

LOCAL NON-PROFIT ADVANCING DISEASE RESEARCH AND SCIENCE EDUCATION

Heraclitus was an ancient Greek philosopher who said "The only thing constant is change". Most people who have received a medical diagnosis of a chronic disease would agree that it changed their life forever.

In the last few years statistics regarding the number of diagnoses of diseases have changed as well.

According to the 2008 Alzheimer's Disease Facts and Figures study, every 71 seconds someone in America develops Alzheimer's Disease. If that statistic isn't alarming enough, the study says between 200,000 and 500,000 people under the age of 65 suffer from early-onset Alzheimer's Disease or some other dementias. Some of these individuals are in their 30s.

Motivated by the impact on individuals and families that is often the outcome of Alzheimer's and other related diseases, the Human BioMolecular Research Institute (HBRI) in San Diego has spent over a decade researching central nervous system diseases including Alzheimer's Disease, Parkinson's Disease, Amyotrophic Lateral Sclerosis, substance abuse addictions, and others. At the helm of this research effort is Dr. John Cashman.

With an M.S. and Ph.D. in Medical Chemistry from the University of Kansas and a post doctoral fellowship from Harvard, Dr. Cashman has been leading this research as the Director of the institute since its inception.

Dr. Cashman is passionate about finding a cure for diseases that affect millions of families, and the mission of his research institute reflects that passion, as well as a desire to set up future

generations of scientists with the tools to continue this research for decades to come.

HBRI is a fully integrated 501(c)3 non-profit research institute housing analytical, chemical, biochemical and molecular biological research. HBRI champions "practical research": using advanced approaches to develop new concepts and applications for pre-clinical medications development. To date, no HBRI products have gone on to the clinic but several collaborative products are widely used drugs helping people.

In a recent collaborative effort with UCLA, scientists discovered an active chemical in curry that appears to help boost the immune system in Alzheimer's disease (AD) patients to clear the amyloid plaques in brain tissue that are characteristic of the disease.

Following this study, scientists at HBRI are continuing research on curcumins to develop an agent with more potency. With ongoing testing for efficacy and safety, HBRI is on the brink of introducing optimized and highly effective agents into future trials for treating Alzheimer's Disease in humans.

These developments are significant and exciting to the research community, and to families that are affected by the disease. While molecular research is the bulk of HBRI's mission, there are other aspects of what Dr. Cashman's team accomplishes.

Part of HBRI's mission is to "promote scientific learning through community service and public access". To accomplish this mission, HBRI is very involved with the advancement

of science education in the San Diego community.

Once a year HBRI opens up its research laboratories to 5th grade students from Del Mar Pines School for Science Discovery Day. Students are given a tour of the laboratories and HBRI develops science presentations that parallel the curriculum in their classroom.

These presentations include studies of DNA (the building block of life), cell biology studies using advanced microscopes, biochemical studies and morphological studies.

HBRI also opens its doors every summer to student interns. High school aged students choose from three areas of focus: Chemistry, Analytical Chemistry or Biology. The interns run experiments, take part in ongoing projects and help write manuscripts that will be published in peer-reviewed journals.

The goal of HBRI's internship program is to give future scientists a tangible experience that they can take with them into high school and college and then on into their careers.

In the last decade 60 interns have passed through HBRI's doors. These students have continued their research and academic careers at MIT, UC Berkeley, USC, Georgetown, UCSD, UCLA, University of Washington, Harvard, Yale, and others.

"I like working at HBRI because of the exposure to the scientific experiments and procedures conducted in a real world environment.

The internship introduced me to the daily practices occurring in a professional working

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environment, which consequently further motivated me to continue pursuing my interests in biology.

Being able to engage in detailed scientific procedures and associate myself with reputable scientists definitely fueled my enthusiasm.” said Hurnan Vongsachang, one of HBRI’s former interns.

Other graduates of the summer internship program have also listed the “hands on experience” and “friendly work environment” as highlights of their program.

Cashman recently commented on his passion for student education: “When I think about our responsibility for the future, I immediately think of our children and young students. I think it is our critical duty to make sure they have the resources and support to excel in life and prosper in science education.”

The impact future generations will experience from the work these young scientists do is difficult to measure, although it is apparent that the experience for these students is significant. The challenge every year is to come up with the money to fund the program.

Most of the institute’s funding comes from government grants and foundation grants, however, as the work has expanded there is a greater need for individual and corporate support to help finance the research. Some of HBRI’s funding is raised at the institute’s annual fundraising gala.

This spring HBRI will be celebrating over a decade of brain research with a 10th anniversary fundraiser gala. The gala will be held on Saturday, May 30th at the Rancho Santa Fe

Garden Club, and will be an occasion to celebrate advancements in research and science education, as well as an opportunity to build financially toward future programs and research.

Through HBRI’s collaborations with other large research institutes in San Diego as well as nationally recognized universities, the institute has contributed significantly to the quest to find a cure for diseases that affect millions of Americans and hundreds of thousands of San Diego families.

Dr. Cashman is equally proud that they have been able to invest so many resources into science education in the San Diego community; providing future generations with the tools to carry this institute’s legacy into the future.

In a sense, HBRI has become a strategic scientific partner with the San Diego community, and as the need for research grows Cashman hopes the local community will reciprocate by supporting HBRI research and science education programs.