

APPROPRIATIONS REQUEST FORM

OREGON HOUSE DELEGATION

FISCAL YEAR 2010

DEADLINE FOR SUBMISSION: FEBRUARY 13, 2009

PLEASE NOTE: As required by the House Appropriations Committee, all requests will be made public on the requesting Member's website.

1. Project Title:

Oregon Translational Research & Drug Development Institute (OTRADI)

2. Organization Name and address:

Oregon Translational Research and Drug Development Institute (OTRADI)

Physical address: 1717 SW 10th Ave. Suite 4, Portland OR 97201

Mailing address: P.O. Box 489, Portland OR 97207

3. Primary Contact name, phone number, mobile phone number, fax number and email:

M. Patricia Beckmann, Ph.D., OTRADI Executive Director; phone: 503-227-1814
fax: 503-224-3479; pbeckmann@otradi.org

4. Project Location Address (if different from Organization):

Same as OTRADI physical address listed above.

5. Please describe the requesting organization's main activities, and whether it is a public, private non-profit, or private for-profit entity.

The Oregon Translational Research and Drug Development Institute (OTRADI) is an active government + university + industry collaborative effort between the private and public sectors of the Oregon biosciences community. OTRADI is

focused on the development and commercialization of new drugs, therapeutics, vaccines, and diagnostics in the area of infectious diseases. OTRADI is a non-profit 501c(3) Signature Research Center founded in 2008 by funding from the State of Oregon (Oregon Economic and Community Development Department grant) to facilitate economic growth, including job creation and retention in the biotechnology/biomedical sector in Oregon. To learn more and see OTRADI in action, see our video at <http://www.youtube.com/watch?v=2kNXnCbfVv8>.

OTRADI's partnerships include Oregon's major research universities (Oregon Health & Science University, Oregon State University, Portland State University & University of Oregon) along with several private bioscience companies and non-profits including the Oregon Nanoscience and Microtechnologies Institute (ONAMI) and the Oregon Bioscience Association (OBA). OTRADI provides strategic expertise, facilities and equipment to enable rapid commercialization of university research and to support start-up biomedical companies.

OTRADI's initial focus is infectious disease drug discovery, particularly malaria and bacterial infections, including *E. coli* and multidrug-resistant *Staph. aureus* (MRSA). Infectious diseases are the most common cause of death and illness in the world and the third leading cause of death in the United States. The rise in new infectious diseases for which drug therapies or vaccines do not exist (e.g., SARS, West Nile virus), the re-emergence of previously controlled diseases (e.g., Dengue fever, polio), and the alarming frequency with which pathogenic organisms are becoming immune to available drugs (e.g., extensively drug-resistant tuberculosis (XDR-TB), malaria, multidrug-resistant *Staph. aureus*) are all potentially catastrophic. The problem continues to increase with an aging population, international travel, overuse of antibiotics, and breakdowns in public health measures. The infectious disease field represents a prime opportunity for Oregon to impact global health and the Oregon economy by combining strong existing university research in areas such as anti-viral, anti-tubercular and anti-malarial drug, vaccine and diagnosis research, with a vibrant entrepreneurial culture, establishing the foundation for a unique collaboration between the state

and federal governments, the research institutions, and private industry.

The creation of OTRADI provides the physical & conceptual infrastructure and necessary personnel to fuel infectious disease drug discovery and commercialization in Oregon:

