

# BioSample Help Document

Version 2.1, 2018

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## **Submitter**

### **\* First name**

First name of submitter.

### **Middle name**

Middle name of submitter.

### **\* Last name**

Last name of submitter.

### **\* Email (primary)**

Primary Email address of submitter.

### **Email (secondary)**

Secondary Email address of submitter.

### **\* Organization**

Full name of organization

### **Submitting organization URL**

The URL of submitter's organization.

### **\* Department**

The department of submitter.

### **Phone**

The phone number of submitter.

### **Fax**

The Fax of submitter.

### **\* Street**

The Street.

### **\* City**

The City.

### **State/Province**

The State/Province.

### **\* Postal code**

The Postal code.

**\* Country/Region**

The Country/Region of submitter.

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**General Information**

**\* Release date**

Select "Release immediately following curation" or "Release on specified date". If select "Release on specified date", you should select or give release data in correct format (yyyy-MM-dd)

**\* Project accession**

Select the project ID.

**\* Sample title**

Provide a brief title, as a phrase or short sentence for public display.

**\* Public description**

Provide a description (a paragraph) of the study goals and relevance.

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**Sample type**

Select the package that best describes your samples

**Pathogen**

Used for pathogen samples that are relevant to public health. Required attributes include those considered useful for the rapid analysis and trace back of pathogens.

**1) Clinical or host-associated pathogen**

*Sample name	A name that you choose for the sample. It can have any format, but we suggest that you make it concise, unique and consistent within your lab, and as informative as possible. Every Sample Name from a single Submitter must be unique
*Organism	The most descriptive organism name for this sample (to the species, if relevant)
Isolate	Identification or description of the specific individual from which this sample was obtained
Strain	microbial or eukaryotic strain name
*Collected by	Name of persons or institute who collected the sample
*Collection date	Date of sampling, in " yyyy-MM-dd"
*Geographic location	Geographical origin of the sample; Use a colon to separate the country or ocean from more detailed information about the location, e.g. "China: Hunan" or "China: Beijing, Daxing".

*Host	The natural (as opposed to laboratory) host to the organism from which the sample was obtained
*Host disease	Name of relevant disease, e.g. Salmonella gastroenteritis
*Isolation source	Describes the physical, environmental and/or local geographical source of the biological sample from which the sample was derived.
*Latitude and longitude	The geographical coordinates of the location where the sample was collected. Specify as degrees latitude and longitude, e.g., 38.98 N 77.11 W.
Culture collection	Name of source institute and unique culture identifier. See the description for the proper format and list of allowed institutes, <a href="http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier">http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier</a> .
genotype	observed genotype
Host age	Age of host at the time of sampling
Host description	Additional information not included in other defined vocabulary fields
Host disease stage	Stage of disease at the time of sampling
Host health state	Information regarding health state of the individual sampled at the time of sampling
Host sex	Gender or physical sex of the host
Host subject id	a unique identifier by which each subject can be referred to, de-identified, e.g. #131
Host tissue sampled	Type of tissue the initial sample was taken from
Passage history	Number of passages and passage method
Pathotype	Some bacterial specific pathotypes (example Eschericia coli - STEC, UPEC)
Serotype	Taxonomy below subspecies; a variety (in bacteria, fungi or virus) usually based on its antigenic properties. e.g. serotype
Serovar	Taxonomy below subspecies; a variety (in bacteria, fungi or virus) usually based on its antigenic properties. Same as serovar and serotype. Sometimes used as species identifier in bacteria with shaky taxonomy, e.g. Leptospira, serovar saopaulo S76607 (65357 in Entrez)
Specimen voucher	Identifier for the physical specimen
Subgroup	Taxonomy below subspecies; sometimes used in viruses to denote subgroups taken from a single isolate
Subtype	Used as classifier in viruses (e.g. HIV type 1, Group M, Subtype A)

## 2) Environmental, food or other pathogen

*Sample name	A name that you choose for the sample. It can have any format, but we suggest that you make it concise, unique and consistent within your lab, and as informative as possible. Every Sample Name from a single Submitter must be unique
*Organism	The most descriptive organism name for this sample (to the species, if relevant)

