

The University of Western Ontario
BIOLOGICAL AGENTS REGISTRY FORM
Approved Biohazards Subcommittee: October 14, 2011
Biosafety Website: www.uwo.ca/humanresources/biosafety/

This form must be completed by each Principal Investigator holding a grant administered by the University of Western Ontario (UWO) or in charge of a laboratory/facility where the use of Level 1, 2 or 3 biological agents is described in the laboratory or animal work proposed. The form must also be completed if any work is proposed involving animals carrying zoonotic agents infectious to humans or involving plants, fungi, or insects that require Public Health Agency of Canada (PHAC) or Canadian Food Inspection Agency (CFIA) permits.

This form must be updated at least every 3 years or when there are changes to the biological agents being used.

Containment Levels will be established in accordance with Laboratory Biosafety Guidelines, 3rd edition, 2004, Public Health Agency of Canada (PHAC) or Containment Standards for Veterinary Facilities, 1st edition 1996, Canadian Food Inspection Agency (CFIA).

Electronically completed forms are to be submitted to Occupational Health and Safety, (OHS), (Support Services Building, Room 4190 or to jstanle2@uwo.ca) for distribution to the Biohazards Subcommittee. For questions regarding this form, please contact the Biosafety Officer at extension 81135 or biosafety@uwo.ca. If there are changes to the information on this form (excluding grant title and funding agencies), contact Occupational Health and Safety for a modification form. See website: www.uwo.ca/humanresources/biosafety/.

Please ensure that all questions are fully and clearly answered. Failure to do so will lead to the form being returned, which will cause delays in your approval and frustration for you and your colleagues on the Committee.

If you are re-submitting this form as requested by the Biohazards Subcommittee, please make modifications to the form in bold print, highlighted in yellow. Please re-submit forms electronically.

| | |
|----------------------------|----------------------------|
| PRINCIPAL INVESTIGATOR: | |
| | Gordon Southam |
| DEPARTMENT: | Earth Sciences |
| ADDRESS: | B&G |
| PHONE NUMBER: | 83197 |
| EMERGENCY PHONE NUMBER(S): | 519-614-7149 (cell) |
| EMAIL: | gsoutham@uwo.ca |

Location of experimental work to be carried out :

| | |
|-----------------------|----------------------|
| Building : BGS | Room(s): 0074 |
| Building : _____ | Room(s): _____ |
| Building : _____ | Room(s): _____ |

***For work being performed at Institutions affiliated with the University of Western Ontario, the Safety Officer for the Institution where experiments will take place must sign the form prior to its being sent to the University of Western Ontario Biosafety Officer (See Section 15.0, Approvals).**

FUNDING AGENCY/AGENCIES: NSERC

GRANT TITLE(S): Bacteria-mineral interactions

UNDERGRADUATE COURSE NAME(IF APPLICABLE): _____

List all personnel working under Principal Investigators supervision in this location:

| <u>Name</u> | <u>UWO E-mail Address</u> | <u>Date of Biosafety Training</u> |
|-----------------------------|---|-----------------------------------|
| Alexandra Pontefract | apontefr@uwo.ca | November 30, 2010 |
| Gordon Campbell | scamp32@uwo.ca | June 20, 2011 |
| Jenine McCutcheon | jmccutc3@uwo.ca | January 11, 2012 |
| Jeremiah Shuster | jshuster@uwo.ca | April 27, 2010 |
| Jessica Stromberg | jstromb@uwo.ca | January 11, 2012 |

| | | |
|----------------|-----------------|--------------------|
| Liane Loiselle | lloisell@uwo.ca | October 14, 2010 |
| Maija Raudsepp | mraudsep@uwo.ca | Oct 31, 2011 |
| Nahed Mahrous | nmahrous@uwo.ca | September 19, 2010 |
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Please explain how the biological agents are used in your project and how they are stored and disposed of. The BARF without this description will not be reviewed.

The Biological Safety Level (BSL) 1 bacterial cultures used in my research are handled using aseptic technique. Cultures are grown, used in experiments, then autoclaved prior to disposal. Minimal stock cultures, typically 10 ml for heterotrophs and 100 ml for phototrophs are maintained for future experimentation.

