



MediaDive

• API • • • • •

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DSMZ-German Collection
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and Cell Cultures GmbH

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MediaDive-API

Documentation for the MediaDive REST API

0.1.0

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Introduction

Each (correct) API request returns a JSON response, consisting of the status and a count of all results.

Status 200

If the status is **200** (OK), the result will be found as an object named data. Example:

```
{
  "status": 200,
  "count": 3160,
  "data": [
    {
      "id": 1,
      "name": "NUTRIENT AGAR",
      "complex_medium": 1,
      "source": "DSMZ",
      "link": "https://www.dsmz.de/microorganisms/medium/pdf/DSMZ_Medium1.pdf",
      "min_pH": 7,
      "max_pH": 7,
      "reference": null,
      "description": null
    },
    ...
  ]
}
```

Status 404

If the status is **404** (Not found), the dataset you are looking for does not exist. You will receive more information as an error message. Example:

```
{
  "status": 404,
  "count": 0,
```

```
{
  "error": "DataNotFound",
  "msg": "Medium does not exist"
}
```

Status 400

If the status is **400** (Bad Request), you might have messed up the API call. Please check the URL you are using carefully. Example:

```
{
  "status": 400,
  "count": 0,
  "error": "WrongCall",
  "msg": "This API call is not supported"
}
```

Statistics

Statistics | Statistics

0.0.0

- [compare changes to:](#)
- [0.0.0](#)

This endpoint can be used to request a statistical overview on the database, i.e. number of datasets from different categories.

GET`/stats`

Success 200

Field	Type	Description
id	Integer	Unique ID of the strain.
media	Object	Number of media

Field	Type	Description
defined	Integer	Number of defined media
complex	Integer	Number of complex media
ingredients	Integer	Number of ingredients
solutions	Integer	Number of solutions
strains	Object	Number of strains grouped by domain (key-value)
A	Integer	Number of Archaea
B	Integer	Number of Bacteria
F	Integer	Number of Fungi
M	Integer	Number of Microalgae
PH	Integer	Number of Phages
Y	Integer	Number of Yeasts
growth	Object	Number of growth data grouped by domain (key-value, see above)

Example data:

```
{
  "media": {
    "defined": 630,
    "complex": 2530
  },
  "ingredients": 1194,
  "solutions": 5217,
  "strains": {
    "A": 941,
    "B": 31980,
    "BY": 4,
    "F": 5044,
    "M": 25,
    "PH": 517,
    "Y": 3115
  }
}
```

```
    },
    "growth": {
      "A": 1329,
      "B": 48116,
      "BY": 4,
      "F": 6714,
      "M": 34,
      "PH": 517,
      "Y": 5813
    }
  }
}
```

Send a Sample Request

URL

url

Send

Reset

Media endpoints

The following endpoints consider media information. You can request a list of all media, the whole medium recipe containing all solutions, the molecular composition of a medium, or all strains that grow on the medium.

Media endpoints | All media

0.0.0

- [compare changes to:](#)
- [0.0.0](#)

GET

/media

Parameter

Field	Type	Description
limit optional	Integer	Max. number of results
offset optional	Integer	Offset of results

Success 200

Field	Type	Description
id	String	Unique ID of the medium.
name	String	Name of the medium.
complex_medium	Boolean	True if the medium is complex
source	String	Collection where the medium originates from
link	String	Original URL
min_pH	Float	Min. final pH
max_pH	Float	Max final pH
reference	String	URL for original reference (if available)
description	String	Description or additional information (if available)

Example data:

```
[
  {
    "id": "119a",
    "name": "METHANOBREVIBACTER MEDIUM",
    "complex_medium": 1,
    "source": "DSMZ",
    "link": "https://www.dsmz.de/microorganisms/medium/pdf/DSMZ_Medium119a.pdf",
    "min_pH": 6.8,
    "max_pH": 7,
    "reference": null,
    "description": null
  },
  ...
]
```



Send a Sample Request

URL

url

Parameters

ajax-auto ▾

json

limit

Integer

limit

offset

Integer

offset

Send

Reset

Media endpoints | Medium recipe

- 0.0.0
- [compare changes to:](#)
 - [0.0.0](#)

GET

/medium/:id

Parameter

Field	Type	Description
id	String	Medium unique ID. Might start with collection prefix.

Success 200

Field	Type	Description
medium	json	Medium metadata.
solutions	Array	Array of all solutions in the medium (see Solution for format details)

Error 404

Name	Description
DataNotFound	The medium could not be found.

Send a Sample Request

URL

url

Parameters

▼

json

id

String

Send

Reset

Media endpoints | Medium composition

- 0.0.0
- [compare changes to:](#)
 - [0.0.0](#)

GET

/medium-composition/:id

Parameter

Field	Type	Description
id	String	Medium unique ID. Might start with collection prefix.

