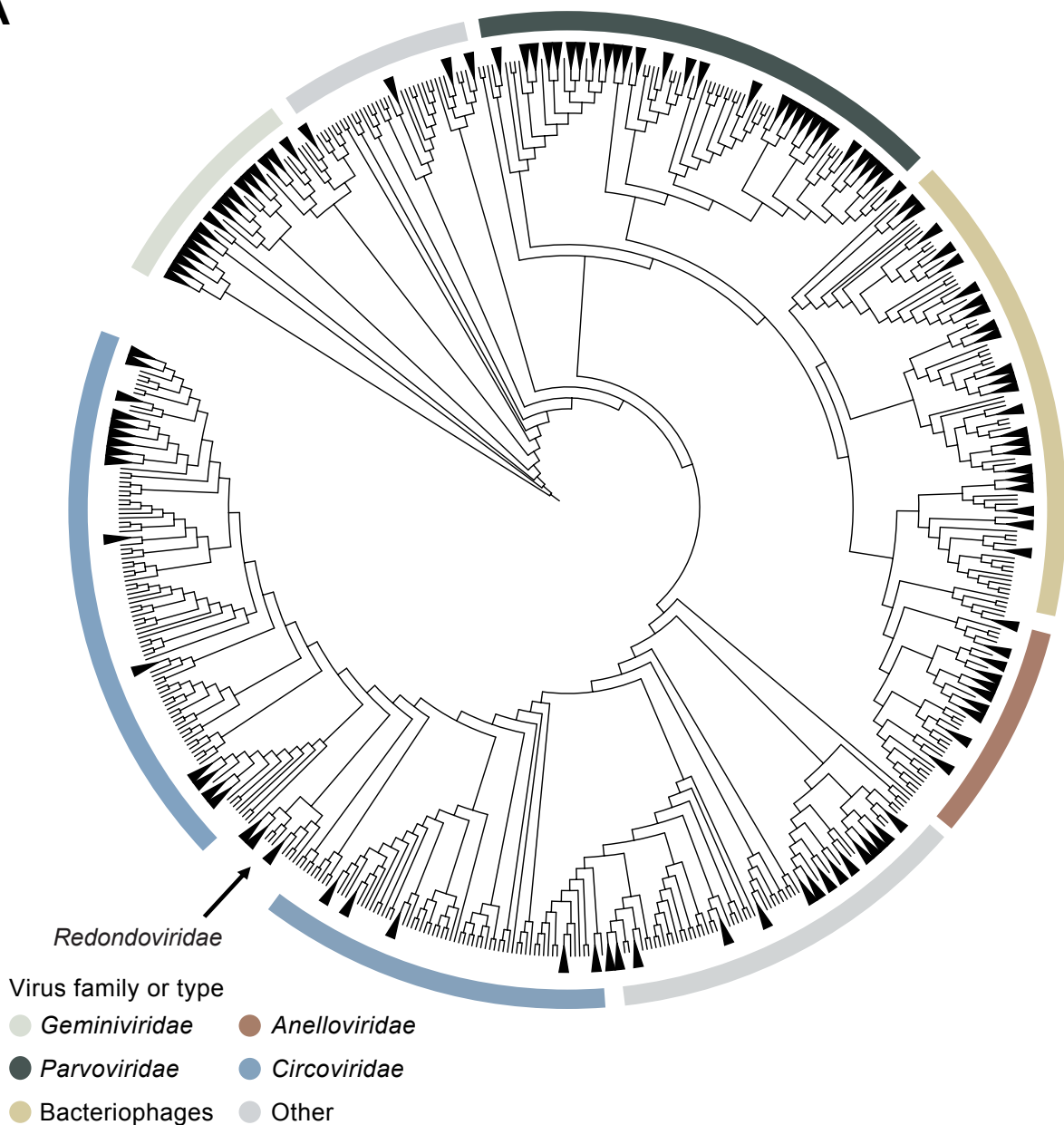


A



B

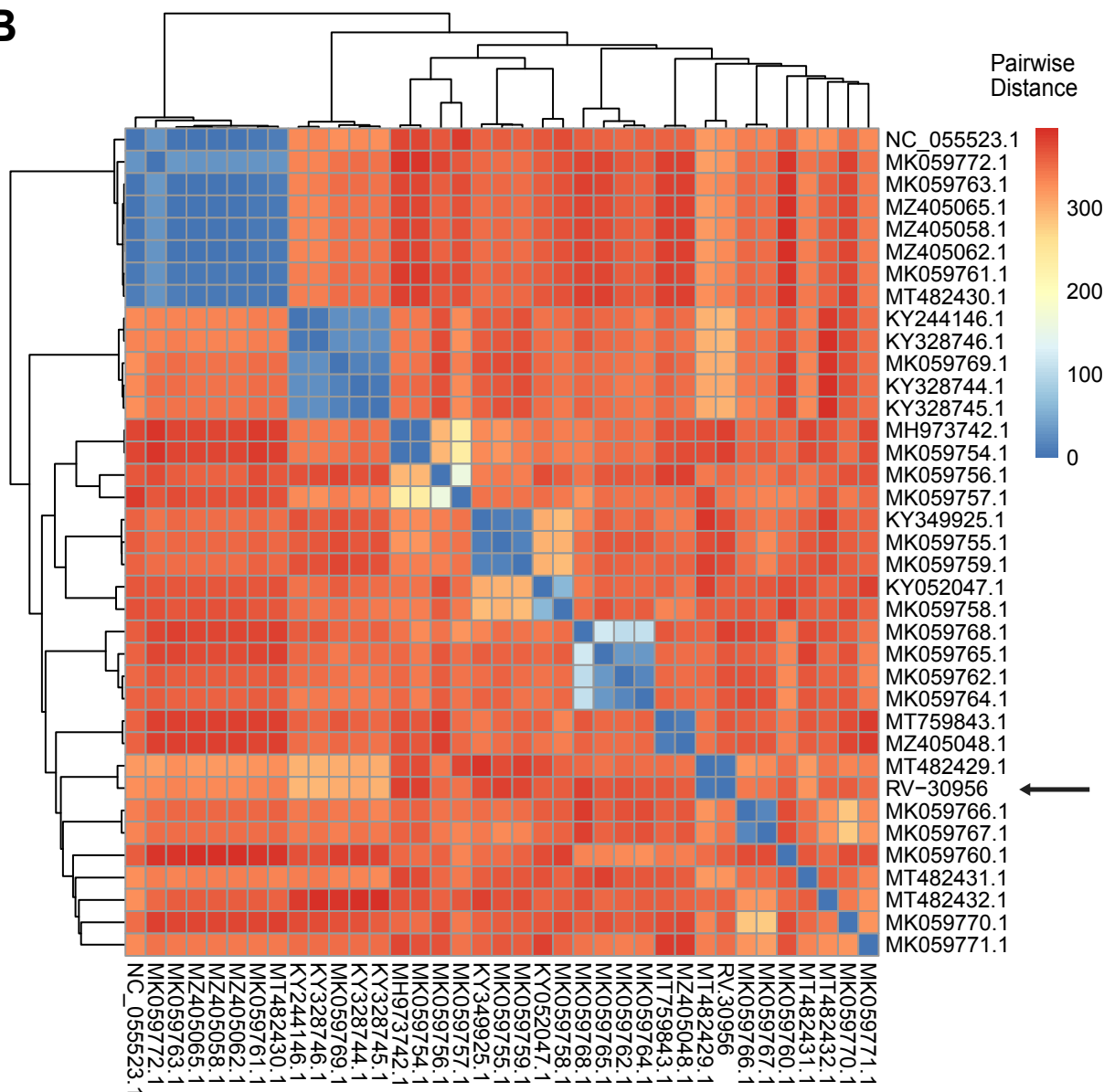


Figure S1. Analysis of redondovirus sequence information; related to Figure 1. (A) Phylogeny of the genomes of 2,164 ssDNA viruses (10 redondovirus genomes and 2,154 genomes of eukaryotic and prokaryotic viruses in the ViPTree ssDNA database; Table S1) based on genome-wide amino-acid sequence similarities in Rep proteins computed by tBLASTx68. iTOL was used for tree visualization and clade collapsing<sup>55</sup>. Colored bands denote virus family or type. Note that redondoviruses cluster distantly in the tree from any annotated ssDNA bacteriophages. (B) Heat map quantifying divergence among known redondovirus Rep