



UNIVERSITY OF HAWAI'I SYSTEM

Legislative Testimony

Testimony Presented Before the
House Committee on Higher Education
February 6, 2018 at 2:00 pm

By
Carolyn Ma, PharmD, BCOP
DEAN
UH Hilo - Daniel K. Inouye College of Pharmacy

HB 2506 – RELATING TO RAT LUNGWORM DISEASE

Chair McKelvey, Vice Chair Hashem, and members of the committee:

My name is Carolyn Ma, and I am the Dean for the UH Hilo Daniel K. Inouye College of Pharmacy (DKICP). University of Hawai'i at Hilo fully supports the intent of this bill that will address the eradication and treatment of Rat Lung Worm (RLW) Disease.

UH Hilo's DKICP has both a basic science researcher and a pharmacy practice (pharmacist) faculty on the RLW Working Group.

A most recent study (in publication) has shown that Hawai'i Island has the highest *Angiostrongylus cantonensis* infection rates in rats (94%) and in mollusks (*Parmarion martensi*, semi-slugs 77%) in the country and the increase in human infection appears linked to the arrival of semi-slugs. A baseline recent study conducted on Kauai, between March-May 2017 and tested for the presence of *Angiostrongylus cantonensis* (Rat Lungworm), of which 17.2% of semi-slugs tested positive. Our basic science researcher has been active in conducting valuable research.

1. Jarvi lab has developed a 'death assay' to distinguish live from dead larvae. Continued study in this area will help complete studies to determine how effective commercially available vegetable washes or other solutions are at killing infective RLW larvae.
2. Simulated catchment water systems have been initially conducted to test two different size filters in an attempt to filter out infective larvae. However, tests have shown that larvae can still travel or move around certain size filters. Continued evaluation of the possibility of RLW transmission in water is necessary by conducting laboratory and household catchment studies to optimize maintenance and treatment design that prevents RLW larvae from entering household and agricultural water supplies.
3. A pilot study has been completed to determine if a blood-based test can help to diagnose RLW, rather than the current diagnosed procedure of a spinal tap.

Continued study of protein isolates from infected rats will help to evaluate the reliability and validity of such a test.

4. The lab continues to develop ways of reducing larval burdens in rats. Vaccination study was unsuccessful under given conditions. Further study in possibly deworming rats may be a more appropriate strategy.

UHH DKICP Pharmacy Practice faculty has been working with Dr. John Martell in performing a retrospective chart review to better understand the treatment scheme and outcomes of the 70+ cases of RLW that have occurred in Hawai'i. Legislative funding would help to continue this investigation and further study to determine the most effective medical treatment for the various stages of RLW in humans, domesticated animals and farm livestock.

UH Hilo supports this bill provided that its passage does not replace or adversely impact priorities as indicated in our University of Hawai'i BOR Approved Supplemental Budget.

DAVID Y. IGE
GOVERNOR OF
HAWAII



SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

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LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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Testimony of
SUZANNE D. CASE
Chairperson

Before the House Committee on
HIGHER EDUCATION

Tuesday, February 6, 2018
2:10 PM
State Capitol, Conference Room 309

In consideration of
HOUSE BILL 2506
RELATING TO RAT LUNGWORM DISEASE

House Bill 2506 proposes to appropriate funds to the University of Hawaii at Hilo for programs, studies, and activities related to the prevention and eradication of rat lungworm disease. **The Department of Land and Natural Resources (Department) supports this bill, provided that its passage does not replace or adversely impact priorities indicated in the Executive Supplemental Budget request.**

The Department is a collaborator on biosecurity issues with the University of Hawaii and the Hawaii Department of Health, as described in the Hawaii Interagency Biosecurity Plan. Rat lungworm disease is recognized in the Biosecurity Plan as a serious threat to human health and agriculture in Hawaii, vectored by invasive snails and rodents. While the Hawaii Invasive Species Council (HISC), which is administered by the Department, has received funding requests from the University of Hawaii at Hilo to conduct research and education on this important issue, sufficient funding has not been available via HISC to support the broad level of education, research, and control activities needed to mitigate this threat.

