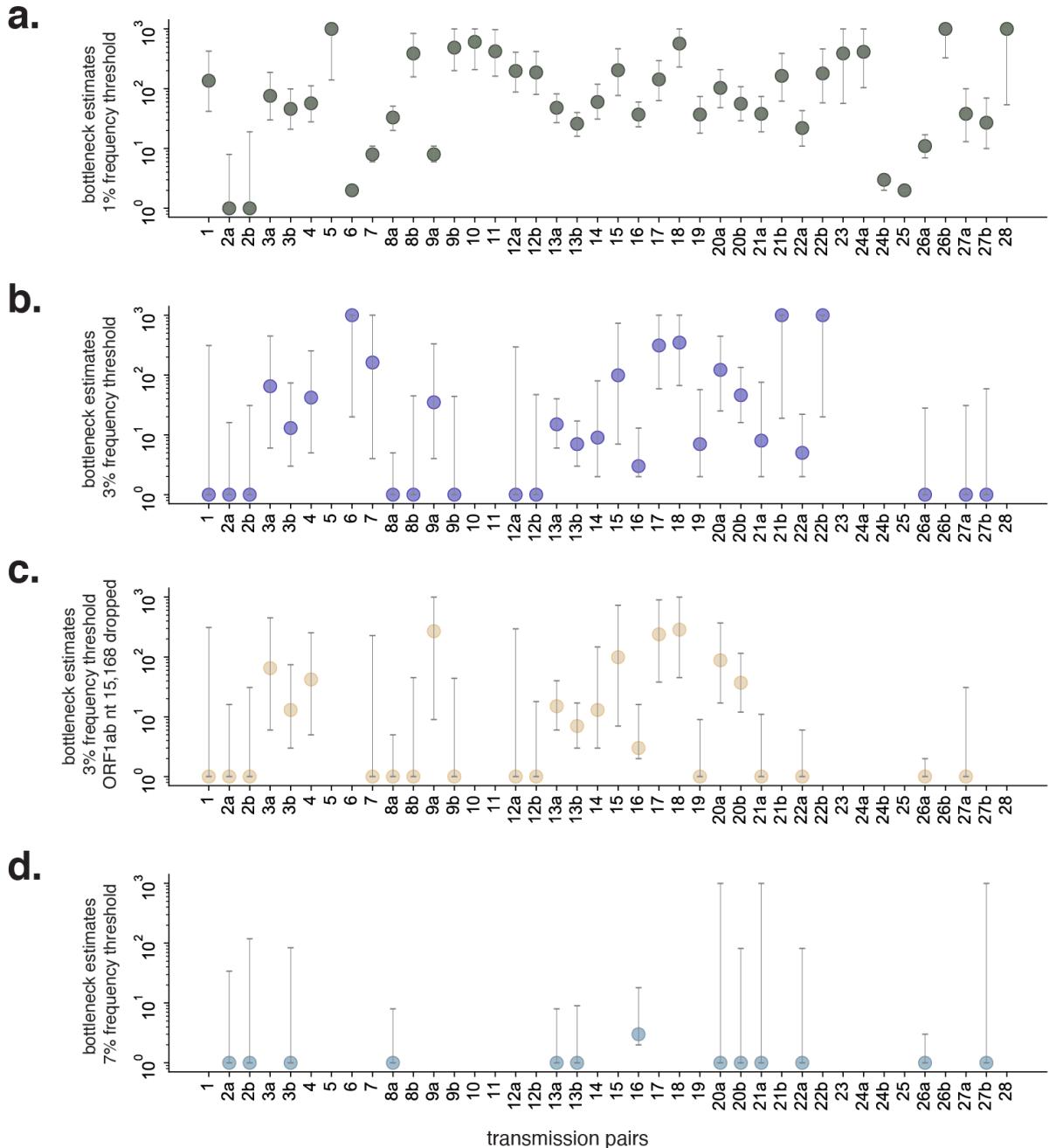
Supplemental Figure 10: Sensitivity testing of transmission bottleneck estimates

Maximum likelihood estimates for mean transmission bottleneck size in individual donor-recipient pairs using **a.** 1% frequency threshold, **b.** 3% frequency threshold, **c.** excluding site 15,168 as a possible homoplasy with a 3% frequency threshold, and **d.** 7% frequency threshold. Data are not shown for donor-recipient pairs where no bottleneck estimate could be generated due to lack of variant data. Bidirectional comparisons are indicated with an "a" and "b" following the pair number.

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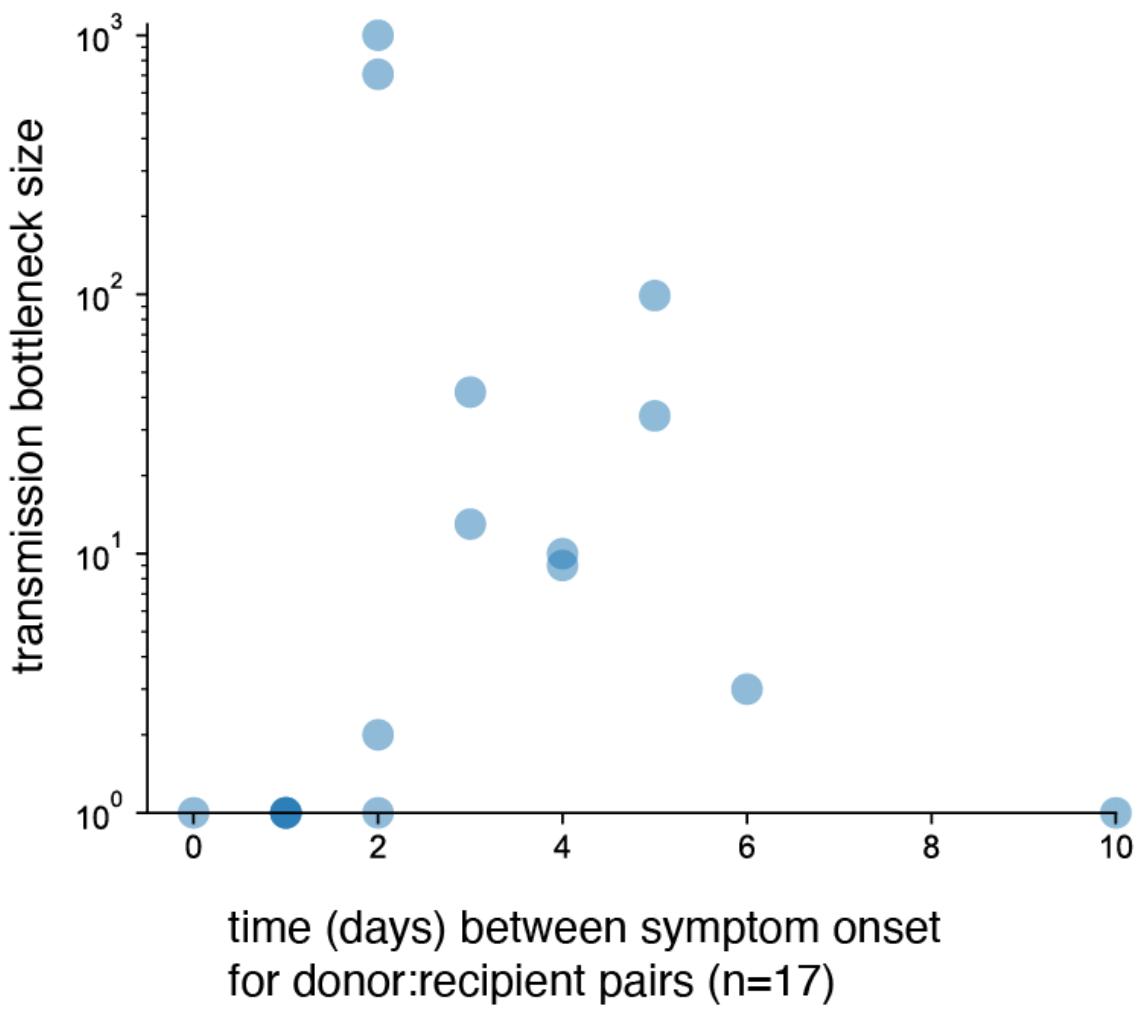
Supplemental Figure 11: Variance in transmission bottleneck size cannot be explained by time between symptom onset in donor:recipient pairs. We plotted transmission bottleneck size on the y-axis against time (days) between symptom onset in 17 donor-recipient pairs on the x-axis for which we had symptom metadata.

Supplemental Table 1. iSNVs detected in replicate sequencing of the synthetic RNA control (Twist-Biosciences).

		Mutation							
Gene	Reference amino acid	Amino acid position	Variant amino acid	Reference nucleotide	Nucleotide position	Variant nucleotide	rep1 percent	rep2 percent	Average percent
orf1ab	Ser	1029	Cys	A	3350	T	0.0406	0.0441	0.04235
orf1ab	Trp	2135	*Stop	G	6669	A	0.0304	0.0347	0.03255
orf1ab	Gly	2863	Val	G	8853	T	0.0103	0.011	0.01065
orf1ab	Thr	2967	Ser	A	9164	T	0.0125	0.0109	0.0117
M	Leu	90	*Stop	T	26791	A	0.1329	0.1368	0.13485
M	Met	90	Val	A	26793	G	0.1313	0.1354	0.13335
M	Trp	92	Arg	T	26796	A	0.131	0.1352	0.1331

Supplemental Table 2. Sample identifiers and accession numbers. This table includes strain name, tube/filename, state of collection, county of collection, collection date, GISAID accession number, Genbank accession number, as well as Ct values and RLU values where available for each sample included in this study.

