

Plan Overview

A Data Management Plan created using HKUL DMPTool

Title: Structural Study of dhMotC/Human-ISOC1 Complex by X-ray Crystallography

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Project abstract:

dihydromotuporamine C (dhMotC) is derived from Motuporamine C (MotC), a natural compound isolated from the marine sponge (*Xestospongia exigua*). It shows remarkable anti-invasion activity to many kinds of cancer cell. However, its binding target in cancer cell and the mechanism of inhibiting cell invasion are clueless. By using a novel tech of probe, DNA-programmed affinity label (DPAL), our group have identified the ligand binding target in cancer cell, the isochorismatase domain-containing protein 1 (ISOC1). Here, I try to use X-ray crystallography to solve the ligand complex structure of ISOC1 and dhMotC, to identify the binding site of ISOC1 for dhMotC. Based on the crystal structure, I will try to deduce and investigate the function of ISOC1 in cancer cell and the mechanism of dhMotC in inhibiting invasion.

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Structural Study of dhMotC/Human-ISOC1 Complex by X-ray Crystallography

Data Collection

What data will you collect or create?

1. DNA sequencing data
2. general protein data: SDS-PAGE, western blot, purification by chromatography;
3. protein structure data: X-ray Crystallography

How will the data be collected or created?

for DNA sequencing data, the samples are processed by DNA sequencing service in HKU;

for the general protein data is collected in our lab;

for the structural data is collected in Shanghai Synchrotron Radiation Lightsource.

Documentation and Metadata

What documentation and metadata will accompany the data?

for DNA sequencing data, it needs to be analyzed by some software such as SnapGene et., so that it can be read.

for the general protein data, nothing is needed for reading data, since the data is an image. We can read it directly.

for the structural data, its original data is a scattering image. It should be processed by HKL2000, CCP4 and Coot, so that it can be displayed as a 3D model.

Ethics and Legal Compliance

How will you manage any ethical issues?

I think the best way is self-management. I do my experiment by myself and record the data truthfully. Then I send the data to my supervisor in time and upload to Google Drive to share with other labmates.

How will you manage copyright and Intellectual Property Rights (IPR) issues?

for my project, my main job is solving the protein structure and the structural data is collected and processed by myself, so this part of data belongs to me. since this project is a big project and many other scientists are involved in, each contributor owns his/her corresponding data.

Storage and Backup

How will the data be stored and backed up during the research?

all of the data is stored in the Lab computer and Lab google drive.

How will you manage access and security?

for the lab computer, we have a manager to protect its security.

Selection and Preservation

Which data are of long-term value and should be retained, shared, and/or preserved?

the protein structural data have long-term value. I will upload my data to Protein Data Bank, which is world wide international database.

What is the long-term preservation plan for the dataset?

I will upload my data to Protein Data Bank, which is world wide international database, so that everyone from each corner of the world can access my data through internet.

Data Sharing

How will you share the data?

I will upload my data to Protein Data Bank, which is world wide international database, so that everyone from each corner of the world can access my data through internet.

Are any restrictions on data sharing required?

no restrictions. I focus on the fundamentally biological research and I hope my data can help other researchers to solve the biological puzzles.

Responsibilities and Resources

Who will be responsible for data management?

myself

What resources will you require to deliver your plan?

nothing special resources. the most important thing is self-management.
