

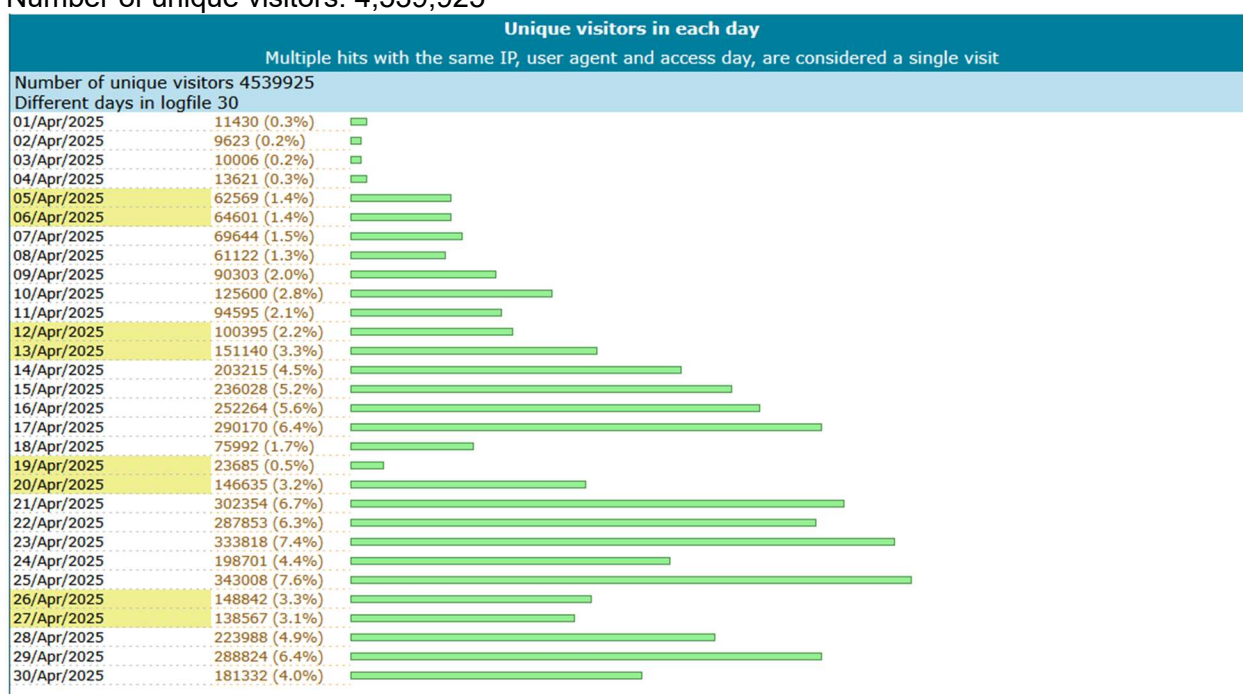
## Access and Use Statistics and FAIR metrics on Metabolomics Workbench (MW)

**Approach:** We used both custom analysis of apache logs and Visitors tool (<http://www.hping.org/visitors/>) on combined access\_log and ssl\_access\_log. vsftpd log was analyzed separately.

Access and use statistics are based on analysis of the log over about one month (April 2025, unless indicated otherwise). Access by web crawlers, bots, etc., has been excluded from the beginning of the analysis (see IP Exclusion List 1 at the end).

### Overall access to the MW website

Number of unique visitors: 4,539,925



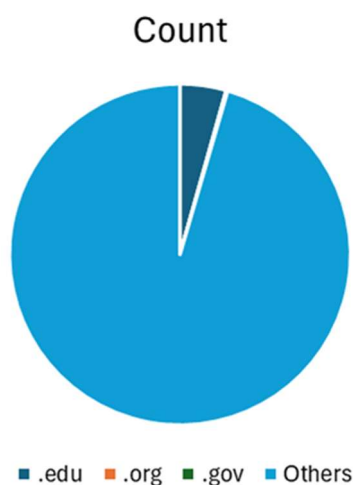
### Country-based access statistics

From the IP addresses, hostname and their geographical location (country) is identified and summarized.

This is after excluding additional IP addresses (in R script) with 'bot', 'spider', etc., in their hostnames (see IP Exclusion List 2 at the end): top 30 countries:

Country_short	Country_long	Count
US	United States of America	5749232
CH	Switzerland	1533908
HK	Hong Kong	989237
CN	China	861244
DE	Germany	418259
FR	France	331315
SG	Singapore	314890
RU	Russian Federation	223044
UA	Ukraine	210959
BE	Belgium	177889
FI	Finland	163989
IN	India	61352
GB	United Kingdom of Great Britain and Northern Ireland	38990
AU	Australia	37132
UZ	Uzbekistan	17723
CA	Canada	15889
NL	Netherlands	13461
JP	Japan	12868
BR	Brazil	10106
ES	Spain	9365
NO	Norway	8549
SC	Seychelles	7930
KE	Kenya	7726
PL	Poland	7595
BD	Bangladesh	7116
MX	Mexico	5410
IT	Italy	4043
CZ	Czechia	3724
CO	Colombia	3118
MU	Mauritius	2838

