



Oklahoma Center for the Advancement of Science and Technology

OKLAHOMA APPLIED RESEARCH SUPPORT (OARS)

Fiscal Year 2016 Proposal Solicitation

Application Deadline:
5:00 PM, Wednesday, March 2, 2016

Target Contract Start Date:
August 1, 2016

Oklahoma Center for the Advancement of Science and Technology
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General Information

Amendments: This solicitation may be amended by OCAST. Amendments can be found on OCAST's website under the section Funding > Solicitation. It is the responsibility of the applicant to review any such amendments and make necessary changes in the application to meet the amended solicitation requirements.

Application Submission: Applications must be submitted through the state's online grant management system, OKGrants, at <https://grants.ok.gov>. Neither additional materials nor changes will be accepted after an application is submitted. Individuals wishing to change an application that has already been submitted may have their submitted application cancelled and submit a new one prior to the application deadline.

Notifications: Individuals who are interested in receiving information about any of OCAST's programs are encouraged to sign up for notifications on the agency webpage at http://www.ok.gov/ocast/Notifications_Events/index.html. Program announcements and amendments will be sent out via e-mail notification to anyone who subscribes to the OCAST notification list.

This solicitation is available at <http://www.ok.gov/ocast/Funding/Solicitations/index.html>.

This solicitation is intended for informational purposes and reflects current planning; it does not obligate OCAST to make any specific number of awards. Awards under the Faculty and Student Intern Partnerships program are contingent upon the availability of state funds. If there is any inconsistency between the information contained in this solicitation and the terms of any resulting contract, the terms of the contract are controlling.

Failure to include all required documentation with the application at the time of submission will result in return of the application without review.

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Key Terms

Applicant Organization: The organization(s) spearheading the project, with which the PI is affiliated, and with whom OCAST goes to contract. All applicant and additional applicant organizations must be Oklahoma-based entities. Eligible applicant organizations include universities, colleges, and non-profit research foundations, as well as firms with their principal place of business in Oklahoma.

Application: The complete package of information as required in the application section of this solicitation. If any required information is not supplied at the time the application is submitted the application will be returned without review.

Contract Official: The person who has the legal authority to designate funds and resources on behalf of the applicant organization. This is the person to whom OCAST will send all award or contract correspondence. If there are multiple applicant organizations, the designated contract official will be responsible for sharing contractual information with all other parties. The contract official takes on the role of Agency Administrator in OKGrants.

Contractor: The applicant organization who has been awarded funding and has signed an OARS contract.

Co-Principal Investigator: A co-PI may be designated to help the PI with the general administration of the project, whether at the company or a collaborating organization. Co-PIs are often included on projects where interns in different locations, or on projects involving a business/university partnership.

Enterprise: A business or firm with its principal place of business in Oklahoma.

Fiscal Agent: The entity to which OCAST sends all contract payments. If more than one applicant organization is involved in a project a fiscal agent must be designated on the application. The fiscal agent takes on the role of Financial Officer in OKGrants.

In-kind Service: Payment or contribution made in the form of a good or service in lieu of cash.

Indirect Cost: Expenses that are not readily identified with a particular grant, contract, project function or activity, but are necessary for the general operation of an organization and the conduct of the activity it performs. Indirect costs include, but are not limited to, those expenditures to maintain facilities, provide utilities, acquire insurance coverage, provide computer and communications services, etc., and may be fixed or variable.

Principal Investigator: The person responsible for executing the project according to the research plan. The principal investigator takes on the role of Authorized Official in OKGrants.

Professional Services Contract: The mechanism by which OCAST awards projects. Different from grants, these contracts allow OCAST to issue payments to contractors on a reimbursement basis upon receipt of satisfactorily completed requests for payment that are submitted to the agency.

OKLAHOMA APPLIED RESEARCH SUPPORT (OARS)

FY16 PROPOSAL SOLICITATION

PROGRAM PURPOSE

The Oklahoma Applied Research Support (OARS) program provides funding to assist the research and development of innovation in Oklahoma by supporting applied research activities in existing and emerging technical areas in which the results:

1. Lead to innovation, new knowledge or technology and have a high probability of leading to commercially successful products, processes or services within a reasonable period of time;
2. Are technically sound, will produce a measurable result and have a commercial application; and
3. Have reasonable probability to enhance employment opportunities within Oklahoma

OARS awards provide a maximum of one state dollar of funding for each non-state dollar of matching funds. OARS encourages collaborative projects among Oklahoma firms, Oklahoma universities and colleges, and Oklahoma non-profit research organizations.

These awards assist Oklahoma businesses in developing their research and development capability and expanding the capacity for technological innovations. These awards also facilitate technology transfer and research involving Oklahoma colleges, universities, and businesses and commercialization activities that benefit the state of Oklahoma.

AWARD TYPES

Proof-of-Concept Applied Research and Development

Proof-of-Concept Applied Research awards support early stage applied research and development projects such as:

1. Proof-of-concept research and technical development projects
2. Exploratory development
3. Product definition

Proof-of-concept awards are capped at \$45,000 per year for a two-year award period.

Accelerated Applied Research and Development

Accelerated Applied Research and Development awards support **later stage applied research and development** projects for which the product is defined, the market opportunity is well assessed, commercial opportunities are clearly identified, and a commercial entity is defined. The maximum amount of OCAST funds for an accelerated project is capped at \$300,000 and can be scheduled over one, two, or three years.

Projects that focus upon the following are ineligible for OARS funding:

1. Market surveys
2. Training or technical assistance for business firms
3. Research or research activities that create fundamental or basic information but lack the potential for reasonably short-term commercialization.