Strain	Tube	State	County	Collection Date	GISAID Accession	Genbank Accession	Nanopore data BioProject	Illumina data BioProject	N1 Ct value	N2 Ct value	RLU
USA/WI-UW-06/2020	A	Wisconsin	Dane County	2020-3-21	EPI_ISL_417200	MT772088	PRJNA614504	PRJNA718341	26.53	27.29	-
USA/WI-UW-07/2020	B	Wisconsin	Dane County	2020-3-21	EPI_ISL_417201	MT772089	PRJNA614504	PRJNA718341	16.28	16.49	-
USA/WI-UW-11/2020	1P	Wisconsin	Dane County	2020-3-15	EPI_ISL_417505	MT706133	PRJNA614504	PRJNA718341	-	-	-
USA/WI-UW-29/2020	5	Wisconsin	Dane County	2020-3-24	EPI_ISL_421287	MT706150	PRJNA614504	PRJNA718341	16.14	16.05	-
USA/WI-UW-30/2020	6	Wisconsin	Columbia County	2020-3-26	EPI_ISL_421288	MT706151	PRJNA614504	PRJNA718341	24.76	25.41	-
USA/WI-UW-14/2020	6P	Wisconsin	Dane County	2020-3-16	EPI_ISL_417513	MT706136	PRJNA614504	PRJNA718341	-	-	-
USA/WI-UW-32/2020	8	Wisconsin	Dane County	2020-3-24	EPI_ISL_421290	MT706153	PRJNA614504	PRJNA718341	24.27	24.83	-
USA/WI-UW-34/2020	12	Wisconsin	Dane County	2020-3-26	EPI_ISL_421292	MT706155	PRJNA614504	PRJNA718341	27.81	29.4	-
USA/WI-UW-17/2020	12P	Wisconsin	Dane County	2020-3-13	EPI_ISL_417517	MT706139	PRJNA614504	PRJNA718341	-	-	-
USA/WI-UW-38/2020	17	Wisconsin	Dane County	2020-3-25	EPI_ISL_421296	MT706159	PRJNA614504	PRJNA718341	27.98	29.23	-
USA/WI-UW-40/2020	19	Wisconsin	Dane County	2020-3-24	EPI_ISL_421298	MT706161	PRJNA614504	PRJNA718341	23.52	24.46	-
USA/WI-UW-39/2020	18	Wisconsin	Dane County	2020-3-22	EPI_ISL_421297	MT706160	PRJNA614504	PRJNA718341	18.2	20.06	-
USA/WI-UW-41/2020	20	Wisconsin	Dane County	2020-3-25	EPI_ISL_421299	MT706162	PRJNA614504	PRJNA718341	24.32	25.31	-
USA/WI-UW-21/2020	24P	Wisconsin	Dane County	2020-3-16	EPI_ISL_417508	MT706142	PRJNA614504	PRJNA718341	-	-	-
USA/WI-UW-45/2020	25	Wisconsin	Dane County	2020-3-22	EPI_ISL_421303	MT706166	PRJNA614504	PRJNA718341	20.22	20.7	-
USA/WI-UW-22/2020	26P	Wisconsin	Dane County	2020-3-13	EPI_ISL_417514	MT706143	PRJNA614504	PRJNA718341	-	-	-
USA/WI-UW-48/2020	28	Wisconsin	Dane County	2020-3-25	EPI_ISL_421306	MT706169	PRJNA614504	PRJNA718341	23.02	23.79	-
USA/WI-UW-24/2020	29P	Wisconsin	Dane County	2020-3-15	EPI_ISL_417512	MT706145	PRJNA614504	PRJNA718341	-	-	-
USA/WI-UW-50/2020	30	Wisconsin	Green County	2020-3-25	EPI_ISL_421308	MT706171	PRJNA614504	PRJNA718341	19.13	19.78	-
USA/WI-UW-51/2020	31	Wisconsin	Dane County	2020-3-20	EPI_ISL_421309	MT706172	PRJNA614504	PRJNA718341	17.11	17.3	-

USA/WI-UW-52/2020	32	Wisconsin	Dane County	2020-3-18	EPI_ISL_421310	MT706173	PRJNA614504	PRJNA718341	15.98	16.57	-
USA/WI-UW-61/2020	44	Wisconsin	Dane County	2020-3-23	EPI_ISL_421319	MT706182	PRJNA614504	PRJNA718341	23.28	24.11	-
USA/WI-UW-63/2020	46	Wisconsin	Dane County	2020-3-24	EPI_ISL_421321	MT706184	PRJNA614504	PRJNA718341	24.54	25.21	-
USA/WI-UW-65/2020	50	Wisconsin	Dane County	2020-3-22	EPI_ISL_421323	MT706186	PRJNA614504	PRJNA718341	15.54	15.33	-
USA/WI-UW-66/2020	51	Wisconsin	Dane County	2020-3-24	EPI_ISL_421324	MT706187	PRJNA614504	PRJNA718341	26.52	27.61	-
USA/WI-UW-67/2020	53	Wisconsin	Dane County	2020-3-25	EPI_ISL_421325	MT706188	PRJNA614504	PRJNA718341	25.62	27.01	-
USA/WI-UW-68/2020	54	Wisconsin	Dane County	2020-3-24	EPI_ISL_421326	MT706189	PRJNA614504	PRJNA718341	15.96	16.13	-
USA/WI-UW-69/2020	55	Wisconsin	Dane County	2020-3-19	EPI_ISL_421327	MT706190	PRJNA614504	PRJNA718341	15.83	16.07	-
USA/WI-UW-70/2020	56	Wisconsin	Dane County	2020-3-19	EPI_ISL_421328	MT706191	PRJNA614504	PRJNA718341	20.12	20.77	-
USA/WI-UW-71/2020	57	Wisconsin	Dane County	2020-3-24	EPI_ISL_421329	MT706192	PRJNA614504	PRJNA718341	18.93	18.64	-
USA/WI-UW-73/2020	60	Wisconsin	Dane County	2020-3-24	EPI_ISL_421331	MT706194	PRJNA614504	PRJNA718341	23.69	24.93	-
USA/WI-UW-74/2020	61	Wisconsin	Dane County	2020-3-20	EPI_ISL_421332	MT706195	PRJNA614504	PRJNA718341	14.19	14.36	-
USA/WI-UW-76/2020	64	Wisconsin	Dane County	2020-3-22	EPI_ISL_421334	MT706197	PRJNA614504	PRJNA718341	17.49	17.59	-
USA/WI-UW-77/2020	65	Wisconsin	Dane County	2020-3-19	EPI_ISL_421335	MT706198	PRJNA614504	PRJNA718341	20.19	20.65	-
USA/WI-UW-84/2020	74	Wisconsin	Dane County	2020-3-24	EPI_ISL_421343	MT706205	PRJNA614504	PRJNA718341	23.12	23.82	-
USA/WI-UW-85/2020	79	Wisconsin	Dane County	2020-4-2	EPI_ISL_425142	MT706206	PRJNA614504	PRJNA718341	24.4	-	-
USA/WI-UW-86/2020	80	Wisconsin	Dane County	2020-4-2	EPI_ISL_425143	MT706207	PRJNA614504	PRJNA718341	22.1	-	-
USA/WI-UW-87/2020	81	Wisconsin	Dane County	2020-4-2	EPI_ISL_425144	MT706208	PRJNA614504	PRJNA718341	22.1	-	-
USA/WI-UW-88/2020	82	Wisconsin	Dane County	2020-4-5	EPI_ISL_425145	MT706209	PRJNA614504	PRJNA718341	25.29	25.93	-
USA/WI-UW-96/2020	94	Wisconsin	Dane County	2020-4-1	EPI_ISL_425153	MT706216	PRJNA614504	PRJNA718341	17.33	18.05	-
USA/WI-UW-97/2020	95	Wisconsin	Dane County	2020-3-30	EPI_ISL_425154	MT706217	PRJNA614504	PRJNA718341	27.3	-	-
USA/WI-UW-99/2020	99	Wisconsin	Dane County	2020-4-2	EPI_ISL_425156	MT706219	PRJNA614504	PRJNA718341	18.8	-	-