protein sequences according to pairwise amino acid distance. RV-30956 is the isolate from the xenic culture described in this work. The R package pheatmap (v1.0.12) was used for figure creation.

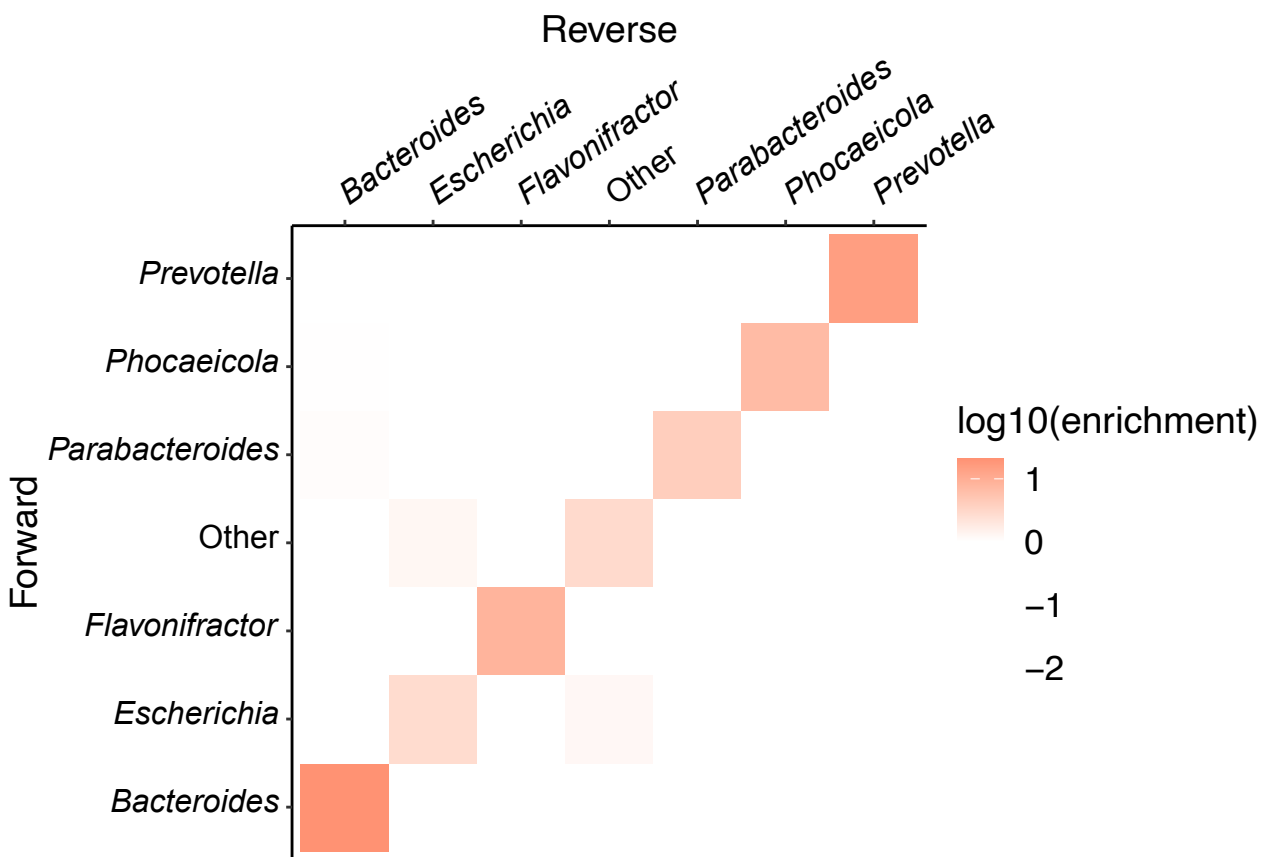


Figure S2. Positive control for the Hi-C data; related to Figure 5. The figure shows the level of enrichment of same species mate pairs in the Hi-C cross-linking data. Taxa are as indicated along the x and y axes and correspond to the most abundant lineages detected in the xenic culture in the metagenomic analysis. Forward indicates forward orientation sequence reads, “reverse” indicates reverse orientation reads. “Other” indicates lineages detected at lower abundances.

