Guidelines for the Preliminary Examination

The primary purpose of the preliminary examination is to help train students to function as successful scientists and to help in the evaluation of their academic progress. During the examination, the student will have an opportunity to put together ideas and hypotheses in a selected field, to express these ideas in writing, and to defend them orally. The student should expect and appreciate sharp criticism of his/her research proposal and should accept the challenge and confrontation of the exam as valuable aspects of his/her learning experience and preparation as a research scientist and academician.

General Procedures

Topics: A student will be expected to pass, before the start of the third year of fulltime graduate study, an exam based on a research proposal in a scientific area distinct from the research focus of the student’s laboratory. Suitable topics for development into abstracts must be approved by the Prelim Exam Advisor prior to abstract submission.

Prelim Exam Committee: One month prior to submitting abstracts, candidates will be assigned a pre-selected Prelim Exam Committee consisting of four Department of Pathology faculty members that belong to or participate regularly in the Division of Microbiology and Immunology. The Prelim Exam Advisor will either serve as the committee chair or assign a member of the committee to serve as chair. Following the selection of an abstract for a full proposal, the committee chair will recruit a fifth member from outside the department to be a member of the committee, preferably with some level of expertise in the chosen topic.

Abstracts: The candidate will choose a date (usually in the winter or spring of their second year) for submitting abstracts from a list provided by the Prelim Exam Advisor. The student is encouraged to discuss the abstracts with faculty members during their preparation. Two completed abstracts (see formatting guidelines below) must be submitted by the chosen date to the Prelim Exam Committee. The Prelim Exam Committee will meet with the candidate within one week of abstract submission to discuss the suitability of the abstracts, choose one for development into a full proposal and provide feedback and advice. Should one or both abstracts be deemed unacceptable, the committee may set a deadline for submission of a revised abstract(s).

Proposal: The committee will select one of the written abstracts for expansion into a complete proposal (see formatting guidelines below). The exam will take place six weeks following the selection of a proposal. One week before the exam date, paper and electronic copies of the written proposal must be submitted to the Preliminary Examination Committee. Candidates are encouraged to consult with their committee and outside experts in the preparation of their proposal, as would be common in the preparation of a normal grant proposal.

Exam: The Preliminary Exam will last no more than 2 hours. Candidates should prepare a short presentation outlining the background, specific aims and approach of their proposal. Mentors may be present but not participate in the actual examination. However, their participation is encouraged before and after the exam during committee deliberations, at which time the student will leave the room. The Prelim Exam Committee will make one of three choices: 1) unconditional pass; 2) unconditional fail; or 3) revise and/or retest.

Formatting Guidelines: Abstracts are limited to 5 pages double-spaced (including tables and figures). Full proposals are limited to 20 pages double-spaced (including tables and figures). Abstracts, proposals, and bibliographies should use 12 pt Times New Roman or 11 pt Arial font, with 0.5” margins. Bibliographies should be added at the end of both the abstract and the proposal and must include complete references with all authors and full titles. The bibliography is not counted against the page limit.

Deadlines: While every effort will be made to accommodate student preferences in scheduling abstract deadlines, exams should take place by or before the end of their second year of study. It is anticipated that students will complete the exam and any required revisions/retests prior to the beginning of their third year.
Prelim Exam Checklist

◊ Beginning of Fall Semester: Meet with Prelim Exam Advisor to select abstract deadline

◊ Receive approval for abstract topics from Prelim Exam Advisor

◊ One month before abstract deadline: Prelim Exam Advisor will organize Exam Committee

◊ Submit Abstracts to committee members by deadline using appropriate formatting

◊ One week after abstract submission: Meet with committee to choose an abstract for expansion into a full proposal and to schedule the Preliminary Exam. Meeting will be organized by Prelim Exam Advisor or assigned Committee Chair

◊ One to two weeks after selecting an abstract: Prelim Exam Committee Chair will recruit a 5th member of the committee from outside of the department

◊ Submit full proposal to committee member five weeks after selection of an abstract (minimum one week prior to the exam). Proposals that do not follow formatting guidelines will be deemed unacceptable.

◊ Preliminary Exam will take place six weeks after abstract selection.
Advice for abstract and proposal preparation

Selection of topics: Students should identify two topics of interest to them. They should choose topics unrelated to their current thesis research. Students will develop a rough outline of the questions they wish to address within these topics. After choosing topics, students will meet with the prelim exam advisor for approval. Do this early in the process so you don’t spend too much time on an idea that isn’t going to be approved. This is not a critical evaluation of the topics but rather a determination that the subject matter is suitable. What is suitable subject matter? Topics directly related to your thesis research are inappropriate. In general, students are encouraged to move outside of their immediate research interests and comfort zone. You can save yourself some grief by not playing the “how close can I get” game. Explore literature that in your estimation is legitimately outside of what you consider to be your area of expertise. The goal here is to broaden your horizons and identify good and interesting questions. More than training to be a virologist, immunologist, microbiologist, etc., you are training to be a scientist. Identifying and asking good questions is critical, regardless of your field.

Abstract Preparation: Abstracts should state the specific aims of the proposal and briefly outline the background and important questions to be addressed (overall hypothesis). They should state the specific goals of the project (usually 2-3 Aims) and the working hypothesis to be tested within each aim. They should also include an overview of the experimental methods you plan to use to address these aims. The following link has information about how the grant process works at NIH (the most common funding mechanism is referred to as an R01) as well as some sample grants that have received outstanding scores in the past. These are longer than the proposals you will prepare, but they should provide ideas for organizing both your abstracts and your final research proposal.

http://funding.niaid.nih.gov/researchfunding/grant/pages/aag.aspx

Proposal Preparation: While opinions and styles vary from investigator to investigator, proposals often contain section such as: 1) Specific Aims; 2) Background and Preliminary Data; 3) Research Design. Within that format you have a lot of leeway, and the link above may help you with ideas. Remember, highlight the specific questions that you are addressing at each step (hypothesis-driven research), ensure that your research design directly addresses those questions, and think about alternative approaches. Some of the criteria that NIH reviewers use are:

1) Significance. Does the study address an important problem? How will scientific knowledge be advanced if the specific aims are achieved? Will these studies influence the concepts and methods that drive the field?

2) Approach. Are the concepts, experimental design and methods, and data analysis adequately developed to directly address the question at hand? Does the proposal really address potential problems and consider alternative approaches?

3) Innovation. Does the project use novel concepts, approaches, or methods? Are the aims original and innovative or are they just a rehashing of established concepts? Does the project develop new methods or challenge existing paradigms?

Getting Feedback: It is perfectly normal for an investigator writing a grant to seek advice and expertise on a grant he/she is writing. It is not normal for an investigator to rely on others to identify good questions for him/her to explore. Consultation with members of your committee and others in their area of expertise is permitted and encouraged. It might be helpful to have a limited number of fellow students/post-docs give you input on your proposal (both for content and grammar). However, as with any grant writer, you alone are responsible for the scientific rigor of your ideas. Learn to rely on your own best judgment and ideas rather than leaning too heavily on others. It is important to strike an appropriate balance between incorporating feedback from others and trusting your own instincts.