

IBI INTERNATIONAL BRAIN INITIATIVE

Data Catalog Task Force

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Data Catalog Task Force Objective:

Establish a sustainable data search capability for the output of the international brain initiatives

The Google Knowledge Graph



Knowledge Graph



The Knowledge Graph is a knowledge base used by Google and its services to enhance its search engine's results with information gathered from a variety of sources. The information is presented to users in an infobox next to the search results. [Wikipedia](#)

The Google Knowledge Graph



Human brain

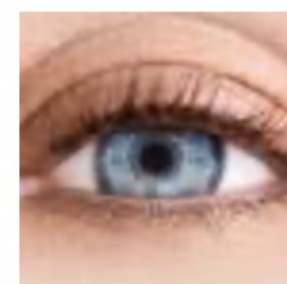
The **brain** is one of the largest and most complex organs in the human body. It is made up of more than 100 billion nerves that communicate in trillions of connections called synapses. ... The **brain** stem is between the spinal cord and the rest of the **brain**. Basic functions like breathing and sleep are controlled here. May 18, 2019

[Brain \(Human Anatomy\): Picture, Function, Parts, Conditions ...](#)

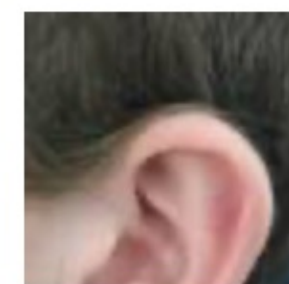
<https://www.webmd.com> › [brain](#) › [picture-of-the-brain](#)

People also search for

[View 5+ more](#)



[Eye](#)



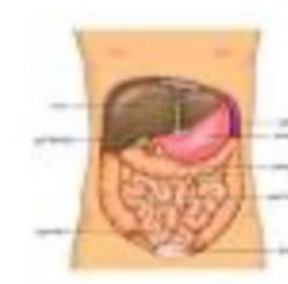
[Ear](#)



[Spinal cord](#)



[Hypothal...](#)



[Liver](#)

Google Dataset Search

The screenshot shows the Google Dataset Search interface. At the top, the search bar contains the query "weather site:noaa.gov". The search results are displayed in two columns. The left column lists several datasets from NOAA, including "Monthly Weather Review", "World Weather Records", "Mariners Weather Log", "Daily Weather Records", and "Surface Weather, Signal Service and Weather Bureau". The right column provides detailed information for the selected "Monthly Weather Review" dataset, including its ID (gov.noaa.ncdc:C01044), creation and update dates, the provider (National Oceanic and Atmospheric Administration), the time period covered (1914 - 1949), the area covered (United States of America, Pacific Ocean, North Pacific Ocean), and a description of the dataset's content.

Google Dataset Search

weather site:noaa.gov

About

Sign In

Feedback

Monthly Weather Review
data.nodc.noaa.gov
catalog.data.gov
Updated May 2, 2013

World Weather Records
data.nodc.noaa.gov
Published May 31, 2017

Mariners Weather Log
data.nodc.noaa.gov
catalog.data.gov
+1 more
Published 1957

Daily Weather Records
data.nodc.noaa.gov
catalog.data.gov
+1 more
Published Dec 1, 2013

Surface Weather, Signal Service and Weather Bureau
data.nodc.noaa.gov
catalog.data.gov
+1 more
Published 2011

Monthly Weather Review
gov.noaa.ncdc:C01044

data.nodc.noaa.gov catalog.data.gov

Dataset created Mar 15, 2011
Dataset updated May 2, 2013
Dataset published Mar 15, 2011

Dataset provided by
National Oceanic and Atmospheric Administration

Time period covered 1914 - 1949

Area covered
United States of America, Pacific Ocean, North Pacific Ocean

Description
Supplements to the Monthly Weather Review publication. The Weather Bureau published the Monthly weather review Supplement irregularly from 1914 to 1949. The Supplement replaced numerous independent series of bulletins that the Bureau published before 1914. The Supplements featured contributions to the science of meteorology and weather forecasting that were too voluminous to publish in the regular Monthly weather review. The Bureau never published no. 43. The Monthly Weather Review series has also been scanned, and is hosted by the American Meteorological Society, which assumed publication in 1974.

<https://developers.google.com/search/docs/data-types/dataset>

Currently only supports whole datasets, not granular individual data entities.

Structured data

Introduction

Structured data

- About Search features
- Search feature gallery
- [Introduction to structured data](#)
- Enhance your site's attributes
- Mark up your content items
- Build, test, & release structured data
- Structured data general guidelines
- ▶ Feature guides

AMP

- About AMP
- Enhance AMP for Search
- Validate AMP
- Remove AMP content from Search
- Integrate with Google products

Prepare your content

- Create quality pages
- Associate your online resources
- ▶ Rendering on Google Search

