

Agricultural Research Service  
Agreements Information Management System  
Statement of Work

Agreement No. 58-1931-9-001FN

Amendment No. 00

Cooperator: UNIVERSITY OF REPUBLIC, MONTEVIDEO, URUGUAY

Control No. 20989

MUTUAL AGREEMENTS:

1. See applicable Provisions on the website:  
<http://www.afm.ars.usda.gov/agreements/partnership.htm>.
2. Correspondence and documentation submitted by the Cooperator to the ADODR in reference to this agreement should cite Agreement No. 58-1931-9-001FN
3. Copies of all correspondence should be forwarded to the ADO at:

USDA, REE, ARS, AFM, EAD  
 5601 SUNNYSIDE AVE./ MS 5110  
 Room 3-2170A  
 BELTSVILLE MD 20705

Exp: 101160-002258-08

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**Objective:**

To identify novel yeasts and bacteria for potential use as biocontrol agents to manage postharvest diseases of fruits. Collaborators in Uruguay will screen native and Antarctic collections of microbes for potential use as biocontrol agents. USDA-ARS will assist in the identification by conducting genetic sequencing of conserved portions of ribosomal genes (ITS1 - 5.8 rDNA-ITS2 region and D1-D2 domain), assist and share information on mode of action studies of specific antagonists, and conduct further evaluations of identified antagonists with "high potential."

**Approach:**

Microbes will be isolated from soil and vegetation samples from Antarctica and from native vegetation and commercial fruit trees in Uruguay. Emphasis will be placed on obtaining yeast species using selective media. This work will be performed by University of the Republic, Montevideo, Uruguay. DNA obtained from isolates in pure cultures will be sent to USDA-ARS, Keameysville, WV who will perform genetic sequencing of ribosomal genes in order to assist in the taxonomic identification of the microbial isolates. Initial evaluation of selected strains for their potential as postharvest biocontrol agents will be conducted on apple and citrus fruit by the University of the Republic, Montevideo, Uruguay. USDA-ARS will assist by providing appropriate protocols for evaluation and determining the mechanism of action. USDA-ARS, Keameysville, WV and the University of the Republic, Montevideo, Uruguay will conduct in-depth assessments of "elite" antagonists identified during the preliminary evaluations.

**STATEMENT OF MUTUAL INTEREST:**

Both parties are actively engaged in independent research projects which involve developing the use of biocontrol agents to manage postharvest disease. The parties agree that meeting the objectives of this project will strengthen and enhance ongoing research within the scope of this Agreement.

**THE COOPERATOR AGREES TO:**

1. Conduct at Cooperator facilities and elsewhere as appropriate, research directed toward the identification of novel yeast and bacterial antagonists with potential as postharvest biocontrol agents.
2. Microbes will be isolated from soil and vegetation samples from Antarctica and from native vegetation and commercial fruit trees in Uruguay. Emphasis will be placed on obtaining yeast species using selective media. Activities include:
  - a. Isolate potential antagonists from soil and vegetation samples obtained from Antarctica.
  - b. Isolate potential antagonists from vegetation native to Uruguay and commercially-grown fruit trees.
  - c. Perform preliminary evaluation of selected microbe strains for their potential as postharvest biocontrol agents (on apple and citrus fruit).
3. DNA obtained from isolates in pure cultures will be sent to the SDA, ARS, Keameysville, West Virginia, United States of America research location.

**ARS AGREES TO:**

1. Conduct research on the following aspects of the project:
  - a. Conduct genetic sequencing of ribosomal genes of selected microbes in order to assist in the taxonomic identification of the microbial isolates.
  - b. Provide appropriate protocols for assessing the mechanism of action of selected antagonists.
  - c. Conduct in-depth evaluations of "elite" strains for use as postharvest biocontrol agents.

United States Department of Agriculture Extramural Agreement		Type of Research Agreement: NON FUNDED COOPERATIVE AGREEMENT	Control No. 20989
Title of Project IDENTIFICATION AND CHARACTERIZATION OF POTENTIAL POSTHARVEST ANTAGONISTS FROM URUGUAY AND ANTARCTICA		Agreement Number: 58-1931-9-001FN	Type of Action: New
		Accession No: 413496	
		Period of Agreement: 10/01/2008 thru 09/30/2010	
Agency (Name and Address) USDA, REE, ARS, AFM, EAD 5601 HUNTERSIDE AVE./ MS 5110 Rt. 1 BETHESDA MD 20705		Project Number: 1931-22000-008-01N	Authority: 7 U.S.C.3318(b)
		Agreement Total: \$0.00	Change in Agreement Total: \$0
		Accounting Distribution (Accounting Code / Amount)	
Authorized Departmental Officer's Designated Representative (Name and Address) MICHAEL E WISNIEWSKI APPALACHIAN FRUIT RESEARCH STA 2217 WILTSHIRE ROAD KEARNEYSVILLE WV 25430		Cooperator/ Recipient/ Sponsor (Name and Address) UNIVERSITY OF REPUBLIC, MONTEVIDEO, URUGUAY Department of Microbiology, Faculty of Chemistry Gra.Flores 2124. C.P. 11800 MONTEVIDEO URUGUAY	
Finance Office (Complete Mailing Address)		Designated Representative (Name and Address) for the above: RODRIGO DR. AROCENA Dean of the University Av. 18 de Julio 2274 C.P. 11100 MONTEVIDEO	

Applicable Provisions

Agreement includes the following:

- Statement of Work
- Proposal
- Sponsor's Proposal
- Budget (Form REE454)
- Budget (Form REE455)

Payment:

- HHS/ Payment Management System
- EFT/ Treasury Check
- ARS Receives Funds
- Advance Payment Authorized
- Pre-Award Costs Authorized

