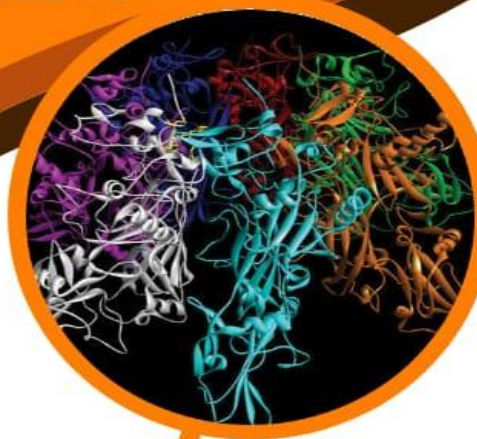


ICBDS - 2020



सर्वसुमना
Sarvasumanā

DSIR Recognised SIRO



23rd to 24th
July - 2020

BOOK OF

Abstract

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**International Conference on
Bioinformatics and
Data Science**

Online

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Welcome



Dear Friends,

Greetings!

On behalf of Sarvasumana association, as a President it is my pleasure to invite all of the great scientists, academicians, young researchers, and students from all over the world to attend the 7th International Conference on Bioinformatics and Data Science – 2020

As the association is encouraging inter disciplinary research in the conference, research papers will be presented on Microbiology, Homeopathy, Ayur informatics, Acupuncture and Yoga in this platform. Young researchers are participating in oral presentations as well. Due to Covid-19 pandemic we are unable to conduct the conference physically, but thanks to technology that all of us are coming together to share the knowledge by connecting from home virtually.

During this lockdown period I request everyone to follow the safety measures like washing hands regularly, wearing mask, staying at home, going outside only for essentials. Containment rates are increasing day by day. People are loosing connectivity with their loved ones. This situation is affecting us socially, financially, spiritually as well as mentally. Stress and anxiety have been affecting people of all age groups.

I hope this conference would throw some light on the current researches. I wish everyone to stay safe and stay healthy.



Yours sincerely

Ladmathree murthy

President
Sarvasumana Association

MESSAGE

I am extremely delighted to see the Sarvasumana Association has taken up a promising topic for the international conference they conduct. Incorporation of information technology with biological sciences has resulted in astounding impact in understanding the cellular processes, gene sequencing and drug discovery. To address such an extensive subject for the benefit of evidence based scientific researches is truly the need of the hour.

I wish the conference a great success.

Dr RESMI B G

ASSISTANT PROFESSOR (on contract)

Govt. Ayurveda College

Thiruvananthapuram

Kerala



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17th July, 2020

Sarvasumana Association

International Conference on Bioinformatics and Data Science

It is my pleasure and an honour to join with the Sarvasumana Association for the online International Conference on Bioinformatics and Data Science. The necessary move to creating an online conference experience has been seamless and with great professionalism.

The topic of bioinformatics and data science is highly relevant as we try to deepen our understanding of the human condition. No matter what we might be able to observe, the phenotype, there is a wide-ranging complex world of intricate elements that interact as a complex system, emerging as the human being having a human experience.

Since Leeuwenhoek first introduced the microscope, we have been looking deeper and deeper into the biology. We are now able to see activity at the molecular level and we have begun to see the energetic patterns of the quantum world. It is important to differentiate these mechanisms in order to understand them better, as we will learn during the many and varied presentations at the conference.

In the end, however, it is vital to remember that we are a “being” that is the glorious and numinous emergent property of everything that is within us and also our engagement with everything beyond us. There is no good science without having at least one foot firmly set in the value of the human being. This is the underlying drive of this conference.

I send my thanks and gratitude to the Sarvasumana Association for all they have done to bring this conference to fruition. The hardworking members and organising committee can never be thanked enough for what I am sure is a Herculean effort.

My best wishes



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2. **DE NOVO TRANSCRIPTOME ANALYSIS OF NON-MODEL PLANT ANDROGRAPHIS PANICULATA USING MRNA-SEQ DATA FOR GENE DISCOVERY AND MARKER IDENTIFICATION**
Vivek Chandramohan
3. **AYUR-INFORMATICS - APPLICATION AND RECENT STUDIES**
Dr. Resmi B G
4. **HOMEOPATHY MEDICINE FOR INFECTIOUS DISEASES AND IT DATA ANALYSIS -Dr. Jyotirmai B Janbow**
5. **HOW TO MODEL COMPLEX BIOLOGICAL DATA IN A DATABASE**
Dr. Kaushik Sripathi Hatti
6. **ACUPUNCTURE RESEARCH STATUS IN INDIA**
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7. **ACUPUNCTURE - MODE OF ACTION - THE EMBRYOLOGICAL INTELLIGENCE, 3 GERM LAYERS AND SIX MERIDIANS, 5 PHYSIOLOGIES - Dr. C Krishna Raju**
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PLENARY TALKS

THE QUALIA OF MICROBIOLOGY AND QUANTUM FUNCTIONING

Prof. Richard Hill

Director, Mindscience Institute, Australia

We can explore the very small and create descriptions of the mechanisms that operate at molecular and even at quantum states. But, how do these mechanisms create the conscious experience of the macro world in which we are consciously aware. We will look at some of the effects of epigenome on behaviour and emotional states and also at how our conscious awareness might be connected to activity at the quantum level. How do we sense an odour, how does the European robin find its way during migration and how do specific receptors in the hippocampus impact the chance of depression or suicide? These are not just in our head, they are in our being from the very small to the large, to the spiritual.

