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Swamy K B

Lincoln University College, Malaysia

Life with Down's syndrome is no more challenging, rather beautiful

When many people hear the words “Down syndrome” they picture a significantly disabled person with a poor quality of life. Advances in medicine mean that stereotype no longer applies. Advocates for people with Down syndrome are trying to educate the public on their abilities. The lives of the 250,000 Americans with Down syndrome today are radically different than a generation ago, says Brian Skotko, co-director of the Down syndrome program at Massachusetts General Hospital. Medical advances and educational supports have led to increased life expectancy and better quality of life for those with Down syndrome. A survey done by Skotko showed that 99% of those with Down syndrome were happy with their lives. Additionally, the survey found that 88% of siblings felt that having a person with Down syndrome as their brother or sister had made them better people. Down syndrome was first studied and described by a doctor named John Langdon Down. In every cell in the human body there is a nucleus, where genetic material is stored in genes. Genes carry the codes responsible for all of our inherited traits and are grouped along rod-like structures called chromosomes. Typically, the nucleus of each cell contains 23 pairs of chromosomes, half of which are inherited from each parent. Down syndrome occurs when an individual has a full or partial extra copy of chromosome 21. This additional genetic material alters the course of development and causes the characteristics associated with Down syndrome. A few of the common physical traits of Down syndrome are low muscle tone, small stature, an upward slant to the eyes and a single deep crease across the center of the palm – although each person with Down syndrome is a unique individual and may possess these characteristics to different degrees, or not at all. According to the Centers for Disease Control and Prevention, approximately one in every 700 babies in the United States is born with Down syndrome, making Down syndrome the most common chromosomal condition. About 6,000 babies with Down syndrome are born in the United States each year. It can be concluded that although those with Down syndrome still face significant medical and educational challenges, it is important that the public perception of these individuals accurately reflect their abilities.

Biography

Swamy K B is presently working as a Professor and HOD of Clinical Anatomy, Lincoln University, Malaysia. He has been awarded PhD by Andhra University, India and obtained his Master's degree (MS in Clinical Anatomy) from Andhra Medical College, India, DMCh (Maternal & Child Health) from IGNOU, New Delhi and his Medical degree (MBBS) in 1976. He has expertise in human genetics, reproductive & developmental anatomy and also in herbal medicine. He has been the Genetic Counselor for many institutions, with prestigious grants (FRGS, URGS) from Malaysian Government. He has been the former Founder Anatomist, Professor and Head of the Department for many medical schools in India as well as in Malaysia. He is an International Editorial Board Member for many reputed journals like *Anatomical Society of India (ASI)*.

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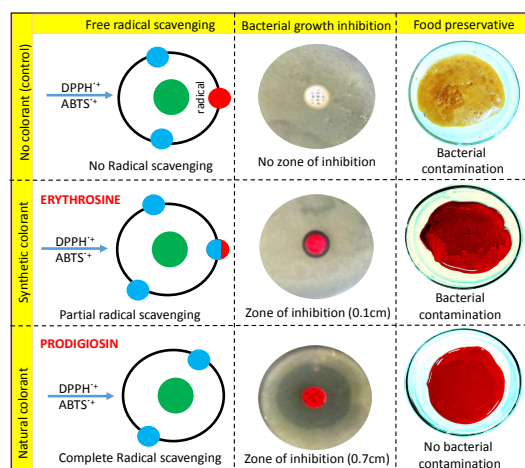


