

Mitigating the Risk:

Identifying Strategic University Partnerships for Compliance Tracking of Research Data and Publications

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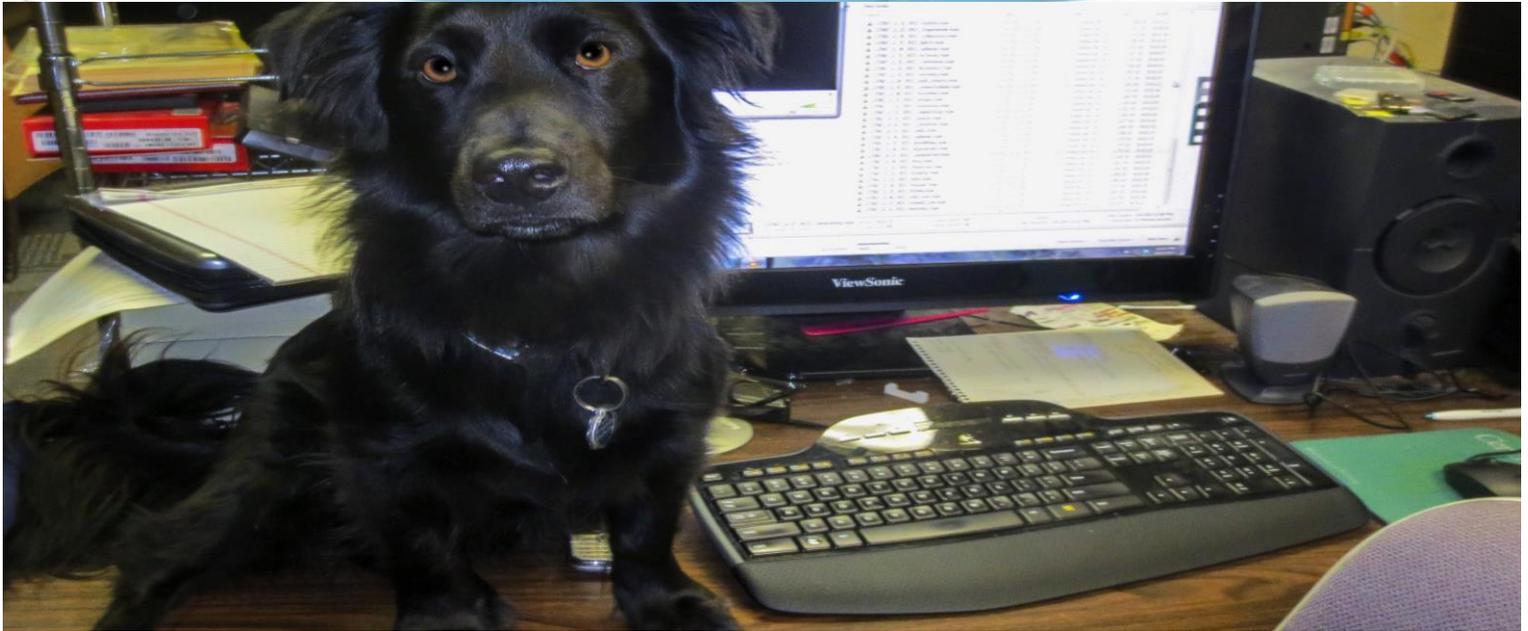
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Presented to “Data in Libraries: The Big Picture,” an International Federation of Library Associations (IFLA) satellite conference, August 10, 2016



The Problem



Lots of Data

- ◆ Researchers generate Lots of Data
- ◆ Not all researchers organize and manage their data
- ◆ Faculty *may* be required to deposit data to make it publicly accessible

It's Here!



What Keeps Our VPR Up at Night?



Can you find where your
institution's data is hiding?



How Can Libraries Help?



