Microscopia
I, WE & MICROBES

WELCOME TO THE WORLD OF MICROBES

The Sequel to "The existence of Immortal"

MICROMIA AUREUS

"You should love what you do or don't do it."
Dr. Pranav Kumar Prabhakar

I, WE & MICROBES

VOLUME I

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Preface

We would like to present, with great pleasure, the First volume of our new Monthly Magazine, “MicroMia Aureus”. This Magazine is part of the MicroScopia IWM services to Life Science community, and is devoted to the gamut of Life Science, from theoretical aspects to Scientific-dependent studies and the validation of emerging ideas. This new Magazine was envisioned and founded to represent the growing needs of Life science as an emerging and increasingly vital field now widely recognized as an integral part of scientific and Research investigations. Its mission is to become a voice of the Life science community, addressing researchers and practitioners in areas ranging from various disciplines, from microbiology to biotechnology, from Bio medical sciences to Food Technology, presenting verifiable research methods, findings, and solutions. The Magazine is intended as a forum for professionals and researchers to share various techniques and solutions in the area, to identify new issues and to shape future directions for research, while industrial users may apply techniques of leading-edge, large-scale, high-performance practical methods. This volume comprises multiple manuscripts, connected by a unifying theme. The articles exemplify the analysis and exploration of complex research models and data sets from various domains in the field. We are very thankful to everybody within that community who supported the idea of creating a “MicroMia Aureus” Magazine. We are certain that this very first issue will be followed by many others, reporting new developments in the Life science field. This issue would not have been possible without the great support of the Editorial Board members, and we would like to express our sincere thanks to all of them. We would also like to express our gratitude to the “MicroMia Aureus” editorial staff of MicroScopia IWM, who supported us at every stage of the project. Throughout preparation of this volume the Editors were supported by various research programs. It is our hope that this fine collection of articles will be a valuable resource for Transactions on Life Science readers and will stimulate further research into the vibrant area of Life science.

29/10/20

Founder
MicroScopia IWM

www.microscopiaiwm.com

MICROMIA AUREUS

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About Us

Introduction:

Microscopia IWM is an online platform to provide all the basic as well as advanced level updates for life sciences.
We here provide Academic Notes, Competitive Exam updates, Career Counseling, Scopes and Careers in Life Sciences, Quiz Practices, Laboratory Procedures, Microbes Museum, Video Tutorials.
soon we are launching other features like Alumni Talks, Faculty Guidance, Internships at various reputed Organization.

Why we started:

As the demand of life-science is increasing day by day, its requirement of facilities in academics as well as in Practical Approaches are also emerging every moment. To provide all the possible services at Online Platform, MicroScopia IWM is open 24*7 to showcase the needs.

Founders

Bipin Singh

Adarsh Pandey

Pradhum Jha

Shantanu Shrivastava

Team “MicroMia Aureus”

Kajal

Palak Agrawal

Ayushi Saini

Prabhleen Kaur

Deepika Antil

Our Associates

One Life Infinite Happiness

STUDENT COMMUNITY

Kalam Foundation
Creating A Knowledge Society

G.E.R.M.S.

SCIENCE wale

LETTERS @ WORK

Life Science - The Learning Track

TRICORD

THE OPUS COLISEUM

We are uniting our resources around this challenge, and we are combining our resources and asks to make it easy for people to support their communities. To Associate with us visit www.microscopiaiwm.com and fill the contact form. We will soon get connected with you.

COVID-19 And Life

- **SARS-CoV2 (subgenus: sarbecovirus and subfamily: Orthocoronavirus)** is a Beta coronavirus containing non-segmented positive RNA as genome. Bat is thought to be the natural host of SARS-CoV2 (genome size:29.9kb) because of 96.2% similarity with Bat CoVRaTG13 and similar residue of receptor showing more possibility of alternative intermediate host(turtle/pangolin/snake).

COVID-19 genome shows 79.5% identity with SARS-CoV especially with S-glycoprotein and receptor binding domain (RBD).
It binds to cell by ACE-2 (Angiotensin-converting enzyme 2) present on the surface of lung alveolar epithelial cells and enterocytes of small intestine via S-glycoprotein.

- **Genome of SARS-CoV2**

Contains variable number of ORF(6-11).Starting portion of the genome mainly responsible for synthesizing 16 non-structural proteins (NSP) and polyprotein pp1a ,pp1b.•Last portion of genome (1/3) sequence structural proteins -, small envelope (E) protein, matrix (M) protein, and nucleocapsid (N) protein , spike (S) glycoprotein and also several accessory proteins, that may interfere with the host innate immune response.
Incubation Period: 1-14 Days (mostly 3-7 days)
Mortality Rate: 3.4%
Reproduction Number: 1.4 - 6.5

- **ANTIVIRAL TREATMENTS**

1) Remdesivir (GS-5734)
•1'-cyano substituted adenosine nucleotide analog prodrug
•It could interfere with NSP-12 polymerase even in setting of intact Exon proofreading activity.
2) Chloroquine
•Inhibit pH dependent steps of replication of several viruses.
•Suppress the production of TNF-alpha and IL-6.
•Inhibit Autophagy interfering with viral infection and replication.

- **Immunity and COVID-19**

Coronavirus, the global pandemic, is continuously threatening the society. Along with the country level preventions and precautions, we can also follow some routine measure to cope up with this harsh situation. Obviously we have to follow the standard hygiene measures like washing hands , wearing masks and maintaining distance in public areas but the most I
mportant thing is to make our immune system strong enough to defeat this virus .At this particular moment , we can only survive when our body is strong enough to fight with this virus and the protective shell of our body is the immune system. Here We have mentioned the food and supplements that can help in boosting the immune system:
VITAMIN-C: It is an antioxidant and protect our body cells from free radicals.
VITAMIN-D: It has protective effect against respiratory tract infections.
ZINC: Zinc deficiency makes us more prone to infectious diseases. Source includes legumes, dairy products, seeds etc.
Protein and fibre rich diet.
TURMERIC [curcumin] and GARLIC boost the immune system.

