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World

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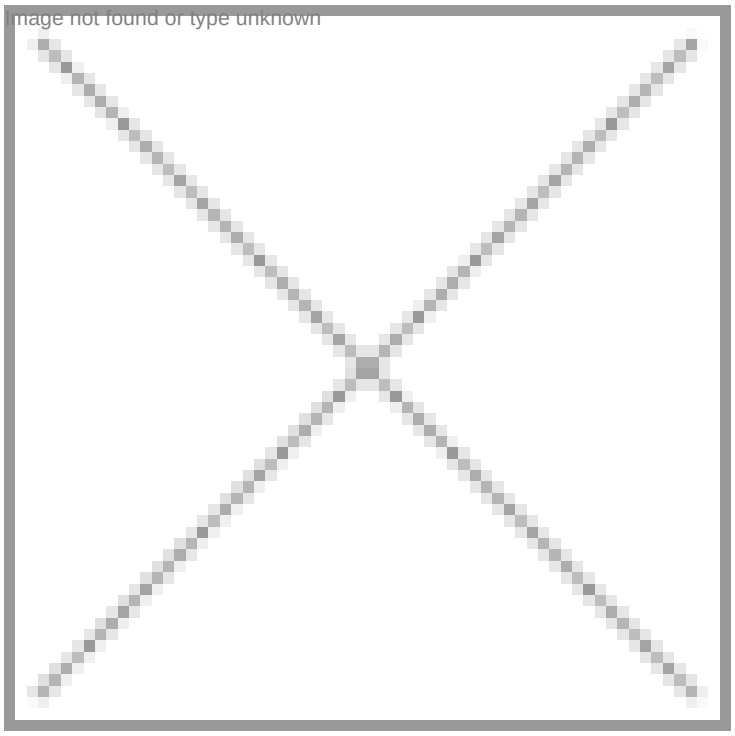
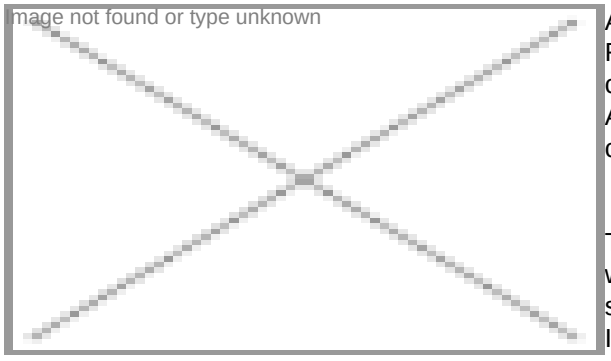




After producing two cloned buffalo calves, Haryana-based National Dairy Research Institute (NDRI), through the new and advanced hand-guided cloning technique, has cloned another buffalo calf, named Garima-II, on August 22, 2010. This cloned buffalo calf is different from the earlier cloned calf because; in this case, the used donor cell was embryonic

The world's first buffalo calf through the hand-guided cloning technique was born on February 6, 2009 at NDRI, Karnal and subsequently, the second cloned calf Garima, weighing 43 kg, was born on June 6, 2009 . In earlier cloning, the donor cell was from somatic cells. The donor embryonic stem cell was isolated from the eight-day-old blastocyst. These cells were cultured up to 29-passages (117 days), till it expressed pluripotent marker, and then confirmed to be stem cell.

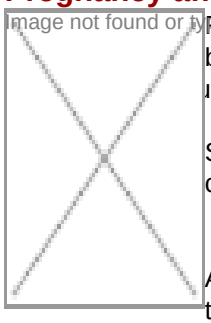
Dr AK Srivastava, director of NDRI, emphasized that this technology could go a long way in helping faster multiplication of superior milch buffaloes in India. â€œAlthough the world's largest population of buffaloes is in India; and they are contributing about 55 percent of total milk production in country, the percentage of elite animals is very low; and there is an urgent need to enhance the population of these elite buffaloes,â€? he said. He further emphasized that there is an acute shortage of good bulls; and the technology of cloning will decrease this gap between supply and demand of breeding the bulls, in the shortest possible time.

The team that worked in the production of this cloned calf using embryonic stem cell as donor cell are: Dr MS Chauhan, Dr

SK Singla, Dr RS Manik, Dr P Palta, Dr Shiv Parsad, and Dr Aman George of NDRI, Karnal, Haryana. The scientists are of the opinion that the embryonic stem cells have better cloning ability as compared to somatic cells, and the epigenetic reprogramming of these cells is much more efficient than the somatic cells, which are already differentiated and lineage-committed. The scientists believe that the cryopreservation of embryos will need to be made, so that the embryos could be transported and used at several places.
The hand-guided cloning technique developed at NDRI, is an advanced modification of the conventional cloning technique.In this technique, immature oocytes were isolated from ovaries and were matured in vitro. These were then denuded and treated with an enzyme to digest the outer layer of oocytes called 'zona pellucida'.

The oocytes were then treated with chemicals to push their genetic material to one side of the oocyte. This protruded side was then cut off with the help of hand-held fine blade, for removing the original genetic material of the oocyte. The enucleated oocyte was then electrofused with single cell taken from colony of embryonic stem cells. The resulting embryos were cultured and grown in the laboratory for seven days, to develop them to the stage of blastocyst. The blastocysts were transferred to recipient buffaloes.