USA/WI-UW-110/2020	117	Wisconsin	Dane County	2020-3-31	EPI_ISL_425167	MT706230	PRJNA614504	PRJNA718341	22.2	-	-
USA/WI-UW-111/2020	118	Wisconsin	Dane County	2020-3-31	EPI_ISL_425168	MT706231	PRJNA614504	PRJNA718341	25.61	26.29	-
USA/WI-UW-116/2020	124	Wisconsin	Dane County	2020-3-30	EPI_ISL_425173	MT706236	PRJNA614504	PRJNA718341	31.81	33.31	-
USA/WI-UW-117/2020	125	Wisconsin	Dane County	2020-3-30	EPI_ISL_425174	MT706237	PRJNA614504	PRJNA718341	28.2	-	-
USA/WI-UW-119/2020	128	Wisconsin	Dane County	2020-4-10	EPI_ISL_425176	MT706239	PRJNA614504	PRJNA718341	14.76	14.82	-
USA/WI-UW-120/2020	130	Wisconsin	Dane County	2020-4-13	EPI_ISL_427427	MT706240	PRJNA614504	PRJNA718341	18.3	-	-
USA/WI-UW-255/2020	139	Wisconsin	Dane County	2020-4-2	EPI_ISL_428729	MT706248	PRJNA614504	PRJNA718341	-	-	-
USA/WI-UW-124/2020	145	Wisconsin	Dane County	2020-4-7	EPI_ISL_427431	MT706252	PRJNA614504	PRJNA718341	17.5	-	-
USA/WI-UW-127/2020	148	Wisconsin	Dane County	2020-4-7	EPI_ISL_427434	MT706255	PRJNA614504	PRJNA718341	19.1	-	-
USA/WI-UW-129/2020	151	Wisconsin	Dane County	2020-4-6	EPI_ISL_427436	MT706257	PRJNA614504	PRJNA718341	30.7	-	-
USA/WI-UW-132/2020	158	Wisconsin	Rock County	2020-4-10	EPI_ISL_427439	MT706260	PRJNA614504	PRJNA718341	17.1	-	-
USA/WI-UW-140/2020	168	Wisconsin	Dane County	2020-4-9	EPI_ISL_427447	MT706268	PRJNA614504	PRJNA718341	21.43	-	-
USA/WI-UW-144/2020	172	Wisconsin	Dane County	2020-4-6	EPI_ISL_427451	MT706272	PRJNA614504	PRJNA718341	23.92	24.31	-
USA/WI-UW-146/2020	175	Wisconsin	Dane County	2020-4-6	EPI_ISL_427453	MT706274	PRJNA614504	PRJNA718341	26.1	-	-
USA/IL-UW-149/2020	182	Illinois	Winnebago County	2020-4-7	EPI_ISL_427456	MT706277	PRJNA614504	PRJNA718341	12.6	-	-
USA/WI-UW-154/2020	188	Wisconsin	Monroe County	2020-4-12	EPI_ISL_427461	MT706282	PRJNA614504	PRJNA718341	21.5	-	-
USA/WI-UW-158/2020	195	Wisconsin	Milwaukee County	2020-3-15	EPI_ISL_428254	MT706286	PRJNA614504	PRJNA718341	23.93	24.33	-
USA/WI-UW-159/2020	196	Wisconsin	Milwaukee County	2020-3-15	EPI_ISL_428255	MT706287	PRJNA614504	PRJNA718341	20.57	21.06	-
USA/WI-UW-160/2020	197	Wisconsin	Milwaukee County	2020-3-15	EPI_ISL_428256	MT706288	PRJNA614504	PRJNA718341	18.6	19.08	-
USA/WI-UW-179/2020	218	Wisconsin	Milwaukee County	2020-3-21	EPI_ISL_428275	MT706307	PRJNA614504	PRJNA718341	19.89	18.58	-
USA/WI-UW-188/2020	229	Wisconsin	Milwaukee County	2020-3-23	EPI_ISL_428284	MT706316	PRJNA614504	PRJNA718341	30.05	29.06	-
USA/WI-UW-201/2020	245	Wisconsin	Ozaukee County	2020-3-25	EPI_ISL_428297	MT706329	PRJNA614504	PRJNA718341	21.19	21.23	-

USA/WI-UW-205/2020	249	Wisconsin	Milwaukee County	2020-3-25	EPI_ISL_428301	MT706333	PRJNA614504	PRJNA718341	27.03	27.23	-
USA/WI-UW-208/2020	252	Wisconsin	Milwaukee County	2020-3-25	EPI_ISL_428304	MT706336	PRJNA614504	PRJNA718341	25.72	24.87	-
USA/WI-UW-211/2020	255	Wisconsin	Milwaukee County	2020-3-25	EPI_ISL_428307	MT706339	PRJNA614504	PRJNA718341	26.72	27.21	-
USA/WI-UW-214/2020	258	Wisconsin	Ozaukee County	2020-3-25	EPI_ISL_428310	MT706342	PRJNA614504	PRJNA718341	21.56	21.52	-
USA/WI-UW-217/2020	261	Wisconsin	Milwaukee County	2020-3-25	EPI_ISL_428313	MT706345	PRJNA614504	PRJNA718341	29.14	29.6	-
USA/WI-UW-223/2020	268	Wisconsin	Milwaukee County	2020-3-26	EPI_ISL_428319	MT706351	PRJNA614504	PRJNA718341	26.67	28.25	-
USA/WI-UW-225/2020	270	Wisconsin	Milwaukee County	2020-3-26	EPI_ISL_428321	MT706353	PRJNA614504	PRJNA718341	18.55	18.91	-
USA/WI-UW-230/2020	275	Wisconsin	Milwaukee County	2020-3-26	EPI_ISL_428326	MT706358	PRJNA614504	PRJNA718341	24.4	25.99	-
USA/WI-UW-231/2020	276	Wisconsin	Milwaukee County	2020-3-26	EPI_ISL_428327	MT706359	PRJNA614504	PRJNA718341	19.42	19.94	-
USA/WI-UW-232/2020	277	Wisconsin	Milwaukee County	2020-3-27	EPI_ISL_428328	MT706360	PRJNA614504	PRJNA718341	19.54	18.33	-
USA/WI-UW-238/2020	283	Wisconsin	Milwaukee County	2020-3-27	EPI_ISL_428334	MT706366	PRJNA614504	PRJNA718341	26.38	25.52	-
USA/WI-UW-242/2020	288	Wisconsin	Milwaukee County	2020-3-28	EPI_ISL_428338	MT706370	PRJNA614504	PRJNA718341	17.93	17.52	-
USA/WI-UW-243/2020	289	Wisconsin	Ozaukee County	2020-3-28	EPI_ISL_428339	MT706371	PRJNA614504	PRJNA718341	25.29	25.04	-
USA/WI-UW-244/2020	290	Wisconsin	Ozaukee County	2020-3-28	EPI_ISL_428340	MT706372	PRJNA614504	PRJNA718341	19.65	19.25	-
USA/WI-UW-246/2020	292	Wisconsin	Milwaukee County	2020-3-28	EPI_ISL_428342	-	PRJNA614504	PRJNA718341	22.16	21.97	-
Tube-302	302	Wisconsin	Dane County	2020-4-16	-	-	-	PRJNA718341	29.5	-	-
Tube-303	303	Wisconsin	Monroe County	2020-4-16	-	-	-	PRJNA718341	-	-	-
Tube-304	304	Wisconsin	Dane County	2020-4-19	-	-	-	PRJNA718341	30.7	-	-
USA/WI-UW-348/2020	310	Wisconsin	Dane County	2020-4-15	EPI_ISL_450702	MT506887	PRJNA614504	PRJNA718341	-	-	-
USA/WI-UW-351/2020	316	Wisconsin	Dane County	2020-4-14	EPI_ISL_450705	MT506890	PRJNA614504	PRJNA718341	25.51	26.64	-
USA/WI-UW-367/2020	338	Wisconsin	Dane County	2020-4-1	EPI_ISL_450721	MT506906	PRJNA614504	PRJNA718341	-	-	-
USA/WI-UW-273/2020	356	Wisconsin	Milwaukee County	2020-3-31	EPI_ISL_436567	MT706381	PRJNA614504	PRJNA718341	20.29	20.47	-

USA/WI-UW-275/2020	358	Wisconsin	Milwaukee County	2020-4-1	EPI_ISL_436569	MT706383	PRJNA614504	PRJNA718341	18.54	18.14	-
USA/WI-UW-276/2020	359	Wisconsin	Milwaukee County	2020-4-1	EPI_ISL_436570	MT706384	PRJNA614504	PRJNA718341	19.27	19.02	-
USA/WI-UW-277/2020	361	Wisconsin	Milwaukee County	2020-4-2	EPI_ISL_436571	MT706385	PRJNA614504	PRJNA718341	20.28	20.06	-
USA/WI-UW-278/2020	365	Wisconsin	Milwaukee County	2020-4-3	EPI_ISL_436572	MT706386	PRJNA614504	PRJNA718341	16.08	16.12	-
USA/WI-UW-279/2020	366	Wisconsin	Milwaukee County	2020-4-3	EPI_ISL_436573	MT706387	PRJNA614504	PRJNA718341	15.6	15.35	-
USA/WI-UW-282/2020	370	Wisconsin	Milwaukee County	2020-4-6	EPI_ISL_436576	MT706390	PRJNA614504	PRJNA718341	15.39	14.91	-
USA/WI-UW-285/2020	374	Wisconsin	Milwaukee County	2020-4-6	EPI_ISL_436579	MT706393	PRJNA614504	PRJNA718341	27.55	27.17	-
USA/WI-UW-286/2020	376	Wisconsin	Milwaukee County	2020-4-6	EPI_ISL_436580	MT706394	PRJNA614504	PRJNA718341	25.2	25.09	-
USA/WI-UW-287/2020	377	Wisconsin	Milwaukee County	2020-4-6	EPI_ISL_436581	MT706395	PRJNA614504	PRJNA718341	23.43	23.35	-
USA/WI-UW-296/2020	388	Wisconsin	Milwaukee County	2020-4-9	EPI_ISL_436590	MT706404	PRJNA614504	PRJNA718341	16.13	15.52	-
USA/WI-UW-299/2020	391	Wisconsin	Milwaukee County	2020-4-13	EPI_ISL_436593	MT706407	PRJNA614504	PRJNA718341	18.84	18.37	-
USA/WI-UW-302/2020	397	Wisconsin	Milwaukee County	2020-4-13	EPI_ISL_436596	MT706410	PRJNA614504	PRJNA718341	17.6	17.08	-
USA/WI-UW-306/2020	402	Wisconsin	Milwaukee County	2020-4-14	EPI_ISL_436600	MT706414	PRJNA614504	PRJNA718341	30.42	31.22	-
USA/WI-UW-310/2020	408	Wisconsin	Milwaukee County	2020-4-15	EPI_ISL_436604	MT706418	PRJNA614504	PRJNA718341	20.64	19.45	-
USA/WI-UW-315/2020	418	Wisconsin	Milwaukee County	2020-4-17	EPI_ISL_436609	MT706423	PRJNA614504	PRJNA718341	26.33	26.42	-
USA/WI-UW-323/2020	437	Wisconsin	Milwaukee County	2020-4-23	EPI_ISL_436617	MT706430	PRJNA614504	PRJNA718341	26.2	28.6	-
USA/WI-UW-333/2020	453	Wisconsin	Milwaukee County	2020-3-24	EPI_ISL_436627	MT706439	PRJNA614504	PRJNA718341	27.45	26.54	-
USA/WI-UW-334/2020	454	Wisconsin	Milwaukee County	2020-3-24	EPI_ISL_436628	MT706440	PRJNA614504	PRJNA718341	23.24	22.79	-
USA/WI-UW-337/2020	461	Wisconsin	Milwaukee County	2020-3-26	EPI_ISL_436631	MT706443	PRJNA614504	PRJNA718341	26.46	26.5	-
USA/WI-UW-338/2020	462	Wisconsin	Milwaukee County	2020-3-26	EPI_ISL_436632	MT706444	PRJNA614504	PRJNA718341	27.72	27.6	-
USA/WI-UW-340/2020	468	Wisconsin	Milwaukee County	2020-4-1	EPI_ISL_436634	MT706446	PRJNA614504	PRJNA718341	35.15	33.47	-
USA/WI-UW-341/2020	469	Wisconsin	Milwaukee County	2020-4-2	EPI_ISL_436635	MT706447	PRJNA614504	PRJNA718341	23.18	22.53	-

