



ACVS Foundation Research Grants Grant Application Quick Reference Guide

Introduction

This quick reference guide has been prepared to give informal, clarifying information on selected parts of the ACVS Foundation grant funding application process that may be misunderstood or poorly addressed by applicants. Common mistakes made by applicants in the proposal submission often detract from its quality and subsequently increase the likelihood of the application scoring poorly during the review process.

This guide is *not* meant to be a comprehensive grant application writing guide, nor a replacement for the official application instructions “Submitting Your ACVS Foundation Research Grant Application Online” (available at <https://acvs.org/foundation/grant-application>). Applicants are encouraged to seek out other resources for specific assistance with grant application preparation, some of which are available on the ACVS Foundation website <https://acvs.org/foundation/grant-resources>.

This guide follows the order of the application/submission process as set forth in the instructions “Submitting Your ACVS Foundation Research Grant Application Online,” under the heading “Required Information to Enter Online.” Some sections are self-explanatory and require no guidance and, therefore, are not covered in detail here.

Questions related to application preparation that are not answered either in this quick reference guide or in the application instructions should be directed to Tracey Delaney, programs coordinator, at tdelaney@acvs.org or 301-916-0200 x101.

Getting Started on the ACVS Foundation Grant Application

Research ideas and projects arise from the need to advance areas of science. Research is aimed at answering fundamental questions surrounding a particular subject or area. Arriving at a fundamental research question is the first step in formulating ideas on how to best answer the question. Some questions are obvious and the approach to answering them may also be obvious. Other questions require more extensive thought to arrive at the question to be answered *and* the best approach to take to be able to answer it. Regardless, an extensive literature review is the first step in formulating a research question that has not been previously answered. **If you do not read history, you may be attempting to repeat history.** It is also important at this early stage of preparation to consider the ultimate impact that finding an answer to the research question will have. There are limited resources devoted to research. One role of the ACVS Research Committee is to decide which applications are likely to have an impact on the field and on animal welfare in general. Impact is one part of an application that should be clearly stated, but not overstated. The goal of any application is to convince the Research Committee that completion of the work will have a benefit to the mission of ACVS. The mission of the ACVS Foundation is *to support the advancement of surgical care of all animals.*

Another critical step early in the proposal preparation period is to identify the **collaborative team** who would be best suited to support the study. Consider carefully whether members of the team have prior experience using the techniques in the study, whether the team has adequate expertise in study design and statistical analysis. It is not unusual to have multiple investigators on a study to strengthen the experimental approach to give the study the best chance at successful completion.

Finally, to demonstrate to the Research Committee a reasonable likelihood of successful completion of the study, it is beneficial to demonstrate in **preliminary data** that the team can perform the techniques proposed in the grant application. Without prior funding, this can be challenging; however, considering creative ways to demonstrate the investigators have the ability to perform the study can greatly strengthen the application.

Required Information to Enter Online

Section A: Cover Page (Application Overview)

Short Abstract:

The short abstract is a critical part of the application. Reviewers will often read this first and it cannot be overstated that a clear perspective and interest in the application should be gained from reading the abstract. The abstract should include statements regarding the current knowledge gap (the research question), objectives, specific aims and hypotheses, methods, as well as the expected outcomes and impact of the proposed research.

Indicate if the research grant involves animals protected by the "Animal Welfare Act."

Warm-blooded vertebrate animals used in biomedical research are protected by the Animal Welfare Act. The use of cadaver materials for biomedical research or testing is not.

Grants submitted for the Surgeon-in-Training Grant are required to upload a completed Integrity Statement at the time of grant application.

Section B: Applicant Organization

This information is utilized following grant awards. The section is self-explanatory and necessary personnel vary from institution to institution and from academic to private practice investigators.

Section C: Biographical

This form must be completed and uploaded by all applicants. It is generally self-explanatory; however, the following are commonly misinterpreted or misstated on applications.

A: Location:

This is the geographic/institutional location of the investigator. To consider the logistical feasibility of an application, this information is necessary for the Research Committee to understand the role of each investigator, based on where the proposed work will be performed by each investigator.

E: Role in Proposed Project Including Time Commitment (be specific):

It is important to clearly state the role of each investigator in the project. **The time commitment is the time each investigator will commit to this project as a percentage of their other professional time commitments. Time commitment is not the percentage of the project for which each investigator is responsible.** Total professional effort cannot exceed 100%. For residents, effort should be feasible given clinical commitments of their residency.

Section D: Previous and Current Research Support

For residents and investigators early in their careers, it is generally understood by reviewers that there may not be any previous or current research support.

Section E: Budget

The budget is a required document upload. A detailed and accurate budget is one way for the applicant to show reviewers that the project has been well planned and contingencies have been considered. Justification of the budget is an opportunity for the applicant to clarify any budgeted expenses whose relevance to the project may not be obvious.