Providing funds to conduct education on rat lungworm disease, and increasing capacity at the Department of Health to work on prevention and control issues, are recommended action items in the Hawaii Interagency Biosecurity Plan:

- Action item BorTifs1.5, relating to capacity at DOH for response to disease vectors, including those that vector rat lungworm
- Action item PosTifs1.5, relating to capacity at the Hawaii Department of Agriculture or DOH for surveillance and monitoring of high-risk taxa, including vectors of rat lungworm

- Action item PwsPro1.7, recommending increased education and public awareness of human health issues relating to invasive species, including rat lungworm

Passing this measure would directly support implementation of the Hawaii Interagency Biosecurity Plan. The full Biosecurity Plan is available for review at <http://dlnr.hawaii.gov/hisc/plans/hibp/>.

The Department suggests utilizing the term "control" in place of "eradication," as rat lungworm disease is widespread throughout the state and is likely not possible to completely eradicate at the island or state level.

Thank you for the opportunity to comment on this measure.

DAVID Y. IGE
Governor

DOUGLAS S. CHIN
Lt. Governor



SCOTT E. ENRIGHT
Chairperson, Board of Agriculture

PHYLLIS SHIMABUKURO-GEISER
Deputy to the Chairperson

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 South King Street
Honolulu, Hawaii 96814-2512
Phone: (808) 973-9600 FAX: (808) 973-9613

TESTIMONY OF SCOTT E. ENRIGHT
CHAIRPERSON, BOARD OF AGRICULTURE

BEFORE THE HOUSE COMMITTEE ON HIGHER EDUCATION

FEBRUARY 6, 2018
2:10 P.M.
CONFERENCE ROOM 309

HOUSE BILL NO. 2506
RELATING TO RAT LUNGWORM DISEASE

Chairperson McKelvey and Members of the Committee:

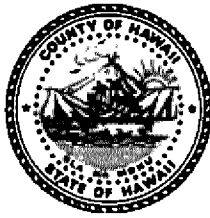
Thank for the opportunity to testify on House Bill No. 2506, relating to rat lungworm disease. This bill appropriates funds to the University of Hawaii at Hilo for research and eradication and prevention activities of the rat lungworm disease. The Department supports this measure.

Rat lungworm disease is a serious pathogen to plague the consumption of fresh produce grown in the islands. There is a great need to conduct research into the biology of the carriers of the disease, the ways in which it can be spread, outreach to the public in understanding the condition, and methods that can be employed to control and/or contain it.

Thank you for the opportunity to testify on this measure.



Harry Kim
Mayor



Wil Okabe
Managing Director

Barbara J. Kossow
Deputy Managing Director

County of Hawai'i
Office of the Mayor

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February 5, 2018

Representative Angus L.K. McKelvey, Chair
Committee on Higher Education
Hawai'i State Capitol, Room 309
Honolulu, HI 96813

Dear Chair McKelvey and Committee Members:

Re: HB 2506 Relating to Rat Lungworm Disease
Hearing Date: 02/06/18 – 2:10 pm; Conference Room 309

Thank you for this opportunity to testify in support of funding for activities aimed at the prevention and eradication of rat lungworm disease. Until those worthy goals have been achieved, a third aim could also be better treatment for those who fall victim to this illness.

The Daniel K. Inouye College of Pharmacy at the University of Hawai'i at Hilo established the Hawai'i Island rat lungworm disease working group. It has been conducting research and educational outreach on the disease for the past four years and it is my understanding that it has been doing very valuable work.

Apparently the impact of this disease has been different in Hawai'i than on the mainland, with unusually severe consequences reported for Hawai'i victims. Therefore, the funding of local research is uniquely important.

Please support HB 2506.

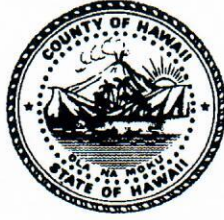
Respectfully submitted,

A handwritten signature in black ink, appearing to read "Harry Kim".

Harry Kim
Mayor, County of Hawai'i

Eileen O'Hara
Council Member
Council District 4

Chair: Environmental
Management Committee



Phone: (808) 965-2712
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Vice Chair: Planning Committee and
Agriculture, Water & Energy
Sustainability Committee

County of Hawaii
Hawaii County Council

25 Aupuni Street, Suite 1402 • Hilo, Hawai'i 96720

Representative Angus L.K. McKelvey
Chair, House Committee on Higher Education
Hawai'i State House of Representatives

February 2, 2018

Re: In Support of House Bill 2506, from Hawai'i County Council District 4
To be heard by HED on 02-06-18 2:10PM in House conference room 309

Aloha Chair McKelvey and Committee Members:

I'm writing to express my support for House Bill 2506, which appropriates funds to the University of Hawai'i at Hilo for research and other activities related to rat lungworm disease.

