

Cancer Research Opportunities for Youth 2018 Application

Application Deadline: Friday, May 4th, 2018

The CROY Summer application can be completed on paper or [online](#). Please note the following:

- CROY is a 2 year program, mainly occurring during the summer months.
- Each year, students will participate in an 8 week program that at a minimum requires an uninterrupted 6 week commitment over the summer. You should carefully consult your summer schedule before you apply.
- You must be at least 16 years old by the beginning of the program on June 26th.
- If your initial application is selected, you will be invited to an interview with a program coordinator and your paired researcher.
- At the end of the application, there are three parent signature pages that must be printed, completed, and mailed to our offices by the application deadline. Applications submitted without a hard copy of these pages will not be complete.

Application Due Date: May 4th, 2018

Questions: Please contact Rachel Clare at rachel.clare@yale.edu.

Thank you and good luck!

APPLICANT INFORMATION

*Remember you must be at least 16 years old by the time the program starts

First Name _____

Last Name _____

Middle Initial _____

Street Address _____

Apt/Unit # _____

City _____

State _____

ZIP _____

Student Cell Phone (xxx-xxx-xxxx) _____

Student Home Phone (xxx-xxx-xxxx) _____

Student Email _____

Gender

Male

Female

Date of Birth (mm/dd/yyyy) _____

Student School

- Amistad Academy High School
- Amity Regional High School
- Common Ground
- Cooperative Arts HS
- Engineering-Science University Magnet (ESUMS)
- High School in Community
- Hill Regional Career HS
- Creed/Hyde Sports Medicine Magnet High School
- James Hillhouse HS
- Metropolitan Business HS
- New Haven Academy
- Sound School
- West Haven High School
- Wilbur Cross HS
- Other _____

Current Grade

- 9th
- 10th
- 11th

Do you qualify for free or reduced lunch at school?

- Yes
- No
- I don't know.

Ethnicity:

- Hispanic/Latino
- Non-Hispanic/Latino

Race (Please check ALL that apply)

- Native American/Alaska Native
- Black/African American
- Caucasian/White
- East Asian/Asian America
- Middle Eastern/Arab American
- Native Hawaiian/Other Pacific Islander
- South Asian/Indian American
- Other. Please specify: _____

Which language(s) did you learn first (please select one)?

- English Only
- English & Another Language
- Another Language

Please specify other non-English language: _____

MOTHER/GUARDIAN INFORMATION

Mother/Guardian Full Name _____

Does the Mother/Guardian Live with the student?

- Yes
- No

Mother/Guardian Cell Phone (xxx-xxx-xxxx) _____

Mother/Guardian Home Phone (xxx-xxx-xxxx) _____

Mother/Guardian Work Phone (xxx-xxx-xxxx) _____

Mother/Guardian Email _____

Mother/Guardian Occupation _____

Mother/Guardian's Highest Level of Education _____

- Less than high school
- Graduated high school
- Some college
- Associate's Degree (2-year degree)
- Graduated college (4-year degree)
- Master's Degree
- Doctorate (Ph.D., MD)
- Other. Please specify: _____

FATHER/GUARDIAN INFORMATION

Father/Guardian Full Name _____

Does the Father/Guardian live with the student?

- Yes
- No

Father/Guardian Cell Phone (xxx-xxx-xxxx) _____

Father/Guardian Home Phone (xxx-xxx-xxxx) _____

Father/Guardian Work phone (xxx-xxx-xxxx) _____

Father/Guardian Email _____

Father/Guardian Occupation _____

Father/Guardian's Highest Level of Education

- Less than high school
- Graduated high school
- Some college
- Associate's Degree (2-year degree)
- Graduated college (4-year degree)
- Master's Degree
- Doctorate (Ph.D., MD)
- Other. Please specify: _____

RESEARCH PREFERENCES

Carefully read the following descriptions of potential research projects. Please rank your choices in order from #1 (highest preference) to #4 (lowest preference). **These selections do not impact application decisions.** If you are accepted into the program, we will do our best to assign students to a preferred research project.