Success 200

Field	Type	Description
id	Integer	Unique ID of the ingredient

Field	Type	Description
name	String	Name of the ingredient
g_l	Float	Concentration of the ingredient in g/L
mmol_l	Float	Concentration of the ingredient in mmol/L
optional	Boolean	True if the ingredient is optional

Example data:

```
[
  {
    "name": "Agar",
    "id": 3,
    "g_l": 15,
    "mmol_l": 44.5991,
    "optional": 1
  },
  {
    "name": "Peptone",
    "id": 1,
    "g_l": 5,
    "mmol_l": null,
    "optional": 0
  },
  ...
]
```

Error 404

Name	Description
DataNotFound	The medium could not be found.

Send a Sample Request

URL
url

Parameters

▼

json

id

String

id

Send

Reset

Media endpoints | All strains for one medium

0.0.0

- [compare changes to:](#)
- [0.0.0](#)

GET

/medium-strains/:id

Parameter

Field	Type	Description
id	String	Medium unique ID. Might start with collection prefix.

Success 200

Field	Type	Description
id	String	Unique ID of the strain.
species	String	Species name of the strain
ccno	String	Unique culture collection number of this strain
growth	Boolean	True if growth is observed
bacdive_id	Integer	BacDive-ID is available

Field	Type	Description
domain	String	Abbreviation for the taxonomic group (B: Bacterium, A:Archaeon, Y: Yeast, F: Fungus, PH: Phage)

Example data:

```
[
  {
    "id": 1,
    "species": "Weizmannia coagulans",
    "ccno": "DSM 1",
    "growth": 1,
    "bacdive_id": 654,
    "domain": "B"
  },
  ...
]
```

Error 404

Name	Description
DataNotFound	The medium could not be found or has no calculated composition

Send a Sample Request

URL
url

Parameters

ajax-auto ▾

json

id

String

Send

Reset

Solution endpoints

https://mediadive.dsmz.de/doc/index.html

11/22

The following endpoints consider Solution information. You can request a list of all solutions or the solution recipe containing all ingredients, steps and the equipment.

Solution endpoints | All solutions

0.0.0

- [compare changes to:](#)
- [0.0.0](#)

Note that per default, main solutions and solution [A-Z] are omitted. If you wish to download all solitions, please add ?all=1 to the URL

GET

/solutions

Parameter

Field	Type	Description
limit optional	Integer	Max. number of results
offset optional	Integer	Offset of results

Success 200

Field	Type	Description
id	Integer	Unique ID of the solution.
name	String	Name of the solution.
volume	Integer	Final volume of this solution

Example data:

```
[
  {
    "id": 20,
    "name": "Trace element solution SL-4",
    "volume": 1000
  }
]
```

```
    },  
    ...  
  ]
```

Send a Sample Request

URL
url

Parameters

▼

json

limit
Integer

offset
Integer

Solution endpoints | Solution recipe

0.0.0

- [compare changes to:](#)
- [0.0.0](#)

GET

```
/solution/:id
```

Parameter

Field	Type	Description
id	Integer	solution unique ID.

Success 200

Field	Type	Description
id	Integer	Unique ID of the solution.
name	String	Name of the solution.
volume	Integer	Final volume of this solution
recipe	Array	List of all compounds/solutions in the recipe
recipe_order	Integer	Order of the ingredients and steps
compound	String	Name of the added compound
compound_id	Integer	Unique ID of the added compound
solution	String	Name of the added solution
solution_id	Integer	Unique ID of the added solution
condition	String	Condition under which the compound/solution is added
attribute	String	Additional attribute for this ingredient
amount	Float	Amount of substance added
unit	String	Unit of measurement, e.g. mg
g_l	Float	Concentration of the ingredient in g/L
mmol_l	Float	Concentration of the ingredient in mmol/L
optional	Boolean	True if the ingredient is optional
steps	Array	List of all steps
recipe_order	Integer	Order of the ingredients and steps
step	String	Full-text instruction
equipment	String[]	List of needed equipment

Example output:

```
{
  "id": 20,
  "name": "Trace element solution SL-4",
  "volume": 1000,
  "recipe": [
    {
      "recipe_order": 1,
      "compound": "Na2-EDTA",
      "compound_id": 34,
      "solution": null,
      "solution_id": null,
      "condition": null,
      "attribute": null,
      "amount": 0.5,
      "unit": "g",
      "g_l": 0.5,
      "mmol_l": 1.48718,
      "optional": 0
    },
    ...
  ],
  "steps": [
    {
      "recipe_order": null,
      "step": "First dissolve EDTA in distilled water and adjust pH to 7.0 using 2
    }
  ],
  "equipment": []
}
```

Error 404

Name	Description
------	-------------

DataNotFound	The solution could not be found.
--------------	----------------------------------

Send a Sample Request

URL

url

Parameters

ajax-auto ▾

json

id

Integer

id

Send

Reset

Ingredient endpoints

The following endpoints consider ingredient information. You can request a list of all ingredients or the more detailed information including all media that contain the ingredient as well as a list of synonyms.