Isolate	Identification or description of the specific individual from which this sample was obtained
Strain	microbial or eukaryotic strain name
*Collected by	Name of persons or institute who collected the sample
*Collection date	Date of sampling, in " yyyy-MM-dd"
*Geographic location	Geographical origin of the sample; Use a colon to separate the country or ocean from more detailed information about the location, e.g. "China: Hunan" or "China: Beijing, Daxing".
*Isolation source	Describes the physical, environmental and/or local geographical source of the biological sample from which the sample was derived.
*Latitude and longitude	The geographical coordinates of the location where the sample was collected. Specify as degrees latitude and longitude, e.g., 38.98 N 77.11 W.
Culture collection	Name of source institute and unique culture identifier. See the description for the proper format and list of allowed institutes, <a href="http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier">http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier</a> .
Genotype	observed genotype
Passage history	Number of passages and passage method
Serovar	Taxonomy below subspecies; a variety (in bacteria, fungi or virus) usually based on its antigenic properties. Same as serovar and serotype. Sometimes used as species identifier in bacteria with shaky taxonomy, e.g. <i>Leptospira</i> , serovar saopaulo S76607 (65357 in Entrez)
Specimen voucher	Identifier for the physical specimen
Subgroup	Taxonomy below subspecies; sometimes used in viruses to denote subgroups taken from a single isolate
Subtype	Used as classifier in viruses (e.g. HIV type 1, Group M, Subtype A)
Add attribute	add other attributes for the samples

## Microbe

Use for bacteria or other unicellular microbes when it is not appropriate or advantageous to use MlxS, Pathogen or Virus packages.

*Sample name	A name that you choose for the sample. It can have any format, but we suggest that you make it concise, unique and consistent within your lab, and as informative as possible. Every Sample Name from a single Submitter must be unique
*Organism	The most descriptive organism name for this sample (to the species, if relevant)
*Strain	microbial or eukaryotic strain name
*Isolation source	Describes the physical, environmental and/or local geographical source of the biological sample from which the sample was derived.
*Collection date	Date of sampling, in " yyyy-MM-dd"

*Geographic location	Geographical origin of the sample; Use a colon to separate the country or ocean from more detailed information about the location, e.g. "China: Hunan" or "China: Beijing, Daxing".
Altitude	The altitude of the sample is the vertical distance between Earth's surface above Sea Level and the sampled position in the air
Biomaterial provider	name and address of the lab or PI, or a culture collection identifier
Collected by	Name of persons or institute who collected the sample
Culture collection	Name of source institute and unique culture identifier. See the description for the proper format and list of allowed institutes, <a href="http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier">http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier</a> .
Depth	Depth is defined as the vertical distance below surface, e.g. for sediment or soil samples depth is measured from sediment or soil surface, respectively. Depth can be reported as an interval for subsurface samples
Environment biome	descriptor of the broad ecological context of a sample. Examples include: desert, taiga, deciduous woodland, or coral reef. EnvO (v 2013-06-14) terms can be found via the link: <a href="#">&lt;a href</a>
Genotype	observed genotype
Host	The natural (as opposed to laboratory) host to the organism from which the sample was obtained
Host tissue sampled	Type of tissue the initial sample was taken from
Identified by	name of the taxonomist who identified the specimen
Lab host	Scientific name and description of the laboratory host used to propagate the source organism or material from which the sample was obtained, e.g., Escherichia coli DH5a, or Homo sapiens HeLa cells
Latitude and longitude	The geographical coordinates of the location where the sample was collected. Specify as degrees latitude and longitude, e.g., 38.98 N 77.11 W.
Mating type	Mating-type of fungi
Passage history	Number of passages and passage method
Sample size	Amount or size of sample (volume, mass or area) that was collected
Serotype	Taxonomy below subspecies; a variety (in bacteria, fungi or virus) usually based on its antigenic properties. e.g. serotype
Serovar	Taxonomy below subspecies; a variety (in bacteria, fungi or virus) usually based on its antigenic properties. Same as serovar and serotype. Sometimes used as species identifier in bacteria with shaky taxonomy, e.g. Leptospira, serovar saopaulo S76607 (65357 in Entrez)
Specimen voucher	Identifier for the physical specimen
Temperature	temperature of the sample at time of sampling

## Animal

Use for multicellular samples or cell lines derived from common laboratory model organisms, e.g., mouse, rat, Drosophila, worm, fish, frog, or large mammals including zoo and farm animals.