**Please include a ONE page research summary or teaching protocol in lay terms.
Forms with summaries more than one page will not be reviewed.**

Research Summary. Microorganisms play an important role in catalyzing a wide array of biogeochemical processes that affect the composition of our soil, water and air. Understanding these processes requires a multidisciplinary approach focused on the contribution of the ubiquitous microbial world, e.g., research on life in extreme environments in Canada's high arctic will help understand the influence of permafrost on climate change. The overall goal of my research program is to bridge the boundary between earth science and microbiology to improve our understanding of fundamental earth system processes that have occurred throughout geological history and to apply this knowledge to benefit society. Prior to 2.5 billion years ago, the Earth did not possess a significant amount of oxygen in its' atmosphere. Using a laboratory microcosm, we will examine the relationship between cyanobacteria (the precursor to plants on Earth), and carbon dioxide fixation and oxygen production. The model will determine the geochemical and mineralogical processes that occurred as cyanobacteria created this oxygen, beginning a new era in Earth's history. Understanding this fundamental relationship between oxygenic photosynthesis and atmospheric evolution will help us understand how life has contributed to planetary evolution in the past, and also hopefully providing lessons for the future. Mining is an important contributor to Canada's economy as an established global producer of a wide range of commodities (e.g., nickel, diamonds, gold, uranium and platinum group elements). The development of biotechnological processes for the mining industry will have direct benefit to the public by improving Canada's competitiveness in mining, creating new green jobs that can support existing mining operations. The continued development of this industry requires innovation in mineral exploration. Through this proposed research, we will examine the role of lithotrophic (rock-eating) bacteria on the erosion of gold containing minerals and their involvement in the synthesis of nanophase gold, which is important in developing new gold exploration strategies.

Any new students who have not had a formal course in microbiology are paired with a graduate student mentor to teach them how to prepare media, how to use an autoclave and how to manipulate cultures using aseptic technique, i.e., sterile pipettes and a flamed loop.

Changes to this page

1.0 Microorganisms

1.1 Does your work involve the use of biological agents? YES NO
 (non-pathogenic and pathogenic biological agents including but not limited to bacteria and other microorganisms, viruses, prions, parasites or pathogens of plant or animal origin)? If no, please proceed to Section 2.0

Do you use microorganisms that require a permit from the CFIA? YES NO

If YES, please give the name of the species _____

What is the origin of the microorganism(s)? _____

Please describe the risk (if any) of escape and how this will be mitigated:

There is no risk of escape.

Please attach the CFIA permit.

Please describe any CFIA permit conditions:

1.2 Please complete the table below:

| Full Scientific Name of Biological Agent(s)* (Be specific) | Is it known to be a human pathogen? YES/NO | Is it known to be an animal pathogen? YES/NO | Is it known to be a zoonotic agent? YES/NO | Maximum quantity to be cultured at one time? (in Litres) | Source/ Supplier | PHAC or CFIA Containment Level |
|--|--|--|--|--|------------------|--|
| <i>Plectonema boryanum</i> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 100 L | UTEX | <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3 |
| <i>Cupriavidus Metallidurans</i> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 1 L | ATCC | <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3 |
| <i>Desulfovibrio desulfuricans</i> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 1 L | ATCC | <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3 |
| <i>Metanococcus voltae</i> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 1 L | ATCC | <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3 |
| <i>Acidithiobacillus thiooxidans</i> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 1 L | ATCC | <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3 |
| <i>Acidithiobacillus thiooxidans</i> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 1 L | ATCC | <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3 |
| <i>Shewanella oneidensis</i> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | 1L | ATCC | <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3 |
| | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3 |

*Please attach a Material Safety Data Sheet or equivalent from the supplier if the bacterium used is not on this link:
http://www.uwo.ca/humanresources/docandform/docs/ohs/CFIA_Ecoli_list.pdf

Additional Comments: _____

Changes on this page

2.0 Cell Culture

2.1 Does your work involve the use of cell cultures? YES NO
 (If NO, please proceed to Section 3.0)

2.2 Please indicate the type of primary cells (i.e. derived from fresh tissue) that will be grown in culture:

| Cell Type | Is this cell type used in your work? | Source of Primary Cell Culture Tissue | AUS Protocol Number |
|-------------------|--|---------------------------------------|---------------------|
| Human | <input type="checkbox"/> Yes <input type="checkbox"/> No | | Not applicable |
| Rodent | <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Non-human primate | <input type="checkbox"/> Yes <input type="checkbox"/> No | | |
| Other (specify) | <input type="checkbox"/> Yes <input type="checkbox"/> No | | |