Introduction to Structured Data

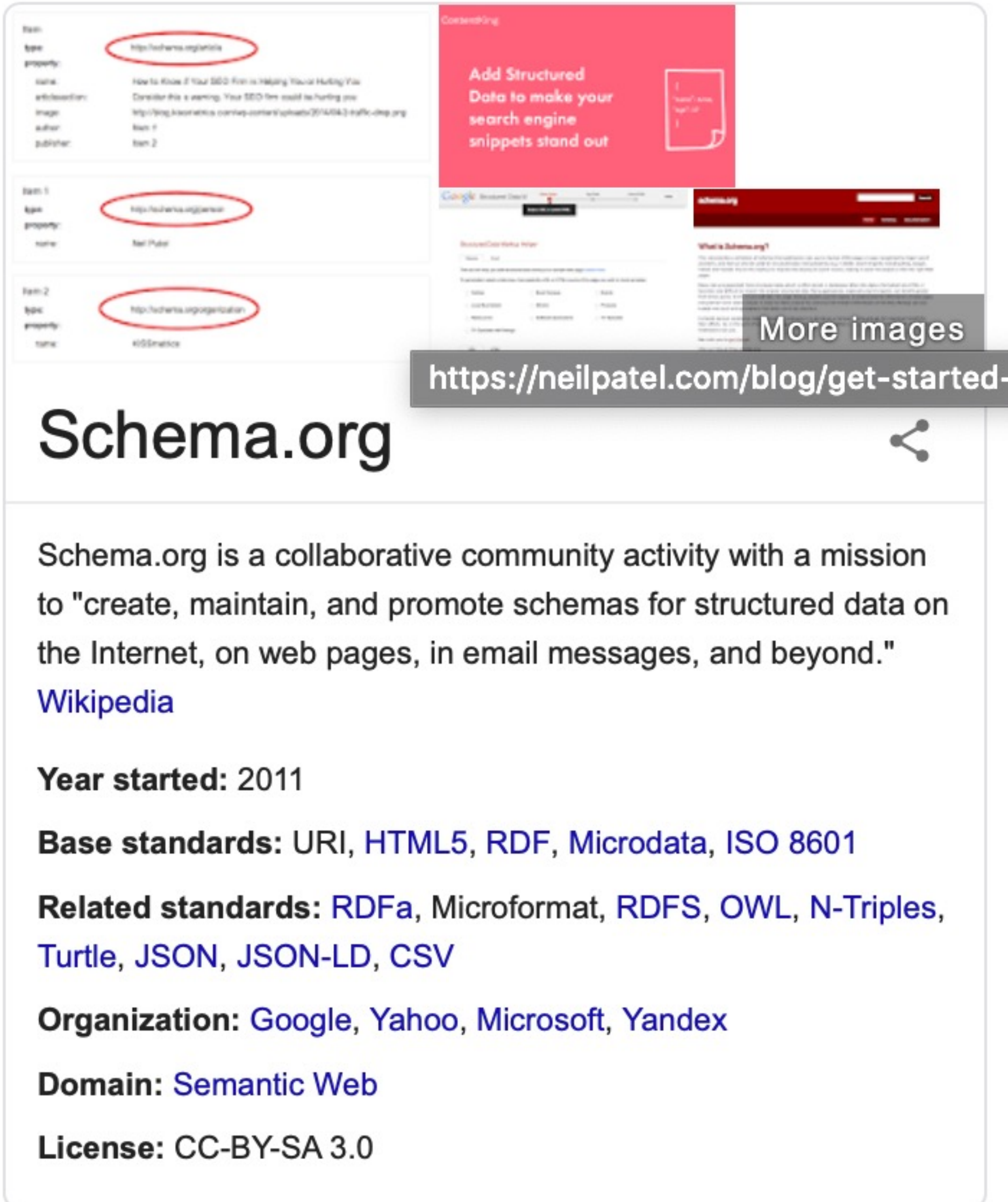


Google Search works hard to understand the content of a page. You can help us by providing explicit clues about the meaning of a page to Google by including structured data on the page. Structured data is a standardized format for providing information about a page and classifying the page content; for example, on a recipe page, what are the ingredients, the cooking time and temperature, the calories, and so on.

Google uses structured data that it finds on the web to understand the content of the page, as well as to gather information about the web and the world in general. For example, here is a [JSON-LD](#) structured data snippet that might appear on the contact page of the Unlimited Ball Bearings corporation, describing their contact information:

```
<script type="application/ld+json">
{
  "@context": "http://schema.org",
  "@type": "Organization",
  "url": "http://www.example.com",
  "name": "Unlimited Ball Bearings Corp.",
  "contactPoint": {
    "@type": "ContactPoint",
    "telephone": "+1-401-555-1212",
    "contactType": "Customer service"
  }
}
</script>
```

schema.org



The screenshot shows the Schema.org website interface. On the left, there is a list of schema types with their respective URIs circled in red. The main content area features a red banner with the text "Add Structured Data to make your search engine snippets stand out" and a "More images" button. Below the banner, there is a URL: <https://neilpatel.com/blog/get-started->. The Schema.org logo is prominently displayed at the bottom left of the screenshot.

Schema.org

Schema.org is a collaborative community activity with a mission to "create, maintain, and promote schemas for structured data on the Internet, on web pages, in email messages, and beyond."
[Wikipedia](#)

Year started: 2011

Base standards: [URI](#), [HTML5](#), [RDF](#), [Microdata](#), [ISO 8601](#)

Related standards: [RDFa](#), [Microformat](#), [RDFS](#), [OWL](#), [N-Triples](#), [Turtle](#), [JSON](#), [JSON-LD](#), [CSV](#)

Organization: [Google](#), [Yahoo](#), [Microsoft](#), [Yandex](#)

Domain: [Semantic Web](#)

License: [CC-BY-SA 3.0](#)

The schemas are a set of 'types', each associated with a set of properties. The types are arranged in a hierarchy.

The core vocabulary currently consists of 614 Types, 902 Properties, and 114 Enumeration values.

