



Stemcell United Limited,  
ACN 009 104 330

# Investor Presentation

March 2021

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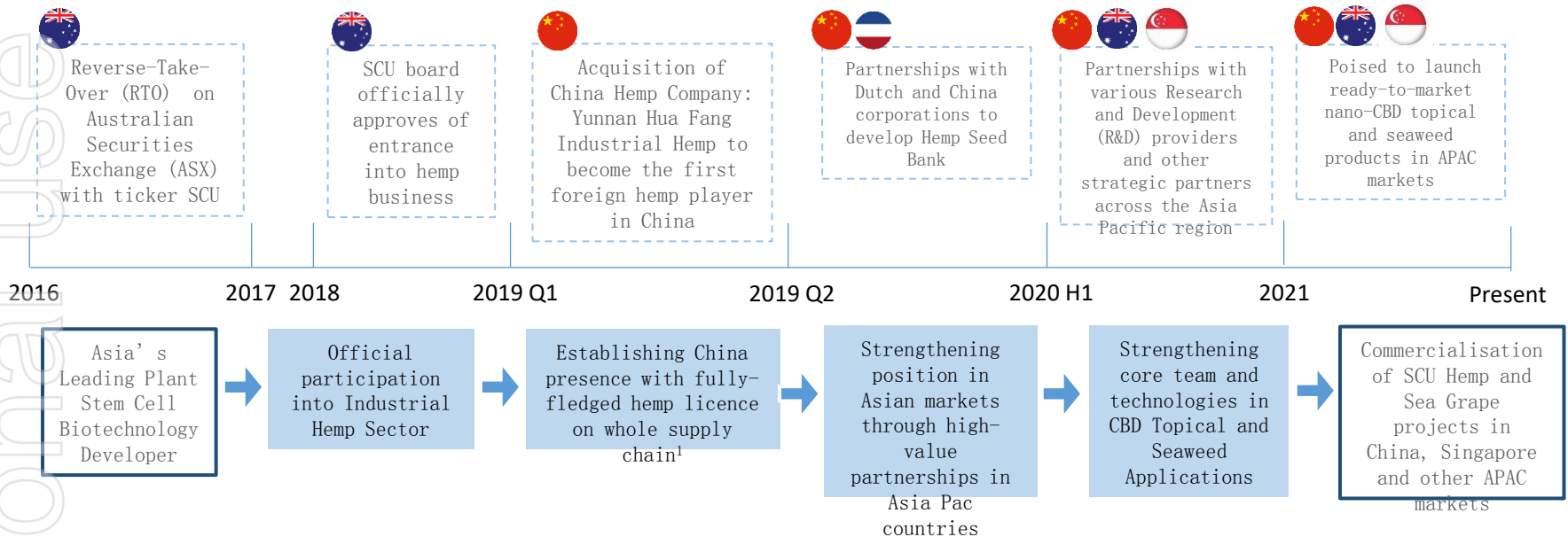
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- By their nature, forward-looking statements and financial projections involve numerous assumptions, known and unknown risks and uncertainties, both general and specific, that contribute to the possibility that the predictions, forecasts, projections and other forward-looking information will not occur, which may cause the Company's actual performance and financial results in future periods to differ materially from any estimates or projections of future performance or results expressed or implied by such forward-looking statements and financial projections. Important factors that could cause actual results to differ materially from expectations include, but are not limited to: business, economic and capital market conditions; the heavily regulated industry in which the Company carries on business; current or future laws or regulations and new interpretations of existing laws or regulations; legal and regulatory requirements; market conditions and the demand and pricing for our products; our relationships with our customers, developers and business partners; our ability to successfully define, design and release new products in a timely manner that meet our customers' needs; our ability to attract, retain and motivate qualified personnel; competition in our industry; competition; technology failures; failure of counterparties to perform their contractual obligations; systems, networks, telecommunications or service disruptions or failures or cyber-attack; ability to obtain additional financing on reasonable terms or at all; our ability to manage risks inherent in foreign operations; litigation costs and outcomes; our ability to successfully maintain and enforce our intellectual property rights and defend third party claims of infringement of their intellectual property rights; our ability to manage foreign exchange risk and working capital; and our ability to manage our growth.
- Readers are cautioned that this list of factors should not be construed as exhaustive.

# AT A GLANCE

## SCU Overview

- By Stemcell United Limited (ASX:SCU).
- Plant-based Biotechnology company focusing on Plant-Based Healthcare, Pharmaceutical Ingredients and Plant-Based Food Protein & Nutrients.
- Established Presence in Asia Pacific Markets such as China and Australia.

Strategic development through acquisitions and partnerships has positioned SCU as a leading Plant-based Biotechnology player in the Asia Pacific region.



