

Gene Set Enrichment API – version 1.0¹

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A simple RESTful API to analyse (Fisher-exact) enrichment of user-provided set of Ensembl gene identifiers against differentially expressed genes in each comparison in Expression Atlas.

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This document describes the RESTful API that was developed to analyse (Fisher-exact) enrichment of user provided set of Ensembl gene identifiers in a given organism against differentially expressed genes in each comparison for that organisms in Expression Atlas. The code used to perform the enrichment analysis is available from https://github.com/gxa/atlas_gsa and performs Fisher-exact gene set overlap (FDR = 0.01) between the user-provided set of genes in a given organism against the set of differentially expressed genes in each Atlas comparison for that organism. All genes tested for differential expression in a given comparison are treated as background.

¹ If you use this data in your research or service, please reference this [publication](#). Thank You

Expression Atlas Organisms

Format

Item	Description
URL	http://www.ebi.ac.uk/fg/gse/api/getOrganisms

Gene Set Enrichment in Differentially Expressed Genes in each Atlas Comparison in an Organism

Format

Item	Description
URL PATTERN	ROOT/FORMAT/getOverlappingComparisons/ORGANISM/GENE_IDS
ROOT	http://www.ebi.ac.uk/fg/gse/api/
FORMAT	tsv or json
ORGANISM	An organism returned by http://www.ebi.ac.uk/fg/gse/api/getOrganisms
GENE_IDS	A list of (maximum 100) space-separated Ensembl gene identifiers in ORGANISM

Example Calls

URL

[ROOT/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT1G48030](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT1G48030)
[AT1G53240](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT1G53240) [AT2G17130](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT2G17130) [AT2G20420](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT2G20420) [AT2G44350](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT2G44350) [AT2G47510](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT2G47510) [AT3G09810](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT3G09810)
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[AT5G40650](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT5G40650) [AT5G50950](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT5G50950) [AT5G55070](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT5G55070) [AT5G65165](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT5G65165) [AT5G65750](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT5G65750) [AT5G66760](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/arabidopsis_thaliana/AT5G66760)

[ROOT/tsv/getOverlappingComparisons/homo_sapiens/ENSG00000001167](http://www.ebi.ac.uk/fg/gse/api/tsv/getOverlappingComparisons/homo_sapiens/ENSG00000001167)
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Returned Fields

Field	Description
EXPERIMENT	Expression Atlas experiment accession
COMPARISON_ID	Comparison identifier in EXPERIMENT
P-VALUE	<i>P</i> -value returned by the Fisher-exact test
OBSERVED	The number of user-provided genes that are differentially expressed in a given comparison
EXPECTED	The number of user-provided genes that have been tested in a given comparison
ADJUSTED P-VALUE	<i>P</i> -value adjusted by the multiple testing correction
EFFECT SIZE	OBSERVED/EXPECTED
COMPARISON_TITLE	The title of the COMPARISON_ID in EXPERIMENT
EXPERIMENT_URL	URL for COMPARISON_ID in EXPERIMENT

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