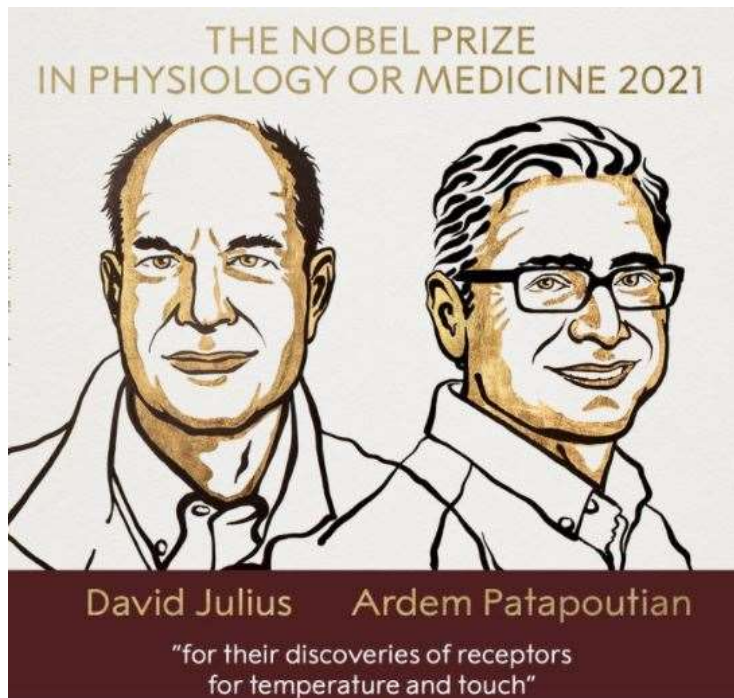


# SAAP Bulletin

The newsletter of the South Asian Association of Physiologists

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*Advances in Physiology have once again been recognized for the Nobel Prize in Physiology or Medicine for the year 2021.*

*The prize went to Professor David Julius of the University of California, San Francisco, and Professor Ardem Patapoutian of Howard Hughes Medical Institute - Scripps Research in California.*

*Professor Julius utilised capsaicin, a pungent compound from chili peppers that induces a burning sensation, to identify a sensor in the nerve endings of the skin that responds to heat. Professor Patapoutian used pressure-sensitive cells to discover a novel class of sensors that respond to mechanical stimuli in the skin and internal organs.*

*Congratulation!!*

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## From Editor's Desk



**Professor Piyusha Atapattu**

This week brought good news for physiologists amidst the pandemic. The Nobel Prize in Physiology or Medicine for the year 2021 has been awarded to two neurophysiologists on their work on sensory perception of touch and temperature.

The prize went to Professor David Julius of the University of California, San Francisco, and Professor Ardem Patapoutian of Howard Hughes Medical Institute - Scripps Research in California. They have contributed to bridging the gaps in conversion of temperature and mechanical stimuli into electrical impulses in the nervous system.

Professor David Julius used capsaicin to identify TRPV1, an ion channel activated by painful heat. This was a major breakthrough leading to the unravelling of additional temperature-sensing receptors. Both Professors Julius and Patapoutian used menthol to identify TRPM8, a receptor activated by cold. Additional ion channels related to TRPV1 and TRPM8 were identified and found to be activated by a range of different temperatures.

Professor Patapoutian used cultured mechanosensitive cells to identify Piezo1, an ion channel activated by mechanical force. Discovery of a second ion channel Piezo2 followed. Piezo2 is essential for the sense of touch and play a key role in proprioception. In further work, Piezo1 and Piezo2 channels have been shown to regulate blood pressure, respiration and urinary bladder control.

These findings are likely to open up exciting new research opportunities into neurophysiology, and further discoveries on sensory transmission. We congratulate the Nobel Laureates and with them all the very best.

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# Feature article: Fighting COVID in Our Own Way: Teaching –Learning Experience during COVID 19 Pandemic



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Time stood still when world Health Organization (WHO) declared COVID 19 as a global devastating pandemic in March 2020 and like any other country around the world Bangladesh also opted for some rigid regulation like closure of educational institutions just to prevent spread of the deadly disease. However to ensure continued medical education amid the COVID crisis the medical institutions had to adopt on line mode of teaching as the University Grants Commission (UGC) of Bangladesh allowed public and private universities to take on line classes for continuing educational activities<sup>1,2</sup>.

This on-line teaching-learning method can be termed as “panacea for the crisis”; on line learning is defined as “learning experiences in synchronous or asynchronous environments using different devices (e.g., mobile phones, laptops, etc.) with internet access<sup>3</sup>.”

In these environments, students can be anywhere (independent) to learn and interact with instructors and other students<sup>4</sup>. The shift from face to face lectures to online classes seemed to be the only possible solution amidst this global crisis. Online e-

learning can be a platform that makes the process of education more student-centered, creative, and flexible<sup>3,4</sup>.

Medical colleges have implemented numerous creative strategies to combat the crisis, using various software/apps such as Google Classroom, Zoom, and Microsoft Teams to take online courses<sup>3</sup>.

Like any other medical college around the globe Armed Forces Medical college (AFMC), Dhaka also started to ensure continued medical education for its students through virtual classes. Armed Forces Medical college is basically a residential medical institution where students reside in dormitories. When the Covid 19 broke out as deadly pandemic in March 2020 the students had to go back to their residence only to comply with the Govt decision which was made to ensure safety of the students.