Regina Mary R

Auxilium College, India

Microbial bioactive compound for food preservation with antioxidant

Food safety is a global issue with significant implications for human health. The World Health Organization reports that, annually, unsafe food results in the illnesses of at least 2 billion people worldwide and can be deadly. Some countries have made great progress in controlling foodborne diseases, but the number of those affected by foodborne diseases is growing globally. Foodborne disease is a global issue with significant impact on human health. With the growing consumer demand for natural preservatives to replace chemical compounds, plant and microbial antimicrobial compounds must be thoroughly investigated for their potential to serve as bio-preservatives. Our research focuses the microbial-derived products as antimicrobial agents for use in food preservation and to control foodborne pathogens in foods. Structure, modes of action, stability and resistance to these plant compounds will be discussed as well as their application in food industries and possible technologies by which they can be delivered. Benefits as well as challenges, such as the need for further research for implementation and governmental regulation, will be highlighted. Thermal processing is a common method of destroying vegetative microorganisms to ensure food safety, but this technique may cause undesirable nutritional and quality effects. Preservatives are commonly used to reduce the risk of foodborne illnesses. Increasing regulatory restrictions and consumer negative response to chemical compounds and to the use of antibiotics in agriculture have contributed to the pressure for the development of alternative compounds for use as antimicrobial agents. Antimicrobial agents have been predominantly isolated from bacteria and fungi and either produced through fermentation. Worldwide, spending on anti-infective agents has increased in recent years due to the limited effective lifespan of antibiotics as new resistant microbes emerge. New sources, including microbial bioactive molecules, must be thoroughly investigated for identification of novel antimicrobial compounds. Prodigiosin is a natural red colored bacterial secondary metabolite, widely used in pharmacological and biological applications. This investigation focused on nutraceutical and food functionalization potential of natural colorant PG. The antioxidant potential of PG was examined by DPPH and ABTS radical scavenging method. The bactericidal efficiency of PG was analyzed against six foodborne pathogens. The food Shelf life extant ability of PG was analyzed using meat extract powder as a model food material. The PG (70.19 g/kg) was biosynthesized from *Serratia marcescens* by solid state fermentation. The scavenging activity of PG was calculated to be 99% and 99.9% were DPPH and ABTS, respectively. The bactericidal efficiency of PG against the selected foodborne pathogens exhibited significant inhibition on growth than the synthetic colorant and the shelf life of the food was extended in the presence of PG containing food model. Hence, the PG may be used as food colorant and thus significantly reduce the addition of synthetic colorant in food processing industry. This study will bring an innovative approach on food additive for safe and sustainable food process. Because of variation in stability and efficacy to various food processing parameters and food systems, it is critical that natural prodigiosin be selected and delivered so that they are active against potential pathogens in particular food and are stable throughout the food's shelf life. Effects of natural prodigiosin in



combination with other compounds or techniques must be more thoroughly investigated. Prodigiosin is active against Gram-positive bacteria and fungi. Given the consumer demand for more natural products and the growing need for alternative preservatives to ensure food safety, it is imperative that natural bioactive prodigiosin be fully assessed for their feasibility for food application. This new field of research has great potential for more evaluation to meet regulatory requirements and to fully elucidate the possibility of employing antimicrobials from the extensive source of microbial worldwide.

Recent Publications

1. Arivizhivendhan K V, Mahesh M, Boopathy R, Patchaimurugan K, Regina Mary R, Sekaran G (2016) Synthesis of surface modified iron oxides for the solvent free recovery of bacterial bioactive compound, prodigiosin and its algicidal activity. *The Journal of physical Chemistry B*; 120(36): 9685-9696.
2. Arivizhivendhan K V, Mahesh M, Boopathy R, Regina Mary R, Sekaran G (2016) A novel method for the extraction of prodigiosin from bacterial fermenter integrated with sequential batch extraction reactor using magnetic iron oxide. *Process biochemistry*; 51(10): 1731-1737.

Biography

Regina Mary R has her expertise in the field of development of bioactive compounds from microorganism for the biomedical application. Her contribution towards preparation of surface modification and bioactive compound conjugated nanoparticle for the treatment of pathogens from water and food system with a molecular mechanistic explanation. She has built this model after years of experience in research, evaluation, teaching and administration both in education institutions.

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Notes:



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Maria Walczak

Jagiellonian University Medical College, Poland

Profiling of lipid mediators and fatty acids in metastatic breast cancer in mice

Statement of the Problem: Breast cancer is the most frequently diagnosed tumor in women worldwide and a leading cause of cancer death. Due to the high incidence rate of breast cancer, the development of screening method is urgently needed. Targeted lipidomic analysis has indicated the potential of using bioactive lipids and fatty acids as breast cancer biomarkers.

Methodology & Theoretical Orientation: Lipid profiling in plasma was analyzed using GC/MS/MS system based on targeted lipidomic platform with the assessment of lung metastases progression in mice model (4T1) of breast cancer. To characterize lipid profile in plasma in the early and late stage of metastasis we focus on bioactive lipids and saturated, monounsaturated and polyunsaturated fatty acids pathway.

