

## Fairhaven High School

12 Huttleston Avenue, Fairhaven, MA 02719  
Telephone: 508-979-4051 Fax # 508-979-4140



Tara Quirk Kohler  
Principal

Mary Jane Muello  
Assistant Principal

“...a Renaissance school where character, achievement, and community thrive.”

Dear Amgen Foundation,

I am writing this letter of support for The Amgen Bruce Wallace Program supported by Harvard LifeScience Outreach Program. I have a Ph.D. in biochemistry and molecular biology and have been teaching AP Biology for 10 years at Fairhaven High School. Over the past 10 years, I have been accumulating molecular biology supplies and equipment with minimal success. I have participated in the Harvard LifeSciences Outreach fieldtrip programs off and on over the past 10 years. The students always enjoyed the trips, but the trips were often out of sequence due to the time of the year. I always thought I could do the lab at my high school if I had the equipment, but I did not want to spend a significant part of my budget on a thermocycler. In addition, due to poor kits and an unreliable freezer, I have had minimal success with my molecular biology unit and am afraid I have scared more students away than I have enticed until this year.

Once I heard about the Amgen Bruce Wallace program, I jumped at the opportunity. The training was one of the most professional I have experienced, but the most amazing part of the program are the supplies and support. I have six of each micropipette, but with up to 18 students in a class, each student gets limited practice with the micropipettes and they are a rate limiting step in experimentation. A lot of time was spent by students waiting for a micropipette, which led to boredom, consumed instruction time and stole the students' sense of wonder. This was not the case with Amgen Bruce Wallace program. Every student got a micropipette when doing the labs and their skill increased significantly compared to past years. I was able to integrate more instruction into the labs, because students were not waiting around as much. Virtually every lab worked, especially the pARA-R transformation lab, which was by far the students' favorite. Compared to past years and other kits, I was a lot more successful and had a lot more time to prepare the lesson due to the Amgen Bruce Wallace Program and Harvard LifeSciences Outreach's support. Although some students realized molecular biology was not a career interest, no more than before, I had more students really get excited about the technology and several will seriously consider pursuing the major in college.

The other exciting opportunity of the Amgen Bruce Wallace program is the potential research projects and inquiry for the students. I am planning on collaborating with the Harvard LifeSciences Outreach program to sequence the students' mitochondrial PCR products for my evolution unit. I was also able to add on a protein denaturing lesson and research project with the purified red fluorescent protein, rfp. In addition, I used the rfp amino acid sequence, protein structure and *Discosoma* genetic sequence to introduce the National Center for Biotechnology Informatics. Many of the students downloaded the Cn3d software from this lesson at home and look up protein structures on their own. I was amazed at how competent they were with the software and were teaching me tricks during the first day.

I am excited with the potential of the program to excite students about molecular biology and inquiry. I know that with additional years with the program I will be able to generate more interest and expand the program 9-12. I was the only one trained this year, but all four of my biology teachers expressed strong interest in training next year.

Extremely Grateful for your support,

David J. Welty, Ph.D.  
Fairhaven Public Schools