- **Covid-19 and Mental health**

Infringe on personal freedom, financial losses and shortage of essential commodities contribute to widespread emotional distress and increased risk for psychiatric illness associated with Covid-19. While there is no doubt that COVID-19 is causing significant stress, we won't grasp the long-term mental health effects until we conduct future research. At the same time, and because of this pandemic, we see a positive impact on the way we consider mental health and how the healthcare system operates. The daily news coverages forefront the issue of mental health and wellness. The importance of emotional well-being is normalized by this crisis.

A Significant Discovery against Blood borne Hepatitis
(A joint Nobel discovery by Alter, Houghton and Rice)

PRABHLEEN KAUR (Zoology, DU)

A worldwide menace – Hepatitis

Hepatitis (liver inflammation in Greek) is hepatic inflammation which generally arises due to viral infection. The disease is caused by variety of hepatotropic viruses. The disease is categorised into distinct types like A, B, C, D and E on the basis of route of transmission, agent, incubation period and various other parameters of infection.

Hepatitis C Virus

The discovered Hepatitis C Virus is a novel RNA virus which belongs to *Flavivirus* family. This is a blood borne pathogen which infects the host through blood transfusions, shared syringes and sexual practices associated with exposure to blood and leads to hepatitis.

2020 Medicine Laureates'

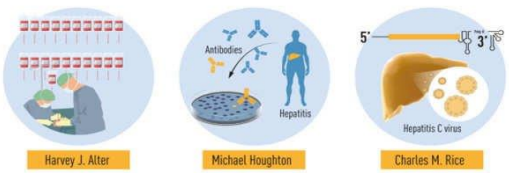
Harvey J. Alter: American virologist, former chief of the infectious disease section, known for Hepatitis C

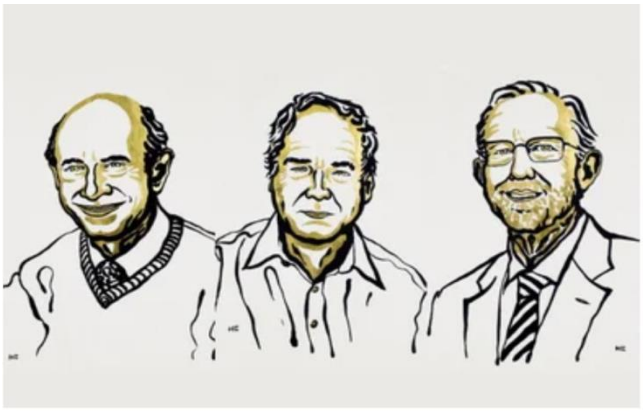
Michael Houghton: British scientist who already discovered genome of Hepatitis D with his team

Charles M. Rice: American virologist is a fellow of American Association for the Advancement of Science involved in establishment *of flaviviruses.*

Summary of the discoveries awarded by this year's nobel prize in medicine for Hepatitis C Virus

(Image Cortesy: www.nobelprize.org)





Harvey J. Alter, Michael Houghton, Charles M. Rice. Credit: Ill. Niklas Elmehed, © Nobel Media

Work of 2020 Medicine Laureates'

Harvey J. Alter conducted numerous methodological examinations which provided evidence that an unknown virus was a cause of blood-borne Hepatitis. **Michael Houghton** employed important methods for genome isolation from a new virus that was termed as Hepatitis C virus. **Charles M. Rice** contributed the concluding evidence that the discovered Hepatitis C Virus could alone cause Hepatitis.

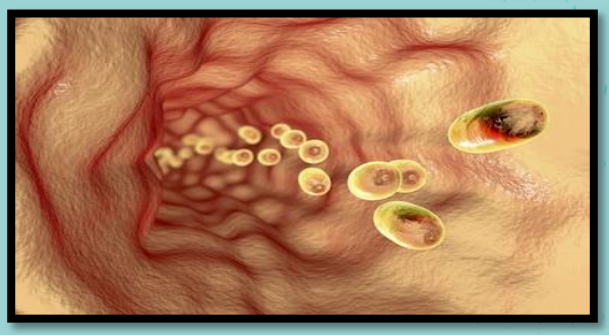
Why is this Nobel discovery?

Blood-borne Hepatitis has been a worldwide menace to human health. The discovery of HCV has made it easy to model and create exceptionally sensitive tests to detect blood-borne hepatitis C. This in turn has bestowed ease to the scientists to speedily develop drugs against HCV and is hence contemplated to save millions of lives. Also the type of technique in molecular biology to detect the virus is altogether employed for the first time and is anticipated to put an end of post-transfusion hepatitis in the world.