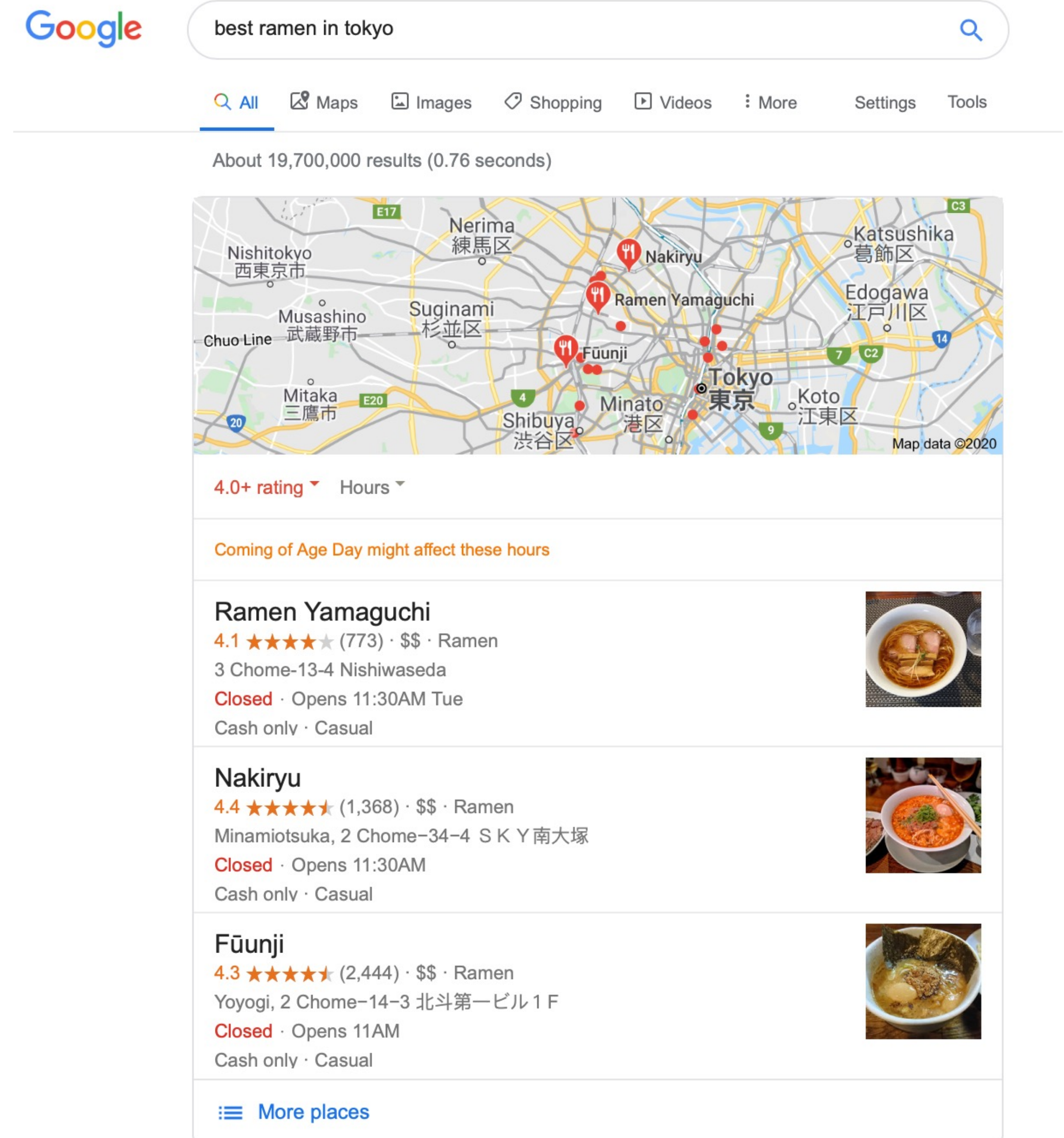
- Creative works: [CreativeWork](#), [Book](#), [Movie](#), [MusicRecording](#), [Recipe](#), [TVSeries](#) ...
- Embedded non-text objects: [AudioObject](#), [ImageObject](#), [VideoObject](#)
- [Event](#)
- [Health and medical types](#): notes on the health and medical types under [MedicalEntity](#).
- [Organization](#)
- [Person](#)
- [Place](#), [LocalBusiness](#), [Restaurant](#) ...
- [Product](#), [Offer](#), [AggregateOffer](#)
- [Review](#), [AggregateRating](#)
- [Action](#)

Why do businesses implement structured data?

Structured data helps sites appear in Google's Knowledge Graph

For sites that appear in highly competitive verticals, **getting the edge over your competition is critical**, and one way to do this is by establishing your site presence with Google and **appearing in the Knowledge Graph**.

To enable your business Knowledge Graph card, earlier you would have needed to **add the necessary Corporate Contact markup on the homepage of your website**.



The screenshot shows a Google search for "best ramen in tokyo". The search results include a map of Tokyo with several ramen restaurants marked with red pins. Below the map, there are filters for "4.0+ rating" and "Hours". A warning message states "Coming of Age Day might affect these hours". The results list three restaurants:

- Ramen Yamaguchi**: 4.1 ★★★★★ (773) · \$\$ · Ramen. 3 Chome-13-4 Nishiwaseda. Closed · Opens 11:30AM Tue. Cash only · Casual.
- Nakiryu**: 4.4 ★★★★★ (1,368) · \$\$ · Ramen. Minamiotsuka, 2 Chome-34-4 S K Y南大塚. Closed · Opens 11:30AM. Cash only · Casual.
- Fūunji**: 4.3 ★★★★★ (2,444) · \$\$ · Ramen. Yoyogi, 2 Chome-14-3 北斗第一ビル1F. Closed · Opens 11AM. Cash only · Casual.

At the bottom, there is a link for "More places".

Towards an International Brain Initiative Knowledge Graph...

Why should neuroscientists implement structured data descriptions in their websites?

What are the **incentives** in neuroscience that will make it so motivating to establish the presence of your data in an **International Brain Initiative Knowledge Graph**?

To enable your neuroscience data Knowledge Graph card, earlier you would have needed to **add the necessary Brain Research Data markup on your website**. Then the a data card could be automatically added to the IBI Knowledge Graph.