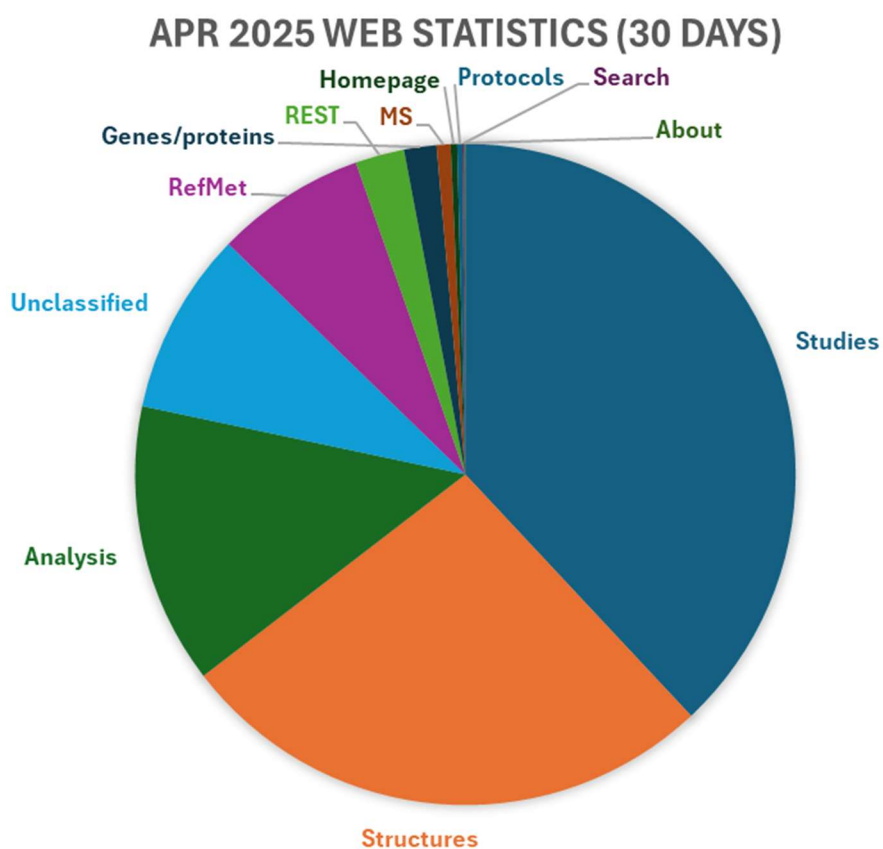
Category	Count	Percent
.edu	493081	4.368
.org	13782	0.122
.gov	3751	0.033
Others	10777038	95.476



### Resource types (Major categories)

Category	Apr 2025 Web Statistics (30 days)	Hits per day
Studies	7175140	239171
Structures	5009088	166970
Analysis	2593176	86439
Unclassified	1690481	56349
RefMet	1385915	46197
REST	452459	15082
Genes/proteins	299569	9986

MS	127756	4259
Homepage	60371	2012
Protocols	49272	1642
Search	15700	523
About	9996	333



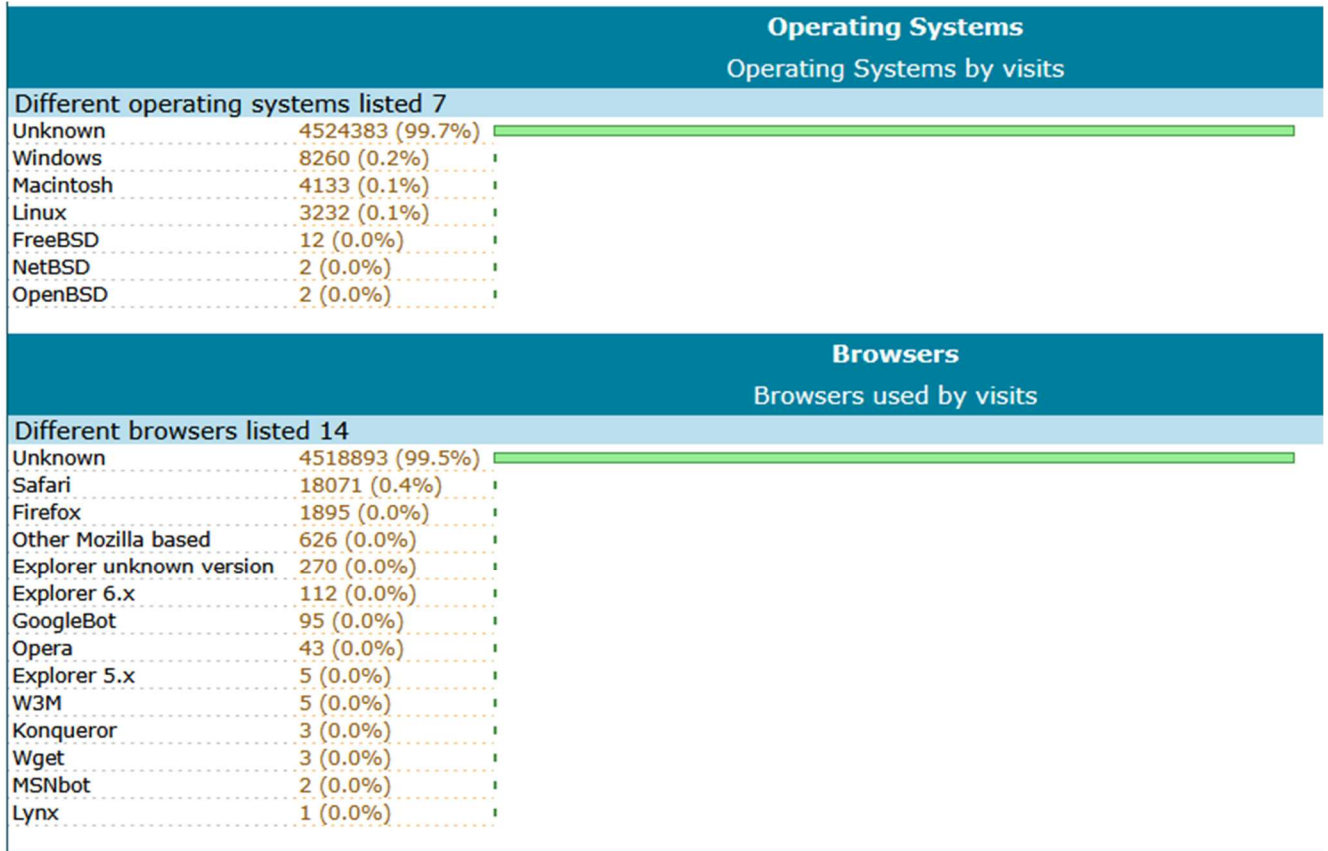
**Top page hits over April 2025: Top 30 hits**