Pregnancy affected by Fluoride levels



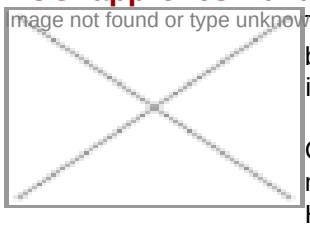
Fluoride avoidance reduces anemia in pregnant women, decreases preterm births and enhances baby's birth-weight; reveals leading fluoride expert, AK Susheela, director, Fluorosis Research and Rural ındation, India, in a study published in Current Science.

Susheela's team explains that anemia in pregnancy, which can lead to maternal and infant mortality, continues to plague many countries despite nutritional counseling, maternal iron and folic acid

Anemic pregnant women living in India, whose urine contained 1 mg/L fluoride or more, were separated into two groups. The experimental group avoided fluoride in water, food and other sources and ate a nutritious diet, as instructed. The control group received no instructions. Both groups supplemented with iron and folic acid.
Results reveal that anemia was reduced and preterm and low birth weight babies were considerably fewer in the fluoride-avoidance group, as compared to the control. Two stillbirths occurred in the control group, none in the experimental group.

According to the findings of the study, fluoride avoidance regenerate the intestinal lining that enhance the absorption of nutrients, as evidenced by the reduction in urinary fluoride, followed by rise in hemoglobin levels.

DCGI approves Advaxis' trial for cervix cancer



The Drug Controller General of India (DCGI) has approved the human trial of US-based biotechnology company, Advaxis' ADXS11-001- the lead agent for the treatment of cervix cancer. in 10 days, and patient dosing will begin soon.

Currently, nine centers have been identified and have started screening patients with advanced, metastatic cervix cancer for enrollment in this trial. These centers include Tata Memorial, Apollo Hospitals and other centers of medical research excellence in India. Full enrollment is anticipated in approximately three months after the DCGI releases the drug for human use.

The phase I trial of ADXS11-001 was intended to assess safety, and like all phase I trials were not powered for efficacy, and so no conclusions can be made based on the small number of patients treated. However, in this trial, the median survival was 347 days; and the one-year survival was 53 percent.
Patients will be randomly assigned to receive either three administrations of ADXS11-001 or a single dose of the immunotherapy, followed by cisplatin treatment, and a three-course regimen of ADXS11-001.

GCE commits 450 crore

The sixth round of Grand Challenges Exploration (GCE) initiative of Bill & Melinda Gates Foundation has committed 450 crore ($100 million) to encourage scientists worldwide, to expand the pipeline of ideas to fight the world's greatest health challenges. This initiative encourages innovative and unconventional global health solutions; and is first-of-its-kind for the foundation that uses an agile, accelerated grant-making process.

Launched in 2008, GCE Grants have already been awarded to 340 researchers from 34 countries, including three from India. Initial grants will be 45.01 lakh ($100,000) each, and projects showing promise will have the opportunity to receive additional funding of up to 4.50 crore ($1 million).

The grant program is open to anyone from any discipline, from student to tenured professor, and from any organization â€“ colleges and universities, government laboratories, research institutions, non-profit organizations and for-profit companies.

One of the primary objectives of GCE is to involve scientists around the world, who do not typically work in global health. This includes innovators in Africa, Asia, and other parts of the developing world; from complementary disciplines; the private

sector; and young investigators.

The applications for Round Six GCE will be accepted till November 2010. So far, three Indian projects have won the grant in Round Three. These include Dr Ranjan Nanda, Dr KVS Rao and Virander Chauhan of the International Center for Genetic Engineering and Biotechnology (ICGEB), New Delhi; Dr Abani Nag and Dr Amiya Hati of Vivekananda International Health Center in Kolkata; and once again, the scientists of the ICGEB in New Delhi - Dr Deepak Gaur, Dr Chetan Chitnis and Dr Virander Chauhan.

Anti-cancer agent AZD-3965 trials to start

Cancer Research UK and its development and commercialization arm, Cancer Research Technology Limited (CRTL), have reached an agreement with AstraZeneca, a global pharmaceutical company, to take compound AZD-3965, an experimental drug to treat a range of cancers, into clinical trial.

Under the agreement, Cancer Research UK will fund the phase I/IIa clinical trial of up to 60 patients in 2011. The trial, led by Prof Ruth Plummer, will be managed by its drug development office at Cancer Research UK Experimental Cancer Medicine Center Network.

As per the agreement, AstraZeneca can decide if they wish to develop the drug further, based on the clinical trial data results, at the end of the phase I/IIa trial. If it chooses not to, the rights will be given to Cancer Research Technology to secure an alternative partner; and ensure the drug has every possible chance of reaching patients.

AZD-3965 targets the monocarboxylate transporter 1 (MCT1), which is essential in cell metabolism. Blocking this transporter limits cancer cells' ability to generate energy, and decreases their ability to survive. The drug is ready to be taken into early phase clinical trials.

It is the sixth treatment to enter Cancer Research UK's Clinical Development Partnerships (CDP) scheme.

CDP is a joint initiative between Cancer Research UK's Drug Development Office and Cancer Research Technology, to progress promising anti-cancer agents which pharmaceutical companies do not have the resources to progress through early phase clinical trials.