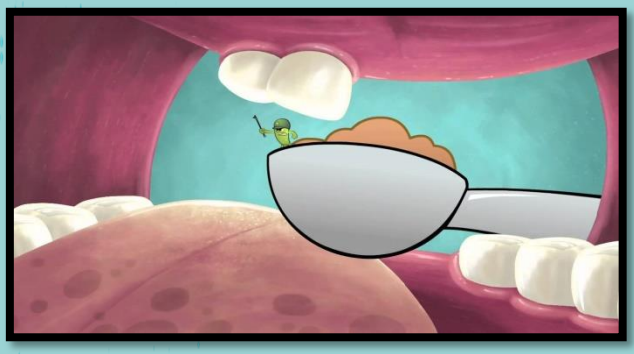
Travel blog
Unforgettable Alimentary Canal Travel.
Visit to the Oral Cavity

ANUSHKA DAYAL, MIRANDA HOUSE, DU

The journey begins with the visit to the oral cavity, a striking tunnel like passage decorated with spectacular dentine crowns adding to the grandeur of buccal architecture with splendid flush colored spongy deck with a gong hanging from the fleshy soft palate of the tunnel more popularly known as 'Uvula' at one end of it. Before continuing with the journey, one would rather like to hire a conveyance, more commonly known as Bolus in vernacular language. Before the ride begins, don't forget to buy a ride ticket and a pass at the epiglottis border, otherwise you may end up in the city of alveolus.



Remember, while you cross the toll, do not forget to wear your glasses, and adhere to your conveyance because in no time you will find yourself free-falling into the splashing pool of Hydrochloric acid, not kidding.



A Bumpy ride through the National Highway 'Esophagus'

Don't forget to fasten your seat belts because it is going to be a very choppy ride. And people with sea sickness dare not take this route for they will have to move through the waves of peristalsis. National Highway 'Esophagus' is a complicated affair, throughout its path, it is embedded with glitzy engineering material called 'stratified squamous epithelium'. It won't take much to reach the next destination spot, because this route is approximately 25 centimeters long. After crossing the National Highway, you will come across one of its kind toll pass known as the 'Esophageal sphincter'.

The City of breadbasket

- This is a magnificent place to visit. When you will examine the satellite images of the city, you may find the peculiarity of the city, it has a J-shaped geometry. It is surrounded on its all the sides by a layered wall structure composed of very high-tech materials, specifically known as ‘mucosa’, ‘submucosa’, ‘muscularis’ and ‘serosa’. Basically, these layers are also a part of the National highway as well. Look around and you will find loads of factories puffing smoke and clattering machine sounds. Use your binoculars and find a factory named ‘Neck Cells’ with its franchise all over the place producing slimy products called ‘Mucus’ and then there are some which have excelled in carpentry and are modifying the travel vehicles, which is indeed a necessity to travel further. Therefore, my gentle travelers, you will need to change your gear and hop upon brand new vehicles, either ‘monoglycerides Benz’, ‘Classic Dextrins’, ‘motor peptides’ or a ‘phantom fatty acid’. Enjoy as much as you can, because once you leave the city through another toll pass called ‘Pyloric Sphincter’, you may have to face the traffic rush because the next route known as the ‘duodenum’ (property of the kingdom of intus), is always traffic loaded with those extravagant automobiles.

The zigzagging intus

- The kingdom of intus, more commonly known as the ‘intestines’ in late middle English is a flourishing kingdom, quite active in the trade of import from the adjacent province of ‘Gall Bladder’ and ‘Pancreas’. Pancreas import exotic, patented chemicals like ‘trypsin’, ‘pancreatic amylase’, ‘chymotrypsin’, etc. Gall Bladder imports its patent chemical called ‘bile juice’. The kingdom is established in the form of tube or tunnel and is very twisty with lots of turns and bends. The kingdom is divided into large and small intestine. Large intestine is 1.5 meters long and small intestine is 6-7 meters long approximately. The walls that surround the small intestine have finger-like projections called ‘villi’ which are known to be the secret gateways to the ‘land of ichor’ or one can say, to the blood-bathed city. Now comes the end of the tour, those who want to visit the ‘land of ichor’ will have to change their transport and rent ‘flamboyant amino acids’, ‘TATA glucose’, etc., to continue their journey. Rest will have to visit the large intestine and travel in a chartered automobile fashionably known as feces. Hold tight and get ready for a roller coaster ride involving haustral churning and mass peristalsis. Be ready with your tickets to show them up at the exit gate ‘rectum’ and as soon as you will show them up, you will be permitted to exit finally from the voluntary external Anal Sphincter. And there you are, out of the palatial alimentary canal.
- Phew!! That was a hectic travel, nevertheless it was great too. Hopes to visit this splendid alimentary canal again.

Peep into the Deep Thoughts...

- **My responsibilities towards science are** not to misuse its resources and technology. - Jahnavi Mishra, Atal Bihari Bajpayee Institute of Food Technology, Bundelkhand University, Jhansi
- **My responsibilities towards science are** producing my thoughts into a practical vision to create a meaningful resource for the betterment of human civilization. - Shantanu Shrivastava, Department of Microbiology, Bundelkhand University, Jhansi
- **My responsibilities towards science are** the appropriate applications of scientific methods. - Supriya Singh, Science Faculty, Allahabad University, Prayagraj
- **My responsibilities towards science are** to acquire knowledge from it and apply it on our sorroundings for better results and fulfill the needs in an easy way without disturbances. - Saloni Dubey, Department of Biotechnology, Bundelkhand University, Jhansi
- **My responsibilities towards science are** having a moral obligation, first to be good citizens, second to be good scholars, and third to be good scientists. - Anjali Singh, M.Sc., Institute of Biomedical Sciences, Bundelkhand University, Jhansi
- **My responsibilities towards science are** to use its principles for the benefit of society and for the welfare of living creatures. – Megha Aggarwal, Dr. APJ Abdul Kalam Institute of Forensic Sciences, Bundelkhand University, Jhansi
- **My responsibilities towards science are** to do good things with my abilities. – Kanika Kansal, Institute of Mechanical Engineering, Bundelkhand University, Jhansi
- **My responsibilities towards science are** in many ways to see new world. – Alka Tripathi, Food Technology, Atal Bihari Bajpayee Institute of Food Technology, Bundelkhand University, Jhansi
- **My responsibilities towards science are** to do appropriate use of medicinal plants and research on it to contribute in the progress of science. - Anurpa Tomar, Institute of Basic Sciences, BU, Jhansi
- **My responsibilities towards science are** to generate new ideas in the human mind to make life easy. - Shalu Patel, Institute of Biomedical Sciences, BU, Jhansi

