

• **Sugar makes cancer light-up in MRI scanners**

A new technique for detecting cancer by imaging the consumption of sugar with magnetic resonance imaging (MRI) has been unveiled by UCL (University College of London) scientists. The breakthrough could provide a safer and simpler alternative to standard radioactive techniques and enable radiologists to image tumours in greater detail. The new technique, called 'glucose chemical exchange saturation transfer' (glucoCEST), is based on the fact that tumours consume much more glucose than normal, healthy tissues in order to sustain their growth. The researchers found that sensitizing an MRI scanner to glucose uptake caused tumours to appear as bright images on MRI scans of mice

<http://www.ucl.ac.uk/news/news-articles/0713/08072013-Sugar-makes-cancer-light-up-in-MRI-scanners-Lythgoe>

• **New coronavirus struggling to spread in people**

A deadly new coronavirus discovered last year does not appear to pose a global threat, according to researchers. The virus belongs to the same family as the Sars virus. With 62 out of the 77 confirmed cases, the Kingdom of Saudi Arabia has been hit hardest by the new coronavirus, who is a close cousin to the SARS strain that threatened the world back in 2002-2003. Some argue that Saudi Arabia has been more diligent with surveillance and that other nations are likely to harbor undetected cases of the virus.

However, few cases and even fewer deaths have been reported outside of this Middle Eastern nation.

So is MERS, which causes severe respiratory and kidney disease, on the verge of becoming an international pandemic? Epidemiologists at the Pasteur Institute have devised a model of the worst case scenario by calculating the virus's basic reproduction number or 'R0' (pronounced "R-naught").

This is the average amount of people that the infected person has passed the illness on to, while a high value would mean that the virus spreads quicker, however the researchers found that the coronavirus only could affect 0.69 other people.

Professor Arnaud Fontanet explained to the BBC that the virus is not able to start an epidemic at the moment, but it could be possible should it mutate making it pose a greater threat. The illness has the same composites that cause Sars and the common cold. In terms of the former, Prof Fontanet noted how it was able to mutate beyond its reproduction value of 0.8.

He told the news provider: "Sars' adaptation to humans took just several months,

whereas Middle East respiratory syndrome coronavirus has already been circulating more than a year in human populations without mutating into a pandemic form."

Of the 22 people diagnosed with the coronavirus infection in this outbreak, 65 per cent of patients have died. By combining clinical monitoring techniques with state-of-the-art sequencing technology to study the outbreak, the team discovered that transmission occurs within hospitals and can be rapidly fatal. Until now, little had been known about the origin and characteristics of this deadly new virus but this work has uncovered the transmission dynamics, and clinical and genetic characteristics of this often fatal virus.

The fact that the hospital outbreak was contained effectively and there were no more new cases reported, shows that preventive infection control measures are crucial to prevent spread of the virus.

WHO Assistant Director-General Keiji Fukuda told reporters in Saudi Arabia, the site of the largest cluster of infections, there was no evidence so far the virus was able to sustain "generalized transmission in communities" - a scenario that would raise the specter of a pandemic. But he added: "Of most concern ... is the fact that the different clusters seen in multiple countries ... increasingly support the hypothesis that when there is close contact, this novel coronavirus can transmit from person to person.

<http://www.medicaldaily.com/articles/17137/20130704/why-mers-isnt-sars-part-2-french.htm>

http://www.medplacemnts.com/article-801610061-coronavirus_struggling_to.html

http://www.nlm.nih.gov/medlineplus/news/fullstory_137682.html

• **Keeping mentally active can reduce impact of dementia**

Dementia is one of the most common forms of mental illness in the UK and other countries, but new research has found that keeping the brain active can be a great way to reduce the impact of the condition.

A study in the US, published in the journal Neurology, stated that reading books or writing letters can help to protect the brain as a person gets older. The researchers explained that a lifetime of mental challenges can have a slower cognitive decline meaning that the impact of dementia or Alzheimer's disease can be lessened.