Table S2. CRESS virus and putative host genomic GC content; related to Figure 1B.

<b>virus_family</b>	<b>virus_species</b>	<b>median_virus_g_virus_gc_sourc</b>	<b>host</b>	<b>median_host_gc</b>	<b>virus_gc_source</b>	<b>virus_host_relationship_source</b>
Geminiviridae	Beet curly top Iran virus	40.85	NCBI ID: 6133	Beta vulgaris	36.2	NCBI ID: 221 PMID: 34838538
Geminiviridae	Spinach curly top Arizona virus	40	NCBI ID: 4168	Spinacia oleracea	37.9561	NCBI ID: 7547 PMID: 24658781
Geminiviridae	Euphorbia caput-medusae latent virus	40.1	NCBI ID: 45103	Nicotiana benthamiana	39.6	NCBI ID: 10940 doi: 10.1128/JVI.00453-15
Geminiviridae	French bean severe leaf curl virus	40.9	NCBI ID: 14863	Phaseolus vulgaris	33.9867	NCBI ID: 380 PMID: 28283818
Geminiviridae	Citrus chlorotic dwarf associated virus	44.2	NCBI ID: 14497	Citrus clementina	35.2	NCBI ID: 11310 PMID: 22749878
Geminiviridae	Passion fruit chlorotic mottle virus	42.9	NCBI ID: 75612	Passiflora edulis	38.6	NCBI ID: 13910 PMID: 29614801
Geminiviridae	Beet curly top virus	39.75	NCBI ID: 4573	Beta vulgaris	36.2	NCBI ID: 221 PMID: 16453696
Geminiviridae	Spinach severe curly top virus	38.1	NCBI ID: 4088	Spinacia oleracea	37.9561	NCBI ID: 7547 PMID: 30743586
Geminiviridae	Eragrostis curvula streak virus	49.15	NCBI ID: 6462	Eragrostis curvula	45.6393	NCBI ID: 83361 PMID: 24658781
Geminiviridae	Grapevine red blotch virus	41.45	NCBI ID: 22388	Vitis amurensis	34.3005	NCBI ID: 13335 PMID: 22733880
Geminiviridae	Prunus latent virus	42.1	NCBI ID: 79245	Prunus avium	38.8	NCBI ID: 11780 PMID: 3067358
Geminiviridae	Wild vitis latent virus	41.85	NCBI ID: 56301	Vitis riparia	34.5114	NCBI ID: 13150 PMID: 28942517
Geminiviridae	Apple geminivirus 1	45.6	NCBI ID: 108007	Malus domestica	38.1135	NCBI ID: 358 PMID: 25934791
Geminiviridae	Grapevine geminivirus A	43.3	NCBI ID: 46572	Vitis vinifera	33.8	NCBI ID: 401 PMID: 27670772
Geminiviridae	Maize streak virus	48.85	NCBI ID: 4774	Zea mays	46.7893	NCBI ID: 12 PMID: 20078771
Geminiviridae	Wheat dwarf virus	48.6	NCBI ID: 5581	Triticum aestivum	46.041	NCBI ID: 11 PMID: 11858231
Geminiviridae	Wheat dwarf virus	48.6	NCBI ID: 5582	Hordeum vulgare	44.4537	NCBI ID: 9 PMID: 11858231
Geminiviridae	Tomato apical leaf curl virus	39.6	NCBI ID: 66644	Solanum lycopersicum	34.7	NCBI ID: 7 PMID: 29375528
Geminiviridae	Tomato pseudo-curly top virus	41.6	NCBI ID: 4779	Solanum lycopersicum	34.7	NCBI ID: 7 PMID: 8638404
Geminiviridae	Turnip curly top virus	42.4	NCBI ID: 4009	Brassica rapa	36.8946	NCBI ID: 229 PMID: 24658781
Genomoviridae	Sclerotinia sclerotiorum hypovirulence-assc	46.8	NCBI ID: 3772	Sclerotinia sclerotiorum	41.6	NCBI ID: 487 PMID: 27343045
Redondoviridae	Vientovirus	34.6	NCBI ID: 95759	Entamoeba gingivalis_Einvadens	30.3	NCBI ID: 376 This paper
Redondoviridae	Brisavirus	33.9	NCBI ID: 95759	Entamoeba gingivalis_Einvadens	30.3	NCBI ID: 376 This paper
Smacoviridae	Smacovirus	49.5	NCBI ID: 70811	Methanomassiliicoccus intestinal	41.3	NCBI ID: 24496 PMID: 30655519
Naryaviridae	Entamoeba-associated CRESS virus	36.7	NCBI ID: 113528	Entamoeba histolytica	24.95	NCBI ID: 27 PMID: 32934242
Nenyaviridae	Entamoeba-associated CRESS virus	35.95	NCBI ID: 113527	Entamoeba histolytica	24.95	NCBI ID: 27 PMID: 32934242
Vilyaviridae	Giardia-associated CRESS virus	60.5	NCBI ID: 113531	Giardia duodenalis	47.3	NCBI ID: 26 PMID: 32934242
Bacilladnaviridae	Chaetoceros tenuissimus DNA virus type I	43.6	NCBI accession:	Chaetoceros tenuissimus	38.8737	NCBI ID: 110089 PMID: 21666026
Bacilladnaviridae	Chaetoceros tenuissimus DNA virus type II	43.6	NCBI ID: 35384	Chaetoceros tenuissimus	38.8737	NCBI ID: 110089 PMID: 25452289
Nanoviridae	Faba bean necrotic yellows virus	38.6702	NCBI ID: 4634	Glycine max	34.9322	NCBI ID: 5 ISSN: 0031-9465
Nanoviridae	Faba bean necrotic yellows virus	38.6702	NCBI ID: 4634	Phaseolus vulgaris	33.9867	NCBI ID: 380 ISSN: 0031-9468
Nanoviridae	Faba bean necrotic yellows virus	38.6702	NCBI ID: 4634	Vigna unguiculata	32.9	NCBI ID: 11030 doi: 10.1094/PDIS-11-15-1295-PDN
Nanoviridae	Milk vetch dwarf virus	39.5075	NCBI ID: 4385	Nicotiana tabacum	39	NCBI ID: 425 doi: 10.1111/ppa.13196
Nanoviridae	Milk vetch dwarf virus	39.5075	NCBI ID: 4385	Carica papaya	36.0709	NCBI ID: 513 doi: 10.1094/PDIS-02-19-0282-PDN
Nanoviridae	Milk vetch dwarf virus	39.5075	NCBI ID: 4385	Vicia faba	38.9	NCBI ID: 12339 doi: 10.1094/PDIS-02-19-0282-PDN
Nanoviridae	Milk vetch dwarf virus	39.5075	NCBI ID: 4385	Pisum sativum	37.7	NCBI ID: 12050 doi: 10.1088/1755-1315/694/1/012044
Nanoviridae	Banana bunchy top virus	40.3094	NCBI ID: 4812	Musa acuminata	37.8645	NCBI ID: 10976 doi: 10.1088/1755-1315/694/1/012044
Nanoviridae	Banana bunchy top virus	40.3094	NCBI ID: 4812	Musa balbisiana	37.9868	NCBI ID: 16489 doi: 10.1088/1755-1315/694/1/012044
Circoviridae	Porcine circovirus 1	48.6	NCBI ID: 4272	Sus scrofa	41.5	NCBI ID: 84 PMID: 32582087
Circoviridae	Porcine circovirus 2	48.4	NCBI ID: 10314	Sus scrofa	41.5	NCBI ID: 84 PMID: 32582087
Circoviridae	Chicken anemia virus	56.4	NCBI ID: 5587	Gallus gallus domesticus	42.218	NCBI ID: 111 PMID: 32582087