Librarian Skills

- ◆ Data Management Skills
 - ◆ Familiar with Data Management Plans
 - ◆ Familiar with Data Repositories
 - ◆ Familiar with Depositing Data
 - ◆ Discipline agnostic
- ◆ Cataloging Skills
 - ◆ Understand how to make things discoverable

Partnership



USU Data Task Force

- ◆ 16 members with representatives from
 - ◆ Library
 - ◆ Research Office
 - ◆ Information Technology

Working Group

- ◆ Smaller group met regularly
 - ◆ Library
 - ◆ Data Services Coordinator
 - ◆ Metadata Specialist
 - ◆ Research Office
 - ◆ Associate VPR
 - ◆ Director Research Development
 - ◆ Sponsored Programs Director
 - ◆ Programmer

Key Resources

- ◆ Kualii: an electronic award management system; USU's official record for Sponsored Programs
- ◆ DigitalCommons@USU: USU's institutional repository
- ◆ USU's Integrated Library System: Sierra

PI
DSP



Proposal Creation & Submission



Kauli captures basic elements for future Primary Master Record

PI
DSP
Lib



Award Set-up



DSP notifies PI of requirements, requests DMP; DMP and/or Primary Metadata Document sent to Library; Library creates records in Digital Commons

PI
DSP
Lib



Award Period



DSP sends PI notice every 6 months to update PMD, sends updated PMD to Library; Library verifies data, creates records

PI
DSP
Lib



Award Close Out



DSP continues to notify PI, even after closeout, until all data deposited

DMP - Guiding Document



Records the Library Creates

- ◆ Workflow calls for the Library to create
 - ◆ Digital Commons:
 - ◆ Master Record – represents the PI's Grant
 - ◆ Includes the DMP, if allowed
 - ◆ Includes the “Primary Metadata Document”
 - ◆ Dataset records
 - ◆ Metadata only
 - ◆ Metadata plus data files
 - ◆ Metadata records for publications
 - ◆ ILS:
 - ◆ Dataset Records

Master Record

Represents the grant in its entirety

Includes

DMP (available through the “Download” link)
Primary Metadata Document (available through “Additional Files”)

FEDERALLY FUNDED RESEARCH

CHARACTERIZING STRESS RESPONSES OF INDUSTRIAL STRAINS OF BIFIDOBACTERIA AND THEIR USE FOR EXTENDING THE SURVIVAL OF BIFIDOBACTERIA IN FOODS

[Download](#)

Included in
[Food Science Commons](#)

[Follow](#)

[Jeff Broadbent, Utah State University](#)

Document Type

Other

Publication Date

5-9-2016

Grant Number

USDA 2006-35503-17194

Funding Agency

USDA NIFA

Comments

Data management plan from USDA NIFA Grant 2006-35503-17194

Recommended Citation

Broadbent, Jeff, "CHARACTERIZING STRESS RESPONSES OF INDUSTRIAL STRAINS OF BIFIDOBACTERIA AND THEIR USE FOR EXTENDING THE SURVIVAL OF BIFIDOBACTERIA IN FOODS" (2016). *Federally Funded Research*. Paper 1.
http://demo.usu.bepress.com/federally_funded_research/1

Additional Files

[PMD-Test-Jeff-Rev2.xlsx](#) (30 kB)
Primary Metadata Document

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Primary Metadata Document

- ◆ Generated by Kuali and PI
- ◆ Updates requested every 6 months
- ◆ Used for
 - ◆ Setting up initial Master Record
 - ◆ Verifying and creating records for data deposits
 - ◆ Adding funding information to publication records in Digital Commons