USA/WI-UW-389/2020	552	Wisconsin	Dane County	2020-5-26	EPI_ISL_480371	MT772540	PRJNA614504	PRJNA718341	23.2	-	-
USA/WI-UW-391/2020	554	Wisconsin	Dane County	2020-5-26	EPI_ISL_480373	MT772542	PRJNA614504	PRJNA718341	17.7	-	-
USA/WI-UW-432/2020	738	Wisconsin	Dane County	2020-6-17	EPI_ISL_484807	MT750020	PRJNA614504	PRJNA718341	21.6	-	-
USA/WI-UW-438/2020	744	Wisconsin	Dane County	2020-6-15	EPI_ISL_484813	MT750026	PRJNA614504	PRJNA718341	19.4	-	-
USA/WI-UW-443/2020	749	Wisconsin	Dane County	2020-6-19	EPI_ISL_484818	MT750030	PRJNA614504	PRJNA718341	19.4	-	-
USA/WI-UW-476/2020	783	Wisconsin	Dane County	2020-6-12	EPI_ISL_484851	MT750060	PRJNA614504	PRJNA718341	20.6	-	-
USA/WI-UW-536/2020	849	Wisconsin	Dane County	2020-6-24	EPI_ISL_484911	MT750116	PRJNA614504	PRJNA718341	-	-	1211
USA/WI-UW-544/2020	884	Wisconsin	Dane County	2020-6-22	EPI_ISL_484919	MT750124	PRJNA614504	PRJNA718341	-	-	1334
USA/WI-UW-546/2020	887	Wisconsin	Dane County	2020-6-19	EPI_ISL_484921	MT750126	PRJNA614504	PRJNA718341	-	-	1282
USA/WI-UW-551/2020	893	Wisconsin	Dane County	2020-6-23	EPI_ISL_484926	MT750131	PRJNA614504	PRJNA718341	-	-	1254
USA/WI-UW-575/2020	903	Wisconsin	Dane County	2020-6-23	EPI_ISL_484950	MT750154	PRJNA614504	PRJNA718341	-	-	1238
USA/WI-UW-577/2020	906	Wisconsin	Dane County	2020-6-24	EPI_ISL_484952	MT750156	PRJNA614504	PRJNA718341	-	-	1288
USA/WI-UW-586/2020	916	Wisconsin	Dane County	2020-6-19	EPI_ISL_484961	MT750165	PRJNA614504	PRJNA718341	-	-	1274
USA/WI-UW-598/2020	956	Wisconsin	Dane County	2020-6-27	EPI_ISL_484973	MT750176	PRJNA614504	PRJNA718341	-	-	1240
USA/WI-UW-601/2020	961	Wisconsin	Dane County	2020-6-25	EPI_ISL_484976	MT750179	PRJNA614504	PRJNA718341	-	-	1155
USA/WI-UW-602/2020	962	Wisconsin	Dane County	2020-6-28	EPI_ISL_484977	-	PRJNA614504	PRJNA718341	-	-	1203
USA/WI-UW-689/2020	1049	Wisconsin	Dane County	2020-6-28	EPI_ISL_491369	MT772466	PRJNA614504	PRJNA718341	-	-	1217
USA/WI-UW-694/2020	1061	Wisconsin	Dane County	2020-6-30	EPI_ISL_491372	-	PRJNA614504	PRJNA718341	-	-	1218
USA/WI-UW-697/2020	1064	Wisconsin	Dane County	2020-7-2	EPI_ISL_491375	MT772473	PRJNA614504	PRJNA718341	-	-	1257
USA/WI-UW-721/2020	1103	Wisconsin	Dane County	2020-7-1	EPI_ISL_491396	-	PRJNA614504	PRJNA718341	-	-	1177
USA/WI-UW-722/2020	1104	Wisconsin	Dane County	2020-6-30	EPI_ISL_491397	-	PRJNA614504	PRJNA718341	-	-	1276
USA/WI-UW-747/2020	1144	Wisconsin	Dane County	2020-7-2	EPI_ISL_491420	MT772518	PRJNA614504	PRJNA718341	-	-	1222

USA/WI-UW-749/2020	1147	Wisconsin	Dane County	2020-6-30	EPI_ISL_491422	-	PRJNA614504	PRJNA718341	-	-	1287
USA/WI-UW-756/2020	1157	Wisconsin	Dane County	2020-7-5	EPI_ISL_495461	MT795871	PRJNA614504	PRJNA718341	-	-	1233
USA/WI-UW-780/2020	1195	Wisconsin	Dane County	2020-7-3	EPI_ISL_495484	MT795891	PRJNA614504	PRJNA718341	-	-	1269
USA/WI-UW-784/2020	1199	Wisconsin	Dane County	2020-7-6	EPI_ISL_495488	-	PRJNA614504	PRJNA718341	-	-	1238
USA/WI-UW-798/2020	1217	Wisconsin	Dane County	2020-7-6	EPI_ISL_495502	-	PRJNA614504	PRJNA718341	-	-	1223
USA/WI-UW-855/2020	1282	Wisconsin	Dane County	2020-7-9	EPI_ISL_509861	MT846545	PRJNA614504	PRJNA718341	-	-	1247
USA/WI-UW-861/2020	1293	Wisconsin	Dane County	2020-7-14	EPI_ISL_509864	MT846550	PRJNA614504	PRJNA718341	-	-	1210
USA/WI-UW-863/2020	1297	Wisconsin	Dane County	2020-7-13	EPI_ISL_509866	MT846552	PRJNA614504	PRJNA718341	-	-	1159
USA/WI-UW-874/2020	1326	Wisconsin	Dane County	2020-7-13	EPI_ISL_509876	MT846562	PRJNA614504	PRJNA718341	-	-	1227
USA/WI-UW-876/2020	1328	Wisconsin	Dane County	2020-7-13	EPI_ISL_509878	MT846564	PRJNA614504	PRJNA718341	-	-	1241
USA/WI-UW-893/2020	1346	Wisconsin	Dane County	2020-7-12	EPI_ISL_509895	MT846581	PRJNA614504	PRJNA718341	-	-	1181
USA/WI-UW-895/2020	1353	Wisconsin	Dane County	2020-7-13	EPI_ISL_509897	MT846583	PRJNA614504	PRJNA718341	-	-	1200
USA/WI-UW-897/2020	1357	Wisconsin	Dane County	2020-7-12	EPI_ISL_509899	MT846585	PRJNA614504	PRJNA718341	-	-	1224
USA/WI-UW-906/2020	1373	Wisconsin	Dane County	2020-7-15	EPI_ISL_509907	MT846593	PRJNA614504	PRJNA718341	-	-	1246
USA/WI-UW-916/2020	1388	Wisconsin	Dane County	2020-7-12	EPI_ISL_509917	MT846603	PRJNA614504	PRJNA718341	-	-	1209
USA/WI-UW-927/2020	1409	Wisconsin	Dane County	2020-7-13	EPI_ISL_509927	MT846614	PRJNA614504	PRJNA718341	-	-	1160
USA/WI-UW-931/2020	1414	Wisconsin	Dane County	2020-7-13	EPI_ISL_509931	MT846618	PRJNA614504	PRJNA718341	-	-	1221
USA/WI-UW-986/2020	1495	Wisconsin	Dane County	2020-7-16	EPI_ISL_509982	MT846672	PRJNA614504	PRJNA718341	-	-	1267
USA/WI-UW-991/2020	1502	Wisconsin	Dane County	2020-7-16	EPI_ISL_509986	MT846677	PRJNA614504	PRJNA718341	-	-	1265
USA/WI-UW-997/2020	1512	Wisconsin	Dane County	2020-7-16	EPI_ISL_509991	MT846683	PRJNA614504	PRJNA718341	-	-	1220

