Downloading 3-D Expression Grid Data

DOWNLOADING 3-D EXPRESSION GRID DATA

Download 3-D expression grid data packaged into a compressed archive file (.zip).

Prototype

```
http://api.brain-map.org/grid_data/download/[SectionDataSet.id]&include=[images]
```

Examples

Download the 200um density volume for the Mouse Brain Atlas SectionDataSet 69816930:

```
http://api.brain-map.org/grid_data/download/69816930
```

Download the 200um energy and intensity volumes for Mouse Brain Atlas SectionDataSet 69816930:

```
http://api.brain-map.org/grid_data/download/183282970?include=energy,intensity
```

Download the energy volume for the Mouse Brain Atlas' coronal Adora2a experiment.

First, search for relevant experiments' IDs (SectionDataSets):

```
http://api.brain-map.org/api/v2/data/query.xml?criteria=
model::SectionDataSet,
rma::criteria,[failed$eq'false'],products[abbreviation$eq'Mouse'],plane_of_section[name$eq'coronal'],genes
[acronym$eq'Adora2a']
```

Then, download the energy volume for each of the experiments' IDs:

```
http://api.brain-map.org/grid_data/download/72109410?include=energy
```

Parameters

ID	Integer	ID of the desired SectionDataSet.
include	String (optional)	Explicitly choose the desired image volumes. Valid volumes are energy, density, and intensity. Supply multiple volumes in a comma-delimited list (e.g. "include=energy,density,intensity"). By default, only energy is returned.

Response

Zip file (.zip) containing a folder filled with the default files (data_set.xml, energy.mhd, energy.raw) or the requested data volumes.

data_set.xml	XML file with details regarding the specimen and images that is only returned if the volumes parameter is null.
energy.mhd	A simple text header file in MetaImage format describing the volume. This file is returned by default if the volumes parameter is null.
energy.raw	A raw uncompressed float (32-bit) little-endian volume representing average expression energy per voxel. A value of "-1" represents no data. This file is returned by default if the volumes parameter is null.
density.mhd	A simple text header file in MetaImage format describing the volume.
density.raw	A raw uncompressed float (32-bit) little-endian volume representing average expression density per voxel. A value of "-1" represents no data.

intensity .mhd	A simple text header file in MetaImage format describing the volume.
intensity .raw	A raw uncompressed float (32-bit) little-endian volume representing average expression intensity per voxel. A value of "-1" represents no data.
injection .mhd	A simple text header file in MetaImage format describing the volume.
injection .raw	A raw uncompressed float (32-bit) little-endian volume representing the proportion of pixels within each voxel that were within the manually annotated injection site.

DOWNLOADING 3-D PROJECTION GRID DATA

Download 3-D projection grid data packaged into a compressed .nrrd image.

Prototype

```
http://api.brain-map.org/grid_data/download_file/[SectionDataSet.id]&image=[image]&resolution=[resolution]
```

Examples

Download the 100um density volume for the Mouse Connectivity Atlas SectionDataSet 181777177:

```
http://api.brain-map.org/grid_data/download_file/181777177
```

Download the 25um injection_fraction volume for Mouse Connectivity Atlas SectionDataSet 181777177:

```
http://api.brain-map.org/grid_data/download_file/181777177?image=injection_fraction&resolution=25
```

Parameters

ID	Integer	ID of the desired SectionDataSet.
image	String (optional)	Explicitly choose the desired image volume. Valid volumes are projection_density, projection_energy, injection_fraction, injection_density, injection_energy, and data_mask.
resolution	Integer (optional)	Available resolutions for projection data are 10, 25, 50, and 100 (in microns).

Response

The response will be a single 32-big floating point Nrrd image named for the requested image type and resolution. If no image is specified, the density volume is returned. If no resolution is specified, 100um resolution is assumed.

projection_density	Density of projecting signal (number of projecting pixels / volume)
projection_energy	Density of projecting signal multiplied by total signal intensity
injection_fraction	Fraction of pixels belonging to the injection site
injection_density	Density of projecting signal for pixels belonging to the injection site
injection_energy	Injection density multiplied by total signal intensity for pixels belonging to the injection site
data_mask	Binary image where a value of '1' indicates that greater than 50% of a grid voxel contains valid data.