

vmitestimony

From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 12, 2013 11:45 AM
To: vmitestimony
Cc: biogabe@gmail.com
Subject: Submitted testimony for HB293 on Feb 13, 2013 08:30AM

HB293

Submitted on: 2/12/2013

Testimony for VMI on Feb 13, 2013 08:30AM in Conference Room 312

Submitted By	Organization	Testifier Position	Present at Hearing
Gabriel D Peckham, Ph.D.	Individual	Support	No

Comments: Establishing a State Microbe is a simple way of inspiring and promoting science as a career choice for our young students

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From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 12, 2013 9:40 AM
To: vmitestimony
Cc: jkay@iolani.org
Subject: Submitted testimony for HB293 on Feb 13, 2013 08:30AM

HB293

Submitted on: 2/12/2013

Testimony for VMI on Feb 13, 2013 08:30AM in Conference Room 312

Submitted By	Organization	Testifier Position	Present at Hearing
John C. Kay	Individual	Support	No

Comments: Iris Kuo was my student as a Junior at 'Iolani School taking Advance Placement Biology. I was and remain totally impressed with her abilities, determination, and dedication to purpose. I have attached a letter written for her research this summer. In my 50 Years at 'Iolani, Iris would rank in the top one percent. Dear committee; It is indeed a pleasure for me to write on behalf of Iris Kuo, a most viable candidate for early admission to DBBS summer research program, made difficult only by the great responsibility of conveying the proper image of an extraordinary young lady. I was Iris's AP biology teacher last year and count my close associations with her both inside and outside the classroom to be truly a privilege. I have had numerous opportunities to observe her combination of genius, perseverance, heart and a passion for life. Simply put, Iris is infatuated with the sciences, and was highly recommended by the science teachers of Iolani School to receive the first John and Violet Kay Summer Research Fellowship during the summer of 2010. Through that summer program and her sincere desire to pursue research in science, her research project actually identified new genera of bacteria. Currently there is a bill being presented to the Hawaii legislature to name her bacteria as the "State of Hawaii Microbe". Simply put, I was very fortunate to have had the opportunity of nourishing her talents during the research project, as her AP Biology Teacher, and now as an admirer of her many accomplishments. Iris has always embarked on her studies with an insatiable desire to learn. She treasures each lecture as an eye-opening experience to answer her erupting "whys", to tackle the secret codes of Mother Nature, and to gain awe at the subtle truth and beauty furnished by science. Dauntless of challenging the majority or sharing her own insight in class discussions, she accepts nothing at surface value. Not only did she impress me with her college-level intuition through written work, she exhibits a rare knack at laboratory experimentation, for labs give her the time to test and manipulate what is taught in lecture or printed in the text. A delight in independence, challenge and creative thinking is manifested in Iris's performance during the summer in establishing very important parameters, chemical, physical, and biological, of an ecosystem that reflects the unique qualities associated with approximately six percent of the Island of Oahu's people. Esteemed by fellow classmates to be a class and laboratory leader and extolled by faculty members for her consistent excellence, Iris naturally stands out as an exception by any academic standard. Her past summer research at the University of Hawaii with Dr. Kaneshiro, director of CCRT (Center for Conservation Research, and Training), has demonstrated her talents and perseverance examining Hawaiian Drosophila, which has culminated in the identification and isolation of a new genera/species of bacteria. The Iris that I have grown to admire, however, extends above and beyond academia. She has established herself as a concert violinist winning awards for the past four years, is a member of our championship math team, won the State Economic Competition, "The David Ricardo Division", received the Innovator award from the Iolani Student Council, qualified for the Lincoln-Douglas

