Testimony

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Chairman Wyden, thank you for coming to Portland to hold this hearing on a subject of great importance to Oregon's future. For the record, my name is Peter Kohler, and I'm the President of Oregon Health & Science University (OHSU). The question of what factors are needed to make Portland a biotechnology hub has been very much on my mind and those of my colleagues for the past several years, and I appreciate the opportunity to testify here today.

The short answer is that industry development is in some ways analogous to the scientific process itself. Science is an uncertain endeavor, involving experimentation, trial and error. Similarly, there is no single recipe for regional biotech success. On one ingredient, however, experts are unanimous: the presence of a world-class research institution is an absolute must. At OHSU, we are working diligently to become just that: a world-class institution with respect to medical research and biotechnology.

The second primary factor that will determine our state's success in this area is the ability to cultivate a culture of biotechnology. By that, I mean the presence of venture capital funds, management and technology transfer expertise, incubator space, and so on – a biotechnology infrastructure, if you

will. I believe this is the bigger challenge for Oregon.

In my remarks today, I would like to start with some of the efforts being made at OHSU to achieve a major leap forward in our research programs. I will then return to the need to develop a culture of biotechnology here in Oregon.

OHSU as a research institution

Let me begin with the importance of OHSU continuing to grow as a research institution. A recent study by the Milken Institute of Santa Monica concluded that "research centers and institutions are undisputedly the most important factor" in incubating high-tech and biotech companies.

The relationship between the thriving Seattle biotech industry and the University of Washington is a case in point. The chart that I've attached to my testimony shows the correlation between research dollars and company development. I think it is particularly interesting to note that the rate of company growth has increased over time, as UW's total research grew. In other words, it is important for a research institution to reach a certain size, sometimes referred to as critical mass, at which point returns on investment become even higher. For instance, the UW experience shows that company development really began to take off after 1991, as UW crossed the $300 million threshold in federal research dollars.

At OHSU, we are beginning to approach critical mass. We have increased our research tenfold over the last two decades, to nearly $220 million today. During that time, we have surpassed a number of other academic health centers, moving from #87 in 1986 to #29 in 2001. We expect to surpass $300 million by FY 2005 (based on 15% annual growth in total research grants). We have also

improved the quality of our research, as evidenced most notably by Dr. Brian Druker's internationally recognized work targeting the molecular basis of a specific type of leukemia that has implications for the treatment of all cancers.

To further our drive for research excellence, OHSU has in the past year merged with the Oregon Graduate Institute of Science and Technology (OGI). The faculty at the new OGI School of Science and Engineering at OHSU are very strong and enjoy a high level of research funding productivity, comparable to national research leaders on a per faculty basis. The strengths of OGI – computer science, engineering, environmental science, biochemistry, molecular biology, electrical and computer engineering, and management in science and technology – complement those already in place at OHSU.

OHSU and OGI are well ahead of most academic institutions in recognizing and acting on the growing synergy between medicine, computer science and engineering. We believe the merger will create significant competitive advantages in the commercially important fields of functional genomics, proteomics, bioinformatics and biomedical engineering. Oregon is ahead of the trend in this area.

OHSU is poised to achieve critical mass, but the missing ingredient is space. We are above the ninetieth percentile nationally in research awards per square foot. That puts us in a good position to continue our dramatic climb up the NIH rankings, but we must build state-of-the-art laboratory space to enable this future growth.

To address this situation, OHSU developed an initiative called the Oregon Opportunity. The Oregon Opportunity is a $500 million public-private partnership to support major investments in OHSU's research infrastructure and thereby achieve a major leap forward in our research program. It

is important to note that we intend to raise the bulk of the Oregon Opportunity investment -- $300 million -- through a private campaign run by our foundation. I should add that we have already reached the $100 million milestone, well ahead of schedule.

In addition, we asked the state for a $200 million bond. During the past legislative session, the Legislature and the Governor committed to OHSU a fixed revenue stream from the tobacco settlement. This revenue stream will allow OHSU to secure a bond of up to $200 million dollars. I should also note that the state referred a measure – Measure 11 – to the May 2002 ballot that would authorize the use of general obligation bonds for the Oregon Opportunity. If passed, this measure would mean the full $200 million rather than the $165 million that would result from selling revenue-backed bonds. A committee has been formed to run the campaign, with Senator Hatfield and Governor Kitzhaber as co-chairs.

To fully realize the goals of the Oregon Opportunity, OHSU will build at least 179,000 square feet of new research space as well as purchase and remodel existing space for research laboratories, offices and support space. OHSU will build a new Biomedical Research Building – currently in the planning and design stage – on the Marquam Hill campus, at a cost of approximately $98 million. The new building will provide highly efficient wet bench space and associated lab support and conference areas, expanded facilities for animal research and a core research imaging center. This building is vitally important to help us clear out what might be best described as bottlenecks in our current research infrastructure.

