

CMU 2010 FY08 Annual Report

Project Title: The CMU DNA Sequencing and Analysis Core Facility (DNA-SACF)
 Project Leader: Drs. Gregory Colores and Jennifer Schisa
 Project Number: 200725 Date of Report: June 30, 2008

Refer to your *Outcome Evaluation Worksheet* to complete the information below. Insert additional rows if needed. Rows will automatically expand as you type. You are welcome to attach additional documents to supplement – but **not** substitute for - the information provided below.

	Outcome/Milestone	Status (Complete, in Progress, or Not started)	Date Measured	What are the next steps to achieving this outcome?
1	Advertise and interview for facility supervisor position.	Complete	October 2006	Received 14 applications and interviewed 4 candidates, offer was made to top choice. Offer was accepted by Dr. Janet Miller.
2	Purchase major and supporting equipment.	Complete	December 2006	Bids were solicited and preferred providers were asked to demonstrate equipment on campus. After the demonstrations, the following equipment was deemed necessary and far superior to the competitors: Gel Logic 2200 imaging system (Kodak), GenePix 4000B (Molecular Devices),.
3	Technician begins work and is trained on equipment; facility accepts samples from limited investigators for training purposes.	Complete	November 2006	Dr. Miller began working in October, In November she started accepting samples from investigators.
4	Announce opening of facility to CMU researchers and local institutions.	Complete	November 17, 2006	An open house was scheduled and held on November 17, 2006. An informational pamphlet and invitation to visit the facilities was distributed via e-mail to over 60 colleges across Michigan.
5	Biotechnology course utilizes facility by analyzing Western blots and by learning DNA sequencing and analysis.	Complete	May 2007 and 2008	Biotechnology sections continue to utilize facility.

6	Molecular Genetics course uses facility by doing microarray experiment.	In Progress	May 2007 and 2008	Dr. Jennifer Schisa has made contact with the Genome Consortium for Active Teaching (GCAT) that will facilitate implementation of microarray technology into courses and initiate the use of our microarray scanner. The GCAT Summer Microarray Workshops have a wait list, and therefore we were not able to get arrays for 2007 or 2008, but we plan to apply again for the Workshop in 2009 and incorporate microarray experiments in Molecular Genetics following the workshop. We did implement a paper-based exercise and wet lab simulation in Spring 2007 and 2008, in Molecular Genetics, to illustrate the concept of microarrays to students.
7	Evaluate effectiveness for 4 measures at 1-year mark to provide baseline data. These measures include: 1) Grant funding by facility users; 2) Alumni giving in support of molecular biology teaching and research; 3) student participation in molecular-based research, student presentations, and students as coauthors on publications; and 4) incorporation of cutting edge techniques in student coursework.	Complete	June 2008	We have extended this effort to look at progress mid-way through year 2. See attached.
8	Consider purchasing additional equipment for DNA-SACF based on investigators' needs; write NSF MRI grant to fund additional equipment as needed.	Complete	June 2008	The original DNA sequencer was a single capillary ABI 310. With CST support we replaced this instrument with an ABI 3130 four capillary machine to allow greater quality of results and a higher throughput of samples. If our sequencing needs increase this instrument can be easily upgraded from 4 to 16 capillaries. We also purchased a Nanodrop instrument (7/07) through funds remaining on an NSF Major Research Instrumentation award.
9	Evaluate effectiveness for 4 measures described above at 3-year mark to evaluate impact of facility.	In Progress		We are in the process of acquiring data and the effectiveness will be evaluated next year.

What are your plans for sustaining support for your project beyond the CMU 2010 funding period?

With the help of our Department Chair and Dean we were able to acquire additional funds to support our sequencing facility technician, Dr. Janet Miller. Through the combination of College funds and 2010 funds we anticipate that we will be able to keep Dr. Miller supported for an additional 1.5 years beyond the initial funding period. We are still looking into mechanisms that would support a core facility technician indefinitely.

How can the ISPC assist you with those plans?

Most helpful would be to develop a mechanism to provide ongoing technician salary support.

Fiscal year	Original budget	Modified budget	Carry-forward
FY08	\$75,573	no change	\$22,018.54
FY09	\$58,562	\$24,076.20	\$20,867.00
FY10	\$0	\$18,780.00	

Total carry-forward beyond FY10 = \$42,885.54

Evaluation of effectiveness of DNA-SACF FY 2008

Outcome 7. Evaluate effectiveness for 4 measures mid-way through year 2.

