

# Development of a Science-Theater Collaborative Platform



Funded Project Amount: \$30,000

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## Abstract

We developed a collaborative model for writing plays about science that drew on the expertise of research faculty in Science, Theatre, and the Center for Health Ethics, Arts, and Humanities. We tested our approach by developing a play exploring the ethical implications of biomedical research and the deployment of AI in research with human subjects. The play was performed by a professional actors at the International Retrovirology Conference at Snowbird Utah in September of 2023. The creative team consisted of Associate Professor Gretchen Case (playwright), Associate Professor Sydney Cheek-O'Donnell (dramaturg), Assistant Professor Alexandra Harbold (director), Associate Professor Saveez Saffarian (scientific consultant), Irenka Saffarian-Deemyad (scientific consultant), and Anna Skalka (scientific consultant, Fox Chase Medical Center, Philadelphia).

## Introduction

Science and technology have transformed our lives and will disrupt and reshape jobs within our community. Yet, from genetic modifications to quantum computing, science remains enigmatic to the public. In recognition of this problem, the National Science Foundation has required every scientific proposal to incorporate elements of outreach. One way to reach wider communities is live theater. The Alfred P. Sloan Foundation supports production of plays about science. The creation of plays about science, however, remain challenging because it requires non-traditional, cross-disciplinary collaborations too elaborate for junior investigators or emerging playwrights.

## Materials

Completing a script and a professional staged reading of this play included hiring a director, a playwright to help with script development, actors for both rehearsal and performance, spaces for rehearsal and performance, and sound and lighting equipment.

## Methodology

After an initial period of research and script development, we pivoted in our approach—from a play about the past to one about the near-future. We continued to explore key concepts in the history of retrovirology but with an eye toward how those ideas might be manifested in years to come. Inspired by Dr. Skalka, we landed on the fact that

**most mammals do not lay eggs because of a retrovirus that inserted itself into mammalian DNA millennia ago.**

This provided a starting point for our play, “Emergence,” which is set in the not-too-distant-future, when humans have discovered how to deactivate that retrovirus and can again lay eggs to procreate.

We went through numerous iterations of the play in draft form, finding a balance between dramatic storytelling and scientific accuracy. The scientists on our team began from a perspective of the play script as a text that would communicate in the same manner as a scientific paper or a lecture. The theatre artists brought the perspective that the script is only the blueprint for a fully realized performance. As the process advanced, we found ways to provide enough detail to ensure scientific accuracy while not bogging down the play’s action and character development with unnecessary exposition.