*Sample name	A name that you choose for the sample. It can have any format, but we suggest that you make it concise, unique and consistent within your lab, and as informative as possible. Every Sample Name from a single Submitter must be unique
*Organism	The most descriptive organism name for this sample (to the species, if relevant)
Breed	Breed name - chiefly used in domesticated animals or plants.
Strain	microbial or eukaryotic strain name
Age	age at the time of sampling; relevant scale depends on species and study
*Biomaterial provider	name and address of the lab or PI, or a culture collection identifier
*Sex	physical sex of sampled organism
*Tissue	Type of tissue the initial sample was taken from
Birth date	The data of birth
Birth location	the location of birth
Breed history	the history of breeding
Breed method	the method of breeding
Cell line	name of the cell line
Cell subtype	the subtype of cell
Cell type	Type of cell of the sample or from which the sample was obtained
Collected by	Name of persons or institute who collected the sample
Culture collection	Name of source institute and unique culture identifier. See the description for the proper format and list of allowed institutes, <a href="http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier">http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier</a> .
Death date	The data of death
Development stage	Developmental stage at the time of sampling
Disease	List of diseases diagnosed; can include multiple diagnoses
Disease stage	Stage of disease at the time of sampling
Genotype	observed genotype
Geographic location	Geographical origin of the sample; Use a colon to separate the country or ocean from more detailed information about the location, e.g. "China: Hunan" or "China: Beijing, Daxing".
Growth protocol	The protocol of growth
Health state	Health or disease status of sample at time of collection.
Isolation source	Describes the physical, environmental and/or local geographical source of the biological sample from which the sample was derived.
Latitude and longitude	The geographical coordinates of the location where the sample was collected. Specify as degrees latitude and longitude, e.g., 38.98 N 77.11 W.
Phenotype	Phenotype of sampled organism
Type	Sample type, such as cell culture, mixed culture, tissue sample, whole organism, single cell, metagenomic assembly
Specimen voucher	Identifier for the physical specimen
Storage conditions	Explain how and for how long the sample was stored before DNA extraction
Study book number	Study book number of sample

Treatment	Treatment of sample
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### Human sample

**WARNING:** Only used for human samples or cell lines that have no privacy concerns. If there are human data requiring controlled access, please contact [gsa@big.ac.cn](mailto:gsa@big.ac.cn) and submit them to the GSA for Human database.

*Sample name	A name that you choose for the sample. It can have any format, but we suggest that you make it concise, unique and consistent within your lab, and as informative as possible. Every Sample Name from a single Submitter must be unique
*Organism	The most descriptive organism name for this sample (to the species, if relevant)
*Isolate	Identification or description of the specific individual from which this sample was obtained
Age	Age of host at the time of sampling
*Biomaterial provider	name and address of the lab or PI, or a culture collection identifier
*Sex	physical sex of sampled organism
*Tissue	Type of tissue the initial sample was taken from
Disease	List of diseases diagnosed; can include multiple diagnoses
Cell line	name of the cell line
Cell subtype	the subtype of cell
Cell type	Type of cell of the sample or from which the sample was obtained
Culture collection	Name of source institute and unique culture identifier. See the description for the proper format and list of allowed institutes, <a href="http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier">http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier</a> .
Development stage	Developmental stage at the time of sampling
Disease stage	Stage of disease at the time of sampling
Ethnicity	Ethnicity refers to cultural factors, including nationality, regional culture, ancestry, and language. e.g., Han Chinese.
Health State	Health or disease status of sample at time of collection.
Karyotype	karyotype is the number and appearance of chromosomes in the nucleus of a eukaryotic cell
Phenotype	Phenotype of sampled organism
Population	Population is a summation of all the organisms of the same group or species, which live in a particular geographical area
Race	Race refers to a person's physical characteristics, such as bone structure and skin, hair, or eye color.
Type	Sample type, such as cell culture, mixed culture, tissue sample, whole organism, single cell, metagenomic assembly
Treatment	Treatment of sample



## Plant sample

Used for any plant sample or cell line.

*Sample name	A name that you choose for the sample. It can have any format, but we suggest that you make it concise, unique and consistent within your lab, and as informative as possible. Every Sample Name from a single Submitter must be unique
*Organism	The most descriptive organism name for this sample (to the species, if relevant)
*Cultivar	Cultivar name: cultivated variety of plant
*Biomaterial provider	name and address of the lab or PI, or a culture collection identifier
*Tissue	Type of tissue the initial sample was taken from
Age	age at the time of sampling; relevant scale depends on species and study
Cell line	name of the cell line
Cell type	Type of cell of the sample or from which the sample was obtained
Collected by	Name of persons or institute who collected the sample
Collection date	Date of sampling, in " yyyy-MM-dd"
Culture collection	Name of source institute and unique culture identifier. See the description for the proper format and list of allowed institutes, <a href="http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier">http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier</a> .
Development stage	Developmental stage at the time of sampling
Disease	List of diseases diagnosed; can include multiple diagnoses
Disease stage	Stage of disease at the time of sampling
Genotype	observed genotype
Growth protocol	The protocol of growth
Height or length	Measurement of height or length.
Isolation source	Describes the physical, environmental and/or local geographical source of the biological sample from which the sample was derived.
Latitude and longitude	The geographical coordinates of the location where the sample was collected. Specify as degrees latitude and longitude, e.g., 38.98 N 77.11 W.
Phenotype	Phenotype of sampled organism
Population	Population is a summation of all the organisms of the same group or species, which live in a particular geographical area
Type	Sample type, such as cell culture, mixed culture, tissue sample, whole organism, single cell, metagenomic assembly
Sex	physical sex of sampled organism
Specimen voucher	Identifier for the physical specimen
Temperature	temperature of the sample at time of sampling
Treatment	Treatment of sample

