



BioScience Under the Big Sky Spring 2013 Newsletter

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Spring has finally arrived in Montana along with a new member directory and the Spring Newsletter. Enjoy!

The 2013 Montana BioScience Directory is coming soon! Watch for it on the website.

Don't forget to visit our website at

www.montanabio.org

Like us on Facebook 

MONTANA BIO SCIENCE NEWS

Montana BioScience Alliance members participated in the poster session and lunch at the Montana capitol on February 12, 2013. We want to thank the folks at Montana Board of Research and Commercialization for organizing and spending time with us. Special thanks to David Desch and Jane Todd for their collaboration. Following the poster session, a board meeting and roundtable were held at the Great Northern Hotel. During the board meeting, Chris Ageson from CTA Architects was elected to serve as a board member. A legislative reception followed with an opportunity to visit with many of the members of the house and senate. It was an important day to showcase the terrific research AND development in Montana.



Senator Baucus meets with Sharon Peterson, Jim Greenwood and BIO Board Members

Sharon Peterson and Anne Marie Quinn represented the Montana BioScience Alliance at the BIO Fly-in on March 12 and 13th in Washington DC. We were able to meet with Alpha Lillstrom on Senator Tester's staff and Jason Thielman - Chief of Staff for Congressman Daines. Sharon also attended the Montana breakfast in the Senate Finance Committee room with Senators Baucus and Tester and Congressman Daines and joined the BIO Board of Directors in a meeting with Senator Baucus.

We are just back from the BIO International Convention at McCormick Place in Chicago - April 22-25. Dave Poulsen and Sharon Peterson attended the Council of State Bioscience Associations meetings on Sunday April 21 at which BIO released its "Bioscience Economic Development Legislative Priorities, Best Practices and Return On Investment" report. For a copy of the report see the Bio.org website or download here: ["Bioscience Economic Development: Legislative Priorities, Best Practices, and Return On Investment"](#)

We were joined in the Montana BioScience booth by Teresa Gunn from McLaughlin Research Institute and Sky Patten and Gae Bjorklund from BioScience Laboratories. Don Zinn from Microbion, Tom Brown from Genectar and Attilio Baldassi from Rocky Mountain Biologicals joined our Montana group. The global event for biotechnology hosted by the Biotechnology Industry Organization (BIO) drew 13,594 industry leaders from 47 states, the District of Columbia, Puerto Rico, U.S. Virgin Islands and 62 countries. The Convention program featured more than 125 breakout sessions across 17 tracks. Ten U.S. Governors attended this year's event: Iowa Governor Branstad, Illinois Governor Quinn, Indiana Governor Pence, Kentucky Governor Beshear, Missouri Governor Nixon, North Carolina Governor McCrory, Pennsylvania Governor Corbett, South Dakota Governor Dugaard, Texas Governor Petty and Wisconsin Governor Walker. Our special thanks go to Governor Bullock's office of Economic Development for their support for our booth.



Theresa Gunn at BIO International

Mark your Calendars for the 2014 BIO International Convention, June 23-26 in San Diego

MONTANA GOVERNOR WORKS WITH LIGOCYTE

Governor Makes Pitch for Future Vaccine Factory

GAIL SCHONTZLER, Chronicle Staff Writer

Posted: Saturday, March 16, 2013

Gov. Steve Bullock came to Bozeman on Friday to demonstrate Montana's keen interest in being chosen when executives decide where to build a multimillion-dollar manufacturing plant for the vaccine invented by LigoCyte Pharmaceuticals. Bullock met with Rajeev Venkayya and other senior executives from Takeda Pharmaceutical Co.'s vaccine business division, which purchased Bozeman's LigoCyte last fall for \$60 million.



The vaccine LigoCyte is developing to fight norovirus infection, commonly called stomach flu, is still in clinical trials. If it succeeds in winning U.S. Food and Drug Administration approval, it could be manufactured any number of places.

The governor touted the advantages of Montana, and said the plant could represent a \$30 million investment, create hundreds of construction jobs and 55 permanent jobs, "the jobs of the future." "We want you here," Bullock told company executives. Bozeman has "a talented workforce ... a great quality of life," he said, adding Montana has one of the best tax climates in the nation. "I think the chances are

good" that Montana may be chosen, Bullock said, given that the vaccine was developed here, that Montana State University is here and the area is strong in the sciences. "Exciting things are happening," the governor said, in high-tech industries, including biotech, lasers and computers. "How do we build on that?"