Supplemental Table 3. ARTIC v3 primer sequences used to amplify cDNA for library preparation.

name	pool	sequence	length	%gc	tm (use 65)
nCoV-2019_1_LEFT	nCoV-2019_1	ACCAACCAACTTTCGATCTCTTGT	24	41.67	60.69
nCoV-2019_1_RIGHT	nCoV-2019_1	CATCTTTAAGATGTTGACGTGCCTC	25	44	60.45
nCoV-2019_2_LEFT	nCoV-2019_2	CTGTTTTACAGGTTCGCGACGT	22	50	61.67
nCoV-2019_2_RIGHT	nCoV-2019_2	TAAGGATCAGTGCCAAGCTCGT	22	50	61.74
nCoV-2019_3_LEFT	nCoV-2019_1	CGGTAATAAAGGAGCTGGTGGC	22	54.55	61.32
nCoV-2019_3_RIGHT	nCoV-2019_1	AAGGTGTCTGCAATTCATAGCTCT	24	41.67	60.32
nCoV-2019_4_LEFT	nCoV-2019_2	GGTGTATACTGCTGCCGTGAAC	22	54.55	61.56
nCoV-2019_4_RIGHT	nCoV-2019_2	CACAAGTAGTGGCACCTTCTTTAGT	25	44	60.97
nCoV-2019_5_LEFT	nCoV-2019_1	TGGTGAAACTTCATGGCAGACG	22	50	61.39
nCoV-2019_5_RIGHT	nCoV-2019_1	ATTGATGTTGACTTTCTCTTTTTGGAGT	28	32.14	60.17
nCoV-2019_6_LEFT	nCoV-2019_2	GGTGTTGTTGGAGAAGGTTCCG	22	54.55	61.64
nCoV-2019_6_RIGHT	nCoV-2019_2	TAGCGGCCTTCTGTAAAACACG	22	50	61.18
nCoV-2019_7_LEFT	nCoV-2019_1	ATCAGAGGCTGCTCGTGTTGTA	22	50	61.73
nCoV-2019_7_LEFT_alt0	nCoV-2019_1	CATTTGCATCAGAGGCTGCTCG	22	54.55	62.44
nCoV-2019_7_RIGHT	nCoV-2019_1	TGCACAGGTGACAATTTGTCCA	22	45.45	60.95
nCoV-2019_7_RIGHT_alt5	nCoV-2019_1	AGGTGACAATTTGTCCACCGAC	22	50	61.07
nCoV-2019_8_LEFT	nCoV-2019_2	AGAGTTTCTTAGAGACGGTTGGGA	24	45.83	61
nCoV-2019_8_RIGHT	nCoV-2019_2	GCTTCAACAGCTTCACTAGTAGGT	24	45.83	60.56
nCoV-2019_9_LEFT	nCoV-2019_1	TCCCACAGAAGTGTTAACAGAGGA	24	45.83	61.18
nCoV-2019_9_LEFT_alt4	nCoV-2019_1	TTCCCACAGAAGTGTTAACAGAGG	24	45.83	60.44
nCoV-2019_9_RIGHT	nCoV-2019_1	ATGACAGCATCTGCCACAACAC	22	50	61.71
nCoV-2019_9_RIGHT_alt2	nCoV-2019_1	GACAGCATCTGCCACAACACAG	22	54.55	62.26
nCoV-2019_10_LEFT	nCoV-2019_2	TGAGAAGTGCTCTGCCTATACAGT	24	45.83	61.12
nCoV-2019_10_RIGHT	nCoV-2019_2	TCATCTAACCAATCTTCTTCTTGCTCT	27	37.04	60.31
nCoV-2019_11_LEFT	nCoV-2019_1	GGAATTTGGTGCCACTTCTGCT	22	50	61.66
nCoV-2019_11_RIGHT	nCoV-2019_1	TCATCAGATTCAACTTGCATGGCA	24	41.67	61.35
nCoV-2019_12_LEFT	nCoV-2019_2	AAACATGGAGGAGGTGTTGCAG	22	50	61.08
nCoV-2019_12_RIGHT	nCoV-2019_2	TTCACTCTTCATTTCCAAAAAGCTTGA	27	33.33	60.36
nCoV-2019_13_LEFT	nCoV-2019_1	TCGCACAAATGTCTACTTAGCTGT	24	41.67	60.56

nCoV-2019_13_RIGHT	nCoV-2019_1	ACCACAGCAGTTAAAACACCCT	22	45.45	60.36
nCoV-2019_14_LEFT	nCoV-2019_2	CATCCAGATTCTGCCACTCTTGT	23	47.83	60.62
nCoV-2019_14_LEFT_alt4	nCoV-2019_2	TGGCAATCTTCATCCAGATTCTGC	24	45.83	61.47
nCoV-2019_14_RIGHT	nCoV-2019_2	AGTTTCCACACAGACAGGCATT	22	45.45	60.42
nCoV-2019_14_RIGHT_alt2	nCoV-2019_2	TGCGTGTTTCTTCTGCATGTGC	22	50	62.76
nCoV-2019_15_LEFT	nCoV-2019_1	ACAGTGCTTAAAAAGTGTAAAAGTGCC	27	37.04	61.32
nCoV-2019_15_LEFT_alt1	nCoV-2019_1	AGTGCTTAAAAAGTGTAAAAGTGCCT	26	34.62	60.13
nCoV-2019_15_RIGHT	nCoV-2019_1	AACAGAAACTGTAGCTGGCACT	22	45.45	60.16
nCoV-2019_15_RIGHT_alt3	nCoV-2019_1	ACTGTAGCTGGCACTTTGAGAGA	23	47.83	61.57
nCoV-2019_16_LEFT	nCoV-2019_2	AATTTGGAAGAAGCTGCTCGGT	22	45.45	60.82
nCoV-2019_16_RIGHT	nCoV-2019_2	CACAACTTGCGTGTGGAGGTTA	22	50	61.32
nCoV-2019_17_LEFT	nCoV-2019_1	CTTCTTTCTTTGAGAGAAGTGAGGACT	27	40.74	60.69
nCoV-2019_17_RIGHT	nCoV-2019_1	TTTGTTGGAGTGTTAACAATGCAGT	25	36	60.11
nCoV-2019_18_LEFT	nCoV-2019_2	TGGAAATACCCACAAGTTAATGGTTTAAC	29	34.48	60.69
nCoV-2019_18_LEFT_alt2	nCoV-2019_2	ACTTCTATTAAATGGGCAGATAACAACTGT	30	33.33	61.38
nCoV-2019_18_RIGHT	nCoV-2019_2	AGCTTGTTTACCACACGTACAAGG	24	45.83	61.51
nCoV-2019_18_RIGHT_alt1	nCoV-2019_2	GCTTGTTTACCACACGTACAAGG	23	47.83	60.3
nCoV-2019_19_LEFT	nCoV-2019_1	GCTGTTATGTACATGGGCACACT	23	47.83	61.18
nCoV-2019_19_RIGHT	nCoV-2019_1	TGTCCAACTTAGGGTCAATTTCTGT	25	40	60.4
nCoV-2019_20_LEFT	nCoV-2019_2	ACAAAGAAAACAGTTACACAACAACCA	27	33.33	60.68
nCoV-2019_20_RIGHT	nCoV-2019_2	ACGTGGCTTTATTAGTTGCATTGTT	25	36	60.28
nCoV-2019_21_LEFT	nCoV-2019_1	TGGCTATTGATTATAAACACTACACACCC	29	37.93	61.49
nCoV-2019_21_LEFT_alt2	nCoV-2019_1	GGCTATTGATTATAAACACTACACACCCT	29	37.93	61.29
nCoV-2019_21_RIGHT	nCoV-2019_1	TAGATCTGTGTGGCCAACCTCT	22	50	60.83
nCoV-2019_21_RIGHT_alt0	nCoV-2019_1	GATCTGTGTGGCCAACCTCTTC	22	54.55	61.2
nCoV-2019_22_LEFT	nCoV-2019_2	ACTACCGAAGTTGTAGGAGACATTATACT	29	37.93	61.25
nCoV-2019_22_RIGHT	nCoV-2019_2	ACAGTATTCTTTGCTATAGTAGTCGGC	27	40.74	60.73
nCoV-2019_23_LEFT	nCoV-2019_1	ACAACTACTAACATAGTTACACGGTGT	27	37.04	60.26
nCoV-2019_23_RIGHT	nCoV-2019_1	ACCAGTACAGTAGGTTGCAATAGTG	25	44	60.57
nCoV-2019_24_LEFT	nCoV-2019_2	AGGCATGCCTTCTTACTGTACTG	23	47.83	60.37
nCoV-2019_24_RIGHT	nCoV-2019_2	ACATTCTAACCATAGCTGAAATCGGG	26	42.31	61.19
nCoV-2019_25_LEFT	nCoV-2019_1	GCAATTGTTTTTCAGCTATTTTGCAGT	27	33.33	60.73