Teachers of all the phases of the college had to fall back on electronic teaching methods to confer uninterrupted distance teaching-learning sessions and these e-classes were the only way to motivate the students to carry on with their studies and also to prepare them for the coming professional examination. In the pre-clinical dept, the students of 2<sup>nd</sup> year were preparing for 1st Professional Exam to be held on May 2020; they actually could complete their course content by attending physical classes for about 15 months of their 18 months course. 1<sup>st</sup> year students were attending regular classes of 1<sup>st</sup> term as per MBBS curriculum set for students of 2019-2020

session and they attended face to face classes for about 3 months.

The subjects taught in this pre-clinical course are anatomy, physiology and biochemistry. So the challenge was enormous for both the students and the faculty as unlike any other discipline medical science requires face to face interaction, especially while conducting practical/demonstration classes as applied aspect of the basic science requires clear understanding, in depth perception and long-time retention of perceived information. The faculty of basic science through virtual classes started conferring the basic theoretical facts the medical students must perceive to understand the complex mechanisms that are working in integrated manner to maintain homeostasis of human body.

To overcome the time limit and to allow the access of more than 100 students at a time under the directive of Commandant, AFMC the teachers opted for latest version of Zoom portal. During the period of lock-down, imposed to prevent the spread of deadly COVID, e-classes used for distance learning seemed to be the only effective way to keep in touch with the students not just to prepare them to pass the upcoming exam but also to keep up their spirit, attain their confidence and inculcate in them the thirst to grasp the essence of structural, functional and biochemical mechanisms that enable the human body to survive by teaching anatomy, physiology and biochemistry respectively.

It is undoubtedly a difficult and complex task to accomplish as dissecting a human body in anatomy dissection room, working in an experimental physiology or biochemistry lab requires first-hand experience involving a learner's heart, head and hand. On-line classes cannot actually replace physical classrooms when the question of teaching

applied/experimental part of medical science comes but during this COVID 19 lock-down, distance learning through e-classes was the only oasis that quenched the thirst of the teachers and students and it was the only bridge that connected them.

Recently we performed a small study in the form of strengths, weaknesses, opportunities and challenges (SWOC) analysis to assess the perception of pre-clinical students regarding this on-line classes and also to identify any loop-hole that demands attention so that this teaching-learning experience during COVID pandemic may be an effective and competent one. Students of pre-clinical course participated in the survey.

The study observed that the students who have positive perception of virtual classes reside mainly urban areas (88.9%) which coincides with the study performed on public university students in Bangladesh indicating presence of insufficient digital devices and weaker network connection in rural areas<sup>1</sup>. Another study by Zalat et al revealed that insufficient/unstable internet connectivity, inadequate devices and technical problems were the biggest barriers to e-learning<sup>5</sup>. Our study also indicates that female student's (77.8%) perception towards virtual classes is more positive than that of male students and this finding is in consistence with studies by Sarkar et al and Adamus et al who reported women's preference for accepting e-learning than men's<sup>1,6</sup>The students (55.4%) also agreed that these e-classes during this pandemic provided them a great opportunity to continue with their academic pursuits and it provided a convenient platform to cope with the sluggishness created by this Covid lockdown. However 69.4% students opined that e-classes came with added expenses which coincides with the findings of a study conducted by Demuyakor et al<sup>7</sup>.

During this COVID 19 pandemic the medical teachers and students around the globe depended on distance learning through e-classes to ensure continued medical education. Identifying the limitations of these virtual classes and finding suitable solution to mend the loop –holes is the crying need of the day. Online programs should be designed in such a way that they are creative, interactive, relevant, student-centered, and group-based<sup>8</sup>. Not only during Covid era but also during regular conventional physical classes various modes of e-class rooms like smart /google classroom where a combo of audio, video and text may aid a facilitator/teacher to open up a wide world of interactive teaching –learning session which would enrich and update a medical student’s realm of understanding and motivate him/her to proceed to the path of higher study and research.

Science with its new innovations is strengthening the hand of mankind, empowering it to win over any hazard that may come in its way. During this pandemic medical teachers and students won over COVID 19 in their own way. Success story like this will repeat itself. Only time will tell the rest.

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# Physiology updates:

## Mountain Medicine: Challenges in South Asia



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### Introduction

Mountains came into being when the tectonic plates collided against each other. Like the Indian subcontinent plate collided with the central Asian ones giving births to the three giants on the planet earth known as Himalaya, Hindukush and Karakoram.

The ten peaks of the world are located in South Asia (Nepal, Pakistan, India and China). This very fact has necessitated us to highlight high altitude challenges of nature.

Rank	Mountain	Range	Country	Altitude (feet)
1	Everest	Himalaya	Nepal	29,035
2	K2 (Mount Godwin Austen)	Karakoram	Pakistan	28,250
3	Kangchenjunga	Himalaya	India/Nepal	28,169
4	Lhotse	Himalaya	Nepal/Tibet	27,940
5	Makalu	Himalaya	Nepal/Tibet	27,766
6	Cho Oyu	Himalaya	Nepal/Tibet	26,906
7	Dhaulagiri	Himalaya	Nepal	26,795
8	Manaslu	Himalaya	Nepal	26,781
9	Nanga Parbat	Himalaya	Pakistan	26,660
10	Annapurna	Himalaya	Nepal	26,545

*Table 1: The rank of range, location and altitude of top ten highest mountains of the world*



**Mount Everest (Nepal)**



**K-2 (Pakistan)**



**Kangchenjunga (India)**

## High Altitude Challenges of Nature

The environmental challenge at high altitude starts with the drop in atmospheric pressure but with no change in the inspiratory air fraction being similar to that of the sea level. However, the drop in atmospheric pressure decreases inspiratory and consequently alveolar and arterial oxygen partial pressure. It is, therefore, worthwhile studying the atmospheric, inspiratory and alveolar  $PO_2$  in dependence from the altitude. This should be in context of indifferent zone, reaction threshold, compensation zone, disorder threshold, disorder zone, critical threshold and death stage of degree of low oxygen challenges.

