

Testimony In Support of HB7118



Bruce Mayer, Patrick Murphy, Kevin Claffey and Annabelle Rodriguez-Oquendo at Higher Ed hearing on February 21, 2019.

Testimony In Support of HB7118

Jenna M. Bartley, Ph.D.

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My research aims to bridge the gap between bench and bedside research by focusing on translational aging research. My lab primarily utilizes human clinical trials to examine interrelated aspects of immune responses, metabolism, and physical function with advanced techniques to probe how the biology of aging effects multiple systems. This more “geroscience” approach to age-related disorders allows me to research common pathways in the biology of aging, and importantly, investigate ways it can be manipulated to improve overall healthspan. With an ever growing older population, my multidisciplinary research aims to prevent age-related declines in immune responses and help older adults maintain their independence into late life.

As a new assistant professor, I have a steep road ahead of me while trying to establish my research independence and begin multiple research studies. Unfortunately, the high fringe rates caused by unfunded fringe liability are an impedance to my productivity and general success. With limited funds available, the high fringe rates makes it difficult to hire qualified research technicians. In fact, senior research associates are likely at a disadvantage due to the high fringe costs associated with their pay. I feel this is unfair to both the research scientists, as well as the research staff. Additionally, as I write and submit multiple grants, it is disappointing that the cost of research staff is so high that sacrifices need to be made on the scientific side in order to keep the total costs within the given budget. These scientific sacrifices, including using less than cutting-edge technology to keep within budgetary concerns, decrease the competitiveness of the grants. Overall, as a new faculty member, the high fringe rates are an extreme disadvantage for my current internal funds, e.g. start-up funds, and all external grant submissions. It is an impedance to my current research and future success.



Testimony In Support of HB7118

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My laboratory, in the Center for Cell Analysis and Modeling at the University of Connecticut Health Center, works on the molecular basis for fragile X disorders. These include: fragile X syndrome, the major single gene cause of mental retardation and autism in young boys, fragile X tremor ataxia syndrome, a major cause of tremor, ataxia and cognitive decline in older males, and fragile X premature ovarian insufficiency, a major cause of early menopause in females. All of these disorders are caused by expansions of CGG repeat sequences in the FMR1 gene, which are found in 1/130 females and 1/300 males in the general population. Approximately 20,000 Connecticut residents carry such expansions and are therefore at risk for fragile X disorders.

Using advanced biochemical, biophysical and cell biological experiments my laboratory has discovered a common biochemical mechanism for fragile X disorders. This mechanism could potentially be targeted to develop therapeutic strategies for ameliorating fragile X disorders. However we have not been able to develop such strategies because the very high fringe benefit rate at UCHC precludes hiring sufficient research staff with advanced biochemical training.

Reducing the fringe benefit rate at UCHC would allow us to develop therapeutic strategies for fragile X disorders that could potentially benefit 20,000 Connecticut residents.



Testimony In Support of HB7118

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Dear Committee members thanks for hearing our support of HB7118 which will address the severe damage to our Research, Education, Workforce training and Jobs that occurs at UConn and UConn Health. I am a Cancer Researcher who was funded for over 20 years by the NIH National Cancer Institute. When applying for grants, the inclusion of a 70% fringe rate is unfavorable to funding decisions compared to fringe rates in comparable institutions, typically 35-40%. One example of the negative impact is that I was unable to fully fund a highly trained technician in my lab completely in between grants, and she had to leave to maintain full-time employment. The drop in experiments, data and publications within only a 6 month period made grant reapplication difficult and non-competitive. Unfortunately, this is occurring throughout the university and affects our ability to get grants, train undergraduates, graduates and post-doctoral fellows. The cumulative effects of this problem affects our ability as a state to remain competitive and build BioScience Technology hubs and jobs due to a diminished availability of a competent and trained workforce. My colleagues will attest to the severity of this issue and we implore you to fix this unfunded liability issue.

Testimony In Support of HB7118

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My work examines how aging impacts the response to infectious diseases such as influenza. This is important because older folks are more susceptible to infection and they exhibit significantly decreased resilience following infection. For example, we are examining how influenza infection impacts muscle loss and how this is related to physical disability in older folks. Ultimately, loss of mobility resulting from influenza infection could result in the inability to live independently and require relocation to an assisted care facility. We are using an aging mouse model of influenza infection to understand the mechanisms of how flu impacts muscle and how this can be prevented.

