SCIENCE CENTRE NEWS LETTER

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SCIENCE CENTRE

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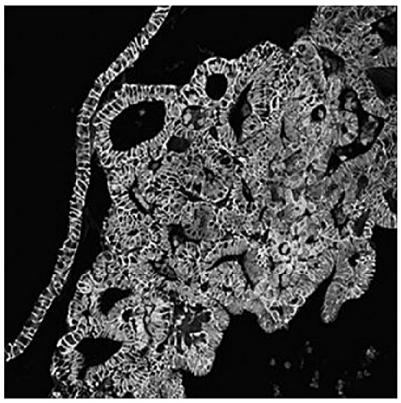
WHAT'S NEW IN SCIENCE

Scientists tissue - engineer functional part of human stomach in Laboratory

Scientists have used pluripotent stem cells to generate human stomach tissues in a petri dish that produce acid and digestive enzymes. They published their findings on January, 4 2017. Researchers at Cincinnati Children's Hospital Medical Center, U.S.A. grew tissues from the stomachs corpus/ fundus region. This research was done after two years by the same team who generated the stomach's hormone-producing region (the antrum).



The discovery means investigators now can grow both parts of the human stomach to study disease, model new treatments and understand human development and health in ways never before possible. The current study caps a series of discoveries since 2010. The research team used human pluripotent stem cells (hPSC) - which can become any cell type in the body-to engineer regions of the human stomach and intestines. They are using the tissues to identify causes and treatments for diseases of the human gastrointestinal tract.

The Primary focus of Laboratory is to study how organs form during embryonic development. They discovered that a fundamental genetic pathway (WNT/ß-Catenin) plays an essential role in directing development of the corpus/fundus region of the stomach. After this, researchers manipulated the WNT/ß-Catenin in a petri dish to trigger the formation of human fundus organoids from pluripotent stem cells. Researchers then further refined the process, identifying additional molecular signaling pathways that drive formation of critical stomach cell types of the fundus. This includes chief cells, pepsin and parietal cells. Parietal cells secrete hydrochloric acid for digestion and intrinsic factor to help the intestines absorb vitamin B-12, which is critical for making blood cells and maintaining a healthy nervous system. Researcher said that it takes about six weeks for stem cell to form gastric - fundus tissues in a petri dish.

SCIENTIST OF THE MONTH

Dr. Shanti Swaroop Bhatnagar

Dr. Shanti Swaroop Bhatnagar was born on February 21,1894 in Behda village of shahpur district in Punjab (Now in Pakistan). When Shanti Swaroop was just eight months old, his father passed away. His mother took young Shanti to her father's place in Sikandrabad in Uttar Pradesh.

After graduation, he joined the Christian College in Lahore for his post-graduation. Then he went London University for further study. He wrote a dissertation on Physical and Chemical problems of emulsions and got the Doctor of Science Degree. In 1923 he returned to India. On an invitation from Pandit Madan Mohan Malaviya, the founder of Banaras Hindu University, Varanasi, he joined the University as professor of Chemistry. In 1924, he joined the Punjab University in Lahore as professor. His research interests included emulsions, colloids and industrial chemistry, but his fundamental contribution were in the field of magneto- chemistry, the use of magnetism for the study of chemical reactions. His major innovation was improving the procedure for drilling crude oil. During World War-2, he had devloped a cloth and varnish that could be used for protection against poisonous gas. He was awarded Padma Bhushan in 1954. On January 1, 1955 at the age of 61, this great sage and scientist died.

SCIENCE FACTS FEBRUARY 2017

2 Feb	World Wetlands Day (recognized by U.N.).
4 Feb	World Cancer Day (recognized by U.N.).
5 Feb 1971	American Space Craft 'Apollo 14' landed on moon.
6 Feb	International Day against Female Genital Mutilation.
8 Feb 1834	Dimitri Ivanovich Mendeleiev (Formulator of Periodic Table) was born on this day.
11 Feb 1847	Thomas Alwa Edison (Inventor of Dynamo) was born on this day.
12 Feb 1941	Sir Alexander Fleming did first experiment of Penicillin.
13 Feb	World Radio Day (UNESCO)
14 Feb 1929	Devendra Lal (Vise President of Indian Academy of Science and Ex-Director of PRL) was born on this day.
15 Feb 1564	Galileo Galilee (Famous Astronomer) was born on this day.
16 Feb 1919	Jyoti Bhushan Chetarjea (Discoverer of Haemoglobin-E) was Born on this day.
18 Feb 1745	Alessandro Volta (Inventor of Electric Battery) was born on this day.
19 Feb1473	Nicolaus Copernicus (Famous Astronomer) was born on this day.
20 Feb	World Day of Social Justice (recognized by U.N.)
20 Feb 1962	John Glenn the first American Astronaut to orbit the Earth.
21 Feb	International Mother Language Day. (UNESCO)
24 Feb 1940	Sengamedu Shrinivasa Badrinath (Specialist in Vitreo Retina Surgery) was born on this day.
25 Feb 1988	First successful test fire of "PRUTHVI - 1 MISSILE" by India was done on this day.
28 Feb.	National Science Day is celebrated in India to mark the discovery of the "Raman effect".

