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Editor's Note

Greetings!

It gives us great pleasure to present 'Eureka', the newsletter of the Genesis Science Congress. It has been created with the sole purpose of celebrating the deep fascination with the universe that is the hallmark of all science, and we truly hope that it can bring to you all that is wonderful about science in a new and wholesome manner.

Our cover is an optical illusion beautifully designed by Zia Krishan. It associates directly with our main aim for this issue- addressing the prejudices and myths that so often stand as barriers to an understanding of science. What is presented as a complex, rigid discipline in fact takes root in the most fundamental human desire to learn, to understand the nature of things. By understanding the fascination that lies at the heart of science, we can finally eliminate this 'optical illusion'.

Science is not simply an assemblage of numbers or complex maths, or a collection of definitions and equations. None of these things are enough to describe science- it is, at its heart, about discovering, learning and growing each day with the subject. Science is all around us- even in the simplest of tasks we do. For instance, if you're into photography, you already understand the elements of good composition, like the rule of thirds. Truth is, there is math in all different kinds of art, and the more you experiment, the more you'll learn to find the beautiful symmetry and seamless logic of mathematics and science in everything around you- from the golden ratio to the proportions necessary for the perfect cup of coffee.

As we're reminded every Physics class, 'the observer is the master'- that is to say, what we see depends just as much on *who* is looking and *how* as it does on the observed phenomenon itself. Even though the ultimate purpose of science is to describe phenomena as unambiguously as possible, its study involves understanding and mastering the differences in perspectives. What appears clockwise to me could well appear *anti*-clockwise to you. It is just a matter of perspective, of what side you're on. There's nothing more crucial to the study of the sciences than using the limited view we have to try to construct the whole picture. And that is only possible when you keep an open mind, think out of the box and are always ready to expand your horizons.

We sincerely hope that this newsletter helps you get a look at science from the other side and that you will find in it the most fascinating aspects of life, and maybe even kindle a passion for reaching to the farthest extents of the universe.

The Editors

Perspectives On Science

Science, it's not just a word, it's everything that I or anyone else, ever has or ever will imagine - it helps me connect with reality and make sense out of this perplexing world. It is a way out for me from the evolutionary brain-made existential crisis that each human faces :)

Priyansh Saxena

Science can be thought of as both a body of knowledge (the things we have already discovered), and the process of acquiring new knowledge (through observation and experimentation —testing and hypothesising).

Saad Mohammad

Science for me is knowledge about natural world based on facts learned through experiments and observations.

Zoya Majeed

When I think about about Science first picture comes in my mind is the technology we are all surrounded with and invention we made our life easy...

Rudraksh Aggarwal

Well science to me is exploration! It'll never end, but it continues to expand. Science is the study about the universe based on predictions, explanations and experiments. With this advent, it helps us provide concrete base for why is everything around us the way it is. It's anything but everything.

Shrey Bansal

Science tells us about the universe. It's science which has created the universe. It helps us in connecting with the nature and understand the logical way of life with reasons to it. It's not only about formulas and reactions it teaches a lot about us.

Anshruta B. Singh

Science is basically defined as the intellectual and practical activity encompassing the systematic study of the structure and behaviour of the physical and natural world through observation and experiment. This would mean everthing we see around us in a way or other related to science. when I think of science I think of the variety of mechanism involved in functioning of each and every individual ,be it biological, chemical or physical.

Smreti Kesri

So science is something which have led human civilisation to achieve perfection in living. Science has also assisted in advancing various fields such as maths , space etc . Science has become a reliable evidence to supports facts and theories.

Yashica Jain

Science is like the key to the unbelievable possibilities to me. to discover and to invent. To achieve great things and science helps me find out the reason and fulfil my curiosity!

Fardeen Aleem

Science to me is practicality. It teaches you the importance of being real and makes you more rational. It is a life lesson to me as it teaches me how to make the most of it.

Himani Bisht

The first things that come into my mind when I hear the word science are logic, progress and technology. As science is all about conducting experiments to prove theories with having logical proof with it.

Diya Gulati

Science for me is kind of boring but it is interesting to know how everything is connected to science.

Arushi Mehra

I feel, Science is the answer to all the mysteries. Without science how would be we know any invention. Everything is related to science.

Rashmi

Science.. well when I hear the "science".. the picture of Earth comes to my mind . Because everything within and beyond it is science. science is what makes I've easy, science is what unravels the mysteries of life, science is what keeps life going, SCIENCE IS LIFE!!!!

Manasi

For me science is a way to look at any particular event objectively as everything has to be proven multiple times before any conclusion is formed.

