

GOLD Project Entry Help Document Contents

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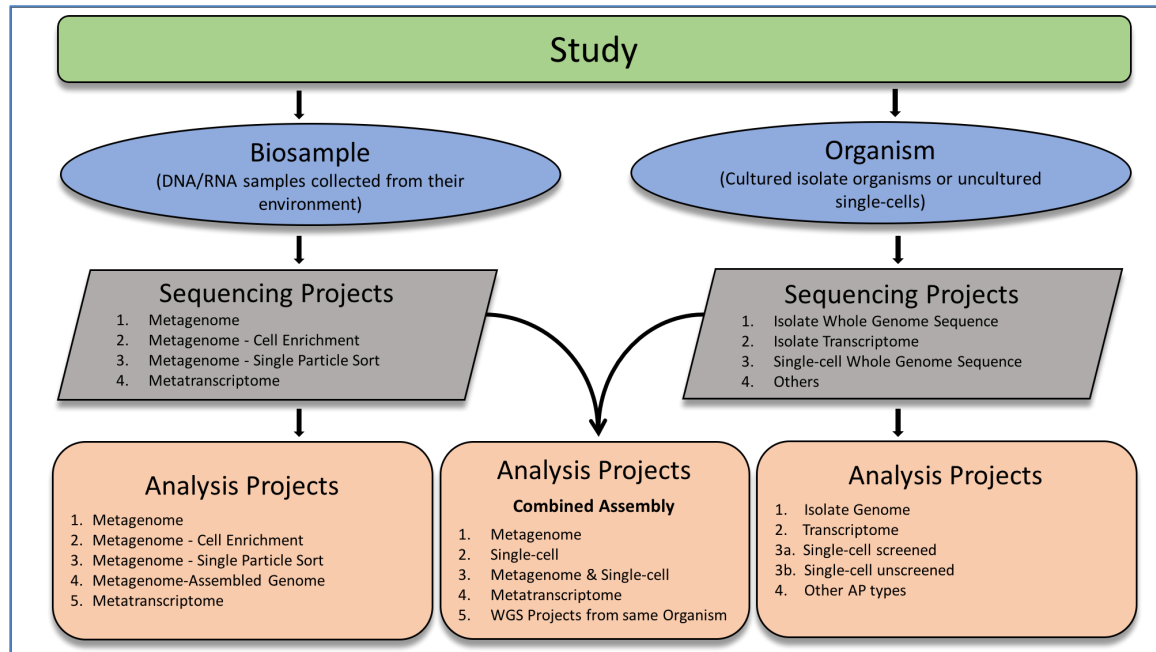
GOLD Home Page: <https://gold.jgi.doe.gov/index>

GOLD Help Page: <https://gold.jgi.doe.gov/help>

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GOLD Overview

The revamped GOLD database GOLD v.10 is based on a four-level project classification system. These are Studies, Biosamples/Organisms, Sequencing Projects (SPs) and Analysis Projects (APs).



Study is an umbrella project that broadly defines the overall goal of a research proposal and outlines the key objective of its underlying projects. It contains a list of sequencing projects that are a part of the original proposal. 'Proposal' is a synonym for 'Study' (e.g., HMP study, GEBA study, etc.).

Biosample is a description of the environment from where a DNA/RNA sample was collected. A Biosample contains metadata such as a habitat, an ecosystem, a geographical location, a latitude/longitude, etc. Defining a Biosample entity is essential for creating a GOLD Sequencing Project with Metagenome and Metatranscriptome sequencing strategy. DNA and RNA extracted from the same physical sample can be used for a metagenome and a metatranscriptome project, respectively.

Organism is a description of an individual entity such as a bacterium, a fungus, a plant, an animal, or a virus. It can be a cultured isolate of a pure strain of a bacterium or an uncultured single cell (e.g., isolated by using cell sorting). It can also be an uncultured non-living organism such as a Metagenome-Assembled Genome (MAG). All Organisms in GOLD are required to have basic taxonomic information such as a phylum, a genus, a species, a strain, and an NCBI taxonomy ID. Defining an Organism entity is essential for creating GOLD Sequencing

Projects with Whole Genome Sequencing (WGS) and Transcriptome sequencing strategies.

Sequencing Project is a description of the sequencing output from an individual Organism or Biosample. An individual Sequencing Project may be composed of more than one sequencing reaction and/or sequencing technology. A Sequencing Project may be for an isolate genome, a single cell, a metagenome, a metatranscriptome, etc.

Analysis Project is a description of the informatics processing of a sequence associated with a corresponding Sequencing Project. It specifies how the assembly and annotation of the sequence were performed. Defining an AP entity is essential for submitting dataset to IMG for analysis. An individual submission in IMG represents an individual Analysis Project in GOLD.


Please refer to our publication titled “[Genomes OnLine Database \(GOLD\) v.10: new features and updates](#)” in the Nucleic Acids Research annual Database Issue for more details about this four-level organization.

How to enter a new project into GOLD

From the GOLD home page, click the “**Register**” button to go to the landing page for entering a Sequencing and/or Analysis Project.

Welcome to the Genomes OnLine DatabaseGOLD Release v.10
GOLD: Genomes Online Database, is a World Wide Web resource for comprehensive access to information regarding genome and metagenome sequencing projects, and their associated metadata, around the world.


1. Register



Register your project information and Metadata in the Genomes Online Database

Register

2. Annotate



Annotate your microbial genome or metagenome with IMG

Annotate



Create Sequencing Project or Analysis Project

► **Create Sequencing Project in GOLD**

► **Create AP for Submission to IMG/MycoCosm/PhycoCosm**

If your Sequencing Project is not yet in GOLD, you will start by clicking the “Create Sequencing Project in GOLD” tab to define a new Sequencing Project.

▼ **Create Sequencing Project in GOLD**

If you performed additional sequencing (either with a new seq. technology or at a new seq. center) to your current project add the new information to the corresponding field(s) of the existing project in GOLD and create a new Analysis Project for it.

If submitting a newer assembly (for an existing project in GOLD) to IMG, just create a new Analysis Project.

Is this a public NCBI genome/metagenome?

Yes ☐

No ☒

GOLD **does not accept** manually entered public NCBI genomes/metagenomes. If you want to analyze a public genome/metagenome, follow detailed instructions available here: [Guidance on submitting public NCBI genomes and metagenomes into GOLD and IMG](#). Otherwise, select the radio button 'No' to move on to the next step.

1) Entering a Genome (Isolate) Sequencing Project (SP) and an associated Analysis Project (AP).

Step 1: Study → Step 2: Select Project Type → Step 3: Organism (Cultured/Isolate) → Step 4: Sequencing Project → Step 5: Analysis Project

The first step to create a Sequencing Project is to define your Study. After confirming that you are NOT entering a public NCBI genome/metagenome, you will come to the page (see the screen below) where you will be able either to select an existing study, under which you want to carry out this new sequencing project, or to define a new study. When applicable, choose a matching study from the drop-down menu.

1: Select/Create Study 2: Select Project Type 3: Select/Create Organism/Biosample 4: Create Sequencing Project

▼ Step 1: Select/Create Study

Select a Study ▼

OR

Create Study

Entering a new Study:

If your new sequencing project is pursued under a new study, click the “Create Study” button to go to the Study entry form. Fill in at least all required fields (*) as shown in the screenshot below. If there is an NCBI BioProject comprising multiple other BioProjects, enter its Name, ID, and Accession into the corresponding NCBI Umbrella BioProject fields. For example, PRJNA28331 is an Umbrella BioProject for Human Microbiome Project (HMP), and it contains about 3000 of the individual BioProjects. If you do not have an umbrella BioProject, leave these fields blank. Do not enter NCBI BioProject IDs or Accessions for individual BioProjects here at the Study level.

▼ Step 1: Select/Create Study

Select a Study ▼

OR

Create Study

Fill in the form with Study's metadata.

STUDY INFORMATION	
Study Name *	Test study to compare Escherichia coli strains
Other Names	
NCBI Umbrella BioProject Accession	
PI Name	Supratim Mukherjee
PI Email	xxxxxxxxx@lbl.gov
Description *	This is a test study for Help Document example
Relevance	Comparative analysis ▼ Add Relevance
ECOSYSTEM CLASSIFICATION	
Ecosystem *	Host-associated ▼
Ecosystem Category *	Mammals: Human ▼
Ecosystem Type	Digestive system ▼
Ecosystem Subtype	Large intestine ▼
Specific Ecosystem	Fecal ▼

Create New Study

Click the ‘Create New Study’ button and proceed to the next step, i.e., selecting what kind of project you are about to create.