Constant Data (From Quali)	
1st Author/Researcher listed	Jeff Broadbent
Title/Name assigned to grant	Characterizing Stress Responses of Industrial Strains of Bifidobacteria and Their Use for Extending the Survival of Bifidobacteria in Foods
Place where data originated	Logan, UT
Primary institution name	Utah State University
Project start and stop dates	Sep 1 2006-Aug 31, 2010
Granting Agency, grant award number	USDA 2006-35503-17194
Subject of research data	food products, bacteria, quality maintenance in soring and marketing food products, bifidobacterium, probiotic, stress response
Agency Progress and Final Report Location (URL)	http://www.reeis.usda.gov/web/crisprojectpages/0206831-characterizing-stress-responses-of-industrial-strains-of-bifidobacteria-and-their-use-for-extending-the-survival-of-bifidobacteria-in-foods.html
Publications	
Publication Citations (repeatable)	Oberg, T. S., Steele, J. L., Ingham, S. C., Smeianov, V. V., Briczinski, E. P., Abdalla, A., & Broadbent, J. R. (2011). Intrinsic and inducible resistance to hydrogen peroxide in Bifidobacterium species. Journal of Industrial Microbiology & Biotechnology, 38(12), 1947–1953. http://doi.org/10.1007/s10295-011-0983-y
Data Depositis (or Other Associated Data)	
Title/Name assigned to data set	Expression data from Bifidobacterium longum strains exposed to hydrogen peroxide stress
Description (100 word limit)	Stress survival tactics in bacteria utalize the up- and down-regulation of stress response genes. In bacterial that lack classical stress response genes for oxidative stress, other cellular systems can be used for cell survival. We used custom microarrays to study the regulation of genes in Bifidobacterium longum strains to oxidative stress to elucidate novel stress response mechanisms.
URL or DOI for location of dataset	http://www.ncbi.nlm.nih.gov/geo/query/acc.cgi?acc=GSE44709
Year of publication/deposit	2013
File type (ex. Txt,XML,PDF)	TXT, XML
Is a special program or software needed to access this data ? If yes what is it?	
Link to associated Journal Article (repeatable)	http://doi.org/10.1016/j.jbiotec.2015.06.405

Dataset Record

Metadata records created in
DigitalCommons

Location of datasets
verified

Transcriptional Responses of Bifidobacterium longum Strains to Hydrogen Peroxide Stress

[Taylor S. Oberg, Utah State University](#)

Follow

[Jeff R. Broadbent, Utah State University](#)

[Robert E. Ward, Utah State University](#)

[James L. Steele, University of Wisconsin-Madison](#)

[Link to Full Text](#)

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Document Type

Dataset

Publisher

GenBank

Publication Date

Spring 5-13-2013

Grant Number

USDA 2006-35503-17194

Funders

USDA Cooperative State Research, Education, and Extension Service Improving Food Quality and Value Program National Research Initiative

Related Content

Citation for associated article: Oberg, T. S., Ward, R. E., Steele, J. L., & Broadbent, J. R. (2015). Transcriptome analysis of Bifidobacterium longum strains that show a differential response to hydrogen peroxide stress. *Journal Of Biotechnology*, 21258-64. doi:10.1016/j.jbiotec.2015.06.405

Sequence data available here: [http://www.ncbi.nlm.nih.gov/nucleotide/?term=AQGL01000001:AQGL01000013\[accn\]](http://www.ncbi.nlm.nih.gov/nucleotide/?term=AQGL01000001:AQGL01000013[accn])

DOI

doi:10.1016/j.jbiotec.2015.06.405

Abstract

Bifidobacterium longum D2957, whole genome shotgun sequencing project.

Language

eng

Comments

This entry is the master record for a whole genome shotgun sequencing project and contains no sequence data. See related content for link to sequence data.

Recommended Citation

Oberg, Taylor S.; Broadbent, Jeff R.; Ward, Robert E.; and Steele, James L., "Transcriptional Responses of Bifidobacterium longum Strains to Hydrogen Peroxide Stress" (2013). *Browse all Datasets*. Paper 15. http://digitalcommons.usu.edu/all_datasets/15

Online Catalog Record

Author [Oberg, Taylor S., researcher.](#)

Title [Transcriptional Responses of Bifidobacterium longum Strains to Hydrogen Peroxide Stress / T. S. Oberg, J. R. Broadbent, R. E. Ward, J. L. Steele.](#)

Publication Info. [Logan, Utah: Utah State University, 2013.](#)

