Check List for Research Proposal

Version 3 2022/05/17

- [ ] The proposal does not exceed 25 pages (Including preliminary results)

Title

- [ ] The title is accurate and concise.

Abstract

- [ ] English abstract does not exceed 1 page.
- [ ] Abstracts are structured in presenting the **Purpose (The question addressed), Specific Aims, Experimental Design, Anticipated Results,** and **Significance** of the proposal.
- [ ] English abstract matches Chinese abstract.

Specific Aims

- [ ] Describe the goals that can be achieved within 3-year study.
- [ ] Limit to one page.
- [ ] Describe concisely and realistically what the specific research is intended to accomplish and any hypotheses to be tested.
- [ ] The project employs novel concepts, approaches or methods.
- [ ] The novel concept (hypothesis) is supported by **more than one** rationale.
- [ ] The novel methods and approaches have **advantages** over the existing methods.
- [ ] The aims are original and innovative, **not confirmative**.

Introduction (background → question → hypothesis and rationale → significance)

- [ ] Do not exceed 8 pages.
- [ ] Briefly sketch the background of the present proposal and **evaluate** the existing knowledge. Introduction is not a comprehensive review.
- [ ] Specifically identify **the knowledge gaps which the project is intended to fill**, and point out the questions to be answered.
- [ ] Clearly indicate your **hypothesis** and **rationale** in the end of Introduction.

Significance

- [ ] This study addresses an important problem in biomedical research.
- [ ] Describe **how scientific knowledge will be advanced** if the aims of the proposal are achieved.
- [ ] Describe how these studies will **affect the concepts or methods that drive this field**.
- [ ] Describe the **potential clinical application** of the finding from the proposal.
- [ ] 1 page is recommended.

Preliminary results (for thesis proposal or NSC proposal only)

- [ ] Describe the results **supporting the hypothesis** of the proposal
- [ ] Describe the results supporting feasibility and importance of the proposal.
- [ ] Describe the results **establishing the experience and competence of the investigators**.
- [ ] Preliminary results have been repeated.
- [ ] Preliminary results are well-presented as in a ready-submitted manuscript.

Research Design and Methods

- [ ] Describe the research design and the procedures to be used to accomplish the specific aims of the project.
- [ ] Include the means by which **the data will be collected, analyzed, and interpreted**.
- [ ] Describe the statistical method used in analysis of the data.
- [ ] Present the logic strategy of the research plan, including **the rationale to select methodology, cell lines, animal models** etc.
- [ ] Include **positive and negative control**.
- [ ] Discuss **the sensitivity and specificity of experimental methods**, including alternative complementary experimental approach.
- [ ] Research methods are not just a compilation of protocols.
- [ ] **Overall research designs match specific Aims**.
- [ ] The conceptual framework, design, methods, and analyses adequately developed, well-integrated, and appropriate to the aims of the project.
- [ ] Past tense was NOT used in Research Methods
- [ ] **A research flow chart is recommended** at the end of this section. You may indicate how the research design solve the questions addressed in the Aims.

Expected Results and potential difficulties

- ☐ Estimate the extent to which anticipated results would satisfy the original hypothesis
- ☐ Describe how those results would be important for planning the next steps in the research plan.
- ☐ Discuss the **potential difficulties and limitations of the proposed procedures and alternative approaches to achieve the aims**.
- ☐ 1-2 pages are recommended

References

- ☐ Include a complete citation for each reference in the text. Each literature citation must include the names of all authors, title, source (book or journal), volume number, page numbers and year of publication. Note: "et al." should only be used after ten authors. Please use the following style for references: Article in a periodical: Sondheimer, N., and Lindquist, S. (2000). Rnq1: an epigenetic modifier of protein function in yeast. Mol. Cell *5*, 163–172.
- ☐ Make every attempt to be judicious in compiling a selected, **relevant**, and **current** list of literature citations.

Appendices

- ☐ Affidavit of Approval of Animal Use Protocol, National Cheng Kung University (實驗動物照護與使用委員會審查同意書）
- ☐ Gene Recombinant & Infectious Biological Materials Experiment Applications 基因重組實驗審查表及基因動物實驗/RG2以上感染性生物材料實驗申請同意書
- ☐ 人體研究倫理審查委員會人體研究計畫審查申請書