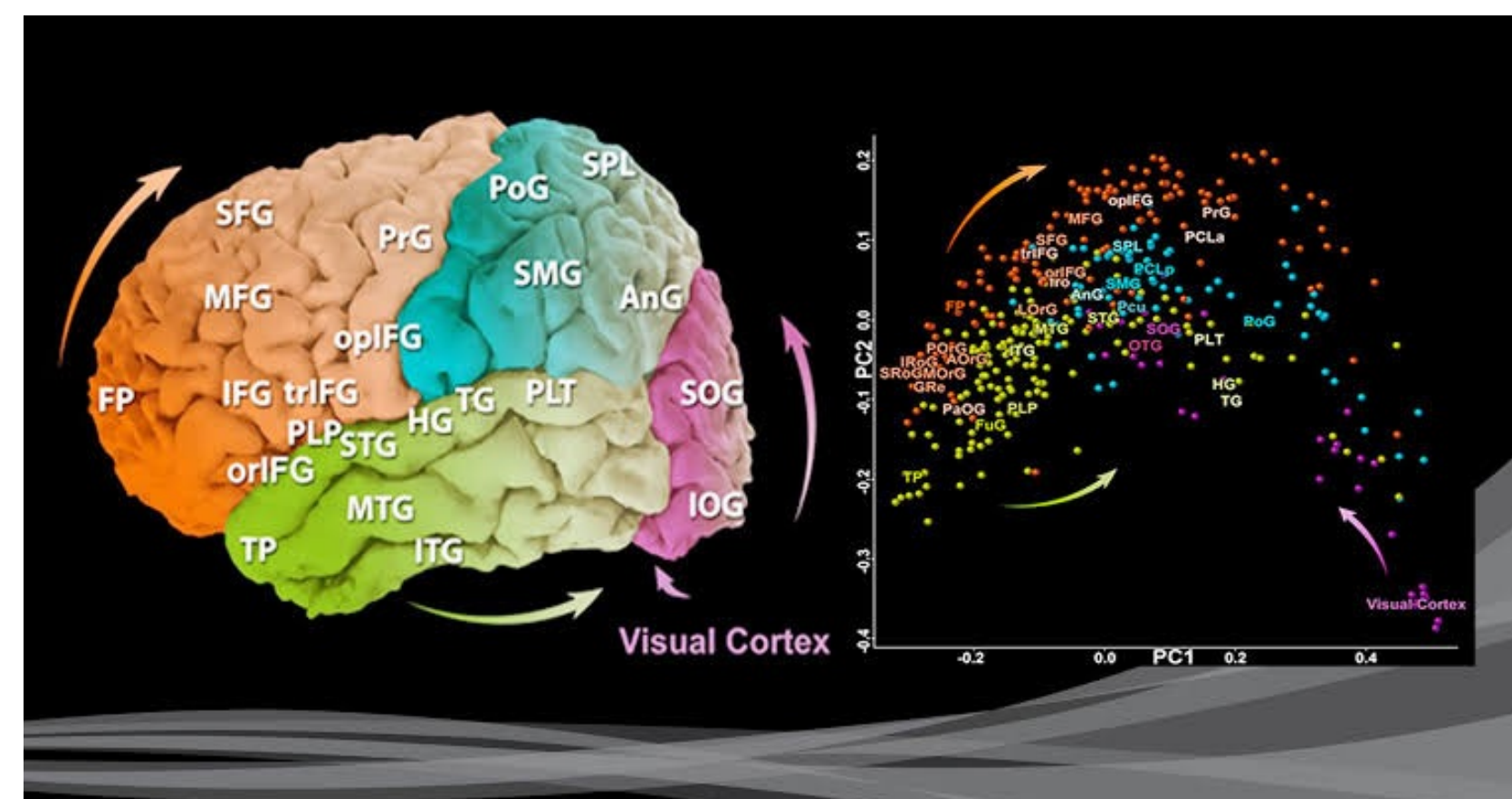


all neurons in human cerebral cortex



All Images Videos News Shopping More Settings Tools

About 41,200,000 results (0.57 seconds)



Human PLP Donor: 29 yrs, Male Layer 3 aspiny Disease state: epilepsy Electrophysiology > Morphology >	Human PLP Donor: 29 yrs, Male Layer 3 aspiny Disease state: epilepsy Electrophysiology > Morphology >
Human SFG Donor: 41 yrs, Female Layer 3 aspiny Disease state: epilepsy Electrophysiology > Morphology >	Human SFG Donor: 41 yrs, Female Layer 2 spiny Disease state: epilepsy Electrophysiology > Morphology >
Human SFG Donor: 47 yrs, Male Layer 3 spiny Disease state: epilepsy Electrophysiology >	Human MTG Donor: 60 yrs, Male Layer 2 spiny Disease state: epilepsy Electrophysiology > Morphology >
Human MTG Donor: 23 yrs, Female Layer 4 spiny Disease state: epilepsy Electrophysiology >	Human MTG Donor: 23 yrs, Female Layer 2 spiny Disease state: epilepsy Electrophysiology > Morphology >
Human MTG Donor: 23 yrs, Female Layer 3 aspiny Disease state: epilepsy Electrophysiology > Morphology >	Human MTG Donor: 23 yrs, Female Layer 6 spiny Disease state: epilepsy Electrophysiology > Morphology >

First review all current brain initiative approaches to structured metadata:

- Human Brain Project - EBRAINS Knowledge Graph
- Blue Brain Project - Neuroshapes
- Japan Brain/MINDS Data Portal
- Canadian Open Neuroscience Platform
- INCF KnowledgeSpace
- DANDI: Distributed Archives for Neurophysiology Data Integration
- SPARC Data Structure

