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ASIA EDITION

Ã¢â?¬Å?With an array of partners, we are tackling some of the biggest unmet needs in mental health diseasesÃ¢â?¬Â•

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Revealing new answers through precise analysis of the gut microbiome, Australia-based startup Microba Life Sciences is strengthening its presence in the market by partnering with global leaders to turn its discoveries into transformative solutions for medical diagnosis and treatment. To find out more about the solutions being offered by the startup in the microbiome space, BioSpectrum Asia reached out to Dr Luke Holtham Reid, President, Microba Life Sciences, Australia, soon after the World Microbiome Day, celebrated on June 27 every year. Edited excerpts;

What unique initiatives are being taken by the company to connect microbiome with human health? Which are the major therapeutic areas being covered?

Microba Life Sciences is working to make important advancements in medicine by harnessing the gut microbiome as a rich source of novel therapeutics using precision microbiome science. This stems from our proprietary discovery platform that utilises human data and leading informatic approaches to identify promising therapeutic leads. In particular, we have established therapeutic programmes to address unmet clinical needs in our lead programme targeting Inflammatory Bowel Disease (IBD). To support this and our other programmes we have assembled global clinical leaders to guide the pre-clinical and clinical development of these breakthrough therapies. Microba's IBD therapeutic leads are delivering excellent results in pre-clinical models. The company is now rapidly progressing these into a first-in-human clinical trial. Our rapid progression in therapeutic development is delivering on our mission of using precision microbiome science to enhance human health. We are uniquely placed to discover and develop microbiome-based therapeutics due to our unrivaled MAP technology which provides the most comprehensive and precise measurement of the human gut microbiome.

How is the company contributing to the field of mental health with the help of microbiome research?

With our capabilities and expertise we have attracted an array of partners to tackle some of the biggest unmet needs in mental health diseases where we see a gut-brain axis linkage. To mention a few, we have a project exploring the links

between sleep and the human gut microbiome with global company Unilever. It will take a novel approach to the issue of poor sleep quality by exploring the links between sleep, the human gut microbiome and the foods we eat. Current data in this space indicates that gut bacteria are involved in not only sleep quality but also the regulation of circadian rhythms and the production of natural substances that aid in the promotion of sleep. This provides us the opportunity to alter the microbiome to improve sleep quality. We are building the world's largest consistently collected and analysed datasets of de-identified gut microbiome metagenomic data which is providing unparalleled insight into the role of the microbiome in human disease. This database will be leveraged to discover associations between the gut microbiome, nutrition and sleep.

Our collaboration with The University of Queensland's (UQ) Faculty of Medicine exploring the role of the gut microbiota in Parkinson's disease has multiple research programmes to identify biomarkers of disease and to test new potential therapeutics. Accumulating evidence is increasingly demonstrating the role of the gut microbiome in the early development of Parkinson's, with research showing that changes in gut function often come many years before the onset of symptoms such as tremors.

One project, led by Dr Richard Gordon's team at the Translational Neuroscience Research Group at UQ will explore the impact of treatment with a novel fermentable bacterial substrate on non-motor symptoms of the disease, to improve patients' quality of life. This project will implement Microba's metagenomic analysis technology to investigate the clinical outcomes of the product as well as its microbiome-based mechanism of action. It's expected that the proprietary product, produced in New Zealand by Anagenix Ltd, stimulates the growth of particular beneficial bacterial species, which are lost in Parkinson's as the disease progresses, with the aim of restoring healthy gut function. This clinical trial is now recruiting. Through many of these projects, we are working with our partners Illumina, Inc., the global leader in DNA sequencing and array-based technologies to advance understanding of the human gut microbiome in human health and disease. Our partnership has brought together Microba's high-quality proprietary gut microbiome analysis platform with Illumina's Next Generation Sequencing tools to generate the most accurate microbiome data available and power leading research.

What are the big plans in store for the growth of the company?

The differentiated approach to drug discovery that we use is significantly improving the rate of success in progressing novel drug candidates into the clinic. We are also continuing our work on accumulating the world's highest quality dataset globally. Our dataset enables a precision approach to the discovery of new products to enhance human health and improve medicine globally. Microba also continues to advance the application of artificial intelligence methods applied to large microbiome datasets.

How is the human microbiome market evolving in the APAC region?

The awareness of the human microbiome and its importance in health and disease states is rapidly growing, with researchers and consumer companies alike, adding gut microbiome research to their portfolios. This takes the form of health-related research such as sleep, nutrition, mental health or inflammatory disorders, or research for product development. With the ageing population, there is an increasing focus on healthy ageing through improved diet. Along with this, we are witnessing increasing interest within consumers and healthcare practitioners to access microbiome testing services.

What are the current challenges and barriers affecting the growth of the human microbiome space in APAC?

Current challenges are educating the general masses around the importance of the gut microbiome, the state of clinical research, and what can be gleaned from research. The cost of comprehensive analysis can also provide a barrier however, we've seen the cost come down dramatically in the last decade, meaning that as interest increases and technology advances, the cost will come down even further. Our experience is that global leaders are recognising the potential in the gut microbiome and how precision medicine can transform medical diagnosis and treatment.

Do you think technologically advanced countries such as China, Singapore, Japan, Korea are doing better than the others in this space?

We have experienced that technologically advanced countries are more aware of their health and tend to be the populations consuming supplements such as probiotics. However, the general public's understanding of the gut microbiome and its importance is still in its infancy. Market education in this space on a global level is definitely needed to see a real understanding of the wider importance of the gut microbiome as well as more engagement in technology such as gut microbiome analysis. It's anticipated that technologically advanced countries, such as Japan, will see large-scale adoption of gut health solutions which we've already seen evidenced by the appetite for personalised nutrition based on consumer genetics.

How do you foresee the adoption of precision medicine in the APAC countries?

Our partnership with Illumina will focus on the Asia Pacific region to enable research studies that reveal connections between the microbiome and human health. Understanding the role the gut microbiome plays in health and disease states is one of the most important opportunities to advance human health. Combining our deep analysis capability with Illumina's advanced technology, this opportunity is being realised. I do believe that one day in the future, we will see gut microbiome testing a standard part of our lives, whereby you will take a gut microbiome test along with a blood test.

Dr Manbeena Chawla
manbeena.chawla@mmactiv.com