2.3 Please indicate the type of established cells that will be grown in culture in:

| Cell Type | Is this cell type used in your work? | Specific cell line(s)* | Containment Level of each cell line | Supplier / Source of cell line(s) |
|-------------------|--|------------------------|-------------------------------------|-----------------------------------|
| Human | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| Rodent | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| Non-human primate | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| Other (specify) | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |

**Please attach a Material Safety Data Sheet or equivalent from the supplier. (For more information, see www.atcc.org)*

2.4 For above named cell types(s) indicate PHAC or CFIA containment level required 1 2 2+ 3

Additional Comments: _____

3.0 Use of Human Source Materials

3.1 Does your work involve the use of human source materials? YES NO
 If no, please proceed to Section 4.0

3.2 Indicate in the table below the Human Source Material to be used.

| Human Source Material | Source/Supplier /Company Name | Is Human Source Material Infected With An Infectious Agent? YES/UNKNOWN | Name of Infectious Agent (If applicable) | PHAC or CFIA Containment Level (Select one) |
|--|-------------------------------|--|--|---|
| Human Blood (whole) or other Body Fluid | | <input type="checkbox"/> Yes <input type="checkbox"/> Unknown | | <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3 |
| Human Blood (fraction) or other Body Fluid | | <input type="checkbox"/> Yes <input type="checkbox"/> Unknown | | <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3 |
| Human Organs or Tissues (unpreserved) | | <input type="checkbox"/> Yes <input type="checkbox"/> Unknown | | <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3 |
| Human Organs or Tissues (preserved) | | Not Applicable | | Not Applicable |

Additional Comments: _____

4.0 Genetically Modified Organisms and Cell lines

4.1 Will genetic modifications be made to the microorganisms, biological agents, or cells described in Sections 1.0 and 2.0? YES NO If **NO**, please proceed to Section 5.0

4.2 Will genetic modification(s) involving plasmids be done? YES, complete table below NO

| Bacteria Used for Cloning * | Plasmid(s) ** | Source of Plasmid | Gene Transformed or Transfected | Will there be a change due to transformation of the bacteria? | Will there be a change in the pathogenicity of the bacteria after the genetic modification? | What are the consequences due to the transformation of the bacteria? |
|-----------------------------|---------------|-------------------|---------------------------------|---|---|--|
| | | | | | | |

* Please attach a Material Safety Data Sheet or equivalent if available.

** Please attach a plasmid map.

***No Material Safety Data Sheet is required for the following strains of *E. coli*:

http://www.uwo.ca/humanresources/docandform/docs/ohs/CFIA_Ecoli_list.pdf

4.3 Will genetic modification(s) of bacteria and/or cells involving viral vectors be made?

YES, complete table below NO

| Virus Used for Vector Construction | Vector(s) * | Source of Vector | Gene(s) Transduced | Describe the change that results from transduction |
|------------------------------------|-------------|------------------|--------------------|--|
| | | | | |

* Please attach a Material Safety Data Sheet or equivalent.

4.3.1 Will virus be replication defective? YES NO

4.3.2 Will virus be infectious to humans or animals? YES NO

4.3.3 Will this be expected to increase the containment level required? YES NO

5.0 Will genetic sequences from the following be involved?

- ◆ HIV NO YES, specify
- ◆ HTLV 1 or 2 or genes from any Level 1 or Level 2 pathogens NO YES, specify
- ◆ SV 40 Large T antigen NO YES
- ◆ E1A oncogene NO YES
- ◆ Known oncogenes NO YES, specify
- ◆ Other human or animal pathogen and or their toxins NO YES, specify

5.1 Is any work being conducted with prions or prion sequences? NO YES

Additional Comments: _____

See E-mail

6.0 Human Gene Therapy Trials

6.1 Will human clinical trials be conducted involving a biological agent? YES NO
(including but not limited to microorganisms, viruses, prions, parasites or pathogens of plant or animal origin)
If no, please proceed to Section 7.0

6.2 If YES, please specify which biological agent will be used:
Please attach a full description of the biological agent.

