Date: 11/5/2013

MEMORANDUM

TO: All AgriLife Faculty

THROUGH: Dr. Craig Nessler, Director, Texas A&M AgriLife Research

FROM: Dr. Charles D. Johnson, Director, Genomics and Bioinformatics, Texas A&M AgriLife Research

COPY: Dr. Mark Hussey, Vice Chancellor and Dean, College of Agriculture and Life Sciences
Dr. Bill McCutchen, Executive Associate Director, Texas A&M AgriLife Research

SUBJECT: Genomics of Plant Water Use Seed Grant RFP

Genomics of Plant Water Use Seed Grant Program
FY2013-2015

All questions should be directed to Dr. Charles D. Johnson, director of Genomics and Bioinformatics Services for AgriLife Research, and associate director of the A&M System's Center for Bioinformatics and Genomic Systems Engineering. ***Charlie@ag.tamu.edu 979-862-3287***

One of the greatest challenges facing Texans over the next fifty years will be the availability of water. Water demand in Texas is projected to increase by 22 percent between 2010 and 2060. In many areas across the state Texans are already experiencing water rationing. A large percentage of Texas water resources are used in the production and maintenance of plant biomass through irrigation of residential lawns, municipal landscapes and agriculture production. Beyond protecting, preserving, and efficiently using water resources, it is critical that we understand the molecular mechanisms of plant water use and translate that basic research to develop plants adapted to thrive in our environment.

The Goal of this RFP is to provide preliminary genomic data and bioinformatics analysis for AgriLife Scientists studying plant water relations. This program is meant to broadly include research focused toward abiotic/biotic factors (heat, drought, brackish water, plant physiology, plant architecture, etc.) impacting plant water use and the genomic basis of those mechanisms or phenotypes.

The program will fund 10-15 projects. Each project shall include $10-20,000 in next generation sequencing and 6-12 months of bioinformatics analysis support through the Texas A&M's Center for Bioinformatics and Genomics Systems Engineering. The program is part of the Texas A&M Systems genomic seed grant program that includes a total of $1.3M in funding for genomics research (Link).

Background: In the spring of 2011, AgriLife Research launched a $400,000, peer reviewed genomics seed grant program. That program involved over 120 faculty, submitting over 50 proposals, of which 17 were funded. Funds were provided for both sequencing and bioinformatics analysis. The genomics seed grant program surpassed all expectation and has resulted in significant new discoveries, new technologies were developed that are now available to all TAMU faculty, and the preliminary data led to substantial new grant funding for the PIs involved. Findings from the genomics seed grant program have now supported over $13.5M in new grant submissions, $8M of which has been awarded to date. The work also resulted in a large number of publications.

In addition to meeting the current needs for preliminary data, the genomics seed grant program is unusual because it involves a direct investment in research facilities that will allow Texas A&M to grow future genomics programs. Funds were provided as service credits for next generation sequencing and bioinformatics within the AgriLife Genomics and Bioinformatics Service (Link). All faculty members that submitted proposals met with core staff, and worked collaboratively to develop an experimental plan to best utilize next generation sequencing (NGS) technology within their research programs. Based on this success, the program was expanded to include Texas A&M University, COALS/AgriLife Research, and the Texas A&M Health Science Center. We expect in the coming years that this program will be recognized as providing a foundation for genomics research across Texas A&M, Texas, and the world as our faculty tap into this technology and make discoveries that change the world.

Texas A&M AgriLife Genomics and Bioinformatics Service was established to provide access to genomic technologies and associated bioinformatics expertise across AgriLife, COALS, and the Texas A&M University System, addressing a central and pressing need for access to the latest NGS technologies and world-class expertise. The Illumina HiSeq 2500 has the ability to sequence a human genome in 24hrs (1st human genome sequenced took 13 years to complete). Core staff has built a strong collaborative network spanning the entire system, along with a growing number of private sector life science and agribusiness companies. Core scientists have worked with over 475 faculty, staff, and students drawn from over 20 departments, six colleges, and multiple agencies across the system. The core has served as a NGS and bioinformatics resource and as domain experts for over 210 grant submissions resulting in tens of millions in new funding for scientists across the system. Additionally, they have a growing national and international reputation, collaborating with scientists in over 12 different countries. (For more information).