Tejas Irengbam

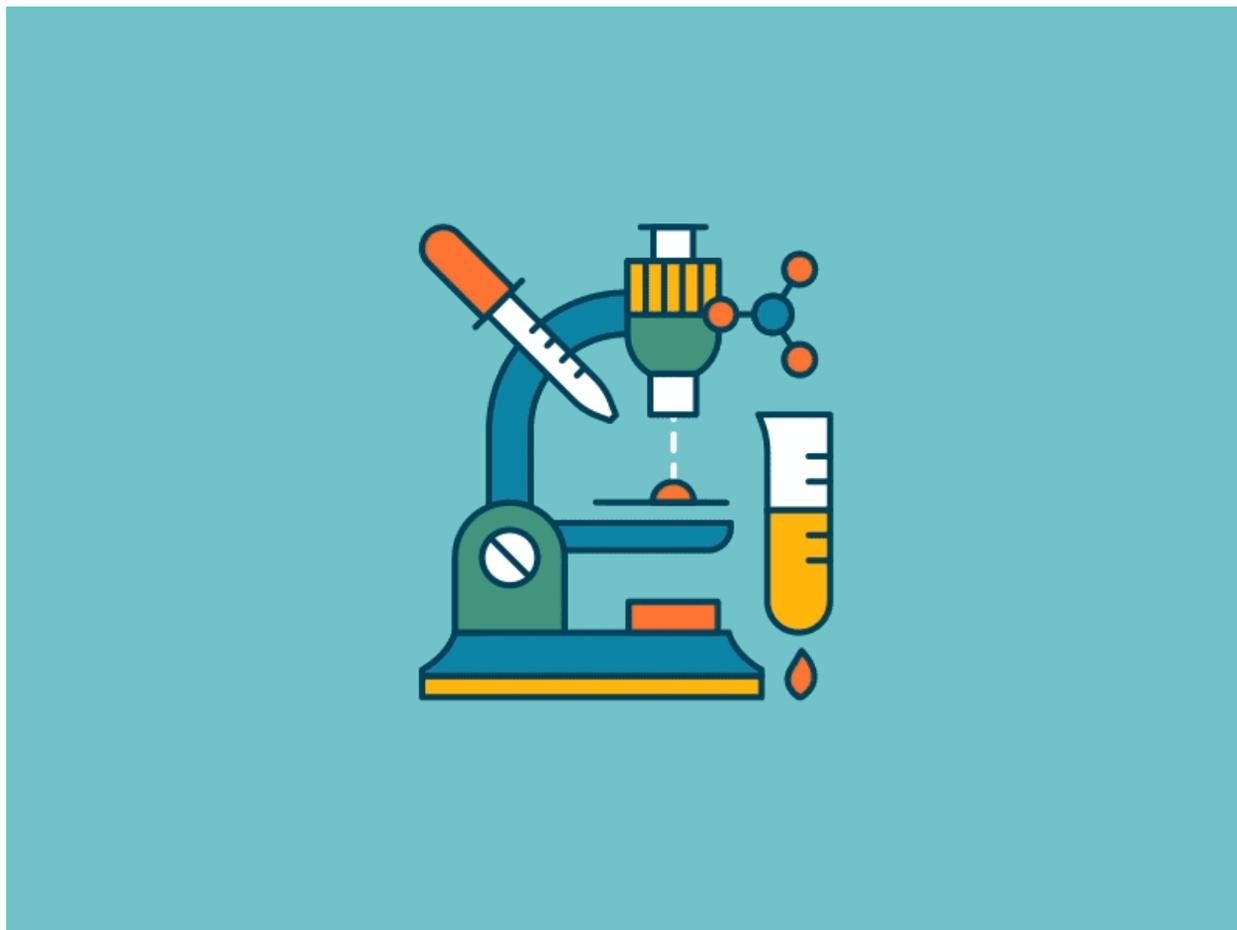
Science is a great combination experiment and art which is present everywhere.

Yashasvi

When I stumble upon the word science, I cannot help but imagine a state of mind that lacks emotions and subjectivity. And I believe that scientific discoveries are guided by ideologies. Science was historically used to justify patriarchy and heteronormativity. In doing so, science became a tool in the Arsenal of the perpetrators.

Rakshit

My Contribution In The Field Of Science



Dr. Sujata Majumder

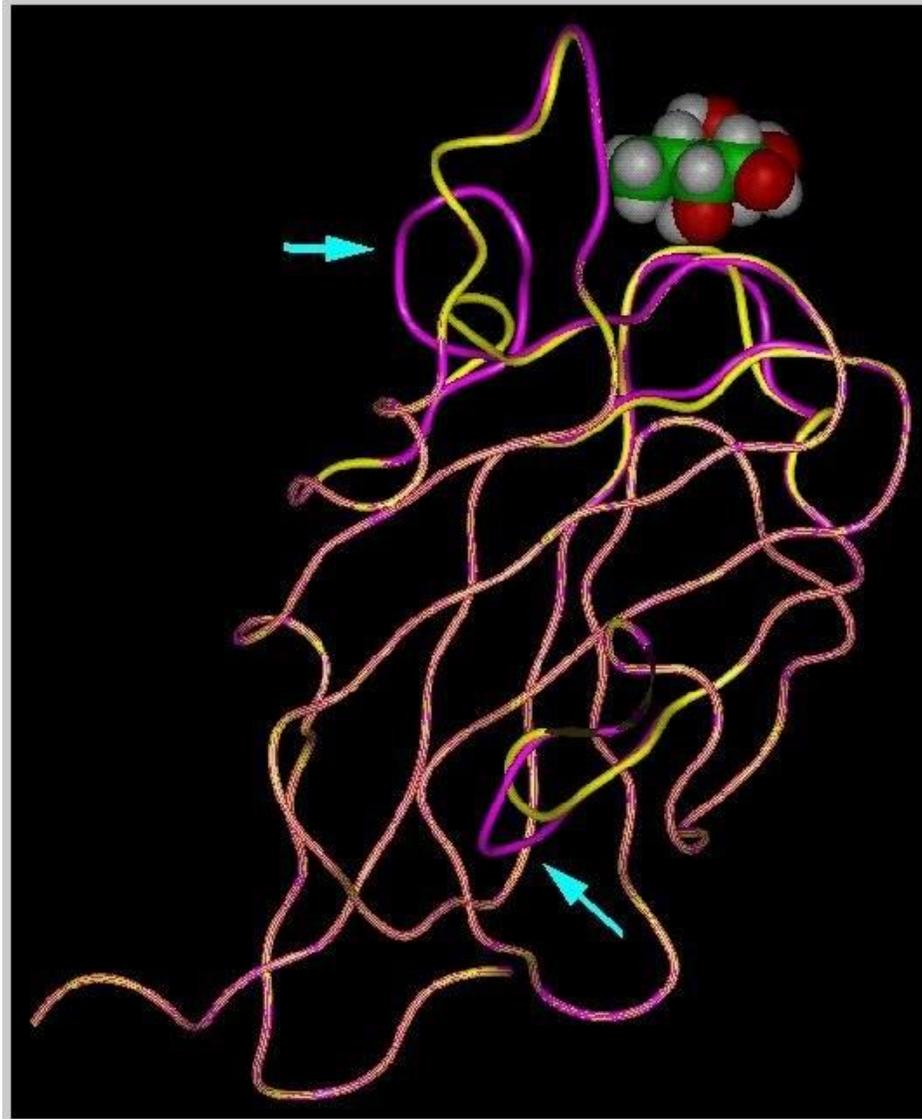
This is a period of real crisis where Covid-19 have already taken many precious lives and humanity is facing great sufferings. This situation have forced many of us to stay locked at home which probably we never thought off even in our wildest dreams. Every crisis provides opportunity to introspect and new ways of living and learning. Online classes are running in full-swing but still not feeling the same as we used to feel when all meet in the school. During this lockdown, I have invested some time for introspection and walk down to my memory lane. Thoughts and memories have become very live in my every day life. As we have close association in our profession, I felt it would be appropriate to share the humble contribution I have made to science through my research work with all of you

