

**The University of Western Ontario**  
**BIOLOGICAL AGENTS REGISTRY FORM**  
 Approved Biohazards Subcommittee: October 14, 2011  
 Biosafety Website: [www.uwo.ca/humanresources/biosafety/](http://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, 1<sup>st</sup> 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](mailto: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](mailto: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/](http://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:	<b>Wankei Wan</b>
DEPARTMENT:	<b>Chemical and Biochemical Engineering</b>
ADDRESS:	<b>Thompson Engineering Building</b>
PHONE NUMBER:	<b>519-661-2111 x88440</b>
EMERGENCY PHONE NUMBER(S):	<b>519-870-8219</b>
EMAIL:	<b>wkwan@uwo.ca</b>

Location of experimental work to be carried out :

Building :	<b>Thompson Engineering Building</b>	Room(s):	<b>313</b>
Building :	<b>Thompson Engineering Building</b>	Room(s):	<b>417</b>
Building :	<b>Thompson Engineering Building</b>	Room(s):	<b>424</b>

**\*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, ORF, OCE**

GRANT TITLE(S): **Poly(vinyl alcohol) and its bacterial cellulose nanocomposite based tissue - biomaterial hybrid**  
**Manufacturing technology of a bacterial cellulose- nanosilver antimicrobial wound dressing**  
**CO2 fixation and biofuels production via a microalgae process**

UNDERGRADUATE COURSE NAME(IF APPLICABLE): **CBE 4415**

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

Name	UWO E-mail Address	Date of Biosafety Training
Darcy Small	<a href="mailto:dsmall3@uwo.ca">dsmall3@uwo.ca</a>	January 20, 2009
Asha Parekh	<a href="mailto:aparekh@uwo.ca">aparekh@uwo.ca</a>	February 15, 2011

Justin Cook	jcook57@uwo.ca	September 14, 2012
Sara Makaremi	smakarem@uwo.ca	February 23, 2011
Betty Li	yli858@uwo.ca	September 28, 2011
Nisha Sharma	nsharm45@uwo.ca	October 3, 2011
Adrianna Mika	amika@uwo.ca	May 30, 2012
Arian Gholami	agholam@uwo.ca	July 11, 2011
Manuella Brito	moliveri9@uwo.ca	June 27, 2011
Jason Bertram	jbertr4@uwo.ca	May 5, 2012
Jian Liu	jliu257@uwo.ca	March 23, 2012
Adam Golin	agolin@uwo.ca	May 24, 2012

**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.**

**Bacteria**

It is used for bacterial cellulose production research.  
They are continuously cultured in either static culture or in stirred tank bioreactor  
Original sample from ATCC is stored in LN2 freezer  
They are autoclaved at 121 C for 1 hour and disposed of as biological waste.

**Microalgae**

They are used in biofuels and nutraceuticals production research.  
Continuous cultures are maintained in flasks at room temperature.  
They are autoclaved at 121 C for 1 hour and disposed of as biological waste.

**Animal tissue**

They are used in bioprosthetic heart valves research.  
They are stored in -20 C freezer.  
They are disposed of as biological waste to be incinerated.

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

**Bacteria**

**Acetobacter xylinum**

**Research summary**

**Production of bacterial cellulose (BC) for a variety of applications**

**Kinetics of bacterial cellulose production in static, shake flask and continuous stirred tank cultures**

**Use of natural carbon sources including maple syrup and honey.**

**BC based wound dressings - regular wound dressing and antimicrobial wound dressing**

**BC based nanocomposites**

**Chemical functionalization of BC**

**Conversion of BC into nanocrystalline cellulose and their functionalization**

**Microalgae**

**The microalgae are used in several research projects**

**Research summary**

**Magnetic stimulation effect on enhancement of microalgae growth**

**Microalgae bioreactor design to maximize biomass density**

**Production of biomedical polymers**

**Production of pigments and food colorings**

**Production of health related molecules**

## 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:

**The microorganisms we are working on are non-pathogens and there is no risk involved.**

*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>Acetobacter xylinum</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	1.5	ATCC	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
<i>Chlorella vulgaris</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	3	University of Texas	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
<i>Spirulina platensis</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	3	University of Texas	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
<i>Nannochloropsis oculata</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	3	University of Texas	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
<i>Botryococcus Braunii</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	3	University of Texas	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
<i>Synura Uvella</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	3	University of Texas	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
<i>Porphyridium cruentum</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	3	University of Texas	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 2+ <input type="checkbox"/> 3
<i>Haematococcus pluvialis</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	3	University of Texas	<input checked="" 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](http://www.uwo.ca/humanresources/docandform/docs/ohs/CFIA_Ecoli_list.pdf)*

