Research & Development Excellence Program

**Program Description and
Proposal Preparation and Submission Instructions**

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200 West Vine Street, Suite 420
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1. Background Information on Issuing Agency

1.1   General Information about KSTC and KSEF

The Kentucky Science and Engineering Foundation (KSEF) was created as a means of increasing Kentucky's capacity to attract research funding to the Commonwealth and become a leader state in competitive research. KSEF was entrusted to make investments in peer-reviewed research and development activities to promote innovation, human resource development, and to accelerate the rate of success in securing Federal and private sector funds to support R&D work in Kentucky (KIA 2000, Section 22).

KSEF is an initiative of the Kentucky Science and Technology Corporation (KSTC) and it is managed in partnership with the Council on Postsecondary Education (CPE). KSTC is a private nonprofit enterprise founded in 1987 to enhance the capacity of people, firms, and organizations to use science and technology and effectively compete in the global market place.

1.2   KSEF R&D Excellence Awards

KSEF's Research and Development Excellence (RDE) Awards Program was designed to promote excellence in science and engineering, and to support innovation and technology development in existing and emerging areas of research, by making investments based on a competitive, peer-reviewed, selection process.

Starting in July 2016, with the approval of CPE, the intent of the Kentucky Commercialization Fund was integrated within KSEF's RDE awards. The Kentucky Commercialization Fund (COMM) was enacted under the Kentucky Innovation Act of 2000 to "accelerate transfer of knowledge and technological innovation from Kentucky universities and spur economic growth of Kentucky-based companies". Beginning FY2017, KSEF's RDE awards will support COMM's goals under the Emerging Technologies category, which will be expanded to support activities leading to the commercialization of university-developed technologies.

2. The Request for Proposal (RFP)

2.1   Program type and Issuing Office

Program Title: R&D Excellence

RFP Issuing Office: Kentucky Science and Technology Corporation
                          200 West Vine Street, Suite 420
                          Lexington, KY 40507
                          859.233.3502

2.2   Purpose of Program

The purpose of KSEF's Research and Development Excellence (RDE) Awards Program is to provide seed funding to perform scientific work on innovative ideas and the development of technologies. The purpose of the funding is to invest in the initial development of new knowledge and budding technologies with promising societal impact to enable Kentucky researchers to obtain extra-mural funding from federal and industrial sources. It is the intent of

the program to encourage Kentucky-based researchers to venture into research areas ahead of others, and envision technologies that will have important societal impacts. The funds should allow for testing of original high-risk hypotheses that, when supported by preliminary evidence, will be more successful at securing federal funds as well-pioneering research publication of the new concepts. The program seeks to make high-risk investments that will help to make Kentucky a leader in science and technology developments.

The program accepts proposals in most research topics with promising societal impact (surveys or funds to build infrastructure are not accepted). For programmatic purposes, proposals should be categorized within one of the following five areas: Biosciences, Human Health and Development, Information Technology and Communications, Environmental and Energy Technologies, and Materials Science and Advanced Manufacturing.

2.3   Funding Availability and Stipulations

The program will issue a request for proposals (RFP) for an award of **up to** $50,000 per year; however, the maximum award amount will be defined by the individual round based on program available funds. Consult the issued RFP for details or restrictions on most current maximum award size and eligibility restrictions. The period of the grant requested will not exceed 12 months. Matching Funds are not required. Funding is open to Kentucky universities and colleges, and Kentucky-based small businesses collaborating with a Kentucky university (see Technology R&D category). The processing of proposals and the decision on awards is subject to the availability of funds from the Commonwealth of Kentucky.

The funding made available by KSEF is not designed to support an ongoing research project. The idea must be new and novel, and with the potential to receive further funding from federal or private sources. Previously KSEF-funded research projects are not eligible for continuation funding, and proposals will not be invited if the LOI or the full proposal is found to be a continuation of a previously funded KSEF award. The Principal Investigator (PI) should instead seek funding for these projects from non-KSEF sources.

Principal Investigators who have active KSEF RDE awards are not eligible to apply. PIs who have received three or more KSEF RDE awards in the last five calendar years are not eligible to apply. PIs and/or Co-PIs who are delinquent on reporting commitments to any of the KSTC/KSEF-managed programs are not eligible to apply. Only one re-submission of a revised proposal that was previously not selected for funding is acceptable. Further resubmissions of a proposal declined for funding twice will not be considered.

2.4   Grant Categories

Proposals are accepted from investigators at universities and colleges as well as small businesses in Kentucky. Proposals originating from universities may be requested in either the Emerging Ideas or the Emerging Technologies category. Proposals submitted by researchers in a small business should apply under the **Technology R&D** [NEW] category. A depiction of grant categories is summarized in the graphic below.

Grant Category, Eligibility and Funding Criteria Summary
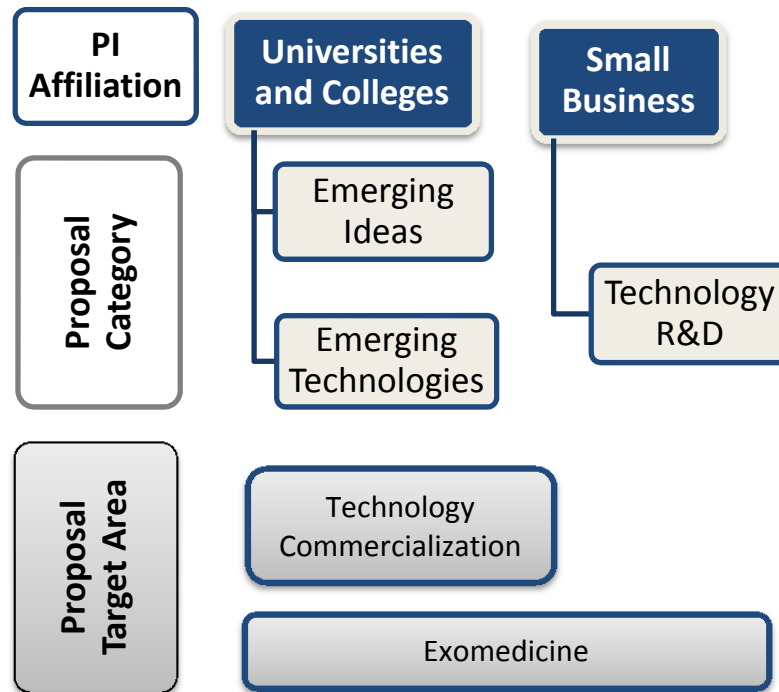
Emerging Ideas – Under this category, KSEF welcomes proposals from investigators at universities and colleges in Kentucky [ONLY] who are proposing original research activities. This grant category is for research activity undertaken as preliminary work on high-risk, untested, novel ideas to advance basic knowledge as well as research to understand the causes, effects or relationships between knowledge that will lead to innovations. Project results are likely to be used in competing for federal funds and early publication of new concepts. This new knowledge will advance the education of our future workforce, create intellectual property, allow researchers recognition as pioneers in a new area, and potentially lead to game-changing innovations.