We also plan to recruit leading scientific investigators and their teams – a total of approximately 350 new researchers – to Oregon. In our recruitment efforts, OHSU will prioritize areas of study that mirror and enhance clinical excellence. We will focus our investments in medical research in areas such

as advanced imaging, cancer, genomics, bioinformatics, heart disease, neuroscience, women and children's health, hearing research and aging.

The proposed North Macadam development is also integral to the growth of OHSU. We are rapidly running out of space up on Marquam Hill, and to preserve the synergy between research, education and patient care, it's vitally important that we are allowed to grow within Portland's central city area. Connecting North Macadam to Marquam Hill with an aerial tram will help us maintain and enhance that synergy. During this process, we are also working to build partnerships with other educational institutions like Portland State University through the Metropolitan Collaborative Model, which will allow us to work on issues such as bioscience and facilities. And of course with OHSU on the waterfront, we believe the North Macadam area will naturally be attractive to biotech companies looking to partner with OHSU and to spin off OHSU discoveries. But you will hear much more about North Macadam from others here today.

Cultivating a Culture of Biotechnology

That brings me to the state of the industry. Today, Oregon's biotech sector is best described as emerging. But we believe it could eventually be the third leg of Oregon's economic stool – if we can develop a culture that nurtures and supports new biotech companies.

Presently, Oregon's biotech industry pales compared to those of San Diego, San Francisco or Seattle. But we need not – nor can we afford to – think of biotech as the exclusive province of our larger neighbors to the north and south. San Diego, a community of similar size to Portland, has more than 250 biotech companies. San Diego succeeds where Portland lags because the community as a

whole strongly supports the local academic institutions such as Salk, Scripps and UC-San Diego. Here in Oregon, things are moving in a very positive direction. State passage of the Oregon Opportunity bond authority and private philanthropic support in excess of $100 million suggests that our community understands the importance of medical research and biotechnology.

That's the good news. The bad news is that Oregon currently lacks the necessary infrastructure to retain and utilize the intellectual property created at OHSU and elsewhere. We have often been forced to sell or lease the intellectual property before it can develop real value for Oregon. One example of this is the research of Dr. Brian Druker.

Fortunately, there are a number of potential breakthroughs in the OHSU pipeline. Dr. Gail Clinton is in the early stages of developing a breast cancer treatment called herstatin. Based on preliminary results, we think herstatin could generate a billion dollars a year in economic activity. When Dr. Clinton is ready to commercialize her discovery, I want Oregon to be ready to run with the results. This will require elements of a biotech infrastructure not currently in place in Oregon. If we cannot put these elements in place, we will effectively be sending yet another economic windfall to another country like Switzerland, or another state, like California.

To address this situation, OHSU has intensified its search for partners in venture capital, technology transfer, and project management – to enhance our ability to commercialize scientific breakthroughs. The process of commercializing a discovery involves a few discrete steps: select well from among competing discoveries, fund the most promising, and manage the transition from research to production and marketing. As accomplished as OHSU scientists are, they are not trained as managers or entrepreneurs.

Given the large number of recent discoveries on campus and a wealth of existing research in the pipeline, the lack of venture capital and tech transfer capacity could have serious economic consequences for the state. Up until now, discoveries in Oregon usually run out of venture capital funding after the first round. The rights are then sold for a few million dollars and victory is declared. But that's short sighted. Where would Oregon be if Jack Murdock and Howard Vollum had sold Tektronix to investors in California after the first wave of venture capital dried up?

On one of my trips around the state, someone said that selling or licensing our intellectual property is like selling raw logs instead of processing them to add value. In the case of medical research and biotechnology, I would have to say that the economic loss would be far, far greater.

Conclusion

In closing, I'd like to say that it's a real pleasure to testify in a forum that begins with the assumption that Oregon should work to develop a robust biotechnology industry. The question that we debate today is not whether to have an industry, but how to do it. I can assure you that this has not always been the case.

And, at the risk of preaching to the choir, I'd like to share a small piece of our vision for what biotech can mean to the Oregon economy. As reported by Ernst & Young, the biotech industry created more than 437,000 new American jobs in 1999, generating revenues approaching $47 billion. And that's just the tip of the iceberg: genomic results are only now beginning to pour in. Financial analysts project the biotech industry to grow at a 35 percent annual rate for the foreseeable future. Based on conservative economic estimates, we believe Oregon could have a $1 billion annual industry

by 2006.

Let me talk a little bit more about that number. If OHSU captures just one percent of new biotech growth between now and 2006, excluding the industry as it stands today, that represents $1 billion. The one percent figure is roughly parallel to Oregon's percentage of the overall U.S. population, so we consider that a fairly conservative estimate. It assumes that the quality of research is the same in every state, which is far from true. OHSU is a growing national leader in medical research. With the high quality of intellectual property coming out of OHSU, we believe that $1 billion figure could eventually be significantly higher. But, as I've said, we still have a ways to go in building a culture of biotechnology.

Once again, I thank you for the opportunity to testify and applaud your willingness to come to Portland to study such an important issue. We think biotechnology can be part of a very bright economic future for Oregon, and we appreciate your help in making this future a reality.

Thank you.

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