Debate, photo editor for our publication, "Imua", very active in the "Big Sister" program, and was the President of Iolani's Leo Club. Iris seizes each second of the day to pursue her diversified interests; from editing the newspaper to chairing The Leo Club, and serving her community through Big Brothers & Big Sisters. I have discussed Iris with her other Advance Placement teachers, including English Literature, US History, Spanish, Calculus, Macro and Micro Economics, Physics, and Chemistry, and they all relate to the same characteristics of an exceptional and dedicated young woman that I have witnessed. Her desire is to earn a MD-PHD, and enter the medical field as a physician or research specialist. In spite of her mind-boggling heavy load of AP and Honors courses she maintains an active connection with the rest of our Hawaiian community. A rare, indefatigable passion for learning is alive in Iris Kuo, a passion deeper than I have ever witnessed in my fifty years of teaching outstanding Iolani students and eleven years as the Dean of Science and Mathematics and Site Director for the Johns Hopkins University Center for Talented Youth (CTY). I see in Iris a future scientist not as a reflection of her long list of national accolades, but rather, her undying curiosity. Unlike most student-researchers who follow a recipe-manual given by the professor, Iris struggles with conceiving original ideas and techniques to better understand our unique Hawaiian Island ecosystem. Her academic record at Iolani was impressive, a GPA of 4.36, 800's on both her SAT Biology and Math Level II exams, and a National Merit Finalist. But even more important is that Iris attacks her studies with a passion for learning and she pursues life with an equal passion. Iris possesses a maturity and understanding of life that many of her older classmates lacked and is known to turn adversities and failures into invaluable lessons. Talents like Iris are indeed rare as her passion for learning and embracing of life are truly unique. Her future will doubtlessly be golden. Her goals are to enter research, most probably medicine so that she may be active in the improvement of the quality of life for others. I have supported a great number of exceptional young people to various research programs, colleges, and universities over the past fifty years and I have never been more confident that both Iris and The Washington University will benefit from a close association. If I can be of any future service, please do not hesitate to phone me at school (808) 949-5355, at home (808) 236-4030, my cell (626)-260-8847, or e-mail me at jkay@iolani.org Sincerely; John C. Kay

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**TESTIMONY OF
Kenneth Y. Kaneshiro**

IN SUPPORT OF HB 293 Relating to the State Microbe

**BEFORE THE
HOUSE COMMITTEE ON VETERANS, MILITARY & INTERNATIONAL AFFAIRS
& CULTURE AND THE ARTS
Representative K. Mark Takai, Chair
Representative Ken Ito, Vice Chair**

Date: Wednesday, February 13, 2013

Time: 8:30 am

Place: Conference Room 312

Aloha Chair Takai, Vice Chair Ito and members of the Committee on Veterans, Military & International Affairs & Culture and the Arts. My name is Ken Kaneshiro and I am the Director for Conservation Research & Training at the University of Hawaii at Manoa. However, I am presenting testimony on HB 293 as a private individual and my comments do not reflect the opinion of the University of Hawaii.

I am in strong support of the designation of a State Microbe. The bacterium species proposed is most appropriate for such a designation. The justification for designating *Flavobacterium akiainvivens* will be presented in a written testimony submitted by University of Hawaii Professor of Microbiology, Dr. Stuart Donachie, who is the expert in this field and I will not provide further discussion along these lines. However, I do want to provide a very brief discussion on the importance of microorganisms in Hawaii's native ecosystems.

I have been involved in a particular research project at the University of Hawaii for nearly 50 years now. I started to work on the project as a dishwasher on the Hawaiian Drosophila Project when I was a sophomore at UH Manoa in 1963 and so 2013 marks the 50th Anniversary of the Project. During these 50 years, more than 80 senior scientists from all over the world have come to Hawaii to study the evolution of this group of insects. More than 400 students, undergraduates, graduates, and postdoctoral fellows have participated on this project and more than 500 scientific papers have been published as a result of the research on this group. The work on the Hawaiian Drosophila is cited in a number of textbooks of Biology as a leading example of speciation and evolution.

About 10 years ago, one of the scientists (now deceased) from New York University and his student, discovered a huge fauna of bacteria species associated with the Hawaiian Drosophila species. They were able to isolate and culture nearly 600 colonies of bacteria from just 40 of the potential 1000 species of Hawaiian

Drosophila. It turns out that many of the bacteria species showed strong resistance to antibiotics, not just the antibiotics currently available on the market today but even the next generation antibiotics that were still in the development/testing stage. That could mean that the bacteria were being exposed to some potent antibiotic substances produced by the host fly and potentially, if we are able to understand the immunogenetic mechanism by which the bacterial pathogen is triggering a gene or group of genes that were responsible for the production of a protein or enzyme which serves as an antibiotic against the pathogenic effects of the bacteria, we may be able to develop a similar mechanism to turn on genes for neutralizing the effects of pathogens in humans. The potential application to medicine and human health is huge.