Source: Company Information

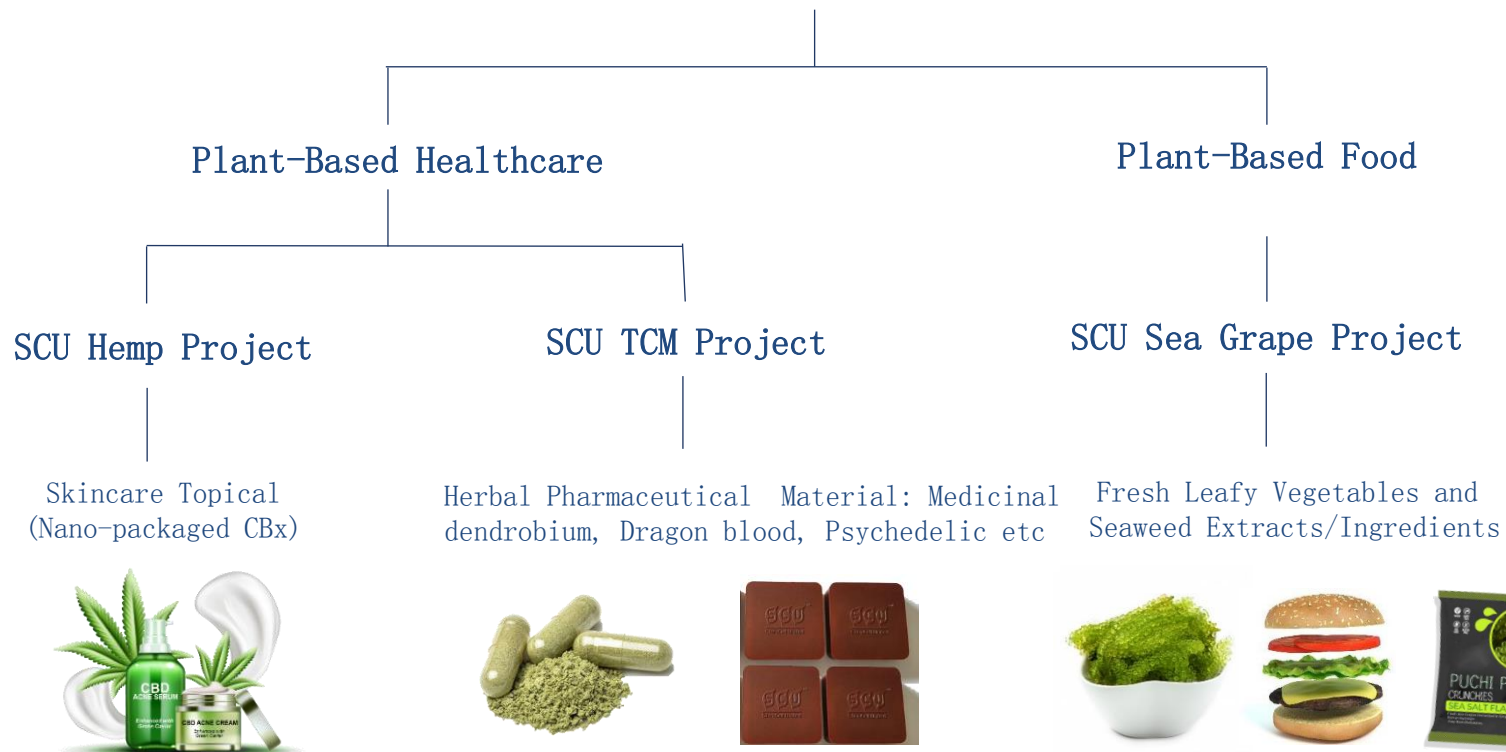
1. Permitted activities under the licences: Cultivation, processing and trading (import-export)

# AT A GLANCE

## SCU Overview



### Plant-based Biotechnology Company



Source: Company Information



# KEY INVESTMENT HIGHLIGHTS



## Cutting-Edge Biotechnology

SCU plant stem cell technology application in seed bank development and cultivation as well as researching into nano-biotechnology to produce nano-packaged CBx and high-value nutraceutical active ingredients

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## Seed Bank Development

Partnering with China Academy of Science and Singapore Government-backed agencies, SCU is well positioned as the key source of supply for customized CBx hemp seeds and high-value seaweeds for China and South East Asian countries

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## Ready-to-market Wide-ranging Nano-grade CBD-Topical and High-Value Seaweed Products

Through SCU nano-packaging technology in topical applications, it is developing a series of beauty care products for launch in China and Asia-Pacific region

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## SCU Integrated Solar-powered Urban-Farming Sustainability Innovation

The proprietary dual-prong solution encompasses both energy and food generation efficiency which is critical to food import reliant and land-scarce countries like Singapore

