

KUWAITI MOHAMMAD AL-KHALAF DISCOVERS A NEW STUDY

KUWAIT: A new study from the Ottawa Hospital Research Institute and University of Ottawa, at the Dr Megeny Regenerative Medicine program laboratory, recently published at Nature Cell Discovery 2016, uncovers a fascinating link between the process of muscle generation and DNA damage repair within newly developing cells.

Lead author of the study, Kuwaiti PhD candidate Mohammad Al-Khalaf, describes the results as "exciting link between two independently well

researched areas of molecular biology, one being Stem Cell Differentiation and the other is DNA Damage Response". The study uncovers the role of X-ray cross-complementing protein 1 (XRCC1) in early myoblast differentiation. There is a need to coordinate repair of DNA breaks with genes involved in the process of transforming muscle progenitor cells into mature myofibers, and XRCC1 is shown to be the protein responsible for repairing these DNA breaks. Al-Khalaf says "we are one step closer to understanding the integral processes

needed to allow cells to transform from stem-like states, into mature differentiated cells". The ultimate goal of this research has tremendous potential in the emerging health field of Regenerative Medicine.

The role of XRCC1, the study shows, is limited to a short window during early differentiation of the progenitor cells. When the researchers inhibited or completely deleted the XRCC1 gene, they were able to halt the fusion of individual muscle cells to form the long muscle fibers that make up the structure of adult muscle

tissue. The Megeny group has long been interested in uncovering the molecular pathways responsible for muscle development. Now moving forward, they are looking into discovering all the potential genes being targeted for repair and activation during early muscle differentiation. Al-Khalaf concludes by saying "The nature of science is that we can only move one step at a time, we can't skip over or take shortcuts. We have to be Patient and we have to let the data guide us in whatever direction it leads. Learning to be patient might be

the most important lesson I had during my years in university and in the lab!"

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Mohammad H Al-Khalaf, Leanne E Blake, Brian D Larsen, Ryan A Bell, Steve Brunette, Robin J Parks, Michael A Rudnicki, Peter J McKinnon, F Jeffrey Dilworth, and Lynn A Megeny. Temporal activation of XRCC1-mediated DNA repair is essential for muscle differentiation. Cell Discovery, 2016. DOI: 10.1038/celldisc.2015.41 <http://www.Nature.com/articles/celldisc201541>



Mohammad Al-Khalaf



WASHINGTON : Smithsonian's youngest giant panda cub Bei Bei makes his public debut following his birth last August at the National Zoo. —AFP photos



WASHINGTON : Two years old Watson Grace from Durham, NC chooses one of the Panda hats at a store.

WASHINGTONIANS, MEET BEI BEI THE GIANT PANDA

WASHINGTON: Washingtonians got their first close-up look Saturday at the giant panda cub Bei Bei, the new star of the National Zoo. Until now, the cub could be viewed only through the so-called Panda Cam, a video hookup that has allowed people to watch the now five-month-old cub since its birth. A line formed outside the panda enclosure Saturday morning before opening time to get a look at the ball of fur inside its sound-proof glass enclosed pen.

Some wore hats, sweaters and gloves with pandas on them. Visitors came into the pen in groups of 50 at a time and were allowed about 10 minutes to view the panda, an endangered species. Upon leaving, some got right back in line to see Bei Bei again. His keepers had

worked to get him used to people by having zoo employees and reporters stop by to see him. The official media debut was a month ago. Bei Bei has already been fussed over by two first ladies-Michelle Obama and her Chinese counterpart Peng Liyuan-during a state visit to Washington in September.

Bei Bei means precious in Mandarin. Like his big sister Bao Bao and their older sibling Tai Shuan, Bei Bei will be handed over to China at age four. (Bei Bei's twin brother died shortly after birth.) Their parents, Mei Xian and Tian Tian, are on loan from China and will remain in Washington at least until 2020 under a recently renewed agreement. Under that accord, the zoo pays \$500,000 a year to support conservation efforts in China.—AFP

WHEN TO STOP MAMMOGRAMS TRICKY ISSUE AS US AGES

WASHINGTON: Lost in the arguing over whether women should begin mammograms at age 40 or 50 or somewhere in between is the issue they'll all eventually face: when to stop. "There's a point at which everybody begins to scratch their head and say how much longer do you have to keep doing this?" said American Cancer Society specialist Robert Smith. It's an increasingly complex balancing act as older women are living even longer. The risk of breast cancer rises with age. But so do the odds of other serious illnesses that may be more likely to kill in a senior's remaining life span - or to make them less able to withstand the rigors of cancer treatment.

