

BV-BRC Test Report

A21. Service – Expression Import - Bacteria

Item to test	Expression Import Service using bacterial gene expression dataset
URL	https://www.bv-brc.org/app/Expression
Prerequisites	Bacterial gene expression dataset in tsv format
References	https://www.bv-brc.org/docs/quick_references/services/expression_data_import_service.html https://www.bv-brc.org/docs/tutorial/expression_import/expression_import.html
Tester(s)	Rebecca Wattam, Maulik Shukla
Test date	10-May-2022 (follow-up from original test)
Test result	Passed

Overview

- Test the Expression Import Service using exemplar bacterial gene expression datasets.
- For each job submitted, verify successful completion of the job and presence of output files.
- Review the dataset using interactive gene list. Test filters to identify differentially expressed genes.
- Test interactive heatmap viewer and clustering tool to identify genes with similar expression patterns across one or more samples.

Test Data

Dataset	Rational	Input Format	Input
Escherichia coli – Sangurdekar dataset	Workshop example	Gene Matrix in excel format	sangurdekar_Microarray_data_all_conditions.xlsx

- All test datasets and corresponding job results are available in the following public workspace:
<https://www.bv-brc.org/workspace/BVBRC@patricbrc.org/BVBRC%20Tests/Expression%20Import>

Test Results

- All jobs completed successfully, without any errors.
- All jobs resulted in expected output files in corresponding job output directory.
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- All test datasets and corresponding job results are available in the following public workspace:
<https://www.bv-brc.org/workspace/BVBRC@patricbrc.org/BVBRC%20Tests/Expression%20Import>
- Below are a series of screenshots showing successful completion of the jobs, availability of the result files in the workspace, excerpts of the bacterial and viral binning reports.

Experiment Data ⓘ

EXPERIMENT DATA FILE

EXPERIMENT TYPE
 Transcriptomics

GENOME TYPE
 Bacteria or Archaea

SOURCE ID TYPE
 Refseq Locus Tag

TARGET GENOME
 Escherichia coli str. K-12 substr. MG

Experiment Information ⓘ

EXPERIMENT TITLE

EXPERIMENT DESCRIPTION

ORGANISM NAME

PUBMED ID

OUTPUT FOLDER

Optional Metadata ⓘ

METADATA FILE

[Reset](#) [Submit](#)

Status	ID	Service	Output Name	Submit	Start	Completed
completed	7748536	Expression Import	Escherichia coli - Sangurdekar Expression Dataset	5/10/22, 3:24 PM	5/10/22, 3:25 PM	5/10/22, 3:26 PM

Name	Size	Owner	Members	Created
↑ Parent folder			-	
📄 experiment.json	358 B	me	2 members	5/10/22, 3:25 PM
📄 expression.json	226.0 MB	me	2 members	5/10/22, 3:25 PM
📄 mapping.json	331.1 kB	me	2 members	5/10/22, 3:26 PM
📄 sample.json	70.6 kB	me	2 members	5/10/22, 3:26 PM

Platform Organism: Escherichia coli str. K-12 substr. MG1655 Pubmed ID: Undefined
 Genes Mapped/Genes Total: 3406/3607 Samples: 240