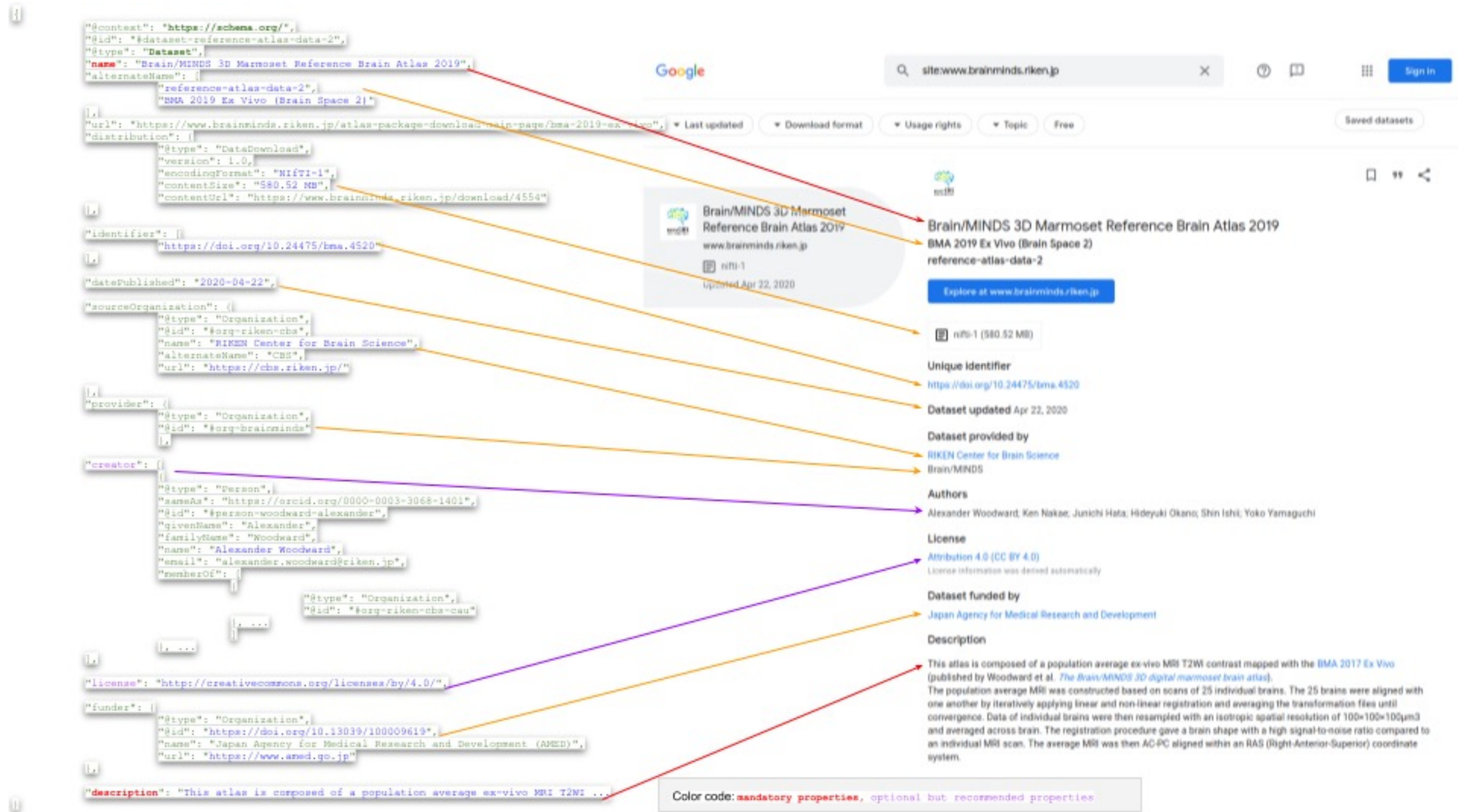
Example:



Brain/MINDS
DATA PORTAL

- Launched in 2014, Brain/MINDS is Japan's Brain Mapping Project.
- The core institute for the project is RIKEN and it was sponsored by MEXT in 2014 and now AMED since 2015.
- The unique appeal of the Brain/MINDS project is its focus on mapping the brain of a small new world monkey, the common marmoset (*Callithrix jacchus*).

schema.org Dataset metadata for Brain/MINDS 3D Marmoset Reference Brain Atlas



The image shows a Google search result for 'Brain/MINDS 3D Marmoset Reference Brain Atlas 2019'. Overlaid on the left is a JSON-LD metadata block with color-coded annotations. Arrows point from these annotations to corresponding elements in the search result card on the right.