APPLICANT ELIGIBILITY

Eligible applicants for OARS funding include:

1. Oklahoma public or private colleges and universities
2. Oklahoma non-profit research organizations
3. Oklahoma enterprises of special importance to the state's economy.

Any applicant organization listed on an application must fall into one of the categories above and must adhere to the following guidelines:

1. At the time of application submission, a business enterprise must be able to demonstrate active conduct of a trade or business, including any activity that is regularly carried on for the production of income from the sale of goods or the performance of services.
2. Business structure or entity must not change from time of application submission and project start date (e.g., changing the structure from a sole proprietor to a partnership or corporation).
3. Any change in the physical location of primary business activity associated with the proposal from time of application submission to project start date must be well justified.

PRINCIPAL INVESTIGATOR

The principal investigator (PI) and co-investigator(s) are defined as the person(s) who proposes research projects and are primarily responsible for the execution of the proposed project and are employed by or affiliated with an eligible applicant organization. If the original PI ceases to head the project between submission of the application and the initial contract period, the project will be ineligible for review or funding.

Any PI who has been previously funded through an OCAST program and has a delinquent progress report or has not responded to other OCAST requests for information such as impact survey data may not be eligible to submit an application for new project funding. Any PI who has a delinquent progress report at the time of review will not be eligible for review. Any PI with a delinquent progress report at the time of award notification will not receive a contract until the progress report has been submitted. In the latter case, if the delinquent report has not been submitted within 60 days of the award date, OCAST will void the award and return the money to the Oklahoma Applied Research Support program.

REVIEW PROCESS

All OARS funding applications are reviewed and ranked for funding by peer reviewers, a majority of whom reside outside the state of Oklahoma. All reviewers are approved by the

Oklahoma Applied Research Committee. Reviewer expertise must include significant applied research and development experience in an industrial or academic setting.

Reviewer recommendations are presented to the Oklahoma Science & Technology Research & Development (OSTRaD) Board, OCAST's governing board, which grants final approval for funding. The budget amount for each project recommended for funding is established by the reviewers and cannot be increased after the application deadline.

EVALUATION CRITERIA

Proposals, including the budgets, are evaluated based on the value of the project's technical merit, research plans, and potential for economic development. Budgets must be accurate and must only request funds sufficient to achieve the research project goals.

Proof-of-concept proposal evaluations are weighted 30 percent for the project's potential for positive impact on Oklahoma's economy and 70 percent for the project's technical merit and the research team's ability to achieve the goals of the project. **Accelerated** proposal evaluations are weighted evenly—50 percent—for economic impact and technical merit and the research team's capabilities.

Peer reviewers evaluate all applications according to the following general criteria:

Technical Merit of the Research and Ability to Perform the Research

1. Creativity and innovativeness of the proposed research.
2. Degree to which state-of-the-art techniques and processes are to be used.
3. Quality of the research plan.
4. Probability of success of the research plan design.
5. Competence of investigator(s) as measured by training and research experience.
6. Competence of support personnel as measured by training and research experience.
7. Adequacy of facilities to support achieving the goals of the project.
8. Adequacy of equipment to support achieving the goals of the project.
9. Commitment of the applicant organization(s) as evidenced by resources dedicated to the project
10. Appropriateness of budget as it relates to achieving project goals.

Potential for Economic Impact

1. Potential for leading to a commercially successful product, process or service within two (2) years of project completion.
2. Potential for leading to a commercially successful product, process or service within five (5) years of project completion
3. Status of Intellectual Properties Agreement.
4. Commitment of financial resources to successfully bring product to market.
5. Availability of a viable commercialization strategy that can successfully bring the product to market.
6. National/international market growth potential.
7. Potential for creating jobs in Oklahoma, considering both the probability and number.
8. Potential of short-term impact (within 5 years of project completion) on the Oklahoma economy.
9. Potential for creating jobs that will enhance the technology base in Oklahoma.

MATCHING REQUIREMENTS

In order to qualify for funding in the OARS program, the applicant must verify that not less than fifty percent (50%) of the total direct cost of the proposed project will be provided by sources other than OCAST and other than state-appropriated money. Matching funds received from federal or private grants or contracts shall be allowed throughout the life of the contract. Chart 1 illustrates what types of matching funds applicant organizations may use.

Chart 1. Types of Matching Funds Available for use by Applicant Organizations

	Public Institutions of Higher Education	Private Institutions of Higher Education	Nonprofit Research Foundations	Private Enterprises
Equipment	Yes, if not purchased with state funds	Yes, if not purchased with state funds	Yes, if not purchased with state funds	No
Salary	Yes, if salary does not originate from state funds	Yes	Yes	Yes
In-Kind Services	Yes, if provided by a non-state appropriated third party	Yes	Yes	No, if provided by the private enterprise; Yes, if provided by a third party
Indirect Costs	No	Yes; limited to no more than 50% of the total required match	Yes; limited to no more than 50% of the total required match	Yes; limited to no more than 50% of the total required match
Non-state Grants or Contracts	Yes	Yes	Yes	Yes
Cash	Yes	Yes	Yes	Yes

Using Equipment as Match

Only institutions of higher education and non-profit research foundations may use equipment already owned to satisfy all or part of their matching requirements, provided the required documentation has been submitted. Whether the full value of the equipment or a lesser amount is taken into account for purposes of the match will depend upon (1) the useful life of the equipment relative to the term of the project, (2) the relevance and intensity of the proposed use of the equipment in the project, and (3) the predicted residual value of the equipment at the end of the project. The value of the equipment to be used as match will be determined by a calculation on the Equipment Used as Match page in OKGrants.