Table S3. Public metagenomic datasets queried for redondovirus and E. gingivalis DNA; related to Figure 2, Figure 3 and Table 1.

bioproject_id	body_site	data_type	disease_state	samples	num_rv_pos_samples	note
PRJEB42701	Oral cavity	Metagenome	Periodontitis	37	15	
PRJNA552294	Oral cavity	Metagenome	Periodontitis	68	24	pooled with PRJNA508385 because associated with same study
PRJNA508385	Oral cavity	Metagenome	Periodontitis	25		pooled with PRJNA552294 because associated with same study
PRJNA547717	Oral cavity	Metagenome	Peri-implantitis	113	41	
PRJNA390659	Lung	Raw sequence reads	Primary graft dysfunction	195	0	
PRJNA419524	BAL, serum	Raw sequence reads	Primary graft dysfunction	120	0	
PRJNA562600	Unknown	Raw sequence reads	Clostridioides difficile infection, inflammatory bowel disease	148	0	
PRJNA661595	Gut	Raw sequence reads	Acute myeloid leukemia	24	0	
PRJNA625082	Oral cavity	Raw sequence reads	Healthy	138	0	
PRJNA580493	Oral cavity	Raw sequence reads	Chemotherapy-induced oral mucositis	107	0	
PRJNA564282	Oral cavity	Raw sequence reads	Congenital neutropenia	59	0	
PRJNA549488	Oral cavity	Raw sequence reads	Pancreatic cancer	558	0	
PRJNA512456	Oral cavity	Raw sequence reads	Cleft lip, cleft palate	143	0	
PRJNA488297	Oral cavity	Metagenome	Glycemic condition	44	0	
PRJNA399163	Oral cavity	Raw sequence reads	Chemotherapy-induced oral mucositis	722	0	
PRJNA387475	Oral cavity	Raw sequence reads	Periodontal disease	126	0	
PRJNA362794	Oral cavity	Raw sequence reads	Unknown	80	0	
PRJNA352060	Oral cavity	Raw sequence reads	Chemotherapy-induced oral mucositis	850	0	
PRJNA321193	Oral cavity	Metagenome	Oral squamous cell carcinoma	542	0	
PRJNA320081	Oral cavity	Raw sequence reads	Healthy	26	0	
PRJNA259979	Oral cavity	Targeted loci	Periodontal disease	32	0	
PRJNA256234	Oral cavity	Metagenome	Periodontal disease	10	0	
PRJEB15392	Oral cavity	Metagenome	Mucositis	1	0	
PRJEB34460	Vagina	Metagenome	Bacterial vaginosis	48	0	
PRJDB9452	Oral cavity	Metagenome	Unknown	114	0	
PRJEB22882	Oral cavity	Virome	Healthy	72	0	
PRJEB29491	Gut	Virome	Unknown	91	0	
PRJEB3206	Gut	Metagenome	Ileocolic Crohn's disease	38	0	
PRJEB36291	Oral cavity	WGS	Healthy	160	0	
PRJEB7772	Gut	Virome	Crohn's disease, ulcerative colitis	338	0	
PRJEB9524	Gut	Virome	AIDS	66	0	
PRJEB9818	Gut	Virome	Severe acute undernutrition	248	0	
PRJNA196801	Gut	Metagenome	Unknown	27	0	
PRJNA275568	Gut	Virome	Islet autoimmunity	96	0	
PRJNA284162	Gut	Metagenome	Unknown	48	0	
PRJNA327423	Unknown	Raw sequence reads	Unknown	289	0	
PRJNA356544	Gut	Virome	Unknown	12	0	
PRJNA385126	Unknown	Virome	Unknown	40	0	
PRJNA387903	Gut	Virome	Type I diabetes	220	0	
PRJNA391511	Gut	Virome	Inflammatory bowel disease, ulcerative colitis	24	0	
PRJNA407341	Unknown	Virome	Unknown	138	0	
PRJNA413824	Oral cavity	Raw sequence reads	Unknown	5	0	
PRJNA415207	Gut	Raw sequence reads	Unknown	29	0	
PRJNA418044	Gut	Virome	Unknown	80	0	
PRJNA446038	Gut	Virome	Clostridioides difficile infection, fecal microbiota transplantation	134	0	
PRJNA46879	Gut	Metagenome	Crohn's disease	600	0	
PRJNA560212	Lung	Metagenome	COPD	88	0	
PRJNA608022	Gut	Raw sequence reads	Unknown	142	0	
PRJNA631867	Lung	Metagenome	COPD	15	0	
PRJNA46335	Lung	Metagenome	Febrile illness	252	0	
PRJNA230838	Oral cavity	Metagenome	Unknown	88	0	
PRJNA450104	Blood, urine	Virome	Kidney transplant recipients with polyomavirus nephropathy	4	0	
PRJNA473017	Nasal cavity	Virome	Respiratory disease	1	0	
PRJNA494633	Lung	Virome	Unknown	39	0	
PRJNA578889	Gut	Virome	Healthy	2	0	
PRJNA608645	Gut	Virome	Unknown	1	0	
PRJNA608022	Gut	Metagenome	Healthy	142	0	
PRJNA644600	Multiple	Virome	Unknown (postmortem)	10	0	