[Bethesda, Maryland: National Center for Biotechnology, PubMed Central/GenBank Database, 2013.](#)

[Connect to](#)

[Dataset deposited here: http://www.ncbi.nlm.nih.gov/nuccore/AQGL0000000](http://www.ncbi.nlm.nih.gov/nuccore/AQGL0000000)

[Additional sequence data available here: http://www.ncbi.nlm.nih.gov/nuccore/?term=AQGL01000001:AQGL01000013\[accn\]](http://www.ncbi.nlm.nih.gov/nuccore/?term=AQGL01000001:AQGL01000013[accn])

[Link to associated article: http://www.sciencedirect.com/science/article/pii/S0168165615300316](http://www.sciencedirect.com/science/article/pii/S0168165615300316)

[Article DOI: http://doi:10.1016/j.jbiotec.2015.06.405](http://doi:10.1016/j.jbiotec.2015.06.405)

Description 1 dataset.

Content computer dataset

Carrier online resource

Note Citation for associated article: Oberg, T. S., Ward, R. E., Steele, J. L., & Broadbent, J. R. (2015). Transcriptome analysis of Bifidobacterium longum strains that show a differential response to hydrogen peroxide stress. Journal Of Biotechnology, 21258-64. doi:10.1016/j.jbiotec.2015.06.405.

This entry is the master record for a whole genome shotgun sequencing project and contains no sequence data. See additional links below for access to full sequence data.

The Bifidobacterium longum D2957 whole genome shotgun (WGS) project has the project accession AQGL00000000. This version of the project (01) has the accession number AQGL01000000, and consists of sequences AQGL01000001-AQGL01000013.

Summary Bifidobacterium longum D2957, whole genome shotgun sequencing project.

Local Note [USU Data Deposits.](#)

[Department: Nutrition, Diabetics and Food Sciences.](#)

Funding [USDA Cooperative State Research, Education, and Extension Service Improving Food Quality and Value Program National Research Initiative Grant 2006-35503-17194.](#)

Subject [Genomics](#)

Added Author [Broadbent, Jeff R., researcher.](#)

[Ward, Robert E., researcher.](#)

[Steele, James L., researcher.](#)

Publications

Many will already have metadata records in DigitalCommons

Add funder information to existing records

Optional – add URL from agency repository to DigitalCommons record

If no record exists, create record with appropriate funder and agency repository information

Identification of plasmalogens in the cytoplasmic membrane of *Bifidobacterium animalis* subsp. *Lactis*

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[T. S. Oberg](#)

[R. E. Ward](#)

[J. L. Steele](#)

[Jeffery R. Broadbent](#), *Utah State University*

Follow

Document Type

Article

Journal/Book Title/Conference

Applied and Environmental Microbiology

Volume

78

Issue

3

Publisher

American Society of Microbiology

Publication Date

2012

Funding Agency

USDA 2006-35503-17194

First Page

880

Last Page

884

Library Staff and Work Flow

- ◆ Creation of “Master Record” – including adding DMP and PMD and PMD revisions
 - ◆ Student Assistant
 - ◆ Verification of data links and creation of dataset records
 - ◆ Student Assistant **
 - ◆ Creations and/or editing of publication records, including verification of deposit in agency repository
 - ◆ Student Assistant **
 - ◆ Creation of ILS records
 - ◆ Student assistant
- ◆ (** problems addressed by supervisor)

Cataloging Data

OCLC

NEW

Save File

1

Computer Files Rec stat n Entered 20160104 Replaced 20160104

Type	m	ELvl	K	Src	d	Audn		Ctrl		Lang	eng
BLvl	m	Form	o	GPub				MRec		Ctry	utu
Desc	i	File	u			DtSt	s	Dates	year		