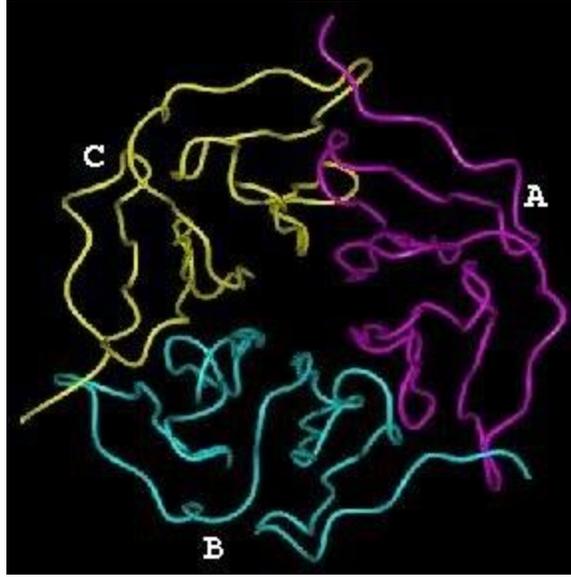
My Ph.D work was based on molecular modelling of protein structures. Proteins are important building block of life and so understanding the structure of the proteins at molecular level is very important for drug design. The majority of drugs available today were discovered either by chance or through screening synthetic or natural products libraries. In many cases, a trial and-error based approach for chemical modification of lead compounds resulted an improvement with respect to potency and reduced toxicity. Since this approach is labour and time-intense, researchers in the pharmaceutical industry are constantly developing methods to increase the efficiency of the drug finding process. The structure of proteins play an important role in drug design. The three dimensional structure of a protein

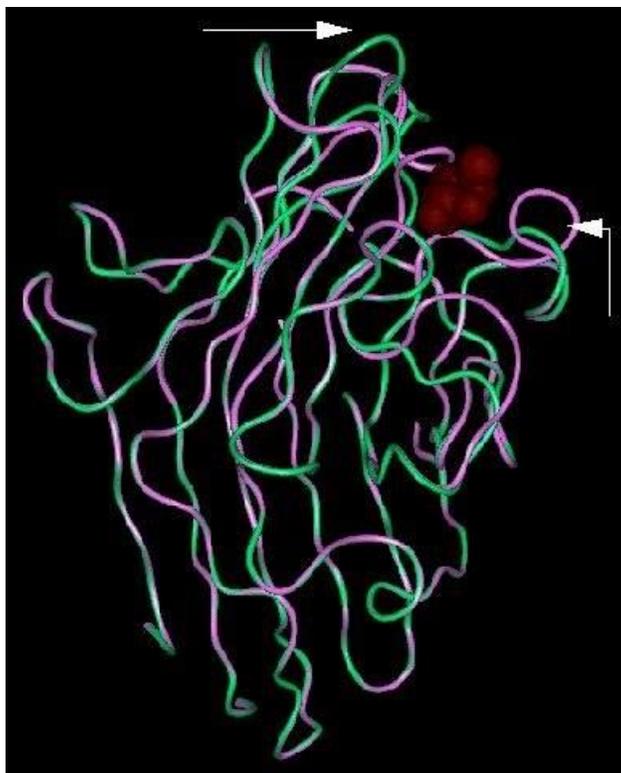
can be experimentally determined by X-ray crystallography and NMR spectroscopy. Till now around 1.5 lakh of protein structures have been determined and kept in the protein data bank (PDB). However, this number is not significant as there are millions of proteins available in nature and three dimensional structures of many important proteins are yet to be determined. Without the knowledge of the 3D-structure of the proteins it is quite difficult to have an idea about its function and hence it hinders the progress of drug design process.