Color code: mandatory properties (red), optional but recommended properties (orange), optional (purple).

```

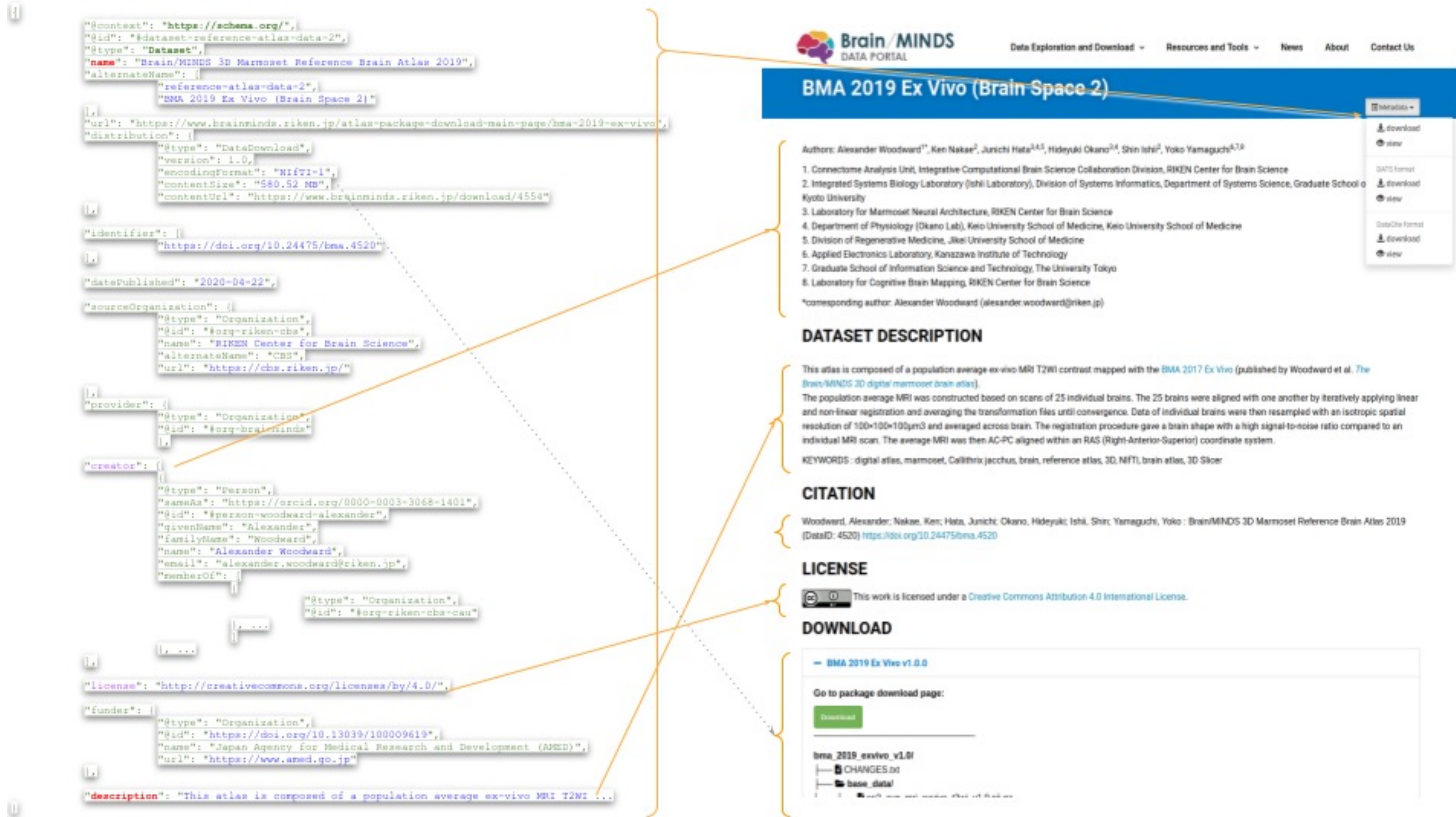
{
  "@context": "https://schema.org/",
  "@id": "#dataset-reference-atlas-data-2",
  "@type": "Dataset",
  "name": "Brain/MINDS 3D Marmoset Reference Brain Atlas 2019",
  "alternateName": [
    "reference-atlas-data-2",
    "BMA 2019 Ex Vivo (Brain Space 2)"
  ],
  "url": "https://www.brainminds.riken.jp/atlas-package-download-main-page/bma-2019-ex-vivo",
  "distribution": [
    {
      "@type": "DataDownload",
      "version": "1.0",
      "encodingFormat": "NIfTI-1",
      "contentSize": "580.52 MB",
      "contentUrl": "https://www.brainminds.riken.jp/download/4554"
    }
  ],
  "identifier": [
    {
      "@type": "Text",
      "text": "https://doi.org/10.24475/bma.4520"
    }
  ],
  "datePublished": "2020-04-22",
  "sourceOrganization": {
    "@type": "Organization",
    "@id": "#org-riken-cbs",
    "name": "RIKEN Center for Brain Science",
    "alternateName": "CBS",
    "url": "https://cbs.riken.jp/"
  },
  "provider": {
    "@type": "Organization",
    "@id": "#org-brainminds"
  },
  "creator": [
    {
      "@type": "Person",
      "nameAs": "https://orcid.org/0000-0003-3068-1401",
      "@id": "#person-woodward-alexander",
      "givenName": "Alexander",
      "familyName": "Woodward",
      "name": "Alexander Woodward",
      "email": "alexander.woodward@riken.jp",
      "memberOf": [
        {
          "@type": "Organization",
          "@id": "#org-riken-cbs-cau"
        }
      ]
    }
  ],
  "license": "http://creativecommons.org/licenses/by/4.0/",
  "funder": [
    {
      "@type": "Organization",
      "@id": "https://doi.org/10.13039/100009619",
      "name": "Japan Agency for Medical Research and Development (AMED)",
      "url": "https://www.amed.go.jp"
    }
  ],
  "description": "This atlas is composed of a population average ex-vivo MRI T2WI ..."
}

```

Search Result Card Details:

- Brain/MINDS 3D Marmoset Reference Brain Atlas 2019**
- www.brainminds.riken.jp
- nifti-1
- Updated Apr 22, 2020
- Brain/MINDS 3D Marmoset Reference Brain Atlas 2019 BMA 2019 Ex Vivo (Brain Space 2) reference-atlas-data-2
- Explore at www.brainminds.riken.jp
- nifti-1 (580.52 MB)
- Unique Identifier: <https://doi.org/10.24475/bma.4520>
- Dataset updated Apr 22, 2020
- Dataset provided by: RIKEN Center for Brain Science, Brain/MINDS
- Authors: Alexander Woodward, Ken Nakae, Junichi Hata, Hideyuki Okano, Shin Ishii, Yoko Yamaguchi
- License: Attribution 4.0 (CC BY 4.0)
- Dataset funded by: Japan Agency for Medical Research and Development
- Description: This atlas is composed of a population average ex-vivo MRI T2WI contrast mapped with the BMA 2017 Ex Vivo (published by Woodward et al. *The Brain/MINDS 3D digital marmoset brain atlas*). The population average MRI was constructed based on scans of 25 individual brains. The 25 brains were aligned with one another by iteratively applying linear and non-linear registration and averaging the transformation files until convergence. Data of individual brains were then resampled with an isotropic spatial resolution of 100x100x100µm3 and averaged across brain. The registration procedure gave a brain shape with a high signal-to-noise ratio compared to an individual MRI scan. The average MRI was then AC-PC aligned within an RAS (Right-Anterior-Superior) coordinate system.

Generated dataset landing page for Brain/MINDS 3D Marmoset Reference Brain Atlas



The image shows a screenshot of the Brain/MINDS 3D Marmoset Reference Brain Atlas landing page. The page title is "BMA 2019 Ex Vivo (Brain Space 2)". The page includes a navigation menu with "Data Exploration and Download", "Resources and Tools", "News", "About", and "Contact Us". The main content area lists authors, a list of eight institutions, a "DATASET DESCRIPTION", a "CITATION", a "LICENSE" (Creative Commons Attribution 4.0 International License), and a "DOWNLOAD" section for "BMA 2019 Ex Vivo v1.0.0".