How would  $PO_2$  in these three compartments respond to climbing up from sea level to high altitude at 3, 5, 7 and 10 km should be investigated?

The atmospheric pressure as the trigger stimulus would drop from 760 to 500, 400, 300 and 200 mmHg respectively. The inspiratory would drop from 150 to 100, 75, 55 and 30 mmHg. Corresponding changes in alveolar  $PO_2$  from 100 to 70, 45, 35 and 18 mmHg would be observed. Since the mixed venous blood equilibrates with the alveolar  $PO_2$ , the outcome can be conjured under the light of alveolar-ventilation-perfusion ratio. The multi organ function responses of high altitude are directed to encounter mainly by the challenges of the ensuing tissue hypoxia both of acute as well as adapting nature. As the  $PO_2$  drops altitude wise from the sea level to 7 km altitude, the following responses are observed: hypoxic reaction threshold at 3 km, alteration threshold at 5 km and critical thresholds at 7 km. Interposed are indifferent, compensation and decompensating impairment zones leading to altitude death between 7 and 10 km.

## Acute Responses of High Altitude induced Hypoxemia

*Compensation Zone:* one observes increase in pulmonary ventilation during acute  $PO_2$  drop e.g. the cabin pressure fall in an airplane or rapid climbing of altitude. This response is compensated by increasing the arterial  $PO_2$ . However, it is accompanied by a drop in arterial  $PCO_2$  causing respiratory alkalosis. CVS responses are increased heart rate and blood pressure. The body performing capacity is reduced by 10 – 20%. Euphoria, indecision and the loss of sense of reality are observed at altitude above 4 km.

*Impairment Zone:* the body performing capacity is markedly reduced at the altitude between 5 and 7 km. Different symptoms are experienced depending on the given altitude and the rate of climbing. The high altitude disease includes dyspnea, tachycardia, muscle twitch, fatigue, headache, apathy, euphoria, hypotension and loss of consciousness. The critical threshold is reached when climbing above 7 km. It causes rapidly ensuing tissue hypoxia which cannot ensure the structural integrity of neuronal circuits leading to the brain death within 5 minutes.

## High Altitude Acclimatization

The human body adapts to chronic drop in atmospheric  $PO_2$  with mechanisms mainly dealing with blood. High RBC and reticulocyte counts are observed within a few days of altitude sojourn. The process of erythropoiesis, however, is completed after many months with a count of 8 Mio/uL and hemoglobin concentration of 21g/dL. This enables compensation of arterial hypoxemia to a greater extent so that oxygen content approximates to a level of 20mL/100mL blood. The increased 2, 3 DPG response of hypoxemia shifts the  $O_2$ -Dissociation curve to right wards for improved oxygen delivery.

The cost of erythropoiesis is associated with increase in hematocrit from 45 to 70% as well as blood volume. It is rather a stress on CVS with an increase in arteriolar resistance to flow. The hyperventilation response of altitude causes respiratory alkalosis. It is compensated by an increased renal compensatory secretion of bicarbonate. The muscles respond with a high density of capillaries for adaptation of certain enzymes activities e.g. CRP, LDH inter alia. All these acclimatization processes build the foundation so that humans can live and work at an altitude of 5 km with an atmospheric pressure of 400, inspiratory 75 and alveolar 45 mmHg. The genomic make up of highlanders could shape mechanisms of economy of oxygen consumption using a version of a gene called EPAS1. It regulates hemoglobin production to deliver to exercising limbs while exercising at high altitude. Of note is the fact furthermore that there is a ZERO mmHg PO<sub>2</sub> at altitude of 64000 feet close to 20 km.

The question arises how one could cross the barrier into the space even on the mythological Greeks' winged horse. It took 90 years of efforts and determination to finally climb Mt Everest in 1953, coinciding with the year of unfolding DNA structure to enter into a new era of enlightenment through science.

**Disorders related to High Altitude:**

The travelers or hikers or soldiers may experience one or combination of following disorders at high altitude provided they climb acclimated:-

- Acute mountain sickness (AMS)
- High altitude pulmonary edema (HAPE)
- High altitude pulmonary hypertension (HAPH)
- High altitude retinal hemorrhage (HARH)
- High altitude cerebral edema (HACE)
- Chronic mountain sickness (CMS)

Out of these disorders, AMS, HAPE and HACE are relatively common. Their symptoms, in brief, are given below:

AMS	HAPE	HACE
<ul style="list-style-type: none"> <li>○ Headache</li> <li>○ Dizziness</li> <li>○ Nausea</li> <li>○ Trouble breathing (when active)</li> <li>○ Weakness or fatigue</li> <li>○ Trouble sleeping</li> <li>○ Increased heart rate</li> </ul>	<ul style="list-style-type: none"> <li>○ Blue tinge to skin or lips (cyanosis)</li> <li>○ Breathing difficulty even when resting</li> <li>○ Tightness in the chest</li> <li>○ A persistent cough bringing up pink or white frothy liquid (sputum)</li> <li>○ Tiredness</li> </ul>	<ul style="list-style-type: none"> <li>○ Confusion</li> <li>○ Loss of consciousness</li> <li>○ Fever</li> <li>○ Ataxia</li> <li>○ Photophobia</li> <li>○ Rapid heart beat</li> </ul>