Selecting Project Type:

The screenshot shows the 'Create Sequencing Project' form with a progress bar at the top indicating four steps: 1: Select/Create Study (completed), 2: Select Project Type (current step), 3: Select/Create Organism/Biosample, and 4: Create Sequencing Project. Below the progress bar, the first step is expanded, showing 'Step 1: Selected/Created Study - Test study to compare Escherichia coli strains'. The second step is also expanded, showing 'Step 2: Select Project Type'. Under this step, there is a section 'Before proceeding:' with three bullet points: 'Review the [Project Entry Help](#) document.', 'To avoid delay in processing your metagenomes/metatranscriptomes, read the [Standardized Metagenome Naming](#) document. ([PubMed ID: 36794865](#))', and 'Contact us with any questions, or if submitting more than 10 projects.' Below this, there is a section 'Select Sequencing Project type to create:' with two radio buttons: 'Biome' (unselected) and 'Organism' (selected).

Select the radio button 'Organism' since you are creating an Isolate genome sequencing project. To create an isolate genome sequencing project, you need either to select an existing Organism or to define a new Organism. Start by searching for a specific Organism strain in GOLD. Once you start typing any part of the Organism name (preferably, a strain or a culture collection id, e.g., DSM 1234 or ATCC 4567), you will get a list of the matching organisms to choose from. Select the exact strain if it is available.

The screenshot shows the 'Create Sequencing Project' form with a progress bar at the top indicating four steps: 1: Select/Create Study (completed), 2: Select Project Type (completed), 3: Select/Create Organism (current step), and 4: Create Sequencing Project. Below the progress bar, the first two steps are expanded, showing 'Step 1: Selected/Created Study - Test study to compare Escherichia coli strains' and 'Step 2: Selected Project Type - Organism'. The third step is also expanded, showing 'Step 3: Select/Create Organism'. Under this step, there is a section 'Search for existing Organism by entering genus, species or strain:' with a text input field containing 'Escherichia coli UTI'. Below the input field, there is a list of search results: 'Go0000370 - Escherichia coli UTI89 (UPEC)'. Below the list, there is a section 'OR' and a button labeled 'Create Organism'.

If the exact strain of the organism you are sequencing is not available or you have a new isolate, click the "Create Organism" button to proceed to enter a new Organism. In the next page, you must indicate whether your organism is cultured

or uncultured, and whether it was sequenced by you/your lab/your colleague or it was obtained from a culture collection (ATCC, DSM, etc.)

Step 1: Selected/Created Study – Test study to compare Escherichia coli strains

Step 2: Selected Project Type – Organism

▼ Step 3: Select/Create Organism

Search for existing Organism by entering genus, species or strain:

OR

Create Organism

Select the type of Organism:

Cultured ☒

Uncultured ☐

☒ Isolated by me/colleague

☐ Obtained from a culture collection

Select a package:

☐ Standard

☐ Built Environment Package

☐ Host-Associated Package

☐ Human-Associated Package

☐ Hydrocarbon Core Package

☐ Hydrocarbon FS Package

☐ Microbial Mat Package

☐ Plant Package

☐ Sediment Package

☐ Soil Package

☐ Wastewater Package

☐ Water Package

If the Organism is isolated from a host-associated, soil, aquatic or any other environment listed above, you have an option to select the appropriate package and get access to the form with additional metadata fields specific to the respective environment. Otherwise, choose the Standard package to access the default Organism entry form.

Enter organism-specific information such as the organism's name, genus, species, strain, NCBI taxonomy id, culture collection id, etc. into the form. Please note that for the Species field, we require to use the binomial nomenclature (two-term organism naming system) as per the nomenclature conventions followed by NCBI taxonomy. For example, enter "*Escherichia coli*" into the Species field as shown in the example below. If only a genus is defined for your organism, use a format

“Genus sp. strain”, e.g., “*Pseudomonas sp. 12ab*” to populate the field Species. Fill in the rest of the form.

Though all fields are not mandatory, we encourage you to enter all available metadata.

Create Sequencing Project

1: Select/Create Study

2: Select Project Type

3: Select/Create Organism

4: Create Sequencing Project

Step 1: Selected/Created Study – Test study to compare Escherichia coli strains

Step 2: Selected Project Type – Organism

Step 3: Select/Create Organism – Cultured -> Isolated by me/colleague – Standard

Fill in the form with Organism's metadata

ORGANISM INFORMATION	
Organism Name *	Escherichia coli test123
Other Names	
Genus *	Escherichia
Species *	Escherichia coli
Strain * (Not applicable for phylum PLANTS-STREPTOPHYTA)	test123
Subspecies	
Taxonomy Classification Method *	16S and ANI
Serovar/Cultivar	
Phylum *	PSEUDOMONADOTA
NCBI Taxonomy ID *	562 NCBI Taxonomy
NCBI Taxonomy Name	Escherichia coli
Type Strain	No
Culture Collection ID	
Organism Type *	Natural
Cultured/Uncultured	Cultured
Culture Type *	Isolate
Biosafety Level	1

ORGANISM METADATA	
Cell Shape	Rod-shaped
Color	Cream
Gram Stain	Gram-
Motility	Motile
Oxygen Requirement (MIGS-22)	Facultative anaerobe
pH	4.5 to 9 Add pH Range
Salinity (MIGS-6.3)	Undefined
Pressure	
Sporulation	Nonsporulating
Carbon Source	Glucose, Lactose
Growth Temperature	20 Celsius. to 50 Celsius. Add Growth Temperature Range
Cell Arrangements	Singles
Diseases (MIGS-15)	Gastroenteritis
Habitats (MIGS-6)	Human gastrointestinal tract
Metabolism	Hydrocarbon degrading
Phenotypes	Fast growing
Energy Sources	Heterotroph
Body Products	Feces
Biotic Relationships (MIGS-14)	Free living
Propagation	
ISOLATION METADATA	
Sample Collection Date *	Month (mm) * : 01 Day (dd): 15 Year (yyyy) * : 2020
Sample Collection Site *	Human feces
Isolation Country/Ocean *	USA
Sample Isolation Comments	
Collection Method	Serial dilution
Contact Name *	Supratim Mukherjee
Contact Email *	xxxxxxxxx@lbl.gov

ENVIRONMENTAL METADATA	
Ecosystem *	Host-associated
Ecosystem Category *	Mammals: Human
Ecosystem Type *	Digestive system
Ecosystem Subtype	Large intestine
Specific Ecosystem	Fecal
Geographic Location ⓘ *	USA: Walnut Creek
Lat/Long Lookup	<input type="text"/> <input type="button" value="Get Coords"/>
Latitude ⓘ *	37.9021
Longitude ⓘ *	-122.0619 <input type="button" value="Reset Map"/>
LatLong Information ⓘ *	Verified
Elevation	<input type="text"/> Meters. to <input type="text"/> Meters. <input type="button" value="Add Elevation Range"/>
Depth	<input type="text"/> Meters. to <input type="text"/> Meters. <input type="button" value="Add Depth Range"/>
Subsurface Depth	<input type="text"/> Meters. to <input type="text"/> Meters. <input type="button" value="Add Subsurface Depth Range"/>
Temperature Range	Mesophile
Sample Collection Temperature	37 Celsius. to <input type="text"/> Celsius. <input type="button" value="Add Sample Collection Temperature Range"/>
Salinity Concentration	<input type="text"/>

HOST METADATA	
Isolation Host Name ⓘ *	Homo sapiens
Host Taxonomy ID ⓘ *	9606
Host Gender	Male
Host Race	
Host Age	55 years
Host Health Condition	
Health Disease Status ⓘ	Healthy
Host Medication	None
Host Body Site	Gastrointestinal
Host Body Subsite	Gut
Host Body Product	Feces
Host Specificity or Range	
Host Comments	
<input type="button" value="Create New Organism"/>	

Once you select an existing Organism or have defined a new Organism, you can proceed to the next step, i.e., creating a new Sequencing Project.

Entering a Sequencing Project:

To define a new Sequencing Project, populate at least all required fields (*) such as Sequencing Center, Project Description, Sequencing Strategy Type, Sequencing Technology, etc. as shown in the screenshot below. Enter NCBI BioProject and Biosample Accessions ONLY if they are not public in NCBI.