Further research, treatment, prevention, and education efforts are desperately needed for all of those living with, or at risk of, contracting this devastating disease. Since the disease has come to Hawai'i from Asia, its effects have become more virulent and severe. The disease has also been found in Florida and a case was recently diagnosed in Tennessee. Without aggressive research, there is potential for rat lungworm to spread to other mainland locations.

Local institutions like the University of Hawai'i at Hilo, College of Pharmacy, are already equipped to conduct the necessary research to gather critical information about this disease. Incidences of it are grossly understated, and this research could provide more rapid diagnoses that would allow us to provide acute care in the early onset and prevent serious permanent disabilities. Diligent and effective treatment at this phase would save a tremendous amount of tax payer money required to provide long term care for individuals who have been affected by the disease.

I do not hesitate to support any measure to research and prevent rat lungworm. Please consider the important impacts that passing this bill will have on our economy and health, and contact me if you have any questions about my support or knowledge of the subject.

Sincerely,

Eileen O'Hara
Council Member
Council District 4



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e-mail info@hfbf.org; www.hfbf.org

LATE

February 6, 2018

HEARING BEFORE THE
HOUSE COMMITTEE ON HIGHER EDUCATION

TESTIMONY ON HB 2506
RELATING TO RAT LUNGWORM DISEASE

Room 309
2:10 PM

Aloha Chair McKelvey, Vice Chair Hashem, and Members of the Committee:

I am Randy Cabral, President of the Hawaii Farm Bureau (HFB). Organized since 1948, the HFB is comprised of 1,900 farm family members statewide, and serves as Hawaii's voice of agriculture to protect, advocate and advance the social, economic and educational interests of our diverse agricultural community.

The Hawaii Farm Bureau supports HB 2506, which appropriates funds to the University of Hawaii at Hilo for research and other activities related to rat lungworm disease. Conditions release of the funds on the University submitting a report to the legislature listing the specific research and activities it plans to undertake. Requires the University, along with the Department of Health, Department of Land and Natural Resources, Department of Agriculture, and Joint Rat Lungworm Task Force, to create a statewide plan for the eradication and prevention of rat lungworm disease.

Providing safe and wholesome food is a priority for the Farm Bureau and its members. Unfortunately, not enough is currently known about Rat Lungworm Disease, or angiostrongyliasis, to fully protect the public. For example, although we know that people in Hawaii can get the disease by eating food contaminated by the larval stage of *A. cantonensis* worms found in raw or undercooked snails or slugs, and we know that people have also become infected by eating raw produce that contains a small infected snail or slug, or part of one, it is *not* known whether even just the slime left by infected snails and slugs is able to cause infection.

This is critical information since the disease can cause a rare type of meningitis (eosinophilic meningitis) that is extremely painful, debilitating, and can be deadly. Because there is no specific treatment for the disease, patients are only given supportive therapy and pain medication.

As more people are encouraged to grow their own food in backyard gardens, and school gardens are becoming more prevalent, the risk of being infected with this disease increases. Nutritionists advise the public to eat plenty of fresh leafy vegetables. However, without knowing enough about the transmission of rat lungworm disease, this advice may be risky in areas infested by snails and slugs, unless proper preventative measures are taken. The public needs to know what pre-consumption measures will prevent transmission. Backyard gardeners and others who may not practice pest management to effectively control snails and slugs, or those who purchase greens from these sources, may be particularly at risk.

HFB supports funding of the Department of Health for the prevention and eradication of rat lungworm disease.

Thank you for the opportunity to provide testimony on this measure.

HB-2506

Submitted on: 2/5/2018 4:31:45 PM

Testimony for HED on 2/6/2018 2:10:00 PM



Submitted By	Organization	Testifier Position	Present at Hearing
Springer Kaye	Big Island Invasive Species Committee	Support	No

Comments:

BIISC supports strong funding for the agencies and University of Hawaii at Hilo to conduct research and work towards a statewide plan for the control of Rat Lungworm Disease. The gaps in knowledge are broad reaching, ranging from the correct timing and application of vector control practices, to the cleaning of produce, to the diagnosis and care of infected people in our community. These are enormous new responsibilities for each of the named state entities, and require significant new resources for both staff and operations. We also note the critical need for long-term monitoring of patients during and after treatment to better understand disease and treatment outcomes, and hope that this purpose might also be addressed by the Joint Task Force. We commend all of the parties involved for their commitment to moving forward and resolving this crisis together. Developing a strong partnership and plan will smooth the way forward to securing the significant federal funding that will be required once a research plan is in place.