**DE NOVO TRANSCRIPTOME ANALYSIS OF NON-MODEL PLANT
ANDROGRAPHIS PANICULATA USING MRNA-SEQ DATA FOR GENE
DISCOVERY AND MARKER IDENTIFICATION**

***Prof. Vivek Chandramohan,
Siddaganga Institute of Technology, Tumkur, India***

Andrographis paniculata Nees, known as ‘Kalamegha’ in Sanskrit, is an herbaceous plant in the family Acanthacea and is known to have a broad range of pharmacological potential. However, *Andrographis* being a non-modal plant, genomic analysis is limited by very small quantity of publicly available annotated sequence data. Our research, thus, focuses on employing transcriptomic analysis based on NGS to generate transcript information about the plant and characterize metabolic pathway related to diterpenoids biosynthesis. Paired-end reads were downloaded from the NCBI SRA database of ID SRR1292497 and were quality-checked and trimmed to produce clean reads. We assembled in total of 197,537,498 reads de novo using Trinity assembler, and CLC Genomics Workbench (CLC) using various k-mer values to optimize the assembly. Trinity outputs a total of 86,215 transcripts and 64,488 trinity ‘genes’ with average length of 1156.63 and N50 of 2111.%GC content was calculated to be around 42.56. RSEM was used to calculate relative abundance of isoforms in the experiment pool of mRNA. The contigs were extracted and used as queries in BLASTx against the Ref-Seq protein database (plant division). The majority of contigs produced significant hits with expectation values under 1.0E-5 and showed similarity with *Vitis vinifera* and *Sesamum indicum*. Blast2GO tool was used to functional-annotate the obtained transcript sequence. In addition, we identified simple sequence repeat motifs in

transcripts using MISA tool. We used KASS online annotation from KEGG to elucidate the genes involved in di-terpenoid biosynthesis. The transcripts set generated here provide a resource for gene discovery and development of functional molecular markers. In addition, the strategy for de novo assembly of transcriptome data presented here will be helpful in other similar transcriptome studies.

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AYUR-INFORMATICS - APPLICATION AND RECENT STUDIES

Dr Resmi B G,

Govt. Ayurveda College, Thiruvananthapuram, India

Ayurveda, being a 4000 plus year old medicinal system, the greatest challenge it faces is to expose the basic principles it follows and the scientific approach in clinical conditions to the modern world. But today, by integrating bioinformatics along with proper data and critical scientific approach this can be overcome to a greater extent. The data whether it is conceptual or clinical, are to be transformed into information that benefits diagnosis and treatment. With all the advancement in technologies and genomics of the present era, Ayurveda and bioinformatics can go hand in hand to explore the big odds that ultimately reap gain in evidence-based substantiation of Ayurvedic principles. Already many such works in conceptual framework, drug-oriented and disease-oriented studies have been done. A lot more is on the way. The holistic approach of Ayurveda sinks well with the systems biology approach of today which focuses on complex interactions within biological systems. It also incorporates computational models, information extraction, text mining, online database development etc. Thus, molecular docking, drug target identification, micro arrays, protein interaction etc have become the scope of research with development in computational biology. Ayurinformatics aims at application of bioinformatics in Ayurveda to provide a platform to bridge Ayurvedic concepts with modern understanding. Here the application of bioinformatics, challenges and some important studies conducted in Ayurveda are discussed.

**HOMOEOPATHY MEDICINE FOR INFECTIOUS DISEASE AND ITS
DATA ANALYSIS.**

Dr. Jyotirmai B Janbow,

***Government Homeopathic Medical College And Hospital,
Bangalore, India***

COVID-19 Homoeopathy as a System of Medicine is time tested since 200 years, and giving exams daily regarding its Existence and Scientificity in restoring Health to the suffering humanity.

From the days of Hahnemann to till date we came across many infectious diseases some of them were pandemic, epidemic and sporadic. Many Homoeopaths were succeeded in treating and controlling of these infectious diseases and documented the data regarding infectious diseases including Hahnemann.

The scientificity of homoeopathy is proved by collecting of data and analyzing by scientific biostatic methodologies, the drawback of scientificity is in the data analysis in homeopathic treatment and adaptation of principles of biostatistics where homeopathy works with seven cardinal principles developed by Hahnemann. The need of the hour is testing hypothesis for these seven cardinal principles where the concept of health, disease and treatment all are in dynamic level. The data available in homoeopathy is more of qualitative rather quantitative, where the scientific committee is wearing the quantitative spectacles sees an only value in the research out comes.

I made an attempt to justify the homoeopathy will work and give contribution in the field of medicine for suffering humanity by quoting some research works done by the homoeopaths all over the world.

HOW TO MODEL COMPLEX BIOLOGICAL DATA IN A DATABASE?

*Dr. Kaushik Sripathi Hatti,
University of Cambridge, UK*

Data is the collections of facts and figures which needs to be interpreted to derive information. “Data science” is a field which helps us bridge the gap between “Data” and “Information”. Data science involves tools and techniques to handle data, model it and make information retrieval efficient.

With the advent of high-throughput technologies, most of the biological experiments are automated thereby generating lots of data. Traditionally, data is stored as tables in databases which can be queried using a consistent query language. However, depending on the nature of biological question and complexity of biological data, storing data as tables might not be efficient way of querying data.