Step 1: Selected/Created Study – Test study to compare Escherichia coli strains

Step 2: Selected Project Type – Organism

Step 3: Selected/Created Organism – Escherichia coli test123

Step 4: Create Sequencing Project

Do not submit standalone plasmids. Instead, include plasmid sequences as part of your chromosomes/contigs sequence data.

Fill in the form with Project's metadata

PROJECT INFORMATION	
Project Name *	Escherichia coli test123
Other Names	
NCBI BioProject Name	
NCBI BioProject Accession	
NCBI Locus Tag	
NCBI BioSample Accession	
PI Name	Supratim Mukherjee
PI Email	xxxxxxx@lbl.gov
Project Comments	
Sequencing Center *	University of California, Berkeley
Collaborating Institute	DOE Joint Genome Institute (JGI)
Funding Agency	
Project Description *	Sequencing of an E. coli strain from human feces

PROJECT TYPE	
Specimen	Organism
Sequencing Strategy Type *	Whole Genome Sequencing
Nucleic Acid *	DNA

SEQUENCING INFORMATION	
Sequencing Status *	Complete
Sequencing Quality *	Level 2: High-Quality Draft
Finishing Goal	Select from below...
Contamination Screening Input	Select from below...
DNA Amplification Method	Select from below...
Single Cell Lysis Protocol	
Single Cell Lysis Approach	Select from below...
Sequencing Comments	
DNA Amplification Kit	
Sequencing Technology *	PacBio Revio
Library Method	
Library Layout	Select from below...
Library Screening Method	
Number Of Reads	
Read Size	
Vector	
GC Percent	
Chromosome Count	
Plasmid Count	

Create New Sequencing Project

Once you enter all relevant information, click the “Create New Sequencing Project” button.

Now you can proceed to create a GOLD Analysis Project, or you can leave and come back later (when you are ready to submit data to IMG) to create a GOLD AP.

Entering a Genome Analysis Project for an isolate genome:

Go to the main project submission page and click the “Create Analysis Project for Submission to IMG/MycoCosm/PhycoCosm” button. Select “Genome Analysis (Isolate) Project” from the drop-down menu and proceed.

Create Sequencing Project or Analysis Project

▶ Create Sequencing Project in GOLD

▼ Create AP for Submission to IMG/MycoCosm/PhycoCosm

Before proceeding:

- IMG only accepts FASTA (not Genbank formatted) files for analysis. See [IMG FAQ](#).
- Metagenome-Assembled Genome (MAG) AP creation is no longer available. As an alternative... [\[more\]](#)
- There are two AP submission types: Primary and Re-analysis. [\[more\]](#)
- Your first two APs under each AP type needs to be approved before you can submit additional APs.

Select AP type...

- ✓ Genome Analysis (Isolate) Project
- Metagenome Analysis Project
- Metagenome - Cell Enrichment Project
- Metagenome - Single Particle Sort Project
- Metatranscriptome Analysis Project
- Single Cell Analysis (screened) Project
- Single Cell Analysis (unscreened) Project
- Combined Assembly Project
- Metagenome - SIP Project

You can create a Genome Analysis Project for your own Sequencing Project that you have previously created, or you can create a Genome AP for any public sequencing project if you have reassembled the associated public sequences and want to re-annotate them.

To create an Analysis Project for your own Sequencing Project, select the corresponding SP from the drop-down menu and go to the Analysis Project creation page.

Select Parent Project

You are creating a new Genome Analysis (Isolate) Project

Select one of your existing Sequencing Projects:

Gp0704593 – Escherichia coli test123

OR

Search for a Public Sequencing Project (you will be asked to assign a study on the next screen):

Next Step >>

Note: If you still need to create a new sequencing project for your submission please click below to create a new sequencing project.

Add New Sequencing Project

Fill in at least the required fields as shown below. If appropriate, provide a suffix to AP name: a version number, a draft number, etc. anything that will allow you to distinguish between versions in case you have re-sequenced the same organism or reassembled the same sequence. Click the “Submit” button to finish.

Create Analysis Project

You are creating a new Genome Analysis (Isolate) Project

Please fill in the form below to create a new Analysis Project.

The Sequencing Project for this AP is: Escherichia coli test123

Analysis Project Type: Genome Analysis (Isolate)

ANALYSIS PROJECT INFORMATION

Analysis Project Name	Escherichia coli test123
Suffix:	First draft
Study	Test study to compare Escherichia coli strains
Analysis Project Description *	Assembly and annotation of first draft
Analysis System *	IMG
PI Name	Supratim Mukherjee
PI Email	xxxxxxx@lbl.gov

ANALYSIS PROJECT METADATA

Assembly Method *	Velvet v. 2.3
Scaffold Count	2
Contig Count	
Estimated Size	4072660
Sequencing Depth	50x

PROJECT EXTERNAL REFERENCES

Genbank ID	
Assembly Accession	

Submit

Once you successfully create an Analysis Project, you will see the following window:

Processing Complete

GOLD AP Ga0618790 created.

To submit your data set to IMG, you will need this Analysis Project ID: Ga0618790

[Submit your data to IMG now.](#)

Or [start another Analysis Project.](#)


Click the link to proceed to IMG for data submission. In the future, you can create additional APs on the same Sequencing Project if, for example, you have a new assembly or an additional sequence to include.

If you are not ready to submit your data to IMG yet, you can return later and use your AP for IMG submission. When you click the “Annotate” button on the GOLD home page, you will be redirected to the IMG submission page.


Welcome to the Genomes OnLine DatabaseGOLD Release v.10

GOLD: Genomes Online Database, is a World Wide Web resource for comprehensive access to information regarding genome and metagenome sequencing projects, and their associated metadata, around the world.

1. Register


Register your project information and Metadata in the Genomes Online Database
[Register](#)

2. Annotate


Annotate your microbial genome or metagenome with IMG
[Annotate](#)

To create an AP for a public project, use the corresponding search box to select a project of your interest by typing a part of the organism’s name or a strain and proceed to the Analysis Project creation page.

Select Parent Project

You are creating a new Genome Analysis (Isolate) Project

Select one of your existing Sequencing Projects:

Select a sequencing project...

OR

Search for a Public Sequencing Project (you will be asked to assign a study on the next screen):

Gp0156133 - Escherichia coli MGM23_test

Next Step >>

Note: If you still need to create a new sequencing project for your submission please click below to create a new sequencing project.

Add New Sequencing Project

Fill in at least the required Analysis Project form's fields as shown below. When you are creating an AP on a public SP, you must choose the appropriate study for your AP in case you have more than one study in GOLD. You also have the option of creating a new Study at this point. Click the "Submit" button to finish.

Create Analysis Project

You are creating a new Genome Analysis (Isolate) Project

Please fill in the form below to create a new Analysis Project.

The Sequencing Project for this AP is: Escherichia coli MGM23_test

Analysis Project Type: Genome Analysis (Isolate)

ANALYSIS PROJECT INFORMATION

Analysis Project Name ⁱ Escherichia coli MGM23_test
Suffix: first draft

Study * Comparative analysis of two human pathogenic bacteria (Gs0118715)
Add New Study

Analysis Project Description * Analysis of public sequencing project Escherichia col

Analysis System * IMG

PI Name Supratim Mukherjee

PI Email xxxxxxxx@lbl.gov

ANALYSIS PROJECT METADATA

Assembly Method * ⁱ Velvet v. 2.3

Scaffold Count ⁱ 2

Contig Count ⁱ

Estimated Size 4742970

Sequencing Depth ⁱ 50x

PROJECT EXTERNAL REFERENCES

Genbank ID

Assembly Accession

Submit

2) Entering a Single Cell Sequencing Project (SP) and an associated Analysis Project (AP).

Step 1: Study → Step 2: Select Project Type → Step 3: Organism (Uncultured/Single Cell) → Step 4: Sequencing Project → Step 5: Analysis Project

Creating a Study and Selecting Project Type:

The first two steps for entering a Single Cell project, namely, selecting or entering a Study and selecting an SP type are identical to the ones that were described earlier on pages 3-5 of this document.

Entering a new Organism:

It is very unlikely that you will find a single cell organism entry already in GOLD to choose, as no one else can possibly possess the same single cell you isolated from an environment. The only time you may be able to use the same/existing organism entry is if you happen to enter this organism before. In all other cases, you will be creating a new organism for a single cell.

