



Guide to Grant Writing

Cancer Research UK (CR-UK) is keen to increase the number of new investigators in its research portfolio. CR-UK receives a large number of project applications each year but many of these are poorly written and considered unfundable.

We hope that this guide will provide you with an insight into:

- the grant assessment process
- common reasons for failure
- what CR-UK is looking for in a successful grant

Grant Assessment Process

External Peer Review

Your application will first be checked for eligibility and to see that it is inkeeping with the remit of the funding committee it has been submitted to (for example, for the CR-UK Science Funding Committee, applications are invited that cover any aspect of biomedical science as long as the applicant is able to explain the relevance of the proposal to cancer). The application will then be sent to a number of international experts (external referees) in the field who will read it in confidence and provide written comments on the work proposed:

1) Does it address an important scientific question?

- Is it novel?
- Will it make an impact on the field or on policy and practice?
- Is it cancer relevant?

2) Scientific Quality

- Has the applicant taken account of the important discoveries or other research in the field and placed their research within this wider context?
- Is it based on sound pilot data?
- Will the methodologies/experimental plan proposed answer the question?
- Has the applicant identified any high risk areas and proposed a fall-back plan?

3) Can it be realistically completed within the timeframe?

- Is the level of resource appropriate?
- Are the appropriate facilities available?
- Is the appropriate expertise on board?
- Is there a logical and well thought out plan of investigation?
- Is there a Plan B if Plan A fails early in the life of the project?

4) Value for money

- Is the approach suggested the most cost-effective way of answering the question?
- Has the applicant justified clearly the request for resources?

Underpinning all of this is the quality of your presentation and the strength of your track record. That is, the referees will be influenced by the ease with which they were able to read your proposal and understand it and will pay particular attention to your CV and publication record. If the referees consider both of these to be strong, they are more likely to have confidence in your ability to deliver and thus rate your proposal favourably.

Funding Committee Decision Making

Note that all of the above points are equally important for the two or three lead members of the funding committee (Designated Members = DM) who will then read your application along with the referees' comments before discussing your application on the day of the funding meeting. Given the high numbers of applications that the committee deal with (can be as many as 70-80 applications per meeting) some of the poorer applications are discarded after only a very brief discussion. Very high quality applications that contain, at most, only a few minor flaws, tend to require brief discussion as these are often quickly identified as being high enough quality for funding. Most discussion time is spent on the 'fundable' grants that contain high quality features but for which the committee still have some unanswered questions or concerns – the best of these will be funded at the expense of the poorer ones. Occasionally a resubmission is invited when the committee feels the research idea is a very attractive one but has spotted an addressable flaw.

Most Common Reasons for Failure

"Poorly written"	"Descriptive and no clear hypothesis"
"Too ambitious"/"Unfocussed"	"Experimental plan not well thought through"
"Too much of a fishing exercise"	"No clear plan of next steps"
"No link between aims, methods analysis plan and proposed outcome(s)"	"Work already been done"/"Important publications not cited" (poor literature review)
"Scientific basis for hypothesis is unsound"	"Pilot data unconvincing"/"Data not clearly labelled"
"Poor/lack of analysis plan"	"No contingency plans"
"Appropriate controls missing"	"Using inappropriate cell line"
"Not a worthy aim"	"Not clear how they will follow up microarray data"
"No relevance to cancer"	"Information required too burdensome for patient"
"Not clear what impact the findings will have on the field/policy or practice"	"Not enough samples included in the study to make meaningful conclusions"
"Better model/methodology available to address the question"	"Expensive and long-winded way of addressing the question"
"Applicant has poor publication record"	"Lacking appropriate expertise"
"Not ethical"	"Is the research feasible and acceptable"

Tips on writing a good grant proposal

In writing your application, bear in mind that Committee Members receive a high number of these to look through and that many of them will be non-expert in your area. You will therefore impress them by making it straightforward for them to read and understand your proposal:

General

- read and adhere to guidelines (those that exceed the word limit will be returned)
- discuss with a senior colleague and ask them for comments after first draft
- make sure it is formatted appropriately and free of spelling, typing and grammatical errors (sloppy grant may be considered to = sloppy scientist!)
- structure it in a logical order
- keep it clear and concise
- minimise the use of acronyms (spell out first time you use)
- avoid technical jargon (clear definitions are very helpful)
- if linked to other projects, provide details making it clear what it is that you are asking the committee to fund
- provide a full justification for all staff (who will do what?), running expenses and equipment
- Clear time line for workplan
- Ensure that you adhere to any specific requirements of the funding committee concerned for example, the Population and Behavioural Sciences Committee requires patient involvement for certain types of applications.

Abstract – needs to be well written to attract attention of the committee

- Read by the whole committee, expert and non-expert members
- Needs to be clear, concise and self-contained
- Summarise:
 - the background (placing the proposal in context of current activities in the field)
 - state the hypothesis – what is the question(s) you are asking?
 - main experimental approaches to be used
 - the expected outcome
 - anticipated impact on the field/policy and practice

Main Body of the Proposal

Background

- provide a balanced appraisal of the relevant literature in the field, placing your proposal and the rationale for funding it within this context (avoid only self-citing)

Aims

- ensure that the over-arching hypothesis (or hypotheses) is clearly spelled out at the start

Plan of Investigation

- sub-divide your experimental plan into two or three sections (more than this is likely to lead to an over-ambitious plan of work)
- for each section make it clear what the questions are that you are trying to address and why they are important
- flow diagrams and well planned figures can be effective in this regard
- include pilot data to convince the committee of the feasibility of your proposed research (ensure that any graphs/figures are clearly labelled and explained)
- show a timeline and experimental milestones
- is the methodology you are using the most effective - explain why you are using a particular experimental approach in preference to others and include a fall-back plan if it is a high-risk approach
- if there are complexities associated with the techniques you are using or with the data that arise acknowledge that you have an understanding of this and a plausible plan for interpreting the data.
- include a description of the appropriate controls
- If you do not have the relevant expertise for important aspects of your grant then consider involving co-investigators as formal co-applicants or signed collaborators.
- If your study involves access to patients or samples ensure that the numbers are large enough to provide meaningful data.

Focus on quality and not quantity – better to put the effort into one high quality application rather than firing off a number of lower quality proposals