Table S4. NCBI accessions for redondovirus and *E. gingivalis* alignment targets; related to Figure 2 and Figure 3.

<b>NCBI_accession</b>	<b>target_type</b>	<b>target_length</b>
MT759843.1	Redondovirus genome	3054
MT482432.1	Redondovirus genome	3054
MT482431.1	Redondovirus genome	3047
MT482430.1	Redondovirus genome	3056
MT482429.1	Redondovirus genome	3045
KY052047.1	Redondovirus genome	3018
MT482428.1	Redondovirus genome	3034
NC_055523.1	Redondovirus genome	3056
KY244146	Redondovirus genome	3054
KY328744.1	Redondovirus genome	3054
KY328745.1	Redondovirus genome	3054
KY328746.1	Redondovirus genome	3054
KY349925.1	Redondovirus genome	3019
MH973742.1	Redondovirus genome	3033
MK059754.1	Redondovirus genome	3049
MK059755.1	Redondovirus genome	3023
MK059756.1	Redondovirus genome	3050
MK059757.1	Redondovirus genome	3026
MK059758.1	Redondovirus genome	3034
MK059759.1	Redondovirus genome	3030
MK059760.1	Redondovirus genome	3043
MK059761.1	Redondovirus genome	3053
MK059762.1	Redondovirus genome	3054
MK059763.1	Redondovirus genome	3056
MK059764.1	Redondovirus genome	3050
MK059765.1	Redondovirus genome	3051
MK059766.1	Redondovirus genome	3052
MK059767.1	Redondovirus genome	3051
MK059768.1	Redondovirus genome	3058
MK059769.1	Redondovirus genome	3053
MK059770.1	Redondovirus genome	3058
MK059771.1	Redondovirus genome	3046
MK059772.1	Redondovirus genome	3046
MZ405065.1	Redondovirus genome	3056
MZ405064.1	Redondovirus genome	3056
MZ405063.1	Redondovirus genome	3056
MZ405062.1	Redondovirus genome	3056
MZ405061.1	Redondovirus genome	3056
MZ405060.1	Redondovirus genome	3056
MZ405059.1	Redondovirus genome	3056
MZ405058.1	Redondovirus genome	3056

MZ405057.1	Redondovirus genome	3040
MZ405056.1	Redondovirus genome	3056
MZ405055.1	Redondovirus genome	3056
MZ405054.1	Redondovirus genome	3056
MZ405053.1	Redondovirus genome	3040
MZ405052.1	Redondovirus genome	3056
MZ405051.1	Redondovirus genome	3059
MZ405050.1	Redondovirus genome	3059
MZ405049.1	Redondovirus genome	3060
MZ405048.1	Redondovirus genome	3059
MZ405047.1	Redondovirus genome	3056
MZ405046.1	Redondovirus genome	3058
MZ405045.1	Redondovirus genome	3056
MZ405044.1	Redondovirus genome	3056
MZ405043.1	Redondovirus genome	3056
MZ405042.1	Redondovirus genome	3056
MZ405041.1	Redondovirus genome	3056
MZ405040.1	Redondovirus genome	3056
MZ405039.1	Redondovirus genome	3056
MZ405038.1	Redondovirus genome	3059
MZ405037.1	Redondovirus genome	3060
MZ405036.1	Redondovirus genome	3059
MZ405035.1	Redondovirus genome	3055
MZ405034.1	Redondovirus genome	3067
MZ405033.1	Redondovirus genome	3057
MZ405032.1	Redondovirus genome	3057
MZ405031.1	Redondovirus genome	3043
MZ405030.1	Redondovirus genome	3039
MZ405029.1	Redondovirus genome	3084
MZ405028.1	Redondovirus genome	3023
MZ405027.1	Redondovirus genome	3090
MZ405026.1	Redondovirus genome	3023
MZ405025.1	Redondovirus genome	3023
MZ405024.1	Redondovirus genome	3023
MZ405023.1	Redondovirus genome	3038
MZ405022.1	Redondovirus genome	3056
MZ405021.1	Redondovirus genome	2955
MZ405020.1	Redondovirus genome	3061
MZ405019.1	Redondovirus genome	3049
MZ405018.1	Redondovirus genome	3049
D28490.1	<i>E. gingivalis</i> SrRNA gene	1918
KX027298.1	<i>E. gingivalis</i> small subunit	2287
KX027297.1	<i>E. gingivalis</i> small subunit	2316
KX027296.1	<i>E. gingivalis</i> small subunit	2339
KX027295.1	<i>E. gingivalis</i> small subunit	2186