Title	Genes	Significant Genes (Log Ratio)	Significant Strain Genes (Z Score)	Gene Modification	Experiment Condition	Time Point
5min .02M SodiumAzide	3607	837	222			
15min .02M SodiumAzide	3607	588	227			
300min .02M SodiumAzide	3607	789	209			
600min .02M SodiumAzide	3607	690	212			
C410+0Ecb0+0IPTG0(toxic) v s.0C430mutant+0Ecb0+0IPTG	3607	401	207			
10' trp starvation vs.00', W31100trpA33	3607	401	194			
25' trp starvation vs.00', W31100trpA33	3607	328	199			
50' trp starvation vs.00', W31100trpA33	3607	482	200			
lexA05' after UV v s.00', MG1655	3607	58	231			
lexA010' after UV v s.00', MG1655	3607	28	205			
lexA020' after UV v s.00', MG1655	3607	27	203			
lexA040' after UV v s.00', MG1655	3607	43	196			
lexA060' after UV v s.00', MG1655	3607	63	190			
2min Nor(50ug/ml)_beforeTreatment	3607	79	160			
5min Nor(50ug/ml)_beforeTreatment	3607	55	164			
10min Nor(50ug/ml)_beforeTreatment	3607	216	189			
20min Nor(50ug/ml)_beforeTreatment	3607	258	190			
30min Nor(50ug/ml)_beforeTreatment	3607	217	197			
5ug/ml Novobiocin 5min v s.0untreated, LE2340acrD-, LB, axon5	3607	60	199			
20ug/ml Novobiocin 5min v s.0untreated, LE2340acrD-, LB, axon5	3607	166	203			
50ug/ml Novobiocin 5min v s.0untreated, LE2340acrD-, LB, axon5	3607	327	223			

Transcriptomics Genes

Table Heatmap

Filter By: Title Strain

Filter by Genome:

Filter by one or more keywords or locus tags:

Filter by |Log Ratio|:

Filter by |Z-score|:

1 - 200 of 3406 results

BRC ID	RefSeq Locus Tag	Gene Symbol	Product	Comparisons	Up	Down
<input type="checkbox"/>	figJ511145.12.peg.65 b0628	lipA	Lipoyl synthase (EC 2.8.1.8)	237	119	118
<input type="checkbox"/>	figJ511145.12.peg.93 b0901	ycaK	putative NAD(P)H dehydrogenase	230	93	137
<input type="checkbox"/>	figJ511145.12.peg.86 b0082	mraW	16S rRNA (cytosine(1402)-N(4))-methyltransferase [E 237	164	164	73
<input type="checkbox"/>	figJ511145.12.peg.16 b1627	rsxA	Electron transport complex protein RnfA	235	134	101
<input type="checkbox"/>	figJ511145.12.peg.19 b1862	yebB	Uncharacterized protein YebB	222	113	109
<input type="checkbox"/>	figJ511145.12.peg.26 b2522	sseB	Protein SseB	233	94	139
<input type="checkbox"/>	figJ511145.12.peg.74 b0713	ybgL	Lactam utilization protein LamB	215	93	122
<input type="checkbox"/>	figJ511145.12.peg.19 b1880	flhB	Flagellar biosynthesis protein FlhB	238	72	166
<input type="checkbox"/>	figJ511145.12.peg.33 b3212	glfB	Glutamate synthase [NADPH] large chain (EC 1.4.1.1 120	49	49	71
<input type="checkbox"/>	figJ511145.12.peg.46 b0447	ybaO	DNA-binding transcriptional activator DecR, AsnC fam 226	118	118	108
<input type="checkbox"/>	figJ511145.12.peg.43 b4175	hflC	HflC protein	240	131	109
<input type="checkbox"/>	figJ511145.12.peg.11 b1094	acpP	Acyl carrier protein	232	127	105
<input type="checkbox"/>	figJ511145.12.peg.31 b3053	glrE	Glutamine synthetase adenylyl-L-tyrosine phosphoryl 218	97	143	121
<input type="checkbox"/>	figJ511145.12.peg.33 b3251	mreB	Rod shape-determining protein MreB	239	93	96
<input type="checkbox"/>	figJ511145.12.peg.18 b1822	rhmA	23S rRNA (guanine(745)-N(1))-methyltransferase (EC 239	111	111	128
<input type="checkbox"/>	figJ511145.12.peg.40 b3965	trmA	tRNA (uracil(54)-C5)-methyltransferase (EC 2.1.1.35) 238	122	122	116
<input type="checkbox"/>	figJ511145.12.peg.36 b3508	yhiD	Putative magnesium transporter YhiD	234	129	105
<input type="checkbox"/>	figJ511145.12.peg.26 b0264	insB	IS1 protein InsB	240	129	111
<input type="checkbox"/>	figJ511145.12.peg.38 b3755	yleP	Uncharacterized transcriptional regulator YleP, GntR f 238	102	102	136
<input type="checkbox"/>	figJ511145.12.peg.16 b1604	ydgH	Protein YdgH	238	139	99
<input type="checkbox"/>	figJ511145.12.peg.22 b2142	yohK	Inner membrane protein YohK	123	52	71
<input type="checkbox"/>	figJ511145.12.peg.11 b1088	yoeD	FIG01269488: protein, clustered with ribosomal prote 232	116	116	116
<input type="checkbox"/>	figJ511145.12.peg.25 b2420	yfeS	Molybdate metabolism regulator	222	85	137
<input type="checkbox"/>	figJ511145.12.peg.57 b0554	essD	Phage holin/antholin component S	232	86	146
<input type="checkbox"/>	figJ511145.12.peg.19 b1867	yecD	Isochorismatase family protein YecD	237	141	96
<input type="checkbox"/>	figJ511145.12.peg.33 b3247	mg	Ribonuclease G	240	132	108