Emerging Technologies – Under this category, KSEF welcomes proposals from investigators at universities and colleges in Kentucky [ONLY] who are proposing promising approaches to address particularly urgent technology challenges. This grant category encompasses several stages of research on the way toward developing a product or process that will advance a new 'technology'. These stages include research activities to explore the application of a technical or biotechnical solution, and early feasibility research of a new technology or process for a targeted purpose. The results of such projects will help prove feasibility (proof of concept) of the application of new technologies for a particular societal challenge and set the stage for technology transfer activity.

Technology R&D – Under this category, KSEF welcomes proposals from Kentucky based small businesses [ONLY] who are proposing innovative research approaches to further technology developments with commercial promise. Proposals should be driven by societal and market needs; however, the work proposed must be at the research stage of development. The results of funded projects will help Kentucky small businesses secure federal or private investments to

expand their platform of technologies, train future workforce, develop intellectual property, and eventually commercialize new products. This effort is also meant at developing strategic connections between small businesses and university investigators in the Commonwealth to accelerate the transfer of knowledge, educate a workforce that will meet the future market demands, and improve chances of commercialization of technology.

Small businesses must confirm an already established collaboration with a Kentucky university or college investigator at the time of letter of intent submission.

2.5   Research Focus Area Priorities:

Because it is difficult to predict discovery or anticipate all of the opportunities that fresh discoveries will produce, KSEF's portfolio is broad and diverse, addressing many fields and activities. Awards are made for the most promising ideas, selected through merit review of competitive proposals for new and emerging opportunities, within and across all fields of science and engineering (i.e. in five research areas: Biosciences, Environmental and Energy Technologies, Human Health Development, Information Technology and Communications, and Materials Science and Advanced Manufacturing).

2.6   Specific Target Areas

Specific target areas exist to build capacity within new and potentially transformative areas of research. Proposals that are submitted under a specific target area are processed and reviewed following the same procedures and review criteria as all other proposals received. Proposals strongly recommended for funding by external reviewers and submitted under a specific target area are considered for an award separately. Funding of proposals, however, is subject to availability of funds.

Type*	Description	Eligibility	Grant Size
Technology Commercialization	A subset of Emerging Technologies Category for projects with non-provisional or assigned patents	Universities ONLY	Up to $50K
Exomedicine	A subset of the Human Health and Development and Bioscience research focus areas	Universities and Small Businesses	Up to $50K

* Proposals will be ranked and considered separately from other proposals.

2.6.1 Technology Commercialization

A Technology Commercialization target area should be selected if the intended project is based on an **already existing non-provisional patent application or assigned patent** which is intended to be licensed out at the end of the project term. The project is focused on application of knowledge directed toward the production of useful materials, devices, and systems or methods including design, development, and improvement of prototypes and new processes to meet specific requirements. Although the tasks proposed will be to advance or validate technology development through R&D, proposals under this target area may utilize funds in ways that will transfer the knowledge with commercial application from the university to a private, for-profit

entity to pursue further product development and commercialization activities (e.g. market opportunity assessment, customer discovery, technology valuation, etc.).

2.6.2 Exomedicine

An "Exomedicine" target area has been established within the Human Health and Development and Biosciences focus research area to promote research and the development of new technologies under microgravity conditions, the results of which may help in finding solutions to human health problems.

Eligibility: Universities, colleges, and small businesses within Kentucky.

Purpose: To promote research leading to a better understanding of disease dynamics and medical solutions in the microgravity environment of space. The research may be conducted in a laboratory on earth under simulated microgravity, reduced gravity, or on the International Space Station. The award may allow the cost of doing research as well as the costs associated with the launch of the experiment. The preliminary results obtained with the award should become the basis to seek larger grants from federal or private sources.

Exomedicine Institute (Kyle Keene at kkeeney@exomedicine.com) should be contacted to estimate the cost associated with the launch or in developing simulated microgravity conditions in the lab.

3. Eligibility, Submission Procedures & Requirements

3.1   Eligibility

3.1.1   Universities and Colleges

KSEF welcomes applications from faculty who have a regular tenured or tenure-track appointment, or independent investigators with their own research lines and assigned laboratory space and funding, employed at any accredited Kentucky college or university.

Research faculty and independent researchers performing research activities within a center or institute under dependency of a director (or chief scientist), a letter from the center director certifying that the PI is an independent scientist/engineer who directs his/her own and others research, and manages his/her own project budget, should be provided for eligibility consideration by KSEF. This letter should be emailed to KSEF Program Director (KSEFPM@kstc.com) at the time of LOI submission.

Adjunct faculty members, junior researchers, post-doctoral fellows, or graduate students are not eligible to act as a PI; however, they may act as Co-PI and work on a project submitted by an eligible PI (e.g. faculty member or researcher).

3.1.2   For-profit organizations

Small businesses are eligible to submit a proposal under the "Technology R&D " category if:
a) their principal business is located in the Commonwealth of Kentucky, b) the business is registered with the Kentucky Secretary of State, and they are in "good standing", c) the firm is a

"small company" of 50 or fewer employees as defined by the Kentucky Innovation Act, d) a majority of the work is performed in Kentucky, and e) there is a collaboration in place with a Kentucky college or university at the time of LOI submission.