Type of page	End-point	Count
Studies	/data/DRCCMetadata.php	5874190
Statistical analysis	/data/metabolite_id_show.php	4087913
Pathways	/data/show_h_pathway_metabolites_reactome.php	992086
REFMET	/databases/refmet/refmet_details.php	666619
Pathways	/data/show_h_pathway_metabolites2.php	617060
REFMET	/databases/refmet/refmet.php	593926
Structure data	/data/StructureData.php	483351
MASSBANK	/data/massbank_eu.php	418139
Pathways	/data/show_h_pathway_metabolites.php	355197

Statistical analysis	/data/metstat_studies.php	296247
REST	/rest/study	287848
Archive	/data/show_archive_contents_json.php	233022
Metabolite-Gene	/databases/proteome/MGP_table.php	211482
REFMET	/data/pca/refmet_species.php	211470
REFMET	/data/pca/refmet_platform.php	199752
REFMET	/data/pca/refmet_source.php	195258
REFMET	/data/pca/refmet_chrom.php	190975
Studies	/data/study_textformat_view.php	140611
REST	/rest/protein	125450
MASSBANK	/data/massbank.php	119774
Studies	/data/showfile.php	111011
REFMET	/databases/refmet/refmet_tableonlyM.php	103902
MetStat	/data/metstat_hist.php	102933
Metabolites	/data/show_metabolites_by_study.php	101490
Structure data	/data/molfile_show.php	97611
General	/data/png_display_inline2.php	94743
Statistical analysis	/data/corr_class3.php	85712
Metabolite-Gene	/databases/proteome/MGP_detail.php	84360
Metabolites	/data/show_metabolites_by_study_class.php	69637
Studies	/data/study_textformat_list.php	64763

## OS and browsers

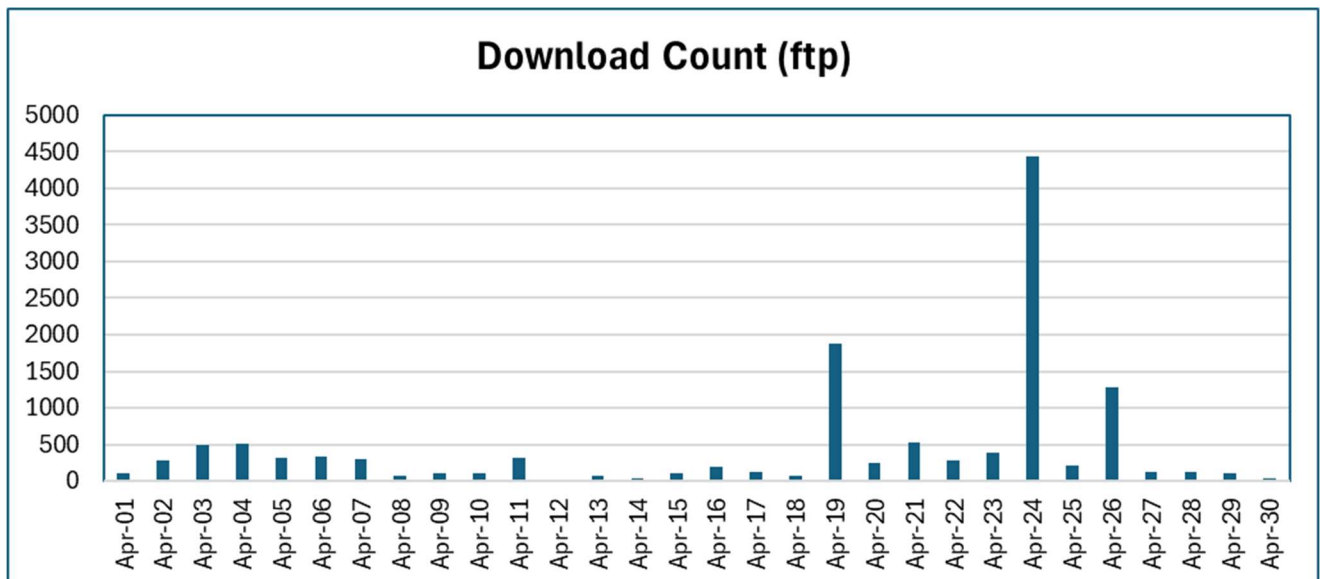
(unknown may include REST-based visits or calls from other automated scripts)