Overlaid on the left side of the screenshot is a JSON metadata block with several fields highlighted and annotated with orange lines:

- @context**: "https://schema.org/"
- @id**: "#dataset-reference-atlas-data-2"
- @type**: "Dataset"
- name**: "Brain/MINDS 3D Marmoset Reference Brain Atlas 2019"
- alternateName**: ["reference-atlas-data-2", "BMA 2019 Ex Vivo (Brain Space 2)"]
- url**: "https://www.brainminds.riken.jp/atlas-package-download-main-page/bma-2019-ex-vivo"
- distribution**: [{"@type": "DataDownload", "version": "1.0", "encodingFormat": "NIFTI-1", "contentSize": "580.52 MB", "contentUrl": "https://www.brainminds.riken.jp/download/4554"}]
- identifies**: ["https://doi.org/10.24475/bma.4520"]
- datePublished**: "2020-04-22"
- sourceOrganization**: [{"@type": "Organization", "@id": "#org-riken-cbs", "name": "RIKEN Center for Brain Science", "alternateName": "CBS", "url": "https://cbs.riken.jp/"}]
- provider**: [{"@type": "Organization", "@id": "#org-brainminds"}]
- creator**: [{"@type": "Person", "nameAs": "https://orcid.org/0000-0003-3068-1401", "@id": "#person-woodward-alexander", "givenName": "Alexander", "familyName": "Woodward", "name": "Alexander Woodward", "email": "alexander.woodward@riken.jp", "memberOf": [{"@type": "Organization", "@id": "#org-riken-cbs-cau"}]}]
- license**: "http://creativecommons.org/licenses/by/4.0/"
- funder**: [{"@type": "Organization", "@id": "https://doi.org/10.13039/100009619", "name": "Japan Agency for Medical Research and Development (AMED)", "url": "https://www.amed.go.jp"}]
- description**: "This atlas is composed of a population average ex-vivo MRI T2WI ..."


Orange lines connect these JSON fields to their corresponding content on the landing page: the URL to the download page, the DOI link, the author's name, the source organization (RIKEN Center for Brain Science), the provider (Brain/MINDS), the creator's name, the license, the funder (AMED), and the description.


Google Dataset Search


Google ? ! ☰ [Sign in](#)


▼ Last updated ▼ Download format ▼ Usage rights ▼ Topic Free [Saved datasets](#)

100+ datasets found 🔖 ” 🔗

 Brain/MINDS 3D Marmoset Reference Brain Atlas 2017
www.brainminds.riken.jp
📄 nifti-1
Updated Apr 22, 2020

 Brain/MINDS 3D Human Brain Image Dataset
www.brainminds.riken.jp
📄 nifti
Updated Nov 2, 2017

 Brain/MINDS Marmoset Optogenetics Dataset 01
www.brainminds.riken.jp
📄 nifti, xlsx, mat
Updated Jun 30, 2018

 Brain/MINDS 3D Marmoset Reference Brain Atlas 2019
www.brainminds.riken.jp

Brain/MINDS 3D Marmoset Reference Brain Atlas 2017

BMA 2017 Ex Vivo (Brain Space 1)
reference-atlas-data

[Explore at www.brainminds.riken.jp](http://www.brainminds.riken.jp)

3 scholarly articles cite this dataset ([View in Google Scholar](#))

📄 nifti-1 (72 MB), nifti-1 (103.35 MB)

Unique identifier
<https://doi.org/10.24475/bma.2799>

Dataset updated Apr 22, 2020

Dataset provided by
Brain/MINDS – Brain Mapping by Integrated Neurotechnologies for Disease Studies
Neuroinformatics Japan Center

Authors
Alexander Woodward; Tsutomu Hashikawa; Masahide Maeda; Takaaki Kaneko; Keigo Hikishima; Atsushi Iriki; Hideyuki Okano; Yoko Yamaguchi

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License information was derived automatically

Dataset funded by
[Japan Agency for Medical Research and Development](#)

<https://developers.google.com/search/docs/data-types/dataset>

Currently only supports whole datasets, not granular individual data entities.

Limitations of Google Dataset Search:

- No guarantee that your datasets will be indexed or searchable
- No application programming interface to build other search engines
- No support for neuroscience specific metadata
- Limited to entire datasets
 - not clear when it might support neuroscience record level data



INCF KnowledgeSpace - knowledge-space.org

A community-based encyclopedia/data discoverability portal for neuroscience that links brain research concepts to the data, models, and literature that support them.

Core concepts:

- Provides a search engine for neuroscience resources including data, computational models and literature
- Supports encyclopedia articles with links to related resources
- Provides an API to support FAIR data

Supported by:



Features:

The screenshot displays the 'Thalamus' page on the INCF KnowledgeSpace website. The page title is 'Thalamus' and it includes a breadcrumb trail: 'anatomical entity > Anatomical entity > Regional part of organ > Regional part of brain > Thalamus'. Below the title, there are 'Synonyms' listed in a horizontal bar: 'Thalamus opticus', 'wider thalamus', 'thalamus', 'thalamencephalon', and 'thalami'. The main text describes the thalamus as a paired subcortical brain structure, detailing its components like the dorsal and ventral thalamus, and its role in relaying information to the cortex. A 'DataSpace' sidebar on the right lists various categories with their respective result counts: MODELS (217 results), MORPHOLOGY (7080 results), ANATOMY (147 results), EXPRESSION (123702 results), PHYSIOLOGY (33 results), and UNCATEGORIZED (46 results). A video player control bar is visible at the bottom of the page.

- Descriptions of neuroscience research concepts
- Links to ontologies that define concepts
- Links to PubMed entries associated with the concepts
- Links to data/models related to the concepts



Proof of Concept IBI Data Search:

KnowledgeSpace

RESOURCES
ABOUT

SEARCH

FILTERS

KEYWORDS

- Brain (7)
- Callithrix Jacchus (6)
- NIfTI (4)
- Marmoset (4)
- MRI (3)
- 3D (2)
- 3D Slicer (2)
- ECoG (2)
- Electrocorticography (2)
- Brain Atlas (2)