PATENT & LICENSING STATEMENT

Each application must include a description of how the patent and licensing agreements will be effectuated between co-investigators, applicant organizations, and sponsoring entities. A patent and licensing statement to which the above parties agree shall be submitted prior to award of contract. The purpose is to assure OCAST that the collaborating parties have adequately addressed the ownership and disposition of patents, royalties and all other intellectual property rights related to the proposed research project.

When a proposal is approved for funding, the awardee has 90 days from the date of the award to submit certification of an executed patent and licensing statement to which all co-investigators, applicant organizations and sponsoring entities agree.

SUBMISSION REQUIREMENTS

Online Applications

Investigators for the FY15 OARS funding cycle will use OKGrants to submit their applications electronically.

The application deadline for the FY16 OARS funding cycle is 5 p.m., Wednesday, March 2, 2016. Investigators may initiate their applications at any time prior to the deadline. OKGrants will not allow users to submit applications after 5 p.m. CT on the deadline.

No applications or supplemental materials will be accepted after the submission deadline except at the request of OCAST. OCAST may return without review applications that are judged to be incomplete or inappropriately completed. Please note that an application has not been submitted until confirmation is received. There are several ways to confirm successful submission of your application: by checking the status of the application in OKGrants, by receiving an e-mail from OKGrants indicating that your application was submitted, or by contacting OCAST to confirm that your submission was successful. **When in doubt, please email laura.sohl-smith@ocast.ok.gov to confirm that your application was received. OCAST strongly encourages applicants to submit their applications well ahead of the 5 p.m. deadline.**

There is no limit on the number of OARS applications that may be submitted by an individual investigator during a funding cycle.

Forms and instructions can be found online at <https://grants.ok.gov>. Potential applicants must register as a user in the system prior to filling out the required forms. OCAST will hold a workshop to help new users navigate the OKGrants system. For more information, please visit the OCAST website at <http://www.ok.gov/ocast/>.

Project Numbers

Project numbers are automatically assigned as soon as a user begins an application. Research administrators and contract officials are sent an e-mail each time a PI initiates a new application. The PI's name and project number must be placed in the top right corner of each required attachments page that is submitted as part of an application.

RESUBMISSIONS

Resubmitted applications have generally fared well in OARS reviews. However, it is important that resubmissions include all required materials. A resubmission is a new proposal and includes the information below. A PI resubmitting an application must:

1. Indicate that the application is a resubmission on the OKGrants Project Information page and include any previously assigned project number(s).
2. Prepare a separate appendix that includes:
 - a. A letter responding to the reviewers' comments from the previous review and noting all changes in the research plan

- b. The most recent reviews of the previous application

RELEASE OF INFORMATION

OCAST is subject to the Open Meetings Act and the Open Records Act. However, information submitted to or compiled by OCAST with respect to marketing plans, financial statements, trade secrets, research concepts, methods or products or any other proprietary information is confidential. OCAST may use the contents from the application abstracts and executive summaries from progress reports for publication without obtaining permission from the applicant or applicant organization.

AWARD NOTIFICATION

Upon approval by the OSTRaD Board, applicants will be notified of funding decisions by an e-mail from OKGrants. Please ensure that OKGrants is added to your safe sender list. As soon as the award notification is received, evaluations are available to view within OKGrants.

CONTRACT INFORMATION

Oklahoma statute requires that the mechanism for funding OARS projects be a professional services contract between OCAST and the applicant organization(s). The contractor is the applicant organization(s) that: (1) employs or is affiliated with the PI or co-investigators, (2) provides research services and/or facilities for the funded project, and (3) executes the contract. If there is any inconsistency between the information contained in this solicitation and the terms of any resulting contract, the terms of the contract are controlling.

If more than one applicant organization is involved, all applicant organizations shall be signatories to the contract; one of the parties shall be designated as the fiscal agent to receive and account for all funds. The contract shall include commitments on the part of the contractor(s) to perform the activities described in the application and funded by OCAST. However, the obligations of each party to a contract shall be limited to that portion of the contract they have committed to perform.

Any applicant organization or principal investigator who, in OCAST's judgment, has failed to correct a material breach of contract previously awarded under any of OCAST programs will not be eligible to be awarded a new funding contract.

If a PI under an OARS contract becomes unable to perform the proposed research, the applicant organization must inform OCAST within 10 days. The contractor shall inform OCAST within 10 days of the occurrence of any of the following:

1. The official notification of resignation by the principal investigator or co-investigator as an employee of one of the parties to the contract.
2. The official decision to terminate the principal investigator or co-investigator as an employee of one of the parties to the contract.
3. Inability of the principal investigator or co-investigator to perform the research due to disability or other condition(s).
4. Any occurrence which the contractor or agent determines will affect the successful

completion of the research project.

5. The majority of the research is not performed in Oklahoma.
6. Receipt of notification of award of concurrent funding by the principal investigator or co-investigator, which is not part of the approved matching monies requirement, to support any portion(s) of the research which is supported by OCAST funds.

Any of the conditions in Items 1-6 above may result in the termination of the contract at the discretion of OCAST. If the PI is subsequently employed by another eligible applicant organization in the state of Oklahoma that agrees to support the research project, OCAST may consider issuing a new contract negotiated between OCAST and the new organization. If a PI cannot perform on a contract, the applicant organization may request that OCAST consider continuing the contract with a new PI.