In my talk, I will use a hypothetical protein data to take you through different ways of modelling data for ease of information retrieval. I will start with the most basic way of representing data as tables. Following this, I will introduce the idea of representing data as a graph – an interconnected links of nodes and edges. Later, I will show how we could mix-and-match both tables and graphs to make data querying efficient and consistent. Though my talk will primarily be aimed at introducing the concepts of data modelling, I will briefly be introducing software packages which are freely available to achieve this task! Please join me if you are interested to know more about how best to derive information from complex biological data.

ACUPUNCTURE RESEARCH STATUS IN INDIA

Dr. Debasis Bakshi

Dept. of Acupuncture-Moxibustion & Integrated Medicine

*Indian Research Institute for Integrated Medicine (IRIIM), Howrah,
India*

Introduction: Acupuncture is an oriental traditional system of medicine. WHO states, out of 129 countries 80 % countries recognize acupuncture. In ancient Indian literature, Acupuncture is mentioned as Suchiveda Chikitsya. In 1959, Dr. B.K.Basu, a member of Indian Medical Mission to China (1938-1943) rejuvenated Acupuncture in India. Throughout these six decades it is practiced by more than one lac Acupuncturists. Although millions of patients definitely benefitted with this drugless therapy but still it is not yet recognised in India at national level except in two states (West Bengal 1996 & Maharashtra 2017). On demand of acupuncture practitioners, Department of Health Research (DHR), Govt. of India (GOI) recommended for Recognition of Acupuncture as an independent System to Union Health Ministry in 2019.

Research Status: Inspired by WHO, first time in India, a non Govt. Research Institute on Acupuncture named IRIIM Howrah was recognised as Scientific & Industrial Research Organisation (SIRO) by DSIR, GOI in 1996 for its continuous research activities on Acupuncture. Recognition renewed successively 9 times. IRIIM completed major acupuncture research projects sponsored by GOI agencies on Comparative Efficacy of Acupuncture in RA (ICMR), Traditional Tongue Diagnosis (DIT,CCRYN & DST) and Moxa (DRDO). Few other Institutes (Dr. B.K.Basu Memorial Research Institute of

Acupuncture, Kolkata and Dr. Kotnis Memorial College & Hospital, Ludhiana etc.) conduct research activities. International publication including PubMed already done by Indian Acupuncturists. But due to lack of national level recognition and insufficient funding, the progress in research work could not reach desired development.

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Acupuncture - mode of action

"The Embryological Intelligence, 3 Germ layers and six meridians, 5

Physiologies"

Dr C Krishna Raju,

Tamil Nadu Physical Education and Sports University (TNPESU),

Chennai, India

Modernization of the Chinese Acupuncture theories leads to a deeper understanding of the Physiological mechanisms underlying it, and reveal unique Physiologies within the system.

There is experiential level proof of a Propagated Channel Sensation (PCS) – a transient sensation experienced by individuals who had undergone treatments.

There are studies that had proved the influence of acupuncture treatment reaching the higher brain centers, visual and auditory cortices and key processing areas, including the prefrontal cortex and limbic systems.

Several treatments had been offered not only to reduce pain but also to treat other survival-related functions. Acupuncture treatment is oriented towards the smooth flow of Blood, Body fluids and the Neurotransmitters by balancing the various Homeostatic mechanisms within the body. The Etiology and Pathogenesis are rooted in Internal Emotions leading to Imbalance within the Organ functions and the External Climate and the Life style demands outside (Endo and Exo Pathogens). Each treatment is focused on the harmony of Body-Mind axis.

The creation of the Acupuncture Channels starts right from embryological development (Morphogenesis). The Three Germ Layers Ectoderm, Endoderm and Mesoderm take up certain functional responsibilities till lifetime and create

six layers of Fascial networks or inter-muscular spaces that are studied under Acupuncture Meridian system.

The migration of Neural crest cells to form Jaw bones and facial features decides the Beauty, Intelligence Behavior etc. The embryological organization is the prenatal potential that decides every life. The Chinese ‘Qi’ – is demystified and understood as the Survival Instinct (Spark of Life) that has the potential for all Morphogenesis and Physiological functions.

Acupuncture treatment works on such Intercellular communication (Qi), to establish smooth flow of life and homeostasis. The Five element theory of Acupuncture ultimately leads a modern scientist to Five Physiologies viz., Penetration, Structuring, Inhibition, Activation and Absorption.

“Acupuncture points are not just lines on an inert map of the body but living bio-energetic organizing centers in the body, so primordial and profound“.

RESEARCH TRENDS IN THE APPLICATION OF YOGA TO HUMAN HEALTH: A DATA SCIENCE APPROACH

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2 Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Charlestown, Massachusetts, USA

3 Department of Radiology, Harvard Medical School, Boston, Massachusetts, USA

4 Division of Health Sciences and Technology, Harvard University and Massachusetts Institute of Technology, Cambridge, Massachusetts, USA