John Rogers, the governor's chief business development officer, said Takeda executives say they hope to make a decision within the next year on where to manufacture. "We're going to be ready," Rogers said. "We'll put a package together that's as attractive as we can." One advantage Montana has, Rogers said, is that "LigoCyte is here, not just the facilities - the (scientific) talent. And the talent would like to stay here in beautiful Bozeman. And in this type of industry, talent is everything."

Don Beeman, LigoCyte's CEO, called Friday's discussions "very timely, very productive and useful." Beeman said the vaccine is making good progress, having completed four clinical trials to demonstrate safety, but it's still years away from FDA approval. The manufacturing plant would likely be built before approval is final. The pharmaceutical business is "very risky," Beeman said, likening it to a farmer who has to invest in equipment and seed before knowing if it will rain. Beeman said he thinks the governor's visit will help. "Montana has a leg up with the skills and talents here," Beeman said. "Takeda is committed to staying in Montana for the foreseeable future. ... A dollar goes a long way in Montana compared to the Bay Area" and other urban areas.

Norovirus can be a serious and sometimes deadly malady, especially for the elderly, the young and people with compromised immune systems, Beeman said, so finding a vaccine is "potentially very important." Takeda, Japan's largest pharmaceutical company, founded 232 years ago, has global sales of \$19 billion. Its vaccine subsidiary is based in Illinois. LigoCyte, founded in Bozeman in 1998, has 37 employees.

Also meeting with executives Friday was Teresa McKnight, executive director of the MSU Innovation Campus, formerly known as the Tech Park. The city of Bozeman recently created a tax-increment finance district to pay for installing sewers, roads and other infrastructure on the campus land on West College Street, to make it a less expensive, more attractive place for high-tech businesses to set up shop.

MONTANA BIOSCIENCE ALLIANCE MEMBER NEWS



Dr. Jane Karas, President, Flathead Community College was the keynote speaker at the 11th annual workshop for the National Science Foundation (NSF) ADVANCE Program on March 3-5 in Alexandria Virginia. The program strives to increase the representation and advancement of women in academic science and engineering careers, thereby contributing to the development of a more diverse scientific workforce. Each year, ADVANCE Grant Plus and their team members gather in Washington, DC to discuss, present, network, and leverage knowledge.



Rivertop Renewables Appoints John Monks as Vice President of Business Development

*Veteran of renewable chemicals industry will lead Rivertop's commercialization
in billion dollar markets*

(April 25, 2013) MISSOULA, Mont. -- Rivertop Renewables (www.rivertop.com), a Montana-based renewable chemicals company, today announced that John Monks has joined the company as Vice President of Business Development. Monks' career in the performance chemicals and biotechnology sectors spans more than 30 years, having led business development and sales and marketing teams for companies such as ICI, DSM and Genencor. His technical and commercial experience in the global chemicals and biotechnology industries will help Rivertop develop market initiatives for its innovative, bio-based products. Rivertop is developing glucaric acid products as effective and cost-competitive replacements for phosphates in the multi-billion-dollar global detergent industry and other large markets.

"John's deep industry experience and leadership will expedite commercialization of Rivertop's products in new markets and propel successful strategic partnerships," said Mike Knauf, Chief Executive Officer of Rivertop Renewables. "His proven ability to create value in the renewable chemicals industry will serve our company well."

While at DSM, Monks directed the commercialization of new technologies that convert second-generation feedstocks into biofuels and intermediates for biobased chemicals. He built and led a global team that supported DSM's bio-conversion technology and business development programs, culminating in a large cellulosic ethanol joint venture between DSM and POET. At Genencor, Monks managed global accounts and product development strategies.

"I'm excited for the chance to lead Rivertop's commercialization activities and bring innovative solutions to large consumer product and industrial markets," said Monks. "Green chemistry is at its best when we can make existing products better, open the door to entirely new products, and do both competitively. That's what I see at Rivertop."

Monks' appointment comes at a time of significant growth for Rivertop. In addition to appointing renewable chemicals veteran Mike Knauf as CEO last fall, the company opened a multi-million dollar laboratory expansion and semi-works site co-located at its headquarters in Missoula. Rivertop has also introduced its *Riose*[™] detergent builder into the automatic dishwashing market and sells its *Headwaters*[™] corrosion inhibitor into the road de-icing market.

About Rivertop Renewables

Based in Missoula, Montana, Rivertop Renewables is innovating a new category of science - Progressive Chemistry. Merging proven science with renewable resources, Rivertop Renewables is creating an abundant and economical supply of sustainable, biodegradable and non-toxic chemicals and bioproducts derived from renewable plant sugars.