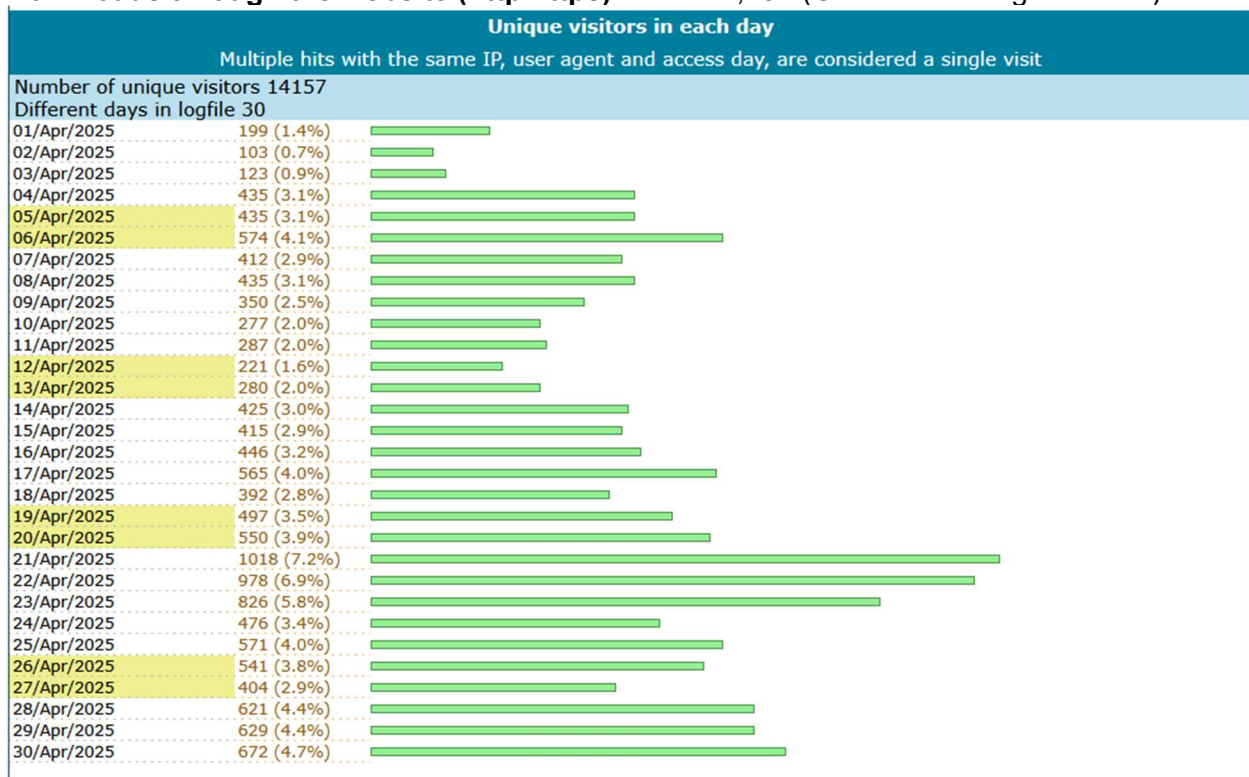
## Download statistics

Amount of total data downloaded (http + ftp): about 87 TB

FTP-based downloads: Total 13,199



**Downloads through the website (http/https): Total 14,157 (Generated using "Visitors")**



**Top 20 downloads requested:**

**Requested pages**

Page requests ordered by hits

Different pages requested 4086

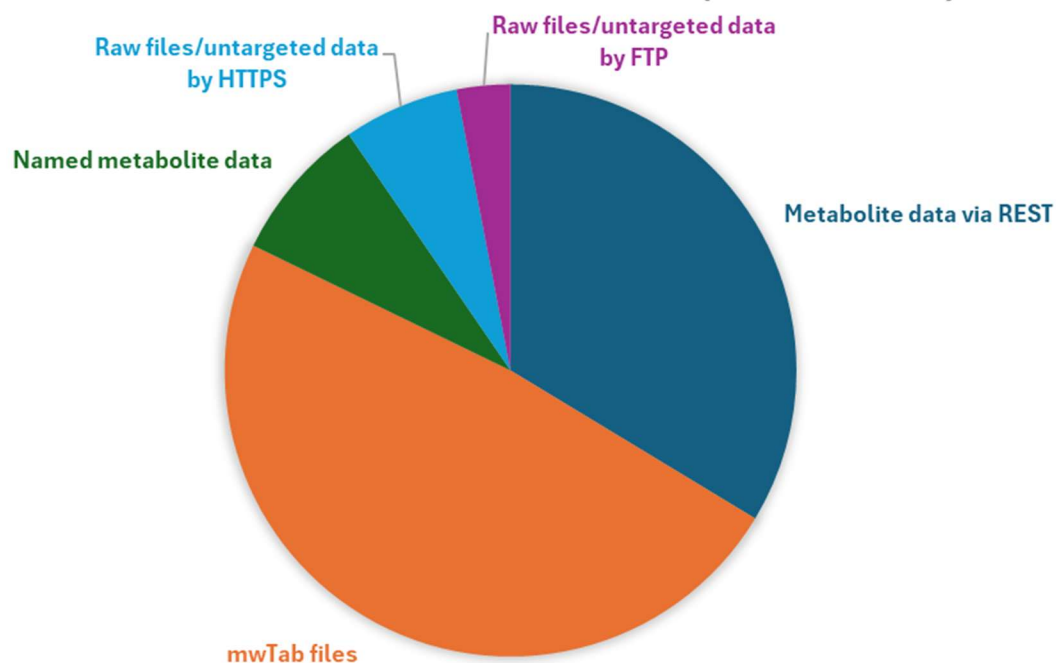
Rank	Number of hits	Page URL
1)	95	/studydownload/ST000923_AN001514_Results.txt
2)	83	/studydownload/ST000919_AN001506_Results.txt
3)	80	/studydownload/ST000604_AN000924_Results.txt
4)	65	/studydownload/ST000923_AN001516_Results.txt
5)	60	/studydownload/ST001192_AN001985_Results.txt
6)	57	/studydownload/ST000746_AN001169_Results.txt
7)	57	/studydownload/ST002674_AN004346_Results.txt
8)	57	/studydownload/ST001000.zip
9)	54	/studydownload/ST000954_AN001565_Results.txt
10)	53	/studydownload/ST001000_AN001879_Results.txt
11)	51	/studydownload/ST000923_AN001513_Results.txt
12)	48	/studydownload/ST001237.zip
13)	45	/studydownload/ST000583_AN000895_Results.txt
14)	43	/studydownload/ST000604_AN000925_Results.txt
15)	42	/studydownload/ST000869_AN001400_Results.txt
16)	42	/studydownload/ST001656_AN002703_Results.txt
17)	41	/studydownload/ST000923.zip
18)	41	/studydownload/ST001368_AN002281_Results.txt
19)	40	/studydownload/ST001192_AN001984_Results.txt
20)	39	/studydownload/ST000705_AN001096_Results.txt

### Mode of download (April 2025)

Unlike the filtering for other statistics, these are based on the entire log for April 2025 (without excluding bots, spiders, etc).

Type	Apr 2025 NMDR Data downloads (file counts)
Metabolite data via REST	147551
mwTab files	212761
Named metabolite data	36104
Raw files/untargeted data by HTTPS	28683
Raw files/untargeted data by FTP	13286

### APR 2025 NMDR DATA DOWNLOADS (FILE COUNTS)



**<https://github.com/metabolomicsworkbench>  
stats 2025-03-01 to 2025-06-01**