Befragen
A Scientist Column

Dr. Pranav Kumar Prabhakar
Associate Professor, School of Allied Medical Sciences
Lovely Professional University, Phagwara, Punjab, India

- Dr Pranav Kumar Prabhakar has received his PhD in Biotechnology from Indian Institute of Technology (IIT) Madras, India during the period of 2011 and he has completed his master in biochemistry from Patna University Bihar, India in 2003.
- Currently, he is working as Assistant Professor in Lovely Professional University Punjab, India. Dr. Prabhakar has excellent track record in Teaching, and Research for undergraduate and postgraduate students. Until now, he has currently guided 27 M.Sc and more than 40 B.Sc students.
- He is also guiding 6 doctorate students at present.
- He has also served various committee Members of Department of Medical Laboratory Sciences as well as University level.
- He has successfully completed his Administrative responsibilities as research coordinator of the school.
- His research has included synergy, Phytomedicine, metabolic disorders.
- He is serving as an editorial member of several reputed journals like Bioinfo-Drug Targets, Journal of Pharmacy and Phytotherapeutics, Asian journal of Phytomedicine and clinical research, Journal of Applied Pharmaceutics & expert Reviewers for journals like Biofouling (Taylor & Fransis), Phytomedicine (Elsevier), Colloids and Surfaces B: Biointerfaces (Elsevier), Journal of Applied Polymer Science (Wiley), Advances in Pharmacological Sciences (Hindawi), Journal of Microbial & Biochemical Technology (Omics).
- He have authored 40+ research articles, 2 books, and 9 book chapters.
- He is the life and regular member of various professional societies across the globe.
- He is a member of Royal Society of Chemistry and Asia-Pacific Chemical, Biological & Environmental Engineering Society (APCBEES).

Q.1. Some important points, which focuses on choosing the career in Life sciences.

Ans: The scientific study of living organisms related to their origin, evolution and biological traits is Life Sciences. Choosing a career just to live up to the parent's expectation is the most common decision taking by students at an early stage, which they tend to regret later. Life science is a broad subject which includes biology, zoology, botany, biotechnology, genetics, biochemistry, microbiology, ecology, genetic engineering and the list is continuously growing. Any candidate who have passion for these subjects can choose life science or any of these sub areas as their dream destination. It requires skilled academic qualifications and knowledge. Currently a lot of jobs opportunity are available in both government and private sectors. The jobs in the government research organizations are considered as one of the very highly prestigious job. The career opportunities are directly and completely based upon the academic knowledge and experience.

Q.2. What are the aspects to choose a career as a researcher?

Ans: Career selection is an important stage in a student's life. The career selection process affects many other decisions in the life of students which they take on the basis of their career goal. Student's selection of a subject, the institute and university, the industry and the job profile need to be according to the chooses in their life. These days students are getting confused to choose their right career path even after completed their graduation. Students does not have a clear information about the degree they have and the area they can choose as their career. A wrong decision in the career selection increases the burden not only on the students but also on their parents both mentally as well as financially. Every time when a student's career vision oscillates it calls for unnecessary expenditure. Many numbers of students spend their most precious time to getting a clear picture over the career selection. A lot of students change their subjects many times even after completed of their courses and later they end their career on very different subject.

The potential of the students is one of the most important factors in the selection of the right career for right candidate. Not many students are able to choose right subject according to their potential. When we select our career on the basis of students potential and student's choice, there is better chance to get flourish in the career become successful. Generally, we select a profession on the basis of its potential to get me earning not on the basis of students potential and choice. Providing a good placement options to students by the alma mater is a very big driving force in choosing the concerned subject as career.

Q.3. What are the important parameters, one should follow in bachelor's and master's degrees?

Ans: One of the most important parameters every undergraduate, graduate and postgraduate student to learn basics of your subject you study. Once students will understand the basic it will help them throughout their career and able to analyze effectively. When they are going to perform a practical/experiments, students should focus on the mechanism and the analysis interpretation of result.

Q.4. What are various hidden golden opportunities for life science students?

Ans: There are a number of golden opportunities for life science candidates in various fields. Some of these job profiles are:

Biochemist: Biochemists study the chemistry of life. Biochemist investigate molecular basis of life in terms of biomolecules and their significance in the life processes. They involve in the researches and developing new products and processes to benefit a wide range of areas, including food processing, pharmaceuticals, health care and agriculture.

Biotechnologist: Biotechnologists combine biology, the science of living things, with technology. They research and develop the use of biology to solve problems in areas such as health care, the pharmaceutical and chemical industries, agriculture, food production and environmental protection.

Microbiologist: The main work or microbiologist to study microbes in better understanding of their life process, biochemistry, and used their information for the development in vaccine development or drug development. Microbiologists uses their academic and expertise to various issues in many areas like agricultural science, environmental science, food technology, healthcare sector, pharmaceutical industries etc.

Biomedical Scientist: Biomedical scientists examine medical samples, for example, of blood and tissue, helping doctors to diagnose and treat diseases. They use their knowledge and their test results to advise and support doctors and other medical staff. Biomedical scientists need an detailed knowledge in the field of human anatomy and physiology, pathology, immunology and other biology related area.