To overcome this problem a method of developing theoretical 3D-model of the structures of proteins had been discovered. This method is called **HOMOLOGY MODELLING**. I used INSIGHT II by Accelrys, a homology modelling tool, to predict the three dimensional structures of proteins of our interest. Homology modelling, also known as comparative modelling, is based on the biological fact that when two sequences share high similarity/identity, their respective structures are also similar.

My research work was based on the homology modelling of fucolectins (which are a type fucose binding proteins). The knowledge of the three-dimensional structure of these proteins has the potential to assist in the design of new carbohydrate based therapeutic agents. The research findings were published in Glycoconjugate Journal, an international peer-reviewed journal in the field of biochemistry by Springer. I have modelled the structures of four such important proteins whose actual structures were still not known. Later on, structure of one protein was deposited in the PDB for experimental validation. I am happy to share that the structure miraculously matched with my modelled structure. There lies the success of homology modelling, which has made the field of bioinformatics and drug design through **High throughput screening** (HTS) highly efficient. I am sharing some pictures of my modelled structures here. I had the opportunity to work at Yonsei University, South Korea after submission of Ph.D thesis in 2005 which further gave me exposure in research and science. My passion for science and love for chemistry, helps me to channelize my energy in teaching. I feel proud through my small contribution to the society when my students excel in Chemistry.







Pictures of the modelled protein structures (Fucolectins from plant, animal, bacteria and protozoa)

Reference:

1. Prediction of 3-D structures of fucose-binding proteins and structural analysis of their interaction with ligands. **Sujata Majumder, Avik Roy and Chhabinath Mandal, Glycoconjugate Journal 20, 545–550, 2004**
2. Search for fucose binding domains in recently sequenced hypothetical proteins using molecular modeling techniques and structural analysis. **Sujata Majumder, Madhumita Patra and Chhabinath Mandal, Glycoconjugate Journal 23,251-257, 2006**
3. Structural studies on mannose-selective glycoprotein receptors using molecular modeling techniques. .Madhumita Patra, **Sujata Majumder and Chhabinath Mandal, Glycoconjugate Journal 23,241-249, 2006.**
4. Best poster presented in the **10th FAOBMB, 7-11December, 2003, Indian Institute of Science, Bangalore.**

Title: Studies on the structural flexibility of different glycosylated isoforms of antibodies.

This Week In Science



Prashuchi Pandey

Novavax's vaccine begins mid-stage testing in south africa

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- *Novavax expects its vaccine, once approved, would be supplied to South Africa through a deal signed earlier this year with the Serum Institute of India to develop and commercialize NVX-CoV2373.*

- *"Because South Africa is experiencing a winter surge of COVID-19 disease, this important Phase 2b clinical trial has the potential to provide an early indication of efficacy," Novavax research chief Gregory Glenn said.*
-

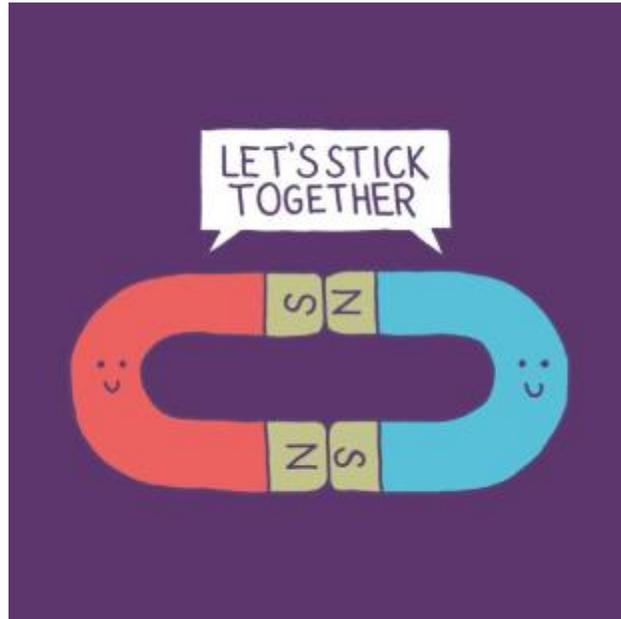
Children who experience trauma age faster

- *According to new research, the children who suffer trauma from abuse or violence early in life show biological signs of aging faster than children who have never experienced adversity.*
 - *Study examined three different signs of biological aging -- early puberty, cellular aging and changes in brain structure -- and found that trauma exposure was associated with all three.*
-

Quantum states can last 10,000 times longer

- *A team of scientists at the University of Chicago's Pritzker School of Molecular Engineering announced the discovery of a simple modification that allows quantum systems to stay operational-- or "coherent"-- 10,000 times longer than before.*
 - *These different rules could translate into technology like virtually unhackable networks or extremely powerful computers*
 - *Several innovations were pushed aside because they couldn't maintain quantum coherence for long periods of time. Those could be re-evaluated now that we have this way to massively improve coherence.*
-

Opposites Attract



Kashvi Tanwar

North - North, South - South

poles of magnet will repel against each other, push away just like people repel;

Like from like, Same to same

spinning round like a circle game.....

'til North and South stay together!!!

just like people friends forever

quiet and loud, friendly and shy

it is an Earthly thing,

Opposites Attract!!

The Big Bang: The Story Of Our Universe



Sanskriti Suryesh



The photo above is named "Earthrise". You have probably seen this photo or at least heard about it. It was taken by William Anderson. He was the lunar module pilot on the Apollo 8 mission undertaken in 1968. It was the first crewed spacecraft to reach the moon, orbit it and return. Since they did not have

to land, William had time to click some photos. It is considered to be the most influential environmental photograph ever taken.