HB-2506

Submitted on: 2/5/2018 1:00:58 PM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Susan I Jarvi	Private Citizen	Support	No

Comments:

Testimony Presented Before the Committee on Higher Education

Tuesday 02-06-18 2:10 pm

HB2506 - Relating to RAT LUNGWORM DISEASE

Chair McKelvey and Vice Chair Hashem and members of the Committee on Higher Education,

My name is Dr. Susan Jarvi and I am a Professor in the Department of Pharmaceutical Sciences at the University of Hawaii at Hilo, Daniel K. Inouye College of Pharmacy. My lab has been the lead in rat lungworm education and research for the past 6 years in the state. I am speaking as a concerned individual in strong support of HB 2506 Relating to Rat Lungworm Disease (RLWD).

Hawaii is the epicenter RLWD (angiostrongyliasis) in the United States, and is among the most serious threats to human health of all diseases carried by wildlife in Hawaii. Most infections are presumed to be due to the ingestion of infected slugs or snails on fresh produce or possibly from untreated catchment water (see Howe and Jarvi ,2017; Jarvi et al., 2018 for review). The nematode reproduces in rats and develops in slugs and snails. Although most human cases have originated in east Hawaii Island, there have been cases reported on all of the major Hawaiian Islands, including a recent outbreak on Maui. Why so many cases originate on Hawaii Island is unclear and a better understanding of disease transmission, basic biology, diagnostics, treatment, and long term effects is needed. Thus, funding is requested to address these issues.

My lab recently completed a study to isolate adult RLW from the hearts and lungs of rats to develop a blood-based diagnostic and also to estimate infection rates in rats trapped in the Hilo area (Jarvi et al., 2017). Of 545 rats captured, 94% of them were positive for RLW parasites. This is the highest reported rate in the country and likely the

world. Hawaii has likely been exporting RLW with rats jumping on and off ships. During this experiment we observed that older black rats appear to have a mechanism to limit development of larvae to reproducing adults. This was not seen in the young black rats or the Polynesian rats of any age. This means that in the management of rats, killing large numbers of black rats might result in more young black rats moving into that vacated area, which might actually increase transmission. Another option is to determine the effectiveness of deworming rats to reduce transmission. With adequate funding, this could be done in collaboration with USDA-APHIS and others.

Funding is also needed to determine which approved vegetable washes or solutions are most effective at killing larvae so people can better wash their produce, and continue to eat local and fresh produce safely. East Hawaii has the highest use of catchment water in the state. We need to know if the infective stage of the larvae can be detected in catchment water and the best practices for treating catchment water. We have already demonstrated that infective stage RLW larvae can live in rainwater for many weeks. We also would like to test the effectiveness of UV light as used in catchment systems on killing RLW parasites. Lastly, we are testing multiple anti-parasitic drugs on different stages of RLW larvae that develop in humans. All of these studies require an assay to be able to determine that the larvae are truly dead and therefore not infective. We have worked out a differential staining method that appears to distinguish live from dead larvae but we now need to validate this assay in rats. We received \$16,000 in contingency funding from the Hawaii County Council to pay a technician for 2 months and buy supplies and rats to run this trial with USDA-APHIS. Additional funding is requested to then run the other three studies.

We have completed an antibody-based study to estimate exposure to RLW in 435 volunteers most from east Hawaii Island with our Thailand collaborators (Jarvi et al., ms. In prep). We are currently in the process of isolating proteins from Hawaii isolates of RLW to use as antigen in another diagnostic study. Funding is needed to expand this serological study to include multiple areas on Hawaii Island, as well as statewide. We have successfully detected RLW DNA in the blood of infected rats (Jarvi et al., 2015). We request funding to continue to investigate other avenues for diagnosis of angiostrongyliasis.

RLWD impacts the people of Hawaii and its visitors, it impacts public health as a global emerging infectious disease, it impacts agriculture through the loss of public confidence in locally grown produce, and it puts food self-sufficiency and food security (especially with the Farm to School Bill) for all of Hawaii at risk. RLWD has already caused multiple deaths; many victims suffer long-term disability

Our research group has already built a strong research and educational foundation with which to carry out these studies. We are poised to provide the research and curriculum-based educational efforts needed to truly begin to prevent rat lungworm disease in Hawaii and elsewhere. The state of Hawaii needs to take immediate action. Collaboration between UHH, UHM, DOH, DLNR, DOA and the Task Force is needed to develop a statewide plan for effective control of RLW parasites. Please support HB2506 with full, necessary funding.