Findings: Based on primary tumor growth and lung metastases, 1-2 weeks period after 4T1 cancer cells inoculation was defined as early metastatic stage, while 3-4 weeks period after 4T1 cancer cells inoculation as late metastatic stage. The early and late phase of metastasis was characterized by a different pattern of lipids profile in plasma. The main changes in plasma lipids profile were observed at the late phase of metastasis evidenced by the reduction of the ratio of polyunsaturated to saturated fatty acids. Decreased plasma concentration of free fatty acids has been found to be associated with tumor progression in mice.

Conclusion & Significance: The early and late phase of metastasis in murine 4T1 metastatic breast cancer was associated with plasma lipidome remodeling and activation of lipid signaling mediators coincided with metastasis progression. Identification of lipid targets that play a role in breast cancer invasion may advance our understanding of the rapid progression of cancer and may lead to the development of new biomarkers for the disease.

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1. Chiu HH (2015) An efficient and robust fatty acid profiling method for plasma metabolomic studies by gas chromatography-mass spectrometry. *Clin Chim Acta*; 7: 183-190.
2. Guo S (2014) Significantly increased monounsaturated lipids relative to polyunsaturated lipids in six types of cancer microenvironment are observed by mass spectrometry imaging. *Sci Rep*; 5(4): 5959-5970.
3. Pereira DM (2014) GC-MS lipidomic profiling of the echinoderm *Marthasterias glacialis* and screening for activity against human cancer and non-cancer cell lines. *Comb Chem High Throughput Screen*; 17: 450-457.
4. Hilvo M (2014) Monounsaturated fatty acids in serum triacylglycerols are associated with response to neoadjuvant chemotherapy in breast cancer patients. *Int J Cancer*; 7: 1725-33.
5. Flowers M (2010) Pilot study on the effects of dietary conjugated linoleic acid on tumorigenesis and gene expression in PyMT transgenic mice. *Carcinogenesis*; 9: 1642-1649.

Biography

Maria Walczak has completed her Graduation from the Faculty of Pharmacy Medical Academy in Krakow, Poland and PhD degree from the Faculty of Pharmacy, Jagiellonian University Medical College (UJ CM) and Habilitation thesis in Pharmacokinetics in 2014. Since 2001 she has been working at the Department of Pharmacokinetics and Physical Pharmacy UJ CM as a Lecturer, since 2010 at the Jagiellonian Centre for Experimental Therapeutics (JCET) as a Manager of the Laboratory of Analytics and Pharmacokinetics and since 2015 as a Head of Chair and Department of Toxicology, Faculty of Pharmacy UJ CM. Her scientific work refers to pharmacokinetic and toxico-kinetic profiling, metabolite screening, targeted lipidomics and proteomics and ligands binding to blood proteins.

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Swamy K B

Lincoln University College, Malaysia

Nations can slash down the infant mortality rate (IMR) to a great extent if they implement proper health care system policies for ante-natal/prenatal and postnatal care for the rural/village level beneficiaries too

Introduction: Health of a mother and newborn depends not only on the health care received during pregnancy and Intra partum but also during postpartum period.

Objectives: To know how the cord care is provided to the Gadaba and Konda Dora newborns, to assess the incidence of home-deliveries, to identify the different categories of care providers and to find out the prevailing components of the traditional cord care practices.

Settings & Design: A cross-sectional study was conducted on Gadaba and Konda Dora tribal populations at random from 95 tribal villages in Vizianagaram district, Andhra Pradesh.

Materials & Methods: Data were collected from 300 lactating women from each tribe who were aged between 15-45 years through in-depth and face to face interview method.

Results: Nearly one fifth (18.0%-20.0%) of the present tribal women reported that the umbilical cord was cut after the delivery of the placenta and majority of the respondents were not sure/unaware of the time of removing the umbilical cord. Most of the Gadaba (80.3%) and Konda Dora (82.3%) tribes used the new shaving blade to cut the umbilical cord. After cutting the umbilical cord, new thread was tied to the stump to arrest the blood flow in 80.3% of Gadaba and 83.0% of Konda Dora newborns. About 96.0% of Gadaba and 95.3% of Konda Dora newborns were applied with variety of oils or ash of vegetative origins and also used different powders to the wound for healing.