1 2 3 ... 18

Table Heatmap

Filter By

Title Strain
 5min .02M SodiumAzide
 15min .02M SodiumAzide
 300min .02M SodiumAzide
 600min .02M SodiumAzide
 C410+ECb0+G1PTG0(toxic v
 10' trp starvation vs.00', W311
 25' trp starvation vs.00', W311
 50' trp starvation vs.00', W311
 lexA05' after UV v s.00', MG11
 lexA010' after UV v s.00', MG11

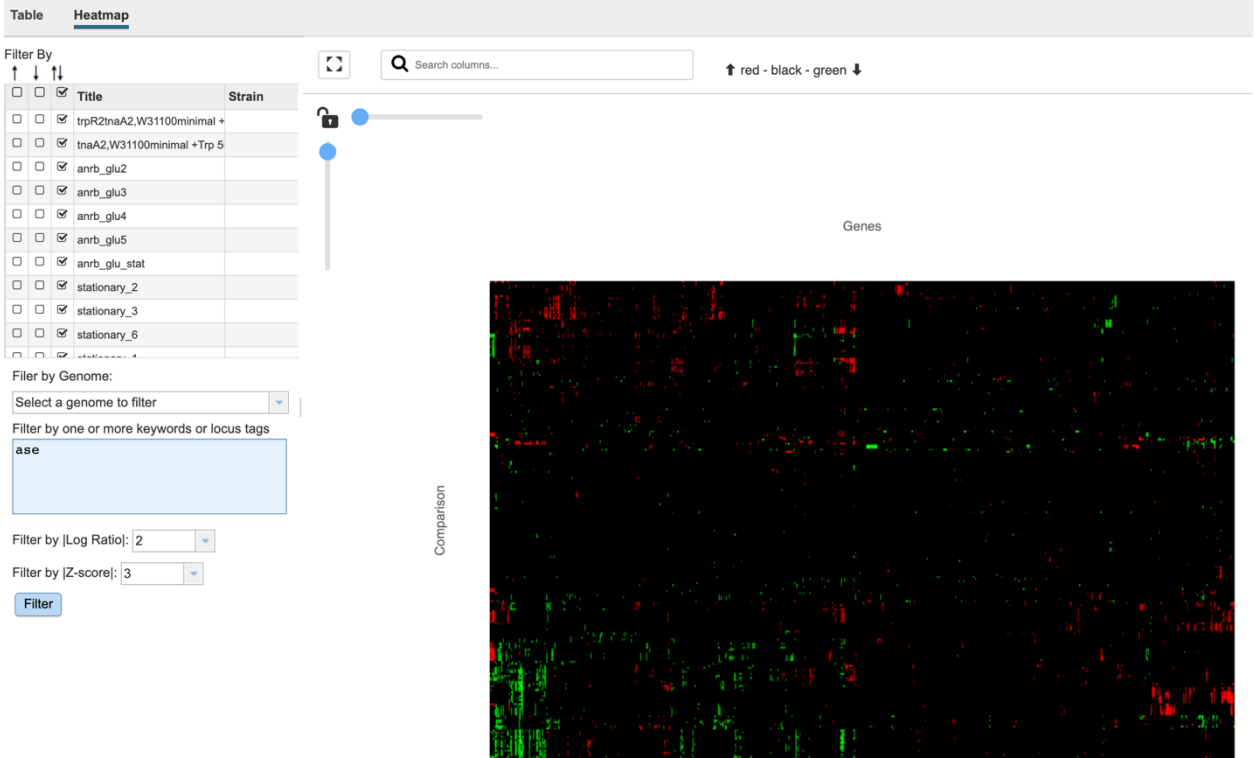
Filter by Genome:
 Select a genome to filter