5 AU MRI Research Center, Department of Electrical and Computer Engineering, Auburn University, Auburn, Alabama, USA

6 Department of Psychology, Auburn University, Auburn, Alabama, USA

7 Alabama Advanced Imaging Consortium, University of Alabama Birmingham, Alabama, USA

8 Center for Health Ecology and Equity Research, Auburn University, Auburn, Alabama, USA

9 Center for Neuroscience, Auburn University, Auburn, Alabama, USA

10 School of Psychology, Capital Normal University, Beijing, China

11 Key Laboratory for Learning and Cognition, Capital Normal University, Beijing, China

12 Department of Psychiatry, National Institute of Mental Health and Neurosciences, Bangalore, India

Yoga is an integrative mind-body system of wellbeing invented and developed in India since at least three millennia ago. Yoga has gained considerable attention in recent decades, partly driven by recent research and evidence about its effectiveness. In this work, we extracted research trends on the effects of yoga on human health from the US National Library of Medicine's PubMed database in terms of peer-reviewed journal publications. We found that yoga research spans all organ systems and system-wide issues such as pain and cancer (Figure 1a, 1b). Research on the nervous system far outpaces other systems, which is expected because of the effects of breathing and exercise on stress reduction, which has been a major application of yoga. The next cluster of impact concerns the musculoskeletal system and pain (both related to the exercise [asana] aspects of yoga), as well as cardiovascular/endocrine (also related to stress) and cancer. Stress and mental health, pain, diabetes, and cancer are health issues for which a permanent cure is not available in a

majority of cases in modern medicine, although alleviating treatments are available. This has probably fueled interest in complementary approaches such as Yoga for these health issues. Research timeline shows that yoga-related research largely expanded only after the 2000s. There was a specific uptick after 2004. Similar trends are seen if we look at just clinical trials or randomized control trials (RCTs) (Figure 1c, 1d) or systematic reviews (Figure 1e,1f). The percentage of trials (Clinical and RCT) among published literature is around 10–15 %. This is comparable to other fields that gained traction around 2000s (e.g. non-invasive brain stimulation). Geographical distribution shows that 37% of all yoga related research output originates in the USA, 19% from India, 13% from Europe and 31% from the rest of the world (Figure 2). Therefore, the interest is widespread and global. At least the uptick in yoga-related research in the US post-2000s can be attributed to a substantial jump in funding between 1998 and 2005 for US National Institutes of Health's National Center for Complementary and Integrative Health (NCCIH) (Figure 2b). We can only surmise that research in this field reached a critical mass in late-1990s, which infused more money into this field, generating more research. This created a positive feedback loop that has sustained the growth so far. Comparable funding data is not publicly available in India (or elsewhere). We propose that in order to sustain or even accelerate future research in the area, rigor and reproducibility must be enhanced in addition to performing more RCT and clinical trials (increasing % of trials to 20–25% from 10–15%). The fruits of research in the field has to reach the common man in terms of evidence-based solutions to health issues. Without this, accelerated funding in democracies such as India and the USA will not be realizable.