You must be wondering, what has this got to do with the big bang? This is important because this mission was one of the boldest moves by mankind to understand the universe. Now let's try to understand the universe from where it all started. It all started with the **Big Bang**. Our universe is big. And old. In fact, it is as ancient as Time i.e. about 13.7 billion years, to be exact. Let us shrink our time scale to 13 years and exchange it with 13.7 billion years for a better understanding.

- 12 years ago (12,700,000,000) - First stars and galaxies formed
- 4.5 years ago (4,540,000,000) - Earth formed
- 4 years ago (3,800,000,000) - First single celled organism formed
- 6 months ago (540,000,000) - First multicellular organism formed
- 3 weeks ago (65,000,000) - Dinosaurs went extinct
- 3 days ago (7,000,000) - Humans and chimpanzees split
- 50 minutes ago (250,000) - Homo sapiens arrived
- 5 minutes ago – Agriculture
- 3 minutes ago – Ancient Egypt
- 2 seconds ago – World War I
- 1 second – First man on moon, your birth and the internet

Now we have talked about what happened AFTER the big bang. Now let us talk about the big bang, which is where the story starts.

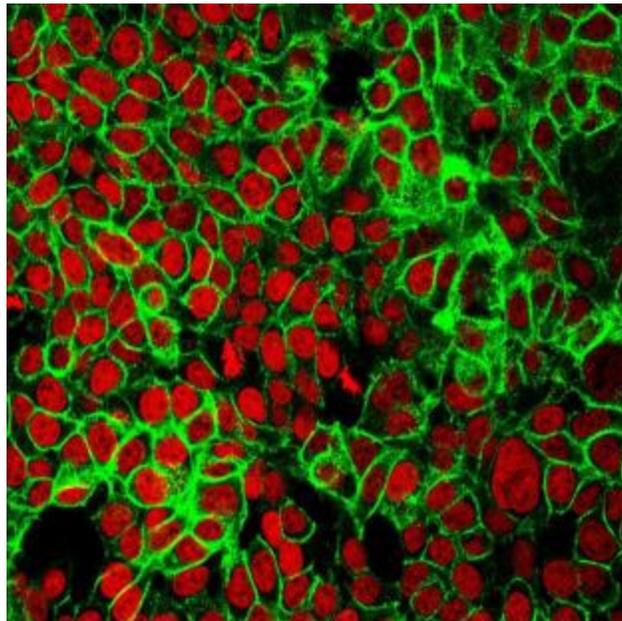
A Belgian priest named [Georges Lemaître](#) first suggested the Big Bang theory in the 1920s, when he theorized that the universe began from a single atom. This theory was accepted by Science Faculty when, thanks to the Hubble telescope, we found out that galaxies are moving away from our very own Milky Way Galaxy.

So, what happened in the big bang? Before the big bang, the universe was smaller than an atom. It held all the four fundamental forces – Gravity, Electromagnetism, Strong and Weak nuclear forces. We still don't know how they fit together in such a small place. But one day, some 13.7 billion years back, it exploded, giving off a lot of energy. Once it exploded, it began to expand and cool down. In fact, our Universe still continues to expand. When the temperature cooled down enough for the electrons, neutrons and protons to clump together, with the help of four forces, the first atoms were formed. And they were helium and hydrogen. 150 million years after the big bang, there were clouds of hydrogen and helium. The first star was born 180 years after the big bang. It took gravity that long to bring all the atoms of helium and hydrogen together, to form a star. All the other heavier elements on the periodic table, were formed in stars.

Did you know, that if you turn the radio to a number that is not a station, you might hear a strange sound. That is how we know what happened after the big bang. Scientists studied this radio frequency and now we know all about our universe's childhood. Almost everything. There is a lot of things about the universe we do not know. We call this **dark matter**. But don't be sad. There is a lot we know about the universe if not all. I am sure we will discover even more amazing things in the future.

Talking about the future, I hope our perspectives will be as expanding as the Universe and as eventful as the Big Bang!

Carcinogens: Cancer's Intimate Hitmen



Prashuchi Pandey

New studies repeatedly record the presence of several carcinogenic chemicals. These substances could be found in the air, a product you use, or as a chemical in foods and drinks which are known to promote the formation of cancer. Contrary to public belief, carcinogens are found not only in synthetic substances but also natural ones. Carcinogens increase the risk of cancer by altering cellular metabolism or damaging DNA directly in cells.

The *most* potent carcinogenic agent of tar, Benzo[a]pyrene, is present in the environment as a result of cigarette smoke and automobile exhaust fumes. It became the most intensely studied chemical carcinogen because of the belief that its chemical structure was related to that of steroid hormones. Steroidal hormones are carcinogenic compounds that were recently reported to induce tumours in mice and humans.

Here are some common instances where carcinogens are to be found:

- **Processed foods:**

It is no surprise that over-frying whole foods is unhealthy, but did you know that even heating some vegetables like potatoes generates a chemical called *acrylamide* which could cause cancer.

- **Fibres found in car parts and ceilings:**

Tiny fibres in *asbestos* strengthen products like roof ceilings, tiles and hardware. If these fibres break free, they could get lodged inside the lungs.

- **Pollution & engine exhaust:**

-Household appliances like gas stoves and kerosene heaters are a source of formaldehyde, a potent chemical that is released when fuel is burnt.

-It is identified as a potential [carcinogen](#) by the International Agency for Research on Cancer (IARC).