nCoV-2019_25_RIGHT	nCoV-2019_1	ACTGTAGTGACAAGTCTCTCGCA	23	47.83	61.3
nCoV-2019_26_LEFT	nCoV-2019_2	TTGTGATACATTCTGTGCTGGTAGT	25	40	60.28
nCoV-2019_26_RIGHT	nCoV-2019_2	TCCGCACTATCACCAACATCAG	22	50	60.42
nCoV-2019_27_LEFT	nCoV-2019_1	ACTACAGTCAGCTTATGTGTCAACC	25	44	60.8
nCoV-2019_27_RIGHT	nCoV-2019_1	AATACAAGCACCAAGGTCACGG	22	50	61.13
nCoV-2019_28_LEFT	nCoV-2019_2	ACATAGAAGTTACTGGCGATAGTTGT	26	38.46	60.13
nCoV-2019_28_RIGHT	nCoV-2019_2	TGTTTAGACATGACATGAACAGGTGT	26	38.46	60.91
nCoV-2019_29_LEFT	nCoV-2019_1	ACTTGTGTTCCTTTTTGTTGCTGC	24	41.67	61.39
nCoV-2019_29_RIGHT	nCoV-2019_1	AGTGTACTCTATAAGTTTTGATGGTGTGT	29	34.48	60.69
nCoV-2019_30_LEFT	nCoV-2019_2	GCACAACTAATGGTGACTTTTTGCA	25	40	61.19
nCoV-2019_30_RIGHT	nCoV-2019_2	ACCACTAGTAGATACACAAACACCAG	26	42.31	60.3
nCoV-2019_31_LEFT	nCoV-2019_1	TTCTGAGTACTGTAGGCACGGC	22	54.55	62.03
nCoV-2019_31_RIGHT	nCoV-2019_1	ACAGAATAAACACCAGGTAAGAATGAGT	28	35.71	60.69
nCoV-2019_32_LEFT	nCoV-2019_2	TGGTGAATACAGTCATGTAGTTGCC	25	44	61.09
nCoV-2019_32_RIGHT	nCoV-2019_2	AGCACATCACTACGCAACTTTAGA	24	41.67	60.56
nCoV-2019_33_LEFT	nCoV-2019_1	ACTTTTGAAGAAGCTGCGCTGT	22	45.45	61.58
nCoV-2019_33_RIGHT	nCoV-2019_1	TGGACAGTAAACTACGTCATCAAGC	25	44	61.08
nCoV-2019_34_LEFT	nCoV-2019_2	TCCCATCTGGTAAAGTTGAGGGT	23	47.83	61.02
nCoV-2019_34_RIGHT	nCoV-2019_2	AGTGAAATTGGGCCTCATAGCA	22	45.45	60.03
nCoV-2019_35_LEFT	nCoV-2019_1	TGTTCGCATTCAACCAGGACAG	22	50	61.39
nCoV-2019_35_RIGHT	nCoV-2019_1	ACTTCATAGCCACAAGGTTAAAGTCA	26	38.46	60.69
nCoV-2019_36_LEFT	nCoV-2019_2	TTAGCTTGGTTGTACGCTGCTG	22	50	61.44
nCoV-2019_36_RIGHT	nCoV-2019_2	GAACAAAGACCATTGAGTACTCTGGA	26	42.31	60.74
nCoV-2019_37_LEFT	nCoV-2019_1	ACACACCACTGGTTGTTACTCAC	23	47.83	60.93
nCoV-2019_37_RIGHT	nCoV-2019_1	GTCCACACTCTCCTAGCACCAT	22	54.55	61.48
nCoV-2019_38_LEFT	nCoV-2019_2	ACTGTGTTATGTATGCATCAGCTGT	25	40	60.86
nCoV-2019_38_RIGHT	nCoV-2019_2	CACCAAGAGTCAGTCTAAAGTAGCG	25	48	61.13
nCoV-2019_39_LEFT	nCoV-2019_1	AGTATTGCCCTATTTTCTTCATAACTGGT	29	34.48	61
nCoV-2019_39_RIGHT	nCoV-2019_1	TGTAACTGGACACATTGAGCCC	22	50	60.55
nCoV-2019_40_LEFT	nCoV-2019_2	TGCACATCAGTAGTCTTACTCTCAGT	26	42.31	61.25
nCoV-2019_40_RIGHT	nCoV-2019_2	CATGGCTGCATCACGGTCAAAT	22	50	62.09
nCoV-2019_41_LEFT	nCoV-2019_1	GTTCCCTTCCATCATATGCAGCT	23	47.83	60.75

nCoV-2019_41_RIGHT	nCoV-2019_1	TGGTATGACAACCATTAGTTTGGCT	25	40	60.75
nCoV-2019_42_LEFT	nCoV-2019_2	TGCAAGAGATGGTTGTGTTCCC	22	50	61.08
nCoV-2019_42_RIGHT	nCoV-2019_2	CCTACCTCCCTTTGTTGTGTTGT	23	47.83	60.69
nCoV-2019_43_LEFT	nCoV-2019_1	TACGACAGATGTCTTGTGCTGC	22	50	60.93
nCoV-2019_43_RIGHT	nCoV-2019_1	AGCAGCATCTACAGCAAAAGCA	22	45.45	61.14
nCoV-2019_44_LEFT	nCoV-2019_2	TGCCACAGTACGTCTACAAGCT	22	50	61.66
nCoV-2019_44_LEFT_alt3	nCoV-2019_2	CCACAGTACGTCTACAAGCTGG	22	54.55	60.67
nCoV-2019_44_RIGHT	nCoV-2019_2	AACCTTTCCACATACCGCAGAC	22	50	60.87
nCoV-2019_44_RIGHT_alt0	nCoV-2019_2	CGCAGACGGTACAGACTGTGTT	22	54.55	62.77
nCoV-2019_45_LEFT	nCoV-2019_1	TACCTACAACTTGTGCTAATGACCC	25	44	60.57
nCoV-2019_45_LEFT_alt2	nCoV-2019_1	AGTATGTACAAATACCTACAACTTGTGCT	29	34.48	60.94
nCoV-2019_45_RIGHT	nCoV-2019_1	AAATTGTTTCTTCATGTTGGTAGTTAGAGA	30	30	60.01
nCoV-2019_45_RIGHT_alt7	nCoV-2019_1	TTCATGTTGGTAGTTAGAGAAAGTGTGTC	29	37.93	61.53
nCoV-2019_46_LEFT	nCoV-2019_2	TGTCGCTTCCAAGAAAAGGACG	22	50	61.38
nCoV-2019_46_LEFT_alt1	nCoV-2019_2	CGCTTCCAAGAAAAGGACGAAGA	23	47.83	61.35
nCoV-2019_46_RIGHT	nCoV-2019_2	CACGTTCACCTAAGTTGGCGTA	22	50	60.86
nCoV-2019_46_RIGHT_alt2	nCoV-2019_2	CACGTTCACCTAAGTTGGCGTAT	23	47.83	61.17
nCoV-2019_47_LEFT	nCoV-2019_1	AGGACTGGTATGATTTTGTAGAAAACCC	28	39.29	61.42
nCoV-2019_47_RIGHT	nCoV-2019_1	AATAACGGTCAAAGAGTTTTAACCTCTC	28	35.71	60.06
nCoV-2019_48_LEFT	nCoV-2019_2	TGTTGACACTGACTTAACAAAGCCT	25	40	61.09
nCoV-2019_48_RIGHT	nCoV-2019_2	TAGATTACCAGAAGCAGCGTGC	22	50	60.74
nCoV-2019_49_LEFT	nCoV-2019_1	AGGAATTACTTGTGTATGCTGCTGA	25	40	60.57
nCoV-2019_49_RIGHT	nCoV-2019_1	TGACGATGACTTGGTTAGCATTAATACA	28	35.71	61.05
nCoV-2019_50_LEFT	nCoV-2019_2	GTTGATAAGTACTTTGATTGTTACGATGGT	30	33.33	60.59
nCoV-2019_50_RIGHT	nCoV-2019_2	TAACATGTTGTGCCAACCACCA	22	45.45	60.95
nCoV-2019_51_LEFT	nCoV-2019_1	TCAATAGCCGCCACTAGAGGAG	22	54.55	61.34
nCoV-2019_51_RIGHT	nCoV-2019_1	AGTGCATTAACATTGGCCGTGA	22	45.45	61.14
nCoV-2019_52_LEFT	nCoV-2019_2	CATCAGGAGATGCCACAACTGC	22	54.55	61.83
nCoV-2019_52_RIGHT	nCoV-2019_2	GTTGAGAGCAAAATTCATGAGGTCC	25	44	60.62
nCoV-2019_53_LEFT	nCoV-2019_1	AGCAAAATGTTGGACTGAGACTGA	24	41.67	60.69
nCoV-2019_53_RIGHT	nCoV-2019_1	AGCCTCATAAAACTCAGGTTCCC	23	47.83	60.31
nCoV-2019_54_LEFT	nCoV-2019_2	TGAGTTAACAGGACACATGTTAGACA	26	38.46	60.18