## Virus sample

Use for all virus samples not directly associated with disease. Viral pathogens should be submitted

using the Pathogen: Clinical or host-associated pathogen package.

*Sample name	A name that you choose for the sample. It can have any format, but we suggest that you make it concise, unique and consistent within your lab, and as informative as possible. Every Sample Name from a single Submitter must be unique
*Organism	The most descriptive organism name for this sample (to the species, if relevant)
Strain	microbial or eukaryotic strain name
*Isolate	Identification or description of the specific individual from which this sample was obtained
Host	The natural (as opposed to laboratory) host to the organism from which the sample was obtained
Lab host	Scientific name and description of the laboratory host used to propagate the source organism or material from which the sample was obtained, e.g., Escherichia coli DH5a, or Homo sapiens HeLa cells
*Collection date	Date of sampling, in " yyyy-MM-dd"
*Geographic location	Geographical origin of the sample; Use a colon to separate the country or ocean from more detailed information about the location, e.g. "China: Hunan" or "China: Beijing, Daxing".
*Isolation source	Describes the physical, environmental and/or local geographical source of the biological sample from which the sample was derived.
Altitude	The altitude of the sample is the vertical distance between Earth's surface above Sea Level and the sampled position in the air
Biomaterial provider	name and address of the lab or PI, or a culture collection identifier
Collected by	Name of persons or institute who collected the sample
Culture collection	Name of source institute and unique culture identifier. See the description for the proper format and list of allowed institutes, <a href="http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier">http://www.insdc.org/controlled-vocabulary-culturecollection-qualifier</a> .
Depth	Depth is defined as the vertical distance below surface, e.g. for sediment or soil samples depth is measured from sediment or soil surface, respectively. Depth can be reported as an interval for subsurface samples
Disease	List of diseases diagnosed; can include multiple diagnoses
Environment biome	descriptor of the broad ecological context of a sample. Examples include: desert, taiga, deciduous woodland, or coral reef. EnvO (v 2013-06-14) terms can be found via the link: <a href="#">&lt;a href</a>
Genotype	observed genotype
Host tissue sampled	Type of tissue the initial sample was taken from
Identified by	name of the taxonomist who identified the specimen
Latitude and longitude	The geographical coordinates of the location where the sample was collected. Specify as degrees latitude and longitude, e.g., 38.98 N 77.11 W.
Passage history	Number of passages and passage method
Sample size	Amount or size of sample (volume, mass or area) that was collected

Serotype	Taxonomy below subspecies; a variety (in bacteria, fungi or virus) usually based on its antigenic properties. e.g. serotype
Serovar	Taxonomy below subspecies; a variety (in bacteria, fungi or virus) usually based on its antigenic properties. Same as serovar and serotype. Sometimes used as species identifier in bacteria with shaky taxonomy, e.g. <i>Leptospira</i> , serovar saopaulo S76607 (65357 in Entrez)
Specimen voucher	Identifier for the physical specimen
Temperature	temperature of the sample at time of sampling

### Metagenome/Environmental Sample (GSC MIMS unsupported)

Use for metagenome/environmental samples when it is not appropriate or advantageous to use the GSC (Genome Standards Consortium) MIMS (Minimum Information about a MetaGenome Sequence) standards.

