

Angelina Tiah, Director of Biotech Division at

# SRAM & MRAM GROUP



**O**ur company was founded in 2019 as a result of a strategic alliance with 23 Century International Life Science Centre, a leading manufacturer of stem cells and immunology treatments in Southeast Asia. We have been able to leverage the vast expertise and innovation from the 23 Century to drive industry advancement and commercialization forward.

CELLAAX Therapy is where our experts, scientists, and researchers come together to develop advanced protocols to help accelerate the growth of cellular therapy and immunotherapy treatments in Malaysia

With our growing pipeline and leading technology, we aim to build a fully integrated company leveraging modern capacities to manufacture and deliver transformative human cell therapy products of high industry standards to pivot us towards global success and as a preferred destination with expertise in human cell therapy treatments within the region. CELLAAX is a clinical-stage biopharmaceutical company engaged in regenerative medicine. We are on the path of discovery, research, development, and commercialisation of advanced cellular therapy.

We have developed advanced innovative protocols in the use of:

- Mesenchymal Stem Cells (MSC)
- Natural Killer Cells (NK-Cells)
- Secretome Therapy

We have proven our methods to be effective in achieving desired outcomes. CELLAAX stem cells are ethically sourced, QA and QC validated to meet international regulatory standards, and they undergo stringent validation.

#### VISION

- To contribute to human welfare by application of bio-cellular engineering in the research, development, and manufacture of cells to restore health and extend life.
- To direct our growth in the areas of bio-cellular engineering where we display maximum strength and ability; to gather people and facilities that tend to augment these areas; to continuously build on these areas through education and knowledge assimilation.
- To strive without reserve for the greatest possible reliability and quality; to be the unsurpassed standard of comparison and to be recognized as a company of dedication, honesty, integrity, and service.

#### MISSION

Develop innovative healthcare solutions in ethical collaboration with medical professionals that benefit patients and improve customer and shareholder outcomes.

#### TELL US ABOUT YOURSELF

I have been involved in the pharmaceutical, surgical, and medical device industries for the past 20 years. The goal of my company is to develop new cellular and secretome-based products to treat multiple conditions, particularly refractory diseases such as stroke, autism, autoimmune diseases, diabetes, and genetic disorders like Retinitis Pigmentosa, which I started in 2017 as a cell and gene therapy company and founded 23 Century in 2018.

#### WHAT ARE THE KEY SERVICES/PRODUCTS OFFERED BY YOU WHICH ADD VALUE TO YOUR TARGET CLIENTELE?

We offer a combination of cellular therapies for the treatment of diseases. We have demonstrated the therapeutic benefits of our medical-grade stem cells and immune cells in resolving progressive diseases, reregulating the immune system, and treating cancer.

We developed a cell-free secretome therapy that reduced medical costs in all three areas: preventing, maintaining, and controlling disease progression. We defined our patented secretome as the small molecules that healthy stem cells secrete into the extracellular space under defined conditions. This includes soluble factors, lipids, and extracellular vesicles (EVs). The importance of MSC secretomes in regenerative medicine has led to the development of cell-free therapies as a promising therapeutic strategy.

#### WHAT INSPIRED YOU TO START YOUR COMPANY, AND HOW DID YOU GET YOUR START?

I worked for a surgical company during which I assisted doctors during surgical procedures. An operation's outcome is never certain; it can be successful or disappointing. It was the uncertainty of surgical procedure that caused me to reevaluate current best practices in medicine. A human cell therapy can be used as a prophylactic treatment for certain diseases, to minimize the damage caused by existing diseases or to speed up the recovery process following an operation. Furthermore, cell therapy can aid in the reversal of refractory diseases where conventional treatments cannot be effective. As a result, I decided to introduce this new breakthrough in medicine to Malaysia in 2018.

#### HOW WOULD YOU DESCRIBE THE CURRENT STATE OF THE BIOTECH INDUSTRY? WHAT MAJOR TRENDS OR DEVELOPMENTS ARE YOU OBSERVING?

In recent years, the biotech industry has been rapidly evolving and has become one of the most promising. The field includes pharmaceuticals, genetics, genomics, medical devices, bioinformatics, and synthetic biology, among others. A biotech company develops innovative products and technologies that enhance healthcare outcomes, improve agricultural practices, and drive advancements in a variety of industries.

In January 2021, Novartis, a Switzerland-based pharmaceutical company collaborated with Alnylam, a US-based biopharmaceutical company for explore in the application of the latter's siRNA technology and the development of targeted therapy for the restoration of liver function. As part of the exclusive three-year research collaboration, Alnylam will develop and test potential siRNAs using Novartis' target-specific assays. Novartis will conduct further development and clinical research once a lead candidate has been identified.

In October 2021, Amgen, a US-based biopharmaceutical company, acquired all outstanding shares of Tenebio for a deal amount of \$2.5 billion. Amgen

acquired Tenebio's bispecific and multispecific antibody technologies as part of the acquisition. These solutions complement the company's existing antibody expertise and Bite platform. This will aid in the discovery and advancement of novel molecules for the treatment of a wide range of illnesses in Amgen's major treatment areas. TeneBio is a US-based biotechnology business that specialises in the production of human heavy chain antibodies. I foresee more mergers and collaborations in the future for the integration of new sciences and techs, leading to more offers of products and services.