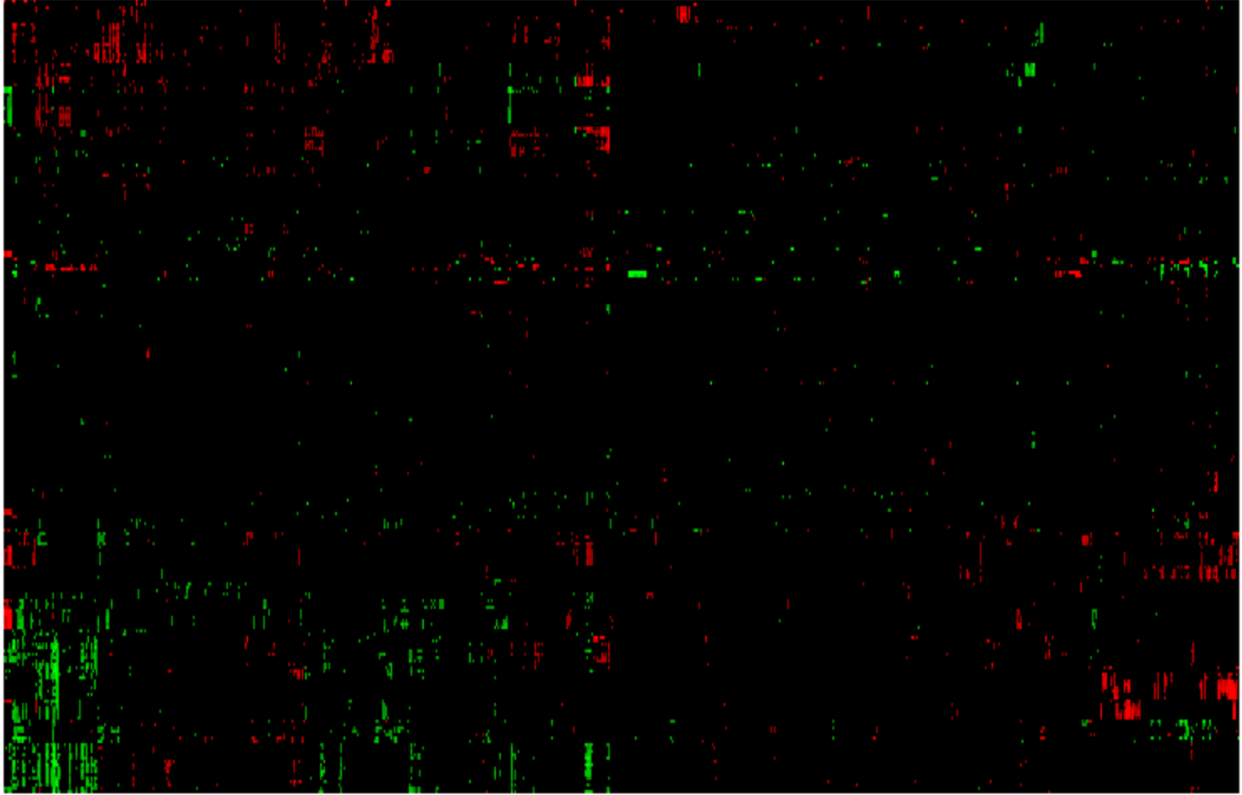
Filter by one or more keywords or locus tags