6.3 Will the biological agent be able to replicate in the host? YES NO

6.4 How will the biological agent be administered?

6.5 Please give the Health Care Facility where the clinical trial will be conducted:

6.6 Has human ethics approval been obtained? YES, number: NO PENDING

7.0 Animal Experiments

7.1 Will live animals be used? YES NO If NO, please proceed to section 8.0

7.2 Name of animal species to be used

7.3 AUS protocol #

7.4 List the location(s) for the animal experimentation and housing.

7.5 Will any of the agents listed in section 4.0 be used in live animals
 NO YES, specify:

7.6 Will the agent(s) be shed by the animal:
 YES NO, please justify:

8.0 Use of Animal species with Zoonotic Hazards

8.1 Will any animals with zoonotic hazards or their organs, tissues, lavages or other body fluids including blood be used (see list below)? YES NO - If NO, please proceed to section 9.0

8.2 Will live animals be used? YES NO

8.3 If YES, please specify the animal(s) used:

- | | | |
|-----------------------------|--|-----------------------------|
| ◆ Pound source dogs | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| ◆ Pound source cats | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| ◆ Cattle, sheep or goats | <input type="checkbox"/> YES, species | <input type="checkbox"/> NO |
| ◆ Non-human primates | <input type="checkbox"/> YES, species | <input type="checkbox"/> NO |
| ◆ Wild caught animals | <input type="checkbox"/> YES, species & colony # | <input type="checkbox"/> NO |
| ◆ Birds | <input type="checkbox"/> YES, species | <input type="checkbox"/> NO |
| ◆ Others (wild or domestic) | <input type="checkbox"/> YES, specify | <input type="checkbox"/> NO |

8.4 If no live animals are used, please specify the source of the specimens:

9.0 Biological Toxins and Hormones

9.1 Will toxins or hormones of biological origin be used? YES NO If **NO**, please proceed to Section 10.0

9.2 If YES, please name the toxin(s) or hormones(s)
Please attach information, such as a Material Safety Data Sheet, for the toxin(s) used.

9.3 What is the LD₅₀ (specify species) of the toxin or hormone

9.4 How much of the toxin or hormone is handled at one time*?

9.5 How much of the toxin or hormone is stored*?

9.6 Will any biological toxins or hormones be used in live animals? YES NO
If **YES**, Please provide details:

*For information on biosecurity requirements, please see:

http://www.uwo.ca/humanresources/docandform/docs/healthandsafety/biosafety/Biosecurity_Requirements.pdf

Additional Comments: _____

10.0 Insects

10.1 Do you use insects? YES NO - If **NO**, please proceed to Section 11.0

10.2 If YES, please give the name of the species.

10.3 What is the origin of the insect?

10.4 What is the life stage of the insect?

10.5 What is your intention? Initiate and maintain colony, give location:
 "One-time" use, give location:

10.6 Please describe the risk (if any) of escape and how this will be mitigated: _____

10.7 Do you use insects that require a permit from the CFIA permit? YES NO
If **YES**, Please attach the CFIA permit & describe any CFIA permit conditions:

11.0 Plants

- 11.1 Do you use plants? YES NO - If **NO**, please proceed to Section 12.0
- 11.2 If YES, please give the name of the species.
- 11.3 What is the origin of the plant?
- 11.4 What is the form of the plant (seed, seedling, plant, tree...)?
- 11.5 What is your intention? Grow and maintain a crop "One-time" use
- 11.6 Do you do any modifications to the plant? YES NO
If yes, please describe:
- 11.7 Please describe the risk (if any) of loss of the material from the lab and how this will be mitigated:
- 11.8 Is the CFIA permit attached? YES NO
If **YES**, Please attach the CFIA permit & describe any CFIA permit conditions:

12.0 Import Requirements

- 12.1 Will any of the above agents be imported? YES, country of origin NO
If **NO**, please proceed to Section 13.0
- 12.2 Has an Import Permit been obtained from HC for human pathogens? YES NO
- 12.3 Has an import permit been obtained from CFIA for animal or plant pathogens? YES NO
- 12.4 Has the import permit been sent to OHS? YES, please provide permit # NO

13.0 Training Requirements for Personnel Named on Form

All personnel named on the above form who will be using any of the above named agents are required to attend the following training courses given by OHS:

- ◆ Biosafety
- ◆ Laboratory and Environmental/Waste Management Safety
- ◆ WHMIS (Western or equivalent)
- ◆ Employee Health and Safety Orientation

As the Principal Investigator, I have ensured that all of the personnel named on the form who will be using any of the biological agents in Sections 1.0 to 9.0 have been trained.