The team at Rush University Medical Centre, in Chicago, examined the traits of 294 older people who had never experienced any symptoms of dementia. They were asked to fill in a questionnaire on how often they read, wrote or visited a library during the various stages of their life. During the course of the study, 102 people developed dementia while 51 were found to have mild cognitive impairment. Those that

explained that they regularly participated in mental activity later in life had performed better on the cognitive tests and had a slower rate of cognitive decline. The same trait was also apparent for people who explained that they were more mentally active as a child compared to those that were less active earlier on in life.

Dr Simon Ridley, head of research at Alzheimer's Research UK, said: "There is increasing evidence suggesting that mental activity may help protect against cognitive decline, but the underlying reasons for this remain unclear.

"By examining donated brain tissue this study has shed more light on this complex question, and the results lend weight to the theory that mental activity may provide a level of 'cognitive reserve', helping the brain resist some of the damage from diseases such as Alzheimer's."

http://www.medplacemnts.com/article-801608266-keeping_mentally_active_can.html

• **No Trace of HIV after Stem-Cell Transplants, Researchers Say**

Two more patients undergo 'sterilizing cure,' advancing understanding of the process.

Two HIV-positive patients show no trace of virus after receiving chemotherapy and stem-cell transplants as treatment for lymphoma, according to new research.

These patients have become the second and third known cases of a "sterilizing cure," in which medical treatment removes all traces of HIV -- the virus that causes AIDS -- from the body. They have remained virus-free even though doctors months ago took them off their HIV-targeted medications.

"We have been unable to detect virus in either the blood cells or the plasma of these patients," said lead researcher Dr. Timothy Henrich, of Harvard Medical School and Brigham and Women's Hospital in Boston. "We also biopsied gut tissue from one of our patients, and we were unable to detect HIV in the cells of the gut. Essentially, we do not have any evidence of viral rebound."

The patients had been receiving long-term antiretroviral therapy for HIV when they developed lymphoma, a type of blood cancer involving white blood cells, Henrich said.

Both underwent chemotherapy followed by bone marrow transplants to cure their lymphoma. Afterward, Henrich could not detect any HIV infection in their bodies.

Henrich presented preliminary findings on the research at the International AIDS Conference last July. Since then, he and his research team withdrew the patients' antiretroviral therapy to see how completely the cancer treatment had rid them of HIV. One patient has been off treatment with no

detectable virus for about 15 weeks, and the second patient for seven weeks.

Henrich warned that it is too soon to declare the patients completely cured of HIV. "Although we cannot detect HIV, it's possible it's there but in extremely low amounts," he said. "We're going to watch and wait, and see where it goes with these patients."

Unfortunately, this type of cure is not something that can be put into widespread practice for all people infected with HIV. "Transplantation is not a scalable, affordable or even safe treatment for HIV patients," Henrich said.

The so-called "Berlin patient," Timothy Brown, is the first documented case of a sterilizing cure for HIV. An American man living in Germany who received a bone marrow transplant for leukemia, Brown has remained HIV-free even after discontinuing his antiretroviral drug therapy. The transplanted bone marrow cells came from a donor who had a rare genetic mutation that increases immunity against the most common form of HIV, and researchers believe that helped protect Brown from reinfection.

Henrich's findings are significant because his two patients did not receive bone marrow cells with the genetic mutation that helped Brown. They also did not receive the intensive chemotherapy or total body irradiation that preceded Brown's stem-cell transplant.

Instead, their stem-cell transplants appear to have been protected by the patients' ongoing antiretroviral therapy, which continued as they received cancer treatment.

"In bone marrow transplants, the donor cells actually eliminate and replace the host patient's blood cells," Henrich said. "Antiretroviral therapy allowed the donor cells to replace the host cells without becoming infected."

"We currently imagine that curing people on a large scale through stem-cell transplantation would pose many daunting challenges, but gene therapy researchers are working on ways this might one day be possible," said Rowena Johnston, vice president and director of research for amfAR, the Foundation for AIDS Research, which is funding Henrich's research.

http://www.nlm.nih.gov/medlineplus/news/fullstory_138396.html

Amniotic fluid could help premature babies

A fatal gut disease that affects premature babies could be healed by using amniotic fluid, according to researchers.

