**SBIR - Solicitation No: PHS-2013-1,**

**NHLBI Topic Questions & Answers**

**SBIR Topic No. 073 - Evaluating Obstructive Sleep Apnea Dental Device Treatment Compliance**

**Question 1:** There are many oral appliances on the current market for OSA. This project seeks an add-on device for monitoring the compliance of use of oral appliances, instead of developing a new oral appliance with compliance monitoring function, am I correct?

**Answer:** *The project goal is to "Adapt therapeutic oral appliances currently used to maintain an open airway during sleep with electronic and sensor technologies to quantitatively monitor and evaluate patient adherence and the effectiveness of treatment". Proposals to develop an oral appliance treatment as opposed to integrate monitoring capabilities into an existing technology will not meet the goals of this topic.*

**Question 2:** In Phase-I or Phase-II, do we focus on designing an add-on monitoring device for one-type of oral appliance, or the add-on monitoring device should fit various types of oral appliances?

**Answer:** *The project goal is to "Adapt therapeutic oral appliances currently used to maintain an open airway during sleep with electronic and sensor technologies." Offerors may propose to develop a flexible device technology that would work with multiple devices. The studies/development necessary to achieve compatibility with multiple devices must be achieved within the stated time and budget recommendations.*

**Question 3:** Does the project seek to collect the data in real-time, or can data be stored for latter access by the researcher/physician?

**Answer:** *The goal is to develop "electronic monitoring technologies needed to develop enhanced oral devices capable of addressing regulatory requirements". Offerors must propose a method that satisfies regulatory requirements for data integrity and interpretation. Whatever method is proposed must be achieved within the stated time and budget recommendations.*

**Question 4:** Are there any referenced or recommended papers related to this topic?

**Answer:** *No*

**Question 5:** There are many oral appliances on the current market for OSA. This project seeks an add-on device for monitoring the compliance of use of oral appliances, instead of developing a new oral appliance with compliance monitoring function, am I correct?

**Answer:** *Proposals to develop an oral appliance treatment as opposed to integrating monitoring capabilities into an existing technology will not be considered responsive to this request. The invention and de novo testing of therapeutic efficacy of a new oral appliance is not a goal of this project.*

**Question 6:** In Phase-I or Phase-II, do we focus on designing an add-on monitoring device for one-type of oral appliance, or the add-on monitoring device should fit various type of oral appliance?

**Answer:** *Proposals to develop "add-on" technology may involve compatibility with one device or multiple devices. Applicants should propose the most competitive approach to achieve the goals of the project for the stated purpose of implementation in population-based biomedical research and regulatory compliance.*

**Question 6 part 2:** re. the "regulatory requirements" for the commercial transportation industry. I do not see "regulatory requirements" anywhere… .

**Answer:** *Medical Certification Requirements as Part of the commercial drivers license (CDL) is a regulatory activity of the Federal Motor Carrier Safety Administration (FMCSA) in the Department of Transportation. A selected sample of policy resources provided to the public by FMCSA are listed below. Note that FMCSA programs comprehensively consider the physical qualifications of the CDL holder, duties of the CDL Medical Examiner, and record-keeping. Many States have adopted the medical regulations found under Section 391.41(b)(5) of the FMCSRs and have determined that sleep apnea is a disqualifying condition. Reliable, high integrity, evidence of effective treatment and patient compliance with the treatment plan facilitates the development of recommendations and documentation by the CDL Medical Examiner. Applicants should propose the most competitive plan adapting therapeutic oral appliances currently used to maintain an open airway during sleep with electronic and sensor technologies to quantitatively monitor the effectiveness of treatment and patient adherence to the* treatment plan.

Selected references

<http://www.fmcsa.dot.gov/safety-security/sleep-apnea/sleep-apnea.aspx>

<http://www.fmcsa.dot.gov/rules-regulations/topics/medical/medical.htm>

<http://www.fmcsa.dot.gov/rules-regulations/administration/rulemakings/proposed/E6-19246-Med-Cert-CDL-NPRM-11-16-06.htm>

**Question 7:** Does the project seek to collect the data in real-time, or the data can be stored for latter access of the researcher/physician?

**Answer:** *Phase I activities include the development of a prototype oral appliance with an integrated capability of monitoring treatment adherence and efficacy up to 24 hours independent of external power sources and connections. Applicants should propose the most competitive approach for data access to achieve the goals of the project for the stated purpose of implementation in population-based biomedical research and regulatory compliance*.

**Question 8:** Any referenced or recommended papers related to this topic??

**Answer:** *None*

**Question 9:** My other questions dealt with specifications for the deliverable which you may or may not wish to address. For example, it seems reasonable to me that some clarification as to the phrasing "for up to 24 hours INDEPENDENT of external power sources and connections" would help designers and proposers.

**Answer:** *Applicants should propose the most competitive plan to produce a device that is capable of fulfilling regulatory requirements (documentation of treatment effectiveness and patient adherence to treatment plan) and conducting population-based effectiveness research and clinical trials of sleep disordered breathing.*

**Question10:** Finally, I believe that an important design consideration is the LENGTH of TIME that the integrated sensor works with the oral appliance. In other words, if verification of oral device appliance and efficacy is needed only once every six months (like home OSA monitoring, for example), then the deliverable sensor-system is much different than an integrated sensor used DAILY for two-three years (which clearly changes how the sensor is integrated and its robustness).