<https://github.com/metabolomicsworkbench/jupyter-notebooks>

- Clones:
  - Unique: 18

- Total: 18
- Views
  - Unique: 52
  - Total: 104
- Referrers:
  - Google
    - Unique: 59
    - Total: 77
  - metabolomicsworkbench.org
    - Unique: 31
    - Total: 57
  - github.com
    - Unique: 6
    - Total: 16
  - perplexity.ai
    - Unique: 2
    - Total: 10

Paths	Unique	Count
/metabolomicsworkbench/jupyter-notebooks	66	82
/metabolomicsworkbench/jupyter-notebooks/MWPerformClusteredHeatMapAnalysis.ipynb	21	22
/metabolomicsworkbench/jupyter-notebooks/MWPerformDataNormalization.ipynb	14	16
/metabolomicsworkbench/jupyter-notebooks/tree/master	9	12
/metabolomicsworkbench/jupyter-notebooks/README.md	4	12
/metabolomicsworkbench/jupyter-notebooks/MWRestAPIStudyDataExample.ipynb	8	8
/metabolomicsworkbench/jupyter-notebooks/MWPerformPrincipalComponentAnalysis.ipynb	7	7
/metabolomicsworkbench/jupyter-notebooks/MWPlotNamedMetabolitesResultsExample.ipynb	7	7
/metabolomicsworkbench/jupyter-notebooks/MWPerformVolcanoPlotAnalysis.ipynb	7	7
/metabolomicsworkbench/jupyter-notebooks/jupyter-notebooks-on-metabolomics-cloud.pdf	6	6
/metabolomicsworkbench/jupyter-notebooks/MWPerformPartialLeastSquaresDiscriminantAnalysis.ipynb	5	5
/metabolomicsworkbench/jupyter-notebooks/MWPerformRandomForestAnalysis.ipynb	5	5
/metabolomicsworkbench/jupyter-notebooks/MWPerformRelativeLogAbundanceAnalysis.ipynb	5	5
/metabolomicsworkbench/jupyter-notebooks/MWSampleData1.csv	5	5
/metabolomicsworkbench/jupyter-notebooks/MWRestAPIRefMetDataExample.ipynb	3	4
/metabolomicsworkbench/jupyter-notebooks/MWSampleDataWithMissingValues.csv	4	4
/metabolomicsworkbench/jupyter-notebooks/MWRestAPIGeneDataExample.ipynb	3	3
/metabolomicsworkbench/jupyter-notebooks/MWPerformLinearDiscriminantAnalysis.ipynb	3	3
/metabolomicsworkbench/jupyter-notebooks/blame/master/README.md	2	2
/metabolomicsworkbench/jupyter-notebooks/MWRestAPIProteinDataExample.ipynb	2	2
/metabolomicsworkbench/jupyter-notebooks/MWSampleData2.txt	2	2