- **Market trends and drivers:** The global infectious disease market, which was estimated at \$38 billion in 2006, has in part been driven by drug resistance to many infectious pathogens (e.g., MRSA and *Staph.* resistance). The FDA has streamlined its drug approval process, allowing “fast track” development of promising new treatment agents, including anti-infectives. Pharmaceutical developers are relying more on universities for collaboration and innovation.
- **Oregon opportunity:** With its combination of \$80 million in infectious disease research funding, more than 70 PhDs involved in infectious disease studies, and one-of-a-kind facilities such as OHSU’s primate center, Oregon is uniquely well-situated to meet the growing needs of the infectious disease market. According to the State’s Bioscience Initiatives 2008 report, Oregon has 9,562 direct jobs in the bioscience industry, with an employment multiplier impact of an additional 26,912 jobs. Since 2001, academic research and development expenditures in the biosciences increased 44 percent, and National Institutes of Health funding for Oregon’s biosciences increased 19 percent, totaling \$277 million in fiscal year 2007.
- **OTRADI Leverages Oregon’s Research Strengths:** OTRADI provides the unique and previously missing components — a state-of-the-art translational facility, high-throughput drug screening, and biotech commercialization capabilities — necessary to translate Oregon’s university research into tomorrow’s drugs, vaccines, and diagnostics. In addition, OTRADI is building a library of potential therapeutic targets and chemical

compounds that show promise as future development opportunities. By partnering with OTRADI, Oregon researchers can leverage OTRADI's cutting-edge, world-class scientific equipment and expertise to reach the goals of, 1) attracting new/increased federal funding to Oregon universities and small businesses, 2) increasing the speed, number, and quality of drugs and scientific products commercialized in Oregon, and 3) translating these licensable products into new Oregon-based biotech companies, resulting in a net increase in high-paying sustainable jobs for Oregon.

- ***Commercialization and Accelerated Drug Discovery.*** OTRADI adds intrinsic value to Oregon researchers' scientific intellectual property, which will accelerate external licensing of products and advance business and job creation in Oregon. As a drug commercialization accelerator, OTRADI fills a critical gap in Oregon's drug development pipeline by providing state-of-the-art, high-throughput screening to identify chemicals with drug activity. For the first time, OTRADI provides Oregon research laboratories and companies with access to previously out-of-reach drug screening and testing equipment, as well as the expertise necessary to analyze results and quickly bring products to market. The return for Oregon is manifold. Drug development revenues and rights stay in the state, creating high-wage jobs and economic opportunity. New companies spin off to join Oregon's emerging bioscience cluster and subclusters, with product development services, technology and licensing capabilities.

6. Briefly describe the activity or project for which funding is requested (please keep to 500 words or less.)

The drug discovery process is made up of multiple experimental steps:

- Identifying chemicals or proteins with drug like activity
- Determining the mechanism of action in cells and organisms

These steps are time-consuming and expensive for university researchers and small biotech companies. By partnering with OTRADI, such researchers in Oregon can gain access to the most advanced equipment and expertise available. To this end, OTRADI is requesting two major pieces of scientific equipment, which will be invaluable at accelerating drug discovery in Oregon by enabling researchers to rapidly progress past the “mechanism of action” drug discovery step:

- ***Operetta High Content Screening Imager (Perkin Elmer)***

The Operetta is a user-friendly automated high-content imager (robot-assisted microscope) and drug screening tool, which is ideal for Oregon researchers whose work could be greatly benefited by accessing cutting-edge automation in the early phases of drug development. Operetta is the perfect supplement to OTRADI’s capabilities since it serves as a “gateway” instrument for Oregon researchers who are interested in promoting their chemical through the drug discovery process, but who do not currently possess or have access to such high-end screening equipment or expertise. Thus, the Operetta will greatly increase the user-friendly applications available to researchers and small businesses at OTRADI.

- ***Biacore T100 Protein Interaction Analysis System (GE Healthcare)***

The Biacore System allows researchers to analyze potential drug-target and protein-target interactions. Such a system will allow OTRADI to vastly increase the repertoire of experiments it is capable of performing for university researchers and small biotech businesses in Oregon. For instance, this tool will enable discovery and development of novel antibodies for use as new drugs and therapies to treat infectious diseases.