Ingredient endpoints | All ingredients

0.0.0

- [compare changes to:](#)
- [0.0.0](#)

GET

/ingredients

Parameter

Field	Type	Description
limit optional	Integer	Max. number of results
offset optional	Integer	Offset of results

Success 200

Field	Type	Description
id	Integer	Unique ID of the ingredient.
name	String	Name of the ingredient.

Field	Type	Description
ChEBI	Integer	ChEBI-ID if available
CAS-RN	String	RN of the CAS Common Chemistry if available
PubChem	String	PubChem Compound-ID if available
mass	Float	Molecular mass if available
formula	String	Sum formula if available
density	Float	Molecular density if available

Example data:

```
[
  {
    "id": 5,
    "name": "Glucose",
    "ChEBI": 17234,
    "CAS-RN": "50-99-7",
    "PubChem": 962,
    "mass": 180.16,
    "formula": "C6H12O6",
    "density": 1.544
  },
  ...
]
```

Send a Sample Request

URL
url

Parameters

ajax-auto ▼

json

limit

Integer

limit

offset

Integer

offset

Send

Reset

Ingredient endpoints | Ingredient information

0.0.0

- [compare changes to:](#)
- [0.0.0](#)

GET

/ingredient/:id

Parameter

Field	Type	Description
id	Integer	Ingredient unique ID.

Success 200

Field	Type	Description
id	Integer	Unique ID of the ingredient.
name	String	Name of the ingredient.
ChEBI	Integer	ChEBI-ID if available
CAS-RN	String	RN of the CAS Common Chemistry if available
KEGG-Compound	String	KEGG Compound ID if available
BRENDA-Ligand	Integer	BRENDA Ligand-ID if available
MetaCyc	String	Metacyc compound ID if available

Field	Type	Description
PubChem	String	PubChem Compound-ID if available
mass	Float	Molecular mass if available
formula	String	Sum formula if available
density	Float	Molecular density if available
synonyms	Array	List of all synonyms
roles	Array	List of assigned biological roles
media	Array	List of all media that contain this ingredient

Example data:

```
{
  "id": 5,
  "name": "Glucose",
  "ChEBI": 17234,
  "CAS-RN": "50-99-7",
  "KEGG-Compound": "C00293",
  "BRENDA-Ligand": null,
  "MetaCyc": null,
  "PubChem": 962,
  "ZVG": 19010,
  "complex_compound": 0,
  "mass": 180.16,
  "formula": "C6H12O6",
  "density": 1.544,
  "synonyms": [
    "(+)-Glucose",
    "D-Glucose",
    "Glc",
    "gluco-hexose",
    "Glucopyranose",
    ...
  ],
  "roles": [],
  "media": [
    3,
    7,
```

```
      8,  
      ...  
    ]  
  }
```

Error 404

Name	Description
DataNotFound	The ingredient could not be found.

Send a Sample Request

URL
url

Parameters

▼
json

id
Integer

Strain endpoints

The following endpoints consider strain information. You can request all information for one strain, including the media it grows on.

Strain endpoints | Strain information

0.0.0

- [compare changes to:](#)
- [0.0.0](#)

GET

/strain/:type/:identifier

Parameter

Field	Type	Description
type	String	Type of identifier used Allowed values: "id", "dsm", "jcm", "bacdiver"
identifier	Integer	Strain unique ID.

Success 200

Field	Type	Description
id	Integer	Unique ID of the strain.
species	String	Name of the solution.
ccno	String	Unique culture collection number of this strain
media	Object	List of all media for this strain
medium_id	String	List of all media for this strain
growth	Boolean	True if growth is observed
growth_rate	Float	Growth rate in ^-h if available
growth_quality	String	Quality of growth (- + ++ +++) if available
modification	String	Strain-specific modification if neccessary

Example data:

```
{
  "id": 8,
  "species": "Lederbergia lenta",
  "ccno": "DSM 9",
```

```
"media": [  
  {  
    "medium_id": 220,  
    "growth": 1,  
    "growth_rate": null,  
    "growth_quality": '++',  
    "modification": "Plus 0.1% urea"  
  },  
  {  
    "medium_id": "J22",  
    "growth": 1,  
    "growth_rate": null,  
    "growth_quality": null,  
    "modification": null  
  }  
]
```

Error 404

Name	Description
DataNotFound	The strain could not be found.

Send a Sample Request

URL

url

Parameters

▼

json

type

String

▼

identifier

Integer