/metabolomicsworkbench/jupyter-notebooks/MWRestAPIExactMassDataExample.ipynb	2	2
/metabolomicsworkbench/jupyter-notebooks/MWRestAPINamedMetabolitesResultsExample.ipynb	2	2
/metabolomicsworkbench/jupyter-notebooks/MWUtil.py	2	2

<https://github.com/metabolomicsworkbench/MetENP>

- Clones
  - Unique: 44
  - Count: 48
- Views
  - Unique: 110
  - Count: 221
- Referrers
  - metabolomicsworkbench.org
    - Unique: 82
    - Count: 164
  - Google
    - Unique: 37
    - Count: 90
  - Bing
    - Unique: 5
    - Count: 21
  - smart-api.info
    - Unique: 4
    - Count: 11
  - github.com
    - Unique: 7
    - Count: 9
  - biorxiv.org
    - Unique: 1
    - Count: 1
  - cn.bing.com
    - Unique: 1
    - Count: 1

Paths	Unique	Count
/metabolomicsworkbench/MetENP	184	274
/metabolomicsworkbench/MetENP/tree/main/vignettes	16	30
/metabolomicsworkbench/MetENP/README.md	12	28
/metabolomicsworkbench/MetENP/tree/main/R	15	21
/metabolomicsworkbench/MetENP/vignettes/MetENP_vignette_Jupyter_notebook.ipynb	11	17
/metabolomicsworkbench/MetENP/DESCRIPTION	8	13

/metabolomicsworkbench/MetENP/commit/9b78043fd67b09a35c43847a3fa19cdd23cf3712	2	12
/metabolomicsworkbench/MetENP/edit/main/README.md	2	12
/metabolomicsworkbench/MetENP/R/convert_refmet.R	6	9
/metabolomicsworkbench/MetENP/MetENP.Rproj	4	8
/metabolomicsworkbench/MetENP/vignettes/example.txt	5	5
/metabolomicsworkbench/MetENP/vignettes/MetENP_ST000915.ipynb	2	5
/metabolomicsworkbench/MetENP/R/compoundinfo.R	2	4
/metabolomicsworkbench/MetENP/tree/main/data	4	4
/metabolomicsworkbench/MetENP/NAMESPACE	2	4
/metabolomicsworkbench/MetENP/tree/main	2	4
/metabolomicsworkbench/MetENP/R/significant_met.R	2	4
/metabolomicsworkbench/MetENP/R/plot_volcano.R	3	3
/metabolomicsworkbench/MetENP/R/anova_ana.R	3	3
/metabolomicsworkbench/MetENP/tree/main/man	2	2
/metabolomicsworkbench/MetENP/blame/main/DESCRIPTION	2	2
/metabolomicsworkbench/MetENP/vignettes/CaseStudy1_ST000915.html	2	2
/metabolomicsworkbench/MetENP/tree/main/inst/extdata	1	2
/metabolomicsworkbench/MetENP/R/pathinfo.R	2	2
/metabolomicsworkbench/MetENP/R/plot_heatmap.R	2	2
/metabolomicsworkbench/MetENP/vignettes/MetENP_ST000084.ipynb	1	1
/metabolomicsworkbench/MetENP/R/map_keggid.R	1	1
/metabolomicsworkbench/MetENP/blame/main/MetENP.Rproj	1	1
/metabolomicsworkbench/MetENP/vignettes/MetENP_vignette.rmd	1	1
/metabolomicsworkbench/MetENP/R/getmwstudies.R	1	1

<https://github.com/metabolomicsworkbench/MetENPAppyter>

- Clones
  - Unique: 8
  - Total: 8
- Views
  - Unique: 7
  - Total: 10
- Referrers
  - Google
    - Unique: 3
    - Total: 4
  - github.com
    - Unique: 4
    - Total: 4

Paths	Unique	Count
/metabolomicsworkbench/MetENPApyter	13	19
/metabolomicsworkbench/MetENPApyter/MetENP_Apyter.ipynb	1	1
/metabolomicsworkbench/MetENPApyter/R/MetENP/DESCRIPTION	1	1
/metabolomicsworkbench/MetENPApyter/tree/main/R/MetENP	1	1

<https://github.com/metabolomicsworkbench/MetGENE>

- Clones
  - Unique: 16
  - Total: 16
- Views
  - Unique: 31
  - Total: 58
- Referrers
  - Google
    - Unique: 22
    - Total: 26
  - github.com
    - Unique: 7
    - Total: 12

Paths	Unique	Count
/metabolomicsworkbench/MetGENE	41	67
/metabolomicsworkbench/MetGENE/tree/main	5	11
/metabolomicsworkbench/MetGENE/tree/main/data	4	10
/metabolomicsworkbench/MetGENE/extractMWGeneSummary.R	4	6
/metabolomicsworkbench/MetGENE/data/getReactionInfoFromKegg.R	2	4
/metabolomicsworkbench/MetGENE/TestURLs.md	3	3
/metabolomicsworkbench/MetGENE/tree/main/src	3	3
/metabolomicsworkbench/MetGENE/extractFilteredStudiesInfo.R	2	2
/metabolomicsworkbench/MetGENE/extractMetaboliteInfo.R	2	2
/metabolomicsworkbench/MetGENE/extractReactionInfo.R	2	2
/metabolomicsworkbench/MetGENE/data/getEnzrIDsSymbolsFromKeggLinkDF.R	2	2
/metabolomicsworkbench/metgene	1	1




The number of accesses to the Jupyter/Binder entry page at:  
<https://www.metabolomicsworkbench.org/data/AnalyzeUsingJupyterNotebooks.php>

The number of hits to the entry page is low- about 20 per week. This doesn't necessarily mean that users are clicking on the external Binder/Github links on this page, though.