## Results



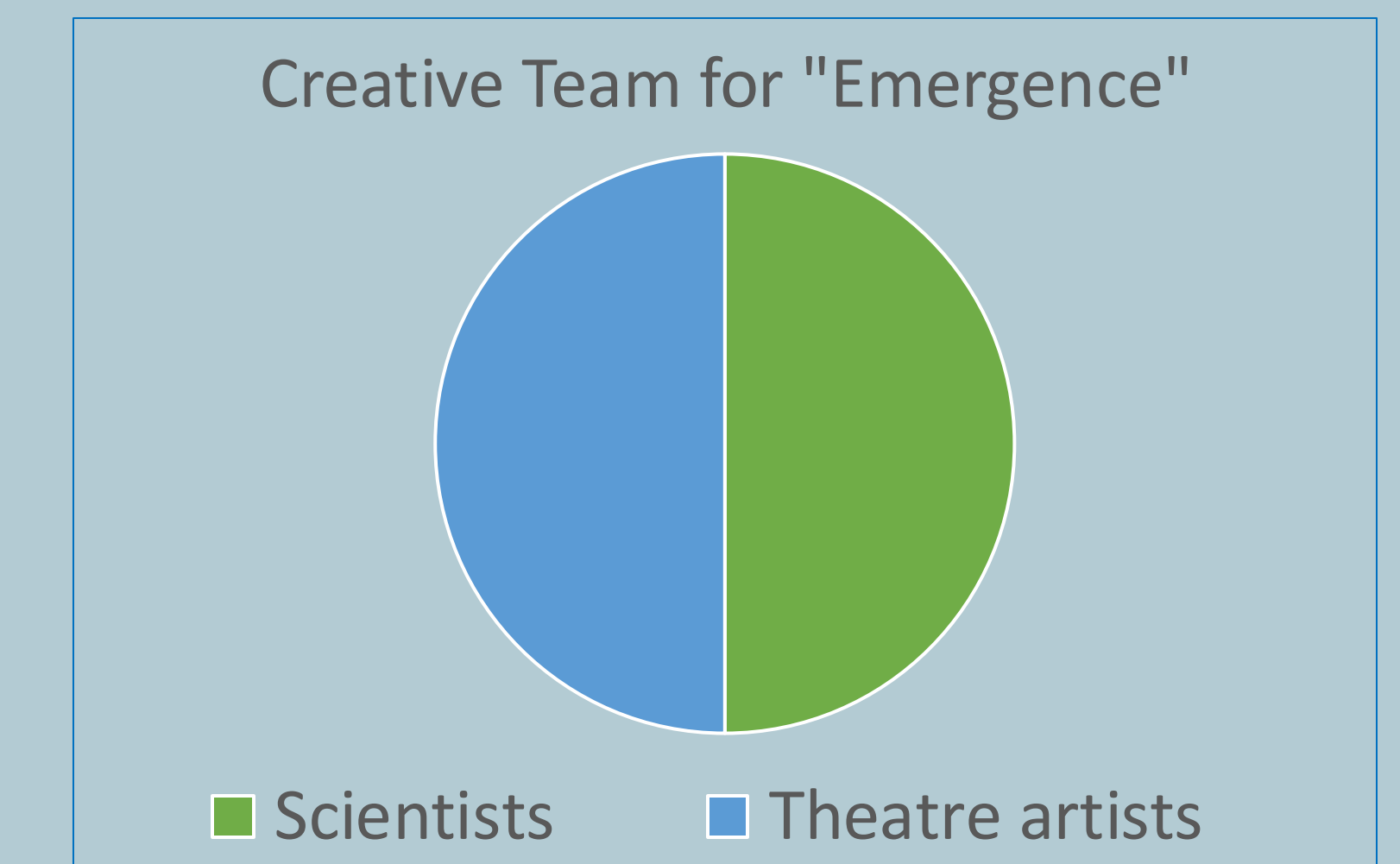
In September 2023, we premiered “Emergence,” which explores scientific and ethical aspects of retroviral research, with a staged reading at the 12th International Retroviral Symposium: Assembly, Maturation and Uncoating. Our audience of approximately one hundred people included retrovirus researchers from across the globe who participated in a lively question and answer session after the show. Our creative team included the playwright, dramaturg, scientific advisors, director, and professional actors. We documented the creative process, which demanded thoughtful compromise between teaching concepts and creating an engrossing plot and included several complete revisions. Our early findings included the importance of introducing both scientists and artists to the ethos of the respective disciplines and identifying parameters for a creative project. We plan to disseminate the lessons we learned so that other creative teams can see how to succeed at working across what might seem to be broad disciplinary divides. We have deeply appreciated the opportunity to conduct truly interdisciplinary research.

To view a videorecording of the September 2023 performance of “Emergence”:

<https://ramm2023.utah.edu/emergence/>

## Conclusion

This partnership was successful because everyone was committed to interdisciplinarity, in which no discipline is in service of another but are equally represented in ideas, language, and traditions.



## Recommendations

Scientists should consider partnering with playwrights and other theater artists early in the process of applying for grant funding. For example, the National Science Foundation (NSF) requires evidence that a proposed project will “broaden participation” in scientific research, and the arts are an excellent venue for reaching wider communities.

Opportunities for extramural funding include:  
1- Allowing junior faculty to propose science-theater collaborations as outreach mechanisms in their NSF proposals. “Emergence,” our play about retroviruses, will be directly incorporated into the next NSF proposal from Dr Saffarian’s lab.  
2- Allowing playwrights to develop plays with the potential to seek additional development and production support from arts, cultural and science education foundations.

## Acknowledgements

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