How To: Find all the known resistance mechanisms to a given drug (e.g., chloramphenicol)

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

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

How do I find all the known resistance mechanisms to a given drug (e.g., chloramphenicol)?

- Use the Reference Gene Catalog
- Use filters or search to select subclass “CHLORAMPHENICOL”
- Download table displaying information about these resistance mechanisms

Health > Pathogen Detection

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

Pathogen Detection BETA

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.

Learn More

About

FAQ

Browser Factsheet

Antimicrobial Resistance Factsheet

Antimicrobial Resistance

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Help

Data Resou

Isolates Browser

Microbial Browse

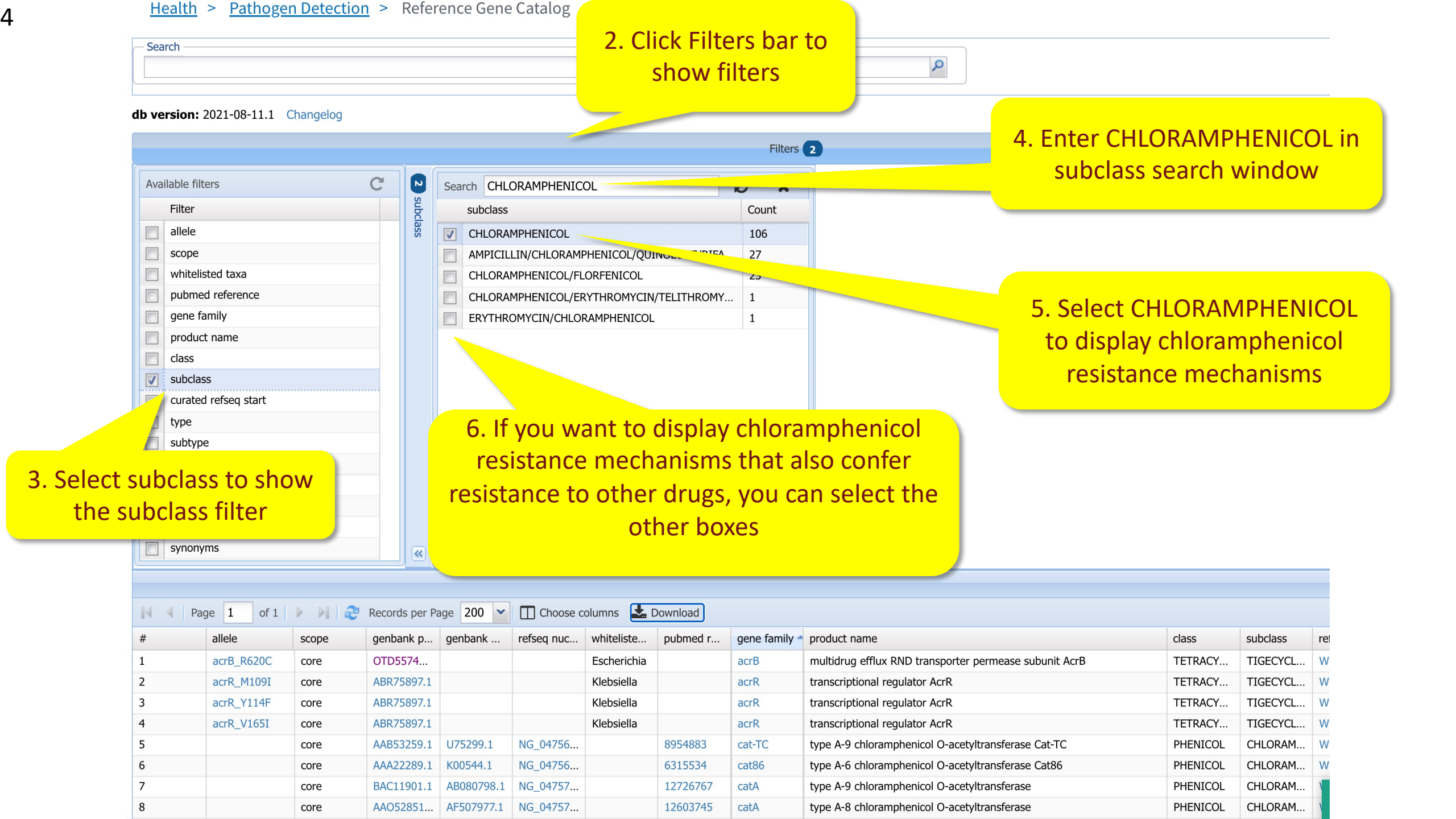
Genomic Elements (M GG-E)