_____ **Implementation: Community-Based Outreach, Education, and Research | *Public Health***

Student will work with research team to conduct cancer screening and prevention with research project targeting under-resourced communities in the Yale Cancer Center catchment area. Student will participate in the development of questionnaires, data collection, focus groups, and qualitative and quantitative data analysis. This student will participate in team meetings and will assist in community outreach activities

_____ **Molecular Cell Biology, Genetics, and Development | *Cell Biology and Genetics***

hallmark feature of many cancerous cells are changes to the shape of the nucleus, the organelle that houses the genome. The mechanisms that lead to these morphological nuclear abnormalities remain to be fully understood. In order to help explain how nuclear structure is changed upon cellular transformation, our laboratory is interested in defining the underlying molecular mechanisms that ensure the integrity of the nucleus. The student will perform a genetic screen in a budding yeast model that is prone to nuclear rupture to identify pathways that are required for driving losses of nuclear integrity or novel repair pathways

_____ **Functional Genomics of Human Brain Development: Core B, Bioinformatics | *Molecular Biophysics and Biochemistry***

The project will involve the use of genomics data to understand the change of gene expression and epigenetic (chromatin modification) information in various cell types in the brain during the course of development. The student will work to identify clear patterns of change, and relevant genes and regulatory regions of the genome involved in the development of various cell types in the human brain. In this project, the student will learn about the scientific method, read scientific literature, present research findings to their colleagues, code in a computer language of choice to carry out scientific research, and practice actively asking questions and communicating research in written form.

_____ **Gene-Targeted Apoptosis as a Treatment for HER2-Positive Breast Cancer | *Therapeutic Radiology***

Approximately 30% of diagnosed breast cancers are HER2-positive, causing their cancer to grow more aggressively. Our project aims to design new anti-cancer drugs that can help HER2-positive patients that suffer from drug resistance. We will design synthetic DNA molecules, called oligonucleotides to only bind to the DNA of the HER2 gene. When these oligonucleotides bind to DNA they will alter the normal DNA structure causing the cell to recognize it as damaged. In the cancer cells, multiple oligonucleotides will bind to the extra copies of the HER2 gene and the excess damage will cause the cell to activate its own death. The differences between the numbers of HER2 genes in normal cells versus cancer cells, will allow us to only kill the breast cancer cells and not the normal cells. Students can expect to learn basic biochemistry and laboratory techniques while performing supervised bench experiments.

SHORT ESSAYS

Please attach your responses to the following two prompts on a separate sheet of paper. While you are free to write these by hand, we prefer that you present us with typed answers to these questions. **If you do not include your essay answers, this application will be considered incomplete.**

- Tell us about a time you needed to work in a group, either in school, in a job, or as part of a team. What was the experience like for you? (250 words or less)
- Why you have chosen to apply to CROY? Maybe you want to work in particular lab or find a specific type of science interesting. Maybe there's another reason. Let us know! (250 words or less)

SIGNATURE

By signing my name below, I assure that I have completed the CROY application honestly and to the best of my ability. If accepted, I agree to fully participate in the program by committing to summer research and attending all scheduled activities with **no unexcused absences**.

Applicant Name (printed): _____

Applicant Signature: _____

IMPORTANT: Your application is not considered complete until we receive the Parent/Guardian Signature Pages AND the Teacher Recommendation form. Read these instructions carefully before submitting your application.

MAIL-IN PARENT/GUARDIAN SIGNATURE PAGES

Please print, fill out, and mail these forms to:

Rachel Clare and Beth Jones

55 Church Street Suite 801

New Haven, CT 06511

(Note: You may also scan and email the forms to Rachel Clare at rachel.clare@yale.edu)

These pages must be postmarked by May 4th, 2018. You can download these forms and print them out from our [website](http://campuspress.yale.edu/croy/) (<http://campuspress.yale.edu/croy/>).

Thank you for applying!

We appreciate your interest in Cancer Research Opportunities for Youth, and we look forward to reviewing your application. Below is a checklist to help you make sure your application is complete.

- Applicant Information Section is complete
- Mother/Guardian 1 and Father/Guardian 2 Section are complete
- All research preferences are ranked
- Both** short essays are complete and have been attached separately
- All **three (3)** Parent/Guardian Consent forms have been completed
- My teacher has received the Teacher Recommendation Form

As a reminder, completed forms and applications should be mailed to:

Rachel Clare and Beth Jones

55 Church Street Suite 801

New Haven, CT 06511

(Note: You may also scan and email the forms to Rachel Clare at rachel.clare@yale.edu)

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