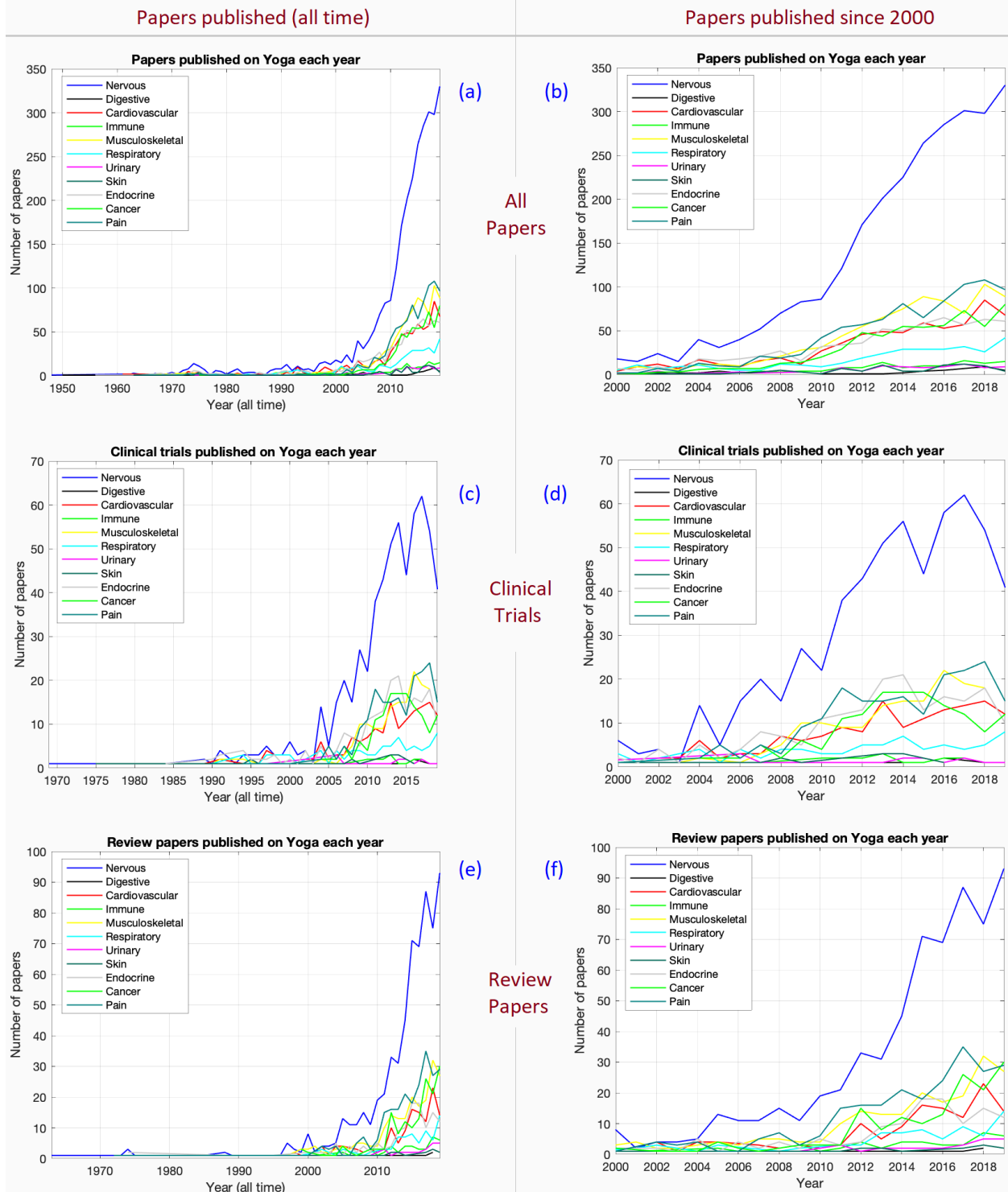


Figure 1. *Research trends in Yoga; the graphs show papers published per year for various cases.*

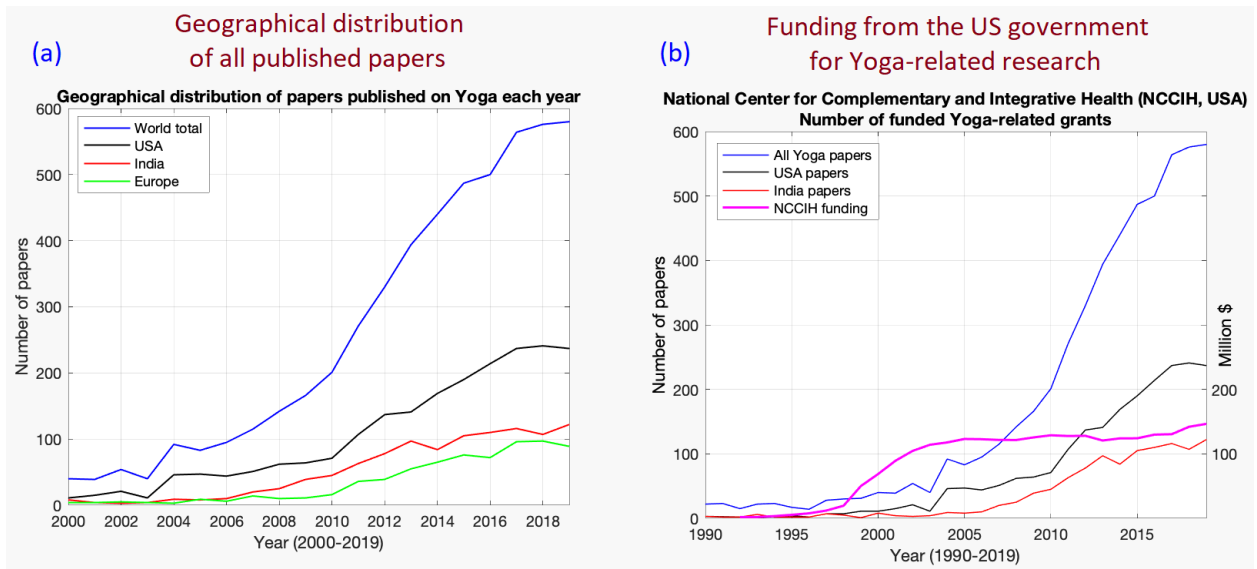


Figure 2. *Geographical distribution of Yoga research and growth in funding from the US government for Yoga-related research.*

‘HOMEOPATHIC PHARMACOKINETICS AND ITS EFFICACY IN NEUROLOGICAL DISORDERS’

Dr. Chiranth

Srusthi Homeo Clinic, Bengaluru, India

Homeopathy is a system of Medicine founded by Dr. CFS Hahnemann, a German physician who had a M.D. degree from the Erlangen University.

During his times there were numerous theories and hypothesis concerning the nature of the disease and its causation. Consequently methods of therapeutic practice were numerous and diverse as the theories propounded. The uncertainty and lack of any fixed principle of healing disappointed him and he relinquished medical practice and devoted himself to the translation of great medical classics of his time

In 1790, while he was engaged in translating the Cullen’s material medica, he came across the statement made by the author that cinchona bark cured malaria because of its bitterness and tonic effects of stomach by which he was unsatisfied. To find out the true mode of action he himself ingested 4 drachms of cinchona juice twice daily for few days and to his astonishment, he was attacked by symptoms very similar to malarial fever. And through such similar experiments on healthy individuals he found that the medicines produce symptoms very similar to what they cure in diseased individuals and he arrived with a principle of ‘Like cures like’ leading of homeopathy in 1796.

Now we have the medicines from various sources like vegetable kingdom, animal kingdom, mineral kingdom, healthy secretion of glands, secretions of diseased animal and plant products and various energy sources.

All of these crude medicinal sources go through a process of Homeopathic Potentisation which is a mathematico-mechanical process of reduction, in

which the medicinal properties which are latent in natural substances while in their crude state, become awakened and developed into active homeopathic healing remedies.

Thus we are now able to use this remedies inmiraculously healing not only the so called physical complaints such as gangrene, non-healing ulcers, hemiplegia etc, but also the complaints of the emotional and mental planes such as depression, delusions etc., improving the quality of life of patient.