\* mandatory attribute \*\* at least one of these attributes is required within a group

*Sample name	A name that you choose for the sample. It can have any format, but we suggest that you make it concise, unique and consistent within your lab, and as informative as possible. Every Sample Name from a single Submitter must be unique
*Organism	The most descriptive organism name for this sample (to the species, if relevant)
**Host	The natural (as opposed to laboratory) host to the organism from which the sample was obtained
**Isolation source	Describes the physical, environmental and/or local geographical source of the biological sample from which the sample was derived.
*Collection date	Date of sampling, in " yyyy-MM-dd"
*Geographic location	Geographical origin of the sample; Use a colon to separate the country or ocean from more detailed information about the location, e.g. "China: Hunan" or "China: Beijing, Daxing".
*Latitude and longitude	The geographical coordinates of the location where the sample was collected. Specify as degrees latitude and longitude, e.g., 38.98 N 77.11 W.
Reference for biomaterial	Primary publication or genome report
Relationship to oxygen	Aerobic or anaerobic
Sample collection device or method	Method or device employed for collecting sample
Sample material processing	Processing applied to the sample during or after isolation
Sample size	Amount or size of sample (volume, mass or area) that was collected
Source material identifiers	unique identifier assigned to a material sample used for extracting nucleic acids, and subsequent sequencing. The identifier can refer either to the original material collected or to any derived sub-samples.

Custom attributes	add other attributes for the samples
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### Metagenome/Environmental Sample (GSC MIMS compliant)

Describe and standardize sample metadata, defined by the GSC (Genome Standards Consortium) MIMS standards for metagenome/environmental samples.

#### 1) human-gut

*Sample name	A name that you choose for the sample. It can have any format, but we suggest that you make it concise, unique and consistent within your lab, and as informative as possible. Every Sample Name from a single Submitter must be unique
*Organism	The most descriptive organism name for this sample (to the species, if relevant)
*Collection date	Date of sampling, in " yyyy-MM-dd"
*Environment biome	descriptor of the broad ecological context of a sample. Examples include: desert, taiga, deciduous woodland, or coral reef. EnvO (v 2013-06-14) terms can be found via the link: <a href="#">&lt;a href</a>
*Environment feature	descriptor of the local environment. Examples include: harbor, cliff, or lake. EnvO (v 2013-06-14) terms can be found via the link: <a href="http://www.environmentontology.org/Browse-EnvO">www.environmentontology.org/Browse-EnvO</a>
*Environment material	material that was displaced by the sample, or material in which a sample was embedded, prior to the sampling event. Examples include: air, soil, or water. EnvO (v 2013-06-14) terms can be found via the link: <a href="http://www.environmentontology.org/Browse-EnvO">www.environmentontology.org/Browse-EnvO</a>
*Geographic location	Geographical origin of the sample; Use a colon to separate the country or ocean from more detailed information about the location, e.g. "China: Hunan" or "China: Beijing, Daxing".
*Latitude and longitude	The geographical coordinates of the location where the sample was collected. Specify as degrees latitude and longitude, e.g., 38.98 N 77.11 W.
*Host	The natural (as opposed to laboratory) host to the organism from which the sample was obtained
Reference for biomaterial	Primary publication or genome report
Relationship to oxygen	Aerobic or anaerobic
Sample collection device or method	Method or device employed for collecting sample
Sample material processing	Processing applied to the sample during or after isolation
Sample Volume Weight DNA extraction	volume (mL) or weight (g) of sample processed for DNA extraction

Sample size	Amount or size of sample (volume, mass or area) that was collected
Source material identifiers	unique identifier assigned to a material sample used for extracting nucleic acids, and subsequent sequencing. The identifier can refer either to the original material collected or to any derived sub-samples.
Chemical administration	list of chemical compounds administered to the host or site where sampling occurred, and when (e.g. antibiotics, N fertilizer, air filter); can include multiple compounds. For Chemical Entities of Biological Interest ontology (CHEBI) (v1.72), please see <a href="http://bioportal.bioontology.org/visualize/44603">http://bioportal.bioontology.org/visualize/44603</a>
Ethnicity	Ethnicity refers to cultural factors, including nationality, regional culture, ancestry, and language. e.g., Han Chinese.
Gastrointestinal tract disorder	history of gastrointestinal tract disorders; can include multiple disorders
Host age	Age of host at the time of sampling
Host body mass index	body mass index of the host, calculated as weight/(height)squared
Host body product	substance produced by the host, e.g. stool, mucus, where the sample was obtained from
Host body temperature	core body temperature of the host when sample was collected
Host diet	type of diet depending on the sample for animals omnivore, herbivore etc., for humans high-fat, mediterranean etc.; can include multiple diet types
Host disease	Name of relevant disease, e.g. Salmonella gastroenteritis
Host family relationship	host family relationship
Host genotype	host genotype
Host height	the height of subject
Host last meal	content of last meal and time since feeding; can include multiple values
Host occupation	most frequent job performed by subject
Host phenotype	host phenotype
Host pulse	resting pulse of the host, measured as beats per minute
Host sex	Gender or physical sex of the host
Host subject id	a unique identifier by which each subject can be referred to, de-identified, e.g. #131
Host tissue sampled	Type of tissue the initial sample was taken from
Host total mass	total mass of the host at collection, the unit depends on host
Medication code	can include multiple medication codes
Liver disorder	history of liver disorders; can include multiple disorders
Medical history performed	whether full medical history was collected
Miscellaneous parameter	any other measurement performed or parameter collected, that is not listed here
Organism count	total count of any organism per gram or volume of sample, should include name of organism followed by count; can include multiple organism counts
Oxygenation status of sample	oxygenation status of sample