007		c #b z #h m
040		UUS #b eng #e rda #c UUS
090		#b
049		UUSA
100	1	[Name of Researcher], #e [relator term].
245	1 0	[Name/Title assigned to data] / #c [Researcher(s)/Authors of the data].
264	1	[Place where data originated] : #b [Institution name], #c [year of data publication]
300		1 dataset.
336		computer dataset #2 rdacontent
337		computer #2 rdamedia
338		online resource #2 rdacarrier
347		[Digital file characteristics = [file type] #b [encoding format] #c [file size]
500		[Granting Agency/Grant Award # Information]
500		[Any additional information pertinent to the data/dataset that is not otherwise related in the MARC record - use readme file, if available, as a reference]
500		[Add Citation/Reference Information for associated article]
520		[Summary/Abstract]
538		[System details note = include information about the characteristics of computer files for example: mode of access, software programming language, and computer requirements - use readme file, if available, as a reference]
590		USU Data Deposits.
590		[University Department]
650	0	[Subject of research data]
700	1	[Name of Additional Researcher], #e [relator term].
856	4 0	Dataset deposited here: #u [insert url for dataset]
856	4 0	Dataset DOI: [insert doi for dataset]
856	4 2	Link to the associated journal article here: #u [insert link for associated article]
856	4 2	Article DOI: #u [insert doi for associated article - must include "http:" or the record will not validate]

Required

Recommended

MARC/Dublin Core Mappings

MARC Mapping	DC Mapping	Field Description
100	Creator	1st Author/Researcher listed
245 \$a	Title	Title/Name assigned to data set
245 \$c		All authors/researchers listed
264 \$a		Place where data originated
264 \$b		Primary institution name
264 \$c	Date	Year of publication/deposit
347 \$a		Digital characteristics - file type, refer to the file extension
347 \$b		Digital file characteristics - encoding format
347\$c	Format.Extent	Digital file characteristics - file size
500	Description	Granting Agency, grant award number
500	Description	Any additional information pertinent to the data/dataset that is not otherwise reflected in the record. Refer to the readme file, if available
500	Relation.IsReferencedBy	Citation for original publication based on this data set
538	Relation.Requires	Include information about the characteristic of the files, noting mode of access, software or computer access. Refer to the readme file, if available.
520	Description.Abstract	Include any summary information about the content of the dataset, such as an abstract.
650	Subject	Subject of research data
700	Creator	Name(s) of additional researcher
856	Description	URL for location of dataset
856	Identifier	Dataset DOI
856	Relation.IsReferencedBy	Link to associated Journal Article
856		Associated Journal Article DOI
	Type	Indicate the DCMI type (typically "Dataset")
	Format	Indicate the file format of the dataset, refer to the MIME types
	Publisher	Indicate where the data set is housed
	Coverage.Spatial	If reported, include the spatial coverage for the dataset
	Coverage.Temporal	If reported, include the date coverage for the dataset

Rewards (Benefits)



Benefits - Partnerships



Benefits for University

- ◆ Verify compliance
- ◆ Capture the location of data while it's (relatively) fresh in the mind of researchers
 - ◆ Opportunity to “rescue” data insecurely stored
- ◆ Create permanent records of data
- ◆ Increase discoverability of data
- ◆ Reporting functions help University to understand and analyze research data creation and lifecycles
- ◆ Sharing successful DMPs = better future DMPs

Benefits for Library

- ◆ Increases value on campus, strengthens partnership with Research Office
- ◆ Increases interactions with faculty and demonstrates value by securing data and helping faculty comply with DMP
- ◆ Gains opportunity to help faculty learn about better options for data deposit
- ◆ Cross campus synergistic relationships

Assessment

- ◆ Library will assess:
 - ◆ Staff time (current and projected future), costs to library
 - ◆ Stakeholder satisfaction with workflow & services
 - ◆ Change in quality of Data Management Plans (DMPs)

Summary

- ◆ Project Goal
 - ◆ Create a audit system that efficiently tracks data and publication deposits resulting from federally funded research with as little impact as possible on staffing of any group involved (PI, Research Office, Library)
 - ◆ Library – most of the work will be handled by student employees
 - ◆ Going live Fall 2016
 - ◆ Developing benchmarks to define success or identify areas for improvement

Questions?



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