Both the Operetta and the Biacore will be open to academic and biotech researchers (undergraduates, graduate students, and postdoctoral fellows from all of the member universities), upon finishing the training from OTRADI for use of the instruments, to perform small-scale to high-throughput experiments. OTRADI will provide expertise, training and data analysis to help swiftly move

experiments down the path of drug discovery. In addition, if a chemical appears to be an interesting drug prospect, OTRADI will assist with commercialization steps. Both of these pieces of equipment will be invaluable tools for expanding OTRADI's drug discovery repertoire and services. The Operetta and Biacore are force multipliers for each other to achieve OTRADI's goals of serving the research community and consequently the commercialization of drugs and technologies.

7. Has this project received federal appropriations funding in past fiscal years?

OTRADI was established in 2008 and funding comes from Oregon InC (a program administered by the Oregon Economic and Community Development Department) and began laboratory operations in May 2008. No federal funds have been provided to OTRADI.

7a. If yes, please provide fiscal year, Department, Account, and funding amount of any previous funding.

8. Federal agency and account from which funds are requested (Please be specific –e.g. Department of Housing and Urban Development, Economic Development Initiatives account):

Health & Human Services (HHS/HRSA)

9. What is the purpose of the project? Why is it a valuable use of taxpayer funds? How will the project support efforts to improve the economy and create jobs in Oregon?

OTRADI's Purpose

The purpose of OTRADI is to accelerate drug discovery and the commercialization of new drugs, therapeutics, vaccines, and diagnostics to combat infectious and other diseases in a \$38 billion market with significant

unmet needs. The infectious disease field represents a unique opportunity for Oregon. OTRADI is pivotal to leveraging Oregon's strengths—its research institutions and entrepreneurial culture with \$80 million in infectious disease research funding and more than 70 PhDs involved in infectious disease studies—to advance the discovery and commercialization of new value-added drugs and anti-infective agents. The keys to OTRADI meeting these goals are to retain the most skilled and experienced scientific researchers and to obtain the cutting-edge scientific equipment necessary to make Oregon a competitive leader in the drug discovery and commercialization field. OTRADI exists to promote drug discovery research in Oregon and to assist biotech companies through fee-for-service contracts and an ever-expanding repertoire of experiments and capabilities. To this end, the two pieces of scientific equipment OTRADI is requesting will exponentially increase its productivity and reach for Oregon bioscience researchers and companies.

Why Invest in OTRADI & Bioscience in Oregon

- Bioscience sector in Oregon contributed \$3.5 billion in direct revenue, 13,630 jobs and \$800 million in biotech worker personal income in 2007 - three times the economic impact of the local wine industry (Oregon Bioscience Assoc. Econ. Impact Study, 2008)
- OTRADI provides Oregon's universities and private companies access to previously out-of-reach technology – currently keeping \$1.5-\$2 million in Research & Development dollars in state
- OTRADI supports 10 funded university/company start-up grants totaling \$6 million
- OTRADI supports 18 new NIH/NSF/private grant applications totaling over \$15 million
- OTRADI initiated fee-for-service negotiations with three Oregon-based biotech companies, one large Pharma company, and Los Alamos National Laboratory

- OTRADI mentored entrepreneurs and early-stage start-up companies with strategic planning and introductions to financial partners. Mentoring will increase likelihood of successful partnering and financing
- Unique lab can test thousands of chemicals daily for therapeutic activity
- Over 50 chemicals identified so far by OTRADI have anti-malarial or anti-bacterial activity (*E. coli* and/or *Staph.* bacteria) – some now being developed by biotech businesses in Oregon

How OTRADI will Benefit Oregon

OTRADI greatly benefits Oregon's economy and job market by expediting the commercialization of technologies developed by the academic research community and biotech start-ups of our state. To cite just one example, the collaboration between OTRADI and the biotech company DesignMedix Inc. shows how OTRADI is helping businesses in Oregon to succeed, grow and create jobs.

DesignMedix, spun out of Portland State University in 2006, is an Oregon-based biotech company developing new drugs to combat infectious diseases.