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REAL TIME IMPLEMENTATION OF VIDEO COMPRESSION BASED ON DWT

Pramod Naik¹, Hansraj Guhilot², Arun Tigadi³

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In this paper and Highly efficient 3D DWT architecture is designed and implemented on seven series FPGA. The throughput is analyzed and its performance matrices are compared with different video file format. Today top of the line high-end image and video consume huge amount of memory. The designed architecture of DWT based video compression is again executed in parallel processing mode and its execution time is tabulated demonstrates reduced the processing or execution time. This paper demonstrates the superiority of the designed architecture both in normal mode of execution and parallel processing mode of execution .We know that higher the throughput of the video processing design results in Low power consumption. The Internal Architecture of the design is explained in brief and is synthesized in Xilinx Vivado 17.4 and implemented on Zed board. Based on the experimental results of the design being implemented on FPGA, demonstrates the memory saving capabilities and superiority of this architecture. The resultant architecture has drastically reduced latency and has enhanced the speed of operation.

DNA SEQUENCING AND THIRD GENERATION SEQUENCING TECHNOLOGIES

Hithesh Kumar C K,

Eurofins Clinical Genetics India Pvt. Ltd, Bengaluru India

The generations are passing; new inventions and discoveries are taking place in the field of Biological research. From the discovery of DNA in 1800s to Synthetic DNA (CRISPR) are the innovations of Genomics. Sequencing technologies made a big revolution in Biotechnology. Applications of this technology started a revolution in Genetics, Medical Diagnostics, Pharmacology, Therapeutics, Agriculture and many more. Human genome project was first largest collaborative biological project of 13 years to complete with \$2.7 billion and currently human genome sequenced in 24 hours with \$999. The era of sequencing has started with Sanger on high price and continuing the innovation to third generation hand held sequencers for lesser price.

PRESENTATION

ABSTRACTS

ICBDS-2020

ROLE OF EIGHT FOLD DOCTRINE OF YOGA IN SELF RECREATION

Dr. Gaurav Soni

*Assistant Professor, Department of Rachana Sharir, North Eastern
Institute of Ayurveda & Homoeopathy (NEIAH), Shillong*

In this hasty world, each person is in search of internal harmony and self-advancement. In quest of search, we have to go round towards the aged era sciences developed for enhancing the standard of human life. Yoga which is deliberated to be some poses (Asana) boosting the flexibility and enhance the strength of the physical body is in reality much additional than it. Yoga thought to be a part of Ayurveda, is a totally separate and well-recognized doctrine since its inception. Yoga means togetherness with almighty, but we can more straightforwardly understand it as oneness with self.

Yoga which is eightfold hierarchical as per Sage Patanjali is to be understood as a science of self-consciousness. Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana & Samadhi are the tools to reach the ultimate power or to control and identify self. Even if one practices the five abstentions (Yama) or the five observances (Niyama), our life can be a better one as impurities of our mind are to be washed out resulting in a new oneness. Likewise, the practice of pranayama helps us to control our autonomic nervous system, thus helping us out to deal with the daily dilemma of life or taking decisions wisely creating a new oneness.

COMPARATIVE ANALYSIS OF THE BINDING INTERACTIONS BETWEEN MST1-SAV1 AND MST2-SAV1 IN THE CELLULAR APOPTOTIC PATHWAY

Tanusree Mookherjee, Angshuman Bagchi, & Rita Ghosh**

*Department of Biochemistry and Biophysics, University of Kalyani,
West Bengal, India*

The regular functionality of cells require constant turnover of new cells and removal of older ones by apoptotic pathway. A dysfunction in cellular apoptosis leads to the onset of diseases like cancers. One of the key players involved in the maintenance of cell viability is mediated by the bindings of Mst1 and Mst2 with Sav1 through their SARAH domains. It is therefore very much essential to analyze the binding interactions of Mst1 and Mst2 proteins with Sav1 from a molecular level in order to elucidate the mechanism of the onset of cancer. Binding interactions between Mst2 and Sav1 were well documented; however, the same for Mst1 and Sav1 are yet to be revealed. Therefore, in this work, we planned to build the three dimensional complex of Mst1 and Sav1 by molecular docking simulations. We compared the patterns of bindings of Mst1-Sav1 complex with Mst2-Sav1 complex. Comparison of the binding interactions in the aforementioned complexes revealed the natures of the important amino acid residues. These amino acid residues may therefore be used in future mutational studies to identify their roles in the apoptotic pathway. This is the first such report to reveal the molecular basis of the involvements of Mst1-Sav1 interactions in cellular apoptosis.

ELUCIDATION OF THE EFFECTS OF MUTATIONS ON REP DOMAIN OF PARKIN DURING THE ONSET OF PARKINSON'S DISEASE

*Sima Biswas, Angshuman Bagchi**

*Department of Biochemistry and Biophysics, University of Kalyani,
West Bengal, India*