Reference Gene Catalog

NEW Reference HMM Catalog

1. Click Reference Gene Catalog

Feedback


Health > Pathogen Detection > Reference Gene Catalog
Search
db version: 2021-08-11.1 Changelog
2. Click Filters bar to show filters
Filters 2
Available filters
Filter
allele
scope
whitelisted taxa
pubmed reference
gene family
product name
class
subclass
curated refseq start
type
subtype
synonyms
subclass
Search CHLORAMPHENICOL
subclass
Count
CHLORAMPHENICOL 106
AMPICILLIN/CHLORAMPHENICOL/QUIN... 27
CHLORAMPHENICOL/FLORFENICOL 25
CHLORAMPHENICOL/ERYTHROMYCIN/TELITHROMY... 1
ERYTHROMYCIN/CHLORAMPHENICOL 1
4. Enter CHLORAMPHENICOL in subclass search window
5. Select CHLORAMPHENICOL to display chloramphenicol resistance mechanisms
3. Select subclass to show the subclass filter
6. If you want to display chloramphenicol resistance mechanisms that also confer resistance to other drugs, you can select the other boxes
Page 1 of 1
Records per Page 200
Choose columns
Download
allele scope genbank p... genbank ... refseq nuc... whiteliste... pubmed r... gene family product name class subclass
1 acrB_R620C core OTD5574... Escherichia acrB multidrug efflux RND transporter permease subunit AcrB TETRACY... TIGECYCL...
2 acrR_M109I core ABR75897.1 Klebsiella acrR transcriptional regulator AcrR TETRACY... TIGECYCL...
3 acrR_Y114F core ABR75897.1 Klebsiella acrR transcriptional regulator AcrR TETRACY... TIGECYCL...
4 acrR_V165I core ABR75897.1 Klebsiella acrR transcriptional regulator AcrR TETRACY... TIGECYCL...
5 core AAB53259.1 U75299.1 NG_04756... 8954883 cat-TC type A-9 chloramphenicol O-acetyltransferase Cat-TC PHENICOL CHLORAM...
6 core AAA22289.1 K00544.1 NG_04756... 6315534 cat86 type A-6 chloramphenicol O-acetyltransferase Cat86 PHENICOL CHLORAM...
7 core BAC11901.1 AB080798.1 NG_04757... 12726767 catA type A-9 chloramphenicol O-acetyltransferase PHENICOL CHLORAM...
8 core AAO52851... AF507977.1 NG_04757... 12603745 catA type A-8 chloramphenicol O-acetyltransferase PHENICOL CHLORAM...

5

Health > Pathogen Detection > Reference Gene Catalog

Search

db version: 2021-08-11.1 Changelog

Bacterial Antimicrobial Resistance Refer

Filters 2

Available filters

Filter
allele
scope
whitelisted taxa
pubmed reference
gene
product
class
subclass
curated
type
subtype
blacklisted taxa
genbank strand orientation
genbank cds start
genbank cds stop
synonyms