DesignMedix created a suite of chemicals intended to be anti-malarial drug candidates. OTRADI not only confirmed the anti-malarial activity of several compounds, but also identified *new* anti-bacterial drug candidates and showed that they were able to kill *E. coli*, the bacteria that causes food poisoning, and *Staph. aureus*, the bacteria that causes drug-resistant infections in hospital patients. Armed with the new experimental data that OTRADI produced, DesignMedix will expand operations because of receipt of an NIH Phase 2 STTR grant to plan human clinical testing of the drugs.

This is just one example of how investing in the expanded capabilities of OTRADI will improve Oregon's economy and create more and new high-paying jobs in our state. This request complements OTRADI's purpose and goals in several ways that contribute to its long-term viability. To ensure long-term success for

OTRADI, it is necessary to update and expand our capabilities to ensure that Oregon is on the cutting-edge of drug discovery and commercialization.

10. Have you requested funding for this project from other Members of Congress?

Yes.

If so, who?

Rep. Peter DeFazio, Rep. David Wu, Rep. Greg Walden, Rep. Kurt Schrader, Sen. Ron Wyden, and Sen. Jeff Merkley

11. Funding Details:

a. Total project cost (all funding sources and all years):

Operetta High Content Screening System (Perkin Elmer),
including all hardware, software & maintenance \$500,000

Biacore T100 Protein Interaction Analysis System (GE Healthcare),
including all hardware, software & maintenance \$500,000

Total Cost: \$1,000,000

b. Amount being requested for this project in Fiscal Year 2010:

OTRADI is requesting the total project cost (\$1,000,000) in Fiscal Year 2010.

c. What other funding sources (local, regional, state) are contributing to this project or activity? (Please provide specific dollar amount or percentage.)

OTRADI received start-up funding of \$5.25 million from an Oregon legislative allocation to the Oregon Innovation Council (Oregon InC), which is administered by the Oregon Economic and Community Development Department (OECDD). While these funds have served as start-up money to hire personnel, purchase essential equipment, and establish and maintain OTRADI laboratory facilities,

OTRADI is requesting the appropriation to purchase the major scientific equipment described in this proposal.

d. Do you expect to request federal funding in future years for this project?

No. OTRADI is requesting a one-time appropriation to purchase major scientific equipment, which will expand our scientific capabilities and further enable our fee-for-service revenue generating model.

e. Breakdown/budget of the amount you are requesting for this project in FY 2010.

(e.g. salary \$40,000; computer \$3,000):

Operetta High Content Screening System (Perkin Elmer),
including all hardware, software & maintenance \$500,000

Biacore T100 Protein Interaction Analysis System (GE Healthcare),
including all hardware, software & maintenance \$500,000

Total Cost: \$1,000,000

f. Please list public or private organizations that have supported/endorsed this project:

Oregon Health & Science University (OHSU), University of Oregon (UO), Oregon State University (OSU), Portland State University (PSU), Oregon Innovation Council (Oregon InC), Oregon Bioscience Association (OBA), Oregon Economic and Community Development Department (OECDD), and Portland Development Commission (PDC), DesignMedix Inc, Siga Technologies, Oregon Nanoscience and Microtechnologies Institute (ONAMI).

g. Is this project scalable? (i.e. if partial funding is awarded, will the organization be able to use the funds in FY 2010?):

If OTRADI receives partial funding, one of the two pieces of scientific equipment could be purchased. For example, if \$500,000 is awarded to OTRADI in 2010, then the Operetta High Content Screening System could be purchased right away, and the Biacore T100 could be purchased at a later date. If less than the cost of one piece of equipment were awarded, OTRADI would seek matching funds or grants to make up for the difference in cost or consider purchase of a used and re-conditioned piece of equipment at a lesser cost.

Please return this form no later than February 13, 2009 (via email) to:

appropriations.blumenauer@mail.house.gov