Perturbation	type of perturbation, e.g. chemical administration, physical disturbance, etc., coupled with time that perturbation occurred; can include multiple perturbation types
Sample salinity	sample salinity
Sample storage duration	sample storage duration
Sample storage location	sample storage location
Sample storage temperature	sample storage temperature
Special diet	specification of special diet; can include multiple special diets
Temperature	temperature of the sample at time of sampling
Isolation source	Describes the physical, environmental and/or local geographical source of the biological sample from which the sample was derived.
Custom Attributes	

## 2) soil

*Sample name	A name that you choose for the sample. It can have any format, but we suggest that you make it concise, unique and consistent within your lab, and as informative as possible. Every Sample Name from a single Submitter must be unique
*Organism	The most descriptive organism name for this sample (to the species, if relevant)
*Collection date	Date of sampling, in " yyyy-MM-dd"
*Environment biome	descriptor of the broad ecological context of a sample. Examples include: desert, taiga, deciduous woodland, or coral reef. EnvO (v 2013-06-14) terms can be found via the link: <a href="#">www.environmentontology.org/Browse-EnvO</a>
*Environment feature	descriptor of the local environment. Examples include: harbor, cliff, or lake. EnvO (v 2013-06-14) terms can be found via the link: <a href="#">www.environmentontology.org/Browse-EnvO</a>
*Environment material	material that was displaced by the sample, or material in which a sample was embedded, prior to the sampling event. Examples include: air, soil, or water. EnvO (v 2013-06-14) terms can be found via the link: <a href="#">www.environmentontology.org/Browse-EnvO</a>
*Geographic location	Geographical origin of the sample; Use a colon to separate the country or ocean from more detailed information about the location, e.g. "China: Hunan" or "China: Beijing, Daxing".
*Latitude and longitude	The geographical coordinates of the location where the sample was collected. Specify as degrees latitude and longitude, e.g., 38.98 N 77.11 W.
*Depth	Depth is defined as the vertical distance below surface, e.g. for sediment or soil samples depth is measured from sediment or soil surface, respectively. Depth can be reported as an interval for subsurface samples
*Elevation	The elevation of the sampling site as measured by the vertical distance from mean sea level

Agrochemical additions	addition of fertilizers, pesticides, etc. - amount and time of applications
Aluminium saturation	aluminum saturation (esp. for tropical soils)
Aluminium saturation method	reference or method used in determining Al saturation
Altitude	The altitude of the sample is the vertical distance between Earth's surface above Sea Level and the sampled position in the air
Annual and seasonal precipitation	mean annual and seasonal precipitation (mm)
Annual and seasonal temperature	mean annual and seasonal temperature (Celsius)
Crop rotation	whether or not crop is rotated, and if yes, rotation schedule
Current land use	present state of sample site
Current vegetation	vegetation classification from one or more standard classification systems, or agricultural crop
Current vegetation method	reference or method used in vegetation classification
Drainage classification	drainage classification from a standard system such as the USDA system
Extreme event	unusual physical events that may have affected microbial populations
Extreme salinity	measured salinity
FAO classification	soil classification from the FAO World Reference Database for Soil Resources
Fire	historical and/or physical evidence of fire
Flooding	historical and/or physical evidence of flooding
Heavy metals	Heavy metals present and concentrations;any drug used by subject and the frequency of usage;can include multiple heavy metals and concentrations.
Heavy metals method	reference or method used in determining heavy metals
Horizon	specific layer in the land area which measures parallel to the soil surface and possesses physical characteristics which differ from the layers above and beneath
Horizon method	reference or method used in determining the horizon
Links to additional analysis	links to additional analysis
Link to classification information	link to digitized soil maps or other soil classification information
Link to climate information	link to climate resource
Local classification	soil classification based on local soil classification system
Local classification method	reference or method used in determining the local soil classification
Microbial biomass	the part of the organic matter in the soil that constitutes living microorganisms smaller than 5-10 $\mu\text{m}$ . IF you keep this, you would need to have correction factors used for conversion to the final units, which should be mg C (or N)/kg soil).