An X in the check box indicates you agree with the above statement...
Enter Your Name Gordon Southam **Date:** January 5, 2012

14.0 Containment Levels

14.1 For the work described in sections 1.0 to 9.0, please indicate the highest HC or CFIA Containment Level required. 1 2 2+ 3

14.2 Has the facility been certified by OHS for this level of containment?

YES, location and date of most recent biosafety inspection:

NO, please certify

NOT REQUIRED for Level 1 containment

14.3 Please indicate permit number (not applicable for first time applicants):

15.0 Procedures to be Followed

15.1 Are additional risk reduction measures necessary beyond containment level 1, 2, 2+ or 3 measures that are unique to these agents? YES NO

If YES please describe:

15.2 Please outline what will be done if there is an exposure to the biological agents listed such as a needlestick injury or an accidental splash:

Follow procedures outlined in section 3.5 of the UWO Biosafety Guidelines and Procedures Manual.

15.3 As the Principal Investigator, I will ensure that this project will follow the Western Biosafety Guidelines and Procedures Manual for Containment Level 1 & 2 Laboratories (and the Level 3 Facilities Manual for Level 3 projects). I will ensure that UWO faculty, staff and students working in my laboratory have an up-to-date Hazard Communication Form, found at <http://www.shs.uwo.ca/workplace/workplacehealth.html>

An X in the check box indicates you agree with the above statement...

Enter Your Name Gordon Southam **Date:** January 5, 2012

15.4 Additional Comments: _____

16.0 Approvals

1) UWO Biohazards Subcommittee:

SIGNATURE: _____

Date: _____

2) Safety Officer for the University of Western Ontario

SIGNATURE: _____

Date: _____

3) Safety Officer for Institution where experiments will take place (if not UWO):

SIGNATURE: _____

Date: _____

Approval Number: _____ Expiry Date (3 years from Approval): _____

Special Conditions of Approval:

Subject: Re: Biological Agents Registry Form - Southam - EXPIRED

From: Gordon Southam <gsoutham@uwo.ca>

Date: Tue, 24 Jan 2012 16:05:16 -0500

To: Jennifer Stanley <jstanle2@uwo.ca>

E-mail

Yes!!!!

G.

On 2012-01-24, at 3:58 PM, Jennifer Stanley wrote:

Hi Dr, Southam

One "X" was missed...

5.0 Will genetic sequences from the following be involved?

- .. HIV NO YES, specify
- .. HTLV 1 or 2 or genes from any Level 1 or Level 2 pathogens NO YES, specify
- .. SV 40 Large T antigen NO YES
- .. E1A oncogene NO YES
- .. Known oncogenes NO YES, specify

Other human or animal pathogen and or their toxins NO YES, specify

Can I assume that " HTLV 1 or 2 or genes from any Level 1 or Level 2 pathogens" is NO?

Regards
Jennifer

----- Original Message -----

Subject: Re: Biological Agents Registry Form - Southam - EXPIRED

Date: Tue, 24 Jan 2012 14:25:24 -0500

From: Gordon Southam <gsoutham@uwo.ca>

To: Jennifer Stanley <jstanle2@uwo.ca>

Hi J,
Better?

<barf_Southam.doc><Attached Message Part.html>

Subject: Re: Biological Agents Registry Form - Southam - EXPIRED

From: Gordon Southam <gsoutham@uwo.ca>

Date: Tue, 24 Jan 2012 16:29:19 -0500

To: Jennifer Stanley <jstanle2@uwo.ca>

H Jennifer,

They had a contamination 'issue' with the culture and are currently trying to get it back. Strain 487 (or the others) are comparable Re. biosafety.

G.

On 2012-01-24, at 4:19 PM, Jennifer Stanley wrote:

Hi there

We were unable to find information on the UTEX website on #485.