When one develops the symptoms of AM, HAPE and HACE, the immediate treatment is:

- Descent (sometime it is not possible due to rough weather) then use of GAMOW Bag is beneficial for 3-6 hours
- Supplement of Oxygen (under high pressure)
- Acetazolamide (Diamox)
- Supportive Therapy

We must make climbing healthy and rational to avoid disorders of high altitude. The preventive measures may include:

- Graded (gradual) ascent
- Work high and sleep low (1000 feet)
- Eat more carbohydrates
- Control anxiety
- Avoid smoking and alcohol



The following foods at high altitude are beneficial to enhance process of acclimatization:

- Bananas as a rich source of potassium
- Green vegetables
- Avocados
- Dried fruits
- Potatoes
- Tomatoes
- Avoid food rich in sodium

The following medicines may speed up the process of acclimatization if one has to ascent rapidly with little observance of acclimatization protocol. These can be used as prophylaxis. These medicines need to be taken 24-hours before ascent till the acclimatization process develops:

- Acetazolamide (Diamox) alone
- Acetazolamide with Dexamethasone
- Nifedepine

#### **De-acclimatization:**

The process of de-acclimatization may take 3 months to 3 years. The severity of symptoms is significantly related to age, time at high altitude and the altitude of lowland.

#### **Suggestion:**

The nature has evolved the top ten peaked mountains of the world in South Asia. There is a dire need to formulate a consortium or a research group on “Mountain Medicine” under the ambit of SAAP to design and execute joint research studies in the Himalayan, Hindukush and Karakorum Range. This could be thought in a productive manner as the glacier water storage is the life line for all of us to survive in times of challenges from the global warming. We need to scientifically understand the ecological system of

the Mother Earth to reason how the glacier water flows into our homes to enliven us.

#### **Books Published on High Altitude Disorders:**

This communication is adapted from the work of John Severinghausen, Sukhumi Lahiri and Jerry Dempsey with fond memories hearing their talks on the high altitude challenges of life. Lahiri expressed one gets not the second chance if one takes the wrong decision at Mt Everest compared to the life at sea level. The books on High Altitude Medicine are scarcely available. Here is the list of some of the books as a guide for those who are thirsty to gain knowledge from mountain medicine.

- Altitude Illness: Prevention & Treatment (2<sup>nd</sup> Edition) – Amazon.com
- High Altitude Illness & Wellness (1<sup>st</sup> Edition) – Amazon.com
- Problems of High Altitude Medicine and Biology – Springer (ISBN-978-1-402-6300-8)
- High Altitude Physiology and Medicine – W.Boendel: Springer
- High Altitude Cardiopulmonary Diseases – Stat Pearls – NCBI By J.Fuehoer-2020
- Ward, Milledge and West’s High Altitude Medicine – Routledge
- High Altitude Travel & Altitude Illness – Chapter 3 2020-CDC
- Management of High Altitude Pathophysiology – Science Direct-2019

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# Research article: How animal-based research tackled the COVID-19 battle



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SARS-CoV-2 of severe acute respiratory syndrome-related coronavirus species (SARSr-CoV) led to the COVID-19 devastating pandemic killing approximately 4.55 humans across the globe. It is postulated that the bats could be the probable ecological reservoir of SARS-CoV-2 and this virus acquired its zoonotic status through an intermediate animal host (1).

During the pandemics caused by viruses of same

species previously, scientists/researchers were able to understand the pathogenetic process and have created transgenic mouse models compatible to the requirement. The normal mouse is considered as a negative model for SARSr-CoV as it does not contain the receptor (*Angiotensin Converting Enzyme 2; ACE2*) for virus binding to initiate the pathogenesis (2, 3). Spike proteins of SARS-CoV-2 said to have receptor binding domains that binds with high affinity to ACE2 expressed in the cells of humans to cause symptoms of COVID-19 (1).

Pre-clinical testing on at least two species of animals is a regulatory requirement in US and European region and therefore, from the inception of COVID-19 pandemic, many laboratories across the globe (Figure 1) have initiated research work to tackle the pandemic using several different animal models. These pre-clinical studies have been conducted to understand