#### WHAT ARE SOME OF THE KEY CHALLENGES AND OPPORTUNITIES THAT YOU SEE IN THE BIOTECH INDUSTRY TODAY, AND HOW ARE YOU APPROACHING THEM?

As a director of the Biotech Division at SRAM & MRAM Group, I see the following challenges:

- Talent shortage – A shortage of biotech talent is expected to widen by 29.2 percent in Singapore over the next decade as the industry expands. Singapore's prospects as a biotech hub are positive, but talent is a major constraint. The number of personnel shortages is expected to grow 30% from 154 in 2022 to 199 in 2032. The shortage affects roles in research and development, production, regulatory affairs, and business management.
- The number of startups is expected to increase exponentially, but the journey to commercialization is too long.

#### Here are some opportunities:

- As countries compete for new technologies and sciences, we expect more conducive policies to emerge.
- The support of new start-ups will lead to more innovations and inventions, generating more value for the industry.

### WHAT STRATEGIES DO YOU EMPLOY TO STAY COMPETITIVE IN SUCH A RAPIDLY EVOLVING INDUSTRY?

As a company, we actively recruit young graduates and provide them with exposure to the industry. In collaboration with the Malaysia Ministry of Science, Technology and Innovation and local universities, we are developing an on-the-job academy for younger scientists to learn about CGMP cell manufacturing. We always keep an eye on the newcomers and are ready to provide support and aid to nurture start-ups and new tech.

### CAN YOU DISCUSS THE IMPORTANCE OF INNOVATION AND RESEARCH IN THE BIOTECH INDUSTRY? HOW DOES YOUR ORGANISATION FOSTER A CULTURE OF INNOVATION?

In every industry, R&D is equally significant. Our focus is always on making the cake bigger, not slicing it. For example, food biotech and food security require research and development to prevent problems brought on by global population growth. The focus of research and development will continue to be on increasing crop yields and developing biofoods.

In biopharma, R&D allows us to develop new and potentially non-invasive approaches in dealing with refractory diseases that have no cure. For example, our company has launched the study of REPAAX, a cell therapy for genetic blindness namely Retinitis Pigmentosa. Patients that suffer from retinitis pigmentosa gradually succumb to complete vision loss as there is currently no cure for this condition, although various supportive therapies are available. The study was published in the Medical Journal of Malaysia last September (2022) where our mesenchymal stem cells were injected into an area known as the sub-tenon space, deep within the eye cavity.

After a year of follow-up post-treatment, patients reported experiencing more definitive brightness, and improvement in vision precision and they did not suffer any further deterioration to their vision and visual field, nor did they experience any adverse side effects from the injections.

### THE BIOTECH INDUSTRY HAS A SIGNIFICANT IMPACT ON SOCIETY AND THE ENVIRONMENT. HOW DOES YOUR ORGANISATION PRIORITISE SUSTAINABILITY AND ETHICAL CONSIDERATIONS IN ITS OPERATIONS?

In the first place, we ensure that our production line follows the international guidelines set by the PIC/S body, which has more than 60 national authorities on its board. The guidelines include Current Good Manufacturing Practice (CGMP) for Cell and Gene Therapy Products (CGTP) and ASEAN Common Technical Dossier (ACTD). We are highly scrutinized under Malaysian Ministry of Health complying with drug regulator National Pharmaceutical Regulatory Agency (NPRA).

### HOW WOULD YOU DEFINE SUCCESS FOR YOUR COMPANY?

Despite the challenges we face as a startup incorporated during the Covid-19 pandemic, we have managed to publish a few clinical trials and case study reports. In my opinion, the company's success comes down to providing promising treatments at an affordable price.

### WHAT DO YOU SEE AS THE FUTURE OF YOUR INDUSTRY, AND HOW DO YOU PLAN TO POSITION YOUR COMPANY TO THRIVE IN THAT FUTURE?

The development of a new therapeutic approach for rare and refractory diseases will continue. To benefit more people, we continuously develop more downstream products at affordable prices.

### WHAT WAS YOUR PREVIOUS EXPERIENCE?

I have an APC (annual practicing certificate) in complementary medicine and have been certified by Covidien Clinical Institute Shanghai in aseptic surgical skills. I graduated from Campbell University with a Bachelor of Science degree in Chemistry and Biology.

As part of my previous employment, I was actively involved in professional affairs and clinical education. As a certified trainer by HRDF and the international body FORUM & Ken Blanchard, I conducted numerous product training for local distributors. I also conducted continuing medical education for medical personnel, live surgery, and Train the Trainer workshops for both local and international doctors.

At the moment, I am developing new cellular and secretome-based products for the treatment of multiple conditions. I worked closely with local and international experts to publish clinical experience papers, case studies, and clinical trials regarding autoimmune, genetic, and refractory diseases in Southeast Asia.

### WHAT ADVICE WOULD YOU GIVE TO ASPIRING ENTREPRENEURS OR PROFESSIONALS LOOKING TO ENTER THE BIOTECH INDUSTRY?

The key to success is perseverance. Entrepreneurs in the biotechnology industry will certainly face more challenges than those in other industries. In order to provide everyone with high-quality and highly affordable healthcare, it is crucial to stay focused on your goal. This will become a reality through my perseverance.