Entering a single cell organism is similar to entering an isolate organism, which is described above. The main difference is in defining an organism as a single cell. When defining an organism for single cell projects you will select the “Uncultured” radio button as shown below. If the Organism is isolated from a host-associated, a soil, an aquatic or any other environment listed below, you have an option to select the appropriate package and to get access to the form with additional metadata fields specific to the respective environment. Otherwise, choose the Standard package to access the default Organism entry form.

1: Select/Create Study
2: Select Project Type
3: Select/Create Organism
4: Create Sequencing Project

Step 1: Selected/Created Study – Reddy's test study for help doc examples

Step 2: Selected Project Type – Organism

Step 3: Select/Create Organism

Search for existing Organism by entering genus, species or strain:

OR

Create Organism

Select the type of Organism:

Cultured ☐
Uncultured ☒

Select a package:

☒ Standard
☐ Built Environment Package
☐ Host-Associated Package
☐ Human-Associated Package
☐ Hydrocarbon Core Package
☐ Hydrocarbon FS Package
☐ Microbial Mat Package
☐ Plant Package
☐ Sediment Package
☐ Soil Package
☐ Wastewater Package
☐ Water Package

After that, you will proceed to enter a new single cell organism. The first section of the Organism entry form is shown below. The form is like the isolate Organism form. The only difference is that the Cultured/Uncultured field is set to the Uncultured one by default, and you need to select 'Single Cell' from the Uncultured Type field's menu.

Create Sequencing Project

1: Select/Create Study

2: Select Project Type

3: Select/Create Organism

4: Create Sequencing Project

Step 1: Selected/Created Study – Reddy's test study for help doc examples

Step 2: Selected Project Type – Organism

Step 3: Select/Create Organism – Uncultured – Standard

Fill in the form with Organism's metadata

ORGANISM INFORMATION	
Organism Name *	Gammaproteobacteria bacterium 123
Other Names	
Genus	
Species *	Gammaproteobacteria bacterium 123
Strain * (Not applicable for phylum PLANTS-STREPTOPHYTA)	123
Subspecies	
Phylogenetic Markers	Multi-marker Approach
Taxonomy Classification Method	
Serovar/Cultivar	
Phylum *	PSEUDOMONADOTA
NCBI Taxonomy ID *	1236
NCBI Taxonomy Name	Gammaproteobacteria
Type Strain	No
Culture Collection ID	
Organism Type *	Natural
Cultured/Uncultured	Uncultured
Uncultured Type *	Single Cell
Biosafety Level	1

Once you define an organism, you will proceed to the next step, i.e., creating a Sequencing Project.

Entering a Sequencing Project:

The process of entering a Sequencing Project for a single cell organism is identical to the one described on pages 10-11 for an isolate organism.

Now you can proceed to create a GOLD Analysis Project, or you can leave and come back later (when you are ready to submit data to IMG) to create a GOLD AP.

Entering a Single Cell Analysis Project:

There are two types of APs for a single-cell-based SP. They are Single Cell Analysis (unscreened) Project and Single Cell Analysis (screened) Project.

Typically, a Single Cell (unscreened) AP is used when no additional screening is done besides the standard contamination screen.

Single Cell (screened) is used when an extensive manual or automatic screening is performed to remove the sequence that does not belong to the single cell of your interest.

Creating a Single Cell Analysis (unscreened) Project:

Go to the main project submission page and click the “Create Analysis Project for Submission to IMG/MycoCosm/PhycoCosm” button. Select “Single Cell Analysis (unscreened) Project” from the drop-down menu and proceed to the next step.

Create Sequencing Project or Analysis Project

▶ Create Sequencing Project in GOLD

▼ Create AP for Submission to IMG/MycoCosm/PhycoCosm

Before proceeding:

- IMG only accepts FASTA (not Genbank formatted) files for analysis. See [IMG FAQ](#).
- Metagenome-Assembled Genome (MAG) AP creation is no longer available. As an alternative... [\[more\]](#)
- There are two AP submission types: Primary and Re-analysis. [\[more\]](#)
- Your first two APs under each AP type needs to be approved before you can submit additional APs.

Select Analysis Project type to create:

Single Cell Analysis (unscreened) Project ▼

Next Step >>

Choose the corresponding single cell SP from the drop-down menu.

Select Parent Project

You are creating a new Single Cell Analysis (unscreened) Project

Select one of your existing Sequencing Projects:

Gp0514864 – Gammaproteobacteria bacterium 123

Next Step >>

Note: If you still need to create a new sequencing project for your submission please click below to create a new sequencing project.

Add New Sequencing Project

Fill in and submit the following form to create a Single Cell (unscreened) AP.

Create Analysis Project

You are creating a new Single Cell Analysis (unscreened) Project

Please fill in the form below to create a new Analysis Project.

The Sequencing Project for this AP is: Gammaproteobacteria bacterium 123

Analysis Project Type: Single Cell Analysis (unscreened)

ANALYSIS PROJECT INFORMATION

Analysis Project Name

Gammaproteobacteria bacterium 123

Suffix:

Study

Test study for help doc examples

Analysis Project Description *

Assembly and annotation of first draft

Analysis System *

IMG

PI Name

Supratim Mukherjee

PI Email

supramuk@gmail.com

ANALYSIS PROJECT METADATA

Assembly Method *

CLC v. 6.04

Number of tRNAs

tRNA Software

Completeness Strategy

Reference Based

Scaffold Count

4

Contig Count

Estimated Size

4472960

Sequencing Depth

50x

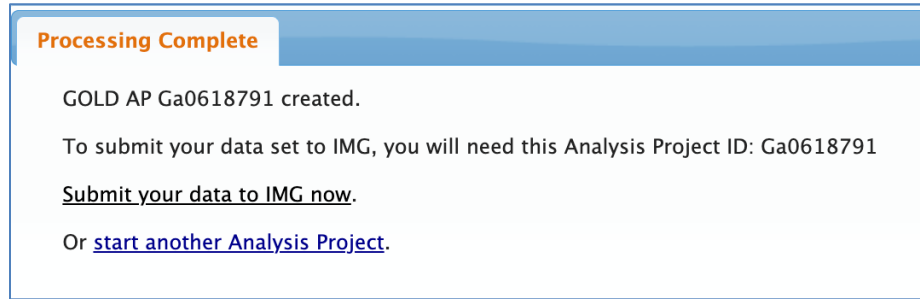
PROJECT EXTERNAL REFERENCES

Genbank ID

Assembly Accession

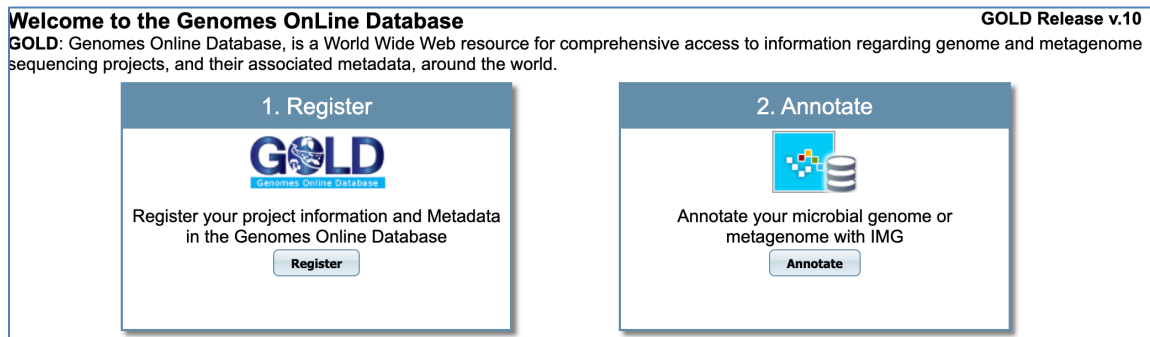
Submit

Once an AP is created, you will see the following window:



Click the link to proceed to IMG for data submission.

If you are not ready to submit your data to IMG yet, you can return later and use your AP for IMG submission. You will be redirected to the IMG submission page when you click the “Annotate” button on the GOLD home page.



Creating a Single Cell Analysis (screened) Project:

Go to the main project submission page and click the “Create Analysis Project for Submission to IMG/MycoCosm/PhycoCosm” button, select “Single Cell Analysis (screened) Project” from the drop-down menu, and proceed to the next step.