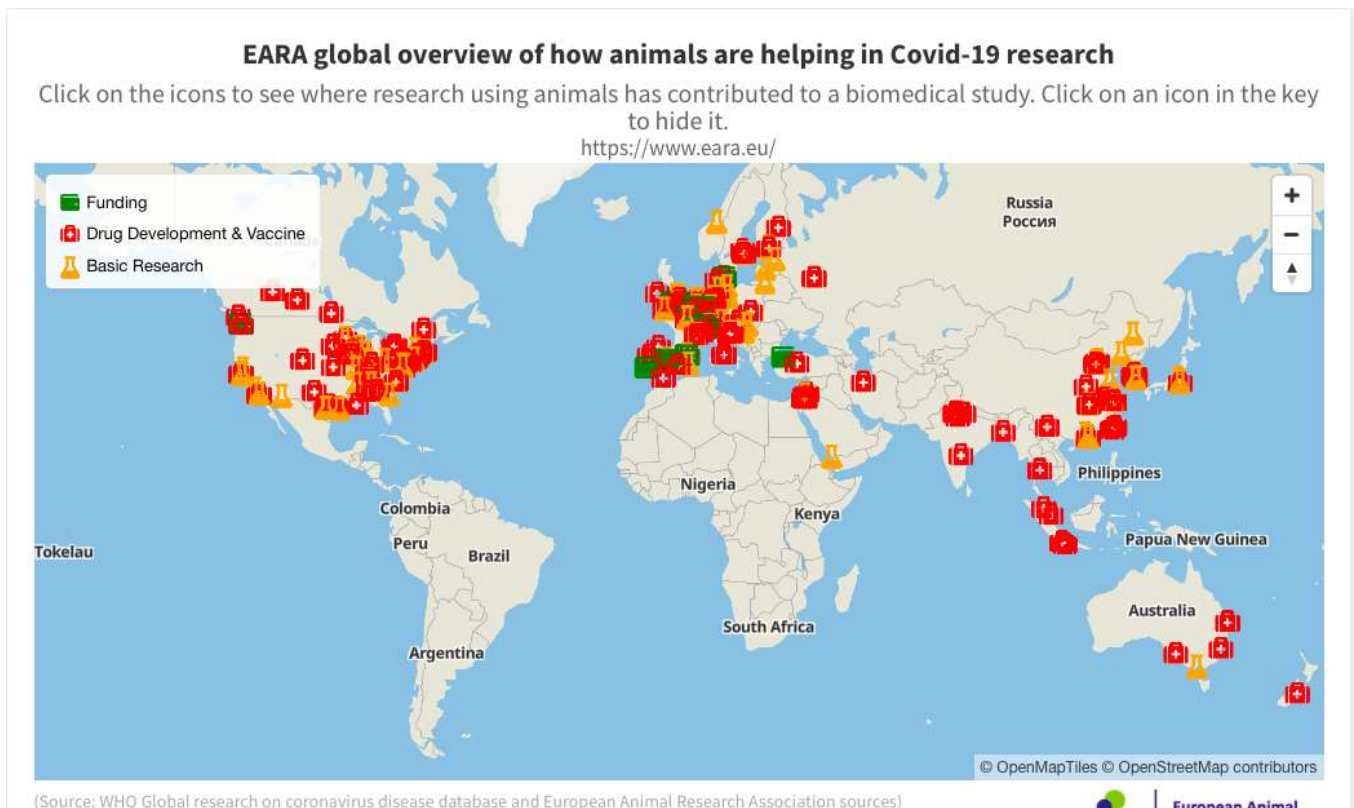


Figure 1: Laboratories across the globe engaged in animal-based COVID-19 research  
(A screenshot taken from the European Animal Research Association website).

about the virus, its transmission, pathogenesis and symptoms of the disease and to test the safety and efficiency of vaccines/equipment produced (2, 3).

The studies with cynomolgus/ rhesus macaques had shown that SARS-CoV-2 virus caused the disease similar to that seen in humans, including similar age-related effects i.e. more severe pneumonia in older monkeys along with fast replication of the virus. The new world monkeys; marmosets are not a good model for COVID-19 as they developed only mild symptoms during experimental procedures. Ferrets too have showed development of similar symptoms of SARS-CoV-2 viral infection as seen in humans and the possibility of air transmission of infection to other ferrets.

Studies with pigs are useful as a model for vaccine testing for its safety and efficacy. Pigs are also being used as a model to test the effectiveness of new types of ventilators developed before going for human clinical trials. Hamsters seem to be a good model to study the effect of SARS-CoV-2 on the lungs and the similarity in the symptoms developed made them a useful model to study about virus transmission. Considering the good perception of smell of dogs, dogs have been trained by a group of researchers in University of Helsinki and they have shown the

effectiveness of the method to detect human samples positive for COVID-19 (2).

In addition, there are other animal models used in COVID-19 related research and vaccine production. Table 1 from the Speaking of Research 2021 website indicates different animal models used in preclinical testing of COVID-19 vaccines available for human use (3).

These information show the importance of pre-clinical research using suitable animal models to tackle the COVID-19 pandemic which came to light since the beginning of 2020. The National Institute of Health of US has already allocated more funds for the development of animal-based research specially for the improvement of facilities for non-human primate research in order to be prepared if a new pandemic hits the globe.

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	CoronaVac	Johnson & Johnson	AstraZeneca	Sputnick V	Moderna	Pfizer
<b>Type of Vaccine</b>	Inactivated Virus	Viral Vector (non-replicating)	Viral Vector (non-replicating)	Viral Vector (non-replicating, 2 serotypes)	RNA	RNA
<b>Other Vaccines using this technology</b>	Whooping Cough, Rabies, Hepatitis A	Ebola	Ebola	Ebola	None	None
<b>Preclinical Animal Testing</b>	Mice, Rats, Monkeys	Monkeys, Hamsters	Pigs, Monkeys, Ferrets, Mice	Monkeys, Rabbits, Guinea Pigs, Rats, Mice, Hamsters	Monkeys, Mice	Monkeys, Mice
<b>Dosage Number</b>	Two, 14 days apart	One	Two, 12 weeks apart	Two, 21 days apart	Two, 28 days apart	Two, 21 days apart
<b>Overall Efficacy</b>	83% after 2 <sup>nd</sup> dose	74%	82% after 2 <sup>nd</sup> dose	92% after 2 <sup>nd</sup> dose	94% after 2 <sup>nd</sup> dose	95% after 2 <sup>nd</sup> dose
<b>Adverse effects</b>	None Reported	Anaphylaxis (<0.001%), Thrombosis and	Thrombosis and Thrombocytopenia	None Reported	Anaphylaxis (<0.001%)	Anaphylaxis (<0.001%)
<b>Time to maximal Immunity</b>	2 weeks after 2 <sup>nd</sup> dose (estimated)	2 weeks	15 days after 2 <sup>nd</sup> dose	2 weeks after 2 <sup>nd</sup> dose	2 weeks after 2 <sup>nd</sup> dose	2 weeks after 2 <sup>nd</sup> dose

These data may change as more data from clinical trials as well as assessment of effectiveness becomes available

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Table 1: Comparison of different types of human vaccines produced for COVID-19 and the animal models used for pre-clinical testing (Screen shot from the 'Speaking of Research 2021' website).

