



eCLOSE Institute is a 501(c)3 nonprofit organization with a mission to transform the biomedical workforce through direct training of students ages 10-99 in research. Since 2019, eCLOSE has supported over 3000 students in research training, with every participant making a new contribution to research designed to reduce the burden of cancer and diabetes.

How does it work?

Each participant receives a Lab-in-a-Box filled with the supplies and equipment needed to conduct professional research. Using our validated, award winning curriculum, expert eCLOSE Instructors provide training and guidance via video for use of the lab materials, research project design, and experimentation to test ideas.

1) eCLOSE Classroom

Students in grades 5-12 work together to develop hypotheses about the effects of junk food or healthy nutrients on the developmental life cycle of fruit flies. The program aligns with local and national science standards and includes learning on the life cycle, genes, phenotype-genotype, cells, organs, and organisms, mutations, genetic basis of disease (cancer), signal transduction, cell cycle, cell death, healthy diet, health equity, science and culture. Students will utilize mathematics for hypothesis generation and data collection and analysis. The program can be used in Life Science, Biology (Intro or AP), Environmental Science, Chemistry, or Anatomy/Physiology. Options are also available for after school and out of school programming.

Over 1700 Classroom students and their teachers contribute to important research annually.

2) eCLOSE Camp

After completing the Classroom Program, your students may choose to continue their research! eCLOSE 5-day Summer Camp programs provide the next level of professional research training, with students gaining increasingly challenging skills and investigating more complex concepts. Basic and Advanced Camps are offered, providing training from a first step into research to advanced biochemistry or behavioral research studies.

Great way to make science friends while learning what it feels like to BE a scientist!

More information:

<https://ecloseinstitute.org>
<https://www.facebook.com/eCLOSEInstitute/>
<https://www.linkedin.com/company/eclose-institute/>
https://www.instagram.com/eclose_institute/?hl=en
<https://www.guidestar.org/profile/83-4303157>

Contact us!

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215-377-9503



Awards and Honors:

- Winner, American Public University Systems Prize, Milken-Penn Education Business Plan Competition, 2019
- Winner, Nasdaq, West, Next Audience Choice Prize, Milken-Penn Education Business Plan Competition, 2019
- Winner, Bronze Medal, Reimagine Education Presence Learning and Teaching, 2020
- Winner, Greater Philadelphia Social Innovation Award, Education Technology, 2021
- Third Place, Greater Philadelphia Social Innovation Award, Life Science Workforce Diversity, 2022
- Elizabeth W. Jones Award for Excellence in Genetics Education, 2022
- Winner, Johnson & Johnson Health Equity Innovation Challenge, 2022
- Winner, Catapult Business Accelerator Program, University of Pennsylvania Graduate School of Education, 2022
- Viktor Hamburger Outstanding Educator Prize, Society for Developmental Biology, 2023

Published Validation Studies:

Waddell, EA, Ruiz-Whalen, DM, O'Reilly, AM, Fried, NT. Flying the Face of Adversity: a *Drosophila*-based virtual CURE (Course-Based Undergraduate Research Experience) provides a semester-long research opportunity to the flipped classroom. *J. Microbiol Biol Educ.* 2021. Nov 30; 22(3):e00173-21.

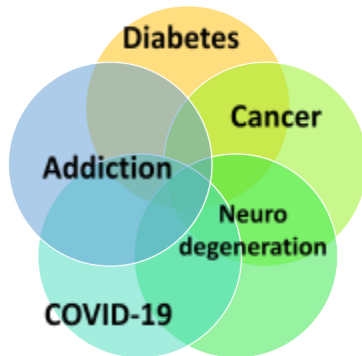
Hanley, Carol D., Jenni Ho, Chris Prichard, and Nathan L. Vanderford. 2022. "The Use of Virtual Research Experiences for Appalachian Career Training in Oncology (ACTION) Program High School Participants During the COVID-19 Pandemic." *Journal of STEM Outreach* 5 (2): 1–12. <https://doi.org/10.15695/jstem/v5i2.03>.

