

Cracking Shells
MCP Servers for Science
2nd Hackathon
25th-26th Nov. 2025

#workgroup-mcp-database

Results

<https://github.com/kozo2/idr-mcp-server>

(A MCP server for IDR [Image Data Resource] database API)



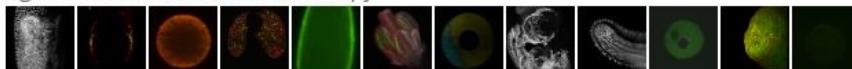
141 Studies

14,053,490 Images

415 TB

Group Studies by type

Light sheet fluorescence microscopy



<https://idr.openmicroscopy.org/>

List of MCP tools

＊ こんにちは、Kozoさん

本日はどのようなお手伝いをさせていただけますか？



◀ ヘーベー ▶ 検索

Sonnet 4.5 ▾



すべてのツールを無効化

- Search studies
- Get screen info
- Get project info
- Get plates
- Get datasets
- Get images in dataset
- Get plate grid
- Get image metadata
- Get annotations
- Get thumbnail url
- Get image url

▶ ライフスタイル

Drive から

Usage Examples

- Tell me about project 51
- List datasets in project 101
- What images are in dataset 369
- Get metadata for image 1884807
- What annotations are associated with image 1884807 ?

KN Tell me about project 51 in IDR database.

I'll search for information about project 51 in the IDR (Image Data Resource) database.

Get project info

```
リクエスト
{
  `project_id`: 51
}
```

レスポンス

```
{
  "data": {
    "@type": "http://www.openmicroscopy.org/Schemas/OME/2016-06#Project",
    "name": "Lawo et al. 2012 - Subdiffraction imaging of centrosomes reveals higher-order organizational features of pericentriolar material"
  }
}
```

Project 51 in the IDR database is **idr0021-lawo-pericentriolarmaterial/experimentA**.

This project contains imaging data from a research study on centrosome organization. Here are the key details:

Publication: "Subdiffraction imaging of centrosomes reveals higher-order organizational features of pericentriolar material" by Lawo et al., 2012

Study Focus: The project contains 3D-SIM (Structured Illumination Microscopy) images showing centriole and pericentriolar material (PCM) proteins in cycling HeLa cells during interphase. These are subdiffraction-resolution images that reveal fine organizational details of centrosomes.

Specific Content: The images relate to Figure 1e from the publication and show maximum intensity projections of aligned 3D-SIM reconstructions.

The project is publicly accessible through the IDR. Would you like me to retrieve the datasets contained in this project or get more specific information about the images?

How did we create the MCP server package?

1. We forked a reference MCP server package

<https://github.com/seandavi/ols-mcp-server> .

2. We entered prompt “**Update this repo for**
- https://idr.openmicroscopy.org/about/api.html”** into GitHub

Copilot and had it modify the code from using the OLS database API to using the IDR database API.

Update this repo for <https://idr.openmicroscopy.org/about/api.html>

9 references ▾

I can see that your repository `kozo2/idr-mcp-server` is currently configured for the **EBI Ontology Lookup Service (OLS)**, not the **IDR (Image Data Resource)** API. The repository name suggests you want to create an MCP server for IDR, but the content is actually a fork/copy of an OLS MCP server.

To update this repository for the IDR API (<https://idr.openmicroscopy.org/about/api.html>), you would need significant changes including:

Key IDR API Endpoints to Implement

Based on the IDR API documentation, here are the main endpoints your MCP server should support:

Endpoint	Description
<code>/api/v0/m/screens/{id}/plates/</code>	List plates in a screen
<code>/webclient/api/annotations/?type=map&screen_id={id}</code>	Get map annotations for a study/screen
<code>/webclient/api/annotations/?type=map&image_id={id}</code>	Get map annotations for an image
<code>/webgateway/plate/{plate_id}/{field}/</code>	Retrieve plate grid and wells
<code>/webclient/imgData/{image_id}/</code>	Get image details/metadata
<code>/webclient/render_thumbnail/{image_id}/</code>	Get image thumbnail
<code>/webclient/render_image/{image_id}/</code>	Render/download image

Would you like me to create a pull request?

I can create a PR that transforms this repository from an OLS MCP server to an IDR MCP server with the following changes:

Conclusion and Discussion

- It is easy to create an MCP server for a database that has an API.
(AI coding agent can generate it effortlessly.)
- However, with only this, we're not sure if it's actually useful for science.
- Being able to search in natural language might be nice, but we don't think we can say that this alone makes it useful for science.
- What should we do next? If you have any good ideas, please let us know.