Additional Comments: \_\_\_\_\_

**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](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: \_\_\_\_\_

## 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:  
**There are two sources: 1) local abattoir; 2) Sorin Canada, Burnaby, BC.**

## 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 LD<sub>50</sub> (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](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 **USA**  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** Wankei Wan **Date:** 10/29/2012

#### 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:

**Acetobactor xylinium is a non-pathogenic bacterium from ATCC. It is a non-pathogen and has been used for vinegar production for hundreds of years. For exposure, wash with soap and water.**

**Microalgae are single cell green plants. There is no risk in their handling. For exposure, wash with soap and water.**

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 Wankei Wan Date: 10/29/2012**

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:



[ATCC Advanced Catalog Search](#) » [Product Details](#)

## Product Description

Before submitting an order you will be asked to read and accept the terms and conditions of ATCC's [Material Transfer Agreement](#) (NEW) or, in certain cases, an MTA specified by the depositing institution.

Customers in Europe, Australia, Canada, China, Hong Kong, India, Israel, Japan, Korea, Macau, Mexico, New Zealand, Singapore, and Taiwan, R.O.C. must contact a [local distributor](#) for pricing information and to place an order for ATCC cultures and products.

[Print this Page](#)

## Bacteria

ATCC® Number: 700178™ [Order this Item](#) Price: \$354.00 (for-profit list price)  
\$295.00 (non-profit list price)  
[Log In](#) with customer # to see your price

**Organism:** *Gluconoacetobacter xylinus* (Brown) Yamada et al. deposited as *Acetobacter xylinus* subsp. *sucrofermentans* Toyosaki et al.

**Designations:** JCM 9730 [BPR2001, FERM-BP 4545, LMG 18788]

**Isolation:** Plant-derived foodstuff  
Tokyo Japan

**Depositor:** JCM

**History:** ATCC <<--JCM<<--T. Tsuchida BPR2001

**Biosafety Level:** 1

**Shipped:** freeze-dried

**Growth Conditions:** [ATCC medium459](#), YGC 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.

**Type Strain:** yes(type strain of *Acetobacter xylinus* subsp. *sucrofermentans*)  
[23620] [23622]

**Comments:** Nomenclature

**Applications:** Produces cellulose  
Produces large amounts of cellulose

**References:** 23620: Kojima Y, et al. The characterization of an acetic acid bacterium useful for producing bacterial cellulose in agitation cultures: the proposal of *Acetobacter xylinum* subsp. *sucrofermentans* subsp. nov. J. Gen. Appl. Microbiol. 41: 307-314, 1995.  
23622: . Validation list no. 58. Int. J. Syst. Bacteriol. 46: 836-837, 1996.  
24333: Euzéby JP. Revised nomenclature of specific or subspecific epithets that do not agree in gender with generic names that end in -bacter. Int. J. Syst. Bacteriol. 47: 585, 1997.  
38250: . Validation list no. 64. Int. J. Syst. Bacteriol. 48: 327-328, 1998.  
38251: Yamada Y, et al. The phylogeny of acetic acid bacteria based on the partial sequences of 16S ribosomal RNA: the elevation of the subgenus *Gluconoacetobacterium* to generic level. Biosci. Biotechnol. Biochem. 61: 1244-1251, 1997. PubMed: [9301103](#)

## Related Links

▶

[NCBI Entrez Search](#)

[Make a Deposit](#)

[Frequently Asked Questions](#)

[Material Transfer Agreement New!](#)

[Technical Support](#)

[Related Products](#)

[Return to Top](#)

## Notices and Disclaimers

ATCC products are intended for laboratory research purposes only, unless noted otherwise. They are not intended for use in humans.

While ATCC uses reasonable efforts to include accurate and up-to-date information on this site, ATCC makes no warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. ATCC does not warrant that such information has been confirmed to be accurate.

All prices are listed in U.S. dollars and are subject to change without notice. A discount off the current list price will be applied to most cultures for nonprofit institutions in the United States. Cultures that are ordered as test tubes or flasks will carry an additional laboratory fee. Fees for permits, shipping, and handling may apply.