Autosomal-recessive juvenile parkinsonism (ARJP) is caused due to the mutation in parkin gene and was first reported by kitada et al. in 1998. More than hundreds of mutations are reported in parkin protein which is directly linked to familial recessive form of Parkinson's disease. Human parkin protein is 465 amino-acid long, and located on chromosome 6. The N-terminal ubiquitin-like domain (Ubl) domain and C-terminal four zinc-coordinating cysteine-histidine rich RING like domains: RING0, RING1, IBR and RING2 are the structural features of parkin protein. Along with neuroprotective protein PINK1, parkin is also involved in the mitochondrial quality control pathway. Dysfunctions of both proteins lead to ARJP. Parkin is an E3 ligase and its activity is tightly controlled by multiple mechanisms. A repressor region called REP region is present in between parkin C-terminal IBR and RING2 domain which also controls the parkin activity. This REP domain is an all-alpha domain. E3 ligase activity of parkin is suppressed by mutations in RING0 domain and REP region. In mutant parkin, RING0 domain blocks the catalytic residues of RING2 and Ubl and REP blocks the E2 binding region of RING1. It has been shown that E2 binding affinity and parkin activity is increased by deletion of Ubl and REP region. Various mutations are also reported in REP region that are linked to ARJP. In this work, we first collected a total of 20 mutations in the REP region from literature and different databases. We then analyzed the various features of the mutations in the parkin REP region by using various computation tools like Polyphen2, SNAP2, Aline GV-GD, Proven, SNPs & GO to predict their severity and impact on the protein structure and function. Among the mutations, we identified five most deleterious mutations, viz., R402G, E404K, S407P, S407C, and S407F. These

mutations are considered to be responsible for ARJP onset. This is the first report on the mutations in the REP domain of parkin.

ICBDS-2020

**ISOLATION OF EPIPHYTIC BACTERIA FROM THE SEAGRASS
HALOPHILA OVALIS AND *HALODULE UNINERVIS* FROM HADDO,
SOUTH ANDAMAN, INDIA.**

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Andaman and Nicobar Islands are having a very strong and healthy seagrass ecosystem in India. Seagrasses nourish a wide range of marine organisms including the smallest microorganism to the higher organism such as turtles and dugongs. The seagrass ecosystem is highly dependent on the ability of seagrass to shape its epiphytic bacterial communities. Seagrass and its associated epiphytes contribute highly to the pharmaceutical industry since it is having antioxidant and anti-inflammatory properties. The leaves of *Halophila ovalis* and *Halodule uninervis* from the inter-tidal region of Haddo, South Andaman were collected. Bacteria from these leaves were isolated in Zobell Marine Agar. These epiphytic bacteria were phenotypically identified using the morphological, and biochemical examination. More epiphytic bacteria were found on *H. ovalis* compared to *H. uninervis*. *Vibrio*, and *Pseudomonas* were the two dominant bacteria isolated from both the seagrasses along with *Bacillus*, and *Photobacterium*. *Micrococcus* was found only in *H. uninervis*.