The contractor shall be responsible for the following:

1. Assuring and documenting compliance with state and federal requirements pertaining to human subjects, vertebrate animals, recombinant DNA, radioactive substances, narcotics and dangerous drugs and/or biological hazards, which require special approval or license, before issuing a subcontract for any portion of the project funded by OCAST.
2. Maintaining records and accounts that properly document and account for the source and application of all project funds. All such records and accounts shall be made available on demand by OCAST for inspection and used in carrying out its responsibilities for administration of the funds.
3. Providing specified documentation of matching expenditures to OCAST with each request for payment. At no time shall the amount invoiced from OCAST exceed the amount of documented matching funds expended. Failure to document the required matching amount could result in a decrease in the OCAST funding amount and/or a termination of all subsequent OCAST funding.
4. Complying with the audit policy of OCAST and, as OCAST deems necessary, permitting authorized representatives of OCAST and the state of Oklahoma full access and the right to fully examine, all project records and accounts. The contractor or designated fiscal agent shall provide OCAST timely copies of reports on any audits that include funds received from OCAST. The contractor, at OCAST's request, shall provide OCAST with an independent audit report of all funds expended on each OCAST contract in which the amount of OCAST funds are awarded. In the event an audit results in the determination that the contractor or designated fiscal agent has expended contract funds on unallowable costs, the contractor or designated fiscal agent shall reimburse OCAST in full for all such costs.

POST AWARD MEETING

OCAST will host an optional contract orientation meeting prior to the start of the first year contract for projects awarded during each funding cycle. The purpose of the meeting is to explain the mechanism by which projects will be funded and contract requirements (such as progress report due dates, allowable expenses, budget or contract modifications, request for payment procedures, records retention, etc.) to the award recipient. The principal investigator, contract official, and fiscal agent will be invited to attend. The contract official will be notified of the meeting day and time subsequent to receiving the award letter.

PERFORMANCE EVALUATION

Acceptance of an OARS professional service contract obligates the PI to submit an annual progress report 60 days prior to the ending date of each contract period. For one-year projects or the final year of multiple-year projects, a final report must be submitted no later than 30 days after the end of the final contract period. In addition to the final progress report that is due 30 days after the end of the contract date, one-year awards in the amount of \$200,000 or more are required to submit quarterly progress reports at the end of three, six and nine months from the contract start date. Failure to meet these deadlines may result in a lapse in funding or termination of an existing contract or, in the case of the final report, result in nonpayment of the final request for payment and ineligibility for future OCAST funding.

In most instances, the original reviewers of the application evaluate the annual progress reports to gauge project performance. Continued funding is contingent upon satisfactory annual performance evaluations that verify the PI is complying with the terms of the contracts and achieving project objectives.

PROJECT REPORTING

Evaluation of the OARS program requires the periodic collection of information from investigators and contractors during and beyond the contract period(s). The PI and contractor must provide OCAST with the requested information during and after the funding period. This information may include, but is not limited to, impact survey information, site visits and reverse site visits where the PI may be required to present his or her OARS funded project related information to OCAST staff, the OSTRaD Board, members of the Oklahoma legislature and other interested parties.

AUDITS

OCAST will perform compliance reviews and audits of contracts executed for all funding programs including the OARS program. The acceptance of an OARS professional research contract obligates the contractor to permit authorized representatives of OCAST and the state of Oklahoma to have full access to, and the right to fully examine, all such records and documentation pertaining to the project.

REQUIRED ATTACHMENTS CHECKLIST

Applicants are encouraged to print this page for ease of reference as they prepare their required attachments for upload into OKGrants.

FORMATTING

- A. File size: 20 MB per document
- B. File type: Microsoft Word or Adobe PDF
- C. Font: Times New Roman, Arial, Georgia, Palatino Linotype
- D. Font size: No smaller than 10-point
- E. Margins: No smaller than 0.5”
- F. Page headers: Project number and PI last name in upper right corner
- G. Page limits: Inclusive of all text as well as inserted graphs, charts, and figures
 - 1. Research Plan: 15 pages
 - 2. Budget Justification: 4 pages
 - 3. Principal Investigator and Key Personnel Biographical Information: 2 pages per professional
 - 4. Current OCAST Support: 2 pages per project, if applicable
 - 5. Previous OCAST Support: 2 pages per project, if applicable
 - 6. Other Support: 2 pages per professional, if applicable
 - 7. Letter of Commitment from Applicant Organization(s): 2 pages per letter
 - 8. Letters of Recommendation and Support: 3 one-page letters, if applicable
 - 9. Facilities and Resources: 2 pages per facility
 - 10. Company Profiles: 2 pages per company
 - 11. Intellectual Property Relationships and Protection: 2 pages
 - 12. Commercialization Development Strategy: Proof-of-Concept, 4 pages; Accelerated, 10 pages
 - 13. Economic Impact Statement: 4 pages maximum
 - 14. Matching Funds: 1 page
 - 15. Assessment of the Potential for Attracting Future Funding: 2 pages
 - 16. Collaborative Relationships: 1 page statement of work detailing all collaborators; 1 letter per collaborator, if applicable
 - 17. Literature Cited: none
 - 18. Contract Documents: none
 - 19. Resubmissions: none
- H. Page numbers: Required for the Research Plan; in lower right corner
- I. Page size: 8.5” by 11”

CONTENT

- A. Presentation: Use order and headers indicated in the Required Attachments Guidelines
- B. Sections: All sections must be acknowledged; indicate sections that are not applicable as “Not applicable”
- C. Extraneous materials: Three-dimensional materials, videos, and links to external sites other than for citations are not allowed
- D. Citations: Use an acceptable format for your research discipline