3.2   Limit on Number of Letters of Intent, Proposals and Awards per RFP

A letter of intent (LOI) must be submitted in advance of submission of a full proposal in order for an idea to be considered to full proposal submission. Only one letter of intent may be submitted by a small business per round. Only one LOI may be submitted per PI per round. Likewise, only one LOI may be submitted per Co-PI per round. No applicant may submit more than one proposal as PI and no applicant may submit more than one proposal as Co-PI per round. However, an applicant may submit one proposal as PI and may serve as Co-PI on another proposal. An applicant may receive only one award as PI, or small business, per RFP round.

The PI or the small business must not have an active RDE award by the LOI submission deadline (refer to the most current RFP), and must not have received three or more KSEF RDE awards during the previous five calendar years. Any applicant (PI or Co-PI) delinquent on their reporting commitment with any of the KSTC/KSEF-managed programs is ineligible to apply.

3.2.1   Letter of Intent (LOI)

The PI must submit a letter of intent (LOI) via KSEF's online site http://applications.kstc.com. The purpose of this requirement is to allow KSTC to estimate the demand of the round (number of potential applicants), determine appropriateness and fit of the idea with the R&D Excellence Program, and confirm the applicant is eligible to apply.

The LOI is mandatory. Letters of intent must be complete in all respects to be considered for evaluation (i.e. all fields are required even if the online system does not prompt the applicant of missing fields). LOIs must be submitted on or before the deadline and during the submission period published on the most current RFP. Eligibility of the applicant must be confirmed before the deadline posted (e.g. appointment confirmation letters must be submitted before the LOI submission period closes). The abstract submitted with the LOI must clearly describe a hypothesis-driven project (i.e. objective or hypothesis and experimental methods must be described). If the applicant has received KSEF funding in the past, the abstract should explain how the current idea is new and different from previously funded ones and how it will lead to further federal funding. If the applicant is a small business, the abstract must allude to the intended university collaboration. The nature of the collaboration and the persons involved must be included in the abstract. Also, unique words and phrases should be submitted to ensure your proposal is reviewed by pertinent researchers (i.e. submitted broad or vague words only hurts your chances of being accurately and fairly reviewed).

3.2.2   KSEF Review of LOI and Invitation to Submit a Proposal

All complete LOIs received on time (incomplete and late submitted LOIs are automatically disqualified) will be reviewed for appropriateness and fit with the R&D Excellence Program guidelines. Invitation to submit a proposal will be posted online at http://applications.kstc.com. A response, either positive or negative, will be posted online on or around the date the full proposal submission period opens as published on the RFP. No full proposal submission will be possible without an invited LOI.

3.2.3 Full Proposal Requirements and Submission Requirements

Once an LOI has been invited for full proposal submission, the online application site will allow access to a full proposal template.

Each applicant who has been invited to submit a full proposal must use the KSEF online application site http://applications.kstc.com in order to submit a full proposal no later than the deadline published on the most current RFP.

No applicant may submit more than one proposal as PI and no applicant may submit more than one proposal as Co-PI per round. Multiple proposals submitted by one PI or Co-PI will be automatically disqualified. Applicants must confirm that the persons included in the PI line have not committed their time to other proposals as Co-PI.

A printable PDF file of the full proposal, including cover page and budget sheet, will be generated by the online application. The cover page and budget sheet for the application should be signed and delivered to the university grants management office or authorized official at a small business for further processing. The authorized official of the applying institution designated to bind the applicant to the budget and the RFP provisions will sign and deliver a high-quality scanned color PDF copy via email to KSEF's Senior Program Director at KSEFPM@kstc.com before the deadline posted on the most current RFP.

NOTICE: The applicant is responsible for submitting an original copy of the Cover Page and Budget Sheet to an authorized official with sufficient time in advance. The authorized officials will sign, scan, and email high-quality color PDF copies to KSEF's Senior Program Director at KSEFPM@kstc.com. ONLY scanned and emailed copies will be required. Emails containing such cover page and budget sheet should originate from the appropriate university or business office ONLY.

3.3 Submission Deadlines

The PI must submit a letter of intent and full proposal (via KSEF's online site http://applications.kstc.com and signed cover and budget sheets (via grants officer) to be received on or before the deadlines published on the RFP.

3.4 Online Submission Requirement

PLEASE NOTE: A new system is under construction. Be sure to confirm you have the latest guidelines as posted on our website.

As of May 2007, the KSEF LOI and full proposal application are submitted online through http://applications.kstc.com. In order to access a new application form, the PI is required to use her/his ID and password. Before creating a new account, please confirm if the PI is already registered with the KSTC databases. To do so, click on the appropriate link found below the login window. If **the PI is registered,** an entry exists for the PI within the KSEF/KSTC databases, the PI's e-mail will be recognized by the application software and an electronic confirmation containing the PI's user ID (e-mail address) and password will be sent to the PI's registered e-mail address, directly. If **the PI is NOT registered** within the KSTC databases (i.e. the PI has never submitted a previous application, or has never attended any event organized by KSEF or KSTC),

the PI will need to create a new account. Return to http://applications.kstc.com and create a new account following the link found below the log-in window.

The PI's permanent ID and password are, and will remain, linked to all past and future submissions including a full proposal should an LOI be invited. Creating new identities when already registered with the KSTC databases may result in failure to access the PI's applications in the future.

The PI is responsible for securing his/her password to protect information on the application and outcome including the access to reviewers comments by unauthorized people. Sharing of the password with others is the responsibility of, and at the discretion of, the PI.

3.5   Where to Submit

Hard copies of the proposal are not required and will not be accepted.

The PI's full proposal will be received through the online application site and will be sent for external peer review following a satisfactory internal administrative review. Confirmation of internal administrative review results, including timely receipt of signed cover page and budget sheet, will be posted on the application site as Application **Acceptance** for Review or **Rejection** (Not Accepted) of the submitted proposal.