OPTIMIZE IMMUNE SYSTEM: INTEGRATIVE MEDICINE & THE COVID-19 PANDEMIC

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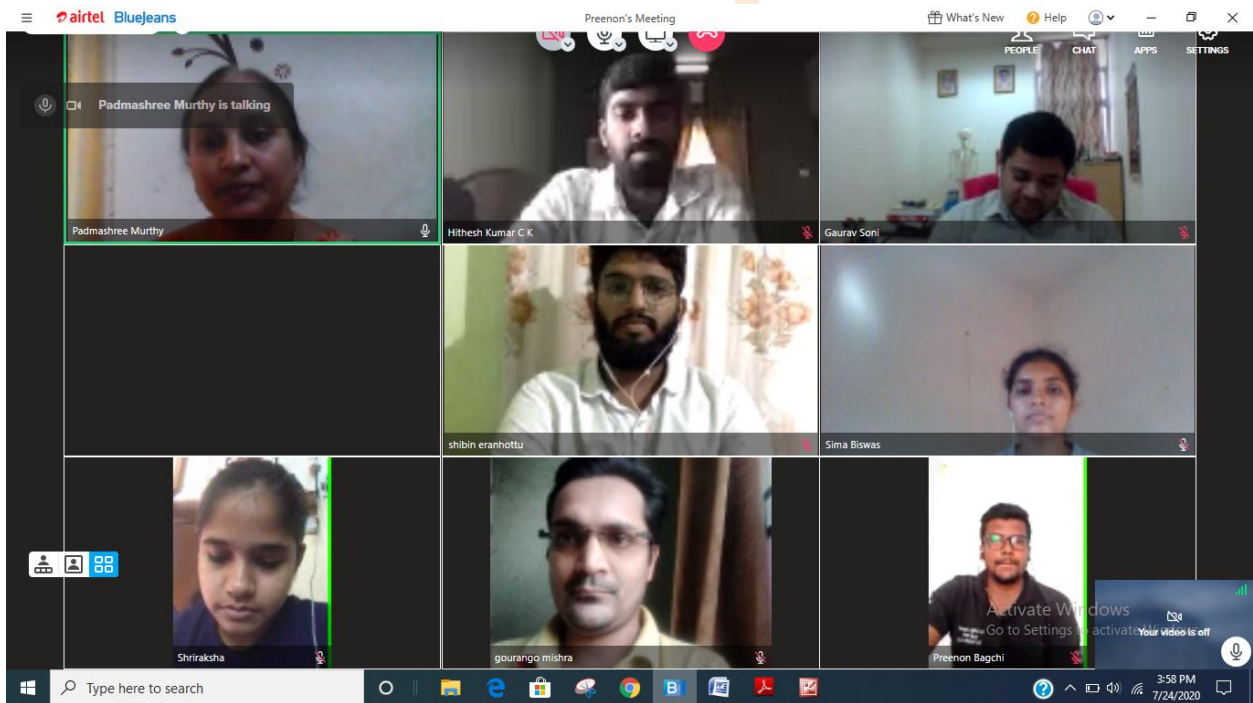
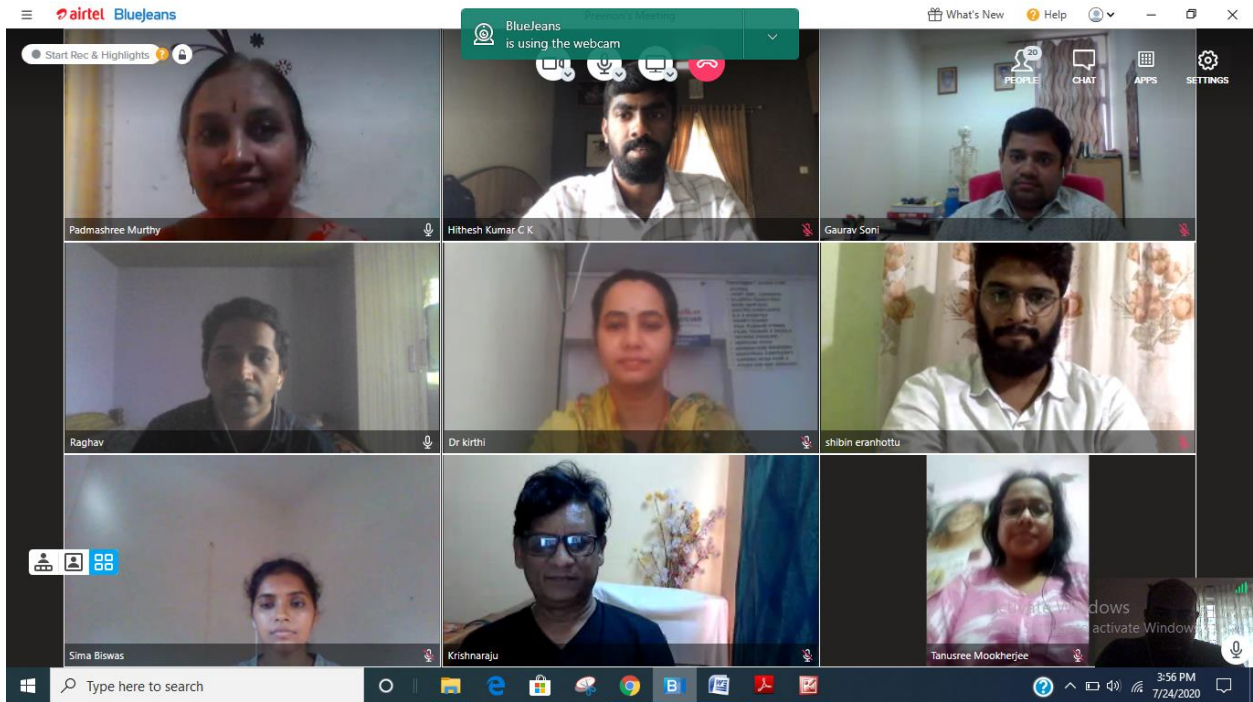
As the corona virus spreads through our country, engaging in deeply nourishing self-care is a way of caring for our community. Those peoples of overage with chronic health conditions like diabetes, heart disease, high blood pressure, or lung disease have the highest risk of being infected by this disease. Covid-19 pandemic has been increasing worldwide with higher mortality and infectivity. We are unprepared to be testing on a wide scale and to initiate social distancing early enough would make a great difference. This could be an awake up call for the people and their practices. The most important action we can take is to optimize our immune system. Integrative medicine offers the lifestyle of choices a fact of immunity and natural resistance. It compares complementary or “alternative” approaches to medicine to standard biomedicine in terms of quality of life or patient well-being and also focuses on diet and nutritional supplements. Its main purpose is to promote health and to reduce disease risk by emphasizing a healthy lifestyle and susceptibility to this kind of epidemics. Most spices, especially turmeric, ginger, cinnamon, cardamom, cumin, are anti-inflammatory and immune-supportive. Vitamin C and D also support a better immune system. Even mild to moderate exercise increases the immune response and decreases stress. The best way to slow down the spread of these diseases is to stay at home, avoid gatherings, and optimize a better immune system which could reduce the risk of getting Covid-19. It is high time to bring our focus on what is most important and to reach out to and support vulnerable friends and neighbours.

STUDY OF DERMATOGLYPHIC PATTERNS AND MENDELIAN TRAIT AND ITS RELATION TO THE INTELLIGENCE QUOTIENT IN HUMANS

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Fingerprints of an individual are considered as their own recognition; study of these patterns is called Dermatoglyphics. Although there is a heritable factor behind the various patterns, ridge count vary significantly based on a lot of factors and there is insignificant evidence towards the association of such patterns to cognitive ability. Association between fingerprint patterns and intelligence quotient was previously documented by Nanakorn et al., (2011). This study involves the association of various dermatoglyphic patterns linked to clasping of hands (a known heritable trait) and IQ. Fingerprint patterns that were considered for the study are ulnar loop, Radial loop, Plain whorl, Central pocket, double loop, Accidental whorl, Plain arches and tented arches. A total of 40 undergraduate and postgraduate students, ages 12-28 years participated in the study. Fingerprints were collected by ink printing method. The collected fingerprints were analyzed and various patterns were associated with intelligence and the pattern of inheritance was compared to Hand clasping. Various dermatoglyphic patterns were found in equal proportions across all the test subjects as: Loops - 50%, Whorls - 45% and Arches - 5%. There was no statistically significant correlation between the various dermatoglyphic patterns and intelligence and variances in intelligence of people can be associated with characteristics like Quantitative Reasoning, Logical thinking etc.,



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