My research is funded by NIH grants. Because of the high fringe benefit rates for employees at UConn Health, I have had to cut back on the experiments proposed for each grant that I have submitted. Importantly, this can severely impact the overall strength of the grants that I can submit and is disadvantageous since our competitors do not have to deal with this issue. I have also had to severely limit the percent effort of my staff on my grants. This limits the number of experiments that I can conduct and it also limits the number of follow up experiments that we can do when we find something interesting or unexpected. The end result is that our research is not as robust and cutting edge when compared to our competitors, and our chances of obtaining future funding from NIH are diminished because of this.



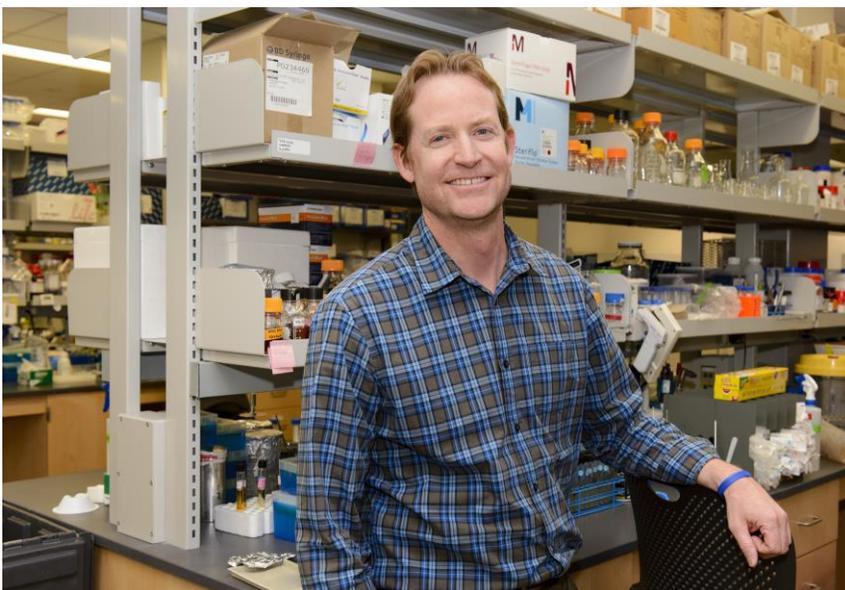
Testimony In Support of HB7118

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My laboratory studies the molecular biology of colorectal cancer development. Specifically, we study a hereditary disease called Lynch syndrome in which patients have a greatly increased risk of developing colonic and other cancers. We are interested in how mutations that cause this disease affect the function of their encoded proteins and the implications this has for disease diagnosis and management.

The extraordinary fringe rates for our research staff are an issue on multiple fronts. For starters, our personnel costs are nearly double that of my out of state collaborators. Since NIH grants have a set budget limit for a standard R01 (a value that hasn't changed in over 15 years), that basically means we have to work with less staff and less research supplies than other labs around the country. Second, this also impacts recruitment of new faculty. One specific story involved the recruitment of a new basic science chair to UConn Health. I was called in to meet with a candidate in my role as Director of Postdoctoral Affairs because the candidate had heard about our high fringe rates and wanted to confirm it was true. Sadly, I had to tell this candidate they had heard correctly. The candidate astutely pointed out that this likely explained why many of the labs they had visited had so few people working in them. I cannot say with certainty that this person was the top choice for the position or whether this was a deciding factor in that person not coming here, but it clearly is a major negative for UCH when attempting to hire new, outstanding faculty. The cost of doing business here is uncompetitively high, driven almost exclusively by the fringe rates.



Testimony In Support of HB7118

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Studies of the molecular basis of disease are essential in the fight against deadly and implacable foes of age-related dementias such as Alzheimer's and Parkinson's Diseases, cancer, and infectious disease. The exploding amount and diversity of data that scientists are able to produce make computation an increasingly important research tool. UConn Health stands at the forefront of computation in biology, exemplified by the National Center for NMR Data Processing and Analysis (NMRbox) and the National Resource for Cell Analysis and Modeling (Virtual Cell).

