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OHSU BIOMEDICAL RESEARCH BUILDING

Floor-by-Floor Program Description

Through the public support support and private giving of the Oregon Opportunity, Oregon Health & Science University's Biomedical Research Building will be one of the best-designed, best-equipped research facilities on the West Coast, housing many laboratories and resources unique in the nation. In the Biomedical Research Building, multidisciplinary teams of scientists and clinicians will use sophisticated tools to collaborate in new ways, translating basic science into better treatments and faster cures. Here's what's inside:

LEVEL ONE

Advanced Imaging Research Center

Since its 2003 opening, Advanced Imaging Research Center investigators have studied a variety of diseases that can be better understood or detected through MRI science. For example, AIRC Director Charles S. Springer, Ph.D.; Xin Li, Ph.D., AIRC manager; and William D. Rooney, Ph.D., are developing new methods for interpreting MRI data. The scientists expect their work will provide clearer diagnoses of many cancers, including those of the breast and prostate. Their analysis, called the shutter speed model, allows researchers to account for the effects of the movement of water molecules in and out of cellular compartments in diseased and healthy tissue. In the case of tumors, using shutter speed analysis not only more clearly indicates the locations of tumors, it also enables researchers to distinguish between malignant and benign tumors at an early stage, and to monitor the response of the former to therapy.

Cardiovascular Imaging Experimental Laboratory

Here researchers will utilize a wide range of advanced imaging technologies – cardiac catheterization, computerized tomography, nuclear techniques and echocardiography – to focus on the identification of coronary artery disease, still the leading killer of Americans, at an early enough stage to reverse its effects.

LEVEL TWO

Casey Eye Institute

The OHSU Casey Eye Institute is a world leader in the research and treatment of inflammatory eye diseases. Ocular inflammation researchers are bridging the gap between internal medicine and ophthalmology. Because inflammation in the eye is frequently linked to inflammation elsewhere in the body, these researchers work closely with physicians in disciplines such as arthritis and lung disease. The Biomedical Research Building will allow Casey Eye Institute scientists to collaborate more closely with basic scientists in other disciplines to understand the mechanisms of inflammation in the eye, and to translate this understanding into innovative therapies.

LEVEL THREE

Center for the Study of Weight Regulation and Associated Disorders

Established in 2003, the Center for the Study of Weight Regulation and Associated Disorders at OHSU conducts research into causes of and treatments for various weight regulation problems including obesity.

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Researchers in the center also study health disorders related to various weight problems. Prior to the creation of this center, OHSU has been involved in a number of key weight regulation discoveries, including the identification of specific cells in the brain involved in weight control. OHSU researchers have also identified hormones involved in weight loss and weight gain.

A Laboratory-Based Pulmonary and Critical Care Medicine Division

Asthma is reaching near-epidemic proportions in the United States, currently affecting some 20 million Americans – 6 million of them children. Researchers in this group are focused on uncovering the viral and environmental causes of asthma to develop new preventive strategies and therapies.

LEVEL FOUR

Jungers Center

Investigators at this center will employ the latest technologies to develop treatments to protect the brain from disease and to fix damaged cells and nerves. This promising approach may lead to cures for many neurodegenerative diseases, including multiple sclerosis, Alzheimer's and Parkinson's, stroke, amyotrophic lateral sclerosis, and traumatic brain and spinal cord injuries.

LEVEL FIVE

OHSU Cancer Institute Center for Cancer Cell Signaling

The Center for Cancer Cell Signaling will be led by two prominent OHSU Cancer Institute scientists and Howard Hughes Medical Investigators, Brian Druker, M.D., and John Scott, Ph.D., F.R.S. Druker was the first scientist to prove that molecularly targeted therapy works against cancer. Together, Druker and Scott will head an interdisciplinary team exploring the fundamental principles of the cell and applying them to a broad range of cancers. Cell signaling is the way cells communicate, and genetic changes in cells can alter signaling pathways to cause diseases like cancer. Detecting how and why those pathways change can provide important clues for drug therapy.

LEVEL SIX

Chemical Biology Program

The importance of chemical tools in basic biomedical research cannot be overstated. This program will bridge the chemical and biological sciences, allowing investigators to employ pioneering approaches, including use of designed molecules to investigate protein and cellular function, and the use of advanced chemical analysis in the creation of therapeutic agents. This critical resource will hasten the development of new drug therapies.

LEVEL SEVEN

Oregon Stem Cell Center

A first-of-its-kind resource in the Northwest, this center will house a multidisciplinary team exploring cell and gene therapy, one of the most promising and fastest-emerging areas of medical research. Center investigators will focus on finding and purifying stem cells, creating a kind of all-purpose cell that can copy itself many times or change into more specialized cells. Such cells have enormous potential as therapies targeting both adult and pediatric diseases.

Papé Family Pediatric Research Institute

At this new institute, an interdisciplinary team of pediatric researchers will employ advanced tools and technologies to identify the genetic and molecular causes of common childhood diseases, including pediatric cancers and congenital heart disorders. Their ambitious goal is to translate basic research into effective new therapies and then into new standards of care that will benefit children around the world.

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