"If we pick up a cancer in someone who's 75 and they die at 76 of something else, did it really matter? That's really the question here," said Dr Susan Boolbol, breast surgery chief at Mount Sinai Beth Israel Medical Center in New York. Medical guidelines don't agree. The cancer society's advice: Women should continue mammograms as long as their overall health is good and they have a life expectancy of at least 10 more years. Last week, guidelines issued by the US Preventive Services Task Force said there's not enough evidence to recommend for or against mammograms at age 75 and older, because that age group just hasn't been studied enough to tell.

Start discussing

Getting such evidence is "critical, given the graying of America," said Dr Jeanne Mandelblatt, an expert on cancer and aging at Georgetown University. Indeed, some in the 80-and-beyond crowd are as spry as 60-somethings. "People are taking better care of themselves," said Yale University pathologist Dr Fattaneh Tavassoli. "If we don't start discussing it, it's going to be more difficult to come up with management approaches for these patients." She recently reported that Yale's medical center is diagnosing more breast cancer at 90 and older, averaging about eight diagnoses a year since 2000, compared with one a year during the 1990s. Many were diagnosed after the woman or doctor detected an abnormality, not from routine mammograms, Tavassoli said. But she's asked if other hospitals see a similar trend and also wants to study what treatment they underwent.

Marion Jones was 84 and active when a mammogram spotted breast cancer. Surgeons removed a small tumor but during follow-up chemotherapy Jones developed pneumonia and blood clots. She needed a portable oxygen tank for a year until her lungs healed. For Jones, mammograms were "just a habit" that she didn't question when a new doctor said she was due, and she's grateful her cancer was

mammogram within two years, compared with 41 percent of the 85-plus group, according to 2013 government figures.

Mammograms bring pros and cons for the oldest women like they do for middle-aged ones, the possibility of reducing breast cancer death versus false alarms, unneeded biopsies and detection of a tumor so small or slow-growing that it never would have posed a threat.



SILVER SPRING, Maryland: Marion Jones, who was treated for breast cancer, poses for picture beside her painting "Street in Provence" at her house in Silver Spring, Md. —AP

detected. But now 86 and healthy again, the Silver Spring, Maryland, woman recently told her oncologist that if her cancer ever returns, she doesn't want chemo.

Analyze that balance

"She said, 'Marion, at your age you probably won't die of breast cancer anyway. It'll be something else,'" Jones recalled. "That's nice to hear." About 26 percent of breast cancer deaths each year are attributed to a diagnosis after age 74, according to the American Cancer Society. "The question we have not really studied very carefully is what fraction of those deaths is truly avoidable," Smith said. Mammography does decline as women get older. About three-quarters of women age 50 to 74 have had a

Georgetown's Mandelblatt used math models to analyze that balance, and estimated that healthy older women could benefit from regular screening through age 78 or 80. But among women who already had other moderate to severe illnesses, the harms of screening could outweigh benefits as early as 68, she said.

If cancer is found in the frail, Mount Sinai's Boolbol notes there are less aggressive options that aim to stop a tumor's growth rather than eradicate it. She wants doctors and patients to have frank discussions about the woman's overall health in deciding how long to continue mammograms. "It really needs to be based on their health status, and not your age," Boolbol said. "Because it's not one-size-fits-all." —AP

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Dr. Fahad Al-Mukhaizeem
فهد علي المخيزيم

إستشاري أطفال
M.B. Bch. FRCPC. FAAP. PEM

Al-Jabriya - Block 1A - St. 1 - Mazaya Building - 15th Floor - Clinic B - Tel.: 22269369 - Fax: 22269368