Filter by |Log Ratio|: 1
 Filter by |Z-score|: 2
 Filter

BRC ID	RefSeq Locus Tag	Gene Symbol	Product	Comparisons	Up	Down
<input type="checkbox"/>	fgl511145.12.peg.65 b0628	lipA	Lipoyl synthase (EC 2.8.1.8)	240	19	9
<input type="checkbox"/>	fgl511145.12.peg.93 b0901	ycaK	putative NAD(P)H dehydrogenase	240	2	4
<input type="checkbox"/>	fgl511145.12.peg.86 b0082	mraW	16S rRNA (cytosine(1402)-N(4))-methyltransferase (E	240	13	8
<input type="checkbox"/>	fgl511145.12.peg.16 b1627	rsxA	Electron transport complex protein RnfA	240	14	3
<input type="checkbox"/>	fgl511145.12.peg.19 b1862	yebB	Uncharacterized protein YebB	240	5	7
<input type="checkbox"/>	fgl511145.12.peg.19 b1880	flhB	Flagellar biosynthesis protein FlhB	240	8	29
<input type="checkbox"/>	fgl511145.12.peg.33 b3212	glbB	Glutamate synthase [NADPH] large chain (EC 1.4.1.1)	240	19	44
<input type="checkbox"/>	fgl511145.12.peg.46 b0447	ybaO	DNA-binding transcriptional activator DecR, AsnC fam	240	5	4
<input type="checkbox"/>	fgl511145.12.peg.43 b4175	hflC	HflC protein	240	10	11
<input type="checkbox"/>	fgl511145.12.peg.11 b1094	acpP	Acyl carrier protein	240	23	15
<input type="checkbox"/>	fgl511145.12.peg.31 b3053	glhE	Glutamine synthetase adenylyl-L-tyrosine phosphoryl	240	5	11
<input type="checkbox"/>	fgl511145.12.peg.33 b3251	mreB	Rod shape-determining protein MreB	240	24	14
<input type="checkbox"/>	fgl511145.12.peg.18 b1822	rfaA	23S rRNA (guanine(745)-N(1))-methyltransferase (EC	240	12	2
<input type="checkbox"/>	fgl511145.12.peg.40 b3965	trmA	tRNA (uracil(54)-C5)-methyltransferase (EC 2.1.1.35)	240	24	7
<input type="checkbox"/>	fgl511145.12.peg.36 b3508	yhiD	Putative magnesium transporter YhiD	240	18	5
<input type="checkbox"/>	fgl511145.12.peg.26 b0264	insB	IS1 protein InsB	240	21	6
<input type="checkbox"/>	fgl511145.12.peg.38 b3755	yieP	Uncharacterized transcriptional regulator YieP, GntR f	240	6	7
<input type="checkbox"/>	fgl511145.12.peg.16 b1604	ydgH	Protein YdgH	240	14	18
<input type="checkbox"/>	fgl511145.12.peg.22 b2142	yohK	Inner membrane protein YohK	240	4	3
<input type="checkbox"/>	fgl511145.12.peg.11 b1088	yceD	FIGO1269488: protein, clustered with ribosomal prote	240	25	5
<input type="checkbox"/>	fgl511145.12.peg.57 b0554	essD	Phage holin/antholin component S	240	1	2
<input type="checkbox"/>	fgl511145.12.peg.19 b1867	yecD	Isochorismatase family protein YecD	240	14	3
<input type="checkbox"/>	fgl511145.12.peg.21 b2081	yegQ	Uncharacterized protease YegQ	240	37	12
<input type="checkbox"/>	fgl511145.12.peg.96 b0932	pepN	Membrane alanine aminopeptidase N (EC 3.4.11.2)	240	26	16
<input type="checkbox"/>	fgl511145.12.peg.24 b2381	ypdB	Two-component transcriptional response regulator Yp	240	2	6
<input type="checkbox"/>	fgl511145.12.peg.36 b3532	bcsB	Cyclic di-GMP-binding protein BcsB	240	6	14

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References

- [Expression Import Quick Reference Guide](#)
- [Expression Import Tutorial](#)