3.6   Program Contact

Applicants may contact the KSEF Staff with any questions regarding the program or the application process:

> Dr. Maria Labreveux, KSEF Senior Program Director
> Kentucky Science and Engineering Foundation
> mlabreveux@kstc.com 859.246.3251

3.7   Acknowledgement of Receipt

Upon finalizing the submission process, and as long as the submission occurs before the posted submission deadline, the online application site will automatically generate a PDF file of the submitted proposal with a time stamp. An automatically generated email containing a copy of the full proposal will be sent to the PI and KSEF Senior Program Director. Should the PI not receive such confirmation email, please contact KSEF Staff (mlabreveux@kstc.com).

Proposals submitted on time will be reviewed internally within two weeks of the deadline for completeness, good fit with program guidelines, and receipt of signed pages. The outcome will be posted on the PI's site of application.

4. Letter of Intent and Full Proposal Preparation and Submission

4.1   Proprietary or Privileged Information

No proprietary ideas, trade secrets, privileged or confidential commercial or financial information should be included in the LOI. The abstract submitted with the full proposal will be

used to share with all potential reviewers. The full proposal should not contain proprietary ideas unless it is necessary to convey an understanding of the proposed project. Clearly mark sections in the proposal that are considered proprietary or privileged information. Review the final document and verify that the sections intended to be protected are unmistakably marked.

Should the proposal contain proprietary information, verify that the question on "Proprietary and Privileged Information" found on the Project Information section of the online application has been checked. KSEF will make every reasonable effort to prevent unauthorized access to such material. KSEF will disclose the proposal to assigned external reviewers for evaluation and to KSEF staff for administrative review. KSEF/KSTC is not responsible or liable for the unauthorized release of such material by another party.

4.2   Letter of Intent – Content and Sections

Letters of Intent (LOI) with missing information are electronically and automatically disqualified. The following information is <u>needed</u> and in some cases **required** for preparation and submission of the LOI:

- ➢ **Principal Investigator (PI) Information**
    - ▪ PI Name, position held*, and all contact information are required (**unless Assistant, Associate, Full Professorship position, eligibility proof is <u>required</u>; see* <mark>Section 3.11)</mark>
    - ▪ A website address (not required)
    - ▪ Mailing address (physical address, not post office box)
    - ▪ PI KSEF and KSTC funding history – Is this the first time you (PI) have applied to an RDE call for proposals? Have you (PI) ever been funded by KSEF before? Have you (PI) been funded by any other KSEF or KSTC programs?

- ➢ **Project Information**
    - ▪ Grant category: notice new category for small businesses only (Technology R&D)
    - ▪ Research focus area: select one from the five options Biosciences, Environmental and Energy Technologies, Human Health Development, Information Technology and Communications, and Materials Science and Advanced Manufacturing
    - ▪ Specific Target Area: if target areas are not applicable to the proposal, select "not applicable"; note new target area "technology commercialization" can only be selected by University PIs
    - ▪ Title of the proposed project
    - ▪ Project duration and total amount of funds to be requested (consult the current RFP)
    - ▪ Proprietary content and resubmission information
    - ▪ Eligibility criteria (consult the current RFP) – PIs should be able to confirm all eligibility criteria for the idea to be considered for full proposal submission
    - ▪ Description of the proposed work in **300 words or less** – this should present the objectives and scientific or technological significance of the proposed work, brief overview of suitable methods to be employed, and the effect of the proposed activities on the advancement of science
    - ▪ <u>Five</u> <u>key words</u> or terms that specifically describe the project
    - ▪ <u>Five</u> specific key <u>areas of research expertise</u> as words or phrases (different from keywords) that describe potential reviewers' areas of work. KSEF will use this

information to identify appropriate reviewers should the PI be invited to submit a full proposal (<u>do not submit reviewer names</u>)

 ➢ **Co-PI Information (if applicable)**
   ▪ PI Name, position held, and all contact information are required
   ▪ Mailing address (physical address, not post office box)

4.3 Internal Administrative Review of LOI

Letters of intent submitted on time undergo a three-tier internal administrative review process. Submitted LOI are first reviewed by the KSEF Senior Program Director and the KSEF Executive Director, separately. The results of this first review are combined, discussed, and summarized. Summary information is presented by KSEF Executive Director to KSTC's President, Vice-Presidents, and CFO for discussion. Letters of intent that do not comply with eligibility and/or format requirements are individually scrutinized by the internal review staff members to ensure the application of guidelines across the board and in a fair manner. Final decisions to Invite or Not Invite an LOI are summarized by the KSEF Senior Program Director and later published on the application platform, viewable only by the PI of his/her specific LOI.

4.4 Reasons Not To Invite an LOI

- PI or Co-PI submitted more than one LOI for the current round (all LOIs will be disqualified)
- PI has an active KSEF award at the time of full proposal submission
- PI has received three or more KSEF RDE awards in the last five years
- The proposed work is a *continuation* of a previously funded project (either conducted by the PI, Co-PI, or close collaborators)
- The proposal is for infrastructure development (not eligible)
- The proposed work does not follow stipulated R&D scientific proposal
- PI or Co-PI has failed reporting requirements, does not have a history of compliance with prior award reporting requirements
- Failure to correctly complete **all** sections of information requested
- Abstract is too long (more than 300 words)
- Failure to satisfactorily demonstrate an eligible appointment of the PI
- Failure to include required five keywords and/or five areas of research of potential reviewers (different to keywords)
- Late receipt of LOI (based on electronic time stamp on LOI)

4.5 Full Proposal Invitation and Submission Process

Once an LOI has been invited for full proposal submission, the online application site will allow access to a full proposal template.

4.6 Proposal Content

The proposal should present the objectives and scientific or technological significance of the proposed work, suitable methods to be employed, qualifications of the investigators and the applicant organization, effect of the activity on the advancement of science and engineering, and amount of funding required. It should present the merits of the proposed project clearly

and should be prepared with the care and thoroughness of a proposal submitted to a federal agency. The information provided should be sufficient for external reviewers to evaluate the proposal based on its merit.