References:

Jarvi SI, Howe K, Macomber P. Angiostrongyliasis or Rat Lungworm Disease: A Perspective from Hawaii. 2018. Current Tropical Medicine Reports. <https://doi.org/10.1007/s40475-018-0132-z>

Howe K, and Jarvi SI. 2017. Angiostrongyliasis (Rat Lungworm Disease): Viewpoints from Hawaii Island. ACS Chemical Neuroscience. DOI: 10.1021/acschemneuro.7b00299.

Jarvi, SI. Quarta, S, Jacquier S, Howe K, Bicakci D, DaSalla C, Lovesy N, Snook K, McHugh R, Niebuhr C. 2017. High prevalence of *Angiostrongylus cantonensis* (rat lungworm) on eastern Hawaii Island: a closer look at life cycle traits and patterns of infection in wild rats (*Rattus* spp). PLoS ONE 12(12): e0189458. <https://doi.org/10.1371/journal.pone.0189458>

Jarvi, S.I., Pitt WC, Farias MEM, Shiels L, Severino M, Howe K, Jacquier S, Shiels AB, Amano K, Luiz B, Maher D, Allison M, Holtquist Z, Scheibelhut N. 2015. Detection of *Angiostrongylus cantonensis* in the blood and peripheral tissues of wild Hawaiian rats (*Rattus rattus*) by a quantitative PCR (qPCR) assay. PLOS ONE DOI:10.1371/journal.pone.0123064 April 24, 2015.

Jarvi S.I., Farias, M.E.M., Howe, K., Jacquier, S., Hollingsworth, R. & Pitt, W. 2012. Quantitative PCR estimates *Angiostrongylus cantonensis* infection levels in semi-slugs (*Parmarion martensi*). *Molecular and Biochemical Parasitology* 185: 174-176.

Testimony in Support of HB 2506
HED Hearing, February 6, 2018

Aloha Chair McKelvey and Members of the House Committee on Higher Education:

My name is Susan Forbes and have lived in Hakalau on the Hamakua Coast of the Big Island for the past seven years. Prior to that I lived on Oahu for forty three years.

I'm submitting this testimony in support of H.B. 2506. Rat lungworm disease poses a serious threat to our health, to the Big Island's food sustainability, to the safety of our drinking water in catchment systems, and to our tourism-based economy. While the Big Island is the epicenter, the disease can be spread to other islands. You know all this, of course. Please understand that as an East Hawaii resident, the threat of rat lungworm disease is very real and a source of great concern.

The Daniel K. Inouye College of Pharmacy at UH Hilo has been instrumental in bringing rat lungworm disease to the forefront and conducting research with very few resources. It is essential that their research program be fully funded to enable them to carry out the research program defined in the bill.

The research topics outline in this bill are practical and necessary. In addition, the collaboration specified in the bill will hopefully keep the focus on rat lungworm disease, hasten application of research findings, and enable the State to take positive steps towards eradication of the disease.

Thank you for your attention to rat lungworm disease and the its potential catastrophic consequences for this State. I urge you to support this bill and give the funding of the research program the highest priority.

Rat lungworm disease is not a routine issue. The sooner we act, the sooner we will be able to eradicate this threat.

With gratitude for your attention to this issue,
Susan Forbes, DrPH

HB-2506

Submitted on: 2/4/2018 4:59:42 PM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Doran Vaughan		Support	No

Comments:

Please vote "Yes" in Support of HB2506.

Mahalo!

HB-2506

Submitted on: 2/4/2018 5:03:55 PM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Steven Jacquier		Support	No

Comments:

That which happened to the angiostronyliasis research funding last year was a corrupt travesty. The infuriating switcheroo was followed by our ever-so-infamous nuclear missile alert, just in case anyone missed noticing the habitual cronyism and bungling in Hawaii's state legislature and bureacracy. Go ahead and vote "no" on this and then see how you do during the next election. I will send money, wave signs, and vote for literally anyone running in opposition to a legislator who votes "no" on HB 2506, and I am far from alone. The electorate is waking up, and it is not pleased. *I am tired of asking nicely: DO AS YOU ARE TOLD WITH **OUR** MONEY, DAMN IT, OR KNOW WE ARE INDEED COMING FOR YOU!* You work for the taxpayers, not the other way around; it is our money, not yours. Remember this.