During the summer of 2011, Ms. Iris Kuo, a high school student from Iolani School did a 6-week internship with our research program and ended up working in Dr. Donachie's lab because she was interested in the microorganisms associated with the host plants of our Hawaiian *Drosophila* species. During the 6-week research internship, Iris discovered what turned out to be a new species of bacteria which she named and described as ***Flavobacterium akiainvivens***. While still a high school student, Iris had already experienced the excitement of scientific discovery and she will be involved in the publication of scientific papers describing her discoveries.

The biological diversity of microorganisms (potentially thousands of species) that could be found in the native Hawaiian ecosystem is a gold mine waiting to be discovered and it will be important to focus more research effort on this fauna. Designation of a State Microbe will bring greater attention to this fauna and foster the kind of research and education that is needed to uncover the potential value of the microbial fauna found in our native ecosystems.

I strongly support the intent of HB 293.

Thank you for the opportunity to provide testimony.

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From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 12, 2013 6:43 AM
To: vmitestimony
Cc: kuejio@gmail.com
Subject: Submitted testimony for HB293 on Feb 13, 2013 08:30AM

HB293

Submitted on: 2/12/2013

Testimony for VMI on Feb 13, 2013 08:30AM in Conference Room 312

Submitted By	Organization	Testifier Position	Present at Hearing
Kirk Uejio	Individual	Support	No

Comments: Committee: Committee on Veterans, Military & International Affairs, & Culture and the Arts. Date and Time of Hearing: 2/13/2013 8:30 Measure number: HB293 I absolutely support this bill for a state microbe. Hawaii has the potential to be a hotbed for scientific research and innovation. Our location and outstanding research facilities give us the opportunity to be a worldwide leader in all kinds of scientific pursuits. Having a state microbe will only solidify our commitment to STEM-type research and the fact that the microbe was discovered by a local high school student will help inspire others students to pursue their passions in science. I can only see benefits of passing this bill and am excited at the prospect of having a new state microbe!

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From: mailinglist@capitol.hawaii.gov
Sent: Monday, February 11, 2013 10:30 AM
To: vmitestimony
Cc: tabraham08@gmail.com
Subject: *Submitted testimony for HB293 on Feb 13, 2013 08:30AM*

HB293

Submitted on: 2/11/2013

Testimony for VMI on Feb 13, 2013 08:30AM in Conference Room 312

Submitted By	Organization	Testifier Position	Present at Hearing
Troy Abraham	Individual	Support	No

Comments:

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February 11, 2013

Re: HB293, designation of *Flavobacterium akiainvivens* as the State Microbe

To: Members of the House Committee considering HB293

I am writing this letter to you to express my support for passage of HB293. I am a microbiologist with over 40 years of professional experience, including 20 years as a military scientist (US Army Medical Service Corps). I have lived in Hawaii for the last 17 years, during which time I have worked at the University of Hawaii, Manoa, as well as for a private biotech company, Hawaii Biotech, Inc., and a private diagnostic laboratory, Aloha Toxicology Laboratory.

I believe that it is important to increase the visibility of science in general and increase the knowledge of the scientific method for discovery of the mechanisms involved in the natural world among the broader public, especially young people. We need to show how science affects our lives and how scientific discoveries are made. I believe that the promotion of the bacterium *Flavobacterium akiainvivens* as the "State Microbe" will aid in this endeavor by providing a tangible example of a new scientific discovery that directly relates to Hawaii. By designating this bacterium as an official Hawaiian emblem, it may be used as a teaching tool in public and private schools within our state. For example, with this designation, students would become aware that many bacteria in the environment are not harmful and may in fact be beneficial. This should increase interest and enhance enthusiasm for science among young students, who may then pursue this interest further in their education, as well as keep awareness of science in mind in their everyday lives.

If you have any questions or would like additional information, please don't hesitate to contact me (mlieberman1@hawaiiantel.net). Thank you very much for your consideration.

Sincerely,

A handwritten signature in black ink that reads "Michael Lieberman". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

Michael Lieberman, Ph.D.

HOUSE OF REPRESENTATIVES · THE TWENTY-SEVENTH LEGISLATURE
STATE OF HAWAII

HB 293: Establishes and designates the bacterium *Flavobacterium akiainvivens* as the official microbe of the State

Testimony provided by Dr. Stuart Donachie, as a private individual. Wednesday 13th February, 2013

I support HB293, and request that members of the committee do so, too.

Background

The State of Hawai‘i and its islands have 31 official emblems, including colors, sports, plants and animals. Microbes are not represented, yet they are the most abundant organisms in Hawai‘i.

Why are microbes not represented?