4.7   Sections of the Proposal

A printable file will be generated as the last step during the online submission process. This file will contain the sections described below and will be available for the PI's review prior to final submission.

4.7.1   Proposal Coversheet

The proposal file generated will have a Cover Sheet where the PI's and Co-PI's names and contact information will be summarized. In addition, the Proposal Coversheet will reflect the grant category, research focus area, and target area (if applicable) for which the PI is applying. The title of the proposal, which should be brief and provide a technical understanding of the proposed work, along with the requested budget amount and the proposed duration, will also be reflected.

The name and contact information of the official authorized to commit the organization in business, financial, and legal affairs will also be given on the Cover Sheet. An original signature of the authorized official is required.

If any of the information on the coversheet or the title or project summary has changed from that entered on the LOI, the PI will have the opportunity to submit changes at the time of full proposal submission. However, the full proposal should represent the idea proposed in the LOI. The proposal may be disqualified from consideration if it is found to be focused on subject matter different than the originally proposed subject matter in the LOI.

4.7.2   Proposal Budget

A writable budget form can be directly downloaded from the full proposal application site. This form is necessary for the preparation of the proposal, and will have to be signed by the PI and the authorized official of the PI's institution before submitting it to KSEFPM@kstc.com within two working days of the full proposal submission deadline.

The proposal budget should be presented in two formats: (1) numerically, using the appropriate number of sheets of the KSEF Budget Form provided online, and (2) in narrative, with explanation and justification of the requested budget amounts. Once the numerical budget sheet is completed, the PI will be able to upload it using the upload function of the online application software.

A.   Budget Form

The budget form will be available on the appropriate section of the online full proposal application tool.

B.   Budget Narrative

The Budget Narrative should explain and justify the requested amounts in the following areas:

Personnel Costs – KSEF funds cannot be used to pay either PI or Co-PI salaries. For other personnel on the project, itemize to show the individual name, position title, estimated percent time commitment, and total cost for each category and for all personnel needs.

Fringe Benefits – Indicate the rate and show total cost.

Supplies and Materials – Itemize costs for chemicals, supplies, and other specific items which may appear to be out of the ordinary.

Travel Costs – In general, travel is not allowed unless it is necessary to complete or present the proposed work. When justified, only the cost for domestic travel will be allowed. A small travel budget should be included to travel to Lexington or Louisville to attend the annual conference organized by KSTC. Participation attendance at the awardee conference is mandatory for the duration of the award.

External Services – Itemize and justify any external services or sub-contractual agreements.

Publication Costs – Allowed only at the end of the performance period.

Indirect Costs – Will be limited to no more than ten percent of the direct costs excluding the travel, tuition, and external contract costs.

Ineligible Direct Costs – Direct costs for application preparation, equipment* purchase (including computers and software programs) and business entertainment are not chargeable to the KSEF grant.

* Any device with a life of more than two years that costs $1,000 or more and is inventoried will be considered equipment for the purpose of this RFP.

C. Budget Considerations

The following factors should be taken into consideration when preparing the Budget:

Budget Appropriateness – The award budget will be reduced significantly if it is not in proportion to the proposed work.

Billing and Payment – The Awardee's institution will submit to KSTC an invoice every six months for reimbursement of expenses incurred in the preceding six months. The invoice will be reviewed and processed for payment within 30 days, if required deliverables have been received (e.g. semi-annual reports), unless some additional information has been requested. No advance payment will be made in any case.

Budget Redirection – More than ten percent of funds will not be allowed to be moved from one budget line item to another without a written justification and prior written approval of KSEF. KSEF reserves the right to decline such a request.

Incurring Costs – Neither the Commonwealth of Kentucky nor KSTC/KSEF is liable for any cost incurred by the Awardee prior to the start date of the award as stated on the executed formal award agreement.

4.7.3   Project Summary - Abstract

A non-confidential project summary must be provided. By default, the online submission tools will auto-populate this section (Project Information- Abstract) with the abstract submitted with the LOI. It is advisable to revisit this section to better represent the full proposal application. The summary should provide rationale, vision, distinguishing features, statement of objectives and proposed activities to enable innovation. It should also provide methods to be employed and the impact of the proposed activity on the advancement of knowledge, development of a new product, or resolution of a problem.

Please remember, information provided in the abstract should be non-confidential. Abstracts are shared with all contacted reviewers. If an award is made, the abstract will also be made public via our websites.

4.7.4 Impact Statement

A public statement addressing the potential societal impacts of the proposed research must be provided. In a short statement (maximum of 150 words), describe how your proposed research may, in the long-term, will lead to innovation, development of a STEM workforce, foment partnerships and collaborations, allow researchers recognition as pioneers in a new area, increase economic competitiveness, improve national security, etc.

4.7.5   Technical Narrative

The Technical Narrative section will include a clear statement of work including objectives, expected significance, relation to PI's longer-term goals, present state of knowledge in the field, and current work in PI's laboratory under other support. The narrative description should not only indicate the general plan of work but also include an adequate description of experimental methods and procedures to be used.

The plan should also indicate the persons performing specific project tasks and collaborations, if any, with other faculty members or other institutions. Key collaborations should be documented with a letter from the collaborator. These letters should be uploaded as PDF attachments for submission with the online application.

The narrative should describe how the proposed project will add value or make an impact on the advancement of knowledge, and if this effort will stimulate and foster economic activity. A Gantt chart is required as a separate section to provide a clear understanding of the work schedule relative to different tasks proposed in the technical narrative; consider the grant starting on the suggested award start date provided in the RFP announcement. The technical narrative including the experimental methods and procedures should be supported with appropriate literature citations.

4.7.6   Facilities, Equipment and Collaborations

The conduct of advanced research may require the use of sophisticated instrumentation or computer facilities. The PI should provide a detailed description of the availability and location of the facilities and accessibility to the equipment necessary to carry out the proposed work. The detail should be sufficient to enable reviewers to evaluate and score it appropriately.