High fringe benefits that raise the cost of supporting the computer and data scientists that perform the research present a challenge to maintaining this leadership position. In contrast to instruments and resources that process patients or samples, computational analysis can be performed anywhere that has access to high-capacity cyberinfrastructure. Part of the NMRbox team is located in Madison, Wisconsin. Although UConn Health is the lead institution on the grant that funds NMRbox, and in 2020 will become the lead institution on a companion grant currently lead by the University of Wisconsin, fringe benefit rates present a very real obstacle to relocating staff scientists from Madison to Farmington.

Testimony In Support of HB7118

Stephen M. King, Ph.D.

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Research - Currently my laboratory is funded by two RO1 awards from the National Institutes of Health (~\$500,000 in direct costs per year). We study cilia - organelles that play key roles in signaling and motility in humans and other organisms. Defects in these structures lead to broad and often devastating effects in mammals including, infertility, blindness, polycystic kidneys, some epilepsies and obesity, as well as developmental disorders in brain formation, skeletal abnormalities, progressive blindness and many others. Our work focuses on two main areas: 1) we study the molecular motor proteins that allow cilia (and sperm flagella) to move and thereby propel cells and set up fluid flows and gradients. Our second project (in collaboration with Betty Eipper at UConn Health) looks at the role of cilia in secreting peptides and other bioactive molecules to allow for cell-cell communication. This is a very new area of research that we have just had funded by the NIH.

Impact of High Fringe Benefit Rates - The enormous fringe liability places UConn faculty at a massive competitive disadvantage when applying for federal and other grants. As the current Chair of the Research Council (a governance council at UConn Health) this problem has been brought to my attention by many colleagues and discussed at our council meetings with senior UConn officials. It is my opinion that this is by far the most serious problem facing researchers at UConn Health. Simply put, the standard NIH RO1 award usually provides approximately \$250,000 or so in direct costs per year - currently I hold two of these awards. I should note that in my experience the National Institute of General Medical Sciences at NIH reduces the actual RO1 grant awarded to ~\$250,000/year irrespective of the amount originally requested (which would include the full salary and fringe for all personnel needed to perform the work). Salaries account for probably 80% or more of these costs. As the fringe rate for unionized research staff and postdoctoral fellows is now ~70%, which I understand is higher than at almost all other academic institutions in the US, this means that the number of people we can have in the lab actively working on a project is much less than at other institutions (including others in CT and the North East). This directly and dramatically impacts productivity which of course then directly impacts on grant renewals etc as the amount of progress/publications achieved is far less than would otherwise be so. I have personally received comments on a NIH grant review where the reviewer literally did not believe that the indicated/requested fringe rates were real as they are so far out of the normal range, and then of course that person made highly negative comments concerning the budget - given the ultra-competitive nature of NIH grant funding, this type of response almost guarantees an application will not get funded. I would urge the legislature to act to reduce the unfunded fringe liability charged to research grants as it will have a direct and demonstrable impact on our ability to actually perform ground-breaking biomedical research and greatly enhance future grant funding prospects.

Testimony In Support of HB7118

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My research is on synaptic adhesion proteins, which allow the neurons of the brain to communicate with one another. Dysfunction of these proteins causes neuropsychiatric diseases such as autism, schizophrenia, and ADHD. The goal of my research is to identify novel treatments for these diseases, which will alleviate suffering (and lead to patents).

The current fringe rate that I am required to pay for my research associate is devastating to my program of research. The current fringe rate is 66.9% and has risen every year that I have been here. I have spoken with multiple colleagues at other comparable state universities and not one of them pays anything close to that rate.

I am a new professor and starting a research lab is extremely difficult. Every penny is precious. The true cost of my research associate's fringe rate is much lower than 66.9%. So where does this extra money go? My understanding is that it goes to offset seven decades of the state having underfunded its pension liabilities. From my perspective as the employer, this is like lighting money on fire. This is in addition to the larger base salaries that research associates receive at UConn Health compared to other institutions. I have calculated that for every research associate that I can afford to advance science at UConn Health, my colleagues at other institutions can afford two.

Thus, the fringe rates force me to hire fewer employees and if grant funding runs low, my research associate will be the first to be laid off, because I could not afford to retain her. My research program and my research associate's career will be the collateral damage of the state's underfunded pension liability. She has told me that if that happens, then she will take her highly specialized skill set to Boston, where there are plentiful job opportunities. She will be well-prepared professionally, as she was trained by me personally.



Testimony In Support of HB7118

Bruce J. Mayer, Ph.D.