Create Sequencing Project or Analysis Project

Create Sequencing Project in GOLD

Create AP for Submission to IMG/MycoCosm/PhycoCosm

Before proceeding:

- IMG only accepts FASTA (not Genbank formatted) files for analysis. See [IMG FAQ](#).
- Metagenome-Assembled Genome (MAG) AP creation is no longer available. As an alternative... [\[more\]](#)
- There are two AP submission types: Primary and Re-analysis. [\[more\]](#)
- Your first two APs under each AP type needs to be approved before you can submit additional APs.

Select Analysis Project type to create:

Single Cell Analysis (screened) Project

Next Step >>

Choose the corresponding single cell SP from the drop-down menu.

Select Parent Project

You are creating a new Single Cell Analysis (screened) Project

Select one of your existing Sequencing Projects:

Gp0514864 – Gammaproteobacteria bacterium 123

OR

Search for a Public Sequencing Project (you will be asked to assign a study on the next screen):

Next Step >>

Fill in and submit the following form to create a Single Cell (screened) AP.

Create Analysis Project

You are creating a new Single Cell Analysis (screened) Project

Please fill in the form below to create a new Analysis Project.

The Sequencing Project for this AP is: Gammaproteobacteria bacterium 123

Analysis Project Type: Single Cell Analysis (screened)

ANALYSIS PROJECT INFORMATION

Analysis Project Name	Gammaproteobacteria bacterium 123 Suffix: <input type="text" value="screened assembly"/>
Study	Test study for help doc examples
Analysis Project Description *	<input type="text" value="Assembly and annotation of screened draft"/>
Analysis System *	IMG <input type="button" value="v"/>
PI Name	<input type="text" value="Supratim Mukherjee"/>
PI Email	<input type="text" value="supramuk@gmail.com"/>
Contamination Screening Method *	<input type="text" value="Manual screening followed by automated decontamir"/>

ANALYSIS PROJECT METADATA

Assembly Method *	<input type="text" value="CLC v. 6.04, Newbler v. 2.3"/>
Number of tRNAs	<input type="text"/>
tRNA Software	<input type="text"/>
Completeness Strategy	Reference Based <input type="button" value="v"/>
Scaffold Count	<input type="text" value="2"/>
Contig Count	<input type="text"/>
Estimated Size	<input type="text" value="4476920"/>
Sequencing Depth	<input type="text" value="25x"/>

PROJECT EXTERNAL REFERENCES

Genbank ID	<input type="text"/>
Assembly Accession	<input type="text"/>

Submit

Once an AP is created, you will see the following window:

Processing Complete

GOLD AP Ga0618792 created.

To submit your data set to IMG, you will need this Analysis Project ID: Ga0618792

[Submit your data to IMG now.](#)


Or [start another Analysis Project.](#)

Click the link to proceed to IMG for data submission.

If you are not ready to submit your data to IMG yet, you can return later and use your AP for IMG submission. You will be redirected to the IMG submission page when you click the “Annotate” button on the GOLD home page.

Welcome to the Genomes OnLine Database GOLD Release v.10
GOLD: Genomes Online Database, is a World Wide Web resource for comprehensive access to information regarding genome and metagenome sequencing projects, and their associated metadata, around the world.


1. Register



Register your project information and Metadata in the Genomes Online Database

Register

2. Annotate



Annotate your microbial genome or metagenome with IMG


Annotate

3) Entering a Metagenome or a Metatranscriptome Sequencing Project (SP) and associated Analysis Projects (APs).

From the GOLD home page, click the “**Register**” button to go to the landing page for entering a Sequencing and/or an Analysis Project.

Welcome to the Genomes OnLine Database GOLD Release v.10
GOLD: Genomes Online Database, is a World Wide Web resource for comprehensive access to information regarding genome and metagenome sequencing projects, and their associated metadata, around the world.


1. Register



Register your project information and Metadata in the Genomes Online Database

Register

2. Annotate



Annotate your microbial genome or metagenome with IMG

Annotate



Create Sequencing Project or Analysis Project

▶ **Create Sequencing Project in GOLD**

▶ **Create AP for Submission to IMG/MycoCosm/PhycoCosm**

If your Sequencing Project is not yet in GOLD, you will start by clicking the “Create Sequencing Project in GOLD” button to define a new Sequencing Project.

▼ **Create Sequencing Project in GOLD**

If you performed additional sequencing (either with a new seq. technology or at a new seq. center) to your current project add the new information to the corresponding field(s) of the existing project in GOLD and create a new Analysis Project for it.

If submitting a newer assembly (for an existing project in GOLD) to IMG, just create a new Analysis Project.

Is this a public NCBI genome/metagenome?

Yes ☐

No ☒

GOLD **does not accept** manually entered public NCBI genomes/metagenomes. If you want to analyze a public genome/metagenome, follow detailed instructions available here: [Guidance on submitting public NCBI genomes and metagenomes into GOLD and IMG](#). Otherwise, select the radio button 'No' to proceed.

Step 1: Select/Create Study → Step 2: Select Project Type → Step 3: Biosample → Step 4: Sequencing Project → Step 5: Analysis Project

The first step to create a Sequencing Project is to define your Study. After confirming that you are NOT entering a public NCBI genome/metagenome, you will come to the page (see the screen below) where you will be able either to select an existing study, under which you want to carry out this new sequencing project, or to define a new study. When applicable, choose a matching study from the drop-down menu.

1: Select/Create Study 2: Select Project Type 3: Select/Create Organism/Biosample 4: Create Sequencing Project

▼ **Step 1: Select/Create Study**

Select a Study ▼

OR

Create Study

Entering a new Study:

If your new sequencing project is pursued under a new study, click the “Create Study” button to go to the Study entry form. Fill in at least all required fields (*) as shown in the screenshot below. If there is an NCBI BioProject comprising multiple

other BioProjects, enter its Name, ID, and Accession into the corresponding NCBI Umbrella BioProject fields. For example, PRJNA28331 is an Umbrella BioProject for Human Microbiome Project (HMP), and it contains about 3000 of the individual BioProjects. If you do not have an umbrella BioProject, leave these fields blank. Do not enter NCBI BioProject IDs or Accessions for individual BioProjects here at the Study level.

Note that GOLD follows a standardized, canonical naming system for microbiomes which applies to a metagenome Study Name. More information on canonical naming can be found here:

https://gold.jgi.doe.gov/resources/Standardized_Metagenome_Naming.pdf

Create Sequencing Project

1: Select/Create Study 2: Select Project Type 3: Select/Create Organism/Biosample 4: Create Sequencing Project

▼ Step 1: Select/Create Study

Select a Study ▼

OR

Create Study

Fill in the form with Study's metadata.

STUDY INFORMATION	
Study Name *	Garden soil bacterial community from JGI lawn in Ca
Other Names	
NCBI Umbrella BioProject Accession	
PI Name	Supratim Mukherjee
PI Email	xxxxxx@lbl.gov
Description *	Metagenome sequencing of bacterial community from
Relevance	Educational ▼ Add Relevance

ECOSYSTEM CLASSIFICATION	
Ecosystem *	Environmental ▼
Ecosystem Category *	Terrestrial ▼
Ecosystem Type	Soil ▼
Ecosystem Subtype	Garden ▼
Specific Ecosystem	Unclassified ▼

Create New Study

Click the 'Create New Study' button and proceed to the next step, i.e., selecting what kind of project you are about to create.

Create Sequencing Project

1: Select/Create Study 2: Select Project Type 3: Select/Create Organism/Biosample 4: Create Sequencing Project

▶ Step 1: Selected/Created Study – Garden soil bacterial community from JGI lawn in California, USA

▼ Step 2: Select Project Type

Before proceeding:

- Review the [Project Entry Help](#) document.
- To avoid delay in processing your metagenomes/metatranscriptomes, read the [Standardized Metagenome Naming](#) document. (PubMed ID: 36794865)
- [Contact us](#) with any questions, or if submitting more than 10 projects.

Select Sequencing Project type to create:

Biome ☒ Organism ☐

Selecting an existing Biosample or entering a new Biosample:

If you have not created a Biosample for a specific sample yet, proceed to enter a Biosample. If the sample is from a host-associated, a soil, an aquatic or any other environment listed below, you have an option to select the appropriate package and to get access to the form with additional metadata fields specific to the respective environment. Otherwise, choose the Standard package to access the default Biosample entry form. Note that like an Organism in GOLD represents one specific strain, a Biosample in GOLD represents one specific environmental sample. You cannot create a general Biosample for multiple environmental samples even if they are from the same location.