Sincerely,

Steven Jacquier

HB-2506

Submitted on: 2/4/2018 6:32:53 PM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Rodger Hansen		Support	No

Comments:

It is critical to support funding for research for this bill.

Mahalo

Rodger Hansen

hakalau HI 96710

HB-2506

Submitted on: 2/4/2018 6:35:47 PM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
elizabeth hansen		Support	No

Comments:

Please support this bill. Research is essential to address this terrible Public health issue.

Thank you

Elizabeth Hansen - Hakalau HI 96710

HB-2506

Submitted on: 2/4/2018 7:47:06 PM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Karl Magnacca		Support	No

Comments:

I strongly support this bill. Nearly all of the state money has been directed at outreach and education when there is a tremendous need for research, particularly in looking at the degree we need to be concerned about catchment water systems. As a homeowner in Puna, it's frustrating not knowing what works and what doesn't, having to rely on guesswork, extrapolation, and anecdotal data. Studying the effectiveness of various methods to sterilize water will go a long way toward making our water supply safer.

HB-2506

Submitted on: 2/4/2018 9:34:44 PM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Deniz Bicakci		Support	No

Comments:

Research needs to be conducted and DKICP is best suited for doing the research.

HB-2506

Submitted on: 2/5/2018 6:03:25 AM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Eric Baicy		Support	No

Comments:

I was shocked last year when key research funds were diverted to Dept. Of Health to make ads for Rat Lung Worm prevention when we have not even learned scientifically what the best prevention methods are. I was even more disappointed when DoH did not share funds with UH Hilo's pharmacology department to help research less invasive testing methods for rat lung.

Please find the study of proper prevention methods and the blood serum detection for the sake of all of us living on the big island. We need real answers and solutions not advertising.

HB-2506

Submitted on: 2/5/2018 6:34:19 AM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
M. Kathleen Howe	University of Hawaii, Hilo	Support	No

Comments:

I am in support of HB2506, which appropriates funding to the University of Hawaii at HILO! to continue their invaluable research on rat lungworm disease AND their education outreach. The action of the State of Hawaii regarding this issue has been a travesty that has resulted in higher and higher case numbers. I support funding to go to the UH Hilo and from there to be distributed as seen justified. Our tax dollars should not be spent reinventing the wheel, and the Oahu-centric approach to rat lungworm disease has been a waste of time. Researchers and educators at UHH know more about this parasite and disease than any other entity in Hawaii and have better access to this parasite for research than Oahu. Please pass this important bill and fund the research that has been ongoing for more than six years at UHH. Mahalo.

HB-2506

Submitted on: 2/5/2018 10:10:14 AM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Lisa Parr		Support	No

Comments:

Lisa Parr – testifying as private citizen

Attn: Committee on Higher Education

Hearing: Tuesday, Feb 6, 2018, 2:10 pm

Measure #2506 Relating to Rat Lungworm Disease

Thank you for the opportunity to comment on this important measure. I strongly urge the Committee to appropriate funds towards research on Rat Lungworm disease, and specifically towards the Jarvi Lab at UH Hilo. I live on the Big Island and have already seen the devastating effects of this parasite; two of my previous students had it and became gravely ill. The Jarvi Lab researchers are here at ground zero of the infestation, and I can attest that almost all of the information I have received, both about the parasite and about how to stay safe, has come from their work. Besides being concerned about infection, I'm also very concerned that this is going to impact our tourism and agriculture industries and our ability to attract students to UH. I've already had conversations with people from other islands and the mainland who have expressed their fears about coming to Hawaii, or eating produce here. We may still be early enough to have the opportunity to eradicate the Rat Lungworm disease, but the State needs to be aggressive about funding research and public information, and I urge you to do so. Please support this measure. Thank you.

HB-2506

Submitted on: 2/5/2018 12:39:48 PM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Melodie Aduja	OCC Legislative Priorities	Support	No

Comments:

LATE

HB-2506

Submitted on: 2/5/2018 6:03:03 PM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Lisa Kaluna		Support	No

Comments:

Aloha,

My name is Lisa Kaluna, I am the Laboratory Manager for Dr. Susan Jarvi, however my testimony today is my own personal opinion and does not reflect the UHH, RCUH or Dr. Susan Jarvi.