## FAIRShake metrics

Precalculated stats on MW: <https://fairshake.cloud/project/85/assessments/>

## Project Assessments (6697)


Assessment			Metrics								
Target	Rubric		Globally unique identifier	Persistent identifier	Machine-readable metadata	Standardized metadata	Resource identifier in metadata	Resource discovery through web search	Open, Free, Standardized Access protocol	Protocol to access restricted content	Persistence of resource and metadata
Fatb Induction Experiment (FatBIE)	FAIR metrics by fairmetrics.org		no (0.00)	no (0.00)	yes (1.00)	yes (1.00)	yes (1.00)	yes (1.00)	yes (1.00)		no (0.00)
Intestinal Samples II pre/post transplantation	FAIR metrics by fairmetrics.org		no (0.00)	no (0.00)	yes (1.00)	yes (1.00)	yes (1.00)	yes (1.00)	yes (1.00)		no (0.00)
Metabolomic analysis of mouse embryonic fibroblasts, embryonic stem cells, and induced pluripotent stem cells	FAIR metrics by fairmetrics.org		no (0.00)	no (0.00)	yes (1.00)	yes (1.00)	yes (1.00)	yes (1.00)	yes (1.00)		no (0.00)

Apparently, the FAIRshake tool that generated the above statistics is not fully mature and requires manual curation. MW uses document object identifiers (DOI) for the projects, which is included (referred to as Persistent Identifier) in the metadata submitted to the CFDE portal. Through the DOI, one can access all the publicly available data on the MW website.

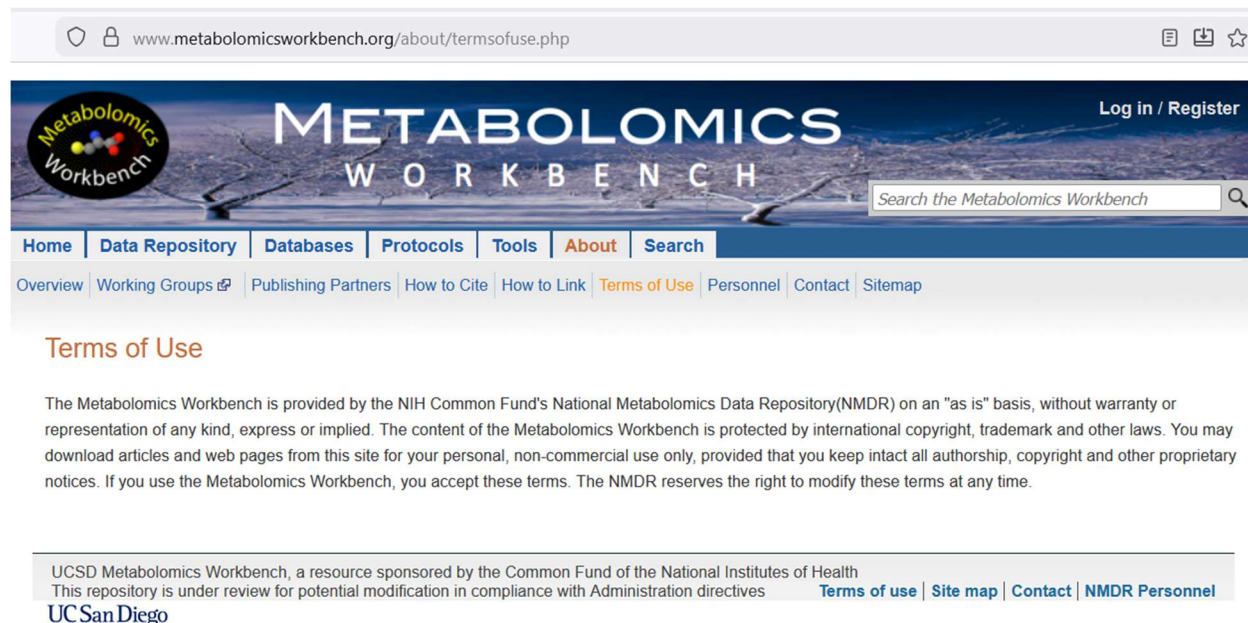
[https://fairshake.cloud/digital\\_object/6578/assessments/](https://fairshake.cloud/digital_object/6578/assessments/)

Tags: NIHcommonfund

## Digital Object Assessments (1)

Assessment			Metrics								
Rubric	Project		The repository provides contact information for staff to enable users with questions or suggestions to interact with repository experts.	Tools that can be used to analyze each dataset are listed on the corresponding dataset pages.	The repository maintains licenses to manage data access and use.	The repository hosts data and metadata according to a set of defined criteria to ensure that the resources provided are consistent with the intent of the repository.	The repository provides documentation for each resource to permit its complete and accurate citation.	A description of the methods used to acquire the data is provided.	Version information is provided for each resource, where available.	The structure of the repository permits efficient discovery of data and metadata by end users.	The repository uses a standardized protocol to permit access by users.
The FAIRshake repository rubric	NIH Data Sharing Repositories		yes (1.00)	yes (1.00)	no (0.00)	yes (1.00)	yes (1.00)	yes (1.00)	yes (1.00)	yes (1.00)	yes (1.00)

The above tables lists “no” for license, but we have stated the terms of use and are deciding on a license. In the future, we will decide the license term (CC BY-NC, CC BY-NC-SA or something allowing commercialization of derivative work such as CC-BY) and update the “Terms of use” page.