Microbial biomass method	reference or method used in determining microbial biomass
Miscellaneous parameter	any other measurement performed or parameter collected, that is not listed here
pH	pH measurement
pH method	reference or method used in determining pH
Pooling of DNA extracts	were multiple DNA extractions mixed? how many?
Previous land use	previous land use and dates
Previous land use method	reference or method used in determining previous land use and dates
Profile position	cross-sectional position in the hillslope where sample was collected. Sample area position in relation to surrounding areas
Salinity method	reference or method used in determining salinity
Sieving	collection design of pooled samples and/or sieve size and amount of sample sieved
Slope aspect	the direction a slope faces. While looking down a slope use a compass to record the direction you are facing (direction or degrees); e.g., NW or 315° . This measure provides an indication of sun and wind exposure that will influence soil temperature and evapotranspiration.
Slope gradient	commonly called "slope." The angle between ground surface and a horizontal line (in percent). This is the direction that overland water would flow. This measure is usually taken with a hand level meter or clinometer.
Soil type	soil series name or other lower-level classification
Soil type method	reference or method used in determining soil series name or other lower-level classification
Storage conditions	Explain how and for how long the sample was stored before DNA extraction
Texture	the relative proportion of different grain sizes of mineral particles in a soil, as described using a standard system; express as % sand (50 µm to 2mm), silt (2 µm to 50 µm), and clay (<2 µm) with textural name(e.g., silty clay loam) optional.
Texture method	reference or method used in determining soil texture
Tillage	note method(s) used for tilling
Total N method	reference or method used in determining the total N
Total nitrogen	total nitrogen content of the sample
Total organic carbon method	reference or method used in determining total organic C
Total organic carbon	Definition for soil: total organic C content of the soil units of g C/kg soil. Definition otherwise: total organic carbon content
Water content of soil	water content
Water content of soil method	reference or method used in determining the water content of soil
Reference for biomaterial	Primary publication or genome report



Relationship to oxygen	Aerobic or anaerobic
Sample collection device or method	Method or device employed for collecting sample
Sample material processing	Processing applied to the sample during or after isolation
Sample size	Amount or size of sample (volume, mass or area) that was collected
Sample volume or weight for DNA extraction	volume (mL) or weight (g) of sample processed for DNA extraction
Source material identifiers	unique identifier assigned to a material sample used for extracting nucleic acids, and subsequent sequencing. The identifier can refer either to the original material collected or to any derived sub-samples.
Isolation source	Describes the physical, environmental and/or local geographical source of the biological sample from which the sample was derived.
Custom attributes	add other attributes for the samples

### 3) water

*Sample name	A name that you choose for the sample. It can have any format, but we suggest that you make it concise, unique and consistent within your lab, and as informative as possible. Every Sample Name from a single Submitter must be unique
*Organism	The most descriptive organism name for this sample (to the species, if relevant)
*Collection date	Date of sampling, in " yyyy-MM-dd"
*Environment biome	descriptor of the broad ecological context of a sample. Examples include: desert, taiga, deciduous woodland, or coral reef. EnvO (v 2013-06-14) terms can be found via the link: <a href="#">&lt;a href</a>
*Environment feature	descriptor of the local environment. Examples include: harbor, cliff, or lake. EnvO (v 2013-06-14) terms can be found via the link: <a href="http://www.environmentontology.org/Browse-EnvO">www.environmentontology.org/Browse-EnvO</a>
*Environment material	material that was displaced by the sample, or material in which a sample was embedded, prior to the sampling event. Examples include: air, soil, or water. EnvO (v 2013-06-14) terms can be found via the link: <a href="http://www.environmentontology.org/Browse-EnvO">www.environmentontology.org/Browse-EnvO</a>
*Geographic location	Geographical origin of the sample; Use a colon to separate the country or ocean from more detailed information about the location, e.g. "China: Hunan" or "China: Beijing, Daxing".
*Latitude and longitude	The geographical coordinates of the location where the sample was collected. Specify as degrees latitude and longitude, e.g., 38.98 N 77.11 W.
*Depth	Depth is defined as the vertical distance below surface, e.g. for sediment or soil samples depth is measured from sediment or soil surface, respectively. Depth can be reported as an interval for subsurface samples