Media Contact:

Nate Kommers

Scoville PR for Rivertop

(206) 625-0075 x2, nate.kommers@scovillepr.com



Golden Helix Hires New CEO; Positions Company for Growth in Translational Genomics

Bozeman, MT (May 2, 2013) - Golden Helix, a leading bioinformatic software and services company, today announced the hiring of new President and CEO, Dr. Andreas Scherer, as the company seeks to expand its operations in the rapidly evolving field of translational genomics.

Golden Helix's efforts over the past decade have focused primarily on accelerating basic genetic research through easy-to-use bioinformatic solutions that empower scientists closest to the biology to analyze genomic data. Recent advances in next-generation sequencing, and the relative ease at which genomic data can now be generated, have put genomics at the forefront of patient diagnosis and care, creating greater opportunities for healthcare and life science organizations to effectively apply genomic knowledge to impact human health.

Golden Helix has been ramping up its operations to target translational genomics applications. The hiring of Dr. Scherer is a reflection of the company's growth strategy and is expected to accelerate its effort in delivering more focused solutions for clinical genomics, pharmacogenomics, and advanced diagnostics.

Dr. Scherer, who began his executive career at AOL/Netscape, has managed global software and services businesses in excess of \$100 million. He has a PhD in computer science and experience conducting research in DNA sequence analysis as well as intimate knowledge of the domestic and international life sciences market through his work in accelerating pharmaceutical R&D processes. Dr. Scherer is a recognized thought leader, business executive, and author of the prize-winning book, "Be Fast or Be Gone."

"I am impressed by the strategic potential of Golden Helix as well as its ability to impact how genomics is used

to diagnose, treat, and ultimately prevent human disease," stated Dr. Scherer. "Golden Helix has long been at the forefront of delivering analytic solutions for genetic research. Now we are positioning the business to be a leader in translational genomics with tremendous opportunities for growth and positively impacting human health."

Founder and former CEO, Dr. Christophe Lambert, has been the entrepreneurial force behind Golden Helix for 14 years. In his new role as Chairman, Dr. Lambert will continue to provide strategic oversight and industry thought leadership. This role allows him to pursue a number of strategic initiatives.

Dr. Lambert said, "I have known Andreas for almost a decade. I am impressed by his achievements in driving R&D productivity in the life sciences space. His background will be instrumental in positioning Golden Helix as the leading solution provider for translational genomics. I am tremendously excited to have him on board."



National Science Foundation Funds Montana Molecular

BOZEMAN, MT- Montana Molecular received a new notice of award for a Small Business Innovation Research grant from the [National Science Foundation](#). According to Anne Marie Quinn, the Principal Investigator for the project and founder of the company, "This funding supports expansion of our fluorescent biosensor technology and will significantly extend our breakthrough innovations for drug discovery and cell signaling research." In 2012, the company published a robust [fluorescent biosensor](#) that detects cell signaling messages within living cells. These signals are mediated by [G-proteins](#) and regulate a myriad activities within the cell including those that impact diabetes, cancer and neurological disorders.

G-proteins are activated via seven transmembrane receptors known as GPCRs. GPCRs are important targets for drug discovery and also control sensory systems including taste, smell and vision. About 40% of drugs on the market act upon GPCRs. Many of these approved drugs could be effective treatments for other diseases.

The problem is that very little is known about what occurs within a cell when a drug activates a receptor.

Cellular signals mediated by GPCRs occur in a complex coordinated process. Fluorescent biosensors are the key to understanding the timing and coordination of signaling processes within cells. These processes determine exactly how and why a drug works and what has gone wrong when it doesn't work. Montana Molecular is well on its way to producing a suite of robust biosensors that can simultaneously detect multiple components of cell signaling in a live cell assay. "New cell-based assays with the temporal resolution to capture multiple signals within living cells can show us when drugs activate a receptor in different ways, or even through different pathways," added Quinn.

The grant is entitled "[New Fluorescent Biosensors for Signaling in Living Cells](#)". This is the second time that NSF funds Montana Molecular. An earlier STTR project developed [The Northern Lights Collection](#). The Northern Lights are a series of GFP-tagged cDNAs, now distributed internationally by Cell Biolabs.

For more information, contact amq@montanamolecular.com

Montana Universities News and Event Highlights

UM Professor Appointed 2013 AAAS Fellow



Dec. 06, 2012

MISSOULA -

The American Association for the Advancement of Science has appointed University of Montana Professor Charles Thompson as a 2013 AAAS Fellow. The prestigious fellowship recognizes an individual's contributions to science and technology.

Thompson, who teaches in UM's Department of Biomedical and Pharmaceutical Sciences, was one of 12 Fellows appointed in the pharmaceutical sciences section. He is the fifth UM faculty member ever to receive the honor.

