

18th Global Biomarkers and Clinical Research Summit

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Consideration of expanding the use of N-NOSE for pets

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Caenorhabditis elegans, a type of nematode has an excellent sense of smell, and it is known that there are approximately 1200 olfactory receptors, which is about 1.5 times that of dogs. Hirotsu et al. have already reported that *C. elegans* is not attracted to the urine of cancer patient by disrupting a neural gene involved in the reception of volatile substances. Imaging experiments confirmed that the sensory nerves of *C. elegans* were significantly activated for the cancer urine. From these results, it was suggested that *C. elegans* detects cancer odor in urine. Nematode nose (N-NOSE) was developed as a cancer screening test using the sense of smell of *C. elegans* with such characteristics. This test is non-invasive and has been suggested to be able to detect 15 types of cancer so far. In clinical trials by N-NOSE, *C. elegans* showed high sensitivity, especially for early cancers. Among them were early pancreatic cancer, which is said to be difficult to detect.

Like humans, cancer is one of the most serious illnesses in veterinary medicine. Therefore, we evaluated the responsiveness of *C. elegans* to canine and feline urine samples by N-NOSE. Previous studies in humans have reported that the reactivity of *C. elegans* differs depending on the dilution rate of urine even in the same sample. In this case, considering the urinary characteristics of dogs and cats, we evaluated samples with four concentrations of 10⁻¹ to 10⁻⁴. The statistical analysis by Welch's t-test showed a significant difference between healthy and cancer values at all concentrations. Statistics in dogs were good at all four concentrations, while cats were particularly good at low concentrations. In summary, we have shown that *C. elegans* can significantly detect cancer in the urine of dogs and cats.

Biography

Toshimi Sugimoto has research experience specializing in transcription factors and stem cells. Based on her expertise, she has also been involved in the development of anti-cancer, immunosuppressive and anti-pancreatitis treatments. She joined Hirotsu Bioscience Inc. in 2017 to take advantage of her extensive research experience. In her current affiliation, she is enthusiastic as one of the practical members of N-NOSE and as the leader of clinical analysis projects.

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Building muscles: the molecular regulation of muscle regeneration by H₂S

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Hydrogen sulfide (H₂S) was originally considered toxic at elevated levels; however just in the past decade H₂S has been proposed to be an important gasotransmitter alongside nitric oxide and carbon monoxide. H₂S can be generated endogenously from L-cysteine by multiple enzymes. Numerous studies have demonstrated that H₂S influences various cellular functions and pathophysiological processes. Many of the effects of H₂S are mediated through reactions with cysteine sulfur on regulatory proteins via S-sulphydration, which affects the structure and functionality of the proteins and alters enzymatic activity, protein localization, protein stability, and protein interactions, etc. The discoveries on H₂S signaling in biology and medicine exhibit a continuous trend of increase, reflecting the increased research intensity and diversity globally. Considering the key role of H₂S in both health and diseases, a better understanding of the regulation of H₂S metabolism and its molecular mechanisms in regulating cellular functions will help us to develop novel and more effective strategies for clinical therapy. Our recent findings support an essential role for H₂S in maintaining myogenesis and building muscle upon various damage, presenting it as a potential candidate for prevention of age-related sarcopenia and treatment of muscle injury.

Biography

Dr. Guangdong Yang is a Professor in the School of Natural Sciences and the director of Cardiovascular and Metabolic Research Unit (CMRU), Laurentian University, Canada. Dr. Yang's research focuses on the regulation of cardiovascular health in general, and the pathogenesis and treatment of diabetes, atherosclerosis, and hypertension in particular. His research has been supported by the Canadian Institute of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC), and the Heart and Stroke Foundation of Canada (HSFC). Dr. Yang received New Investigator award from Heart and Stroke Foundation of Canada (2008) and Maureen Andrew Award from Heart and Stroke Foundation of Ontario (2010). He has published 130 peer-reviewed papers and many of them were published in high-impact journals, including as Science, Circulation, Proc Natl Acad Sci U S A, and EMBO report etc. The total citation number is 11600 (google scholar) with an H index as 46.

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U.S. Biosimilars Market – A Deep Dive

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Ever since the approval of the first biosimilar drug in the U.S. in 2015, 31 biosimilars have been approved till date (as of September 2021). While 2019 witnessed a steep surge in the approval rates of biosimilars, the COVID-19 pandemic and the resulting lockdown did slow down the approval rates over the last one year (2020 – 2021). Nevertheless, the U.S. biosimilars market is poised to witness a significant growth of 25% (CAGR) over the next seven years (2021 – 2028) propelled by the patent expiry of key blockbuster drugs, increased cost-saving initiatives and conducive regulatory framework established by the U.S. government, strategic partnerships, and industry consolidation in addition to the rising incidence of chronic diseases and aging baby-boomer population. Both the biotech firms as well as regulatory authorities have emerged resilient and geared well to a post-pandemic world.