*alkalinity	alkalinity, the ability of a solution to neutralize acids to the equivalence point of carbonate or bicarbonate
alkyl diethers	concentration of alkyl diethers
Altitude	
Aminopeptidase activity	measurement of aminopeptidase activity
Ammonium	concentration of ammonium
Atmospheric data	measurement of atmospheric data; can include multiple data
Bacterial production	bacterial production in the water column measured by isotope uptake
Bacterial respiration	measurement of bacterial respiration in the water column
Bacterial carbon production	measurement of bacterial carbon production
Biomass	amount of biomass; should include the name for the part of biomass measured, e.g. microbial, total. can include multiple measurements
Bishomohopanol	concentration of bishomohopanol
Bromide	concentration of bromide
Calcium	concentration of calcium
Carbon/nitrogen ratio	ratio of amount or concentrations of carbon to nitrogen
Chemical administration	list of chemical compounds administered to the host or site where sampling occurred, and when (e.g. antibiotics, N fertilizer, air filter); can include multiple compounds. For Chemical Entities of Biological Interest ontology (CHEBI) (v1.72), please see <a href="http://bioportal.bioontology.org/visualize/44603">http://bioportal.bioontology.org/visualize/44603</a>
Chloride	concentration of chloride
Chlorophyll	concentration of chlorophyll
Conductivity	electrical conductivity of water
Density	density of sample
Diether lipids	concentration of diether lipids; can include multiple types of diether lipids
Dissolved carbon dioxide	concentration of dissolved carbon dioxide
Dissolved hydrogen	concentration of dissolved hydrogen
Dissolved inorganic carbon	dissolved inorganic carbon concentration
Dissolved inorganic nitrogen	concentration of dissolved inorganic nitrogen
Dissolved inorganic phosphorus	concentration of dissolved inorganic phosphorus
Dissolved organic carbon	concentration of dissolved organic carbon
Dissolved organic nitrogen	dissolved organic nitrogen concentration measured as; total dissolved nitrogen - NH4 - NO3 - NO2
Dissolved oxygen	concentration of dissolved oxygen
Downward PAR	visible waveband radiance and irradiance measurements in the water column
Elevation	The elevation of the sampling site as measured by the vertical distance from mean sea level
Fluorescence	raw or converted fluorescence of water

Glucosidase activity	measurement of glucosidase activity
Light intensity	measurement of light intensity
Magnesium	concentration of magnesium
Mean friction velocity	measurement of mean friction velocity
Mean peak friction velocity	measurement of mean peak friction velocity
Miscellaneous parameter	any other measurement performed or parameter collected, that is not listed here
N alkanes	concentration of n-alkanes; can include multiple n-alkanes
Nitrate	concentration of nitrate
Nitrite	concentration of nitrite
Nitrogen	concentration of nitrogen (total)
Organic carbon	concentration of organic carbon
Organic matter	concentration of organic matter
Organic nitrogen	concentration of organic nitrogen
Organism count	Total count of any organism per gram or volume of sample, should include name of organism followed by count; can include multiple organism counts
Particulate organic carbon	concentration of particulate organic carbon
Particulate organic nitrogen	concentration of particulate organic nitrogen
Perurbation	type of perturbation, e.g. chemical administration, physical disturbance, etc., coupled with time that perturbation occurred; can include multiple perturbation types
Petroleum hydrocarbon	concentration of petroleum hydrocarbon
pH	pH measurement
Phaeopigments	concentration of phaeopigments; can include multiple phaeopigments
Phosphate	concentration of phosphate
Phospholipid fatty acid	concentration of phospholipid fatty acids; can include multiple values
Photon flux	measurement of photon flux
Potassium	concentration of potassium
Pressure	pressure to which the sample is subject, in atmospheres
Primary production	measurement of primary production
Redox potential	redox potential, measured relative to a hydrogen cell, indicating oxidation or reduction potential
Sample storage duration	sample storage duration
Sample storage location	sample storage location
Sample storage temperature	sample storage temperature
Silicate	concentration of silicate
Sodium	sodium concentration
Soluble reactive phosphorus	concentration of soluble reactive phosphorus

Sulfate	concentration of sulfate
Sulfide	concentration of sulfide
Suspended particulate matter	concentration of suspended particulate matter
Temperature	temperature of the sample at time of sampling
Tidal stage	stage of tide
Total depth of water column	measurement of total depth of water column
Total dissolved nitrogen	total dissolved nitrogen concentration, reported as nitrogen, measured by: total dissolved nitrogen
Total inorganic nitrogen	total inorganic nitrogen content
Total particulate carbon	total particulate carbon content
Total phosphorus	total phosphorus concentration, calculated by: total phosphorus
Water current	measurement of magnitude and direction of flow within a fluid
Reference for biomaterial	Primary publication or genome report
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