University of Louisiana at Monroe Strategic Research Priorities Report

Section I

Priority Area 1 Brief Narrative
Biomedical and Healthcare Advancements

- Biomedical and health related research to enhance health, lifespan, and rehabilitation and to prevent or reduce illness and disability.
- Aligned with FIRST Louisiana:
  - High Growth Target Industry
    - Biomedical
  - Core Industry S&T Sectors
    - Health Care

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Priority Research Area 1 Degrees:

Ph.D. Degrees

- Pharmacy
  - Medicinal Chemistry
  - Natural Products Chemistry
  - Pharmaceutics
  - Pharmacology
- Non Terminal Degrees
  - Biology
  - Exercise Sciences
  - Gerontology

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Priority 1: Success Stories
Biomedical and Healthcare Advancements

- Recent NIH funded studies include regulation of organ morphogenesis and breast cancer research, a project targeting cancer stem cells to improve cancer treatments.

- Faculty have received a recent patent for new and potent anticancer agents developed by creating carbamate ester analogues of natural tocotrienols—a natural, but rare form of vitamin E.

- Faculty developed a new drug derived from the Red Sea sponge *Hemimycale arabica.* This recently patented anti-cancer agent may help control prostate cancer metastasis.

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Priority 1: Key Institutional Collaborations

Biomedical and Healthcare Advancements

- LA universities (i.e. LSU, LSU-HSC, LSU AgCenter)
- Pennington Biomedical Research Center
- University of Stirling, Scotland
- University of Texas System
- Living Well Foundation
- Susan G. Komen Foundation
- Department of Defense
- Beta Pharmaceutical Ltd.
- GlaxoSmithKline
- Pfizer, Inc.
- Mizutani Foundation for Glycoscience

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Priority 1: Research Productivity
Biomedical and Healthcare Advancements

Productivity Measures	2012-2013
No. of Active Awards	48
Amount of External Funding (as of 5/13)	$2,104,384
Peer-reviewed Publications	34
No. National Faculty Awards, Editors, Officers	3
Undergraduate Enrollments in key disciplines	34
Undergraduate Completers in key disciplines	11
Graduate Enrollments in key disciplines	38
Graduate Completers in key disciplines	27
Others	

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Priority Area 2 Brief Narrative

Agricultural, Biological and Environmental Advancements

- Agricultural, ecological, and environmental research to maximize safe and effective use of natural resources
- Aligned with FIRST Louisiana:
  - High Growth Target Industry
    - Materials & Chemicals and Coastal Resilience
  - Core Industry S&T Sectors
    - Agriculture & Biological Products

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Priority Research Area 2

Agricultural, Biological and Environmental Advancements

PhD Degree

- Toxicology (PhD-Pharmacy)

Non Terminal Degrees

- Agribusiness
- Atmospheric Sciences
- Biology

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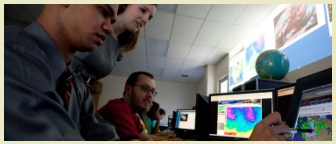
Priority 2 Success Stories

Agricultural, Biological, and Environmental Advancements

- ULM researchers study the popular chloraceteanilide herbicides, such as alachlor and metolachlor. Potential toxic effects of these chemicals are now known to include hepatotoxicity, neurotoxicity, hematoxicity and disturbances in thyroid hormone homeostasis.

- ULM researchers test natural antimicrobials to inhibit the growth of food toxins, such as *Listeria monocytogenes* on chicken skin and beef. Food toxins in the United States remain a major cause of illness and death.

- ULM faculty and graduate students have pioneered a novel way to determine the impact of pollutants on amphibian resistance to pathogens. Pollution-induced inhibition of this defense mechanism may have significant consequences on aquatic population survival.



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Priority 4 Key Institutional Collaborations
Agricultural, Biological and Environmental Advancements

- Army Corps of Engineers
- Louisiana State Cattlemen's Association
- Department of Defense
- Department of Environmental Quality
- LUMCON
- Department of Wildlife and Fisheries
- GlaxoSmithKline
- Governor's Office of Homeland Security and Emergency Preparedness
- Florida Department of Wildlife and Fisheries

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Priority 2: Research Productivity

Agricultural, Biological and Environmental Advancements

Productivity Measures	2012-2013
No. of Active Awards	15
Amount of External Funding	$530,481
Peer-reviewed Publications	8
No. National Faculty Awards, Editors, Officers	1
Undergraduate Enrollments in key disciplines	37
Undergraduate Completers in key disciplines	17
Graduate Enrollments in key disciplines	12
Graduate Completers in key disciplines	10
Others	

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Section II

Institutional and External Support for Priority Research Area

A. ULM's Identified Research Priority Areas reflect the institution's mission to generate scientific knowledge for regional and statewide economic development

B. Institutional support for Priority Research Areas must change
   - ULM should establish Centers for leading research initiatives
   - ULM should streamline and accelerate research commercialization, developing stronger incentives for faculty and scientists
   - ULM should enhance faculty seed money for highly promising pilot projects, especially those with commercial potential
   - ULM must maintain ample reserves for unanticipated needs of basic scientists

C. External funding efforts now must
   - Seek greater reliance on industrial sponsorship and support
   - Decrease reliance on state funding
   - Find possible sources of venture capital and international funding
   - Derive steady revenue streams from existing patents and inventions

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Institutional and External Support for Priority Research Area

A. Identified areas reflect the institution's mission of generating knowledge to meet regional, statewide, and national needs and turning this into statewide employment opportunities

B. The institution internal funding and structure warrant changes including

- Explore new opportunities for inter- and intra-institutional research collaboration (e.g., incubator facility, industry, faculty development grants for co-sponsored research
- Establish Centers for ULM's leading research initiatives
- Streamline and accelerate research commercialization, developing stronger incentives for faculty and scientists
- Development core research/instrumentation facilities
- Enhance faculty seed money for highly promising pilot projects

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Section III

Research & Economic Development Data

	FY 2007-08	FY 2008-09	FY 2009-10	FY 2010-11	FY 2011-12
R&D Expenditures Total	1123354	1400221	1567089	1707977	2204383
Federal	974322	1123433	1345435	1343443	1881699
Industry	149032	276788	221654	364534	322684
# invention disclosures	0	1	1	1	1
# U.S. patents filed	1	0	1	2	1
# patents issued	1	2	0	2	1
# licenses/options signed	0	1	0	1	0
Licensing income	0	0	0	0	0
# start-ups formed	0	0	0	0	0
# industry research agrmts	0	0	2	2	0
Other significant measures					