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My laboratory has worked for over 25 years on the basic biology of cancer—how cancer cells differ from normal cells, and how we can use those differences to develop better and more precise therapies. Over the years my lab has been supported by millions of dollars of grant funding from the NIH, but recently that funding has been much more difficult to obtain. One reason is that at UConn Health, we can support fewer people per grant dollar due to extraordinarily high fringe rates. That means my lab is less productive than labs at other institutions, and it also means I can hire fewer of the high-tech workers we should be encouraging to live in Connecticut.

As you know, a major reason for our high fringe rates is that UConn Health is charged by the state to help pay down the unfunded pension liability. I will provide one example of how this impacts our work. Postdoctoral fellows (research trainees who have a PhD but not yet a faculty position, roughly equivalent to residents in the medical education system) are the backbone of a productive research lab. They make modest salaries and at most institutions have low fringe rates, because they are young, healthy, and as trainees usually not covered by pensions. They stay a maximum of 5-6 years, and thus will never vest in SERS. Yet because at UConn Health their fringe rate includes costs for the unfunded pension liability, those rates are now almost 70%, several times higher than at most competing institutions. Thus the misguided effort to use their fringe rate to bolster the pension fund costs my lab grant dollars, makes it less competitive, and costs the state good jobs it sorely needs.

Testimony In Support of HB7118

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During my post-doctoral work at MIT, I studied the interactions between immune cells and the arterial wall under the type of low and disturbed blood flow that leads to atherosclerosis and intracranial aneurysm growth and rupture. I discovered a novel regulatory response in the endothelial-immune interaction, mediated by alternative splicing of RNA. This work, made possible by advances in RNA-sequencing technologies, is now leading to the discovery the endothelial RNA-binding proteins which regulate chronic inflammation. Mutation and dysfunction of these proteins has been observed in chronic inflammatory and neurodegenerative diseases, as well as cardiovascular disease, and we believe their dysfunction within the endothelial lining of blood vessels may predict disease progression and offer the possibility for treatment.

I believe in the vision the state has laid out for the development of a local biotech industry, and am excited to contribute to this through the ideas generated in my lab and training of personnel. We have initiated collaborations with clinicians at UCONN Health, to obtain human tissues samples which could be used to translate our work directly to disease. We have discussed how these ideas might be developed into commercial ventures. This is my long-term goal.

To achieve my goals, I rely on the personnel in the lab to give life to my ideas. The extremely high fringe benefits for professional staff has hamstrung me, relative to contemporaneous colleagues. Compared to two lab mates from my time at MIT, now at Albany Medical and University of Illinois. I will be paying \$32,850 per year in fringe for a technician, compared with their ~\$16,000. I can afford to hire only a single technician, and have not even considered a post-doctoral fellow. As a result of the salary for the technician, I turned down a very talented computational MD/PhD student. Although he would have been a tremendous benefit to my lab, I could not cover the astronomical salary for my technician and ensure enough funds for this student. Both he and I were disappointed.

When only 2 in 10 NIH grants are funded, every competitive disadvantage can mean a loss in funding. The inability to produce data, resulting from the steadily increasing fringe will not translate into impaired grant success immediately. Rates have climbed from a reasonable 40% in 2013 to the current ~70%. I would predict a significant drop in grant success in the coming years, as protocols and methods are lost when the technical staff required to keep them are no longer kept.

Although I received a highly competitive NIH K99/R00 transition award at MIT, which supplied NIH funds during my first 3 years at UCONN Health. I am currently fighting for new NIH grants, and my ability to do this well, and to maintain the momentum of my lab is compromised by the current fringe. I am strongly considering the impact of these extremely high fringe rates on my long-term ability to compete.

