How To: Identify isolates that have a pair of genes on the same contig (e.g., blaTEM-1 and blaKPC-4)

NCBI Pathogen Detection   https://www.ncbi.nlm.nih.gov/pathogens

NIH U.S. National Library of Medicine
National Center for Biotechnology Information

How do I identify isolates that have a pair of genes on the same contig? (e.g., blaTEM-1 and blaKPC-4)

- Use [MicroBIGG-E](#)
- Use the search term *genes_on_contig* "*genes_on_contig:blaTEM-1 AND genes_on_contig:blaKPC-4*"
- Use Cross-browser selection to view all isolates with these two genes in the Isolates Browser
- Download isolate metadata file

https://www.ncbi.nlm.nih.gov/pathogens

Pathogen Detection BETA

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ℹ️ To assist the National Database of Antibiotic Resistant Organisms (NDARO), NCBI Pathogen Detection identifies the antimicrobial resistance, stress response, and virulence genes found in bacterial genomic sequences. This enables scientists to track the spread of resistance genes and to understand the relationships between antimicrobial resistance and virulence.

NCBI Pathogen Detection integrates bacterial pathogen genomic sequences originating in food, environmental sources, and patients. It quickly clusters and identifies related sequences to uncover potential food contamination sources, helping public health scientists investigate foodborne disease outbreaks.

⚠️ There has been a change to the *Isolation type / epi_type* attribute that affects *min-same/min-diff* computation. Now where an isolate has no information to support the setting *environmental/other* the Browser will no longer default to that value but instead present as *NULL*. This means that the *min-same/min-diff* values for this isolate will present as *n/a*, and other *min-same/min-diff* values for isolates clustered with this isolate may change. Please see the [Help](#) text for more details.

Data Resource

[Isolates Browser](#)

[Microbial Browser for Identification of Genetic and Genomic Elements (MicroBIGG-E)](#)

[Reference Gene Catalog](#)

NEW [Reference HMM Catalog](#)

1. Click MicroBIGG-E

💬 Feedback

Health > P...

Pathogen De... ...dentification of Genetic and Genomic Elements (MicroBIGG-E)

2. Use genes_on_contig command to identify contigs with blaTEM-1 and blaKPC-4

This interface contains ... ...owser that have genomic sequence data available in GenBank and have genotypes identified by AMRFin...

Search

genes_on_contig:blaTEM-1 AND genes_on_contig:blaKPC-4

3. Click Cross-browser selection

Restricted by current cross-browser selection. Click here to reset.

The MicroBIGG-E table and the underlying sequences may be added as cloud resources for those users interested in the entire...

Filters

|◄ ◄ Page 1 of 2 ▶ ▶| ⟳ Records per Page 200 ▾ | ☐ Choose columns | ⬇ Download | Cross-browser selection

#	Scientific name	Protein	BioSample	Isolate	Element sy...	Contig ▲	Start	Stop	S
1	Escherichia coli	EFC8849724.1	SAMN07779623	PDT000251011.2	aph(3')-Ia	AASITL010000054.1	5176	5991	
2	Escherichia coli	EFC8849725.1	SAMN07779623	PDT000251011.2	blaTEM-1	AASITL010000054.1	6474	7334	
3	Escherichia coli	EFC8849728.1	SAMN07779623	PDT000251011.2	blaKPC-4	AASITL010000054.1	13051	13932	
4	Enterobacter horma...	EHF4974919.1	SAMN04571745	PDT000124860.2	aph(3')-Ia	AAZLBK010000038.1	11836	12651	
5	Enterobacter horma...	EHF4974920.1	SAMN04571745	PDT000124860.2	blaTEM-1	AAZLBK010000038.1	13134	13994	
6	Enterobacter horma...	EHF4974923.1	SAMN04571745	PDT000124860.2	blaKPC-4	AAZLBK010000038.1	19712	20593	
7	Enterobacter horma...	EHF4975278.1	SAMN04571745	PDT000124860.2	blaKPC-4	AAZLBK010000087.1	8223	9104	
8	Enterobacter horma...	EHF4975281.1	SAMN04571745	PDT000124860.2	blaTEM-1	AAZLBK010000087.1	14822	15682	
9	Enterobacter horma...	EHF4975282.1	SAMN04571745	PDT000124860.2	aph(3')-Ia	AAZLBK010000087.1	16165	16980	
10	Enterobacter horma...	EHF5012260.1	SAMN03657239	PDT000065097.7	aph(3')-Ia	AAZLBO010000049.1	10599	11414	
11	Enterobacter horma...	EHF5012261.1	SAMN03657239	PDT000065097.7	blaTEM-1	AAZLBO010000049.1	11897	12757	