Computational Biologist: The job of computational biologists is to develop a theoretical process, modelling and computational simulation-based methodologies for the uses of data generated during laboratory processes. These developed methodologies helps in the understanding of biological, microbiological, and social systems. This are including many sub area of biological and biomedical sciences.

Clinical Research Associate: Clinical research associates organize and run trials to test the safety of new medicines and to see if they work well. The main job clinical research associates is to plan and set the lab and laboratory procedures for the clinical trials and also monitoring the generated data validation.

Industrial Pharmacist: Industrial pharmacist is associated with many stages of the industrial production of pharma products like clinical research, drug designing and development, various phages of clinical trials, quality control and quality management, legal issues related to the pharma product.

Research Assistant: A research assistant is a temporary employed researcher by an organization/ institute just to assist them in their research work. Most of the cases research assistants are not have freedom to work independently and they are also not responsible for any kind of research outcome during their experiments.

Bioinformatician: Bioinformatics is an interdisciplinary field that develops methods and software tools for understanding biological data. Bioinformatics is an interdisciplinary field which connect biology, computation science, statistics and engineering to evaluate and analyses the genomic data.

Controlled vocabulary

Baudoinia compniacensis (बौडोइनिया कॉम्पेंसेन्सिस)
Angel's share fungus

Sac fungus found in the environment with sufficient alcohol vapors like in distilleries, spirits maturation facilities, bonded warehouses, cellars and bakeries thus also called whiskey fungus. It is a prey for invertebrates such as snails.

Blepharisma japonicum (ब्लेफेरिज्म जपोनिकम)
Shy protist

Cannibalistic protozoan spp. sensitive to light found either in water or soil; native to Japan; light red to pink in color under microscope due to pigments located on inside of the cell membrane having a defensive role

Botrytis cinerea (बोट्रीटिस सिनेरिया)
Noble rot

Necrotrophic fungus that thrives in cool, dry and moist places affecting many plant species, like wine grapes etc. and grows into hyphae (mycelium); it is known to produce white wine and in viticulture, is commonly known as "botrytis bunch rot" and in horticulture, it is called as "grey mould" or "gray mold".

Hypholoma fasciculare (हाइफ़ोलोमा फ़ासीकलर)
Sulphur tuft

Common woodland mushroom; bitter and poisonous that lives on dead plant material and cleans autumn leaves and dead wood matter. It forms mushroom from the mycelium that forms large clumps and spread spores while reproduction.

Microbe & wellness

Escherichia coli (E.coli)

Not really that bad

Escherichia coli, most commonly occurs naturally in the intestines of people and animals. Even though E. coli has a bad name, this bacterium is very useful to mankind. In the large intestine, it involves in the prevention of the uncontrolled growth of various harmful bacteria.

The bacterium *E. coli* was first discovered by **Theodor Escherich**, a German bacteriologist in 1885.

HABITUS

Domain : Bacteria
Phylum : Proteobacteria
Class : Gammaproteobacteria
Order : Enterobacterales
Family : Enterobacteriaceae
Genus : Escherichia
Species : E.coli

E. coli is generally gram- negative, facultative anaerobes, rod-shaped, coliform bacteria.

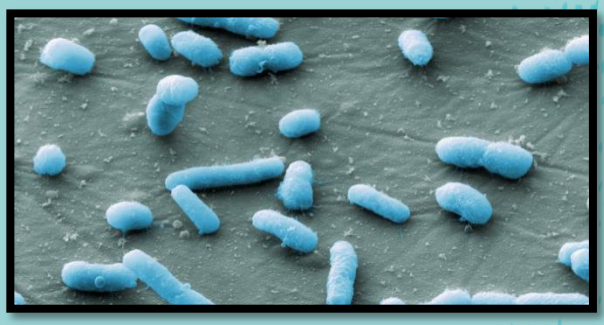
Beneficial intestinal bacterium.

E. coli is one of the most well-known intestinal bacterium. In popular terms, it is even known as the '**poo bacterium'**. When *E. coli* locates in human large intestines, it can help in digestion processes, vitamin K production, and food breakdown and absorption.

E. coli as a model species

E. coli is most frequently used as a model organism in microbiological studies. Since 1927, various harmless type of E. coli has been used or employed in various types of research. One advantage of E. coli is that it divides rapidly. As a result, many generations can be cultured in a short period of time. Furthermore, its genome is composed of relatively simple genes, and has been fully mapped. All of these makes this organism highly suitable for the purposes of science.

Many studies are also being performed attempting to program *E. coli* to solve complicated mathematical problems, such as the Hamiltonian path problem.



In other studies, non-pathogenic *E. coli* has been used as a model microorganism in understanding the effects of simulated microgravity (on Earth) on the same.

E. coli bacteria engineered to eat Carbon Dioxide.

E. coli is on diet, Researchers have engineered *Escherichia coli* bacteria to grow by taking in carbon dioxide. The achievement is a milestone, say scientists, because it drastically affects the inner workings of one of biology's most popular model organisms. And in the future, CO_2-eating *E. coli* could be used as biofuels or to produce food, by making organic carbon molecules from this bacterium.