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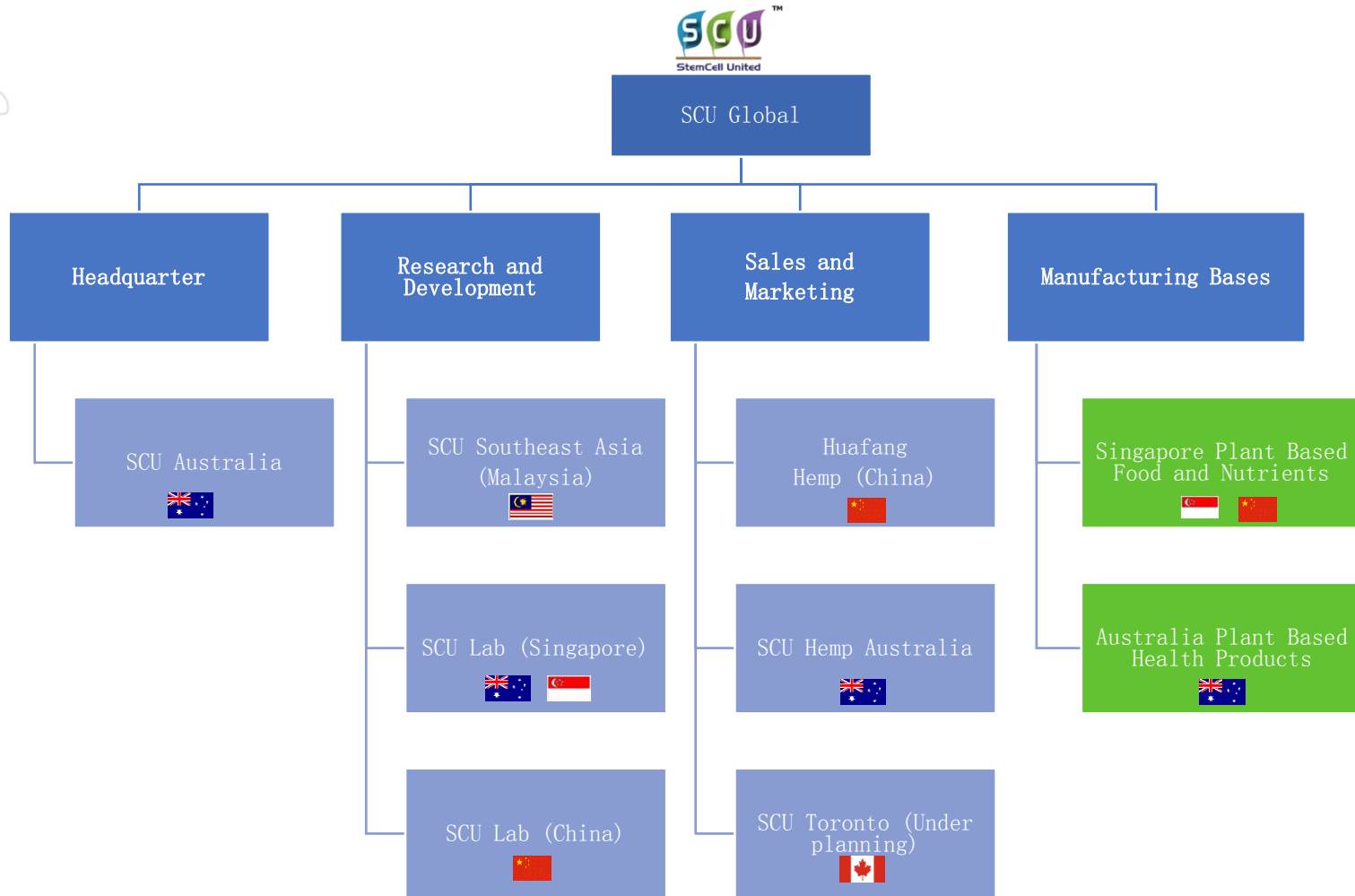
## B2B Asia Pacific Market for nano-grade Cannabinoids and Seaweed Extracts

With China Tobacco as our key strategic marketing partners with over 1 million wholesale and retail points in China



# GLOBAL OPERATIONS

SCU Global strives to be the Leading Plant-Based Biotechnology Company to serve Asia Pacific region



# OUR FOUNDER



## PHILIP GU FOUNDER, CEO

MSc, Plant Biology

1990s

Started career as a  
**Food Technologist** in major  
Australian marine food companies

1991

Developed and Formulated  
**World's First Abalone Sauce Technology** in  
Melbourne Australia

1990s

Post-Harvest Development consultant for Food and  
Agriculture Organization (FAO) of the United  
Nations for 10 years