This market research service analyses the revenue prospects of the U.S. biosimilars market (in terms of market size, growth rates, YOY revenue forecasts, etc.), patent cliff (biologic drugs due to lose patent protection), key therapeutic areas overview, competitive landscape, key strategic alliances, regulatory framework, pricing and reimbursement policies as well as impact mapping of patients, physicians and payers. Furthermore, strategic recommendations for the success of market participants have also been discussed.

Biography

Aiswariya Chidambaram is a management consultant project leader with over 11 years of experience in the Life Sciences (Pharmaceutical & Biotechnology) sector. To her credits, Aiswariya has Consulted and provided strategic insights to several leading multinational pharmaceutical and biotech firms across the globe. Authored over fifteen research reports on key therapeutic and service areas for the global pharmaceutical and biotechnology markets. Authored over thirty publications including whitepapers, ad-hoc articles and expert interviews in reputed magazines and journals. Been a plenary/key-note speaker at reputed industry conferences including CPhI, Pharma Tech, United Pharma, among others. Identified and acknowledged companies demonstrating excellence in specific market/product segments and technologies as part of the industry best practices research.

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Optimization of Land Leveling Operations through Least Square Method and Its Comparison with the Genetic Algorithm and Particle Swarm Optimization Algorithm

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For a uniform distribution of water, decrease in water waste and decrease in erosion of soil, it is important that a land be prepared with proper slopes along its length as well as width. The aim of leveling is to create appropriate slopes for irrigation and drainage on the lands that were not already properly levelled and of the same time creating the level surface with a minimum transport of soil. Throughout the present study, characteristics of a level plane of an agricultural land are modeled by programming algorithm with the results being compared with Minimum Least Square method. Statistical and descriptive results show that Genetic Algorithm and Particle Swarm Optimization algorithm benefit from more accuracies than Minimum Least Square. Also, practice of such restrictions as maximum depth of excavation is easy to be applied in this method. In addition, using Genetic Algorithm method decreased the volume of excavation by 20% and 17.5%. Another method, called Particle Swarm Optimization, was also applied with the results indicating that the volume of the soil cut and fill for Particle Swarm Optimization method was recorded as less than that in Genetic Algorithm method.

Biography

Alzoubi has completed his Ph.D. at the age of 40 years at Tehran University and postdoctoral studies from Tehran University School of Surveying Geospatial Engineering-Department of Surveying and Geomatics Engineering. He is the director at the Directorate of Engineering and Transportation, a premier service organization. He has published more than 15 papers in reputed journals and has been serving as an editorial board member of repute. He Opening and studying the financial offers and the organization of the fundamental record, supervising the efficiency of electrical generators at Nseeb border center, and Supervising the efficiency of agricultural machinery at the ministry of agriculture.

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Effect of neurobic exercise program on memory rehabilitation in the elderly with mild cognitive impairment

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Neurobic exercise program helps memory, thinking and improves mood and sleep and reduces stress and anxiety. Problems in these areas frequently cause or contribute to cognitive impairment. The objective of this quasi-experimental research was to examine the effect of neurobic exercise program on the memory rehabilitation in the elderly with mild cognitive impairment. Twenty two (22) female elderly with mild cognitive impairment, who were residing at Chai Nat Province in Thailand, were purposively selected to participate in this research. Selected participants were involved in neurobic exercise program on every 2 days per week, continuously for 6 weeks. The instruments consisted of the Mini-Mental State Examination- Thai 2002 and the neurobic exercise program. The reliability of the Mini-Mental State Examination-Thai 2002 using Kuder- Richardson-20 was 80. Data were analyzed using descriptive statistics and paired t-test. The results that the average memory scores of the experimental group after receiving the neurobic exercise program were statistically and significantly higher than before receiving the neurobic exercise program at a level of $p < 0.05$. This study could be used as guidelines by health care providers in enhancing the memory retention of the elderly with mild cognitive impairment and delaying the deterioration of the brain.

Biography

Jaruwan Kansri is a Nursing Lecturer at Boromarajonani College of Nursing, Chai Nat province, Thailand and has more than 12 years of experience in nursing education and nursing practice. As a Nursing Teacher in Boromarajonani College of Nursing, she has supervised student nurses and managed the care of the psychiatric patients of the medical wards in the psychiatric hospital as well as alongside the psychiatric patients living in communities.

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