[Back to my Search](#)



# UTEX The Culture Collection of Algae

at The University of Te

## Algae Detail

Search C

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

**UTEX Number:** 2505 ★

**Class:** Chlorophyceae

**Strain:** *Haematococcus pluvialis*

**Media:** MES-volvox Medium

**Origin:**

**Description of Location:**

**Type Culture:** No

**Collection:**

**Isolation:**

**Isolator Number:**

**Deposition:** L. Provasoli (4/87)

**Relatives:**

**Also Known As:**

**Notes:** briefly motile, mostly nonmotile, orange resting stage



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



The National Science Foundation



The University of Texas at Austin



Revenue from Cultures



# 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](#)
- [New! Workshops](#)
- [Media](#)
- [Select Collections](#)
- [Depositing Strains](#)
- [Taxonomic Considerations](#)
- [Cryopreservation of Microalgae](#)
- [Genomic DNA](#)
- [Resources](#)
- [FAQ](#)
- [About Us](#)

**UTEX Number:** LB 2645  
**Class:** Chrysophyceae  
**Strain:** *Synura uvella*  
**Media:** DYIII Medium  
**Origin:** Tobacco River, Keeweenaw Co., Michigan, USA  
**Description of Location:**  
**Type Culture:** No  
**Collection:**  
**Isolation:** R.A. Andersen (6/27/81)  
**Isolator Number:**  
**Deposition:** CCMP (10/20/95)  
**Relatives:** CCMP871  
**Also Known As:**  
**Notes:**

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



The National Science Foundation



The University of Texas at Austin



Revenue from Cultures



# UTEX The Culture Collection of Algae

at The University of Texas at Austin

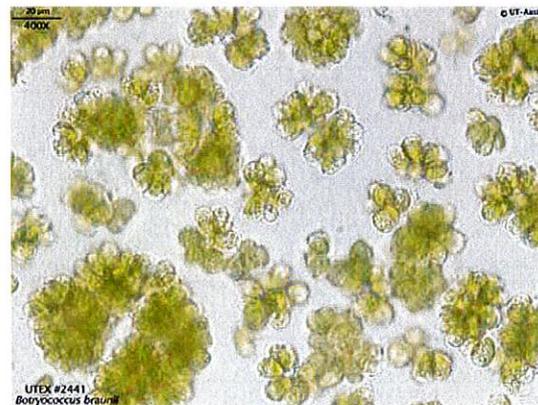
## Algae Detail

Search Genus/Species:

[GO](#)

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

**UTEX Number:** 2441  
**Class:** Chlorophyceae  
**Strain:** *Botryococcus braunii*  
**Media:** Modified Bold 3N Medium  
**Origin:** Lake Huaypo, Cuzco, Peru  
**Description of Location:**  
**Type Culture:** No  
**Collection:**  
**Isolation:** E. Hegewald (1977)  
**Isolator Number:** 1977-207  
**Deposition:** (4/86)  
**Relatives:** SAG 30.81  
**Also Known As:**  
**Notes:**



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



The National Science Foundation



The University of Texas at Austin



Revenue from Cultures



# UTEX The Culture Collection of Algae

at The University of Texas at Austin

## Algae Detail

Search Genus/Species:

GO

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

**UTEX Number:** 161

**Class:** Red Algae (Porphyridiophyceae)

**Strain:** *Porphyridium cruentum*

**Media:** Porphridium Medium

**Origin:** Basel, Switzerland

**Description of Location:** wet shaded tuff

**Type Culture:** No

**Collection:**

**Isolation:** W. Vischer

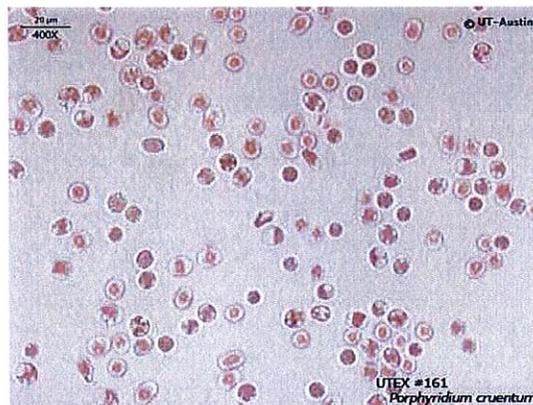
**Isolator Number:** 107

**Deposition:** CCAP (1952-5)

**Relatives:** CCAP 1380/1A aka V.107.ON 1204; SAG 1380-1a UTCC LB 81

**Also Known As:** *P. purpurem*

**Notes:** heavy metal binding complexes (Gekeler et al. 1988); somatic hybridization with UTEX 200 *Dunaliella salina* (Lee & Tan 1988); exopolymers/high drag resistance (Ramus et al. 1989); antifungal activity (Kellam et al. 1989); lipid content (Yongmanitchae & Ward 1991); (Vischer 1935, Pringsheim & Pringsheim 1956); carotene content (Kopecký et al. 2002); grown in shaded light