Health > Pathogen Detection > Isolates Browser

Search

[   ] 🔍

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Filters

Matched Clusters

#	Organism groups	SNP cluster	Matched isolates	Matched clinical isolates	Matched environmental isolates
1	Salmonella enterica	PDS000001865 449	1	1	0
2	E.coli and Shigella			1	0
3	Enterobacter			6	0
4	Enterobacter			3	0
5	Enterobacter			0	0
6	Enterobacter			1	0
7	Enterobacter	PDS000067077.5	2	2	0

4. Select Download

Matched Isolates

|◀ ◀ | Page [1] of 2 | ▶ ▶| | ⟳ | Records per Page [20 ▼] | ☐ Choose columns | ⬇ Download | Show all AMR genotypes | ↗ Expand all | Cross-browser selection

#	Strain	AMRFind...	Source type	PD Ref Gen...	Organism Group	Isolation ...	Scientific name	AMR genotyp...	Stress genoty...	Virulence gen...	AMRFinde
1	PNUSAS219...	3.10.5		2021-06-01.1	Salmonella ente...	clinical	Salmonella ente...	Complete (9) aac(6')-Ib-cr5 aph(3')-Ia arr-3 Show all 9 genes	Complete (3) golS golT qacEdelta1 HMM (1) asr Partial (1) qacE	Complete (4) cdtB iroB iroC Show all 4 genes	COMBINE
2	2021DK-00...	3.10.5		2021-06-01.1	E.coli and Shige...	clinical	Escherichia coli	Complete (6) aac(3)-Ib aph(3')-Ia blaKPC-4 Point (7) gyrA_D87N gyrA_S83L	Complete (4) emrE qacEdelta1 qacF Show all 4 genes	Complete (11) fdeC iha iss HMM (1) sinH Partial (1)	COMBINE

Health > Pathogen Detection > Isolates Browser

Search

[search box] 🔍 | Share | Save | Sa

Restricted by current cross-browser selection. Click here to reset.

Filters

Matched Clusters

#	Organism groups	SNP cluster	Matched isolates	Matched clinical isolates	Matched environmental isolates
1	Salmonella enterica	PDS000001865.449	1	1	0
2	E.coli and Shigella	PDS000035243.175	1	1	0
3	Enterobacter		6	6	0
4	Enterobacter		3	3	0
5	Enterobacter		2	0	0
6	Enterobacter		2	1	0
7	Enterobacter		2	2	0

4. Select Download to download a tab-delimited table containing isolate information

Matched Isolates

◄◄ ◄ Page [1] of 2 ▶ ▶► | 🔄 Records per Pag... ▼ | ⊞ Choose columns 🔽 Download   Show all AMR genotypes   ↗ Expand all | Cross-browser selection

#	Strain	AMRFind...	Source type	PD Ref Gen...		...notyp...	Stress genoty...	Virulence gen...	AMRFind

Download ✕

Data type: [Table ▼]

[Tab-delimited (.tsv) ▼]

Name: [isolates.tsv]

35 isolate record(s)

[Download]   [Cancel]

Row 1: PNUSAS219... 3.10.5 | 2021-06-01.1 | ...e (9))-Ib-cr5 ')-Ia | ...l 9 genes | Complete (3) golS golT qacEdelta1 | HMM (1) asr Partial (1) qacE | Complete (4) cdtB iroB iroC Show all 4 genes | COMBINE

Row 2: 2021DK-00... 3.10.5 | 2021-06-01.1 | E.col ...e (6))-Ib ')-Ia blaKPC-4 | Complete (4) emrE qacEdelta1 qacE | Complete (11) fdeC iha iss | COMBINE

More information

- For full help documentation of the Reference Gene Catalog see:
  https://www.ncbi.nlm.nih.gov/pathogens/pathogens_help/#reference-gene-catalog

- For details about filters see:
  https://www.ncbi.nlm.nih.gov/pathogens/pathogens_help/#refgene-filters

- For details about the table downloads see:
  https://www.ncbi.nlm.nih.gov/pathogens/pathogens_help/#refgene-access-download

Questions and further help: email pd-help@ncbi.nlm.nih.gov