I am writing in support of HB2506 for funding to be directed to the UH Hilo Daniel K. Inouye College of Pharmacy Rat Lungworm Research Lab under the direction of Dr. Susan Jarvi. To be clear, my support is solely for the funding to go to this institution and no other research, educational, or health institution.

There are a number of reasons why I believe the state needs to fund Dr. Jarvi's research, a few specific examples include.....

- 1) Dr. Jarvi is the leading RLW researcher nationwide, having 7 publications in peer-reviewed scientific literature since entering the field 6 years ago. With another 3 publications currently in the writing phase.
- 2) Dr. Jarvi's research has a multifaceted approach, addressing the most pressing issues to our community. She has displayed a strong interest and ability to flex the research goals of the lab to address these pressing issues. Dr. Jarvi often adapts to incorporate the best available technology and techniques to her research.
- 3) Given her depth of knowledge and experience in this field, research funding is most effective under her direction. In meetings with potential collaborators, it is clear that many lack some basic and fundamental information about the target parasite, it's hosts, and the effects seen in victims.
- 4) Dr. Jarvi is well connected statewide and especially in our local community, the epicenter of this disease. These connections allow her to stay up to date on the latest developments and to help provide the best science to decision makers.
- 5) Despite Dr. Jarvi's herculean efforts to obtain funding through traditional channels such as federal and local grants, grant applications have been mostly unsuccessful with many reviewer comments indicating they had never heard of this disease and didn't

believe it was as serious as described in the grant application. There is a lack of peer-reviewed articles describing the severity of the disease in Hawai'i and how it's different from past infections or other countries. Only in the last few months have clinicians agreed to start working on the publication of cases studies in Hawaii. This demonstrates a clear need for our state to fund the necessary research to help protect our residents and visitors, at least until the larger funding agencies understand the seriousness of the epidemic we are facing.

6) Dr. Jarvi's leadership spurs dedication and commitment from her staff and students. With serious restrictions on funding, Dr. Jarvi has managed to keep her lab afloat on a shoe string budget in large part because of the dedication of numerous volunteers. Not only do people love volunteering for such an important issue for our community but Dr. Jarvi is also a supportive and caring supervisor. Of course, coordinating and managing so many volunteers takes a team of well trained professionals to keep all of the endeavors on track and on time. This academic year alone, in the lab, we have been lucky to have 2 full time employees (myself included) that train and manage 2 PhD students, 2 Pharm D student volunteers, 4 undergraduate interns, 2 high school student projects, and 3 community member volunteers. Both full time employees volunteered their time over the summer until funding became available for hire in August. Of course funding for both full time employees and lab supplies that support all of these people ends June 2018.

Finally, on a personal note, my husband was born and raised in the Puna district. 90% of our family and closest friends live in East Hawaii. EVERYONE we know that lives here, knows someone who contracted a very severe case of RLWD. People are scared and they are taking drastic measures to try and protect themselves and their families. Self diagnosing and subsequent self medicating with drugs from local farm supply stores is more common than you can imagine (no we don't advocate for this, but we regularly hear stories). As Hawaii State Legislatures, if do not personally know a victim of RLWD (a severe case), please take the time to find and talk with someone about their experience and how it has altered their life before you cast your vote on this bill. While there are many mild and moderate cases that do fully recover, the devastation people face who contract a very severe case is horrific. We cannot let our people and our community suffer like this. I would not wish this disease on my worst enemy. Please, do not wait until this disease comes knocking on your doorstep. Please vote in support for funding Rat Lungworm Research at the UH Hilo Daniel K. Inouye College of Pharmacy.

Thank you for your time and consideration,

Lisa M. Kaluna

HB-2506

Submitted on: 2/6/2018 7:43:10 AM

Testimony for HED on 2/6/2018 2:10:00 PM

LATE

Submitted By	Organization	Testifier Position	Present at Hearing
Michael Miyahira	Business Strategies	Support	No

Comments:

We need to know how to control the spread of this dangerous disease. This bill benefits everyone.

LATE

HB-2506

Submitted on: 2/5/2018 8:48:55 PM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Rosemarie Patronette		Support	No

Comments:

HB-2506

Submitted on: 2/6/2018 11:10:01 AM

Testimony for HED on 2/6/2018 2:10:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Tulsi Greenlee		Support	No

Comments:

Please support this bill. Rat lung disease is serious. Thank you Tulsi Greenlee