E.coli as Pathogen

Most E.coli strains are generally harmless, but some of them can cause serious food poisoning. Severe foodborne disease is caused by various **shiga toxin- produced by E.coli(STEC)**. Primary sources of STEC outbreaks are, raw milk, raw or undercooked ground meat products and faecal contamination of vegetables. One of the main cause of urinary tract infections is Uropathogenic *E. coli* (UPEC) bacterium and traveler's diarrhea, is caused by Enterotoxigenic *E. coli* (ETEC).*li* Consume Carbon Dioxide

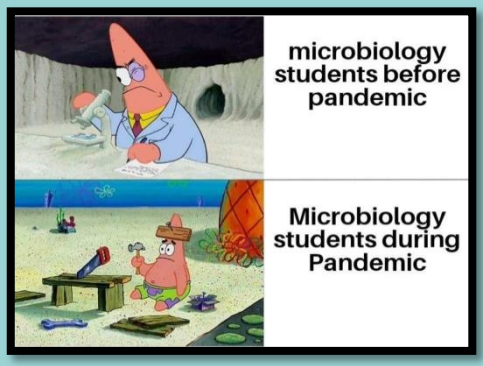
G.E.R.M.S Column

Meme-o-Mania Winners

Harshita Panchal

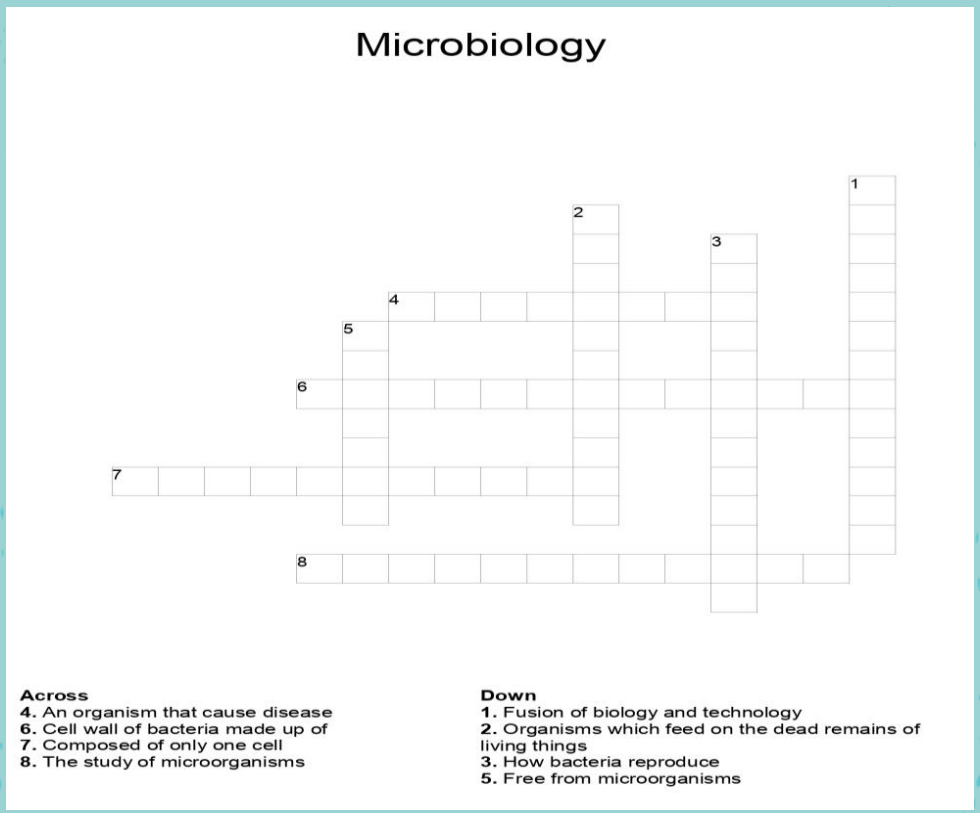
Rimmi

Sahil Raina



Sikhar Tyagi

Microbiology Word search



Submit your Answers at info@microscopiaiwm.com

Crash blossom

You won't imagine, The thing you call dust at your home is actually dead skin. You shed approximately 600,000 particles of skin /hour.

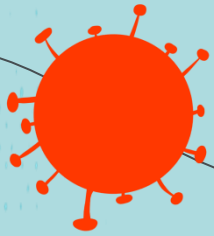
If you think your weight is just due to the bones, muscles and the calories you intake!!Then just remember 15% of your weight is just of your skin.

Try this!!
Measure yourself at night and in the morning. Don't be shocked by the fact that you are taller in the morning; it is just because of your cartilage in bones which is compressed during the day.
Thanks a lot, gravity!

Before your Eye lash falls out it lasts for about 150 days.
AMAZING ISN'T IT!!!

U will be amazed to know that there are more bacteria in your body than cells. So if you are sad or happy just remember it is the bacteria that is controlling your mood. So kick out the bad bacteria to feel good by adopting a good routine.

Listening to music cheers u up.
AM I RIGHT?
It is just due to the fact that your heartbeat sync with the rhythm.



Do u know that diamonds are thought to be made from dead bacteria beside carbon.

Shutterbug Column

A broken canvas by Shantanu Shrivastava, Department of Microbiology, BU, Jhansi

Aragog in the making by Shreya Baranwal, Institute of Biomedical Sciences, BU, Jhansi

Bottlebrush scarlet hues by Palak Agrawal, Institute of Biomedical Sciences, BU, Jhansi

Corona-de-Cristo by Anurpa Tomar, Institute of Basic Sciences, BU, Jhansi

Macro world creature by Kartikey Mishra, Atal Bihari Bajpayee Institute of Food Technology, BU, Jhansi

New light and joy- Damselfly by Jeeshan Khan, Institute of Biomedical Sciences, BU, Jhansi

The loyal companion by Pushpendra Kumar, Institute of Biomedical Sciences, BU, Jhansi

Unfolding the wings by Shalu Patel, Institute of Biomedical Sciences, BU, Jhansi

Submit your entries for shutterbug column at info@microscopiaiwm.com

When Science meets Zentangle

GUNJAN GOYAL, MIRANDA HOUSE, DU

Drosophila melanogaster, commonly known as the Fruit Fly. It is the same tiny fly which we often see roaming around our banana peel.