The screenshot shows a web browser window with the address bar displaying [www.metabolomicsworkbench.org/about/termsfuse.php](http://www.metabolomicsworkbench.org/about/termsfuse.php). The website header features the Metabolomics Workbench logo on the left, the title "METABOLOMICS WORKBENCH" in large white letters on a dark blue background, and a "Log in / Register" link on the right. Below the header is a navigation menu with links for Home, Data Repository, Databases, Protocols, Tools, About, and Search. A search bar is also present. The main content area is titled "Terms of Use" and contains the following text:

The Metabolomics Workbench is provided by the NIH Common Fund's National Metabolomics Data Repository(NMDR) on an "as is" basis, without warranty or representation of any kind, express or implied. The content of the Metabolomics Workbench is protected by international copyright, trademark and other laws. You may download articles and web pages from this site for your personal, non-commercial use only, provided that you keep intact all authorship, copyright and other proprietary notices. If you use the Metabolomics Workbench, you accept these terms. The NMDR reserves the right to modify these terms at any time.

At the bottom of the page, there is a footer with the following text:

UCSD Metabolomics Workbench, a resource sponsored by the Common Fund of the National Institutes of Health  
This repository is under review for potential modification in compliance with Administration directives [Terms of use](#) | [Site map](#) | [Contact](#) | [NMDR Personnel](#)  
[UC San Diego](#)

## IP Exclusion List 1

### As php code:

```
$blocked_ip=array(
'132.249', '3.91', '5.9', '34.238', '35.174', '40.77', '46.229', '46.4', '54.209', '66.249', '69.3', '78.46',
'91.137', '92.22', '95.216', '95.91', '106.120', '136.243', '144.76', '148.251', '157.55', '162.21',
'173.234', '178.255', '178.63', '180.76', '185.25', '192.151', '207.46', '213.174'
);

$blocked_ip3 = array('100.26.127', '103.131.71', '104.245.145', '110.249.201', '110.249.202',
'110.93.150', '111.225.148', '111.225.149',
'114.111.32', '114.119.128', '114.119.129', '114.119.130', '114.119.131', '114.119.132',
'114.119.133', '114.119.134', '114.119.135',
'114.119.136', '114.119.137', '114.119.138', '114.119.139', '114.119.140', '114.119.141',
'114.119.142', '114.119.143', '114.119.144',
'114.119.145', '114.119.146', '114.119.147', '114.119.148', '114.119.149', '114.119.150',
'114.119.151', '114.119.152', '114.119.153', '114.119.154', '114.119.155',
'114.119.156', '114.119.157', '114.119.158', '114.119.159', '114.119.160', '114.119.161',
'114.119.162', '114.119.163', '114.119.165', '114.119.166', '114.119.167',
'116.179.32', '116.179.37', '118.184.177', '123.125.109', '123.126.68', '123.183.224',
'125.209.235', '128.127.105', '129.206.45', '13.66.139', '135.125.216', '135.181.137',
'135.181.138', '135.181.140', '135.181.62', '135.181.74', '141.8.142', '144.217.135', '147.162.3',
'147.162.36', '147.92.153', '149.154.161', '149.155.131', '149.56.150',
'149.56.160', '154.51.131', '154.54.249', '157.90.177', '157.90.182', '157.90.209', '159.138.102',
'162.19.100', '162.19.101', '168.119.64', '168.119.65', '168.119.68',
'17.121.112', '17.121.113', '17.121.114', '17.121.115', '17.22.237', '17.22.245', '17.22.253',
'17.241.219', '17.241.227', '17.241.75', '17.246.15', '17.246.19', '17.246.23',
'179.190.203', '184.75.211', '185.101.32', '185.138.241', '185.191.171', '185.54.230',
'189.124.192', '191.96.106', '194.187.169', '194.187.171', '194.9.191', '195.154.122',
'195.154.123', '195.154.126', '195.191.219', '195.201.106', '198.134.108', '198.134.109',
'198.251.73', '198.98.183', '199.47.82', '20.15.133', '204.15.110', '207.241.229',
'207.241.231', '207.241.233', '207.241.235', '207.241.236', '211.249.46', '213.180.203',
'216.244.66', '220.181.108', '23.22.35', '3.224.220', '31.3.152', '31.3.153',
'35.196.132', '35.227.62', '35.237.4', '37.46.121', '49.7.20', '49.7.21', '5.102.173', '5.133.192',
'5.255.231', '5.255.253', '5.45.207', '5.62.16', '5.62.20', '5.62.34',
'5.62.41', '5.62.43', '5.62.47', '5.62.49', '5.62.56', '5.62.57', '5.62.58', '5.62.59', '5.62.60', '5.62.61',
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'91.219.212', '91.242.162', '93.158.161', '95.108.213', '95.142.112',  
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## IP Exclusion List 2

### As php code:

\$blocked\_ip is as above in List 1.

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$blocked_ip3 = array(
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