Testimony for Hearing on HB1525
Eric J. Murphy, District 43

Thank you, Chairman Vigessa and my honorable colleagues on the Appropriation Committee. For the record, my name is Eric James Murphy, representative from District 43, Grand Forks.

In the 1950's, a group of visionaries envisioned a research park situated between Duke University, North Carolina State University, and University of North Carolina. Today we know this 7,000 acre region of pine forest as Research Triangle, home to 300 companies and 55,000 employees. Pharmaceutical giant GlaxoSmithKline has located their largest R&D facility in the park and Cisco System's campus has about 5,000 employees.

Why did Research Triangle Park come to fruition? Because these visionaries recognized the changing economy post-World War II would diminish the economy of North Carolina. Couple this with a bunch of academics who thought leveraging the research prowess of these three universities in the region would enable private-public partnerships and provide an ecosystem that would foster research and development. In addition, they envisioned an opportunity for their graduates to stay within the state, while being employed in a vibrant community. No longer would their best and brightest have to leave the state to find gainful employment.

Fast forward to today. In the early 2000's Senator Dorgan had a similar vision of the I-29 research corridor. Focusing this vision to North Dakota, our two research universities are located within 76 miles of each other and anchor a unique set of research expertise. How do we utilize this expertise and open the potential that clearly exists? Now is the time to really begin to enhance our economy by growing the bioscience sector and materials science sector in the Red River Valley.

Let me focus on the biosciences.

Aldeveron is anchored in Fargo and has grown from a small company in the basement of a building at North Dakota State University to having a 14 acre campus in Fargo. The success of Aldeveron demonstrates that a bioscience company can have success in North Dakota. But what about future companies in the pharmaceutical space or in the agriculture space? How do we foster spin outs from our universities? How do we attract companies from out of state to establish a footprint in North Dakota?

HB1525 is a small step toward building a research ecosystem that provides instrumentation critical for these startup companies that lack the funds to acquire the needed instrumentation and may not have the ability to staff such instruments. For instance, to establish a meaningful mass spectrometry facility, a company is looking at a minimal investment of $0.75-1.5M in instrumentation, with annual salaries around $200,000 and operations costs around $75,000. This is out of reach for many startups, yet such a center exists at UND with over $2.5M in instrumentation with a full-time director and technician.

Although critical for these companies' success, the cost of these instruments, the limited use, and the cost of staff preclude them from having these instruments in house Hence, these companies will seek locations that can provide this instrumentation and access to the

instrumentation via collaborative efforts. To attract bioscience companies and to enhance retention of spinout companies, we must provide a research ecosystem that broadly supports the biosciences.

HB1525 requests funds for the University of North Dakota and North Dakota State University that will be used to purchase service contracts for existing scientific instruments. These service contracts are critical to maintain these complex instruments in optimal condition for use by private industry, thereby fostering private-public collaboration.

As such, these instruments will be used primarily in preclinical studies focused on developing early drug candidate performance data and absorption, distribution, metabolism, and excretion (ADME) studies, critical for drug development. Pharmacokinetic experiments, critical in the preclinical studies can be done and imaging experiments can used to determine critical signaling pathway activation using advanced microscopy systems. Please note that some of these facilities are already doing clinical work, so it is not without thought that human clinical studies can be done as well.

Currently I can think of two drug development projects using the mass spectrometry center and the imaging center at UND SMHS. One is focused on a drug for treating stroke that has produced some exciting results. The analysis of the drug in the brain is assessed via measuring its levels using mass spectrometry, while its impact on brain angiogenesis (blood vessel growth) is imaged over time (serially) in the intact brain (very cool!!). Another drug is focused on mitigating damage to and speeding healing of mucosal and epithelial cells in the gastrointestinal tract, essentially focused on finding a novel treatment for inflammatory bowel disease. Again, pharmacokinetics and drug levels are assessed using mass spectrometry.

So, let's all sit back and have a vision. That vision is that we have an opportunity to leverage existing instrumentation, often purchased with federal resources, and existing expertise to help foster a ecosystem that is conducive for research and development.

Now, imagine instrumentation that is not functional. Not functional because there are limited resources in higher education to support the service agreements. This bill is focused on providing funding for these service agreements. This has been an ongoing issue that I had identified when I was on the State Board of Higher Education, but NDUS was just reluctant to ask for money for service agreements. Now is the time to change our way of thinking. Now is the time to provide a small amount of funding to maintain these instruments in optimal condition that will be required to private-public collaborative efforts.

For full disclosure, I am a professor at UND in the SMHS, I am a partner in CamBioGene, a plant sciences company established in late 2022 in North Dakota, and acquiring operations in Helsinki, Finland, and am CEO of Krampade, a company focused on enhancing options for dietary potassium intake and other key macronutrients. I spent time in the pharmaceutical industry in southern California, where as a small company we used private-public collaborations to help drive our research program and provide targeted expertise.