Thompson's research primarily focuses on advancing the understanding of how certain classes of insecticides are detrimental to human health. Describing himself as a neurochemist, his research integrates chemistry, biochemistry, molecular and cell biology, and bioinformatics, which he "quilts together" to try answering problems. The collaborative nature of his work and science in general, he said, resonates in his appointment as an AAAS Fellow.

"It feels like all the people that work with me were co-rewarded," Thompson said. "Science is such a teamwork-oriented profession."

When he isn't teaching, researching or writing grants for UM, Thompson works to develop biosensors that can detect the effects of insecticides in the human body as the co-founder of ATERIS Technologies.

Similar to an over-the-counter pregnancy or diabetes test, ATERIS Technologies hopes to produce tests that could quickly and easily determine specific effects of insecticide exposure on the human body. This knowledge could potentially advance food-safety standards and prevent neurological damage in workers and consumers.

"Most companies are looking for the insecticide," Thompson said. "We're looking for the burden in the body the insecticide causes."

AAAS Fellow candidates can be nominated by current Fellows, the steering groups for each section or the chief executive officer. Nominations undergo review by the steering groups and are elected by the AAAS Council.

The 700 AAAS Fellows are invited to gather at the Fellows Forum on Saturday, Feb. 16, 2013, during the AAAS Annual Meeting in Boston. Each will receive a certificate and blue-and-gold rosette as a symbol of their distinguished accomplishments.

UM faculty members formerly appointed as AAAS Fellows are Fred Allendorf, Tom Martin, Ray Callaway, Jack Stanford and Stephen Sprang. Cathy Lynn Whitlock of Montana State University in **Bozeman** also was appointed as a 2013 AAAS Fellow, in the geology and geography category.

For more information call Thompson at 406-243-4643 or email charles.thompson@umontana.edu. More information on AAAS Fellows is available online at <http://www.aaas.org/aboutaaas/fellows/>.



Chicks in Science inspires young girls in areas of STEM

April 13, 2013 7:11 pm * By [Carmen Irish](#)



Nine-year-old Charlie Gregoroff said that if she were to ever dig up a dinosaur bone, it would mark the best day of her life. "I would be the first person to ever see the bone that has been buried for millions and millions of years," the third-grader from Hobson Elementary said as she examined the massive jaws of a cast Tyrannosaurus Rex skull exhibit Saturday afternoon. "That would be the neatest experience ever." Gregoroff was among nearly 2,000 people who attended the sixth annual Chicks in Science event, held Saturday afternoon in Alterowitz Gymnasium at Montana State University Billings.

Girls in [grades](#) 4 through 8 explored about 50 booths with interactive displays set up to engage and pique their interest in fields of science, technology, engineering and math (STEM).

The exhibits included such things as [careers](#) in medicine, architecture, paleontology, aviation, energy and engineering.

Chicks in Science was created in 2008 to introduce young girls to science and math in an appealing way and to show how science directly relates to their lives. Tammy Johnston, who coordinated this year's program through the MSUB Downtown [campus](#), said studies have shown that girls in the grades 4 through 8 tend to lose interest in science and math. They think the subjects are just for boys or, in some cases, that it's "un-cool" to be smart. "This event completely shatters these stereotypes and helps them to see that math and science can be fun, fascinating and fabulous," Johnston said.

"Chicks in Science is about planting seeds by motivating, inspiring and empowering these young women to recognize the endless opportunities available to them in the fields of science and math."

Saturday's event expanded to both levels of the gym and was designed around a mentoring program for girls to spend time with female role models in their fields of interest. "The hope is that when these girls [meet women](#) role models in the science and math fields, they see the diverse and endless opportunities for their future," Johnston said.

Eight women who have made achievements in their fields were honored and introduced to the young aspiring scientists to show the diverse examples across STEM professions. "Love what you do and do what you love," honoree and math teacher Lisa Wood told the girls. "Math and science is going to get you where you need to go."



The Montana BioScience Alliance is proud to have been a sponsor and a part of Chicks in Science. Special thanks to Helen Kim and Tara Arvadson from Amgen who flew in from L.A. to spend time with the students.



BOZEMAN - Montana State University held a symposium and ribbon cutting on Monday, April 15 in celebration of the recently renovated and reopened Cooley Laboratory.

Scheduled to begin at 1 p.m. in the Procrastinator Theater, Strand Union Building, the symposium will feature a keynote talk from Irving Weissman, director of the Institute of Stem Cell Biology and Regenerative Medicine at Stanford University School of Medicine.