REQUIRED ATTACHMENTS GUIDELINES

Upload the items below on the Required Attachments page in OKGrants as the following separate files: Research Plan, Additional Required Attachments, and Resubmissions. **The maximum file size for each upload is 20 MB.**

RESEARCH PLAN

1. Research Plan (15 pages maximum)

- A. Objectives for the proposed project:
 - a. State concisely the intention of the project or the hypothesis to be tested.
- B. Significance of the research:
 - a. Discuss the scientific background of the proposed project.
 - b. Evaluate existing knowledge in this research area and identify the gaps that this project intends to fill.
 - c. State the importance of this research by relating its aims to longer-term objectives.
 - d. Identify related projects and demonstrate that this effort neither repeats previous studies nor infringes upon intellectual property rights granted to others.
- C. Preliminary and related studies:
 - a. Describe prior research by the investigator(s) that lead to formulating the project.
 - b. Include any additional information that will assist reviewers in assessing the competence of the investigator(s) who will perform the project.
- D. Research methodology and timetable:
 - a. Describe the research design and the procedure to accomplish the objectives of this project. Include a discussion of alternate paths to attain the objectives if the initial procedure fails. Relate the discussion to the timetable in section D(f) below.
 - b. Describe the sequence of the investigation within a calendar framework.
 - c. Describe the means by which the data will be analyzed and interpreted.
 - d. Discuss the methodologies and any potential limitations of the proposed procedures and alternative approaches that may be used to reach the objectives of this proposal.
 - e. Note any procedures that may be dangerous to personnel and the precautions that will be used to mitigate such risks.
 - f. Prepare a timetable to illustrate research goals and alternate paths to achieving those goals, should the initial methodology fail. Include key milestones and indicators of success related to Sections D(a), D(b) and D(c) above. The timetable should be prepared in a style that will allow it to be used in the annual and final reports to show project progress as well as the work plan for subsequent years. The timetable should include such activity as report writing and equipment purchasing schedules.

2. Literature Cited

Only relevant and important citations should be compiled. Do not scatter citations throughout the text. Number the references in order of appearance and provide the complete citations, which correspond to the numbers, in a list at the end of the research plan section. Each citation must include the title of the journal article or specific book chapter. While disciplines vary in the accepted style, the citation must be sufficient for a reviewer to locate the cited information with little searching. Seldom would a book, without a specific page reference, be a suitable citation.

ADDITIONAL REQUIRED ATTACHMENTS

These sections must be grouped together in one file uploaded under the Additional Required Attachments field in OKGrants.

3. Budget Justification (four pages maximum)

Carefully prepare a detailed explanation of the budget. The budget justification section plays an important role in the review process. Award amounts are established by the reviewers and cannot be modified after the submission deadline. Excessive or unexplained costs may be eliminated by reviewers. Request only the amount necessary to conduct the research. Complete the required items for each year of requested funding. If obvious budget items are omitted, the PI should provide information in the Budget Justification regarding the alternative resources available. A list of commonly seen unallowable costs is available on the OCAST website.

Complete the required budget information for each year of the project. Account for all project funds – both funds requested from OCAST and the proposed matching funds. All amounts should be in whole dollars. The approved budget amount is established by the reviewers and cannot be increased after the date of the award. If obvious budget items are omitted, provide information regarding the alternative resources available to provide for these items in the budget justification.

Personnel – List the names and positions of all personnel involved in the project, both professional and nonprofessional, whether or not salaries are requested. For each participant estimate the percentage of time (in hours) per week of effort on this project. In computing estimated salary charges to an OARS contract, an individual's base salary must represent the total authorized annual compensation that an applicant organization would be prepared to pay for a specified work period. The base salary must exclude income that an individual may be permitted to earn outside of full-time duties to the applicant organization and may not be augmented or supplemented by funds from a professional service contract. Add and include fringe benefits to the extent that they are treated consistently by the applicant organization as a direct cost to all sponsors. Explain fringe benefit calculation.

When an investigator is employed by or affiliated with an institution of higher education, funds awarded from the Applied Research fund may cover either summer salary or release time during the academic year. Salaries or stipends for research professionals including technicians, postdoctoral associates, students or other staff important to the success of the research effort are allowable personnel costs. Expenses associated with ancillary personnel, such as marketing, sales, accounting, clerical and custodial staffs, are neither directly related to research performance nor allowable budget items.

Travel – Describe the purpose of any travel, giving the number of trips and the professional activities involved, the destination(s) and the number of individuals for whom funds are requested. The amount requested for travel must be fully explained in the Budget Justification. The amount of travel approved by the reviewers cannot be increased after the date of the OARS award.

Supplies – Itemize supplies such as glassware, chemicals or animals in separate categories. If animals are involved, state how many are to be used, their unit purchase cost and their unit care cost.

Equipment – List separately each item of equipment with a unit acquisition cost of \$500 or more. When requesting funds to purchase items of equipment that appear to duplicate, or to be equivalent to, items listed under facilities, instrumentation and resources, carefully justify the reasons for the duplication. In most cases, reviewers have denied requests for computers not dedicated to the project. Computers must be used for research activities rather than for word processing or other common uses. Provide sufficient documentation for the reviewers to recognize the importance of the computers to the research effort. The amount of funds (OCAST + match) budgeted for equipment must be justified in terms of the amount of usage on the project and the residual value of the equipment after the OCAST project. Reviewers carefully question large equipment requests with OCAST matching monies when a large residual value of the equipment would occur at the end of the project.