Brain/MINDS Results

7 records found

Title	Description
Brain/MINDS 3D Marmoset Reference Brain Atlas 2019	This atlas is composed of a population average ex-vivo MRI T2WI contrast mapped with the [BMA 2017 Ex Vivo] (https://www.brainminds.riken.jp/reference-atlas-data/) (published by Woodward et al. _The Brain/MINDS 3D digital marmoset brain atlas (https://www.nature.com/articles/sdata20189)). The population average MRI was constructed based on scans of 25 individual brains. The 25 brains were aligned with one another by iteratively applying linear and non-linear registration and averaging the transformation files until convergence. Data of individual brains were then resampled with an isotropic spatial resolution of 100×100×100µm ³ and averaged across brain. The registration procedure gave a brain shape with a high signal-to-noise ratio compared to an individual MRI scan. The average MRI was then AC-PC aligned within an RAS (Right-Anterior-Superior) coordinate system.
Brain/MINDS 3D Marmoset Reference Brain Atlas 2017	The dataset includes NIfTI files of MRI T2 ex-vivo data; reconstructed Nissl stained images of the same brain, registered to the shape of the MRI; brain region segmentation (with separate color lookup table); and gray, mid-cortical and white matter boundary segmentation. In addition, a 3D Slicer scene file is provided that can be used for testing the dataset within the freely downloadable 3D Slicer software (https://www.slicer.org/ (https://www.slicer.org/)). The scene file can be dragged directly into 3D Slicer and the atlas can be used immediately. Files can be downloaded individually or as one zip file. The atlas can be viewed online via the Zooming Atlas Viewer (ZAV) by clicking [here] (https://www.bminds.brain.riken.jp/ZAVviewer_Reference_Brain/).
Developmental Age-Specific Brain Templates Dataset	The dataset includes NIfTI files of MRI T1-weighted images data and T2-weighted images at the age of 1 month, 3 months, 6 months, 12 months, 18 months, and 24 months. The templates at the age of 18 and 24 months were registered to the stereotaxic coordinates defined in Paxinos ^[1] and Woodward et al ^[2] . For the template at the age of 1, 3, 6, 12 months, we newly defined the stereotaxic coordinates. For details regarding the procedure, please download [Additional_information_about_the_dataset.pdf] (https://www.brainminds.riken.jp/download/3815) ^[1] : Paxinos G. The marmoset brain in stereotaxic coordinates. Academic Press. 2012. ^[2] : Woodward A, Hashikawa T, Maeda M, Kaneko T, Hikishima K, Iriki A, Okano H, Yamaguchi Y. The Brain / MINDS 3D digital marmoset brain atlas. DOI: https://doi.org/10.24475/bma.2799
Brain/MINDS 3D Human Brain Image Dataset	Human brain images obtained with 3T MRI. The dataset includes T1-weighted images of patients with schizophrenia, those with major depressive disorder, and those with bipolar disorder, as well as of healthy controls. This dataset will contribute to promoting research on brain mapping in human psychiatric disorders. See detailed dataset description at [https://www.brainminds.riken.jp/human-brain-images-about] (https://www.brainminds.riken.jp/human-brain-images-about)
Brain/MINDS Marmoset Optogenetics Dataset 01	Eight weeks after the virus injections, we applied 3.5 V to each LED for 200 ms to monitor the development of neural responses to photostimuli. In each session, eight LEDs were pseudo-randomly illuminated and 50 stimulation trials were performed for every LED. Inter stimulus intervals were fixed at 2 s. ECoG data were sampled at 1KHz. Further information can be found on [TychoWiki] (http://wiki.neurotycho.org/Marmoset_Optogenetics_Details)
Brain/MINDS	We used auditory stimuli of different durations (AD) and frequencies (AF). In AD, 10 types of pure sinusoidal tones (1 ms rise/fall) with different durations (10, 25, 50, 75, 100, 125, 150, 175, 200, and 225 ms; 1000 Hz; 2000 stimuli in total)



KnowledgeSpace integrates IBI Data Sources:

DATASETS LITERATURE ENCYCLOPEDIA

FILTERS

SOURCES

- [Allen Brain Atlas Mouse Brain - Expression](#)
- [NeuroMorpho](#)
- [GENSAT](#)
- [EBRAINS](#)
- [Cell Image Library](#)
- [OpenNEURO](#)
- [ModelDB](#)
- [NeuronDB](#)
- [IonChannelGenealogy](#)
- [CONP Portal](#)
- [DANDI Archive](#)
- [NeuroML Database](#)
- [Brain/MINDS](#)
- [SPARC](#)

Data Results: brain

10000 records found

CIL:42603 - house mouse - brain macrophage [View more](#)

Multiphoton image of microglia (GFP, green) and cerebral blood vessels (Texas-red dextran, red) in living, anesthetized transgenic mouse. Microglia are glial cells that are the resident macrophages. Honorable Mention, 2009 Olympus BioScapes Digital Imaging Competition®.
<http://cellimagelibrary.org/images/42603>

CIL:13007 - rat - brain macrophage [View more](#)

Section from rat brain cortex showing a subset of fluorescent-protein expressing neurons and microglia. Most prominent in this image are the cell bodies and proximal dendrites (including the stalk of the apical dendrite, oriented toward the lower left corner) of two pyramidal neurons (one red, and one green), and fine axons and dendrites from many other neurons coursing through the tissue. The colors represent the Z-position in a maximum intensity projection of an image (compiled from 90...
<http://cellimagelibrary.org/images/13007>

CIL:27156 - rat - brain macrophage [View more](#)

Z-stack from rat brain cortex showing a subset of fluorescent-protein expressing neurons and microglia. Most prominent in this image are the cell bodies and proximal dendrites (including the stalk of the apical dendrite, oriented toward the lower left corner) of two pyramidal neurons, and fine axons and dendrites from many other neurons coursing through the tissue. This stack is accompanied by a colorized maximum projection in the image group. Neurons are expressing soluble YFP using the...
<http://cellimagelibrary.org/images/27156>

CIL:13006 - rat - brain macrophage [View more](#)

Next steps:

- **Prepare an inventory** of available data repositories in the brain initiatives, metadata standards, and governance models for data access;
- **Establish a sustainable governance process** for developing, approving, and revising a standard metadata model(s) for describing neuroscience datasets;
- **Develop tools, best practices, and guidelines** for publishing datasets using the standard metadata model;
- **Configure and operate a core infrastructure and portal** for ingesting, indexing, and searching dataset metadata;
- **Define and implement interoperability** with existing data portals and infrastructures, and interoperability guidelines for new repositories;
- **Develop and disseminate tutorials**, training materials, and educational activities for dataset publishing;
- **Develop and enact a global communications strategy** to internal stakeholders, funding organizations, and neuroscience researcher communities regarding the activities and products of this project.