### Online and Global IMCPQ 2021 UOL, Lahore, Pakistan

The Second Inter Medical College Physiology Quiz was organised by the Department of Physiology at University College of Medicine & Dentistry (UCMD), University of Lahore (UOL), under the leadership of HOD Physiology and the Organizing Secretary, Professor Samina Malik, by inviting the global quiz master Professor Cheng Hwee Ming for the final round, from the University of Malaya, Malaysia, on Saturday, 3<sup>rd</sup> of April 2021.

The quiz was held online due to Covid-19 SOPs. Using it as a blessing in disguise, it was turned into an international event and garnered the biggest participation ever in the history of Physiology quiz. One hundred and seventy eight (178) teams, consisting of 3 undergraduate medical students each, from fifteen (15) countries, namely Malaysia, Indonesia, Sudan, Nepal, India, Bangladesh, Croatia, Pakistan, Sri Lanka, China, Egypt, Mongolia, Philippines, Romania and Thailand participated.

The certification from a variety of Physiological societies was obtained by the Organizing Secretary, including Pakistan Physiological Society (PPS), South Asian Association of Physiologists (SAAP), International Union of Physiological Sciences (IUPS) and Federation of Asian and Oceanian Physiological Societies (FAOPS), along with International Foundation of Medical Students Association (IFMSA).

First and second rounds were facilitated by the host department on Socrative technology, with contribution from two retired Pakistani Professors of Physiology, Dr. Binyamin Chishti and Dr. Zafar Tanveer. Mock quiz was run on Socrative for national and international participants on the 1<sup>st</sup> & 2<sup>nd</sup> of April respectively by host department followed by discussion with Professor Cheng on zoom to make

sure the participants were familiarized with the rules of quiz. Both these rounds allowed team effort.

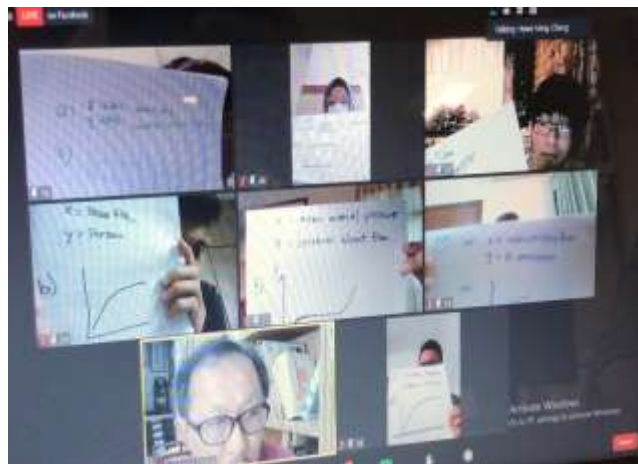
The first round consisted of fifty MCQs and the response time was 30 seconds. The participant teams were divided into four groups for further facilitation and quick processing of results. The smooth running of this round was ensured by the group leaders Dr. Saman Saeed, Dr. Chaman Nasrullah, Dr. Zobia Hafiz & Dr. Nooria Naeem with the assistance of Dr. Ayesha Chaudhry, Dr. Ayesha Riaz, Dr. Moiz Nauman, Dr. Misbah Ahsan & Dr. Ahmad Butt. In the meanwhile, Dr. Maimoona Nasreen and Dr. Sara Mukhtar along with the Organizing Secretary, did the trouble shooting and answered the ongoing queries of the participants. Dr. Qasim Mehmood was responsible for the final compilation and declaration of the result.



A total of top 35 teams out of 178, qualified for the second round of the quiz. The results were conveyed to all team members via email and also in WhatsApp groups. The second round consisted of 20 Short Answer questions with 30 seconds response time and this was facilitated by Dr. Qurrat-ul-ain Leghari and Dr. Chaman Nasrullah. Dr. Sara responded to the queries in WhatsApp group along with Dr. Maimoona and Prof. Dr. Samina Malik. Dr. Qasim Mehmood was once again responsible for compilation and declaration of the result.



Finally, 7 teams out of 35 qualified for the third round of the quiz. This third round was conducted by Prof. Cheng Hwee Ming from Malaysia on zoom in collaboration with 3 impartial judges including Prof. Ahmad Badar from Saudi Arabia, Prof. Huma Shehzad from Malaysia and Prof. Zafar Tanveer from Pakistan. This round was streamed live on the Facebook page of UCMD, UOL.



Prof. Julie Chan, President International Union of Physiological Sciences was the distinguished chief guest and inspired students and faculty through her motivational talk. The Principal of UCM Prof. Dr. Mahwish Arooj announced 1000 USD cash prize to be divided amongst the top 3 teams. Prof. Dr. Shahid Malik and Principal UCM welcomed the participants. The results of both the 1<sup>st</sup> & 2<sup>nd</sup> rounds were declared again by Dr. Qasim & Dr. Maimoona respectively on zoom.

