Graphical Abstracts to Communicate CounterACT Undergraduate Student Research

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Abstract

Short-term research experiences such as summer fellowship programs provide students with an opportunity to develop their research skills, explore career options, and improve written and oral communication skills. Most summer research programs for undergraduate students require a final poster or podium presentation. At Rutgers University, we developed an interactive session for undergraduates to conceptualize and draft written and graphical abstracts that summarize the major findings of their research. These were distributed at our research symposium. During week 7 of a 10-week fellowship, students drafted their interactive presentations. The presentation included a section on the components of an abstract using a variety of examples. Students were also taught common pitfalls to avoid in communicating research findings. After the discussion of each of the opening vectors (title, introduction, hypothesis, and methods), students were provided 3 minutes for writing. After each portion of the abstract was complete, students volunteered to share their writing with the group, and the moderator provided constructive comments. Different examples of graphical abstracts were also presented to the students. Thirty students submitted abstracts during week 8 of the summer fellowship program, which were assembled into booklets for the final research symposium. This interactive activity received the highest programmatic rating of the summer fellowship with a mean score of 4.68 (of 5.00) on a 5-point scale of 1-5 with 1 indicating not required and 5 indicating extremely required. Students also received with mean scores ranging from 3.4 to 4.6. Taken together, an interactive session that includes a draft, instructor and student response allows undergraduate students to begin writing and designing their written and graphical abstracts as part of a summer research fellowship. Supported by NIEHS R25ES020721, P01ES005522, ASPIRE, and the SOT Intern Program.

Example Graphical Abstracts

Comparing Ocular Therapies to Improve Corneal Mustard-Induced Injuries
Destiny Durante, Marlon K. Gordon
Pennsylvania State University and Rutgers University

Effect of Nitrogen Mustard Inhalation on Microparticle Formation in Rat Airways
Jordan Lee, Kinal Vayase, Vasanthi R.
Soni, Debra L. Laskin
Rutgers University

Restasis Modulates Sulfur Mustard Induced Meibomian Gland Rabbit Eyelid Injury
Jeau Kang, Gabriella Wahler, Laurie B. Joseph
Rutgers, University

Mechanisms of Sulfur Mustard-Induced Lung Injury
Zakiyah Henry, Yin Wang, Rama Malaviya, Debra L. Laskin
Winston-Salem State University and Rutgers University

BiPS as a Countermeasure for Vescicant-Induced Injury in Mouse Ear Skin
Tracy Peng, Donald Gerecke, Yoke-Chen Chang
Rutgers University

Dose-Response Toxicity of Nitrogen Mustard on Mouse 3T3 Fibroblasts
Amy Hu, Rita A. Hahn, Amy H. Chang, Donald R. Gerecke, Yoke-Chen Chang, Rutgers University

Assessment & Outcomes

- Weekly fellowship activities were well-received by participants.
- Notably, the Abstract Writing activity had the highest rating.
- Eight SURF participants presented research posters at the 2019 Society of Toxicology meeting.
- One SURF participant presented a research poster at the 2019 Experimental Biology meeting.

Approach

One Hour Activity during a 10-Week Summer Undergraduate Research Fellowship (SURF) Program

Instructor breaks down parts of Scientific & Graphical Abstracts

5 Min Writing for Each Section

Students Share their Section with the Group

Peer & Instructor Feedback

Mentor Feedback

Acknowledgments

SOT | Society of Toxicology
National Institute of Environmental Health Sciences

ASPIRE

RUTGERS Environmental and Occupational Health Sciences Institute [EOHS]

ESOP | Environmental Studies Program
R2ES020721, P01ES005522

SURF | Rutgers Undergraduate Research and Fellowships Program

Intern Program

American Society for Pharmacology

Drew University School of Pharmacy