For eligible equipment that will be used as match, include the following:

1. Verification that the applicant organization(s) has received the equipment (for both purchased and donated items);
2. Verification that it has been used for nothing more than testing to ensure quality control or for demonstration purposes by a wholesaler or retailer prior to its being received by the applicant(s) (if donated);
3. Verification of (1) the fair market value, if a gift, or (2) the amount paid for the equipment by the applicant organization(s), as verified by invoice (74 O.S., Section 5060.19) (if purchased).

Contractual Services – Itemize and provide detailed description if the total amount is over \$2,000.

Patient Care Costs – Include inpatient and outpatient charges only if they are an integral part of the research supported by a professional service contract. Provide the names of the hospitals to be used and the amounts requested for each. Indicate in detail the basis for estimating costs in this category, including the number of patient days, estimated cost per day and the cost per test or treatment. Patient care costs do not include travel and per diem cost; request these costs in the Other Expense category.

Alterations and Renovations – Do not include cost of construction. If the costs of essential alterations of facilities necessary for this research project are requested, itemize such costs by category and justify each fully. When applicable, indicate the square footage involved, giving the basis of the costs, such as an architect's or contractor's detailed estimate. When possible, submit a line drawing of the alterations being proposed.

Other Expenses – Itemize other expenses, such as publication costs, page charges or books by category and unit cost. Itemize and justify such items as patient travel and per diem costs, donor fees, rentals, leases or computer costs. Reimbursement is allowable for personal expenses incurred by human subjects participating in the project, including travel with an escort if required. This reimbursement is applicable for all classes of

research subjects, including inpatients, outpatients, donors and normal volunteers regardless of employment status.

OCAST cannot pay indirect costs for applicants or subcontractors. If an organization requires direct cost reimbursement for project specific utility or compliance costs, these should appear as line items in the budget along with both the method of calculation and an explanation for their inclusion.

4. *Principal Investigator and Key Personnel Biographical Information* (two pages maximum for each professional)

Provide the following information for key professional personnel involved in the project, beginning with the principal investigator:

- A. Name
- B. Title
- C. Education. Provide institution and location, the year the degree(s) was conferred, and field of study for baccalaureate through postdoctoral education, beginning with the most recent.
- D. Research and professional experience. Beginning with the present position, list in chronological order previous employment, experience and honors. List in chronological order beginning with the most recent, the titles and complete references to recent representative publications, especially those most pertinent to this application.

5. *Current OCAST Support* (two pages maximum per project, if applicable)

- A. Current recipients of OCAST funding must include a listing of the support by the project number, the type of support (OARS Proof-of-Concept, OARS Accelerated, Intern Partnerships, Health Research, SBIR/STTR, Plant Science, Nanotechnology Applications, Alliance, TBFP, etc.), the number of years approved and the total amount of funding.
- B. Give the date of the last annual progress report and summarize the progress since the report.
- C. Describe any product, process or service that has been (or will be) commercialized.
- D. Provide business and financial impacts produced and expected, such as sales, capital investments, cost-avoidance, jobs, dollar amounts of any royalties and license agreements.
- E. Describe any economic benefits to Oklahoma that have occurred or are expected to occur.
- F. List federal or other grant support obtained based on this OCAST support.
- G. List collaborating organizations.

6. *Previous OCAST Support* (two pages maximum per project, if applicable)

- A. Previous recipients of OCAST funding must include a listing of the support by the project number, the type of support (OARS Proof-of-Concept, OARS Accelerated, Intern Partnerships, Health Research, SBIR/STTR, Plant Science, Nanotechnology Applications, Alliance, TBFP, etc.), the number of years approved and the total amount of funding.
- B. Give the date of the final progress report and summarize the progress since the report.
- C. Describe any product, process or service that has been (or will be) commercialized.
- D. Provide business and financial impacts produced and expected, such as sales, capital investments, cost-avoidance, jobs, dollar amounts of any royalties and license

agreements.

- E. Describe any economic benefits to Oklahoma that have occurred or are expected to occur.
- F. List federal or other grant support obtained based on previous OCAST support.
- G. List any previous collaborating organizations.

7. *Other Support* (two pages maximum per professional, if applicable)

For each of the professionals involved in the project prepare a list of other support related to this proposal. Include all federal, non-federal and institutional grant and contract support.

- A. Describe any active support.
- B. Describe pending review or funding.
- C. Describe applications planned or being prepared for submission.
- D. List any grants or contracts that have been received, excluding OCAST.
- E. Include any abstracts or executive summaries for grants that are pending or have been received.

8. *Letter of Commitment from the Applicant Organization* (two pages maximum for each letter)

A signed letter of commitment for the proposed project from each of the applicant organizations is required. An official of the applicant organization(s) must sign the letter(s) of commitment. All letters should include a statement of organizational commitment to the proposed project beyond the required matching monies and equipment. This should not be a form letter but specific to the application. It should include specific organizational commitments to the project for such items as equipment, computer services, facilities, release time for key personnel, or secretarial and technical support that the organization(s) will provide for the project.

9. *Letters of Recommendation and Support* (three one-page letters total, if applicable)

In addition to the required letter of commitment from the applicant organization(s), applicants may submit up to three additional letters of support or recommendation from companies or individuals not formally involved with their project.

10. *Facilities and Resources* (two pages maximum for each facility)

Describe the resources necessary and available for this project.

11. *Company Profiles* (two pages maximum for each company)

Provide a profile of each company involved in the project. Each profile should include a description of the company including financials in the public domain. Provide web addresses and stock symbol if applicable.