Some interesting facts about Drosophila:

1) it has 75% of its diseased genes homologous to humans, which makes it an excellent model to study human diseases.

2) it has a life cycle of 12 days (imagine growing up into an adult in just 12 days).

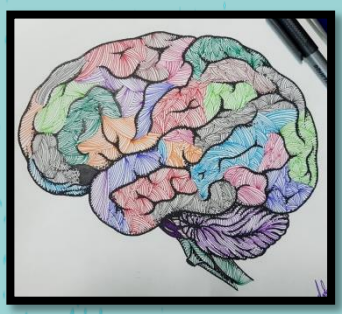
3)it can mimic humans in so many ways.

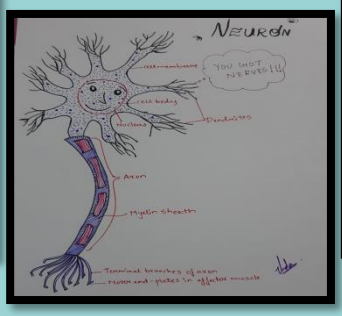
4) it is easy to culture, just some sugar and yeast diet, you can even grow its culture at your home.

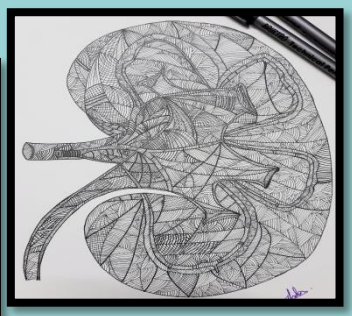
5) it has already won 7 Nobel prizes. The maximum any model organism has got. And it is still mysterious, there is so much more to explore about this tiny creature.

Drosophila is truly incredible.

Science Illustrations by Vrinda Nair







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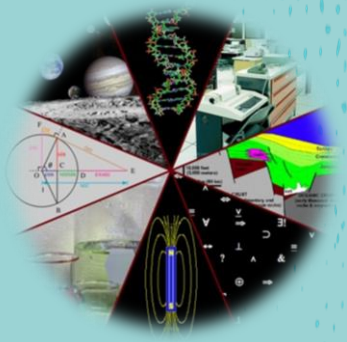
Newsletter



❑ **Discoveries reshape understanding of gut microbiome**.

Summary- New findings could lead to new therapies for IBD and people who've had portions of their bowels removed due to conditions like colon cancer and ulcerative colitis.

Source- Oklahoma Medical Research Foundation, https://www.sciencedaily.com

❑ **Finally, a way to see molecules 'wobble'**

Summary- Researchers have found a way to visualize those molecules in even greater detail, showing their position and orientation in 3D, and even how they wobble and oscillate. This could shed invaluable insights into the biological processes involved, for example, when a cell and the proteins that regulate
its functions react to a COVID-19 virus.

Sources- University of Rochester, https://www.sciencedaily.com

❑ **Natural killer cells also have a memory function**

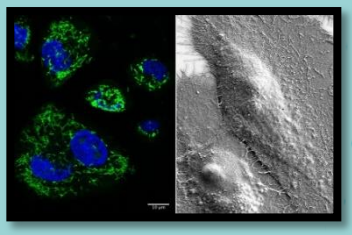
Summary- One third of the cytotoxic killer cells in the liver as a potential therapeutic target. Human immune system has a good : researchers have managed to ascribe an immunological memory function to a subset of cytotoxic NK cells, which have hitherto been regarded as antigen-non-specific. **Sources- Medical University of Vienna.**

❑ **Mass elephants die- off caused by cyanobacteria**.

Summary- Tests point to a toxic algal bloom that might have led to the unprecedented deaths of hundreds of African elephants in Botswana earlier this year, but the evidence isn't conclusive.

Source-- https://www.the-scientist.com

❑ **Cheese Preservative Slows Oral Cancer Spread in Mice: Study**



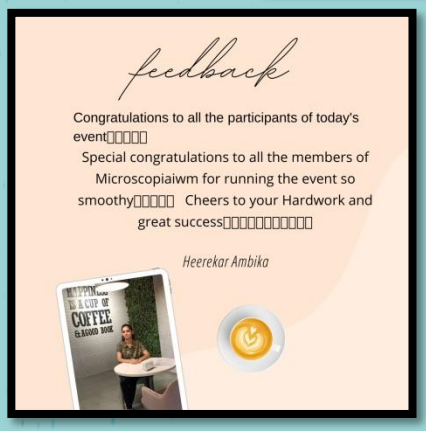
Summary- In the last few decades, scientists have identified more than a dozen pathogens—from human papillomavirus to *Helicobacter pylori*—that contribute to the progression of cancers. In a study published (October 1) in *PLOS Pathogens*, researchers demonstrate the mechanism by which three oral bacteria found in cells of the gums promote oral squamous cell carcinoma (OSCC) tumor development and progression in mice. And they show that a bacteriocin, an antimicrobial peptide that bacteria produce, counters the effects of the oral bacteria and slows tumor growth.