-Outdoor air contains dust and traces of metals and solvents that can lead to cancer.

You can't avoid pollution, but you can do your part to avoid contributing to it by walking or biking instead of driving. Follow local public health warnings and stay indoors on days when air quality is bad.

- **Radon:**

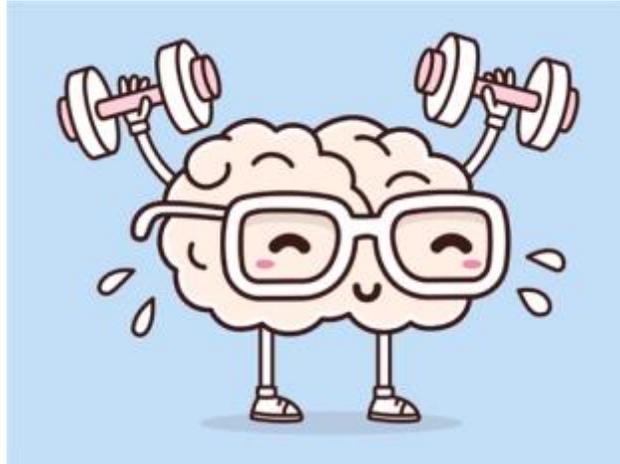
It is an odourless, harmless gas when in fewer amounts but when it clogs indoors in larger amounts, inhaling it could be fatal. It is reported the #1 cause of lung cancer in the case of non-smokers.

The Mechanism

Carcinogenic chemicals have structures that yield electrophilic reactants either directly or after bioactivation (Formation of harmful or highly reactive metabolic compounds). These agents cause alteration in the structure or function of DNA in the target cell. In addition, these compounds can exert other cellular and tissue epigenetic effects, such as cell proliferation and growth promotion. Some chemicals also have the ability to inhibit other cell growth.

With the advent of new technologies in molecular analysis, such as gene expression profiling, networks, micro RNAs, gene discovery, and pathway analysis, carcinogenesis is proving to be much more complex than being simply a clonal evolution of a cell that sustained two genetic "hits" by a carcinogen.

Brain Gym



Riddle Me This

Aditi Ghosh

Riddles

Riddle me this or riddle me that,
A story about a woman with a hat,
She walked down a park and went to an alley,
Our dear scientist friend went to a door shabby..... (contd.)
.... Though shabby it was, and dust covered it,
It was filled with a mechanics wit,
On the door were the word written,
'Atomic', 'Big Bang' and finally 'String',
A lock existed while the keyword you think,
Ponder upon the riddle and find the link.

Click for answer

Theory is the keyword

This one time at night a man went to a bar,
And he sat next to a stranger from afar,
The waiter asked them for their drinks... (contd.)
... The man lowers his hat and slyly winks
The stranger orders a liquid in blue,

And the man says he'll have H₂O too,
The stranger lives while our protagonist dies,
Explain now, what logic is devised.

Click for Answer

Our protagonist accidentally orders H₂O₂- Hydrogen peroxide- which, while being just a single oxygen atom away from H₂O isn't half as safe to drink!

.... Really?!

Scientific Humour For When The Serotonin Levels Get Low

The only letter that doesn't appear on the periodic table is J



Humans share 50% of their DNA with bananas!



Babies have around 100 more bones than adults.



Camels don't actually store water in their humps.





Space Exploration

Zia Krishan

Space exploration is the physical exploration of outer space, both by human spaceflights and by robotic spacecraft. It is a task that not many people can do. It requires a lot of courage, confidence, patience, strength and a calm mind.

Two interns were working at NASA- the independent U.S. agency responsible for the space program as well as aeronautics and space research.

“Jodan! Kyle! Stop talking and do your work!” the head of NASA said firmly to them.

“Yes sir!” they both spoke at the same time.

Jodan and Kyle are siblings and both desired to study astronomy since they were 9 years old.

They are in their first year of college and were lucky enough to get an internship in NASA. They are the top students of their school and exceptional in astronomy, therefore, they were chosen to be interns. They are each other’s best friend and always stick together.

“I still can’t believe that we are here!!” Kyle whispered in excitement.

“Yeah, me neither! But we have to keep quiet or he will scold us again.” He replied in a whisper.

Kyle nodded and continued doing her work.

Both of them were focused on finding something new in the universe.

“Jodan, we have been trying to find something new in space for hours, can we take a break?” she pleaded.

“Okay, We can. I’ll get us some coffee,” he smiled.

“That’d be great, thanks.” she said stretching her arms and legs.

With that, he went to get them coffee. Kyle switched off her computer and walked around for a bit as she was sitting on a chair for a long time. She came back to her seat after a while.

“I’m back.” he said, bringing two cups of cappuccino in his hands.

She took one of them and took a sip as he sat on his chair.

“This feels so good” she said, leaning back into her chair.

“Yeah” he said, closing his eyes.

She kept her coffee down and opened her computer.

She gasped suddenly at the screen.

“What happened?” Jodan asked, rubbing his eyes to get a clear vision.

“Look” she said, pointing at the screen.

“Huh? What’s that?” he asked.

“It’s some black dust with electric current around it” she said rolling her eyes at him.

“I know that, I can see it. It’s going towards our spacecraft!” he yelled.

“Don’t panic! We can still alert them! We need to tell Mr. Scott! Like right now!” she said trying to be calm.

Jodan nodded and both of them ran towards the elevator. Luckily, the head was the one coming out of it.