Colors, sports, plants and animals are conspicuous. Microbes are not, but they are everywhere. People may also perceive microbes negatively, *i.e.*, that they only cause diseases!

Through State Emblem projects in school, children fall in love with whales, the Hawaiian monk seal, and nene. These children are tomorrow’s scientists and conservationists. However, they are also told that ‘germs’ are bad, yet we need microbes just as we need people to study them!

What to do?

We promote science, technology, engineering and math (STEM). Thousands of students join the Annual State Science and Engineering Fair, yet STEM fields need researchers. Some come from Science Fairs because they have the science ‘bug’ already. Others need the right inspiration.

Establish a State Microbe

A microbe among our state emblems will introduce microbes to the classroom, and stimulate minds with the potential for similar discoveries and applications:

- What are microbes?
- Where did they come from?
- How do they help us?
- What would you like microbes to do?
- How many microbes are there?
- Where does the State Microbe come from?
- Could I discover something, too?

Other states’ microbes

No other state has an official microbe. Hawai‘i can lead the way: *Flavobacterium akiainvivens* was discovered in Hawai‘i. It can be the first state microbe in the nation.

Is Flavobacterium akiainvivens unique?

This species was grown from decaying Wikstroemia (‘akia’), a flowering shrub endemic to Hawai‘i. It has not been detected anywhere else.

What does Flavobacterium akiainvivens do?

The culture produces an enzyme that breaks down the plant cell wall. *Flavobacterium akiainvivens* is likely involved in nutrient cycling in Hawaii’s forests.

Conclusion

Flavobacterium akiainvivens has been detected only in Hawai‘i. Its discovery by a local high school student during a Science Fair project is an excellent and motivational example of what students can discover and achieve.

Declaration: The author is a professor of microbiology in the University of Hawai‘i at Mānoa, and has no conflict of interest in supporting HB 293. *Flavobacterium akiainvivens* was discovered in his lab by an ‘Iolani School student.

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From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 12, 2013 2:36 PM
To: vmitestimony
Cc: franceso@pbrc.hawaii.edu
Subject: *Submitted testimony for HB293 on Feb 13, 2013 08:30AM*

HB293

Submitted on: 2/12/2013

Testimony for VMI on Feb 13, 2013 08:30AM in Conference Room 312

Submitted By	Organization	Testifier Position	Present at Hearing
Frances Okimoto	Individual	Support	No

Comments:

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To: vmitestimony
Cc: stogashi@hawaii.edu
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HB293

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Submitted By	Organization	Testifier Position	Present at Hearing
Stanford Togashi	Individual	Support	No

Comments:

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Subject: *Submitted testimony for HB293 on Feb 13, 2013 08:30AM*

HB293

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Submitted By	Organization	Testifier Position	Present at Hearing
Dr. Healani Chang	Individual	Support	No

Comments:

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LATE TESTIMONY

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From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 12, 2013 5:22 PM
To: vmitestimony
Cc: claudiavaughan@wustl.edu
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HB293

Submitted on: 2/12/2013

Testimony for VMI on Feb 13, 2013 08:30AM in Conference Room 312

Submitted By	Organization	Testifier Position	Present at Hearing
Claudia Vaughan	Individual	Support	No

Comments: I believe that introducing the policy of have a representational microbe for each state is a fantastic idea. Not only would it increase state pride, but it would also allow for recognition of scientists' hard work. The individual response for the organism nominated to become Hawaii's state microbe, Iris Kuo, deserves much praise and recognition for her hard work, and I believe this bill would do that for her and other hardworking researchers like her.

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Submitted By	Organization	Testifler Positlon	Present at Hearing
Daniel Layugan	Individual	Support	No

Comments:

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To: vmitestimony
Cc: ieatmyfarts@gmail.com
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HB293

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Submitted By	Organization	Testifier Position	Present at Hearing
Justin Park	Individual	Comments Only	No

Comments: .

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From: mailinglist@capitol.hawaii.gov
Sent: Tuesday, February 12, 2013 8:18 PM
To: vmitestimony
Cc: petra@pbrc.hawaii.edu
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HB293

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Submitted By	Organization	Testifier Position	Present at Hearing
Petra Lenz	Individual	Support	No

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To: vmitestimony
Cc: aflau@cc.hawaii.edu
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HB293

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Submitted By	Organization	Testifier Position	Present at Hearing
Alan F. Lau	Individual	Support	No

Comments:

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