Testimony In Support of HB7118

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Thank you for providing me this opportunity to speak about the fringe rate. I'm here to petition for a reduction of the fringe rate back to 2012-2013 rates, which were close to 35-40%. That time period is memorable for me as I was recruited to UConn Health from Johns Hopkins in 2012, and this was due, in large part, to the Bioscience CT Initiative. I am a physician, an endocrinologist, a scientist with expertise in genetics of cholesterol and heart attacks, an inventor and a founder of a startup company, Lipid Genomics that is located in the TIP incubator program in Farmington. Since being a faculty member at UConn I have developed patents related to inflammation and heart disease, with these patents now allowed by the USPTO. All of this occurred while the fringe rate for my NIH grant was close to 40%, compared to the current level at 69%. This current high level hinders productivity and my ability to compete with other institutions across the country for NIH grant funding. For your review, I've provided a snapshot of a NIH grant submission I did on Feb 5, 2019. I want to point out that if the fringe rate would be lowered to 42%, I would save about \$28,000 per year. If the rates were 35%, as they are at Harvard, I would save \$36,000 per year. With this money returned to my budget, I can hire more staff, produce more research work and patent applications. This is also true for my colleagues, both senior investigators like myself, and junior faculty on the tenure path. All of us within the public universities of CT want to compete, and this happens by the grant application process. We want our ideas to make a difference for the people of CT and beyond. I'm happy to report that yesterday I received notice that I was elected as a member of the CT Academy of Science and Engineering, all due to the research work and patents generated since joining UConn Health. We want to continue making a difference, so please vote for HB 7118, so that starting in July of this year, researchers in CT can participate in a fair competition.



Annabelle Rodriguez-Oquendo, M.D.

Salaries		FTE	Effort							Year 1	Year 2	Year 3	Year 4	Year 5	Total
Professional Res Asst I	\$49,462	1.00	\$49,462	12.00	100%	100%	100%	100%	100%	\$ 52,677	\$ 56,101	\$ 57,784	\$ 59,518	\$ 61,304	\$ 287,384
Professional Res Asst I	\$49,462	1.00	\$49,462	12.00	100%	100%	100%	100%	100%	\$ 52,677	\$ 56,101	\$ 57,784	\$ 59,518	\$ 61,304	\$ 287,384
Fringe Benefits	Rate														
Annabelle Rodriguez (faculty)	42.00%														
Professional Res Asst I	69.00%									\$ 36,347	\$ 38,710	\$ 39,871	\$ 41,067	\$ 42,300	\$ 198,295
Professional Res Asst I	69.00%									\$ 36,347	\$ 38,710	\$ 39,871	\$ 41,067	\$ 42,300	\$ 198,295
Salary plus Fringe per staff										\$ 89,024	\$ 94,811	\$ 97,655	\$ 100,585	\$ 103,604	\$ 485,679
Total for both professional staff										\$ 89,024	\$ 94,811	\$ 97,655	\$ 100,585	\$ 103,604	\$ 485,679
										\$ 178,048	\$ 189,622	\$ 195,310	\$ 201,170	\$ 207,208	\$ 971,358
IF fringe were set at 42%										\$ 74,801	\$ 79,663	\$ 82,053	\$ 84,516	\$ 87,052	\$ 408,085
										\$ 74,801	\$ 79,663	\$ 82,053	\$ 84,516	\$ 87,052	\$ 408,085
Total for both professional staff										\$ 149,602	\$ 159,326	\$ 164,106	\$ 169,032	\$ 174,104	\$ 816,170
Potential savings to direct NIH budget										\$ 28,446	\$ 30,296	\$ 31,204	\$ 32,138	\$ 33,104	\$ 155,188
IF we were Harvard (fringe 35%)										\$ 71,114	\$ 75,736	\$ 78,008	\$ 80,349	\$ 82,760	\$ 387,968
										\$ 71,114	\$ 75,736	\$ 78,008	\$ 80,349	\$ 82,760	\$ 387,968
										\$ 142,228	\$ 151,472	\$ 156,016	\$ 160,698	\$ 165,520	\$ 775,936
Potential savings to direct NIH budget										\$ 35,820	\$ 38,150	\$ 39,294	\$ 40,472	\$ 41,688	\$ 195,422

I. Negative consequences of the high fringe rate

- Can hire fewer lab staff. This translates into less CT residents in STEM, potentially offsetting recent legislative changes to encourage STEM students to remain in CT. Per year, Harvard can support 3 staff to our 2.
- Reliance on unprofessional lab staff: graduate students, postdocs, special payroll.
- Reliance on hiring foreign lab staff: lower fringe rate set at 22%.
- Less staff means less productivity. This is measured by publication number, quality, report of inventions. Less productivity means having to change strategy for grant submissions: renewals vs. new applications.
- Problem for junior faculty who need productivity metrics as part of their tenure package. Less productive less able to compete for grants and get tenure.
- Recruited faculty not initially aware of high fringe rates and negative impact on their productivity and ability to compete for future grants. This faculty group at risk of feeling duped.
- All of above negatively impacts national reputation of UConn and CT.