About UTEX | Contact UTEX



The National Science Foundation



The University of Texas at Austin



Revenue from Cultures



# UTEX The Culture Collection of Algae

at The University of Texas at Austin

## Algae Detail

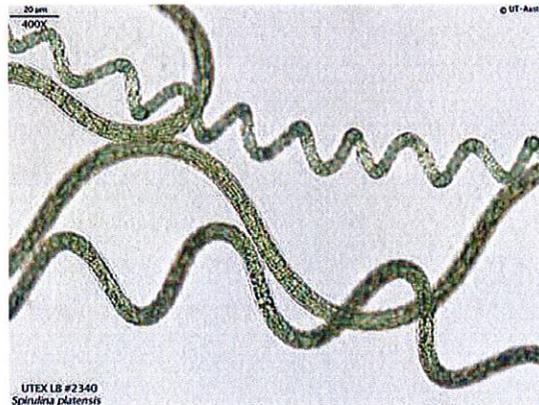
Search Genus/Species:

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

**UTEX Number:** LB 2340  
**Class:** Cyanophyceae  
**Strain:** *Spirulina platensis*  
**Media:** Spirulina Medium  
**Origin:** Natron Lake, Chad

**Description of Location:**  
**Type Culture:** No  
**Collection:**  
**Isolation:** G. Laporte (1963)  
**Isolator Number:** M132/2b  
**Deposition:** SAG  
**Relatives:** SAG B 85.79; NIVA CYA 120

**Also Known As:**  
**Notes:** gas vesicles



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



The National Science Foundation



The University of Texas at Austin



Revenue from Cultures



# 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](#)
- [New! Workshops](#)
- [Media](#)
- [Select Collections](#)
- [Depositing Strains](#)
- [Taxonomic Considerations](#)
- [Cryopreservation of Microalgae](#)
- [Genomic DNA](#)
- [Resources](#)
- [FAQ](#)
- [About Us](#)

**UTEX Number:** 397

**Class:** Chlorophyceae

**Strain:** *Chlorella kessleri*

**Media:** [Proteose Medium](#)

**Origin:**

**Description of Location:**

**Type Culture:** No

**Collection:**

**Isolation:**

**Isolator Number:** Granick's *Chlorella vulgaris*

**Deposition:** T. Punnett (11/53)

**Relatives:**

**Also Known As:** formerly *Chlorella vulgaris* (Starr & Zeikus 1987)

**Notes:** physiology/biochemistry/taxonomy (Kessler & Huss 1992); (Craig & Trelease 1937); The names of the *Chlorella* strains given in the last list of cultures (Starr & Zeikus 1987) were based primarily upon the taxonomic treatments of Kessler & Maifarth (1960), Kessler & Soeder (1962), Fott & Novakova (1969) and Kessler (1976). In 1992, Kessler & Huss revised the names of axenic UTEX cultures. Subsequently, most of the changes, but not all, were accepted and incorporated in the UTEX list. "[K&H]" tags the 1992 identifications of Kessler & Huss.

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



The National Science Foundation



The University of Texas at Austin



Revenue from Cultures



# 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](#)
- [New! Workshops](#)
- [Media](#)
- [Select Collections](#)
- [Depositing Strains](#)
- [Taxonomic Considerations](#)
- [Cryopreservation of Microalgae](#)
- [Genomic DNA](#)
- [Resources](#)
- [FAQ](#)
- [About Us](#)

**UTEX Number:** LB 2164

**Class:** Eustigmatophyceae

**Strain:** *Nannochloropsis oculata*

**Media:** [Artificial Seawater Medium](#)

**Origin:** Isle of Cumbrae, Scotland

**Description of Location:** brackish rockpool

**Type Culture:** Yes

**Collection:** (Summer 1953)

**Isolation:** M.R. Droop

**Isolator Number:** Millport 66 aka SMBA 66

**Deposition:** A.R. Loeblich III (4/77)

**Relatives:** CCAP 849/1; SAG 38.85; CCMP525 aka CCMP 66, WHOI 66

**Also Known As:** Nannochloris oculata

**Notes:** 1981 renamed (Hibberd 1981); produces highly unsaturated fatty acids [C20:5 & C22:6] (Thompson et al. 1988); (Antia et al. 1975)

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



The National Science Foundation



The University of Texas at Austin



Revenue from Cultures