1: Select/Create Study
2: Select Project Type
3: Select/Create Biosample
4: Create Sequencing Project

Step 1: Selected/Created Study – Garden soil bacterial community from JGI lawn in California, USA

Step 2: Selected Project Type – Biome

Step 3: Select/Create Biosample

Select from your existing Biosamples:

Select an existing biosample...

OR

Create Biosample:

Select a package:

☐ Standard

☐ Built Environment Package

☐ Host-Associated Package

☐ Human-Associated Package

☐ Hydrocarbon Core Package

☐ Hydrocarbon FS Package

☐ Microbial Mat Package

☐ Plant Package

☐ Sediment Package

☐ Soil Package

☐ Wastewater Package

☐ Water Package

GOLD follows a standardized, canonical naming system for Biosamples. Detailed information on canonical naming can be found here:

https://gold.jgi.doe.gov/resources/Standardized_Metagenome_Naming.pdf

Fill in at least all required fields in the Biosample entry form. For a metagenome, the fields Habitat, Location, Ecosystem Classification, Sample Collection Site, and few others are mandatory and must be populated to proceed to the next step. But we encourage you to populate the other fields too if you have metadata for them. See the example of the Biosample form for the Soil Package below. The fields specific to the Soil package are highlighted in blue.

1: Select/Create Study

2: Select Project Type

3: Select/Create Biosample

4: Create Sequencing Project

▶ Step 1: Selected/Created Study – Garden soil bacterial community from JGI lawn in California, USA

▶ Step 2: Selected Project Type – Biome

▼ Step 3: Select/Create Biosample – Soil Package

Fill in the form with Biosample's metadata

Before proceeding, please read the document [GOLD Standardized Metagenome Naming Document](#) and follow the instructions

BIOSAMPLE INFORMATION

Biosample Name *

Garden soil bacterial communities from JGI lawn in Berkeley, California, USA – A1

Habitat Community Location Identifier

Garden soil bacterial communities from JGI lawn in Berkeley, California, USA - A1

Other Names

Habitat *

Garden soil

Community *

bacterial communities

Location *

from JGI lawn in Berkeley, California, USA

Identifier *

A1

NCBI Taxonomy ID *

410658

NCBI Metagenome Taxonomy

NCBI Taxonomy Name

soil metagenome

Biosample Description *

Soil sample collected after two days of rainfall from .

Ecosystem *

Environmental

Ecosystem Category *

Terrestrial

Ecosystem Type *

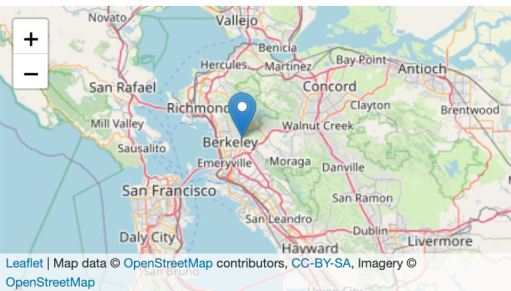
Soil

Ecosystem Subtype

Garden

Specific Ecosystem

Unclassified

BIOSAMPLE ISOLATION	
Sample Collection Site *	<input type="text" value="garden soil"/>
Sample Collection Date *	Month (mm): <input type="text" value="01"/> * Day (dd): <input type="text" value="20"/> Year (yyyy): <input type="text" value="2020"/> *
	Add collection time: Hour (hh): <input type="text"/> Minute (mm): <input type="text"/>
Sample Isolation Comments	<input type="text"/>
Size Fraction *	<input type="text"/>
Sample Isolation Country/Ocean *	<input type="text" value="USA"/>
Sample Collection Method *	<input type="text"/>
Sample Contact Name *	<input type="text" value="Supratim Mukherjee"/>
Sample Contact Email *	<input type="text" value="xxxxxxx@lbl.gov"/>
ENVIRONMENTAL INFORMATION	
Geographic Location *	<input type="text" value="USA: Berkeley, California"/>
Lat/Long Lookup	<input type="text"/> <input type="button" value="Get Coords"/>
Latitude *	<input type="text" value="37.877"/>
Longitude *	<input type="text" value="-122.2456"/> <input type="button" value="Reset Map"/>
	
LatLong Information *	<input type="text" value="Verified"/>
Elevation	<input type="text" value="129"/> Meters. <input type="button" value="Add Elevation Range"/>
Depth	<input type="text"/> Meters. <input type="button" value="Add Depth Range"/>
Subsurface Depth	<input type="text"/> Meters. <input type="button" value="Add Subsurface Depth Range"/>
Sample Collection Temperature	<input type="text" value="28"/> Celsius. <input type="button" value="Add Sample Collection Temperature Range"/>
Salinity	<input type="text" value="Select from below..."/>
Pressure	<input type="text"/>
pH	<input type="text" value="8"/> <input type="button" value="Add pH Range"/>
Salinity Concentration	<input type="text"/>

SOIL ENVIRONMENTAL INFORMATION	
Mean Annual Precipitation ⁱ	25
Mean Seasonal Precipitation ⁱ	
Mean Annual Temperature	15.4
Mean Seasonal Temperature	
Link Climate Info	
LAND USE & HISTORICAL DATA	
Crop Rotation	
Current Land Use	Shrub Land ▼
Current Vegetation ⁱ	Perennial Grass and Coastal Shrubs
Current Vegetation Method ⁱ	
Fire ⁱ	
Flooding ⁱ	No
Extreme Event ⁱ	
Previous Land Use	
Previous Land Use Method ⁱ	
PHYSICOCHEMICAL PROPERTIES	
Drainage Class	Moderately Well ▼
FAO Class	Select from below... ▼
Horizon	A Horizon ▼
Horizon Method ⁱ	
Link Class Info ⁱ	
Local Class ⁱ	
Local Class Method ⁱ	
Profile Position	Backslope ▼
Sieving	
Slope Aspect ⁱ	W-SW
Slope Gradient ⁱ	32

After defining a Biosample, proceed to the next step, i.e., creating a metagenome SP.

Entering a Metagenome Sequencing Project:

To define a new metagenome Sequencing Project, choose DNA as a nucleic acid and Metagenome as a sequencing strategy type and populate at least all required fields (*) such as Sequencing Center, Project Description, Sequencing Strategy Type, Sequencing Technology, etc. as shown in the screenshot below. After that, click the “Create New Sequencing Project” button.

PROJECT INFORMATION	
Project Name *	Garden soil bacterial communities from JGI lawn in Berkeley, California, USA - A1
Other Names	
NCBI BioProject Name	
NCBI BioProject Accession	
NCBI Locus Tag	
NCBI BioSample Accession	
PI Name	Supratim Mukherjee
PI Email	xxxxxxx@lbl.gov
Project Comments	
Sequencing Center *	University of California, Berkeley x
Collaborating Institute	DOE Joint Genome Institute (JGI) x
Funding Agency	
Project Description *	Metagenome sequencing of garden soil bacterium from
PROJECT TYPE	
Specimen	Biome v
Sequencing Strategy Type *	Metagenome v Select "Metagenome" for shotgun sequencing using DNA as starting material.
Sequencing Strategy Subtype	Select from below... v Click for Subtype information...
Nucleic Acid *	DNA v
SEQUENCING INFORMATION	
Sequencing Status *	Complete v
Sequencing Quality *	Level 2: High-Quality Draft v
Finishing Goal	Select from below... v
Contamination Screening Input	Select from below... v
DNA Amplification Method	Select from below... v
Sorting Technology	Select from below... v
Single Cell Lysis Protocol	
Single Cell Lysis Approach	Select from below... v
Sequencing Comments	
DNA Amplification Kit	
Sequencing Technology *	PacBio Revio v
Library Method	
Library Layout	Select from below... v
Library Screening Method	
Number Of Reads	
Read Size	
Vector	
GC Percent	
<div>Create New Sequencing Project</div>	

In addition to the traditional metagenome sequencing project, there are two subtypes of the metagenome SPs that are available to a user to choose from, based on how the sample was isolated. These two subtypes are:

- i) **Metagenome - Cell Enrichment:** A draft metagenome assembly derived from a cell enrichment (> 1 cell) sample. A cell enrichment is generally obtained by physical separation of a biologically relevant unit, such as microcolonies. Due to the low biomass for cell enrichments, the extracted DNA is typically amplified using whole-genome amplification prior to sequencing.
- ii) **Metagenome - Single Particle Sort:** A draft genome or metagenome assembly derived from a single particle isolated via flow cytometry. A single particle sort can consist of a single cell or an aggregate of multiple cells, not necessarily of the same phylogenetic background. The extracted DNA is amplified using whole-genome amplification prior to sequencing. No amplicon-based 16S rRNA gene information is available for single particle sorts.