Testimony In Support of HB7118

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My laboratory studies the earliest stages of colon cancer using a multi-omics approach. As part of our work, we have performed colonoscopy screening on hundreds of patients at the JDH and created a large human database of early neoplasia, including detailed information on demographics, somatic mutations, epigenetics and microbiome. We also model many of the molecular defects present in the human colon using genetically modified mouse models. One of our major research goals is to develop strategies that can prevent cancer development, using natural products (walnuts) or non-toxic compounds (aspirin) to reduce colon inflammation and limit the likelihood of cancer development.

For many years we have been forced to pay out of our extramural research funding for state obligations that we are not responsible for, a difficult situation we did not create. This is essentially a huge tax that is imposed upon those of us with extramural funding. In a time when the pay line is at an historic low at the NIH (approximately 8 percentile), just being able to secure NIH funding is a terrific accomplishment, but then to be punished by the state through no fault of our own by imposing this added burden upon us that has the net result of immediately making our laboratories less competitive than other institutions around the country.

There is so much we could do with this additional funding that is denied us - hire additional personnel, purchase needed equipment and reagents, etc. Having to pay such high fringe rates (much higher than almost anywhere else in the United States) is really putting us at a huge competitive disadvantage with other research institutions.

The state must absorb this added cost and not pass it on to hard-working scientists within the State of Connecticut.



Testimony In Support of HB7118

Penghua Wang, Ph.D.

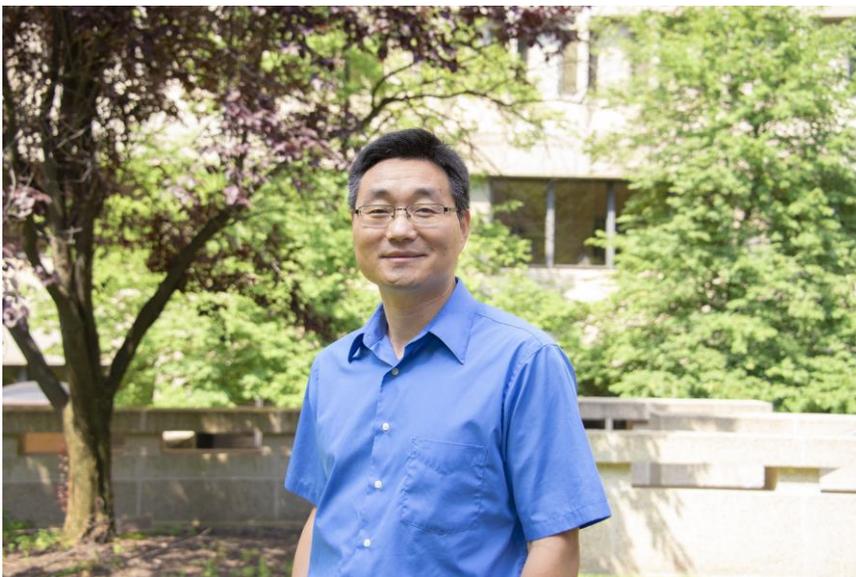
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My name is Penghua Wang, Assistant Professor in the Department of Immunology. I'm writing to raise my concern over the extremely high fringe rates caused by unfunded fringe liability.

I run active research in the field of viral immunology and inflammatory diseases, ultimately seeking new therapeutic approaches to treating important human disease conditions such as viral/autoimmune arthritis and Zika/dengue virus infection. My research is currently supported by NIH grants. The fringe rate at U Conn is much higher than elsewhere I know. For example, the fringe benefit for one employee in my lab is ~\$15,000/year more than his peers with the same salary at Yale University. This significantly reduces the amount of funds to research, rendering me less competitive than my peers in other institutions. I hope the State legislative body will consider this issue seriously, make UConn research grow and become more competitive.

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Testimony In Support of HB7118

Ming Xu, Ph.D.

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My name is Ming Xu, an assistant professor in University of Connecticut Center on Aging. We are doing research in order to slow down aging process and improve health in older adults. The unfunded fringe liability (extremely high fringe rate) significantly impact our research, because it limited the number of personnel I can have in the lab to do research. This fringe liability also makes it very difficult for researchers to find jobs here.