As one of the world's foremost stem cell researchers, Weissman is a member of the National Academy of Sciences. He grew up in Great Falls and graduated from what was then Montana State College. Weissman received an honorary doctorate from MSU in 1992.

Weissman's talk, "Stem Cell Research and the Future," is part of the Maurice Hilleman Memorial Lecture series. The talk is also sponsored by the MSU College of Letters and Science.

Frances Lefcort, professor and department head, MSU Department of Cell Biology and Neuroscience, Jovanka Voyich, associate professor, MSU Department of Immunology and Infectious Diseases, and Mike Franklin, associate professor, MSU Department of Microbiology, will follow with short presentations on some of the research happening in Cooley Laboratory.

After the symposium, there will be a ribbon cutting on the lawn in front of Cooley Laboratory. The 52-year-old lab was completely gutted, with renovations paid for largely by \$14.9 million in grant funding from the National Institutes of Health.

Cooley reopened in October. Its state-of-the-art labs are home to scientists from the departments of microbiology, immunology and infectious diseases, and cell biology and neuroscience. Once 30,000 square feet on five floors, Cooley Laboratory is now 45,000 square feet over six floors.

Contact: Jennifer Hodges, (406) 994-2020 or jennifer.hodges3@montana.edu

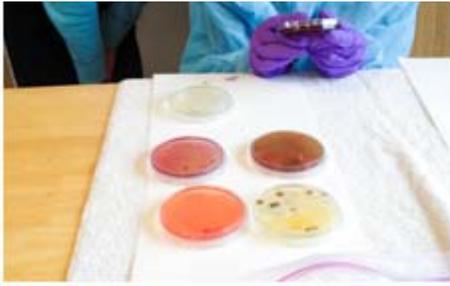
INDUSTRY NEWS

Helena sisters excel at science fair after working with MSU's BioScience Montana

April 11, 2013 -- MSU News Service



BOZEMAN--Two teenagers from Helena used data gathered through a Montana State University outreach project to take second place at the Montana State Science Fair, held March 18 and 19 in Missoula. These 4-H members, sisters Elizabeth Carlson, 15, and Emma Carlson, 13, took part in BioScience Montana, an intensive yearlong experience through which they conduct scientific research, learn about bioscience-related [careers](#) and collaborate via distance learning technologies. BioScience Montana is funded by the



National Institutes of Health as a Science Education Partnership Award (SEPA) given to MSU.

As part of the BioScience Montana infectious disease module, led by MSU's Jovanka Voyich, the Carlson sisters, along with 29 other 4-H members, learned about bacteria, viruses, infections and antibiotics.

For their hands-on project, many Bioscience Montana participants studied the microbiomes of nasal cavities of their family members or classmates, while others researched the microbiomes of farm animals or the family dog. The Carlsons chose horses. They swabbed the nostrils of their horses and those of their neighbors, then incubated the cultures and studied what grew. The teens then identified the bacteria and microorganisms present. For their science fair project, entitled "SEPA Bioscience Horse Microbiome Project," The Carlsons hypothesized that their 30-year-old horse would have a weaker immune system than other younger horses, and therefore, a higher bacteria count. They found, however, that all of the horses had a similar amount of bacteria. Therefore, they concluded that all horses have a similar amount of bacteria, regardless of their age.

"This (SEPA) [program](#) has interested both Liz and I in research careers," Emma Carlson said. "We liked the lab work and the fieldwork. We are also glad that we got to explore this field through BioScience Montana." BioScience Montana combines aspects of MSU's teaching, research and service missions and was developed by MSU Extended University, the 4-H Center for Youth Development, and the MSU Department of Cell Biology and Neuroscience.

For more information, visit <http://eu.montana.edu/bioscience>



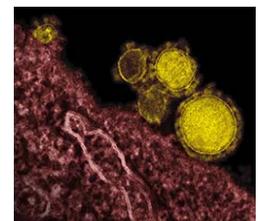
NIH Scientists Develop Monkey Model to Study Novel Coronavirus Infection

WHAT:

National Institutes of Health (NIH) researchers have developed a model of infection in rhesus macaques that will help scientists around the world better understand how an emerging coronavirus, first identified in September 2012, affects people. The virus has so far infected at least 17 people in the Middle East and Europe, killing 11 of them. The NIH team established the nonhuman primate model in December 2012 and is using it to study how the virus causes disease and to evaluate potential vaccines and antiviral treatments.

The model shows that clinical signs of coronavirus disease appear within 24 hours of infection. These signs include reduced appetite, elevated temperature, increased respiratory rate, cough, goose bumps and hunched posture. In monkeys and humans, the infection causes disease deep in the lungs, leading to pneumonia. Scientists are exploring whether the virus' foothold in the lower respiratory tract impedes its ability to spread efficiently.