The 3<sup>rd</sup> round allowed only individual effort. The participants of each finalist team were labelled as A, B & C. Each group (A-C) was asked 3 questions by Professor Cheng simultaneously to which they were supposed to write the answer and then display that answer on camera in a response time of 30 seconds. These questions and timer were also displayed for the ease of the participants and other attendees. The answers were then graded by Professor Cheng and any ambiguity in grading of answers was dealt with, with the help of the judges. The scoreboard was updated and displayed after the turn of each group by Dr. Qurrat-ul-ain Leghari, Dr. Nooria Naeem & Dr. Ayesha Chaudhry to keep the participants and

attendees aware and to exhibit the transparency. The entire activity was video recorded so that in case of disagreement, the recording might be approached.

The team from CMH medical college Lahore (team members Shafqat Ali, Muhammad Tayyab Ijaz & Haseeb Mukhtar) stood 1<sup>st</sup> under mentorship of Dr. Ambreen Tauseef. The first and second runner up teams were; Faculty of medicine, University of Colombo, Sri Lanka (members: Minura Manchanayake, Priyath Seneviratne & Hajanthi Jeyapragasam) under the guidance of Prof. Dr. Mangala Gunatilake (GS, SAAP) and Nishtar Medical University (members: Zohaib Amjad, Tuba Habib & Ramisha Chaudhary) supervised by Prof. Dr. Hamid Hassan, respectively. Top 3 positions were announced by Pro-Rector Health Sciences Professor Dr. Shahid Malik and the distinguished judges.

This event was made possible by the joint efforts of Prof. and HOD Physiology Dr. Samina Malik (Organizing Secretary) and her hard working department including Dr. Qasim, Dr. Maimoona, Dr. Saman, Dr. Chaman, Dr. Sara, Dr. Zobiah, Dr. Qurrat-ul-ain, Dr. Nooria, Dr. Ayesha Riaz, Dr. Ayesha Chaudhry, Dr. Moiz, Dr. Ahmed, Dr. Misbah, Mr. Maratab Ali and Mr. M. Naveed. Dr. Tayyaba Azhar (ADME) provided technical support. Mr. Ahmed Ibrahim designed the posters, Miss Rimsha Khan designed the certificates while Mr. Yasir Shabbir took care of the website and scoreboard. Mr. Sohail and IT department UOL also contributed by ensuring the availability of fast internet and computer lab for smooth conduction of the online academic event.



All participant students who passed the qualifying round were provided merit certificates. Cash prize was sent to the top 3 winning teams which were further honoured by their individual institutes. The learning as well as incentive was appreciated very much.

Such healthy academic competitions on global platforms with encouragement by senior faculty should continue as a good practice to pass on the bond of academic peer-ship to our future doctors.



*Professor Dr. Samina Malik  
HOD Physiology, UCMD, UOL*

*Organizing Secretary IMCPQ  
2021, Lahore, Pakistan*

*Vice President SAAP (from  
Pakistan)*

## **Webinar on Renal PHYramids UCMD, UOL, Lahore, Pakistan**

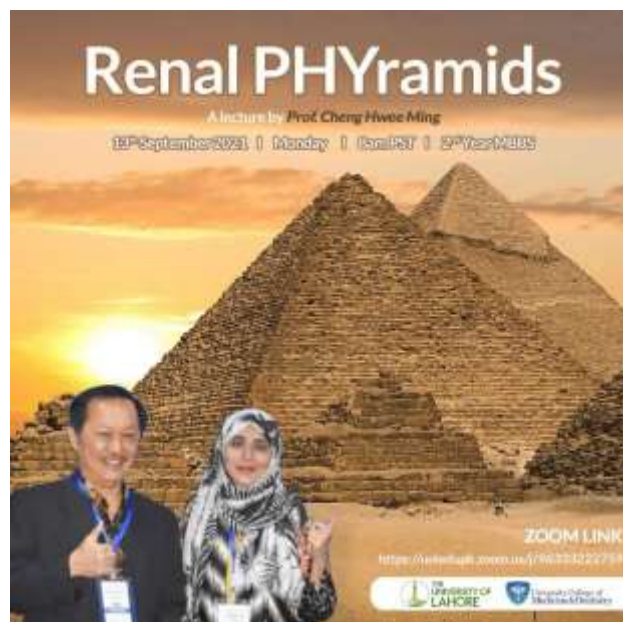
Holding webinars by inviting academicians and scientists of international fame is in fact the vision of Rector of the University of Lahore (UOL) Prof. M. Ashraf and is translated in the University College of Medicine and Dentistry (UCMD) affiliated with it by the dynamic principal Prof. Dr. Mahwish Arooj.

In alignment with this, the HOD Physiology Prof. Samina Malik at UCMD, UOL invited Prof. Cheng Hwee Ming from University of Malaya, Malaysia, on Monday the 13<sup>th</sup> of September, to deliver an interactive talk on Renal physiology for 2<sup>nd</sup> year medical students after her introductory session of genitourinary, module, availing the online opportunity due to the 4<sup>th</sup> wave COVID lockdown. Professor Cheng diligently painted a picture of the genitourinary system in the minds of the

students covering the anatomical, biochemical and physiological perspectives.