“What’s wrong? You both look worried” he asked with concern.

“Mr. Scott, we don’t have much time! We need to alert the spacecraft near Neptune! Right now!” said Jodan, panicking.

“But what’s going on?” Scott was getting really worried.

“Can you just please alert them to look towards their side!” Kyle shouted.

“Okay! Okay! I am going to tell them, it will take a minute.” He took out a mini phone and started to text.

“Sir? Why are you using the phone in this time of crisis?” Jodan asked.

“I just spoke to Kyle. You were right, there was something near them towards their side. Since they are safe now, mind telling me what you saw?”

“Yes”, Kyle said and took them to the space centre on the top floor of the building.

They quickly went inside the large dark hall. They turned some lights on and went towards the nearest computer.

They opened the same screen they saw at their work station.

Kyle zoomed into the black dust. She then connected it to the big screen in front of them. Once it showed up, Scott's eyes widened.

"What is this?" he says in amazement.

Jodan turned off the lights to get a better look.

"We don't know. We just found it because it was near one of our space crafts." Jodan said.

"It seems like some form of matter." He suspected.

"I think it is some kind of dark energy." Kyle suggested.

"You have found something so unusual. Amazing work both of you and thank you for alerting me instantly. Otherwise we would have lost a great team." He smiled

Jodan and Kyle looked at each other and smiled.

"But, how did it get into our Milky Way?" he asked.

"We don't know either" Jodan said.

"I will ask one of the astronomers. We need to destroy it" he said firmly.

"Yes sir"

"I am going now. That's something dangerous yet an amazing element you have found. Good job!" he said and went out.

"This is cool but if he is going to send an astronaut, I have a feeling none of them would do it" Kyle explained.

"Let's wait and watch what happens" Jodan said.

She nodded and both of them went out.

A week had passed and both of them were busy in meetings about this element they found. They got a lot of praises and started working there. They became astronomers but that was not what they wanted to do. They wanted to go out in space but they never said anything.

Finally, the day had come to decide which two astronauts would go.

As Mr. Scott was about to speak, a woman came in.

"Mr. Scott, this will be very devastating to hear but Nicolai-" the lady sighed

"What is it?" he asked.

"Nicolai won't be able to go in space for at least one and a half month"

Everybody gasped at the news.

“Why can’t he come? What’s going on?” he said sternly.

“Sir, he has a fractured knee. He is on bed rest.” She said looking down.

“What?! This cannot be happening at this crucial time. What are we going to do without him?! Only his team would have been ready to face this!” he shouted.

The astronauts looked down in disappointment as they knew they wouldn’t be able to face that dark force.

“I am very sorry sir” on that note, she left the room.

Mr. Scott groaned in frustration.

“Who would like to volunteer to go?” he said, crossing his arms.

Jodan and Kyle looked at each other.

“Could- could we go?” Jodan stuttered.

“What? Of course not! You both are too young” Scott said angrily.

“But sir, these two are the only ones who are ready to face it. I think we should let them go” one of the astronomers suggested.

Everyone else in the room agreed to point.

“But what if something happens to them?”. He asked.

“We will be careful. Just trust us” Kyle said.

“Fine, you can go but! Not without training! Théoden! Start training them right now! Go!” he said firmly.

“Yes sir! come both of you. I need to take you to the training room.”

Kyle and Jodan looked at each other with fear and excitement and followed him outside.

They went down to the 22nd floor and got ready in their training suits.

They kept training with Théoden day and night.

After three weeks, it was time for them to go.

The NASA crew, Kyle and Jodan reached The Cape Canaveral Air Force Station. Once they reached, both of them started to get ready. After they got ready, they went inside the rocket.

“I am really freaking out, Jodan.” Kyle said as she sat in her seat.

“You will be fine. We will be fine. Just take deep breaths, okay?” Jodan said reassuring her.

Kyle started taking deep breaths. Jodan sat in his seat. Once they were ready, the rocket started to shake, they could hear the count down from outside.

When the countdown finished, the blasted up into the sky, crossed the Earth's atmosphere.

A part of the rocket detached itself

"This is so cool!" Jodan said, smiling.

"You're right!" Kyle said.

"Now we just have to wait." Jodan said.

A year had passed, they finally reached the planet next to them, Mars.

Kyle and Jordan were eating when suddenly Kyle noticed something.

No! This can't be happening!" she started to panic.

"What's wrong- oh no!" Jodan noticed the same dark energy they saw a year ago.

"We need to get away from this place right now!" Kyle said.

"We need to destroy it."

"Yes, get the Plutonium, I'll get the chemical." Kyle said and went to look for the chemical. Jodan went and got the Plutonium. They both wore their suits. Kyle got a large capsule to put the nuclear inside it as the chemical was already in it.

"I am going out, pull me back when I ask you to, okay?" Kyle ordered.

He nodded. After mixing the two liquids properly, Kyle went towards the end. She opened the door and attached herself with a rope to the spacecraft. She then jumped out with the capsule. She screamed when she realised that she was really near the energy. The dark energy could suck anything at sight as its magnetic pressure was really high. She started to slowly get sucked in the energy.

"Jodan move the craft away now!" He went to the control centre and started to move away from it. Suddenly Kyle's rope disconnected from the craft.

"Jodan!" she shouted.

He realised that she was drifting away. He quickly went to the end of the spacecraft.

He could see her almost sucked in the dark energy.

"Kyle! If you can hear me, open the capsule now! Even if the magnetic waves aren't letting you do it. Try please!"

