

Our goal is to excite the local Cambridge community about biomedical science and drug discovery through hands-on experimentation and minds-on problem solving. We have created an expeditionary science curriculum to connect Cambridge Public School science lessons with NIBR research activities by engaging local science teachers, school administrators and other educators. Our scientist volunteers mentor and coach students during the lessons and provide authentic stories about their education and career path.

CELL offers biomedical laboratory experiences to middle/upper school (6th-8th grade) and high school (9th-12th grade) students; students must be at least 11 years of age to participate in a CELL experience.

## **Interested in our CELL programs?**

Please feel free to [contact us](#).

### **Program Formats**

#### **Expeditions**

Biomedical Expeditions are designed to include multiple visits to Novartis where students work side-by-side with Novartis scientists to answer a “big question.” This multiple-visit format builds confidence as well as skills. Each visit is approximately 2 hours in duration and is best suited for public schools and learning organizations in the greater Cambridge/Boston region.

#### **Explorations**

Biomedical Explorations are singular experiences designed to provide an opportunity for students in locations outside the greater Cambridge/Boston region to have an authentic experience alongside Novartis scientists. Explorations are approximately 4 hours in duration.

#### **Encounters**

Biomedical Encounters are short, singular visits designed to introduce students to basic laboratory skills and biomedical concepts. Encounters are generally 2 hours in duration and are often organized in partnership with after-school programs.

### **CELL Programs-at-a-Glance**

#### **Basic Science & Lab Skills**

##### **What’s the Right Tool for the Job?**

Students learn how to use pipette aids and micropipettes. They will practice pipetting various volumes into different size containers and will learn how to determine the accuracy of a pipette using the weight of water and a balance.

##### **“pHun” with Acids & Bases**

Students will learn about acids and bases and the chemical reactions that take place. They will use indicator solutions to determine the pH of common household products, and discover how pH is a property that

scientists use in their experiments.

### **A Little Concentration Goes a Long Way**

Students will learn about concentrated solutions, practice making different serial dilutions and use simple math skills to calculate the solution concentration at each step. These skills will be applied to determining protein concentration using absorbance results and standards curves.

## **Genetics & Molecular Biology**

### **What Do Genes have to do with Your Sense of Taste?**

In this molecular expedition of the bitter taste receptor gene, students will use laboratory techniques and equipment to extract DNA from human cells, amplify a portion of the bitter taste receptor gene by PCR, and use gel electrophoresis to analyze DNA fragments. Students will engage in discussions about genetic variation and the ethical use of genetic information.

### **Is Bitter Better?**

In this biomedical exploration, students will use gel electrophoresis to analyze multiple DNA samples to determine the bitter taste receptor genotype of potential patients for a hypothetical clinical Proof of Concept trial. Students will engage in discussions with Translational Medicine Experts about the considerations and planning required to test new medicines in patients.

### **Hours of Operation**

<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
1PM – 5PM	9AM – 5PM	9AM – 5PM	9AM – 5PM	9AM – 1PM

### **Location**

### **Contact Information**

22 Windsor Street  
Cambridge, MA 02139

email: [contact.cell@novartis.com](mailto:contact.cell@novartis.com)

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