4.7.7 Current and Pending Support

The PI's and Co-PI's current active grants and pending applications must be listed. Information required will include the project title, proposed or funded amounts, project period, and funding source (agency). The time/effort commitment of the PI and Co-PIs on each project, including on the proposed project, must be included.

4.7.8 Biographical Sketches

Provide biographical sketches of PI and Co-PI. Each biographical sketch is limited to one page and should include education, experience and a list of relevant publications. This section should not exceed three pages.

4.7.9 Partner Commitment

If external services including consultants are required, documentary evidence showing their commitment, including the estimated cost, should be provided. Letters can be uploaded as PDF attachments to the final proposal for online submission. Quotes from consultants or external contractors will be required at the time of award.

4.7.10 Tasks, Deliverables, and Gantt

"Tasks" are activities that must be completed to achieve a proposed project goal. Break the project into tasks and subtasks. Tasks are short, have start-date and end-date, and are significant undertakings. Start the task with a verb such as "conduct", "create", "define", instead of "will be done". The proposed work should be divided into different technical tasks (and sub-tasks, if necessary) that together will help achieve the proposed objectives. How these tasks and sub-tasks will be conducted, who will be conducting each task, and what results will be obtained at the completion of each task should be clearly stated in the technical narrative section.

The proposal should also state what the PI will deliver to KSEF and when (e.g. Deliverables). For example, he/she may deliver a report containing a semiannual or annual accounting of research results, the filing of an invention disclosure or patent application, submission of a publication, the achievement of a milestone in the research process, a product or prototype testing, etc. The final deliverable should be a final report at the end of the award. In general terms, each tasks or a set of tasks correspond to the achievement of a particular deliverable.

A Gantt chart is a project planning tool that can be used to time tasks to complete a project. In a Gantt chart, each task takes up one row and the expected time for each task is represented by a horizontal bar, quantified in months. Although it is difficult to estimate the time/period required to perform a task, each task should have duration. In constructing a Gantt chart, keep the tasks to a manageable number. The online application tool will automatically generate the chart based on the information (label and time frame) provided for each task and/or deliverable.

4.7.11 Files and Attachments

One or more additional pages may be available to upload application supporting material in PDF format. Support materials may include letters of commitment from collaborators, support letters from colleagues, enlarged pictures of figures already displayed on the technical narrative.

No narratives should be uploaded. No attachments containing information that should have been entered in another sections should be included (i.e. substituting the required Gantt chart for an attachment when the first was not completed). If in doubt, consult with KSEF Staff (KSEFPM@kstc.com) and obtain written confirmation (email will suffice) of the allowable exception with ample time before the submission deadline.

4.7.12   Suggested Reviewers and Conflict of Interest

Two new tabs have been added to the proposal template. The first section is designated for the PI to suggest research professionals from around the world who may be suitable candidates to comment on the proposal under consideration. The suggested peer reviewers: a) must be independent researchers with an appointment at an accredited college or university outside of the Commonwealth of Kentucky and b) she or he cannot be a current or recent collaborator or someone who has published with the PI or Co-PI within the past two years (Reviews submitted by current or recent collaborators will not be consider towards the final award decision).

A minimum of five suggestions with names and current email addresses are required. All five suggested reviewers must be from different institutions. They MUST NOT be from Kentucky nor have a conflict or the appearance of a conflict of interest with the PI or Co-PIs. NOTE: all information must be provided. Accurate information is required. Failure to comply may result on the dismissal of your proposal any time during the review process.

The second section added is for the PI to list Potential Reviewer Conflicts, if applicable. In this section, the PI may list external peer reviewers who should not be included to review her/his proposal and explain the reason for the potential conflict. KSEF will consider such requests while deciding the names of experts, but may or may not accept the justification to exclude a specific expert. The PI will need to provide full name, current work institution, and current e-mail address.

4.8   Proposal Format and Organization

Each proposal should be prepared simply, providing a concise description of the applicant's ability to meet the requirements of the RFP. Emphasis should be on completeness and clarity of content.

The online application will automatically format and organize certain sections of the proposal. This may include limiting the length of certain sections. For example, the Table of Contents, Coversheet, Abstract, Current and Pending, Gantt chart sections will be automatically generated by the application platform and they will take up a minimum of one page each.

Proposal sections that are to be uploaded as separate files (i.e. budget narrative, technical narrative, facilities and collaboration, and bio sketches) MUST be prepared using letter size paper (8.5" by 11") and either a Times New Roman 12 font size or equivalent, with 1 1/4 line spacing (select the option "multiple" and 1.25 under spacing options) or greater.

The proposal's technical narrative MUST be formatted on a combination of font size, line spacing, and margins that do not exceed four lines of text on any given vertical inch of the page, or approximately 400 characters with spaces in those four lines of text, or 100 characters with spaces per linear line of text. Margins MUST be kept at Top 1"; Left 1", Right .75, Bottom .75".

The final PDF copy of your proposal must comply with these guidelines (i.e. the evaluation is made on the file submitted online via the application website).

The maximum proposal length, including items below, is 23 pages without counting the Table of Contents (total of 24 pages counting the TOC); less than 23 pages is acceptable. The prescribed minimum/maximum length of each section is provided below for the PI's reference.

The online application tool renders a page numbered PDF file with footers and side markings indicating the labels for each section. For best results and document readability DO NOT INCLUDE PAGE NUMBERS, FOOTERS or HEADERS to your application sections. Page length estimates are rough estimates since headings and subheadings are part of some of the preformatted pages.

Section	Length	File type
Table of Content	(1 page not counted)	Auto-generated
Coversheet	1 page	Auto-generated
Budget sheet	1 page	Upload "XLS" file
Budget Narrative	1 or more pages	Upload PDF file
Abstract	1 page	Auto-generated
Technical Narrative	**8 page MAXIMUM** (strict formatting applies)	Upload PDF file
List of References	2 page maximum	Upload PDF file
Facilities& Collaborations	1 or more pages	Upload PDF file
Current/Pending Support	1 page	Auto-generated
Biosketches	1 or more pages	Upload PDF file
Gantt Chart	1 page	Auto-generated
Attachments	1 or more pages	Upload PDF file
FULL PROPOSAL formatting in a nut shell	• **TOC + 23 pages MAXIMUM** • **Paper size 8.5" by 11"** • **Spacing of the technical narrative not to exceed four lines of text per linear vertical inch** **(this will be confirmed to accept full proposal)** • **No footers, headers or page numbers** • **Narrative 8 (EIGHT) pages MAXIMUM** • **References 2 (two) pages maximum** • **No figures as attachments**	

No copies of manuscripts or publications should be uploaded with the application.

