Pennsylvania Department of Health
Final Performance Summary Report
Formula Grants

Overview of the Health Research Project Performance Review Process and Criteria

An applicant that receives a health research grant under Tobacco Settlement Act / Act 77 of 2001, Chapter 9, is subject to a performance review by the Department of Health upon completion of the research project. The performance review is based on requirements specified by Act 77 and criteria developed by the Department in consultation with the Health Research Advisory Committee.

As part of the performance review process, each research project contained in a grant is reviewed by at least three experts who are physicians, scientists or researchers. Reviewers are from the same or similar discipline as the research grant/project under review and are not from Pennsylvania. Reviewers use the applicant's proposed research plan (strategic plan), the annual progress report and final progress reports to conduct the review. A grant that receives an unfavorable performance review by the Department may be subject to a reduction in funding or become ineligible for health research funding in the future. The overall grant evaluation rating is based on the ratings for the individual research projects contained in the grant.

This performance review report contains the outcome of the review for the grant as a whole (outstanding, favorable, or unfavorable), strengths and weaknesses of each research project, as well as recommendations for future improvement.

The following criteria were applied to information submitted by research grant recipients:

- **Criterion 1 - How well did the project meet its stated objectives? If objectives were not completely met, was reasonable progress made?**
  - Did the project meet the stated objectives?
  - Were the research design and methods adequate in light of the project objectives?
  - Consider these questions about data and empirical results: Were the data developed sufficiently to answer the research questions posed? Were the data developed in line with the original research protocol?
  - If changes were made to the research protocol, was an explanation given, and, if so, is it reasonable?
  - Consider (only for clinical research projects) the extent of laboratory and clinical activities initiated and completed and the number of subjects relative to the target goal.
  - Were sufficient data and information provided to indicate or support the fact that the project met its objectives or made acceptable progress?
  - Were the data and information provided applicable to the project objectives listed in the strategic research plan?

- **Criterion 2 - What is the likely beneficial impact of this project? If the likely beneficial impact is small, is it judged reasonable in light of the dollars budgeted?**
  - What is the significance of this project for improving health?
  - Consider the value of the research completed towards eventual improvement in health outcomes.
  - Consider any changes in risk factors, services provided, incidence of disease, death from disease, stage of disease at time of diagnosis, or other relevant measures of impact and effectiveness of the research being conducted.
  - Consider any major discoveries, new drugs and new approaches for prevention, diagnosis and treatment, which are attributable to the completed research project.
  - What are the future plans for this research project?

- **Criterion 3 - Did the project leverage additional funds or were any additional grant applications submitted as a result of this project?**
  - If leveraging of funds were expected, did these materialize?
  - Are the researchers planning to apply for additional funding in the future to continue or expand the research?

- **Criterion 4 - Did the project result in any peer-reviewed publications, licenses, patents, or commercial development opportunities? Were any of these submitted/filed?**
  - If any of the above listed were expected, did these materialize?
  - Are the researchers planning to submit articles to peer-reviewed publications, file for any licenses, or patents or begin any commercial development opportunities in the future?
  - Consider the number/quality of each.

- **Criterion 5 - Did the project enhance the quality and capacity for research at the grantee's institution?**
  - Were there improvements made to infrastructure?
  - Were any new investigators added or were any researchers brought into the institution to help carry out this research?
  - Were funds used to pay for research performed by pre- or post-doctoral students?

- **Criterion 6 - Did the project lead to collaboration with research partners outside the institution, or new involvement with the community?**
  - Are the researchers planning to begin any collaborations as a result of the research?
  - For clinical research only: consider the number of hospitals and health care professionals involved and the extent of penetration of the studies throughout the region or the Commonwealth.

Overall Evaluation Rating

An overall evaluation rating is assigned to each research project. The rating reflects the overall progress the project attained in meeting the stated goals and objectives. The rating is based on a scale of 1–3, with 1 being the highest. An average rating is obtained from all the reviews (minimum of 3) of each project and is the basis for the determination of the final overall rating for each project as follows:

1.00 – 1.33 = *Outstanding*
1.34 – 2.66 = *Favorable*
2.67 – 3.00 = *Unfavorable*

The grant level rating is an average rating from all projects as above. The numerical rating appears in parentheses for the grant and each project in the ***Overall Grant Performance Review Rating*** section of the report.

Overall Grant Performance Review Rating

Grant Rating: Outstanding (1.00)

Project Rating:

Project	Title	Average Score
0989701	Identifying Novel Antiviral Agents against Hepatitis B Virus	Outstanding (1.00)

Project Number: 0989701
Project Title: Identifying Novel Antiviral Agents against Hepatitis B Virus
Investigator: Cohen, Chari

Section A. Project Evaluation Criteria

Criterion 1 - How well did the project meet its stated objectives? If objectives were not completely met, was reasonable progress made?

STRENGTHS AND WEAKNESSES

Reviewer 1:
Strength: The Library of Pharmacologically Active Compounds (LOPAC1280) was screened, and 29 compounds displayed inhibitory activity against Hepatitis B virus (HBV) DNA synthesis. As proposed, the dose response analysis and toxicity assay were performed. Ancitabine hydrochloride, which is an anti-cancer chemotherapeutic, was selected and further characterized for determination of IC50 and IC90. Overall, the principal investigator successfully performed the experiment as proposed and obtained interesting and important results that have great potential for clinical application.