Criteria for the Evaluation of Proposals:

Program Goal: provide faculty with preliminary next generation sequencing results for future grant submissions that will allow them to begin using or expand their work in plant genomics focused on water use.

Funds for the Texas A&M Genomics Seed Grant Program shall only be applied for next generation Illumina sequencing and bioinformatics services from the AgriLife Genomics and Bioinformatics Services; no additional funds shall be requested through this program. Proposals will be accepted from individuals or teams of researchers. Each individual proposal should have one clearly identified principal investigator (PI). PIs may request up to $20,000 in sequencing service credits. In addition, each project shall be assigned a graduate student from the Center for Bioinformatics and Genomic Systems Engineering for bioinformatics analysis as needed (6-12 months). PIs of funded projects will be expected to submit a yearly and final report, as well as take part in a multi-day symposium highlighting all the funded programs.

Who should apply?

- All faculty who are currently not using NGS technologies for the study of plant/water relations but want to start using this technology, or faculty of established NGS programs that want to expand into new areas or applications. As a seed grant program, funds should not be requested to incrementally extend current research.
- Disciple-wide and Interdisciplinary teams – This RFP is an opportunity to generate that primary data needed to facilitate multidisciplinary collaborations.
- Past seed grant participation does not exclude you from applying for this RFP.

Who is Eligible to Submit a Proposal:

Principal Investigators: Scientists who hold appointments (including joint appointments) with AgriLife Research may serve as a PI on any proposal. There should be one PI per proposal.
Co-PIs: Scientists holding appointments (including joint appointments) within the Texas A&M System are eligible to serve as Co-PIs on proposals.
Collaborators: Involvement of collaborators from other agencies and/or universities that enhance the competitiveness of a proposal is allowable.

Budget and Planning: Prior to submission, all applicants must meet with the AgriLife Director of Genomics and Bioinformatics, Dr. Charles Johnson (Charlie@ag.tamu.edu) to a) determine the technology and services that are available and how they can best be used to meet the research goals and b) obtain a quote for NGS and bioinformatics services. It is best to make arrangements with Dr. Johnson as soon as possible**.** The quote will serve as the project budget and must be submitted with each proposal. ***Proposals without service quotes will not be reviewed.***

Deadline to schedule a Planning meeting: **5:00 PM** on **December 6, 2013**. Requests for a planning meeting and service quote received after December 2 will not be eligible for this opportunity.

Deadline to Submit Proposal: Proposals are due no later than **5:00 PM on December 19, 2013**. Please submit a single combined document in PDF format to Texas A&M AgriLife Genomics and Bioinformatics Service office. (Click to submit: TxGen@ag.tamu.edu).

Review Process: Proposals will be reviewed by an *ad hoc* advisory review panel made up of faculty from Texas A&M AgriLife.

Award Notice: Successful proposals will receive notification by January 31, 2014.

All projects will begin February 2, 2014 and end August 15, 2015. Service credits and funds will no longer be available after this time. At the end of the program all funded proposals will be evaluated. Based on the performance of the seed grant program in terms of new funding, papers, etc., and funds available at the time, this program may be renewed. Assuming the program is successful and funding is available, we expect the next seed grant RFP to open October 1, 2015.

Texas A&M Genomics Seed Grant Program
FY2013-FY2015

Proposal Section not to exceed three (3) pages

Title:

Principal Investigator:

Co-Principal Investigator(s):

Collaborator(s):

Amount Requested: **$_____** *Attach quote*

Proposal Section (3 pages)

Project Objectives:

Plan of Work:
All proposals shall include a basic bioinformatics analysis plan. For those projects not requesting funds for bioinformatics support, the proposal must show adequate bioinformatics expertise (PI, CoPI or collaborator).

Research Impact:
PI must describe how these preliminary data will lead to major grant proposals, identifying target federal agency, program, and/or private sector sources of additional funding to be sought. General statements of intent to apply for major grants will disqualify applicants for a seed grant.

Selected References (1 pages)

Project Timeline

Describe role of each team member (1 page)

Appendix: 2-page biosketch for each PI, CoPI(s) and collaborators