Researchers at NIH's National Institute of Allergy and Infectious Diseases (NIAID) developed the model



after obtaining coronavirus samples from collaborators at Erasmus Medical Center in The Netherlands.



ARTICLE:

Munster *et al.* Novel Human Coronavirus Causes Pneumonia in a Macaque Model Resembling Human Disease. *New England Journal of Medicine* DOI: 10.1056/NEJMc1215691 (2013).

WHO:

Vincent Munster, Ph.D., chief of the virus ecology unit in NIAID's Laboratory of Virology, is leading the NIAID team investigating the new coronavirus.

CONTACT:

To schedule interviews, please contact Ken Pekoc, (301) 402-1663, kpekoc@niaid.nih.gov.

NIAID conducts and supports research-at NIH, throughout the United States, and worldwide-to study the causes of infectious and immune-mediated diseases, and to develop better means of preventing, diagnosing and treating these illnesses. News releases, fact sheets and other NIAID-related materials are available on the NIAID Web site at <http://www.niaid.nih.gov>.

About the National Institutes of Health (NIH): NIH, the nation's medical research agency, includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. NIH is the primary federal agency conducting and supporting basic, clinical, and translational medical research, and is investigating the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit <http://www.nih.gov/>.

Research under way in Billings on new flu medication

January 14, 2013 5:30 pm * By

[Cindy Uken](#) cuken@billingsgazette.com



A medical research facility in Billings is looking for about 50 people who have the flu to participate in a nationwide clinical study to help evaluate a medication that could relieve flu symptoms faster.

Because flu virus strains have become more difficult to treat, the study is designed to evaluate an unapproved medication that may provide effective treatment.

The study coincides with an especially bad year for flu in the United States. The Centers for Disease Control and Prevention has reported 22,048 flu cases from Sept. 30 through the end of 2012. By the same time last year, only 849 cases had been reported nationwide. That's 26 times as many flu cases by the last week of 2012 as by the last week of 2011.

Doctors and researchers hope to use the study to learn more about favipiravir, a tablet medication, and whether it might be an effective treatment for flu. The medication is designed to prevent the influenza virus from multiplying inside of cells, which may help reduce the length and severity of the virus.

The Montana Health Research Institute, an independent pharmaceutical studies research facility not associated with either Billings Clinic or St. Vincent Healthcare, is conducting the local study. To pre-qualify, you must be between the ages of 18 and 80; have a fever of at least 100 or 100.4, depending on your age; and have at least two flu symptoms such as cough, sore throat, headache, nasal congestion, body aches and pains or fatigue, said Judy Leitheiser, president of the Montana Health Research Institute.

Treatment is free and participants chosen for the study will be reimbursed for their time and travel. Research will continue through February. Dr. Michal Hagan is the lead researcher.

Participants will be randomly assigned to receive tablets of favipiravir or a placebo. Patients will take the "study medication" two or three times a day for five days. They will also visit the study clinic each of those days to have their overall health and flu symptoms evaluated.

Those included in the study will need to record daily information about their body temperature, flu symptoms and study

medication use.

Pharmaceutical companies must use medical research studies like this one to learn more about investigational medications or treatments before they are made available to the general public. The results from this study will provide more information about favipiravir, the investigational medication, in preparation for further studies.

Those who participate in the study will be making an important contribution to flu treatment research, Leitheiser said.

Pharmacogenetics research enters second phase

University of Montana Pharmacy School professors, Dr. Liz Putnam and Dr. Erica Woodahl, along with Dr. LeeAnna Muzquiz and Kevin Howlett of Tribal Health and Human Services discuss the pharmacogenetics research project with the Tribal Council. (B.L. Azure photo)

ST. IGNATIUS - The Confederated Salish and Kootenai Tribes Tribal Health and Human Services Department has been involved in a cutting edge cancer research project since 2007. The research based in the field of pharmacogenetics seeks to determine how and why some people - American Indians in this case and Salish, Pend d'Oreille and Kootenai tribal people in particular - respond differently or have adverse reactions to cancer treatments due to their genetic makeup.

Tribal Health in conjunction with the University of Montana Department of Biomedical and Pharmaceutical Sciences and the Montana Cancer Institute Foundation - with the actions taken by the Tribal Council - entered into the community-based participatory research project in 2007. The Mayo Clinic and the University of Washington are also involved in the project, as are Alaska Native people.