Kyle couldn't reply back. She wanted to tell the bottle was out of her grip but she tried to reach towards the capsule. She kept on getting sucked in little by little. She finally reached the capsule with great difficulty. Without wasting any more time, she opens the capsule and a large explosion happens. There was smoke all around but it was soon clearing out. He could see Kyle unconscious.

He quickly took out another rope and attached himself to the craft. He jumped out and went towards Kyle.

After some time, he brought her inside. He checked her pulse.

“You are still alive” he started to cry.

He closed the door of the craft. He carried her to the bed and laid her down. He took off her suit to check if she was hurt. After knowing that she wasn't having any horrible injuries, he splashed some water on her face. She opened her eyes after a while. She saw Jodan sitting in front of her. She immediately hugged him.

“I am safe! And we did it!” she said happily, pulling away.

“I am so glad! We did it” he exclaimed.

After that incident, another year had passed and they were back on land.

They were praised immensely. NASA was really proud of both of them and Mr. Scott made them the Leaders of the whole astronaut crew.

They came to be known as the ‘Youngest Astronauts in History’.

Alzheimer's- A Forgotten Case



Aditi Ghosh

Just imagine, waking up one day and looking outside the window. Smiling at the beautiful glowing sun and murmuring to yourself that it'll be a good day. The next moment you don't understand why you woke up and what do you have to do after it. You sit there looking blank out of the window, till someone comes to you and tells you to go freshen up and brush your teeth. You take a step towards the bathroom and then start wondering again why on earth were you going to the bathroom in the first place. Your memory becomes foggy and the more you concentrate on the tiny details like 'where am I?', 'Why am I walking?', 'How do I walk?' and finally till a point when you find yourself asking 'Who am I?' It's scary isn't forgetting almost everything you know about yourself. All I can assure you is that this isn't amnesia. In amnesia the brain forgets your each and every moment and memory. It's like you forget your life, you forget who is who. Alzheimer's Disease was found by Alois Alzheimer, a German physician in 1906 when he started questioning himself about the death of Auguste D. She was one of his patients and suffered from frequent memory loss, unfounded suspicions about her family, and other worsening

psychological changes. He found out that abnormal changes in the brain tissues of his patient. The disease is caused by abnormal growth of proteins around the brain (kind of like a tumour). One of the proteins called amyloid builds a plaque around brain cells while the deposit of another one called tau tangles with the brain cells. The brain cells in the occurrence of this disease waste away and die. In this disease the victim faces a continuous decline in thinking, social skills, and motor skills. Basically, the disease is sort of killing the brain slowly and steadily. Amnesia is one of the early symptoms of this disease. At the last stage of this disease our neurons die and the connection between their networks may end as well. By the very last and final stage many brain regions begin to shrink and finally the volume of brain has decreased drastically. Scientist still don't fully understand this disease and are still researching. Many believe it is caused by ageing, genetical factors and environmental factors. Though it is a non-contagious disease, over 1 million cases per year are found and I am only stating the figure for India. Currently no cure for this disease exist treatment can help in improving symptoms, but this disease can never be fully cured. This could last for a span of year or as a lifelong companion.

Vitamin-D against COVID-19?

Shrey Bansal

As the COVID-19 pandemic continues to spread, researches all around the world are trying to figure out which populations are most at risk of developing severe symptoms. Some of the recent studies conducted in countries like USA, Philippines, Sweden, Spain and Italy have demonstrated that an association exists between low levels of Vitamin-D and higher numbers of COVID-19 cases and mortality.

So let's just see how vitamin D may act as a breakthrough for the pandemic. Vitamin D has a known effect on the immune system, consisting of dendritic cells, macrophages and monocytes, forming the innate immune system which gets triggered by COVID-19. The common similarity between these three cells is that they have a special receptor called the Vitamin-D receptor, which on binding with Vitamin D becomes more expressible and resistant in fighting against COVID-19. Vitamin D also modulates white blood cells by preventing the excessive release of cytokines which act as immune system messenger, instructing to control inflammation in a body during the cytokine storm, which causes blood to clot and vessels to damage and also helps in uplifting anti-inflammatory cytokines.

As we all know that coronavirus enters our alveoli through ACE 2 (Angiotensin converting enzyme 2) which has a counterpart called ACE and form a part of the hormonal system which controls and regulates blood pressure. ACE 2 makes sure not too much pressure is applied but ACE acts as a counterpart. Covid-19 destroys the ACE 2 receptor, which in result creates an imbalance leading to constrictions and ultimately lung failure. Studies have shown that vitamin D increase ACE 2 receptors, thus restoring balance. There is so much to study about COVID-19 yet, but one thing is certain that doses of vitamin D may act as a breakthrough during the pandemic.

Apple Cider Vinegar



Shaina Trikha

First, the manufacturer exposes crushed apples to yeast, which ferments the sugars and turns them into alcohol. Next, they add bacteria to further ferment the alcohol, turning it into acetic acid — the main active compound in vinegar

Acetic acid gives vinegar its strong sour smell and flavor. Researchers believe this acid is responsible for apple cider vinegar's health benefits. Cider vinegars are 5–6% acetic acid.

Organic, unfiltered apple cider vinegar also contains a substance called mother, which consists of strands of proteins, enzymes, and friendly bacteria that give the product a murky appearance.

Video Gallery



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3 - Daksh Nagpal



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4 - Prapti Samanta

Art Gallery



5 - Hridika Gupta



6 - Isha Kaul



7 - Reyansh Jain

Eureka!!



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