Dara M. Ruiz-Whalen* ^{1,2}, Christopher P. Aichele^{1,2}, Ebony R. Dyson^{1,2}, Katherine C. Gallen^{1,2}, Jennifer V. Stark¹, Jasmine A. Saunders¹, Jacqueline C. Simonet^{1,3}, Erin M. Ventresca^{1,4}, Isabela M. Fuentes¹, Nyellis Marmol¹, Emly Moise², Benjamin C. Neubert¹, Devon J. Riggs^{1,2}, Ava M. Self¹, Jennifer I. Alexander^{1,2}, Ernest Boamah¹, Amanda J. Browne¹, Iliana Correa^{1,2}, Maya J. Foster¹, Nicole Harrington¹, Troy J. Holiday¹, Ryan A. Henry^{1,5}, Eric H. Lee¹, Sheila M. Longo¹, Laurel D. Lorenz¹, Esteban Martinez¹, Anna Nikonova¹, Maria Radu¹, Shannon C. Smith¹, Lindsay A. Steele¹, Todd I. Strohlic^{1,7}, Nicholas F. Archer¹, Y. James Aykit¹, Adam J. Bolotsky¹, Megan Boyle¹, Jennifer Criollo¹, Oren Eldor¹, Gabriela Cruz¹, Valerie N. Fortuona^{1,2}, Shreeya D. Gounder¹, Nyim Greenwood¹, Kayla W. Ji¹, Aminah Johnson^{1,2}, Sophie Lara¹, Brianna Montanez², Maxwell Saurman¹, Tanu Singh¹, Daniel R. Smith¹, Catherine A. Stapf¹, Tarang Tondapu¹, Christina Tsiobikas¹, Raymond Habas⁶, Alana M. O'Reilly* ^{1,2}. Gaining wings to FLY: Using *Drosophila* oogenesis as an entry point for citizen scientists in laboratory research. *book chapter in press*, Springer *Drosophila Oogenesis*, editor, Tina Tootle. 2022.

Whalen, D. M. R., Brandt, C. B., & O'Reilly, A. M. (2025). Thousands of students gain science research literacy and agency by conducting immersive *Drosophila* research projects tailored to the health interests of their communities. *Developmental Biology*, 525, 270-281.

eCLOSE CITIZEN SCIENCE: CANCER

This eCLOSE Classroom program centers on cancer, a disease that affects 20 million people worldwide. Participation in eCLOSE Class2Lab gives students the power to support loved ones with cancer, by working to identify inexpensive, diet-based approaches to prevent cancer or make treatments work better. Cancer is affected by many other illnesses that affect students' families and communities, with the same cellular signals interacting to influence all of these diseases.



In eCLOSE Class2Lab programs, participants identify cultural dietary interventions used in their families to combat disease and then test how they affect cancer genes and proteins. Past participants have tested herbal remedies (e.g. ashwagandha, noni, guanabana, green tea, black seed extract, etc), increased fat, salt, vitamins, minerals, protein shakes, athlete supplements, and more. Bring your best idea and we'll support your efforts to find out how it works!



APPROACH:

- I. Sign up your group!
We can accommodate classes of up to 35 students.
- II. Let us know if there are specific nutrients you want to test!
 - a. We can provide samples to examine junk foods or nutrients that interest your group
 - b. eCLOSE will provide junk foods and nutrients if you are unsure what to pick this year
 - c. Email us at admin@ecloseinstitute.org with your ideas
- III. Login to the eCLOSE Learning Platform and get started in research!
 - a. The program requires 3 x 35 minute active classroom sessions, plus additional time for experimental planning, research on cancer genes and nutrients, data analysis, and preparation of poster materials. (eCLOSE provides lessons for 3 full weeks)
 - b. Video-based learning walks students through the core concepts and lab skills needed, as well as step-wise instruction for the experimental program.
 - c. Students or teachers record their data, joining with students nationwide who are all working to tackle the problem of cancer in our many communities.
 - d. Materials are provided for preparation of scientific poster presentations after completion of the program.

REQUIREMENTS:

- 1) Science teachers in grades 5-12- low cost
 - a. School with a Title I designation- cost free
- 2) Complete the experimental program prior to June 2025
- 3) Commit to completing feedback surveys on the program within 2 months of completion.

IMPORTANT!!

eCLOSE programs use fruit flies for experiments- be prepared for use of live animals in the research. Please let us know about allergies to particular foods or nutrients to ensure the health of everyone.