1a) New external grant funding by facility users (Strategy 2 KPI, increase grant funding)

A. New grants awarded

1. Jon Kelyt	NIH R15	\$190,000
2. Michelle Steinhilb	NIH R15	\$172,000
3. Cynthia Damer	NIH R15	\$204,000
4. Janet Miller	STARS Kids	\$38,400
5. Jennfer Schisa (co-PI)	NSF	\$420,000

B. Grants pending

1. Elizabeth Alm (co-PI)	NSF
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C. Grants submitted/ not funded

1. Steve Juris	NIH R15
2. Anna Monfils	NIH R21
(co-PIs Juris, Steinhilb, Mueller (CHM))	
3. Peter Kourtev	NSF
4. Steve Gorsich	USDA

1b) Previous external grant funding

A. Users of DNA-SACF

1. David Ash (CHM)	NIH
2. Greg Colroes	NSF
3. Eric Linton	NSF
4. Jennifer Schisa	NIH
5. Brad Swanson	DNR, contracts

B. Potential future users of DNA-SACF

1. Justin Oh-Lee	NIH
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2) Alumni giving in support of molecular biology teaching and research (Strategy 2 KPI, increase alumni giving)

The Louisell family has pledged an additional 3 years of support to the Dept. of Biology, \$15,000/ yr for 3 years.

3) Student participation in molecular-based research (Strategy 4 KPI's increase engagement of undergraduates in research)

A. Student presentations at international and national and regional conferences (07-08)

1. Alm lab: 6
 2. Colores lab: 3
 7. Damer lab: 2
 7. Gorsich lab: 4
 3. Hertzler lab: 2
 7. Kourtev lab: 1
 4. Linton lab: 1
 5. Monfils lab: 4
 6. Schisa lab: 1
 7. Steinhilb lab: 1
 8. Swanson lab: 9
- Total: 34

B. Summer Scholars, completing BIO 403s, and additional presentations (07-08)

1. Summer Scholars = 5
2. BIO 403 Independent Research = 16
3. Posters at the Capitol = 4
4. SRCEE posters at CMU = 18

C. Student co-authors on publications

Jud, M., Razelun, J., Bickel, J., Czerwinski, M., and J.A. Schisa (2007). Conservation of large foci formation in arrested oocytes of Caenorhabditis nematodes Development, Genes, and Evolution 217: 221-226.

Jud, M., Czerwinski, M., Wood, M., Young, R., Bickel, J., and J.A. Schisa (2008). Large P body-like RNPs form in C. elegans oocytes in response to arrested ovulation, heat stress, and osmotic stress and are regulated by the Major Sperm Protein Pathway. Developmental Biology 318: 38-51.

Millions, D. G., and B. J. Swanson. (2007). Evaluation of habitat fragmentation on population structure in bobcats. Journal of Wildlife Management 71: 96 – 102.

Vibber, L.L., M.J. Pressler and G.M. Colores. (2007) Isolation and characterization of atrazine-degrading microorganisms from an agricultural soil. Applied Microbiology and Biotechnology 75:921-928.

4) Incorporation of cutting edge techniques in student coursework.

- A. BIO 325 Biotechnology
- B. BIO 620 Advanced biotechnology
- C. BIO 597 Microbial Ecology
- D. BIO 545 Molecular Genetics
- E. BIO 544 Developmental Biology
- F. BIO 507 Microbial Diversity

Added Value:

1) Outside users

Tim Keeton, microbiologist – Alma College
Ming Lu, psychology – CMU

2) Webpage development

<http://dnasaf.bio.cmich.edu>

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Why CMU? Visit Admissions Academic Programs Research

DNA Sequencing and Analysis Core Facility

- Home
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- Independent Research

The DNA sequencing and Analysis Facility is located in Brooks Hall at Central Michigan University. We offer quick turn around times and low cost to both on and off campus users. Housed within the facility is a state of the art sequencer, the 3130 four capillary instrument manufactured by Applied BioSystems. Reads of over 600 base pairs are standard, and we currently utilize BigDye version 3.1 chemistry to optimize read lengths.

CMU, an AA/EO institution, strongly and actively strives to increase diversity and provide equal opportunity within its community.

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