nCoV-2019_54_RIGHT	nCoV-2019_2	AACCAAAAACTTGTCCATTAGCACA	25	36	60.11
nCoV-2019_55_LEFT	nCoV-2019_1	ACTCAACTTTACTTAGGAGGTATGAGCT	28	39.29	61.43
nCoV-2019_55_RIGHT	nCoV-2019_1	GGTGTACTCTCCTATTTGTACTTTACTGT	29	37.93	60.54
nCoV-2019_56_LEFT	nCoV-2019_2	ACCTAGACCACCACTTAACCGA	22	50	60.49
nCoV-2019_56_RIGHT	nCoV-2019_2	ACACTATGCGAGCAGAAGGGTA	22	50	61.21
nCoV-2019_57_LEFT	nCoV-2019_1	ATTCTACACTCCAGGGACCACC	22	54.55	61.16
nCoV-2019_57_RIGHT	nCoV-2019_1	GTAATTGAGCAGGGTCGCCAAT	22	50	61.26
nCoV-2019_58_LEFT	nCoV-2019_2	TGATTTGAGTGTTGTCAATGCCAGA	25	40	61.44
nCoV-2019_58_RIGHT	nCoV-2019_2	CTTTTCTCCAAGCAGGGTTACGT	23	47.83	61.06
nCoV-2019_59_LEFT	nCoV-2019_1	TCACGCATGATGTTTCATCTGCA	23	43.48	61.42
nCoV-2019_59_RIGHT	nCoV-2019_1	AAGAGTCCTGTTACATTTTCAGCTTG	26	38.46	60.02
nCoV-2019_60_LEFT	nCoV-2019_2	TGATAGAGACCTTTATGACAAGTTGCA	27	37.04	60.53
nCoV-2019_60_RIGHT	nCoV-2019_2	GGTACCAACAGCTTCTCTAGTAGC	24	50	60.44
nCoV-2019_61_LEFT	nCoV-2019_1	TGTTTATCACCCGCGAAGAAGC	22	50	61.5
nCoV-2019_61_RIGHT	nCoV-2019_1	ATCACATAGACAACAGGTGCGC	22	50	61.25
nCoV-2019_62_LEFT	nCoV-2019_2	GGCACATGGCTTTGAGTTGACA	22	50	61.91
nCoV-2019_62_RIGHT	nCoV-2019_2	GTTGAACCTTTCTACAAGCCGC	22	50	60.35
nCoV-2019_63_LEFT	nCoV-2019_1	TGTTAAGCGTGTTGACTGGACT	22	45.45	60.16
nCoV-2019_63_RIGHT	nCoV-2019_1	ACAAACTGCCACCATCACAACC	22	50	61.85
nCoV-2019_64_LEFT	nCoV-2019_2	TCGATAGATATCCTGCTAATTCCATTGT	28	35.71	60.11
nCoV-2019_64_RIGHT	nCoV-2019_2	AGTCTTGTAAAAGTGTTCCAGAGGT	25	40	60.1
nCoV-2019_65_LEFT	nCoV-2019_1	GCTGGCTTTAGCTTGTGGGTTT	22	50	61.92
nCoV-2019_65_RIGHT	nCoV-2019_1	TGTCAGTCATAGAACAAACACCAATAGT	28	35.71	60.9
nCoV-2019_66_LEFT	nCoV-2019_2	GGGTGTGGACATTGCTGCTAAT	22	50	61.21
nCoV-2019_66_RIGHT	nCoV-2019_2	TCAATTTCCATTTGACTCCTGGGT	24	41.67	60.45
nCoV-2019_67_LEFT	nCoV-2019_1	GTTGTCCAACAATTACCTGAAACTTACT	28	35.71	60.43
nCoV-2019_67_RIGHT	nCoV-2019_1	CAACCTTAGAAACTACAGATAAATCTTGGG	30	36.67	60.4
nCoV-2019_68_LEFT	nCoV-2019_2	ACAGGTTCATCTAAGTGTGTGTGT	24	41.67	60.14
nCoV-2019_68_RIGHT	nCoV-2019_2	CTCCTTTATCAGAACCAGCACCA	23	47.83	60.31
nCoV-2019_69_LEFT	nCoV-2019_1	TGTCGCAAAATATACTCAACTGTGTCA	27	37.04	61.43
nCoV-2019_69_RIGHT	nCoV-2019_1	TCTTTATAGCCACGGAACCTCCA	23	47.83	61.14
nCoV-2019_70_LEFT	nCoV-2019_2	ACAAAAGAAAATGACTCTAAAGAGGGTTT	29	31.03	60.13

nCoV-2019_70_RIGHT	nCoV-2019_2	TGACCTTCTTTTAAAGACATAACAGCAG	28	35.71	60.27
nCoV-2019_71_LEFT	nCoV-2019_1	ACAAATCCAATTCAGTTGTCTTCCTATTC	29	34.48	60.54
nCoV-2019_71_RIGHT	nCoV-2019_1	TGGAAAAGAAAGGTAAGAACAAGTCCT	27	37.04	60.8
nCoV-2019_72_LEFT	nCoV-2019_2	ACACGTGGTGTTTATTACCCTGAC	24	45.83	61.04
nCoV-2019_72_RIGHT	nCoV-2019_2	ACTCTGAACTCACTTTCCATCCAAC	25	44	60.97
nCoV-2019_73_LEFT	nCoV-2019_1	CAATTTTGTAATGATCCATTTTTGGGTGT	29	31.03	60.29
nCoV-2019_73_RIGHT	nCoV-2019_1	CACCAGCTGTCCAACCTGAAGA	22	54.55	62.45
nCoV-2019_74_LEFT	nCoV-2019_2	ACATCACTAGGTTTCAAACTTTACTTGC	28	35.71	60.68
nCoV-2019_74_RIGHT	nCoV-2019_2	GCAACACAGTTGCTGATTCTCTTC	24	45.83	60.85
nCoV-2019_75_LEFT	nCoV-2019_1	AGAGTCCAACCAACAGAATCTATTGT	26	38.46	60.24
nCoV-2019_75_RIGHT	nCoV-2019_1	ACCACCAACCTTAGAATCAAGATTGT	26	38.46	60.69
nCoV-2019_76_LEFT	nCoV-2019_2	AGGGCAAACTGGAAAGATTGCT	22	45.45	60.76
nCoV-2019_76_LEFT_alt3	nCoV-2019_2	GGGCAAACTGGAAAGATTGCTGA	23	47.83	61.87
nCoV-2019_76_RIGHT	nCoV-2019_2	ACACCTGTGCCTGTTAAACCAT	22	45.45	60.42
nCoV-2019_76_RIGHT_alt0	nCoV-2019_2	ACCTGTGCCTGTTAAACCATTGA	23	43.48	60.69
nCoV-2019_77_LEFT	nCoV-2019_1	CCAGCAACTGTTTGTGGACCTA	22	50	60.75
nCoV-2019_77_RIGHT	nCoV-2019_1	CAGCCCCTATTAAACAGCCTGC	22	54.55	61.59
nCoV-2019_78_LEFT	nCoV-2019_2	CAACTTACTCCTACTTGGCGTGT	23	47.83	60.55
nCoV-2019_78_RIGHT	nCoV-2019_2	TGTGTACAAAAACTGCCATATTGCA	25	36	60.22
nCoV-2019_79_LEFT	nCoV-2019_1	GTGGTGATTCAACTGAATGCAGC	23	47.83	60.92
nCoV-2019_79_RIGHT	nCoV-2019_1	CATTTCATCTGTGAGCAAAGGTGG	24	45.83	60.62
nCoV-2019_80_LEFT	nCoV-2019_2	TTGCCTTGGTGATATTGCTGCT	22	45.45	60.89
nCoV-2019_80_RIGHT	nCoV-2019_2	TGGAGCTAAGTTGTTTAACAAGCG	24	41.67	60.02
nCoV-2019_81_LEFT	nCoV-2019_1	GCACTTGGAAAACTTCAAGATGTGG	25	44	61.24
nCoV-2019_81_RIGHT	nCoV-2019_1	GTGAAGTTCTTTTCTTGTGCAGGG	24	45.83	60.73
nCoV-2019_82_LEFT	nCoV-2019_2	GGGCTATCATCTTATGTCCTTCCCT	25	48	61.52
nCoV-2019_82_RIGHT	nCoV-2019_2	TGCCAGAGATGTCACCTAAATCAA	24	41.67	60.02
nCoV-2019_83_LEFT	nCoV-2019_1	TCCTTTGCAACCTGAATTAGACTCA	25	40	60.46
nCoV-2019_83_RIGHT	nCoV-2019_1	TTTGACTCCTTTGAGCACTGGC	22	50	61.33
nCoV-2019_84_LEFT	nCoV-2019_2	TGCTGTAGTTGTCTCAAGGGCT	22	50	61.61
nCoV-2019_84_RIGHT	nCoV-2019_2	AGGTGTGAGTAAACTGTTACAAACAAC	27	37.04	60.36
nCoV-2019_85_LEFT	nCoV-2019_1	ACTAGCACTCTCCAAGGGTGTT	22	50	61.03