Please clarify,

Jennifer

Gordon Southam, Professor
Director, Centre for Environment and Sustainability
The University of Western Ontario
Phone: 519-661-3197
FAX: 519-661-3198
Email: gsoutham@uwo.ca

<http://www.uwo.ca/earth/people/faculty/southam.html>

<http://www.uwo.ca/biology/Faculty/southam/index.htm>

<http://www.uwo.ca/enviro/Contact%20Information/contactusindex.html>



UTEX The Culture Collection of Algae

at The University of Texas at Austin

Algae Detail

Search Genus/Species:

- Home
- Products and Services
- Culture Search
- Culture Maintenance
- Ordering
- Workshops
- Media
- Select Collections
- Depositing Strains
- Taxonomic Considerations
- Cryopreservation of Microalgae
- New!** Genomic DNA
- Resources
- FAQ
- About Us

UTEX Number: B 487
Class: Cyanophyceae
Strain: *Plectonema boryanum*
Media: BG-11 Medium
Origin:

Description of Location:

Type Culture: No
Collection: M.T. Dyar
Isolation: M.B. Allen
Isolator Number: B.G. 16, strain 6 Lyngbya sp.
Deposition: CCAP (1952-5)
Relatives: UTEX 596; CCAP 1446/3
Also Known As: Schizothrix calcicola var. glomerulata (Baker & Bold 1970); Schizothrix calcicola var. amorphia; Lyngbya sp.
Notes: (Safferman & Morris 1963); grown in shaded light

[About UTEX](#) | [Contact UTEX](#)



The National Science
Foundation



The University of Texas at
Austin



Revenue from Cultures



Internet | Protected Mode: On

100%
4:31 PM
1/24/2012

Bacteria

ATCC® Number: **43123™** [Order this Item](#) Price: **\$255.00**

Organism: *Cupriavidus metallidurans* (Goris et al.) Vandamme and Coenye deposited as *Alcaligenes eutrophus* Davis

Designations: CH34 [CIP 107179, DSM 2839, LMG 1195]

Isolation: sedimentation pond in a zinc factory

Depositor: M Mergeay

[Biosafety Level:](#) 1

Shipped: freeze-dried

Growth Conditions: [ATCC medium3](#): Nutrient agar or nutrient broth
Temperature: 30.0°C

Permits/Forms: In addition to the [MTA](#) mentioned above, other [ATCC and/or regulatory permits](#) may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please [click here](#) for information regarding the specific requirements for shipment to your location.

Cross References: Nucleotide (GenBank) : [CP000352](#)Ralstonia metallidurans CH34, complete genome.
Nucleotide (GenBank) : [X58441](#)Ralstonia sp. CH34 insertion sequence IS1086.

Type Strain: yes [[53634](#)] [[90004](#)] [[91721](#)]

Comments: Genome sequenced strain
produces zinc-binding protein [[8236](#)]
resistant to cadmium [[804](#)]

Applications: resistant to cobalt [[804](#)]
resistant to mercury [[804](#)]
resistant to nickel [[804](#)]
resistant to zinc [[804](#)]

Related Products: purified DNA: ATCC [43123D-5](#)

Related Links ▶

[NCBI Entrez Search](#)

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[Frequently Asked Questions](#)

[Material Transfer](#)

[Agreement](#)

[Technical Support](#)

[Related Products](#)

[BioProducts](#)

[Cell, microbial and molecular genomics products for the life](#)

- [sciences](#)
- [BioServices](#)

[Bio-materials management; basic repository to complex partnership-level](#)

- [services](#)
- [BioStandards](#)

[Biological Reference Material and Consensus Standards for the life science](#)

- [community](#)

References:

Bacteria

ATCC® Number: **13541™** [Order this Item](#) Price: **\$255.00**

Organism: *Desulfovibrio desulfuricans* subsp. *desulfuricans*
(Beijerinck) Kluyster and van Niel

Designations: NCIB 9467

Isolation: soil

Depositor: NCIMB

History: ATCC <<--NCIMB<<--J. Postgate (<<-- H. Hayward)

[Biosafety Level:](#) 1

Shipped: freeze-dried

[ATCC medium 1249](#): Modified Baar's medium for sulfate reducers

Growth Conditions: [Alternate medium 42](#): Desulfovibrio medium
Temperature: 30.0°C
Duration: anaerobic

Permits/Forms: In addition to the [MTA](#) mentioned above, other [ATCC and/or regulatory permits](#) may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please [click here](#) for information regarding the specific requirements for shipment to your location.

Cross References: Nucleotide (GenBank) : [A30646](#) D.desulfuricans ATCC [13541](#) 16S rRNA region.