Conclusion: Some of the present study tribal women have adopted certain unhygienic practices in cutting the umbilical cord with unsterilized unsafe instruments, tying the wound with available material and also applying the cord stump with different substances which are considered as unhealthy practices.

Biography

Swamy K B is currently working as a Professor and HOD of Clinical Anatomy, Lincoln University, Kuala Lumpur, Malaysia and has been awarded PhD by Andhra University, India. He has completed his Master's degree (MS in Clinical Anatomy) from Andhra Medical College, India, DMCh (Maternal and Child Health) from IGNOU, New Delhi, his Medical degree (MBBS) in 1976 (KMC-Kurnool). He has expertise in human genetics, reproductive health and developmental anatomy and also he performed many researches in herbal medicine. He has been the Genetic Counselor for many institutions. He has been the former Founder Anatomist, Professor and Head of the Department for many medical schools in India as well as in Malaysia.

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R Manjunatha Kini

National University of Singapore, Singapore

Inspiration from nature: Far-reaching impact of toxin research

Mankind has drawn inspiration from nature to help resolve various situations. Examining nature has aided in the development of almost every aspect of our lives - from buildings and bridges to materials and medicine. We benefit from these nature's revelations several times a day and often without realization. Venomous animals are found throughout the phylogenetic tree. Venoms and toxins have evolved to assist them in the immobilization of prey and food capture as well as keeping the predators and competitors away. At the first glance, venomous animals, their venoms and toxins appear as villains and detrimental to you and your community. Despite their deadly, debilitating and harmful effects, a significant number of toxins have contributed to the development of (a) life-saving drugs; (b) diagnostic agents; and (c) research tools. In addition, they contribute to understanding fundamentals of chemistry, folding and evolution of proteins. Thus, over the last several decades, toxin research has contributed significantly to both basic and applied sciences. We have been interested in structure-function relationships, mechanism of action and evolution of protein toxins. In this talk, I will highlight the impact of toxin research to our daily lives.

Recent Publications

1. Sridharan S, Kini R M (2018), R. M.: Decoding the molecular switches of natriuretic peptides which differentiate its vascular and renal functions. *Biochem. J*; 475: 399-413.
2. Iyer J K, Koh C Y, Kazimirova M, Roller L, Jobichen C, Swaminathan K, Mizuguchi J, Iwanaga S, Nuttall P A, Chan M Y, Kini R M (2017) Avathrin: A novel thrombin inhibitor derived from a multi-copy precursor in the salivary glands of the ixodid tick, *Amblyomma variegatum*. *FASEB Journal*; 31: 2981-2995.
3. Sridharan S, Kini R M (2015) Tail wags the dog: activity of krait natriuretic peptide is determined by its C-terminal tail in a natriuretic peptide receptor-independent manner. *Biochem. J*; 469: 255-266.
4. Varuna H P, Adams D J, Kini R M (2015) A distinct functional site in omega-neurotoxins: Novel antagonists of nicotinic acetylcholine receptors from snake venom. *ACS chemical biology*; 10: 2805-2815.
5. Chen W, Carvalho L P, Chan M Y, Kini R M, Kang T S (2015) Fasxiator, a novel factor XIa inhibitor from snake venom, and its site-specific mutagenesis to improve potency and selectivity. *J. Thrombos. Haemost*; 13: 248-261.

Biography

Professor Manjunatha Kini conducts basic and applied research on snake venoms and saliva of blood-feeding animals, both contain pharmacologically-active proteins. He is an accomplished biochemist and established world leader in the field of toxins as well as in blood clotting (thrombosis and hemostasis). His main research focus is "From Toxins to Therapeutics", where he identifies novel bioactive proteins from venoms or saliva, determines their modes of action, and designs potential drug-leads based on their structure. Venom toxins target cardiovascular and neuromuscular systems. He has published 240 research publications including 182 original articles, 40 reviews and 18 book chapters. In addition, he also filed 50 patent applications. He edited two monographs "Venom Phospholipase A2 Enzymes: Structure, Function and Mechanism" (Sole editor, 1997, John Wiley, England) and "Toxins and Hemostasis: From Bench to Bedside" (Chief Editor, 2010, Springer, The Netherlands). He also edited five special issues for various journals.

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