**Answer:** *Devices may be very low cost and disposable intended for “short term or single use” or higher cost and durable intended for long term use. Applicants should propose the most competitive plan using the resources available to them to produce a device suitable for fulfilling regulatory requirements (documentation of treatment effectiveness and patient adherence to treatment plan) and conducting population-based effectiveness research and clinical trials of sleep disordered breathing. Generally speaking, comparable monitoring capabilities in continuous positive airway pressure devices used for the treatment of sleep disordered breathing operate continuously.*

**SBIR Topic No. 074 - Improving Safety and Efficacy of Red Blood Cells for Transfusion**

**Question 1:** With only 3 awards anticipated, will such an endotoxin focus be competitive within the scope of the contract solicitation? In other words, how likely is it for a company new to the RBC storage field be awarded a contract?

**Answer:** *The goal of this topic is to develop new additive solutions, storage bags and/or new processes to enhance RBCs function and survival after storage and transfusion and/or reduce* ***non-infectious complications*** *associated with allogeneic RBC component transfusions.*

*The inquirer proposed to test for and develop a method to remove endotoxin from RBC products.  Endotoxin is a by-product of bacterial contamination and as such could be considered related to an infectious complication associated with transfusion.*

* *A proposal* ***would not*** *meet the goals if the endpoint is improved safety as measured solely by reduction in an infectious agent or its by-product or reduction in infectious complications to the transfusion recipient.*
* *A proposal* ***would*** *meet the goals if the endpoint is improved RBC function and/or survival and/or reduce non-infectious complications associated with allogeneic RBC component transfusions.*

**SBIR Topic No. 076 - MRI Myocardial Biopsy Forceps**

**SBIR Topic No. 077 - Passive MRI Guidewire**

**Question 1:** Both these projects are devices for MRI guided interventions; we often require to test prototypes in an MRI scanner (imaging and safety performances); For the purpose of this testing, will we have access to use the MRI scanners at the project sponsor’s labs at NHLBI? Or this is something we need to arrange for?

**Answer:** *NHLBI may be able to offer access to the MRI scanner for some in vitro testing, without charge, likely outside of regular business hours. The respondent should consider finding alternative resources for this capability as well.*

**Question 2:** Both the projects have a phase II deliverable as a IDE / 510K clearance. If its an IDE, is it an IDE from the FDA? IDE in the form of an IRB approval from NHLBI’s IRB?

**Answer:** *An IDE refers to an investigational device exemption according to US 21 CFR 812. For more information see* [*http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/HowtoMarketYourDevice/InvestigationalDeviceExemptionIDE/default.htm*](http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/HowtoMarketYourDevice/InvestigationalDeviceExemptionIDE/default.htm)*. The NHLBI investigators are willing to prepare the Clinical Investigation Protocol and Informed Consent document in cooperation with the vendor. However, the vendor is responsible for the remainder of the regulatory filing especially the Report of Prior Investigation.*

 **Question 3:** Which guidance software will be used to conduct the procedure? Will it be the Siemens IFE or the NHLBI developed software?

**Answer:** *NHLBI intends to perform the clinical protocol at the NIH Clinical Center, at charge to the vendor, based on the Phase II deliverable. NHLBI uses Siemens 1.5T MRI and guides interventional MRI procedures using the Siemens Interactive Front End (IFE).*

**Question 4:** Is this software cleared for clinical use. Or we will need to package it as a part of the IDE for phase 2?

**Answer:** *MRI is a non-significant risk clinical device. It is our opinion and expectation that MRI scanner host modifications that operate under FDA specified scanning modes (SAR limits, gradient safety) do not need special consideration as part of the Phase II IDE deliverable.*

**Question 5:** The announcement says, the sponsors lab will assist with limited number of animal expts. For both the Passive guidewire and MRI forceps, I would see 4-5 animal experiments in Phase 1 and about 10 for phase 2. Can that be supported by the sponsor’s labs.

**Answer:** *NHLBI is willing to perform approximately that number of animal experiments at no charge to the offeror.*

**Question 6**: I am new to the SBIR process, can you please educate me on how the funds are dispersed to the awardees?

**Answer:** *SBIR contracts are typically negotiated as fixed price. Subsequent to award, the contractor submits monthly invoices to NIH and payment is made vie electronic funds transfer.*

**NCATS Topic Questions & Answers**

**SBIR Topic No. 004 - Assay Development for High-Throughput Screening of Chemicals of Toxicological Concern**

**Question** 1: What does the term "Contract" mean and how is this different from a Phase I/II "Grant”.

**Answer:** *Essentially, a contract is a legally binding document in which the parties make promises to deliver a product or service in exchange for consideration (usually money.) A grant on the other hand is when one party grants funds to another party to do something, in reasonable hopes that the task can be accomplished*.

**Question** 2: Is there more language, detail, background, rationale, goals, etc, pertaining to "Assay Development for High-Throughput Screening of Chemicals of Toxicological Concern"?

**Answer:** *Best is to reference Tox21 project goals here:* [*http://www.sciencemag.org/content/319/5865/906.long*](http://www.sciencemag.org/content/319/5865/906.long) *, here:* [*http://onlinelibrary.wiley.com/doi/10.1111/j.1539-6924.2008.01168.x/abstract;jsessionid=36D5F23E9A1519A9723C0A2347E5A229.d02t03*](http://onlinelibrary.wiley.com/doi/10.1111/j.1539-6924.2008.01168.x/abstract;jsessionid=36D5F23E9A1519A9723C0A2347E5A229.d02t03)*, and here:* [*http://www.epa.gov/ncct/Tox21/*](http://www.epa.gov/ncct/Tox21/)*.*

**Question** 3: Does the term "chemicals" apply to pharmaceutical drugs, environmental toxins, etc, or is it more specific?

**Answer*:*** *Applies to both pharmaceuticals and environmental chemicals – materials above explain this.*

**Question** 4: Does the topic differentiate between primary cells vs cell lines, human vs non-human species?

**Answer:** *Primary cells, iPSC/ESC derived cells, and cell lines are all in scope. Human is preferred but rat/mouse cells also acceptable*.