KX027294.1	<i>E. gingivalis</i> small subunit	2336
KX061779.1	<i>E. gingivalis</i> 18S rRNA ger	660
KX061778.1	<i>E. gingivalis</i> 18S rRNA ger	655
MG601094.1	<i>E. gingivalis</i> 18S rRNA ger	450
KF250436.1	<i>E. gingivalis</i> 18S rRNA ger	631
KF250435.1	<i>E. gingivalis</i> 18S rRNA ger	625
KF250434.1	<i>E. gingivalis</i> 18S rRNA ger	637
KF250433.1	<i>E. gingivalis</i> 18S rRNA ger	623
MZ388564.1	<i>E. gingivalis</i> small subunit	460
MZ388563.1	<i>E. gingivalis</i> small subunit	462
MZ388562.1	<i>E. gingivalis</i> small subunit	451
MZ388561.1	<i>E. gingivalis</i> small subunit	460
MZ388560.1	<i>E. gingivalis</i> small subunit	454
MZ388559.1	<i>E. gingivalis</i> small subunit	463
KX027293.1	<i>E. gingivalis</i> 18S rRNA ger	500
KX027292.1	<i>E. gingivalis</i> 18S rRNA ger	368
KX027291.1	<i>E. gingivalis</i> 18S rRNA ger	369
KX027290.1	<i>E. gingivalis</i> 18S rRNA ger	520
KX027289.1	<i>E. gingivalis</i> 18S rRNA ger	489
KX027288.1	<i>E. gingivalis</i> 18S rRNA ger	369
KX027287.1	<i>E. gingivalis</i> 18S rRNA ger	368
KX027286.1	<i>E. gingivalis</i> 18S rRNA ger	369
MW676260.1	<i>E. gingivalis</i> small subunit	370

Table S5. Metadata for COVID and non-COVID ICU patients; related to Table 1.