Necrotizing enterocolitis (NEC), which causes severe inflammation, can lead to the destruction of the tissue in the gut. This

can cause holes to form in the baby's intestines, as well as major organ failure.

But tests on animals have suggested that stem cells inside amniotic fluid could heal some of the damage caused by the disease and increase the chances of survival.

The study, funded by Great Ormond Street Hospital, involved taking the amniotic fluid from rodents and giving it to rats infected with NEC.

Results showed that the rate of survival in those given the amniotic fluid significantly increased.

The gut in a baby born too soon is often unprepared to handle food, meaning that around one in ten premature births results in the contraction of necrotizing enterocolitis.

Breast milk can help to reduce the risks, but in many cases surgery is required.

Only 40 per cent of babies who undergo an operation will survive, as the intestine within the newborn is often shortened dramatically in order to remove the infected tissue.

http://www.medplacemnts.com/article-801562124-amniotic_fluid_could_help.html

Experts recommend HPV vaccine for schoolboys

Schoolboys across the UK should be offered the human papillomavirus (HPV) vaccine in order to help protect against throat cancer, medical experts have claimed.

The Throat Cancer Foundation, a new charity backed by 150 medical professionals, claims that the vaccine should be given to all 12-year old boys to protect against cancer.

The jab was first introduced in 2008 for schoolgirls, as a way of helping prevent cervical cancer.

And there is increasing evidence to suggest that the vaccine could also guard against throat cancer, which is rising in the UK and costs the NHS as much as £45,000 per patient.

The charity claims that extending the vaccine to boys would not only give them protection against HPV, but would strengthen existing protection for girls.

Australia is currently the only country to routinely offer the vaccination for both boys and girls, with the idea also receiving backing from the US Centers for Disease Control.

Professor Christopher Nutting, lead clinician at the Royal Marsden Hospital's head and neck unit in London, said: "We are seeing a rising number of cases of throat cancer in our clinics in the UK."

"At the moment, girls are routinely vaccinated against HPV but boys are not, meaning they are routinely being exposed to a virus that can cause life threatening cancers."

http://www.medplacemnts.com/article-801534256-experts_recommend_hpv_vaccine.html

Energy Drinks May Increase Blood Pressure, Disturb Heart Rhythm

Energy drinks may increase blood pressure and disturb your heart's natural rhythm, according to research presented at the American Heart Association's Epidemiology and Prevention/Nutrition, Physical Activity and Metabolism 2013 Scientific Sessions.

Researchers analyzed data from seven previously published observational and interventional studies to determine how consuming energy drinks might impact heart health.

In the first part of the pooled analysis, the researchers examined the QT interval of 93 people who had just consumed one to three cans of energy drinks. They found that the QT interval was 10 milliseconds longer for those who had consumed the energy drinks. The QT interval describes a segment of the heart's rhythm on an electrocardiogram; when prolonged, it can cause serious irregular heartbeats or sudden cardiac death.

"Doctors are generally concerned if patients experience an additional 30 milliseconds in their QT interval from baseline," said Sachin A. Shah, Pharm.D., lead author and assistant professor at University of the Pacific in Stockton, Calif.

"QT prolongation is associated with life-threatening arrhythmias. The finding that energy drinks could prolong the QT, in light of the reports of sudden cardiac death, warrants further investigation," said Ian Riddock, M.D., a co-author and director of preventive cardiology at the David Grant Medical Center, Travis Air Force Base, Calif.

Researchers also found that the systolic blood pressure, the top number in a blood pressure reading, increased an average of 3.5 points in a pool of 132 participants.

"The correlation between energy drinks and increased systolic blood pressure is convincing and concerning, and more studies are needed to assess the impact on the heart rhythm," Shah said. "Patients with high blood pressures or long QT syndrome should use caution and judgment before consuming an energy drink."

"Since energy drinks also contain caffeine, people who do not normally drink much caffeine might have an exaggerated increase in blood pressure."

The pooled studies included healthy, young patients 18-45 years old. "People with health concerns or those who are older might have more heart-related side effects from energy drinks," said Shah.

<http://www.sciencedaily.com/releases/2013/03/130321205524.htm>