12. *Intellectual Property Relationships and Protection* (two pages maximum)

The OARS application requires assurance the collaborating parties have adequately addressed the ownership and disposition of patents, royalties and all other intellectual property rights related to the proposed research project. Applicants should describe the plan to protect the intellectual property generated from this research project. For collaborative proposals, e.g., subcontractors, firms and a university, university and a nonprofit research center or two firms, provide a short statement describing how the intellectual property patent and licensing agreements will be effectuated between co-investigators, applicant

organizations and sponsoring entities. If all relationship and licensing agreements are in place write a short statement indicating the types of agreements that have been executed between the parties. For proposals in which only one entity is involved, a statement such as “This proposal is from a single entity and the firm owns all intellectual property generated by its employees” will suffice.

13. Commercialization Development Strategy of the R&D (Proof-of-Concept - four pages maximum; Accelerated - 10 pages maximum)

- A. Describe in a short sentence the product, process or service to be commercialized and its end use.
- B. Describe the customers or clients.
- C. Describe the domestic and global markets to be served including market size, market growth rates, number and nature of competitors and any important market information.
- D. State the competitive advantage the project offers in the targeted markets.
- E. Using a chart or table, describe the key steps required to commercialize the product, process or service and corresponding plan of action for successful project commercialization. This plan should include a schedule of key business milestones and the indicators of successful achievement of each milestone. Include how success is measured. The schedule should be prepared in a style where it can be used in annual and final reports to show progress.
- F. Provide summary pro forma income statements and cash flow projections for the proposed new product, process or service.

14. Economic Impact Statement (four pages maximum)

Discuss the project’s potential impact on Oklahoma’s economy during the project and two and five years following the project. If the project will not be commercialized within two years of completion explain why additional time is needed. Evaluate national and international growth potential markets of this project.

Carefully discuss under a separate heading, for each time period Items A through G during the project and at two and five years after completion, the potential regarding the following:

- A. Increase in scientific and technical staffing levels over the time periods specified above. This includes student/post-doctoral associates gaining technical expertise.
- B. Increase in work force staff over the time periods specified above.
- C. Productivity, profitability or cost savings over the time periods specified above.
- D. Amount of capital investment in equipment and facilities at the organizations participating in the project over the time periods specified above.
- E. The estimated gross sales, net sales and cost avoidance over the time periods specified above.
- F. If applicable, describe technology transfer plans over the time periods specified above.
- G. Other sources of funding and capital attracted to Oklahoma as a result of the project over the time periods specified above.

15. Matching Funds – (one page maximum)

Submit a brief statement describing how the matching monies – industrial, private or federal – are provided under terms that explicitly encourage future commercialization.

16. Assessment of the Potential for Attracting Future Funding (two pages maximum)

- A. Describe the source and potential for attracting private funds.
- B. Describe the source and potential for attracting government funds.

17. Collaborative Relationships (if applicable)

If there is more than one investigator, include the work statements or research obligations of each. In addition, describe and document any substantial collaboration with individuals not referred to in the budget with a letter from each collaborator.

18. Contract Documents

For each business serving as an applicant organization, the applicant must provide a copy of the Certification of Registration from the Oklahoma Office of the Secretary of State certifying to the current and active status of the business entity.

For any application using a grant as matching funds, provide a copy of the official award notification letter, award face page, or contract for the grant(s) to be used.

If using in-kind services for matching funds, provide the following documentation:

- A. Valuation of the item at fair market value
- B. Name and signature of the donor
- C. Date and location of the donation
- D. Description of item/service

19. Regulatory Approvals and Certification Information (if applicable)

No OARS award will go to contract without IRB approvals and/or certifications when the research involves:

- human participants, human derived materials, human data
- vertebrate laboratory animals
- recombinant DNA
- biological hazards
- narcotics/dangerous drugs
- radioisotopes

It is the responsibility of the PI and the applicant organization to ascertain that state and federal requirements are met. The PI and the applicant organization must supply evidence of compliance, qualification and/or license(s). The appropriate institutional review board (IRB) must certify and approve projects involving human subjects, vertebrate animals, and/or recombinant DNA prior to contract.

If an IRB approval or certification is available it should be submitted at the time of the application. However, the approvals and certifications are not required to be included in the proposal. Following OCAST's peer review and board approval, awardees have 90 days from the date of the award letter to submit the required IRB approvals and certifications.

If possible, the information listed below should be submitted with the application since they are often an essential part of the experimental design. The lack of this information may jeopardize an otherwise excellent proposal during the review.

Human subjects, human-derived materials, or human data – If human subjects, human-derived materials or human data are to be used in this project, provide the following information: The sources of the potential subjects, derived materials or data; the characteristics of the subject population, including the anticipated number, age, gender, ethnic background and state of health; the criteria for inclusion or exclusion; the rationale for the use of special classes of subjects, such as fetuses, pregnant women, children, institutionalized mentally disabled, prisoners or others, especially those whose ability to give voluntary informed consent may be in question.

The recruitment and consent procedures to be followed, including the circumstances under which consent will be solicited and obtained, who will seek it, the nature of information to be provided to prospective subjects and the methods of documenting consent should also be detailed. A copy of the consent form must be provided if requested by OCAST.

Proposals using human subjects must also identify:

- A. Any potential risks—physical, psychological, social, legal or other—and their likelihood and seriousness; any alternative methods that were considered and why they need not be used.
- B. The procedures for protecting against or minimizing any potential risks including their likely effectiveness, the confidentiality safeguards where relevant and the arrangements for providing medical treatment if needed.
- C. The potential benefits to be gained by the subjects as well as the benefits that may accrue to society in general as a result of the planned work.
- D. The risks in relation to the anticipated benefits to the subjects and to society.

