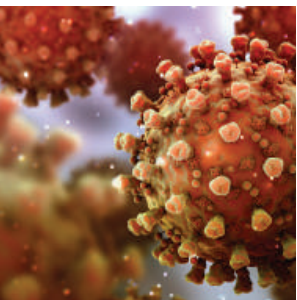

Scientific Tracks & Sessions

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Evaluation of genetic association between type 2 diabetes mellitus and thyroid dysfunction in people of Chakwal district, Pakistan

Ayesha Maqbool

Virtual University of Pakistan

Thyroid hormones play an integral part in regulating many of the important metabolic activities by activating nuclear transcription of large numbers of genes, synthesizing new proteins which are involved in growth, central nervous system (CNS) development, cardiovascular mechanisms and many of the metabolic activities such as glucose absorption, gluconeogenesis and lipolysis. The Thr92Ala (rs225014) polymorphism in the type 2 deiodinase (DIO2) gene has been associated with insulin resistance (IR) and decreased enzyme activity in human tissues but kinetic studies failed to detect changes in the mutant enzyme, suggesting that this variant might be a marker of abnormal DIO2 expression. As

iodothyronine deiodinases type DIO1 and DIO2 have been associated controversially to thyroid dysfunction in various studies, this study is aimed to determine the possible genetic association between one of the SNP i.e. rs225017 of DIO2 enzyme with type 2 diabetes mellitus.

Speaker Biography

Maqbool A has completed her PhD at the age of 29 years from University of Ulm, Germany. She is the Assistant/professor at Dept. of Molecular Biology, virtual University of Pakistan. She has over 20 publications and 15 Master students have passed out under her supervision and her impact factor is 20..

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 Notes:

Mesenchymal Stem Cells Lysate as a Cell-Free Therapy

Sabeen Malik

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Mesenchymal stem cells (MSCs), a self-renewing and multipotent population of cells that have proved to be a potential regenerative medical therapy option. Initially, it was assumed that the primary mechanism behind MSCs action was cell substitution by differentiation and engraftment at the injury site. However, recent trials have demonstrated that implanted cells don't last long and that the benefits of MSCs therapy may be triggered by a wide number of bioactive factors, essential for regulating main biological processes. Thus, supporting the paracrine mechanism of action of MSCs. Application of secretome could eliminate the potential risk factors associated with MSCs transplantation, like the unknown fate of cells after transplantation, malignant transformation and undesired differentiation of MSCs. However, the use of a secretome might not give long-lasting and desired results. Thus, it may

intuitively suggest the need for other treatment options. The cellular lysate is considered as an alternate cell-free treatment strategy for the cure of multiple disorders. The present review describes the MSCs secretome/extracellular vesicles and MSCs lysate, derived from bone marrow and adipose, as a cell-free therapy with the application of MSCs lysate for various diseases during the period 2010 from 2020. Moreover, it also highlights the advantages and limitations of each cell-free therapy.

Speaker Biography

Sabeen Malik is a PhD Biotechnology scholar at the University of Lahore, Pakistan. Her Ph.D. dissertation is under foreign evaluation process. She has seven publications and many more are under publication process.

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 Notes:

The Bacterial-Yeast Consortium: A Better Probiotic Approach in Aquaculture

Tanveer Ahmad

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The probiotics shield aquaculture against numerous diseases and is based upon their gut colonization, bile salts tolerance, extra cellular enzymes production, safety for the targeted aquaculture, enhancing the water quality, boost in immunity of the host species, host specie nutritional improvement via additional digestive enzymes, competitive inhibition of pathogenic bacteria and antimicrobial compounds production. Geotrichum candidum-01, Enterococcus faecium-01, Enterococcus hirae-01, F-03 (Fish Gastrointestinal isolate) and commercial consortia of probiotics were administered in different combinations in Labeo Rohitha (Rohu) to evaluate their impact on their growth parameters, health, haematology and digestive enzymes at 10⁹ cfu g⁻¹ as a feed additive for 45 days. The highest % weight gain of 123.30±2.79 was observed in the group of L. rohita fed G. candidum+F-03 combined. This group also showed significant results in increasing the specific growth rate and WBCs count. In the present study, protease activity in L. rohita fed G. candidum-01 + E. faecium-01 (T5) in combination was significantly higher (P<0.05) as compared to control group of fish fed basal diet. While significantly

higher (P<0.05) amylase activity was observed in the group of fish fed F-03 (T4) supplemented diet. Cellulose activity was significantly high (P<0.05) in the group of fish fed Enterococcus hirae-01 (T3). The chemical analysis of dry mass of Labeo rohita fingerlings revealed 11.19% increase in the crude protein content and 46.93 % increase in crude fats content in comparison to the basal diet fed control group. We found that the synergistic effect of multi-strain potential probiotics can even produce better results in Labeo rohita by means of fast growth, better survival and high amount of crude protein and fats content. This study helped in diagnosing the importance of gastrointestinal isolates with potential probiotic abilities and they can be a better prospect for improving the health and growth abilities of aquaculture in the nearest future.

Speaker Biography

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 Notes:

Functional and probiotic attributes of *Lactococcus lactis* subsp. *hordinae* HB3, a human gut isolated strain

Maryam Idrees

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Probiotics have long been recognized to positively modulate several aspects of human health. According to FAO/WHO recommendations, micro-organisms isolated from human gastrointestinal tract could only be used as probiotic's for humans. Host-adapted autochthonous probiotic strains, have their genomes specialized to facilitate niche-specific fitness. Such strains exhibit higher adaptability and persistence, lower immunostimulatory potential and niche-specific metabolic activity. In the present study, we have discovered human gut-associated, probiotic *Lactococcus lactis* subsp. *hordinae* HB3 strain. It was isolation using a LAB specific medium, followed by phenotypical and biochemical characterization. The strain was molecularly identified as *Lactococcus lactis* subsp. *hordinae* through 16s rRNA genome sequence analysis. Interestingly, the strain featured important functional and

probiotic properties. It negated haemolysis of blood cells and showed susceptibility to most of the tested antibiotics. The strain exhibited tolerance to acid (pH3) and bile salts (0.5%w/v), high enzymatic (lipolytic, amylolytic and proteolytic) potential and significant antimicrobial activity ($p < 0.05$). Therefore, *Lactococcus lactis* subsp. *hordinae* HB3 has the potential to be further investigated as an autochthonous putative probiotic strain for human use.

Speaker Biography

Maryam Idrees, PhD scholar from quaid I Azam University Islamabad, Pakistan. and research fellow at national institute of genomics and advanced biotechnology (nigab), national agricultural research centre (narc), Islamabad, Pakistan.

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