nCoV-2019_85_RIGHT	nCoV-2019_1	ACACAGTCTTTTACTCCAGATTCCC	25	44	60.51
nCoV-2019_86_LEFT	nCoV-2019_2	TCAGGTGATGGCACAACAAGTC	22	50	61.07
nCoV-2019_86_RIGHT	nCoV-2019_2	ACGAAAGCAAGAAAAAGAAGTACGC	25	40	61.01
nCoV-2019_87_LEFT	nCoV-2019_1	CGACTACTAGCGTGCCTTTGTA	22	50	60.16
nCoV-2019_87_RIGHT	nCoV-2019_1	ACTAGGTTCCATTGTTCAAGGAGC	24	45.83	60.81
nCoV-2019_88_LEFT	nCoV-2019_2	CCATGGCAGATTCCAACGGTAC	22	54.55	61.58
nCoV-2019_88_RIGHT	nCoV-2019_2	TGGTCAGAATAGTGCCATGGAGT	23	47.83	61.4
nCoV-2019_89_LEFT	nCoV-2019_1	GTACGCGTTCCATGTGGTCATT	22	50	61.5
nCoV-2019_89_LEFT_alt2	nCoV-2019_1	CGCGTTCCATGTGGTCATTCAA	22	50	62.01
nCoV-2019_89_RIGHT	nCoV-2019_1	ACCTGAAAGTCAACGAGATGAAACA	25	40	60.91
nCoV-2019_89_RIGHT_alt4	nCoV-2019_1	ACGAGATGAAACATCTGTTGTCACT	25	40	60.74
nCoV-2019_90_LEFT	nCoV-2019_2	ACACAGACCATTCCAGTAGCAGT	23	47.83	61.58
nCoV-2019_90_RIGHT	nCoV-2019_2	TGAAATGGTGAATTGCCCTCGT	22	45.45	60.82
nCoV-2019_91_LEFT	nCoV-2019_1	TCACTACCAAGAGTGTGTTAGAGGT	25	44	60.93
nCoV-2019_91_RIGHT	nCoV-2019_1	TTCAAGTGAGAACCAAAAGATAATAAGCA	29	31.03	60.03
nCoV-2019_92_LEFT	nCoV-2019_2	TTTGTGCTTTTTAGCCTTTCTGCT	24	37.5	60.14
nCoV-2019_92_RIGHT	nCoV-2019_2	AGGTTCCTGGCAATTAATTGTAAAAGG	27	37.04	60.53
nCoV-2019_93_LEFT	nCoV-2019_1	TGAGGCTGGTTCTAAATCACCCA	23	47.83	61.59
nCoV-2019_93_RIGHT	nCoV-2019_1	AGGTCTTCCTTGCCATGTTGAG	22	50	60.55
nCoV-2019_94_LEFT	nCoV-2019_2	GGCCCCAAGGTTTACCCAATAA	22	50	60.56
nCoV-2019_94_RIGHT	nCoV-2019_2	TTTGGCAATGTTGTTCCTTGAGG	23	43.48	60.18
nCoV-2019_95_LEFT	nCoV-2019_1	TGAGGGAGCCTTGAATACACCA	22	50	61.1
nCoV-2019_95_RIGHT	nCoV-2019_1	CAGTACGTTTTTGCCGAGGCTT	22	50	61.95
nCoV-2019_96_LEFT	nCoV-2019_2	GCCAACAACAACAAGGCCAAAC	22	50	61.82
nCoV-2019_96_RIGHT	nCoV-2019_2	TAGGCTCTGTTGGTGGGAATGT	22	50	61.36
nCoV-2019_97_LEFT	nCoV-2019_1	TGGATGACAAAGATCCAAATTTCAAAGA	28	32.14	60.22
nCoV-2019_97_RIGHT	nCoV-2019_1	ACACACTGATTAAAGATTGCTATGTGAG	28	35.71	60.17
nCoV-2019_98_LEFT	nCoV-2019_2	AACAATTGCAACAATCCATGAGCA	24	37.5	60.5
nCoV-2019_98_RIGHT	nCoV-2019_2	TTCTCCTAAGAAGCTATTAAAATCACATGG	30	33.33	60.01

Supplemental Table 4. Household transmission pair metadata including accession numbers, difference in days between symptom onset, difference in days between collection dates, and pair identifier.

C Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Column 14
tip1	tip2	muts_between_tips	muts	probability_1_serial_inteval	tube_IDs	time_between_test	direction_based_on_test_date	time_between_symptoms	direction_based_on_symptoms	#comparisons	pair_number
0 USA/WI-UW-41/2020	USA/WI-UW-48/2020	0	[]	0.7496528051576963	20,28	0	28 <--> 20	1	28 <--> 20	2	pair1, pair1a (28 --> 20), pair 1b (20 --> 28)
0 USA/WI-UW-65/2020	USA/WI-UW-32/2020	0	[]	0.7496528051576963	50,8	2	8 <--> 50	2	8 <--> 50	2	pair2, pair2a (8 --> 50), pair2b (50 --> 8)
0 USA/WI-UW-69/2020	USA/WI-UW-61/2020	0	[]	0.7496528051576963	55,44	4	55 --> 44	3	55 <--> 44	2	pair3, pair3a (55 --> 44), pair3b (44 --> 55)
0 USA/WI-UW-70/2020	USA/WI-UW-67/2020	0	[]	0.7496528051576963	56,53	6	56 --> 53	5	56 --> 53	1	pair4
0 USA/WI-UW-74/2020	USA/WI-UW-29/2020	0	[]	0.7496528051576963	61,5	4	61 --> 5	4	61 --> 5	1	pair5
0 USA/WI-UW-438/202...	USA/WI-UW-432/202...	0	[]	0.7496528051576963	744,738	2	738 --> 744	2	738 --> 744	2	pair6, pair 6a (738 --> 744), pair 6b (744 --> 738)
0 USA/WI-UW-544/202...	USA/WI-UW-551/202...	1	['T4917C']	0.21600878707411836	893,884	1	893 <--> 884	4	884 --> 893	1	pair7
0 USA/WI-UW-544/202...	USA/WI-UW-575/202...	0	[]	0.7496528051576963	884,903	1	884 <--> 903	asx	884 --> 903	2	pair8, pair8a (884 --> 903), pair8b (903 --> 884)
0 USA/WI-UW-551/202...	USA/WI-UW-575/202...	1	['T4917C']	0.21600878707411836	893,903	0	893 <--> 903	asx	893 <--> 903	2	pair9, pair9a (893 --> 903), pair9b (903 --> 893)
0 USA/WI-UW-546/202...	USA/WI-UW-586/202...	0	[]	0.7496528051576963	887,916	0	887 <--> 916	1	887 <--> 916	2	pair10, pair10a (887 --> 916), pair 10b (916 --> 887)
0 USA/WI-UW-546/202...	USA/WI-UW-443/202...	0	[]	0.7496528051576963	887,749	0	887 <--> 749	0	887 <--> 749	2	pair11, pair 11a (887 --> 749), pair 11b (749 --> 887)
0 USA/WI-UW-586/202...	USA/WI-UW-443/202...	0	[]	0.7496528051576963	916,749	0	916 <--> 749	1	916 <--> 749	2	pair12, pair12a (916 --> 749), pair12b (749 --> 916)
0 USA/WI-UW-577/202...	USA/WI-UW-536/202...	0	[]	0.7496528051576963	906,849	0	906 <--> 849	asx	906 <--> 849	2	pair13, pair13a (906 --> 849), piar13b (849 --> 906)
0 USA/WI-UW-598/202...	USA/WI-UW-602/202...	0	[]	0.7496528051576963	956,962	3	956 --> 962	4	962 --> 956	2	pair14
0 USA/WI-UW-601/202...	USA/WI-UW-780/202...	0	[]	0.7496528051576963	961,1195	8	961 --> 1195	5	961 --> 1195	1	pair15
?(USA/WI-UW-756/202...	USA/WI-UW-893/202...	0	[]	0.7496528051576963	1157,1346	7	1157 --> 1346	6	1157 --> 1346	1	pair16
0 USA/WI-UW-874/202...	USA/WI-UW-986/202...	0	[]	0.7496528051576963	1326,1495	3	1326 --> 1495	asx	1326 <--> 1495	1	pair17
0 USA/WI-UW-874/202...	USA/WI-UW-997/202...	0	[]	0.7496528051576963	1326,1512	3	1326 --> 1512	asx	1326 <--> 1512	1	pair18
0 USA/WI-UW-874/202...	USA/WI-UW-991/202...	0	[]	0.7496528051576963	1326,1502	3	1326 --> 1502	asx	1326 <--> 1502	1	pair19
0 USA/WI-UW-986/202...	USA/WI-UW-997/202...	0	[]	0.7496528051576963	1495,1512	0	1495 <--> 1512	asx	1495 <--> 1512	2	pair20, pair20a (1495 --> 1512), pair20b (1512 --> 1495)
0 USA/WI-UW-986/202...	USA/WI-UW-991/202...	0	[]	0.7496528051576963	1495,1502	0	1495 <--> 1502	asx	1495 <--> 1502	2	pair21, pair21a (1495 --> 1502), pair21b (1502 --> 1495)
0 USA/WI-UW-997/202...	USA/WI-UW-991/202...	0	[]	0.7496528051576963	1512,1502	0	1512 <--> 1502	asx	1512 <--> 1502	2	pair22, pair22a (1512 --> 1502), pair22b (1502 --> 1512)
0 USA/WI-UW-895/202...	USA/WI-UW-876/202...	0	[]	0.7496528051576963	1353,1328	0	1353 <--> 1328	3	1353 --> 1328	1	pair23
0 USA/WI-UW-895/202...	USA/WI-UW-863/202...	2	['A15942C', 'C25006T']	0.031120937434107567	1353,1297	0	1353 <--> 1297	3	1353 --> 1297	1	pair24
0 USA/WI-UW-876/202...	USA/WI-UW-863/202...	2	['A15942C', 'C25006T']	0.031120937434107567	1328,1297	0	1297 <--> 1328	0	1297 --> 1328	1	pair25, pair25a (1297 --> 1328), pair25b (1328 --> 1297)
0 USA/WI-UW-158/202...	USA/WI-UW-160/202...	0	[]	0.7496528051576963	195,197	0	195 <--> 197	NA	195 <--> 197	2	pair26, pair26a (195 --> 197), pair26b (197 --> 195)
0 USA/WI-UW-333/202...	USA/WI-UW-334/202...	0	[]	0.7496528051576963	453,454	0	453 <--> 454	NA	453 <--> 454	2	pair27, pair27a (453 --> 454), pair27b (454 --> 453)
0 USA/WI-UW-119/202...	USA/WI-UW-120/202...	0	[]	0.7496528051576963	128,130	3	128 --> 130	10	130 --> 128	1	pair28