Applicable Provisions: Available at <http://www.afm.ars.usda.gov/agreements/partnership.htm>

- Non Assistance Coop. Agreement (7 CFR Part 550)
- Research Support Agreement (REE-452R)
- ATCA and RCA (7 CFR Part 550 and REE-22)
- Grants and ATCA (REE-453)
- Non funded Coop. Agreement (7 CFR Part 550 and REE-29)

Reporting Requirements (submit):

- ADODR
- Sponsoring Organization

Submit:

- Performance Reports
  - Quarterly
  - Semi-Annual
  - Annual
  - Final
- Financial Reports
  - Quarterly
  - Semi-Annual
  - Annual
  - Final
- Management Reports (RSA Only)
  - Monthly
  - Quarterly
  - Semi-Annual
  - Final

Other provisions:

- AD-47 - Certification Regarding Debarment, Suspension and other Responsibility Matters - Primary Covered Transactions
- AD-49 - Certification Regarding Drug-Free Workplace Requirements - Non-Individuals
- AD-650 - Certification Regarding Drug-Free Workplace Requirements - Individuals
- USDA Civil Rights Poster (AD-475A)
- REE-26 - Certification Regarding Performing Organization Type
- Certification Regarding Lobbying - Contracts, Grants, Loans and Cooperative Agreements
- Attachment A - RSA Monthly Management Reporting Template
- Comments, (see page 2)

Report of Inventions and Subcontracts via iEdison Web interface at <http://www.iEdison.gov>

For the United States Department of Agriculture:

Authorized Departmental Officer <i>Deborah L Watson</i>	Typed Name DEBORAH L WATSON	Date 08/14/08
For the Performing/ Sponsoring Organization: (Signature of persons authorized to incur contractual obligations)		
Signature <i>Dr. Rodrigo Arocena</i>	Type Name and Title Dr. Rodrigo AROCENA	Date 16 <sup>th</sup> DIC. 2008
Signature <i>Dr. Rodrigo Arocena</i>		Date
Form REE-454 01/21/04	USDA-REE	Page: 1



#### OBJETIVO:

Identificar nuevas levaduras y bacterias para su uso como agentes de control biológico de enfermedades poscosecha en frutas.

Los colaboradores de Uruguay seleccionarán microorganismos nativos y provenientes de la Antártida para su uso potencial como agentes de biocontrol.

USDA-ARS asistirá en la identificación realizando la secuenciación de las regiones (ITS1-5.8SrDNA-ITS2 y D1-D2), asistirá y brindará información sobre los estudios de modos de acción de los antagonistas específicos y llevará a cabo evaluaciones posteriores con aquellos antagonistas con "alto potencial".

#### ALCANCE:

Los microorganismos serán aislados del suelo y la vegetación de Antártida, y de la vegetación nativa y árboles frutales en producción de Uruguay. Se pondrá énfasis en obtener especies de levaduras usando medios selectivos. Este trabajo será llevado a cabo por la Universidad de la República, Montevideo, Uruguay. El ADN obtenido de cultivos puros será enviado al USDA-ARS, Kearneysville, WV, quien realizará la secuencia de los genes ribosomales para llevar a cabo la identificación taxonómica de los aislamientos. La evaluación inicial de las cepas seleccionadas y su potencial como agentes de control biológico será realizado sobre manzanas y citrus en la Universidad de la República, Montevideo, Uruguay. USDA-ARS asistirá brindando los protocolos adecuados para la evaluación y la determinación de los mecanismos de acción. WV y la Universidad de la república realizarán estudios más profundos con los microorganismos seleccionados durante las evaluaciones primarias.

#### DECLARACIÓN DE MUTUO INTERÉS:

Ambas parte están activamente involucradas en proyectos independientes que involucran el uso de agentes de biocontrol para controlar enfermedades de poscosecha. Las partes están de acuerdo en que el cumplimiento de los objetivos de este proyecto reforzará y mejorará la investigación que se está llevando a cabo en el marco de este acuerdo.

#### EL COOPERADOR SE COMPROMETE A:

1. Llevar a cabo investigación tendiente a la identificación de nuevas cepas bacterianas y de levaduras con potencial para su uso como agentes de biocontrol de enfermedades poscosecha.
  - a. Aislar potenciales antagonistas de suelo y vegetación de la Antártica
  - b. Aislar potenciales antagonistas de vegetación nativa y árboles frutales en producción en Uruguay.
  - c. Desarrollar la evolución preliminar de los microorganismos seleccionados por su potencial como agentes de biocontrol.

#### ARS SE COMPROMETE A:

1. Realizar investigación en los siguientes aspectos del proyecto:
  - a. Realizar la secuenciación de los genes ribosomales de los microorganismos seleccionados para llevar a cabo la identificación de los mismos.

- b. Proveer protocolos para determinar el mecanismos de acción de los microorganismos seleccionados.
- c. Realizar evaluaciones más estrictas de las cepas seleccionadas como agentes de biocontrol.

## ACUERDOS MUTUOS

El presupuesto acordado, Forma REE-454, está incorporado en este acuerdo. La agencia reembolsará al Cooperador por los costos en la suma de \$0.00 y contribuirá con recursos por la suma de \$0.00. Como evidencia de la contribución a este proyecto, el Cooperador contribuirá con recursos por la suma de \$0.00.

1. Ver sitio web: <http://www.afm.ars.usda.gov/agreements/partnership.htm>
2. La correspondencia y documentación que envíe el Cooperador al ADODR en referencia a este acuerdo, deberá citar Acuerdo n°...
3. Copias de toda la correspondencia deberán dirigirse a ADO en:  
USDA, ARS, NAA  
EXTRAMURAL AGREEMENTS OFFICE  
600 EAST MERMAID LANE  
WYNDMOOR PA 19038