Other Available Support:

These are other funds, materials, etc., which are currently available for the proposed project. It should be made clear whether there are any restrictions or conditions on the use of other available support as it relates to the proposed project. Any materials or equipment donations from industry should be noted here.

Other Requested Support:

These are other applications for the same project which are currently pending. Applications that have either complete or partial overlap with the current application should be included here. If there is overlap, give details of the amount and type of funding overlap.

Section F: Facilities and Equipment

A clear description of the available facilities and equipment is used by the Research Committee to assess the feasibility of the project and the ability for the investigators to complete the proposed work. Include estimates of case recruitment rates if clinical studies are proposed.

Section G: Research Proposal Information

As with many other aspects of the research application, an investigator's attention to detail can be reflected in the ability to follow required formatting and content requirements. The Research Committee sees a large number of the same application format, and it is often clear when someone fails to follow the required formatting. Spell check and proof read an application entirely, prior to final submission.

Required Content:

- 1) Hypothesis: This should be objectively testable. This is precisely what the research should propose to do. The hypothesis(es) should relate directly to the research objectives and vice versa. It is preferable to state the hypothesis in a directional manner, based on the best estimate of the expected results of the research. For the scope of most ACVS Foundation grants, it is unrealistic to have more than one or two hypotheses.
- 2) Specific Aim: State as explicitly as possible what the research will accomplish. It is useful to include the investigators' expectations and how they relate to the research objectives. How will the investigators test the hypotheses? There may be more than one specific aim required to adequately test each hypothesis.
- 3) Background and Significance/Preliminary Studies: This should be a condensed literature review, making the case for why the proposed research is important and why it should be performed by the

investigators. It is important to identify clearly, the knowledge gap (research question) that this research will fill. Making a logical, convincing argument regarding the significance of the research is a critical step in convincing a reviewer that the project should be funded. This section is also where the potential impact of the anticipated research results should be highlighted. Reviewers are a broad cross section of the College membership and the chance that more than one Research Committee member is an expert in your specific field of research is low. For this reason, background arguments should be made in such a way that reviewers who are broadly educated in the field of veterinary surgery can understand. One can think of the background and significance/preliminary studies section as a funnel—directing the reviewer down a progressively more narrow opening so that by the time this section is complete, the reviewer should be surprised that no one has thought of the research question or hypothesis before. Therefore, actually doing the experiment should be a formality because the results will not be a surprise.

- 4) **Experimental Approach:** Investigators should use enough detail that the reviewers can understand exactly what is being proposed. It can be helpful to break the approach down along specific aims, where possible, so that it is easy to follow. It is also possible to have a general approach, and then outline methods to address the specific aims. An important way for applicants to show that they understand and have thought through the details of a project is to identify and address potential limitations of the research and include contingency plans for such events. An obvious flaw in an application that is not addressed by investigators leaves reviewers concerned about such possibilities. This typically impacts negatively on the scoring of an application. There are no perfect research projects and failure to identify limitations shows that investigators have not thought through the process in sufficient detail to realize the limitations, not that the application is so well constructed as to not contain any limitations!
- 5) **Statistical Methods:** Generally, to test a hypothesis objectively, statistical analysis of objective data is necessary. There are exceptions to this situation; however, it is most often the case that some degree of data analysis will be performed, with results presented and ultimately interpreted. Designing a study so that a balanced data set is obtained to allow statistical analysis is critical. Central to any statistical analysis, especially when the use of live animal subjects is proposed, is an assessment of the sample size required to obtain meaningful results. This requires an estimation of the variability that the investigators expect in their principal outcome measures (this can be taken from preliminary data, previous studies or literature when similar methods are used), as well as a judgment as to what a clinically meaningful finding would be in terms of a difference between experimental groups (known as the effect size). It is useful to explain the rationale used when presenting this information. Sample size should also take into account drop-out of client owned animals, if applicable. Simply stating that a sample size of six will be used (because that is what all the other studies in this field have used) is insufficient! Again, investigators that have thought through their application fully will be able to present a well-justified statistical approach to the data expected from the project. It is generally worthwhile to consult a biostatistician for assistance in this area of the application.
- 6) **References:** Use appropriate citation formatting (*Veterinary Surgery*) to complete the reference list and citations. Again, a lack of attention to detail here can reflect poorly on the entire application.

Summary

The comments above have been assembled by the ACVS Research Committee to clarify for inexperienced investigators, some of the jargon and expectations of reviewers for research applications submitted for funding through the ACVS Foundation. Applicants are encouraged to begin preparing applications early and allow time to “fine tune” the application into a clear, precise, and well-organized

document that will allow reviewers to understand fully, the scientific merit and importance of the project being proposed. The abstract and first page (hypotheses and specific aims) are critical to capturing their attention and imagination. All applications must be submitted online at <http://www.acvs.org/foundation/grant-application>.