Entering a Metatranscriptome Sequencing Project:

To create a metatranscriptome SP, follow the same steps described above for a metagenome SP, but choose RNA as a nucleic acid and Metatranscriptome as a sequencing strategy type.

Entering a Metagenome Analysis Project:

Go to the main project submission page and click the “Create AP for Submission to IMG/MycoCosm/PhycoCosm” button. Select “Metagenome Analysis Project” (or one of the subtypes, if applicable: Metagenome – Cell Enrichment or Metagenome - Single Particle Sort Analysis Project) from the drop-down menu and click the “Next Step” button.

Create Sequencing Project or Analysis Project

▶ **Create Sequencing Project in GOLD**

▼ **Create AP for Submission to IMG/MycoCosm/PhycoCosm**

Before proceeding:

- IMG only accepts FASTA (not Genbank formatted) files for analysis. See [IMG FAQ](#).
- Metagenome-Assembled Genome (MAG) AP creation is no longer available. As an alternative... [\[more\]](#)
- There are two AP submission types: Primary and Re-analysis. [\[more\]](#)
- Your first two APs under each AP type needs to be approved before you can submit additional APs.

Select Analysis Project type to create:

Metagenome Analysis Project ▼

Next Step >>

Like in the case of the Genome Analysis Projects described earlier, you can create a Metagenome Analysis Project for your own Sequencing Project that you have created or for a public Sequencing Project in GOLD if you have reassembled the associated public sequences and want to re-annotate them.

To create an AP for your own metagenome sequencing project, select a corresponding SP from the drop-down menu, as shown in the screenshot below and proceed to the next step.

Select Parent Project

You are creating a new Metagenome Analysis Project

(Note: A metagenome Analysis Project can only accept sequence data from shotgun sequencing using DNA as starting material. Do not pass on 16s surveys or iTags as metagenomes. Violators may risk losing GOLD/IMG privileges to submit further data sets.)

Select one of your existing Sequencing Projects:

Gp0326317 - Garden soil bacterial communities from JGI lawn in California, USA - A1

OR

Search for a Public Sequencing Project (you will be asked to assign a study on the next screen):

Next Step >>

Note: If you still need to create a new sequencing project for your submission please click below to create a new sequencing project.

Add New Sequencing Project

Choose the corresponding metagenome SP from the drop-down menu.

Fill in at least the required fields of the Analysis Project form to define an AP for your metagenome.

Create Analysis Project

You are creating a new Metagenome Analysis Project

Please fill in the form below to create a new Analysis Project.

The Sequencing Project for this AP is: Garden soil bacterial communities from JGI lawn in California, USA - A1

Analysis Project Type: Metagenome Analysis

ANALYSIS PROJECT INFORMATION

Analysis Project Name ⁱ	Garden soil bacterial communities from JGI lawn in California, USA - A1 Suffix: <input type="text" value="first draft"/>
Study	Old Garden soil bacterial community from JGI lawn in California, USA
Analysis Project Description *	<input type="text" value="Assembly and annotation of garden soil bacterial con"/>
Analysis System *	IMG <input type="button" value="v"/>
PI Name	<input type="text" value="Supratim Mukherjee"/>
PI Email	<input type="text" value="xxxxxxx@lbl.gov"/>

ANALYSIS PROJECT METADATA

Assembly Method * ⁱ	<input type="text" value="Velvet v. 2.3"/>
Scaffold Count ⁱ	<input type="text" value="525"/>
Contig Count ⁱ	<input type="text"/>
Estimated Size	<input type="text" value="22259846"/>
Sequencing Depth ⁱ	<input type="text" value="100x"/>

PROJECT EXTERNAL REFERENCES

Genbank ID	<input type="text"/>
Assembly Accession	<input type="text"/>

Once you submit the above form, a Metagenome Analysis Project will be created and you will see the following message:

Processing Complete

GOLD AP Ga0618796 created.

To submit your data set to IMG, you will need this Analysis Project ID: Ga0618796

[Submit your data to IMG now.](#)


Or [start another Analysis Project.](#)

Click the link to proceed to IMG for data submission.

If you are not ready to submit your data to IMG yet, you can return later and use your AP for IMG submission. You will be redirected to the IMG submission page when you click the “Annotate” button on the GOLD home page.

Welcome to the Genomes OnLine Database GOLD Release v.10
GOLD: Genomes Online Database, is a World Wide Web resource for comprehensive access to information regarding genome and metagenome sequencing projects, and their associated metadata, around the world.


1. Register



Register your project information and Metadata in the Genomes Online Database

[Register](#)

2. Annotate



Annotate your microbial genome or metagenome with IMG

[Annotate](#)

Steps for creating a Metagenome AP for a public metagenome SP are the same as for a public isolate genome SP. See the corresponding section above.

Entering a Metatranscriptome Analysis Project:

The steps for creating a Metatranscriptome AP after you select “Metatranscriptome Analysis Project” from the drop-down menu on the submission page are the same as for creating a Metagenome AP. Note that Metatranscriptome APs can be created only for your own Metatranscriptome SPs.

5) Creating a Combined Assembly Analysis Project (AP) in GOLD.

When you combine sequence data from more than one sequencing project and generate a single assembly, it is called combined assembly. Currently we support five types of combined assemblies. They can be between sequencing projects of the same type or between sequencing projects of different types:

- 1) Metagenomic projects
- 2) Metagenomic project with Single-Cells
- 3) Metatranscriptome projects
- 4) Single-Cell projects
- 5) Sequencing Projects from a single Organism

5a) Creating a metagenomic Combined Assembly Analysis Project (AP).

Use case: Say, you have two or more metagenome SPs in GOLD, and you are hoping to get a better assembly by doing a combined assembly of the sequences that you obtained under more than one SP. Then you need to define a Combined Assembly AP in GOLD.

First, select the “Combined Assembly” AP type from the drop-down menu and proceed to the next step.

Create Sequencing Project or Analysis Project

► Create Sequencing Project in GOLD

▼ Create AP for Submission to IMG/MycoCosm/PhycoCosm

Before proceeding:

- IMG only accepts FASTA (not Genbank formatted) files for analysis. See [IMG FAQ](#).
- Metagenome-Assembled Genome (MAG) AP creation is no longer available. As an alternative... [\[more\]](#)
- There are two AP submission types: Primary and Re-analysis. [\[more\]](#)
- Your first two APs under each AP type needs to be approved before you can submit additional APs.

Select Analysis Project type to create:

Combined Assembly Project ▼

Next Step >>

The “Metagenomic projects” radio button is preselected by default.

Using the search box, choose two or more metagenome SPs representing the sequences that you have used for your combined assembly as shown below.

Combined Assembly

1. Please select the type of Sequencing Projects that make up the Combined Assembly.

Metagenomic projects: ☒ (default)

Metagenomic project with Single-Cells: ☐

Metatranscriptome projects: ☐

Single-Cell projects: ☐

Sequencing projects from a single organism: ☐

2. Please select the Sequencing Projects that make up the Combined Assembly.

Search for your sequencing projects and add them into the list below:

Gp0326317 - Garden soil bacterial communities from JGI lawn in California, USA - A1	×
Gp0326573 - Garden soil bacterial communities from JGI lawn in California, USA - A2	×

Next >>

Fill in at least the required fields of the Combined Assembly Analysis Project form. If the SPs you have used in your combined assembly came from two different studies, at this point, you will be able to select the study under which you want your new AP to appear.

Create Analysis Project

You are creating a new Combined Assembly Project

Please fill in the form below to create a new Analysis Project.

The Sequencing Project for this AP is: Combined Assembly With Multiple SPs

Analysis Project Type: Combined Assembly

ANALYSIS PROJECT INFORMATION

Analysis Project Name	Combined Assembly of Suffix: Garden soil bacterial community from JGI lawn
Study	Old Garden soil bacterial community from JGI lawn in California, USA
Analysis Project Description *	Combined assembly of different types of soil from JGI
Analysis System *	IMG
PI Name	Supratim Mukherjee
PI Email	xxxxxx@lbl.gov

ANALYSIS PROJECT METADATA

Assembly Method *	Metavelvet v. 1.0
Scaffold Count	
Contig Count	
Estimated Size	

PROJECT EXTERNAL REFERENCES

Genbank ID	
Assembly Accession	

Submit

Once you create a Combined Assembly AP, you can proceed to IMG for submitting your data, or you can leave and return later to submit your dataset (see page 35-36 for more details).