subject_id	age	gender	diagnoses	mech_ventilation	eging_mean_ct	eging_call	rv_mean_ct	rv_call	covid_status
560	79	male	sepsis, acute kidney injury	tracheostomy		40 neg		40 neg	nonCOVID
562	71	male	septic shock, hypoxic respirat	tracheostomy		40 neg		40 neg	nonCOVID
563	27	male	septic shock, hypoxic respirat	endotracheal intubation		40 neg		40 neg	nonCOVID
564	60	female	B-cell lymphoma, malignant h	endotracheal intubation		40 neg		40 neg	nonCOVID
565	65	mae	hypoxic respiratory failure sec	tracheostomy		40 neg		40 neg	nonCOVID
566	47	male	septic shock, hypoxemic & hy	endotracheal intubation		40 neg		40 neg	nonCOVID
567	64	male	hypoxic respiratory failure, pu	endotracheal intubation	34.9 pos		30.26 pos		nonCOVID
568	20	female	bacterial pneumonia, sepsis, l	endotracheal intubation		40 neg		40 neg	nonCOVID
569	52	female	hypoxemic respiratory failure,	endotracheal intubation		40 neg		40 neg	nonCOVID
570	77	male	septic shock	endotracheal intubation		40 neg		40 neg	nonCOVID
571	55	male	hypoxemic respiratory failure,	endotracheal intubation		40 neg		40 neg	nonCOVID
572	51	female	hypoxemic respiratory failure,	tracheostomy		40 neg		40 neg	nonCOVID
573	49	male	multiple myeloma, septic shoc	endotracheal intubation		40 neg		40 neg	nonCOVID
576	64	male	septic shock, respiratory failur	endotracheal intubation		40 neg		40 neg	nonCOVID
577	60	male	hypoxemic respiratory failure,	endotracheal intubation		40 neg		40 neg	nonCOVID
578	55	female	hypoxemic respiratory failure,	endotracheal intubation		40 neg		40 neg	nonCOVID
579	63	female	hypoxic respiratory failure, se	endotracheal intubation		40 neg		40 neg	nonCOVID
581	30	male	hypoxemic respiratory failure,	endotracheal intubation		40 neg		40 neg	nonCOVID
582	68	male	septic shock, PEA arrest, hypc	endotracheal intubation		40 neg		40 neg	nonCOVID
583	61	female	hypoxemic respiratory failure,	endotracheal intubation		40 neg		40 neg	nonCOVID
584	62	male	hemorrhagic stroke, hypoxic r	endotracheal intubation		40 neg		40 neg	nonCOVID
585	49	male	acute renal failure, cirrhosis, z	endotracheal intubation		40 neg		40 neg	nonCOVID
586	61	male	multipressor shock, respirator	endotracheal intubation	29.55 pos		33.4 pos		nonCOVID
CORE079	58	male	hypoxia	endotracheal intubation		40 neg		40 neg	nonCOVID
CORE068	35	male	MRSA bacteremia, ventilator-	endotracheal intubation		40 neg		40 neg	nonCOVID
CORE0179	76	female	hypoxia	endotracheal intubation		40 neg		40 neg	nonCOVID
CORE0180	51	male	acute hypoxic respiratory failu	endotracheal intubation		40 neg		40 neg	nonCOVID
CORE0181	39	female	respiratory failure	endotracheal intubation		40 neg		40 neg	nonCOVID
CORE0182	61	male	pneumonia, MRSA bacteremi	none		40 neg		40 neg	nonCOVID
CORE0184	56	male	hypoxia	endotracheal intubation		40 neg		40 neg	nonCOVID
CORE0185	60	male	sepsis, acute respiratory failur	endotracheal intubation		40 neg		40 neg	nonCOVID
CORE0187	55	male	sepsis, multifocal pneumonia,	endotracheal intubation		40 neg		40 neg	nonCOVID
CORE0188	57	male	hypoxia, shock	endotracheal intubation		40 neg		40 neg	nonCOVID
CORE0189	81	female	shock, pneumonia	endotracheal intubation		40 neg		40 neg	nonCOVID
CORE0190	60	male	hypoxia, pneumonia	endotracheal intubation		40 neg		40 neg	nonCOVID
CORE0294	63	male	tachypneic, hypercarbia	none		40 neg		40 neg	nonCOVID
CORE0295	71	female	hemodynamic instability	none	37.99021333 pos		34.622 pos		nonCOVID
CORE0296	94	male	respiratory failure,sepsis	none		40 neg		40 neg	nonCOVID
CORE0193	63	male	COVID	none		40 neg		40 neg	COVID
CORE0196	38	male	COVID	endotracheal intubation	31.70433333 pos		24.067 pos		COVID
CORE0197	51	male	COVID	endotracheal intubation	37.22081944 pos		31.251 pos		COVID
CORE0200	74	male	COVID	none		40 neg		40 neg	COVID
CORE0201	58	female	COVID	none		40 neg		40 neg	COVID
CORE0202	55	male	COVID	none		40 neg		40 neg	COVID
CORE0203	53	male	COVID	endotracheal intubation	35.66266667 pos		25.18 pos		COVID
CORE0204	66	male	COVID	endotracheal intubation	39.00620433 pos		29.209 pos		COVID
CORE0205	41	male	COVID	endotracheal intubation		40 neg		30.514 pos	COVID
CORE0206	79	female	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0207	69	female	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0208	76	male	COVID	none		40 neg		40 neg	COVID
CORE0209	71	male	COVID	endotracheal intubation	38.54933333 pos			40 neg	COVID
CORE0210	70	male	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0211	67	female	COVID	endotracheal intubation	34.08166667 pos		29.11 pos		COVID
CORE0212	60	female	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0213	70	female	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0215	44	female	COVID	none	32.507 pos			40 neg	COVID
CORE0216	59	female	COVID	endotracheal intubation	32.89566667 pos			40 neg	COVID
CORE0218	53	male	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0219	61	female	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0220	86	female	COVID	none		40 neg		40 neg	COVID
CORE0221	77	male	COVID	endotracheal intubation	33.97766667 pos		25.622 pos		COVID
CORE0222	54	male	COVID	endotracheal intubation	31.725 pos			40 neg	COVID
CORE0223	84	female	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0224	52	male	COVID	none		40 neg		40 neg	COVID
CORE0225	65	male	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0226	62	female	COVID	none		40 neg		40 neg	COVID
CORE0227	54	female	COVID	endotracheal intubation	38.05666667 pos		27.191 pos		COVID
CORE0228	65	male	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0229	84	male	COVID	none		40 neg		40 neg	COVID
CORE0230	55	female	COVID	none	39.25833333 neg			40 neg	COVID
CORE0232	54	female	COVID	none		40 neg		40 neg	COVID
CORE0233	73	male	COVID	none		40 neg		40 neg	COVID
CORE0234	75	female	COVID	none		40 neg		40 neg	COVID
CORE0235	76	male	COVID	none		40 neg		40 neg	COVID
CORE0236	70	female	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0237	64	male	COVID	none		40 neg		40 neg	COVID
CORE0238	57	female	COVID	none		40 neg		40 neg	COVID
CORE0239	73	female	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0240	85	male	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0242	58	male	COVID	endotracheal intubation		40 neg		40 neg	COVID
CORE0244	37	male	COVID	none		40 neg		40 neg	COVID
CORE0245	72	male	COVID	none		40 neg		40 neg	COVID



CORE0246	50 female	COVID	none	40 neg	40 neg	COVID
CORE0247	60 male	COVID	none	40 neg	40 neg	COVID
CORE0248	38 male	COVID	endotracheal intubation	34.88308 pos	25.333 pos	COVID
CORE0251	65 female	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0252	67 male	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0253	79 female	COVID	none	40 neg	40 neg	COVID
CORE0254	66 male	COVID	none	40 neg	40 neg	COVID
CORE0255	58 male	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0256	46 female	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0257	90 female	COVID	none	38.502 pos	40 neg	COVID
CORE0258	89 female	COVID	none	40 neg	40 neg	COVID
CORE0259	54 male	COVID	none	40 neg	40 neg	COVID
CORE0260	62 male	COVID	endotracheal intubation	33.02766667 pos	21.90873019 pos	COVID
CORE0261	88 female	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0262	78 male	COVID	none	40 neg	40 neg	COVID
CORE0263	62 female	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0264	67 female	COVID	none	40 neg	40 neg	COVID
CORE0266	54 male	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0268	67 female	COVID	none	40 neg	40 neg	COVID
CORE0269	57 male	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0270	64 male	COVID	none	40 neg	40 neg	COVID
CORE0271	89 female	COVID	none	40 neg	40 neg	COVID
CORE0272	61 male	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0275	57 female	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0276	73 male	COVID	none	40 neg	40 neg	COVID
CORE0277	70 male	COVID	none	40 neg	40 neg	COVID
CORE0278	82 female	COVID	none	40 neg	40 neg	COVID
CORE0279	78 female	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0280	91 female	COVID	none	40 neg	40 neg	COVID
CORE0282	58 male	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0283	83 male	COVID	none	40 neg	40 neg	COVID
CORE0284	76 male	COVID	none	40 neg	40 neg	COVID
CORE0285	77 male	COVID	none	40 neg	40 neg	COVID
CORE0286	52 male	COVID	none	40 neg	40 neg	COVID
CORE0287	69 female	COVID	none	40 neg	40 neg	COVID
CORE0288	36 female	COVID	endotracheal intubation	40 neg	40 neg	COVID
CORE0289	77 female	COVID	none	40 neg	40 neg	COVID
CORE0290	64 female	COVID	none	40 neg	40 neg	COVID
CORE0291	69 female	COVID	none	40 neg	40 neg	COVID
CORE0292	62 female	COVID	none	40 neg	40 neg	COVID
CORE0293	39 female	COVID	none	40 neg	40 neg	COVID
CORE0297	84 male	COVID	none	40 neg	40 neg	COVID
CORE0298	61 female	COVID	none	40 neg	40 neg	COVID
CORE0299	66 female	COVID	none	40 neg	40 neg	COVID

