



One pulse over the horizon

June 21, 2021

Dear Chairwoman Nydia Velázquez,

I thank you for the opportunity to share my testimony with The Committee on Small Business Subcommittee on Underserved, Agricultural, and Rural Business Development during this hearing titled, “Prioritizing Small Underserved and Rural Businesses in the SBIR/STTR Programs.”

My name is Dr. Angelique Johnson, and I testify not only in my capacity as CEO/Founder of MEMStim, but also as an expert in entrepreneurship and innovation having addressed audience on behalf of the 8th district of the Federal Reserve Bank; the Royal Academy of Science International Trust; the International Chamber of Commerce; and the United Nations Assembly on Women and Girls in Science. Additionally, I speak as a leader in the following organizations:

- Standing Council, NSF Engineering Research Visioning Alliance
- KY Statewide EPSCOR Committee
- National Institute of Biomedical Imaging and Bioengineering, NIH SBIR
- NSF NNCI External Advisory Board
- Medtech Color

While getting my PhD in Electrical Engineering from the University of Michigan, I founded MEMStim to develop a fully automated, low cost, advanced manufacturing process for implantable nerve stimulators. That is mouthful but let me explain further.

Everything we do and think is controlled by nerves and neurons in our bodies passing along electrical information. Now, sometimes the electrical information is missing or distorted. This can lead to hearing loss, heart failure, chronic pain, paralysis, blindness, Parkinson’s tremors and much more. For many of these conditions, pharmaceutical treatments do not exist or are highly addictive (think opioids for chronic pain). Thankfully, neurostimulators were created that can be implanted into the body to restore function via electrical stimulation. Many of you may be familiar with pacemakers, which is one type of neurostimulator, but there are many others, such as cochlear implants for hearing loss and spinal cord stimulators for chronic pain.



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At MEMStim we are developing the next generation of neurostimulator electrode leads (the wires that deliver the stimulation) with 3D printing. We replace manual assembly with automation to produce components that are ten times cheaper to manufacture and offer the promise of higher performance and lower power consumption.

Our leads are minimally invasive for safer surgeries and more durable than manually assembled alternatives. Imagine receiving a spinal cord stimulator to treat your chronic pain. You don't want the leads implanted in your spine breaking as you bend your back throughout the day. We have created proprietary elastic metals that could prevent breakage and medical device recalls. For decades the performance of neurostimulator leads has been limited to what the human hand can manipulate. This has hampered innovation and resulted in large medical bills. MEMStim seeks to change this through American based manufacturing of medical implants that lower healthcare costs at home and can be exported globally at a price affordable to emerging economies, such as India and China.

As powerful as our work sounds (and is). It would not be possible without the funding of the SBIR/STTR program. We have received Phase I and Phase II grants from multiple agencies, including the National Institute on Deafness and Other Communication Disorders (NIDCD) and the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR). Without this funding we would not have been able to generate our transformative low cost, high performance process.

The truth is, as a medical device startup we would be entirely dependent on funding from Venture Capitalists. However, the reality is that less than 1% of VC funding goes to African American tech founders and black women received only 0.27% of VC funding between 2018 and 2019 (*Still Building*, ProjectDiane 2021 Update). Black founders often must get their startup to a very advanced state on their own before they will be considered by VC's. This is not because their startups are any less valuable; rather, a study from the Kauffman Fellows Research Center shows that diverse founders return 30% more capital to their investors when they get acquired, or through IPO. Some believe this bias is directly related to the demographic of the decision makers who are 93% white male. As stated in a Forbes article, *Check Your Stats: The Lack of Diversity in Venture Capital Is Worse Than It Looks*, "only 1% of the \$70 trillion in wealth management industry is controlled by women or minority fund managers".



The SBIR/STTR program must serve to fill this gap in funding, particularly for underserved founders. However, there are also significant funding gaps existent in the SBIR/STTR program. Only 7.5% of funded grants were awarded to minority business owners according to an annual Brookings survey of entrepreneurs in 2016, even though minority businesses made up 39.4% of the business population surveyed.

I want to offer up some readily executable solutions that I believe could reduce this gap. These solutions come from my experience training and mentoring underserved founders in the SBIR/STTR program. I do this training through my company Vissionaireum, a company for Vissionaires, what I call the “vision rich” (www.vissionaireum.com). I have trained hundreds of entrepreneurs in best tips for acquiring an SBIR/STTR. As well, I draw from my experience as a grant reviewer for the SBIR/STTR program.

Firstly, the program needs to increase the diversity of the review committee. This means the agencies need to actively recruit diverse experts, but it can't stop there. Funding should be allocated to pay reviewers for their time. Due to wage and funding disparities, African American grant reviewers cannot afford to donate several workdays to the SBIR review process. Many reviewers come from academic institutions, but black faculty members have several committees vying for their time. They are often overcommitted and underpaid. For non-underrepresented grant reviewers, the issue of pay may seem like a luxury, but it is necessity to those who don't have the privilege/freedom to go without.

Additionally, I recommend that the program contract with black-owned SBIR consulting companies that have a successful track records of receiving funding. Together they can create a mentor-mentee protégé program for SBIR/STTR grants. Through my company I have helped many black founders navigate the grant process. Having the same lived experience, I can help them navigate the unique challenges faced by underserved companies. Companies like Vissionaireum (www.vissionaireum.com) could mentor so many more if there was funding to cover resources and time. It is a fact that black founders receive less business funding and have less disposable income, typically because of wage disparities. As such, they lack the seed capital to pay for grant consultants who can help them write successful applications.

Lastly, putting together a good application is not just about writing. It is also about having good prior research. Due to poor seed funding, many underserved applicants do not have the resources to conduct good prior research.



They may be stuck at the concept phase. Although preliminary data isn't explicitly scored, it is expected that companies will be able to make a strong case that they can achieve the Phase I milestones. In part, this is demonstrated through "Phase 0" prior research or prototyping. I recommend the SBIR/STTR program provide Phase 0 funds to underserved entities for the specific purpose of conducting prior research and putting together a good Phase I application. This could be similar to what is done through NSF/NIH ICORPS grant, and eligible specifically to underserved SBIR/STTR applicants.

Again, thank you for this opportunity to share my insights on an invaluable resource for keeping America a leader in innovation and technology.

Sincerely,

A handwritten signature in black ink that reads "Angelique Johnson". The signature is written in a cursive, flowing style.

Angelique Johnson

CEO/Founder, MEMStim