Research on human subjects, derived materials or data utilizing resources awarded under OARS must follow federal guidelines as promulgated in 45 CFR except that these funds may not be used to “undertake any research which has abortion, as defined by Section 1-730 of Title 63 of the Oklahoma Statutes, as its purpose” (74 O.S., Section 5054).

The federal regulation is available from the Office of Human Research Protection, www.hhs.gov/ohrp. The regulation provides a systematic means, which is based on generally accepted ethical principles, for protecting the rights and welfare of individuals who may be exposed to the possibility of physical, psychological or social injury while they are participating as subjects in research, development or related activities. The regulation extends to the human fetus (either in utero or ex utero), the dead, organs, tissues and body fluids as well as graphic, written or recorded information derived from human sources. It covers activities which present no physical risk to the subject but which may create legal risks or expose subjects to public embarrassment or humiliation through breach of confidentiality or invasion of privacy.

The major focus of a project (for example, on a medical procedure) may not be the sole determinant of the types of risks involved or the need for additional protection. The safeguarding and confidentiality of medical records and other forms of data collected on individuals and groups, the use of such data by the Investigator conducting the original research, the concurrent uses of the data by other Investigators and the use of the data for research purposes at a later time are considered within the scope of this policy.

The regulation requires institutional assurances, including the implementation of procedures for

review and the assignment of responsibilities for adequately protecting the rights and welfare of human subjects. Safeguarding the rights and welfare of human subjects is the responsibility of the applicant organization. In particular, the applicant organization is responsible for ensuring that the activity described in the application and any additional information relating to human subjects, derived materials or data are reviewed and approved by an institutional review board which is defined as “a committee composed of (at least) investigators, lay representatives and legal counsel . . . for the express purpose of determining the appropriateness of any research involving human subjects” (74 O.S., Section 5060.4).

The above-stated federal requirements have been adopted by OCAST; as stated above, none of the funds available through OCAST “shall be used to undertake any research which has abortion, as defined by Section 1-730 of Title 63 of the Oklahoma Statutes, as its purpose” (74 O.S., Section 5054). The certification of institutional review and approval regarding use of human subjects must be submitted prior to contract.

Vertebrate animals – If vertebrate laboratory animals are to be used in this research project, provide the following information:

- A. The species, strains, ages and numbers of the animals involved; the rationale for their use and their numbers if the animals are in short supply, costly or to be used in large numbers.
- B. The procedures for adequate care of any animals involved.
- C. The procedures to avoid unnecessary discomfort, pain or injury to the animals, such as surgical anesthesia, post-trauma analgesia, tranquilizing drugs and comfortable restraining devices.

In recent years, there have been extensive changes in federal requirements for the use of vertebrate animals in research. Investigators, their projects and their institutions must adhere to these requirements beginning with the date of submission of a proposal.

As part of its compliance with these regulations, an applicant organization must duly constitute a review committee to assist in assuring humane treatment and care of animals. The certification of institutional review and approval regarding use of vertebrate animals must be submitted prior to contract.

Recombinant DNA – If recombinant DNA will be used in the project, applicants must address the level of containment to be used and why this level is appropriate for the proposed project.

Applicant organizations are required to comply with federal guidelines regarding the application of recombinant DNA technology as of the date of application submission. The certification of institutional review and approval regarding use of recombinant DNA technology must be submitted prior to contract.

Biological hazards – Identify potential biological hazards, explain the procedures to protect individuals from infection or injury, state the level of containment to be used and explain why it is appropriate.

Various barrier techniques are advised when work is performed with potentially infectious

agents or with substances that may contain infectious agents. A guide to the level of containment for infectious agents based upon the recommendations of the Center for Disease Control may be obtained from the U.S. Government Printing Office, Washington, D.C. Biological hazards must be satisfactorily addressed prior to contract.

Narcotics and Dangerous Drugs – The use of narcotics and dangerous drugs is regulated by the Oklahoma State Bureau of Narcotics and Dangerous Drugs and the Drug Enforcement Administration of the U.S. Department of Justice. The individual organization under whose auspices narcotics or dangerous drugs will be used must be identified. If these substances will be used in the project, the PI must: (1) check “yes” on the Narcotics/Dangerous Drugs question of the Performance Sites, Compliance page in OKGrants, and (2) include a letter that states the registration number with the Oklahoma State Bureau of Narcotics and Dangerous Drugs and the U.S. Drug Enforcement Administration. If the registrant is not the PI, the PI must (1) provide the registrant’s name, title, address and phone number in Item 20 and (2) submit a letter from the responsible individual that: (a) states the registration number with the Oklahoma Bureau of Narcotics and Dangerous Drugs and the U.S. Drug Enforcement Administration and (b) grants permission for its use in this project.

Radioisotopes – Use of radioactivity is regulated by the U.S. Nuclear Regulatory Commission. Appropriate licenses must have been obtained by the applicant organization as well as the PI, his or her sponsor or a responsible colleague. If the responsible individual is someone other than the PI, include a letter that grants permission for the use of radioisotopes in this project under this license.

RESUBMISSIONS

This section is required if resubmitting an application. These documents must be uploaded as one single file in the Resubmissions field on the Required Attachments page in OKGrants.

Persons resubmitting an application submitted to a previous OARS funding cycle must prepare a separate appendix that includes the following:

- A. A letter that responds to the reviewers’ comments from the previous review and notes all changes in the new research plan; and
- B. All reviews of the previous application.