Combined Assembly APs for metatranscriptome projects can be created in a similar manner.

5b) Creating a metagenomic and single cell Combined Assembly Analysis Project (AP).

Use case: Say you sequenced a single cell genome, but it was a partial assembly. Then you found hits in one of your metagenomes to this single cell genome and decided to take advantage of the available metagenome sequence to get a better assembly for your single cell genome. In this case, you need to define a Combined Assembly AP that includes a metagenome and a single cell genome.

First, select the “Combined Assembly” AP type from the drop-down menu and proceed to the next step.

Select the “Metagenomic projects with Single-Cells” radio button as shown in the screen below.

Using the search boxes (separate boxes for metagenome SPs and single cells SPs are provided), choose one or more metagenome and single cell genome sequencing projects that you have used for your combined assembly. Once you select all component SPs of your combined assembly, proceed to the next step.

Combined Assembly

1. Please select the type of Sequencing Projects that make up the Combined Assembly.

Metagenomic projects: ☐ (default)

Metagenomic project with Single-Cells: ☒

Metatranscriptome projects: ☐

Single-Cell projects: ☐

Sequencing projects from a single organism: ☐

2. Please select the Metagenome Sequencing Project and Single Cell project for the Combined Assembly.

A. Please search for your Metagenome sequencing project:

Gp0704594 - Garden soil bacterial communities from JGI lawn in California, USA - A1

B. Please search for your Single-Cell sequencing projects:

Gp0514864 - Gammaproteobacteria bacterium 123

Next >>

Fill in the required fields. If the SPs you have used in your combined assembly are from two different studies, at this point, you will be able to select the study under which you want your new AP to appear.

Create Analysis Project

You are creating a new Combined Assembly Project

Please fill in the form below to create a new Analysis Project.

The Sequencing Project for this AP is: Combined Assembly With Multiple SPs

Analysis Project Type: Combined Assembly

ANALYSIS PROJECT INFORMATION

Analysis Project Name ⓘ

Combined Assembly of
Suffix: Gammaproteobacteria bacterium 123 (Metager

Study *

Test study for help doc examples (Gs0128764)

Analysis Project Description *

Analysis of Gammaproteobacteria bacterium single c

Analysis System *

IMG

PI Name

Supratim Mukherjee

PI Email

xxxxx@lbl.gov

ANALYSIS PROJECT METADATA

Assembly Method * ⓘ

Newbler v. 2.1

Scaffold Count ⓘ

Contig Count ⓘ

Estimated Size

PROJECT EXTERNAL REFERENCES

Genbank ID

Assembly Accession

Submit

Once you create a Combined Assembly AP, proceed to IMG and submit your data or return later to submit your dataset, using the “Annotate” button on the GOLD home page (see page 35-36 for more details).

5c) Creating a single cell Combined Assembly Analysis Project (AP).

Use case: Say you had sequenced several single cell genomes and assembled them separately. But each one of those ended up being a partial assembly. Then you found that two of the single cell genomes you had sequenced appeared to be very similar. So, you decided to do a combined assembly, using sequence data from two individual single cell genome projects. In this case, you need to define a Combined Assembly AP that includes both single cell SPs.

First, select the “Combined Assembly” AP type from the drop-down menu and proceed to the next step.

Select the “Single-Cell projects” radio button as shown in the screen below.

Combined Assembly

1. Please select the type of Sequencing Projects that make up the Combined Assembly.

Metagenomic projects: ☐ (default)
Metagenomic project with Single-Cells: ☐
Metatranscriptome projects: ☐
Single-Cell projects: ☒
Sequencing projects from a single organism: ☐

2. Please select the Sequencing Projects that make up the Combined Assembly.

Search for your sequencing projects and add them into the list below:

Gp0514864 - Gammaproteobacteria bacterium 123	x
Gp0514870 - Gammaproteobacteria bacterium 456	x

Next >>

Using the search box, choose two or more single cell genome sequencing projects that you have used for your combined assembly as shown above. Once you select all component SPs of your combined assembly, proceed to the next step.

Create Analysis Project

You are creating a new Combined Assembly Project

Please fill in the form below to create a new Analysis Project.

The Sequencing Project for this AP is: Combined Assembly With Multiple SPs

Analysis Project Type: Combined Assembly

ANALYSIS PROJECT INFORMATION

Analysis Project Name	Combined Assembly of Suffix: <input type="text" value="Gammaproteobacteria single cells"/>
Study	Test study for help doc examples
Analysis Project Description *	Combined assembly of two single cell projects for imj
Single Cell Assembly Type	Screened
Contamination Screening Method *	Manual screening followed by
Analysis System *	IMG
PI Name	Supratim Mukherjee
PI Email	xxxxxx@lbl.gov

ANALYSIS PROJECT METADATA

Assembly Method *	CLC v. 6.04, Newbler v. 2.3
Scaffold Count	<input type="text"/>
Contig Count	<input type="text"/>
Estimated Size	<input type="text"/>

PROJECT EXTERNAL REFERENCES

Genbank ID	<input type="text"/>
Assembly Accession	<input type="text"/>

Submit

Fill in at least the required fields. If the SPs you have used in your combined assembly are from two different studies, at this point, you will be able to select the study under which you want your new AP to appear.

Once you create a Combined Assembly AP, proceed to IMG for submitting your data or return later and submit your dataset, using the “Annotate” button on the GOLD home page (see page 35-36 for more details).

5d) Creating a Combined Assembly Analysis Project (AP) with sequencing projects from a single organism.

Use case: Say you had sequenced a single organism in your lab but did not get a good assembly. You then came across a public SP for the same organism in GOLD. You now have the option to combine sequence data from your SP and the data from the public sequencing project of the same Organism to create a combined assembly AP. This option is only available if there are two or more Sequencing Projects for exactly the same strain of a single GOLD Organism. To define such a combined assembly AP, select the “Combined Assembly” AP type from the drop-down menu and proceed to the next step.

Combined Assembly

1. Please select the type of Sequencing Projects that make up the Combined Assembly.

Metagenomic projects: ☐ (default)
Metagenomic project with Single-Cells: ☐
Metatranscriptome projects: ☐
Single-Cell projects: ☐
Sequencing projects from a single organism: ☒

2. Please select the Organism for Sequencing Projects that you plan to use in the Combined Assembly.

Search for an organism by entering genus or species:

126677 - Escherichia coli DSM 30083 x

Select the related projects that you want to combine
(Use the windows/mac command keys to select multiple projects from the drop-down):

Gp0139467 - Escherichia coli DSM 30083
Gp0139389 - Escherichia coli DSM 30083 - v2

Next >>

Select the “Sequencing projects from a single organism” radio button as shown in the image above. In the search bar, enter the name of the organism for which you want to create the combined assembly AP. Note that only those Organisms that have two or more Sequencing Projects in your GOLD user account will show up. Once you select the Organism of your choice, the Sequencing Projects associated with it will be displayed in the box below. Select the Sequencing Projects that you want to include in your Combined Assembly AP and proceed to the next step.

Create Analysis Project

You are creating a new Combined Assembly Project

Please fill in the form below to create a new Analysis Project.

The Sequencing Project for this AP is: Combined Assembly With Multiple SPs

Analysis Project Type: Combined Assembly

ANALYSIS PROJECT INFORMATION

Analysis Project Name ⓘ

Combined Assembly of
Suffix: Escherichia coli DSM 30083

Study *

Comparative analysis of two human pathogenic bacteria (Gs0118715) ▾

Analysis Project Description *

COmbined assembly of Escherichia coli DSM 30083

Analysis System *

IMG ▾

PI Name

Supratim Mukherjee

PI Email

xxxxxx@lbl.gov

ANALYSIS PROJECT METADATA

Assembly Method * ⓘ

Newbler v. 2.3

Scaffold Count ⓘ

Contig Count ⓘ

Estimated Size

PROJECT EXTERNAL REFERENCES

Genbank ID

Assembly Accession

Submit

Fill in at least the required fields as shown above. If the SPs you have used in the combined assembly are from two different Studies, at this point, you will be able to select the study under which you want your new AP to appear. Click the “Submit” button to create a new AP. Once you create a Combined Assembly AP, proceed to IMG for submitting data or return later and submit your dataset, using the “Annotate” button on the GOLD home page (see page 35-36 for more details).