Mississippi State University  
Notice of Proposed Sole Source Purchase

178-65

Mississippi State University anticipates purchasing the item(s) listed below as a sole source purchase. Anyone objecting to this purchase shall follow the procedures outlined below.

1. Commodity or commodities to be purchased (make, model, description):

Complete Blood Gas System (for ectotherms) (product number: SY11500, Loligo Systems, Inc.).

Description: System combines three devices and software for automated measurements of complete step-wise oxygen equilibration curves of respiratory pigments and precise pH sampling over a broad range of temperatures and gas mixtures. System includes: blood oxygen binding system, gas mixing system and a pH micrometer.

1. Explanation of the need to be fulfilled by this item(s), how is it unique from all other options, and why it is the only one that can meet the specific needs of the department:

This instrument is an integrated system that is able to generate research quality data for a range of environmental conditions under which ectotherms live. This system allows the user to manipulate temperature, gas concentrations and pH conditions and examine blood level responses in gas exchange of respiratory pigments. Further, analyses require low blood volumes and are interfaced with specially designed computer software making instrument use efficient and very beneficial for rapid sample processing and analysis. Other available systems are designed for endotherms or mammals, and are primarily marketed to the medical industry. These instruments are clinical in application, and are not made to have the versatility for a range of environmental conditions under which ectotherms survive, nor to provide research-level data quality.

This instrument facilitates a broad range of investigations in the principal investigator’s laboratory (Dr. Peter Allen, Department of Wildlife, Fisheries and Aquaculture) on ectotherms, such as fishes and crustaceans. The immediate use of the instrument will be to examine changes in channel and hybrid catfish, but possibilities are broad, and include other fishes, crustaceans, amphibians, reptiles, etc. Many other faculty in the department and across campus can use the instrument, as well as collaborators at the National Warmwater Aquaculture Center in Stoneville, MS.

Understanding of the links between environment, handling and physiological homeostasis are limited in aquaculture, and particularly for hybrid catfish, which is currently 50% of production in the catfish industry. This information is necessary for industry adaptation to environmental change, improvement of harvest practices and adoption of more intensive culture practices. The Loligo Systems instrument provides the ability to measure these types of effects. Environmental influences on homeostasis, metabolism and disease resistance will be benefited through the use of this instrument in the analysis of gas handling within the blood.

A competitive external grant has been awarded to Dr. Allen, specifically to purchase this instrument, from the US Department of Agriculture (USDA), Agriculture and Food Research Initiative (AFRI) Foundational grant (proposal# 2017-05803). The objectives of the grant cannot be met without this instrument.

1. Name of company/individual selling the item and why that source is the only possible source that can provide the required item(s):

Loligo Systems, Inc.

Toldboden 3, 2nd Floor

DK-8800

Viborg, Denmark

+45 3360 2545

[www.loligosystems.com](http://www.loligosystems.com)

This is a research instrument for use with ectotherms, other companies do not make a similar product.

1. Estimated cost of item(s) and an explanation why the amount to be expended is considered reasonable:

Estimated cost is: 41,680 Euros, which is ~ $50,000 USD, and includes estimated shipping costs

This is a unique instrument that is for use with ectotherms. Companies such as Radiometer, Inc. used to make blood gas systems for use with ectotherms, but ceased making these systems over 15 years ago presumably due to low demand. Blood gas companies such as Radiometer, Inc. manufacture instruments that are designed to measure mammalian blood at 37°C, and are not accurate for organisms that fall out of this range. There are no other companies that make a similar instrument, presumably due to low demand for research purposes only. A USDA AFRI competitive external grant has been awarded to cover the costs of this instrument.

1. Explanation of the efforts taken by the department to determine this is the only source and the efforts used to obtain the best possible price:

A number of companies have been contacted to determine if they sell similar equipment (Radiometer, Abaxis Vetscan, etc.). These companies don’t offer similar systems. Several companies manufacture medical blood gas measurement systems for use with humans or in veterinary applications, but these simply aren’t accurate for ectotherms and lack the sophistication and versatility of gas mixing, pH manipulation, associated software and overall research-grade quality of the instrument being requested for purchase. One company (Abaxis, Inc.) offers a limited system, but it is highly inaccurate for ectotherms (Harter et al. 2014; Harter et al. 2015). As noted above, Loligo Systems, Inc. is the only company to offer a complete blood gas system for use with ectotherms, and it is far superior to other products that measure a portion of what their system measures.

Harter, T. S., et al. 2015. Validation of the i-STAT system for the analysis of blood gases and acid-base status in juvenile sandbar shark. Conservation Physiology 3(1): DOI:10.1093/conphys/cov002

Harter, T. S., et al. 2014. Validation of the i-STAT system for the analysis of blood parameters in fish. Conservation Physiology 2(1): DOI: 10.1093/conphys/cou037

Any person or entity that objects and proposes that the commodity listed is not sole source and can be provided by another person or entity shall submit a written notice to:

Don Buffum, CPPO  
Director of Procurement & Contracts  
[dbuffum@procurement.msstate.edu](mailto:dbuffum@procurement.msstate.edu)  
**Subject Line must read “Sole Source Objection”**

The notice shall contain a detailed explanation of why the commodity is not a sole source procurement. Appropriate documentation shall also be submitted if applicable.

If after a review of the submitted notice and documents, MSU determines that the commodity in the proposed sole source request can be provided by another person or entity, then MSU will withdraw the sole source request publication from the procurement portal website and submit the procurement of the commodity to an advertised competitive bid or selection process.

If MSU determines after review that there is only one (1) source for the required commodity, then MSU will appeal to the Public Procurement Review Board. MSU will have the burden of proving that the commodity is only provided by one (1) source.

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