In 2009, the group applied for and was awarded a \$1.4 million research grant funded by the National Institute of Health to conduct pharmacogenetics research among American Indian and Alaska Native communities. The grant is part of a larger NIH effort called the Pharmacogenomics Research Network. University of Montana researchers, collaborating with several other leading researchers from Northwest universities and tribal communities in Alaska and Montana, are building their research center as a part of this national network.

Tribal Health employees and members of the Community Pharmacogenetics Advisory Committee got hands on experience on genetics at a workshop at the Polson THHS Clinic awhile back. (B.L. Azure photo)

It is a well-known scientific fact the people can respond in different ways to the same drug - genetic makeup is a determining factor. Response to pharmaceuticals runs the gamut from no response to serious side effects. Somewhere along that continuum may be the perfect dose or there may be the need for a different pharmaceutical. A goal of the research project is to find that sweet spot where various types of cancer treatment pharmaceuticals are most effective.

Another goal is to provide culturally sensitive genetics instruction to American Indians to increase their awareness of genetics as a topic. This would include an understanding of genetics research and testing and careers in the field of genetics. As an overall goal, it was designed to help improve informed decision making about genetics and genetics research in Native American communities.

More than 400 Salish, Pend d'Oreille and Kootenai people participated in the first phase of the research project. During that portion researchers, among other things, collected blood samples at powwows, job fairs, health fairs and clinics on the Flathead Indian Reservation.

Initial genetic analysis has been done on those samples to see what if any patterns emerge that are specific to Salish, Pend d'Oreille people. According to the findings there were some genetic patterns that were different from the non-Indian people. The research results provided the basis for two professional papers the UM researchers want to publish in medical and scientific professional journals.

CPAC established to work with researchers on cancer study



Medical researchers at the University of Montana School of Pharmacy and the Montana Cancer Institute in conjunction with the Tribal Health and Human Services Department to establish the Community Pharmacogenetics Advisory Council (CPAC) made up of Flathead Indian Reservation tribal people.

The project was approved by the Confederated Salish and Kootenai Tribal Council and the Tribal Health and Human Services Department and a portion of the grant requires the establishment of the CPAC.

The CPAC is part of a \$1.4 million research grant recently funded by the National Institutes of Health to study pharmacogenetics in tribal communities. A portion of the grant - \$166,000 - went directly to THHS.

The goal of this study is to understand how a person's genetic makeup can be used to decide which drug will work the best for them, a field of study called "pharmacogenetics".

The role of the CPAC is to increase tribal input into the research study, give advice about the study approaches, and discuss tribal interest in pharmacogenetics research and the use of pharmacogenetics testing in health care. The CPAC members meet regularly with researchers at the University of Montana and the Montana Cancer Institute to talk about the project and aid in developing future work.

The CPAC is presently comprised of seven Flathead Indian Reservation residents: Bernie Azure, Brenda Bodnar, Jaime Cahoon, Dib Espinoza, Vernon Finley, Tony Incashola and Cheryl Mathias.

For more information about the research, contact Dr. Erica Woodahl, Ph.D., Assistant Professor at the University of Montana, at 243-4129, or Cindi Laukes, M.A., at the Montana Cancer Institute, at 329-5663.

Three weeks ago (Feb. 7) Tribal Health and Human Services Director Kevin Howlett and THHS Medical Director Dr. LeeAnna Muzquiz, MD, and University of Montana Department of Biomedical and Pharmaceutical Sciences professors/researchers Dr. Erica Woodahl and Dr. Liz Putnam met with the Tribal Council to discuss the findings of phase 1 of the research project and get approval from them to publish the two research papers. The Tribal Council voted unanimously for publication of the papers.

One is entitled "Pharmacogenetics in American Indian Population: Analysis of CYP2D6, CYP3A4, CYP3A5 and CYP2C9 in the Confederated Salish and Kootenai Tribes" and was written by Dr. Erica Woodahl, Ph.D., University of Montana Department of Biomedical and Pharmaceutical Sciences. The goal of the study was to estimate how often genetic changes occur among Salish, Pend d'Oreille and Kootenai tribal people and compare that to what is known about other ethnic groups to better understand how they may process cancer pharmaceuticals differently. Researchers evaluated 140 distinct genetic changes in four genes in the DNA that are involved in response to the cancer drug tamoxifen. The four genes make proteins in the liver that are important for processing and eliminating drugs from the body. Changes in the genes can effect how efficiently the body can process a drug.

"These results highlight the value of pharmacogenetics research in Salish, Pend d'Oreille and Kootenai people," Woodahl said. "Pharmacogenetic studies from other populations cannot always be applied to American Indian populations." The other research paper, "Pharmacogenetics for Cancer Chemotherapy in the Confederated Salish and Kootenai Tribes" was authored by University of Montana Department of Biomedical and Pharmaceutical Sciences professor Dr. Mark Pershouse, Ph. D.