Dr. Cheng has taught Physiology at the University of Malaya, Malaysia since 1986. He has written various books including 'Thinking through Physiology' and 'Defining Physiology', besides having initiated International level Physiology quizzes around the globe. As an attendee of his lecture, being a 2<sup>nd</sup> year medical student, I would like to thank him on behalf of my class for taking out his precious time for us. He effectively introduced such a vast topic to us at the start of the module and highlighted all the important concepts we would be coming across. He also added fun and interaction through interesting slides to help the students learn effectively while having a good laugh! We personally hope that we get to meet him in the near future.

COVID has chained embassies and airlines, but as long as such academic webinars are being carried out, by looking at this limitation as an opportunity, the brains can remain unlocked and borders can be crossed online.



*Compiled by Prof. Samina Malik (VP SAAP) and her 2<sup>nd</sup> year medical student Afreen Nabi*



# Winners of Online & Global IMCPQ 2021

UOL, Lahore, Pakistan

**1<sup>st</sup> Place**

**CMH Lahore  
Medical College and  
Institute of Dentistry**



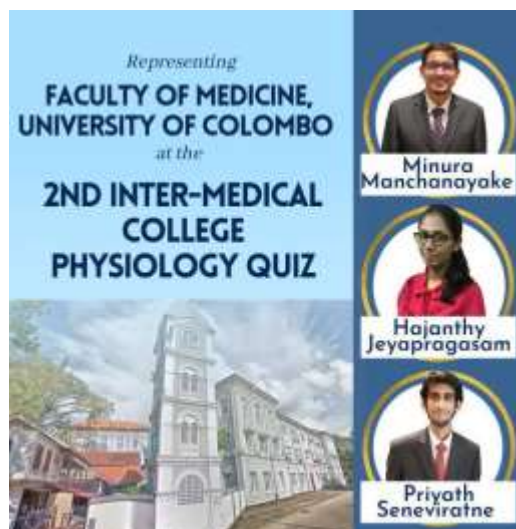
Shafqat Ali  
[shafqatalijutt@yahoo.com](mailto:shafqatalijutt@yahoo.com)

Tayyab Ijaz  
[tayyabijaz2@hotmail.com](mailto:tayyabijaz2@hotmail.com)

Haseeb Mukhtar  
[haseeb\\_mukhtar@live.com](mailto:haseeb_mukhtar@live.com)

**2<sup>nd</sup> Place**

**Faculty of Medicine  
University of  
Colombo**



Minura Manchanayake  
[medmbbs160912@stu.cmb.ac.lk](mailto:medmbbs160912@stu.cmb.ac.lk)

Priyath Seneviratne  
[medmbbs160957@stu.cmb.ac.lk](mailto:medmbbs160957@stu.cmb.ac.lk)

J. Hajanthi  
[medmbbs160878@stu.cmb.ac.lk](mailto:medmbbs160878@stu.cmb.ac.lk)  
[haseeb\\_mukhtar@live.com](mailto:haseeb_mukhtar@live.com)

**3<sup>rd</sup> Place**

**Nishtar Medical  
University, Multan**



Zohaib Amjad  
[Graysgamingworld@gmail.com](mailto:Graysgamingworld@gmail.com)

Tuba Habib  
[muhammadhabibtubahabib@mail.com](mailto:muhammadhabibtubahabib@mail.com)

Ramisha Chaudhary  
[dramishach@gmail.com](mailto:dramishach@gmail.com)

# Upcoming Events



11 DECEMBER 2021

Faculty of Medicine, University of Kelaniya

Abstract Submission Now Open

Deadline

15 September 2021

Registration Fees

Local - LKR 1,500.00

Foreign - USD 20.00

Student members - LKR 500.00

Registration fee will be waived off if the work is held online

Paper submission guidelines are available at <http://psal.org.lk/annual-scientific-sessions.html>

Calling applications for KN Seneviratne Memorial Research Award

Deadline

25 October 2021

Guidelines for the submission are available at [www.psal.org.lk](http://www.psal.org.lk)



Professor. Carlo Fonseka Oration  
Valentine Basnayake Memorial Oration  
KN Seneviratne Oration

Dr. Nayomi Ranathunga,  
Secretary PSSS  
077-367 7138  
[physiolofogicalsocietyofsl@gmail.com](mailto:physiolofogicalsocietyofsl@gmail.com)

Respected Sir/Madam,

Warm greetings from the organising committee of TIPS 2021!

After successfully conducting the TIPS workshop for six consecutive years, we are happy to announce that the **Department of Physiology, AIIMS New Delhi** is organizing the "**Techniques in Physiological Sciences (TIPS) workshop 2021**" **for SAARC nations** from **1 to 3, December 2021**.

The aim of this workshop is to share with you state-of-art techniques with hands-on experience. We plan to provide three days of intensive training in the techniques chosen by you, hoping you could use the experience in your institutions effectively.

**Who can apply:** Those who are actively working in Physiology or related fields at an academic/research institute or medical college in SAARC nations will be eligible to apply for TIPS workshop 2021.

If you chose to attend this workshop, please visit the official website <https://www.plexusmd.com/event/TIPS2021> where you can select up to three workshops of your choice that you would like to attend. The final program shall be made according to the workshops selected by the participants.

**Last date for registration: 15<sup>th</sup> October 2021**

Best Regards,

Prof. K K Deepak

**Organising Secretary, TIPS 2021**

**Prof & HOD, Department of Physiology**

**AIIMS, New Delhi**

Techniques in Physiological Sciences 2021  
For SAARC Nations

1 - 3 December 2021

Organized by  
Department of Physiology  
All India Institute of Medical Sciences  
New Delhi



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Compiled by Professor Piyusha Atapattu  
Editor-in Chief, SAAP Bulletin