Table S6. Metadata for healthy volunteers; related to Table 1.

subject_id	age	gender	condition	eging_mean_ct	eging_call	rv_mean_ct	rv_call
HSAL001	62	male	healthy	40	neg	40	neg
HSAL002	27	male	healthy	40	neg	40	neg
HSAL003	69	male	healthy	31.81685448	pos	22.5570116	pos
HSAL004	44	female	healthy	40	neg	40	neg
HSAL005	30	female	healthy	32.87300618	pos	30.5517006	pos
HSAL006	35	male	healthy	40	neg	40	neg
HSAL007	23	female	healthy	40	neg	40	neg
HSAL008	25	female	healthy	36.41320038	pos	21.4607277	pos
HSAL009	54	man	healthy	35.25453568	pos	24.485199	pos
HSAL010	26	female	healthy	40	neg	40	neg
HSAL011	61	male	healthy	32.92948023	pos	19.3685875	pos
HSAL012	29	male	healthy	40	neg	40	neg
HSAL013	25	male	healthy	38.00668335	pos	40	neg
HSAL014	27	male	healthy	40	neg	40	neg
HSAL015	40	male	healthy	40	neg	40	neg
HSAL016	43	male	healthy	40	neg	40	neg
HSAL017	26	male	healthy	39.42346954	pos	40	neg
HSAL018	31	female	healthy	34.5552508	pos	16.4751921	pos
HSAL019	29	male	healthy	31.02448463	pos	15.2343102	pos
HSAL020	29	male	healthy	34.88836288	pos	21.1071272	pos
HSAL021	62	male	healthy	40	neg	40	neg
HSAL022	25	male	healthy	40	neg	40	neg
HSAL023	28	male	healthy	33.26438777	pos	24.8730164	pos
HSAL024	32	male	healthy	32.76446279	pos	40	neg
HSAL025	31	female	healthy	40	neg	39.8286781	pos
HSAL026	24	female	healthy	40	neg	40	neg
HSAL027	23	male	healthy	40	neg	40	neg
HSAL028	59	male	healthy	30.15873782	pos	33.2940178	pos
HSAL029	28	female	healthy	40	neg	40	neg
HSAL030	25	male	healthy	40	neg	40	neg
HSAL031	24	female	healthy	40	neg	40	neg
HSAL032	59	male	healthy	36.55816015	pos	20.5655174	pos
HSAL033	27	female	healthy	40	neg	40	neg
HSAL034	39	male	healthy	34.5106837	pos	40	neg
HSAL035	35	male	healthy	35.04918416	pos	40	neg
HSAL036	29	female	healthy	35.79909897	pos	14.5406661	pos
HSAL037	32	male	healthy	34.78148142	pos	21.4707489	pos
HSAL038	24	female	healthy	40	neg	40	neg
HSAL039	36	male	healthy	40	neg	39.5556202	pos
HSAL040	52	female	healthy	40	neg	35.1434994	pos
HSAL041	23	male	healthy	40	neg	40	neg
HSAL042	22	female	healthy	40	neg	39.7518406	pos
HSAL043	30	female	healthy	35.98237356	pos	22.1353025	pos
HSAL044	32	male	healthy	40	neg	40	neg
HSAL045	27	female	healthy	36.63756943	pos	40	neg
HSAL046	26	male	healthy	38.38454946	pos	40	neg
HSAL047	32	female	healthy	40	neg	40	neg
HSAL048	27	female	healthy	40	neg	40	neg
HSAL049	28	male	healthy	40	neg	39.7566147	pos
HSAL050	33	male	healthy	37.73811467	pos	21.553649	pos

Table S7. Public metatranscriptomic datasets queried for redondovirus and *E. gingivalis* RNA; related to Table 1.

<b>bioproject_id</b>	<b>body_site</b>	<b>sample_type</b>	<b>disease_state</b>	<b>samples</b>	<b>num_rv_pos_samples</b>
PRJNA221620	Oral cavity	Gingival tissue	Periodontitis	6	3
PRJNA319790	Oral cavity	Gingival tissue	Periodontitis	2	1
PRJNA780253	Oral cavity	Oral tumors	Squamous cell carcinom	30	0
PRJEB44678	Oral cavity	Hard palate swabs	Unknown (deceased)	17	0
PRJEB4673	Oral cavity	Dental plaque	Unknown	16	0
PRJDB3765	Oral cavity	Subgingival biofilm	Periodontitis, peri-implar	24	0
PRJNA815964	Oral cavity	Unknown	Oral cancer	7	0
PRJNA776154	Oral cavity	Mucosal tissue	Oral cancer	66	0
PRJNA322414	Lung	Sputum	COPD	2	0
PRJNA390194	Lung	BAL	COPD	35	0
PRJNA196118	Gut	Small intestine	Ileostoma	18	0
PRJNA354235	Gut	Fecal matter	Healthy	1307	0
PRJNA563930	Skin	Ulcer biopsy	Diabetes	16	0
PRJNA260091	Skin	Follicular content	Acne	28	0
PRJNA320217	Blood	Blood	Psychiatric illness	192	0
PRJNA599020	Blood	Blood	Healthy	45	0
PRJEB21446	Reproductive tract	Vaginal fluid	Bacterial vaginosis	40	0
PRJNA548791	Reproductive tract	Endometrial biopsy	Healthy	27	0