The study focused on the benefits and risks of using cancer chemotherapy drugs for treatment of Salish, Pend d'Oreille and Kootenai people. Researchers looked at 17 locations in the DNA that can predict how drugs would act in an individual. In comparison with research on European populations the researchers found many location similarities but also found a few where the locations in the DNA among the Flathead Reservation tribal people were different. As a result researchers have surmised that some cancer treatment drugs would work differently in Salish, Pend d'Oreille and Kootenai people.

"We found that people we studied were unique," Putnam said. "This information could help the doctors treating Salish, Pend d'Oreille and Kootenai people to make the best choice of medicine for each individual patient."

The Tribal Council also gave the go ahead for the second phase of the research. A portion of the second phase is to recruit volunteers to participate in focus groups. Approximately six months ago the researchers conducted a mock focal group session with members of the Community Pharmacogenetics Advisory Council at the University of Montana. The resulting information will help guide researchers in a culturally sensitive manner when questioning focus group volunteers. The focus group must be comprised of members of the Confederated Salish, Kootenai and Pend d'Oreille Tribes who are 18 years old or older. The identities of the focus group volunteers will remain confidential.

Focus group volunteers sought for cancer and genetics research project

MISSOULA - The University of Montana School of Pharmacy and the Montana Cancer Institute Foundation in conjunction with the Confederated Salish and Kootenai Tribes Tribal Health and Human Services Department are seeking members of the Salish, Pend d'Oreille and Kootenai Tribes to volunteer to participate in focus group discussions about personalized medicine related to cancer research and genetics.

The UM, MCIF and THHS are working on a pharmacogenetics research project studying how genetic makeup might influence how American Indians respond to cancer treatments.

The Tribal Council has taken numerous actions since green lighting the project in 2007. Three weeks ago the Tribal Council voted unanimously to pursue the second phase of the project that, among other things, includes the recruitment of tribal member volunteers to participate in the focus group portion of the research. The volunteers will be asked about their perceptions of the genetic-based cancer research.

This is the first ever research of its kind to include American Indians, in this case members of the Salish, Pend d'Oreille and Kootenai Tribes. In the first phase of the research project nearly 400 tribal members, among other things, gave blood samples that were the foundation of two professional papers. The researchers used 200 of the samples as the base of the study. The Tribal Council gave their okay to publish the papers in professional health journals three weeks ago.

- * Focus group volunteers must be at least 18 years old, and are required to read and sign consent forms.
- * The volunteers will be assigned a color in place of their name to ensure confidentiality.
- * The sessions will last approximately two hours.
- * Researchers will audio record the focus group sessions as well as take notes.
- * Volunteers will receive \$25 for participation.
- * Refreshments will be provided.
- * Once the desired numbers of volunteers are on board the focus group sessions will be held in THHS clinics throughout the Flathead Indian Reservation.

For more information or to participate, contact Dr. Erica Woodahl at 647-0577.

The researchers also received permission to further research the clinical effect of a genetic change in a liver enzyme that was found to appear more often in the Salish, Kootenai and Pend d'Oreille population than in Europeans. That would require the recruitment of volunteers but that will not happen until the UM Institutional Review Board approves the study.

"Today cancer is about the worst enemy we have. We can't seem to get a handle on it," said CPAC member Tony Incashola awhile back. "What is being done here is very important. We need to try and understand how genetics affect efforts to find cures for ailments and diseases. We want to give our future generations a better chance in life."

Tribal Health and Human Services Director Kevin Howlett and THHS Family Physician and Medical Director Dr. LeeAnna Muzquiz, M.D. are the THHS administrative and medical liaisons in the research study.

Dr. Patrick Beatty, M.D., Ph. D., president of the Montana Cancer Institute Foundation and oncologist with the Montana Cancer Specialists located at St. Patrick Hospital, and Cindi Laukes, M.A., Clinical Research Manager at the Montana Cancer Institute Foundation are also a part of the research project.

The UM researchers include professors: Dr. Erica Woodahl, Ph.D.; Dr. Mark Pershouse, Ph.D.; and Dr. Liz Putnam, Ph.D.

UM Pharmacy School graduate school student in Pharmaceutical Sciences Chelsea Morales, of the White Clay (Gros Ventre) Nation of Fort Belknap, is also working on the project.

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- Step 2: Applications will be considered by a review committee
- Step 3: All applicants will be notified if they have been accepted in late May

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Sharon Peterson
Executive Director
Montana BioScience Alliance
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