

Appendix II

Budget Allocation

Personnel Costs: \$227,156
 Fringe: \$ 70,712

Non-personnel Costs: \$404,227

Total: \$702,095

**Per UNC CH Policy, personnel fringe will be paid by the Collaboratory from this award prior to funding transfer.*

Budget Summary

EHRA Salary	\$136,810
SHRA Salary	\$ 90,346
Grad Student	\$0
Temps	\$0
Fringe Pool	\$ 70,712
Non-Personnel Expenses	\$404,227
Total	\$702,095

Appendix III

COVID-19 NC Collaboratory Projects

Your project summary has been reviewed by the COVID-19 NC Collaboratory Projects review team. The review team would like additional information about your project. Please provide the following by close of business, May 21.

Impact to the State (300 word limit)

- Description of the problem or challenge being addressed and how the problem impacts those in the state of North Carolina
- Describe how the proposed research will provide impactful solutions to the described problem to help the state of North Carolina

The goal of this Rapidly Emerging Antiviral Drug Discovery Initiative (READDI) project is to develop antiviral drugs to treat COVID-19. Developing these new drugs requires a multidisciplinary effort, with expertise in virology, medicinal chemistry, biochemistry, and viral pathogenesis. The READDI drug discovery pipeline leverages UNC-CH expertise in each of these areas into an integrated workflow with well-defined roles for each team member. The program uses an existing, validated antiviral drug discovery pipeline that has been active since late 2018. Using this pipeline, the Moorman and Baric labs have already identified targets for COVID-19 antivirals. Some of these targets have been validated for SARS2 antiviral activity using hit compounds from the Pearce and Willson labs, which have already begun to optimize these compounds. Approved inhibitors exist for a subset of these validated targets, and the Heise and Baric labs are testing these lead compounds for antiviral activity in vivo using highly advanced small animal models of COVID-19 replication and pathogenesis developed in the Baric lab.

In the next 6 months, this project will use this funding to rapidly advance these findings on all fronts in order to identify and optimize new antiviral drugs for use in treating COVID-19 disease. The Moorman lab will engage in drug target discovery and initial validation. The Willson and Pearce labs will optimize hit and lead compounds to provide better pharmacological profiles and enhanced antiviral activity. The Baric and Heise labs will measure antiviral efficacy using advanced in vitro assays and mouse models of SARS2 disease. The Baric laboratory will also perform additional studies using validated antiviral drug discovery pipelines in primary human airway epithelial cells and for RNAseq on these cultures. Together these efforts will provide the most comprehensive COVID-19 antiviral development and testing program available anywhere, ensuring UNC-CH remains a global leader in the response to the ongoing COVID-19 pandemic.

Milestones (300 word limit):

Description of what will be accomplished and what can be delivered by August 31, 2020, and by Dec. 31, 2020. The start date will be June 1, 2020.

August 31, 2020 Milestones

- Evaluate 6 existing leads in primary airway epithelial cells for activity against SARS-CoV-2
- Perform additional validated drug discovery screens in primary human airway epithelial cells
- Evaluate 2 leads in lethal mouse models of SARS-CoV-2 pathogenesis

Dec, 31, 2020 Milestones

- Evaluate 4 additional leads in lethal SARS-CoV-2 mouse models of human disease
- Identify a broad spectrum lead that has robust antiviral activity against MERS-CoV both in vitro and in vivo.
- Identify and validate 4 existing leads from the validated drug discovery screens in primary human airway epithelial cells

Budget Justification (200 word limit): Funds are limited. We encourage all teams to revisit their budget and determine if it can be reduced.

- Please also complete the provided budget template

Salary

One month salary support for Principal Investigator (faculty).

5.7 months salary support for 2 co-investigators (faculty).

7.4 months of salary support for 2 Postdoctoral Research Associates.

5 months of salary support for 1 Research Associates is requested.

9.3 months are requested to support the salary of 3 research staff, 5 months salary for 1 project coordinator, and .24 months for an accounting tech.

Fringe Benefits

Benefits are for faculty, staff and postdoctoral research associates are calculated as follows:
Faculty and Staff – 25.889% Social Security and retirement and \$6,512.00 for health insurance,
Postdoctoral Research Associate benefits 9.49% of salary and \$4,809 for health insurance.

Equipment

Funds are requested for two -80oC freezers for sample storage, a CO2 Dual Chamber Incubator for cell growth, and a -20 Freezer for reagent storage.

Supplies

Supplies critical to the completion of this project include cell culture, synthetic DNA, PPE, serum, Media, plasticware, RNAseq, chemicals, disinfectants, Animals, host coagulation and fibrosis assays, flow cytometry, kits, antibodies, enzymes, Cytokine storm measurements by bioplex, pipettes, nLUC assays, RNAseq, liquid handler disposables, Etc.

Other Expenses

Funds are requested for maintenance costs of laboratory equipment essential to the completion of this projects. Requested funds are proportional to the anticipated use of the equipment for this project.