Weakness: N/A

Reviewer 2:
The project contained two major objectives. One was to screen HBV inhibitors from a library of known drugs, and the other was to train young investigators. These two objectives were successfully accomplished. Twenty-nine initial hits were identified from the library screening, with ancitabine being the most potent inhibitor of HBV replication. Also, eight undergraduate students received training through this project.

Reviewer 3:
The goals of this project were twofold: first, to identify potential new antiviral compounds that can be used therapeutically to treat HBV infection; and, second, to expand and diversify the future pool of biomedical researchers in Pennsylvania by funding summer research internships for undergraduate students. These objectives were successfully met.

The objectives also referred to the study of interferon-stimulated genes and their role in the clinical use of interferon for treating HBV infection. This appeared to be an error, as it did not pertain to the remainder of the application.

Criterion 2 - What is the likely beneficial impact of this project? If the likely beneficial impact is small, is it judged reasonable in light of the dollars budgeted?

STRENGTHS AND WEAKNESSES

Reviewer 1:
Strength: There is currently no cure for chronic Hepatitis B virus infection despite the presence of the vaccine; thus, finding new and improved therapies for treatment is highly significant for public health.

The study has great potential to impact the development of novel drugs or discovery of improved therapeutics to treat HBV-caused diseases. Enhanced and/or continued support could stimulate the progress of this project.

Weakness: N/A

Reviewer 2:
This project resulted in the identification of a potent inhibitor of HBV replication through screening of a pharmacologically active compound library. The compound ancitabine is a known anti-cancer drug, which provides an important lead for discovery of more specific inhibitors of HBV replication. Discovery and development of safer and more efficacious antiviral drugs against HBV will be paramount in reducing HBV-associated public health burdens around the world, particularly in the highly endemic areas of Pennsylvania.

Reviewer 3:
The overall scientific impact of the project was relatively modest. However, as the project period was very short (one summer) and the budgeted funds small ($1077), this was not unexpected and was not a weakness.

The long-term impact of the project could be very large if the student who was supported by the project chooses a career in science or public health research as a result of the experience gained through this internship.

Criterion 3 - Did the project leverage additional funds or were any additional grant applications submitted as a result of this project?

STRENGTHS AND WEAKNESSES

Reviewer 1:
Strength:
The principal investigator plans to submit one or more proposals to NIH this year based on the interesting results of the study. This is a proper timeline for the application.

Weakness: N/A

Reviewer 2:
Although this project did not result in funding from federal and private sectors, discovery of the lead compound ancitabine was an important first step in seeking additional funds in the future, as the principal investigator states in the final progress report.

Reviewer 3:
No applications have been submitted for additional funding, although new grant proposals are planned. The interesting new data generated by this project will lead to a wide variety of opportunities for future funding.

Criterion 4 - Did the project result in any peer-reviewed publications, licenses, patents, or commercial development opportunities? Were any of these submitted / filed?

STRENGTHS AND WEAKNESSES

Reviewer 1:
Strength: The results of the study are currently being organized for submission/publication in a peer-reviewed journal.

Weakness: N/A

Reviewer 2:
It is understandable that this project has not delivered any publication, patent, license, or commercial development based on the mild funding. However, the principal investigator expresses an interest in submitting for publication, the work derived from further characterization of HBV lead compounds upon its completion.

Reviewer 3:
There were no publications, licenses, or patents. This is not unusual for a summer project carried out by an undergraduate student.

Criterion 5 - Did the project enhance the quality and capacity for research at the grantee's institution?

STRENGTHS AND WEAKNESSES

Reviewer 1:
Strength: The project involved the efforts of three faculty members, research director, and summer intern students. The students had a great opportunity to perform experiments and understand the science.

Weakness: N/A

Reviewer 2:
This project has facilitated research and collaboration between the Hepatitis B Foundation and the Drexel Institute for Biomedical and Virological Research.

Reviewer 3:
Summer programs aimed at introducing undergraduate students to scientific research are often an important part of the mission of academic institutions. This is particularly true when the programs are designed to attract underrepresented population groups to careers in science. Therefore, the program that was supported by this award enhanced research at the applicant organization.

Criterion 6 - Did the project lead to collaboration with research partners outside of the institution or new involvement with the community?

STRENTHS AND WEAKNESSES

Reviewer 1:
Strength: The study involved collaboration between the Hepatitis B Foundation, the Institute for Hepatitis and Virus Research, Drexel University, and Drexel Institute for Biotechnology and Virology Research.

The project needed the recruitment of students from universities in Pennsylvania, strengthening their partnerships.

Weakness: N/A

Reviewer 2:
This research project helped to improve relationships between colleges and universities in southeastern Pennsylvania through a summer internship program to train young investigators, particularly undergraduate students.

Reviewer 3:
The recruitment of summer students to the institution is an important new involvement with the community.

Section B. Recommendations

SPECIFIC WEAKNESSES AND RECOMMENDATIONS

Reviewer 1:
None.

Reviewer 2:
This was a great mechanism for promoting basic and translational research leading to the discovery of new antiviral drugs for treatment of viral hepatitis.

Reviewer 3:

Summer undergraduate research programs are important for the development of the next generation of scientists in Pennsylvania. This is especially true when the goal of such a program includes attracting underrepresented populations into careers in science. The major limitation on the impact of this project was the very modest funding level, which only supported a single student. A larger multi-year program to fund a greater number of students is warranted and should be considered.