2 subclass

Search CHLORAMPHENICOL

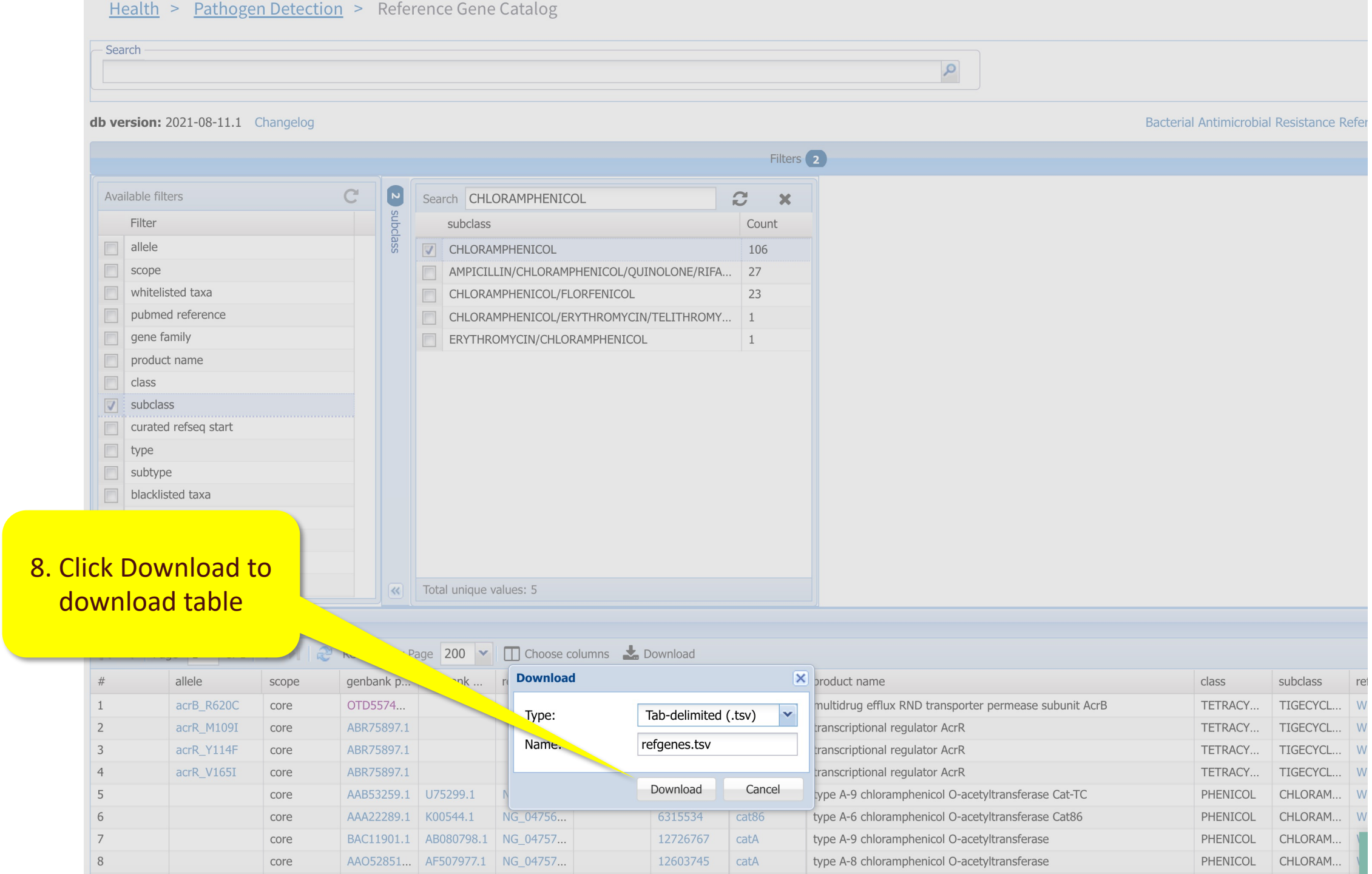
subclass	Count
CHLORAMPHENICOL	106
AMPICILLIN/CHLORAMPHENICOL/QUINOLONE/RIFA...	27
CHLORAMPHENICOL/FLORFENICOL	23
CHLORAMPHENICOL/ERYTHROMYCIN/TELITHROMY...	1
ERYTHROMYCIN/CHLORAMPHENICOL	1

Total unique values

7. Click Download

Page 1 of 1 Records per Page 200 Choose columns Download

#	allele	scope	genbank p...	genbank ...	refseq nuc...	whiteliste...	pubmed r...	gene family	product name	class	subclass	ref
1	acrB_R620C	core	OTD5574...			Escherichia		acrB	multidrug efflux RND transporter permease subunit AcrB	TETRACY...	TIGECYCL...	W
2	acrR_M109I	core	ABR75897.1			Klebsiella		acrR	transcriptional regulator AcrR	TETRACY...	TIGECYCL...	W
3	acrR_Y114F	core	ABR75897.1			Klebsiella		acrR	transcriptional regulator AcrR	TETRACY...	TIGECYCL...	W
4	acrR_V165I	core	ABR75897.1			Klebsiella		acrR	transcriptional regulator AcrR	TETRACY...	TIGECYCL...	W
5		core	AAB53259.1	U75299.1	NG_04756...		8954883	cat-TC	type A-9 chloramphenicol O-acetyltransferase Cat-TC	PHENICOL	CHLORAM...	W
6		core	AAA22289.1	K00544.1	NG_04756...		6315534	cat86	type A-6 chloramphenicol O-acetyltransferase Cat86	PHENICOL	CHLORAM...	W
7		core	BAC11901.1	AB080798.1	NG_04757...		12726767	catA	type A-9 chloramphenicol O-acetyltransferase	PHENICOL	CHLORAM...	
8		core	AAO52851...	AF507977.1	NG_04757...		12603745	catA	type A-8 chloramphenicol O-acetyltransferase	PHENICOL	CHLORAM...	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CHLORAMPHENICOL/FLORFENICOL 23
CHLORAMPHENICOL/ERYTHROMYCIN/TELITHROMY... 1
ERYTHROMYCIN/CHLORAMPHENICOL 1
Total unique values: 5
8. Click Download to download table
Page 200
Choose columns
Download
Download
Type: Tab-delimited (.tsv)
Name: refgenes.tsv
Download
Cancel
allele scope genbank p... product name class subclass
1 acrB_R620C core OTD5574... multidrug efflux RND transporter permease subunit AcrB TETRACY... TIGECYCL...
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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