

Research advance made with dangerous heart medication

Digitalis, a life-saving but sometimes dangerous heart medication, is under study at Oregon State University in an effort to make it less toxic and more effective.

The research is funded by a three-year \$395,547 grant from The National Heart, Lung and Blood Institute of the National Institutes of Health. Dwight S. (Pete) Fullerton, OSU pharmacy professor, heads the research team that also includes Robert Becker and Michael Schimerlick, department of biochemistry and biophysics.

Digitalis is derived in nature from the dried leaves of the common ornamental plant, foxglove,

which grows wild in some areas along the Oregon Coast and which is included in some home gardens for its beauty.

"It is the only drug that will treat some forms of heart disease," Fullerton explained. "Digitalis is one of the 10 most prescribed drugs in the world now. But the line is fine between the proper dosage and too much. Many drug-related deaths were once due to the unintentional overdose of digitalis by the physician," he added.

"Digitalis is still a very toxic drug but advances in biopharmaceutics have greatly reduced the incidence of life threatening overdoses," he pointed out.

The aim of Fullerton's nationwide research group is to determine exactly how the drug works in the heart so that a new synthetic form of digitalis can be developed that is safer and better.

A major research breakthrough to date is the discovery that the activity of digitalis is controlled by just one part of the molecule. If this part of the molecule is altered only slightly structurally the activity of the drug will either increase or decrease by as much as 10,000 times, Fullerton observed.

"We are now using tiny strips of animal heart muscle to learn exactly how this key part actually changes the force of contraction of the heart," he continued.

"The normal heart has a good contraction-relaxation cycle, Fullerton, a member of the board of directors of the Oregon Heart Association, said. "In the failing heart, the beat sometimes becomes so shallow that the blood doesn't get pumped properly through the body. The nervous system compensates for the poor blood output by speeding up the heart beat. Digitalis helps the heart to beat stronger and slower and to restore the contraction-relaxation rhythm," he continued.

Digitalis attaches itself to an enzyme that helps the

heart work, thereby helping the heart to work more efficiently, he added. The enzyme, called potassium ATPase, is also important in helping the nerves send messages to many organs in the body, it was noted.

In the case of heart action, digitalis actually inhibits the enzyme, Fullerton reported. "A little inhibition causes the failing heart to beat stronger and slower. Too much inhibition leads to the toxic effects."

An advanced computer system used in health research, called PROPHET, is a tool in the digitalis study.

"OSU is one of only about 35 PROPHET sites in the U.S.," Fullerton noted. "The computer system is especially useful for us because, in addition to data storage and analysis, it also draws and measures our new drugs in three dimensions."

Along with serving on the board of directors of the Oregon Heart Association, Fullerton also is chairman of the National Medicinal Chemists group in the U.S. Academy of the Pharmaceutical Sciences.

A cardiologist and a biochemist at the University of Minnesota and a crystallographer at The Medical Foundation of Buffalo (N.Y.) are cooperators in the digitalis research with the OSU scientists.

Livestock facility to be dedicated

Agri-business students at Clackamas Community College will soon be able to discontinue their longtime practice of visiting local farms to study the raising and breeding of livestock. The farm is coming to campus.

The college's long-awaited livestock facility will be formally dedicated Nov. 21, and is expected to be in full operation in time for winter term.

Ray Hobson, assistant director of the State Department of Agriculture, will join college President John Hakanson and Assistant Dean for Agriculture and Industrial Education George Warren in a ribbon cutting ceremony scheduled for 10:30 a.m. at the new facility, which will be formally known as the Animal Science Center.

Immediately after the ceremony, Ron Baker of the C and B Feedlot in Hermiston will make a presentation in CCC's McLoughlin Theatre. Several other key figures from the agriculture community around the state will be on hand, and the public is welcome.

"For students interested in livestock management, this is probably the most advanced teaching facility in western Oregon," said

Dave Myers, chairman of the CCC Agriculture Department. "It was designed to incorporate the latest technological approaches to animal care, and we plan to keep it updated to incorporate any new techniques that come down the road."

One thing is for sure. Old MacDonald wouldn't recognize this barnyard. The 4100-square-foot structure will house 18 cattle, 10 swine and 25 sheep in separate finishing areas designed to match individual characteristics of each. A boar and two rams will live in separate enclosures. There is a special farrowing area for sows and their litters, and two livestock handling laboratories for tending to the animals' medical and other needs.

The CCC herd will bask in the warmth of R-30 insulation, complete with moisture barrier and power ventilation. Round the clock supervision will be provided by a trained livestock manager and assistant, positions that will be filled by second and first year agri-business students respectively.

Agri-business instructor Lynn Reagan will be in charge of the day-to-day operation of the Animal Science Center.

ESD receives grant to help needy children

Clackamas Education Service District (ESD) has received a grant of \$1,500 to help needy school children in Clackamas County, according to ESD Superintendent Bob Burns.

The money came to the ESD from the Robert Brady Charitable Foundation, Burns said. The Foundation is administered by U.S. National Bank of Oregon which asked the ESD to help distribute the money to needy students.

The Brady Foundation was set up to provide "for the purchase of books and clothing for needy poor children of school age, in order to assist them in obtaining a proper education," according to the terms of Brady's 1935

will. The will also stipulates that "such expenditure shall be made without regard to race, religion or the station in life of such children."

"Robert Brady was a Portland businessman whose business prospered, even during the dark economic times of the thirties," according to Burns. "Apparently he wanted to do something for the community that provided the setting for his prosperity."

"On behalf of the ESD and our county, I would like to express our thanks for Mr. Brady's philanthropy, and to Janis Tucker at U.S. National Bank who administers the Brady Foundation account."

Fluorescent lamps cut electric bills

Because it's easy to use more lighting than is needed around the house, most people try to save on their electric bill by conscientiously turning off lights.

Try attacking the problem from another angle, suggests Marilyn Lunner, Clackamas County extension agent. Install energy-efficient fluorescent lighting fixtures.

The use of fluorescent lighting is the easiest way to save both money and energy. When fluorescent lighting is substituted for incandescent lighting in the home, savings on electrical energy frequently averages 45 percent and in some cases on record savings have been as high as 65 percent.

"Fluorescent lamps produce three to four times

more light than incandescent lamps of the same wattage, and the fluorescent lamps last seven to 10 times longer," notes Sue Badenhop, Oregon State University extension housing and management specialist.

"Although fluorescent light fixtures have been the standard for business and industry for years, most homeowners have hesitated to use them because of the limited selection of attractive fixtures," says Badenhop. Some people also object to the harsh effects of the cool light from some fluorescent tubes.

"However, newer fluorescent lights now available are suitable for most home lighting needs."



A recent sunset on the Salmon River.

Photo by Scott Newton

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