U. N. : United Nations

UNESCO United Nations Educational Scientific & Cultural Organization

Quiz Answers: (1) C (2) A (3) A (4) B (5) B (6) B

Timings

Tuesday to Friday
9.30 am to 4.30 pm

Saturday - Sunday & Public Holidays
11.00 am to 6.30 pm

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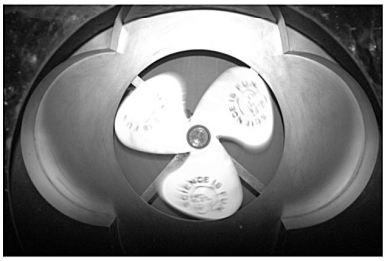
KNOW THE EXHIBITS AT FUN SCIENCE GALLERY

Seeing is not believing

Press the switch and slowly turn the regulator knob unit the fan blades appear stationary. Observe that the fan is still blowing air at you although its motion apparently freezes. How ?

Here, the fan blades are normally illuminated by a continuously lit filament lamp, which enables you to see them rotating at the beginning. As soon as you press the switch, this lamp is put off and a pulsed beam of light from a hidden stroboscope falls on the fan. Turning the knob helps you adjust the pulse rate of this light to match it with the frequency at which the blades pass before your eyes. For a correct match, the blades appear stationary although they are still spinning rapidly.



SCIENTIFIC QUESTION

Why is there variation in Skin Colours?

In this world, we find wide variation in the skin colours of human beings. The colour of human skin depends on three 'Pigments', that is colour materials found in our body. First among these is 'melanin' and second material is 'carotene' which both are brown substance. At last is the 'haemoglobin' which is the red pigment of blood. Out of these three, it is mainly the melanin which causes colour variation. Melanin is produced by cells called melanocytes in a process called melanogenesis. Melanin is made within small membrane - bound packages called melanomes. Our skin produces more of melanin when exposed to sunlight. So, people who live in hot climates have darker skin as compared to those who live in colder regions.

In olden times, there were three main races of man- the Mongolian, the Negroid and the Caucasian. In The course of centuries, these races have intermingled and have lost their distinct identity. Still, it is believed that there are five clearly separated races of mankind , having different skin colours. They are the Caucasian (White), Mongolian(Yellow), Malayan(Brown), Negro(Black) and American (Red). Nowadays, scientists do not accept this categorisation. They believe that there is a wide range of colours, even in the people belonging to same race.

SCIENCE QUIZ

(1) In India, Uranium is found in

(a) Uttar Pradesh (b) Madya Pradesh (c) Bihar (d) Orissa

2) The element with the largest size in the second period of the periodic table is ?

a) Lithium b) Fluorine c) Sodium d) Oxygen

3) The frequency of AC used in India is

(a) 50 Hz (b) 100 Hz (c) 200 Hz (d) None of these

4) The human species has genetic roots in :

(a) America (b) Africa (c) Australia (d) Antarctica

5) Which of the following can't be used to make a solar cell ?

(a) Silicon (b) Platinum (c) Gallium (d) Germanium

(6) Every hot object emits :

a) X-Rays b) Infrared Rays c) Visible Light d) None of these

EXHIBITION

Kite Exhibition

In celebration of 'Uttarayan' (Kite Festival), an exhibition was organized from 7th to 17th January, 2017 at first floor of Art Gallery of Science Centre. This exhibition was opened for public viewing from 7th January. This exhibition consists of panels on history of kite, science behind kite, preparation of Surati string as well as different kind of kites.

SCIENCE CENTRE

Science Centre forms the main part of the entire complex; it displays thematic galleries in the field of Science and Technology. The ground floor of Science Centre showcases 3D Theatre and Souvenir Shop. The first floor of Science Centre showcases Planetarium, Fun Science Gallery and Power of Play Gallery and second floor of Science Centre showcases Diamond Gallery, whereas Entering into Space, Textile Gallery, Cosmos Gallery and Polar Science Gallery are under development.

3d Show	Tuesday to Friday (Time)	Saturday, Sunday & Holidays (Time)
English	09:15, 11:20, 12:00, 02:40, 04:00	11:20, 12:00, 02:40, 04:00
Hindi	10:00, 10:40, 12:40, 01:20, 02:00, 03:20	12:40, 01:20, 02:00, 03:20, 04:40, 05:20, 06:00

Science Centre + Planetarium + Museum + Diamond Gallery	
Above 18 Years	Rs. 100
3 Years to 18 Years	Rs. 65
Science Centre + Museum + Diamond Gallery	
Above 18 Years	Rs. 60
3 Years to 18 Years	Rs. 40
Science Centre + Planetarium + Museum + Diamond Gallery + 3D Show	
Above 18 Years	Rs. 120
3 Years to 18 Years	Rs. 80
Planetarium	
Above 18 Years	Rs. 50
3 Years to 18 Years	Rs. 40
3D Show	
Above 18 Years	Rs. 60
3 Years to 18 Years	Rs. 40

Planetarium

Tuesday to Friday		Saturday, Sunday & Public Holidays	
09:30 to 10:20	English	11:30 to 12:20	Gujarati
10:30 to 11:20	Gujarati	12:30 to 01:20	English
11:30 to 12:20	Gujarati	01:30 to 02:20	Hindi
12:30 to 01:20	English	02:30 to 03:20	Hindi
01:30 to 02:20	Hindi	03:30 to 04:20	Gujarati
02:30 to 03:20	Hindi	04:30 to 05:20	English
03:30 to 04:20	Gujarati	05:30 to 06:20	Gujarati