4.9   Official Submission of Cover Sheet and Budget Sheet

An authorized official of the applying institution designated to bind the applicant to the budget and the RFP provisions shall sign and deliver a high-quality scanned color PDF copy via email to KSEF's Senior Program Director at KSEFPM@kstc.com before the deadline posted on the most current RFP. ONLY scanned and emailed copies will be required. Emails containing such cover

page and budget sheet should originate from / be submitted by the appropriate university or business office ONLY.

4.10   Reasons for Disqualification of a Submitted Proposal

Proposals submitted on time will undergo a three-tier internal administrative review process. Submitted full proposals are first reviewed by the KSEF Senior Program Director. Proposals presenting any of the issues listed below will be independently reviewed by KSEF Executive Director. The results of this first review are combined, discussed, and summarized. Summary information is presented by KSEF Executive Director to KSTC's President, Vice-Presidents, and CFO for discussion. Full proposals that do not comply with eligibility and/or format requirements are carefully scrutinized by the internal review staff members to ensure the application of guidelines across the board and in a fair manner. Final decisions to Accept or Not Accept a full proposal is summarized by the KSEF Senior Program Director and later published on the application platform, viewable only by the PI.

Failure to submit a proposal on time: Proposals that are submitted on or around the time of closing are more likely to run into server errors and high internet traffic. The Kentucky Science and Engineering Foundation must receive the electronically submitted proposal no later than the due date and time published on the open RFP. Each proposal submission will be time-stamped electronically. Timely submission is the sole responsibility of the applicant. Applicants in previous rounds have required a minimum of three to four hours to complete their online applications. Consider data entry and uploading time requirements in relation to the submission deadline. KSEF/KSTC is not liable for disqualification of proposals due to late submission.

Failure to submit the application by omission: Online applications can be **saved** for later and retrieved for editing until the applicant deems it complete and ready for submission. Failure to click on the **submit option** is the responsibility of the applicant.

Failure to comply with the required formats:

- Number of page stipulation: Applications that exceed the page numbers allowed for **"ANY"** section that has a specified maximum page limit (i.e. at the required format, the technical narrative section must not exceed **EIGHT** pages, the reference section must not exceed two pages, the proposal as a whole must not exceed 23 pages, excluding table of contents).

- References: Applications must contain literature references. A reference list of the material cited in the text must be included with the technical narrative section. Failure to include citation of referenced material may result in disqualification at any point after submission or during the peer review process.

- Format: It is required that the final document submitted is in a form appropriate for submission to peer reviewers. The section length is based on a Times New Roman 12 font size, with 1 1/4 line spacing (or the equivalent combination of font size and spacing that will not exceed four lines of written text per vertical linear inch), and margins Top 1"; Left 1", Right .75, bottom .75" (reducing margin size may cause a distortion in the PDF rendered, confirm your proposal renders clearly).

- Figures: Figures must be included within the text in the Technical Narrative section. If the final document prepared has additional free pages, larger images may be attached in the appropriate tab (Files and Attachments). The final document, however, need not to exceed the maximum allowable length.

Failure to comply with a scientific proposal format and missing sections:

The PI should present her/his ideas in accordance with the scientific methods and rigor. The proposal should be prepared with care and thoroughness. Missing information, missing references, and/or missing referenced figures produce a poor quality and less competitive proposal. The PI should support statements made in the proposal with appropriate citations. Reference citations should properly follow the guidelines of the PI's professional association or manuscript style.

The technical narrative must contain sections describing the research background, significance or the proposed research work, methodology to be used to test the research hypothesis or objectives, in text references to background literature, and a list of references. Each section of the proposed research work must contain sufficient detail to allow reviews to evaluate the idea following the criteria for evaluation described on Section 5.11 of this document. Although it is not a requirement, the proposal may contain a preliminary results section.

Failure to submit a proposal within the scope of KSEF R&D Excellence Program including the five research focus areas.

Failure to comply with on-time reporting for previously funded KSEF/KSTC managed programs.

Failure to submit signed cover and budget sheet before the RFP posted deadline.

Failure to provide required suggested reviewers.

PI or Co-PIs submitting more than one proposal.

5. Review process, Award Selection and Administration Information

5.1   Proposal Evaluation

In meeting its statutory responsibilities, KSEF seeks to support the most meritorious research. Peer reviews play a key role in the evaluation of research proposals. Reviewers will be required to provide both written comments, and a numerical and descriptive summary rating by employing the criteria provided in section 5.11 and 5.12. The identity of reviewers and the numerical summary ratings of the proposals will be kept confidential and not shared with applicants.

Additionally, KSEF reserves the right to reject any and all proposals in whole or in part, and waive any informality or technical defects, if the best interest of the Commonwealth will be so served. In determination of awards the qualification of the applicant, quality of the research as

judged by peer reviewers, distribution of the research focus areas and categories, conformity with the program guidelines, and availability of funds will be considered.

5.1.1 Criteria for Evaluation

Rationale – The degree to which the proposal addresses an important issue, problem or opportunity in development and use of its results (200 Points).

Scientific or Professional Merit – The degree to which the activity will advance the state of science or discipline through use and extension of state-of-the-art methods (350 Points).

Innovativeness – The degree to which new approaches will be employed for solving problems and exploiting opportunities in resource management or development, or in public outreach, on such issues; alternatively, the degree to which the activity will focus on new types of important or potentially important issues (250 Points).

Qualifications and Past Record of Investigators – The degree to which investigators are qualified by education, training and/or experience to execute the proposed activity; the record of achievement with previous finding (150 Points).