Comments: DNA composition [[10265](#)]
Bacteriophage induction [[10822](#)]

Applications: degrades choline [[7495](#)] [[7519](#)] [[7732](#)]
7495: Hayward HR, Stadtman TC. Anaerobic degradation of choline. 1. Fermentation of choline by an anaerobic, cytochrome-producing bacterium, *Vibrio cholonicus*, n. sp.. J. Bacteriol. 78: 557-561, 1959.
7519: Baker FD, et al. Choline fermentation by *Desulfovibrio desulfuricans*. J. Bacteriol. 84: 973-978, 1962. PubMed: [13969140](#)
7732: . . Z. Allg. Mikrobiol. 1: 142-149, 1961.

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Bacteria

ATCC® Number: **BAA-1334™** [Order this Item](#) Price: **\$205.00**

Organism: *Methanococcus voltae* Balch and Wolfe
 Designations: A3
 Isolation: salt marsh
 Depositor: WB Whitman
[Biosafety Level:](#) 1
 Shipped: frozen
 Growth Conditions: [ATCC medium 1439](#): Methanogenium medium
Atmosphere: hydrogen (H₂), 80%; carbon dioxide (CO₂), 20%
Temperature: 37.0°C
 In addition to the [MTA](#) mentioned above, other [ATCC and/or regulatory permits](#) may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please [click here](#) for information regarding the specific requirements for shipment to your location.
 Permits/Forms:
 Cross References: Nucleotide (GenBank) : [ABHB01000000](#)Methanococcus voltae A3, whole genome shotgun sequencing project.
 Comments: Genome sequencing strain
 Related Products: purified DNA: ATCC [BAA-1334D-5](#)
 92614: Keswani J, et al. Phylogeny and Taxonomy of Mesophilic Methanococcus spp. and Comparison of rRNA, DNA Hybridization, and Phenotypic Methods.. Int. J. Syst. Bacteriol. 46: 727-735, 1996.
 References: 92615: Wood Alvin G, et al. Isolation and Characterization of an Archaeobacterial Viruslike Particle from Methanococcus voltae A3.. J. Bacteriol. 171: 93-98, 1989.

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Bacteria

ATCC® Number: **8085™** [Order this Item](#)Price: **\$40.00**[Preceptrol® Culture](#)

Organism: *Acidithiobacillus thiooxidans* (Waksman and Joffe) Kelly and Wood deposited as *Thiobacillus thiooxidans* Waksman and Joffe

Designations: [IFO 13701, NCIB 9112]

Depositor: RL Starkey

[Biosafety Level:](#) 1

Shipped: test tube

Growth Conditions: [ATCC medium 125](#): Thiobacillus medium
Temperature: 26.0°C

Permits/Forms: In addition to the [MTA](#) mentioned above, other [ATCC and/or regulatory permits](#) may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please [click here](#) for information regarding the specific requirements for shipment to your location.

Cross References: Nucleotide (GenBank) : [M11541](#) Thiobacillus thiooxidans 5S ribosomal RNA.

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Bacteria

ATCC® Number: **700550™** [Order this Item](#) Price:

\$354.00 (for-profit list price)
\$295.00 (non-profit list price)
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Organism: *Shewanella oneidensis* Venkateswaran et al.
 Designations: MR-1 [CIP 106686]
 Isolation: sediment from Oneida Lake, NY, 1987
 Depositor: KH Nealson
 Biosafety Level: 1
 Shipped: freeze-dried
 Growth Conditions: **ATCC medium 18:** Trypticase soy agar
Temperature: 30°C
Atmosphere: Aerobic
 Permits/Forms: In addition to the [MTA](#) mentioned above, other [ATCC and/or regulatory permits](#) may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please [click here](#) for information regarding the specific requirements for shipment to your location.
 Cross References: Nucleotide (GenBank) : [AE014299](#)Shewanella oneidensis MR-1, complete genome.
 Nucleotide (GenBank) : [AF005251](#) 16S rDNA sequence
 Nucleotide (GenBank) : [AF005694](#) gyrB sequence
 Type Strain: yes(type strain)
 Comments: Genome sequenced strain
 Related Products: Purified DNA: ATCC [700550D](#)
 39762: Venkateswaran K, et al. Polyphasic taxonomy of the genus Shewanella and description of Shewanella oneidensis sp. nov.. Int. J. Syst. Bacteriol. 49: 705-724, 1999. PubMed: [10319494](#)
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