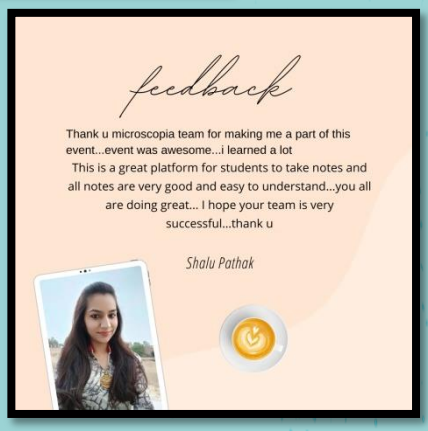
Sources- allan radaic and lea sedghi, university of california, san francisco, https://www.the-scientist.com

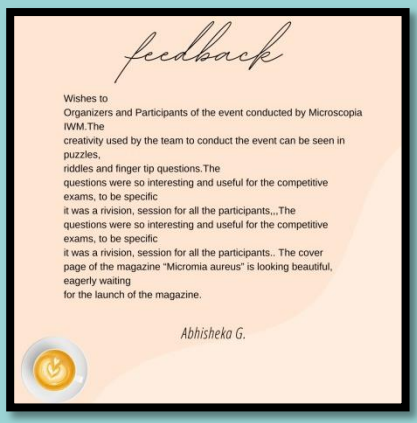
MSIWM EVENT (OCT 2020)

Thank you everyone for making this event a grand success.

For future events and competitions visit www.microscopiaiwm.com







Volunteers at MicroScopia IWM

"Coming together is a beginning. Keeping together is progress. Working together is success." --Henry Ford

Campus ambassadors & Promoters

- VAISHNAVI NARAYAN KUBER
- SHALINI.C
- SNEHLATA
- KOMAL RADHELAL KUSHWAH
- E.PRIYADHARSHINI
- KAJAL
- MITALI MILIND PATHARE
- PAVITHRA. R
- B.PRIYA DHARSHINI
- NITHYA SRI.K
- KUNTI GOPE
- SOWMYA NARESH
- ANMOL KARMAKAR
- JAYASHREE
- DHARANISHREE
- SHIVANGI SRIVASTAVA
- RAJESHWARI SINHA
- LAIBA ARSHI

Content Creators

- RAHUL ANDHARIA
- ARCHANA PRIYADARSHINI JENA
- ABHISHEK GOWDA
- SAI MANOGNA KOTAKADI
- SHREELAKSHMI

We've had an incredible response so far, and are doing everything we can to respond to everyone who wants to become a member in one of our community services. Join us in this exciting journey. Fill the form at www.microscopiaiwm.com and we will get back to you so soon.

LIFE SCIENCE JOBS

SOURCES-
https://www.biotecnika.org, https://gold.jgi-psf.org

- **ICMR-National AIDS Research Institute As. Recruitment – Apply Online**

Applications are invited from the eligible candidates through online mode on ICMR: NARI Website https://www.nari-icmr.res.in/nari/career for the following posts by 5th November 2020.
Advertisement No. NARI/Buccal Swab/2020-21/
Name of the Post: Research Assistant (Lab)
No. of Post: 01

- **ICAR-IVRI Research Fellow Recruitment – Diagnostic Assay Development Project**

WALK-IN / ONLINE INTERVIEW FOR JUNIOR RESEARCH FELLOW (ONE)
Post: Junior Research Fellow (JRF)
No. of Posts: 01
Project name : "Development of early pregnancy diagnostic assay through discovery of biomarkers in cattle and buffalo"
Duration: Likely date of completion is May- 2021
Age limitation: Maximum 30 years for male candidates and 35 years for female candidates as on date of interview. Age relaxation to SC/ST/OBC/Women candidate(s) will be as per the GoI norms.
How to Apply:
Eligible candidates fulfilling essential qualifications needed to send out an advanced application in addition to Curriculum Vitae consisting of permanent address, e-mail and contact number coloured passport size photo as well as an attested copy of other relevant documents (certificates, publications etc), to Dr Sanjay Kumar Singh, Principal Scientist & Principal Investigator, DBT Project, Division of Animal Reproduction, ICAR-Indian Veterinary Research Institute, Izatnagar, 243 122 [UP] for eligibility. Email Id: singhsk2032@rediffmail.com; singhsanjayk69@gmail.com.
Eligible shortlisted candidates will certainly be informed as well as called for interview Online or walk-in. No TA/DA will be provided for attending the interview.
Date, Time & Venue of Interview: 03 -11-2020 at 11.00 AM at Committee Room, Division of Animal Reproduction ICAR-Indian Veterinary Research Institute, Izatnagar, 243 122 [UP]

- **Company: IQVIA**

Department: Clinical Research
Location: Mumbai, Bangalore, Delhi
Role: Associate
Qualification: Life science graduate.
Experience: 02-04 years
Key skills:
Candidate must have on site clinical trial Experience.
Have a good verbal communication
Email: nishant.lal@iqvia.com

- **Company: Alkem Laboratories**

Location: Taloja, Navi Mumbai
Department: Quality Assurance- Clinical
Qualification: M.Pharm, B.Pharm, M.Sc
Experience: 02-04 years
Email: poonam.kadam@alkem.com

Webinars & Conferences

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Live @ 12 noon on 18 Nov, don't miss this exciting discussion, and have your questions for our panel!
Register today at: https://t.co/05YoRAQJjb

Want to be a part?

Greetings people!

Great opportunity awaits all the readers and writers. Get your write ups published.

Microscopia IWM is pleased to announce the call for Life sciences related articles, research assays, digital content and other plagiarism free content(messages, quotes, slogans, jokes, comic strips, fun-facts etc.) for the Second volume of its very own E-Magazine "MicroMia Aureus".

“A word after a word after a word is power.”
- Margaret Atwood

Deadline for submission of entries : 21st Noveber’20 (11:59 pm)
Format: Editable word file
Email at: info@microscopiaiwm.com
Email subject: Article Submission October 2020
Other details to be mentioned in the mail body: Name, College, Photograph, University and Contact number

For further details:
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