Facilities and Equipment – The degree to which the investigators have adequate facilities and equipment to conduct the proposed research (50 points).

5.1.2 Summary Ratings

Excellent – Probably will fall among top 10 percent of proposals in the area of research; high priority for support.

Very Good – Probably will fall among top third of proposals in the area of research; should be supported.

Good – Probably will fall among middle third of proposals in the area of research; worthy of support.

Fair – Probably will fall among lowest third of proposals in the area of research; unlikely to receive support.

Poor – Proposal has serious deficiencies; should not be supported.

5.2 Proposal Selection Criteria

The PI should consider and address the relative importance being placed on criteria relating to both the technical/intellectual research merit and broader impacts on the economy and society. The following factors, as applicable, will be considered in determining project priority:

New Innovation Opportunity – The degree to which the proposed project will foster and sustain innovation, and the potential impact it may have on the economic and/or societal well-being, will be a major consideration.

Soundness of Scientific Principles – Soundness of approach and experimental design will be a primary consideration.

Relevance to State's Priority Research Areas – Projects demonstrating the greatest relevance to the current priority research areas of the Commonwealth of Kentucky will receive consideration.

Kentucky Focus – Projects having a focus on issues of relevance to the Commonwealth of Kentucky will receive consideration.

Results and Dissemination – The outcome of the project should broadly impact the greater public and enable their understanding of the problem. The information should reach not only the scientific community, but also policy makers and stakeholder groups.

Project Success – Probability of success of the proposed project will be considered. Depending on the nature of the project, it should result in greater understanding of the problem or result in the ultimate resolution of an identified problem.

Appropriate Budget – The proposed budget, given the level of effort proposed, should be shown to be appropriate. Proposed costs must be reasonable in light of the anticipated project benefits.

Performance Capability – The prior experience and the resources of the applicant should be shown to be sufficient to ensure their capability to perform the work being proposed.

Appropriate Fit and Lack of Duplication – The applicant should show originality of idea and how the proposed project complements (as appropriate) the previous, ongoing, or other planned efforts. KSEF funds should not be used to support a project currently funded through another source of state or federal funds.

Matching Funds – No matching funds, cash or in-kind, are required or requested for projects funded under the R & D Excellence Program.

5.3   Notification of an Award

It is the intention of KSEF to make notification of the award to the PI and the organization within six months of the online full proposal submission. However, the award date may be changed without notice due to unexpected delays in the review and approval process. Copies of confidential review comments, excluding the identity of the reviewer and their numerical scores, will be provided to the PI. Requests for copies of any other preliminary paperwork used in the decision making process will not be accepted.

5.4   Award Conditions

A Grant/Award Agreement will include, among other items, the proposal reference number, amount of the award, duration, and any other conditions including the methods of billing, reimbursement, Gantt chart, and reporting. A copy of the approved budget also will be included, which may be different than the requested budget. If satisfactory progress is not made on the funded project, continuation of the award may be suspended until the issues are resolved by the applicant. An award may be canceled if no progress is made or if the work conducted is different than the proposed work. No deviation in the work plan may be made without the

explicit prior written approval of KSEF. For further information on award modifications allowed, visit our website http://ksef.kstc.com.

5.5   Awardee Responsibilities

5.5.1   Acceptance of Proposal Content

The contents of this RFP, the applicant's proposal and all other appropriate clauses required under State guidelines will become part of the contractual obligations if an award ensues. Failure of the successful applicant to accept all obligations may result in cancellation of the award.

5.5.2   Fulfillment of the Project Personnel

The Awardee will be required to secure professionally qualified personnel and/or subcontractors necessary to perform the work approved in the award. KSEF reserves the right to review the qualifications of key personnel assigned by the Awardee to the project to assure that this condition of the award is met.

5.5.3   Presentation Requirements

Awardees will be required to make an oral/poster presentation of their research finding at the annual awardee conference hosted by KSEF/KSTC. Expenses related to travel and registrations are the responsibility of the Awardee. The expenses may be paid for with KSEF funds under the travel portion of the budget.

5.5.4   Reporting Requirements

KSEF has three types of technical reporting requirements, depending on the category and period of the award (See table below). An online reporting tool is available at the site of application (http://applications.kstc.com).

	Report Type	Purpose	Required	Names
1	Semi-Annual Technical Status Report	To track adherence to proposed timeline for the project and to report key achievements and causes of delay	At six month intervals	S1: 1st Year, S3: 2nd year
2	Annual and Final Technical Report	To report the findings of the study and related achievements	At the end of one year and the award period for all awardees	Annual, Final
3	Post Award Report	To track PI's and Co-PI's professional growth and achievements after the end of each KSEF award	Annually, for five years following the end of the award period	P1 P2 P3 P4 P5

Electronic Semi-Annual Technical Status Reports, Annual Technical Reports, and Final Technical Reports are required on or before the deadlines as outlined on each Award Agreement. An extra 30 days following the end of the award performance period is allotted for submission of the Final Technical Report. Semi-annual and Final invoice payments are subject to submission and acceptance of each respective report.

Post-award follow-up reports are required, submitted annually for five years after submission of the Final Technical Report, to gather information on PI's professional growth and achievements. The report is inclusive of <u>all</u> professional activities and <u>not</u> limited to the KSEF award. The information provided in the post-award reports helps the Commonwealth to determine value of its investment (or return on its investment) in the KSEF Awardees, they provide an estimate of S&T Human Capital growth, and it helps determine if the KSEF program should continue to receive State funds each year.

5.5.5   Publication and Presentation Acknowledgement

The PI and Co-PIs will acknowledge in their manuscripts, reports and presentations, the financial support received from the Commonwealth of Kentucky through KSEF, an initiative of KSTC using the language provided in the Award Agreement.

6. Future Requests for Proposal

Applicants should go to the KSTC website (www.kstc.com) or the KSEF website (http://ksef.kstc.com) for RFP announcements. Information is also posted by KSEF on Twitter via @KSEF_Team.