2015

Established Stemcell United in Singapore  
and listed on ASX Australia



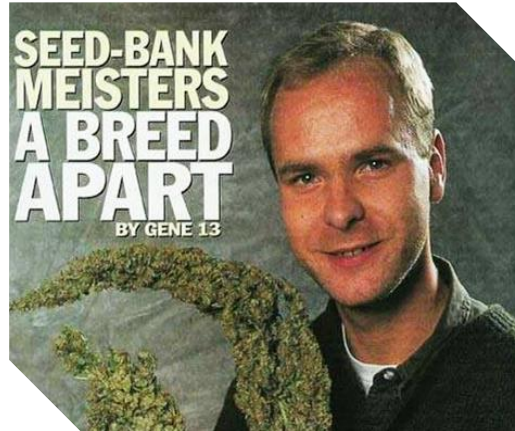
# KEY APPOINTMENTS OF THE BOARD AND ADVISORY



**PAUL ROSEN**  
GROUP CHAIRMAN

Rosen is an early pioneer in the globalized cannabis industry, having been a co-founder of PharmaCan Capital Corp and served as its first CEO and President. Under Rosen's leadership, PharmaCan Cronos Group acquired ownership interests in a number of the initial cannabis licences awarded in Canada and was the 3rd cannabis company to go public in Canada.

Rosen sat on the board of iAnthus Capital Holdings, a multistate operator of cannabis assets in the United States and has advised and/or invested in more than 150 companies in the cannabis industry.



**ALAN DRONKERS**  
STRATEGIC ADVISOR

Alan Dronkers is currently Special Advisor to the Thailand Ministry of Agriculture and is cannabis industry Advisor to the Government of Laos. He is currently involved in the reintroduction of hemp into Thailand. Alan is a member of the Sensi Seeds and Hempflax Groups and was responsible for the first breeding programs of Sensi Seeds.

He possesses an enormous wealth of knowledge about cannabis genetics and is also an expert in the history and use of the plant, having helped to reintroduce the use of hemp into Holland.



**DAVID PLATTNER**  
SUSTAINABILITY ADVISOR

David has over 50 years experience as an entrepreneur with focus on ecological investment and community development. In 2017 he received an endorsement and mandate from the African Union and the United Nations in order to fulfill an innovative role to assist the largest public private partnership on the continent. Designated to work on the "Great Green Wall," he developed commercially oriented livelihood projects that fostered innovation and new technology projects across 35 African countries under the UN's Sustainable Development Goals.

ersonal use only



# SCU Hemp Project

Sustainable Plant Based Health Solutions

# OUR KEY TECHNOLOGIES

## PATENTS AND LICENSES

SCU has applied for international patent protection (PCT/SG2014/000515) for its proprietary technology and method of isolating meristematic plant stem cells.



**CHINA**

**Patented**

**1X**

**CBD SEED GENETIC**

**HIGH CONCENTRATION  
OF CBD (HAAS)**

**1X**

**CBD IMPORT-  
EXPORT PERMIT**

**CHINA**

\*CFDA is the abbreviation of The China Food and Drug Administration, CFDA

# KEY BUSINESS HIGHLIGHTS

## SCU Hemp Competitive Advantages



First Foreign  
Company  
with fully-fledged  
licence in China



Establishment of  
plant stem cell  
R&D centres for  
hemp in China and  
Australia



Research on a range  
of Nano-grade CBD  
Skincare  
Topical Applications



Entrance into  
industrial hemp  
topical application  
and beauty care



Patented plant  
stem cell  
proprietary  
technology  
proprietary



Research on Nano-  
packaging  
Technologies with  
high efficacy and  
bioavailability



Development of seed  
bank for high  
quality CBD and  
Seaweed strains



Partnership with  
China Tobacco as  
our innovation &  
marketing partner



Established partners  
as our key  
distribution and  
marketing partner



# KEY BUSINESS DEVELOPMENT SEGMENTS

## Biotechnology Application Areas

## Description

## Key Strategic Partners

SCU China: YUNNAN  
HUAFANG Subsidiary



### Hemp Seed Bank Development

- To develop international hemp genetic seed bank
- To be sold locally and overseas Via One Belt One Road initiatives

- Heilongjiang Academy of Agricultural Sciences (HAAS)
- Sensi Seeds

HONGYI SCU  
BIOTECHNOLOGY  
INNOVATION CENTRE



### CBX Application: Personal Care & Cosmetics

- Through partnership with China Tobacco, we have secured raw material and market for CBD topical products in China

- Hongyi Agriculture Development Co Ltd (subsidiary of China Tobacco)
- Yunnan Huafang Hemp Industrial Hemp Co Ltd

SCU SINGAPORE PTE  
LTD



### CBX Distribution: Sales & Marketing

- Leveraging our joint global network, we form strategic distributorship for our CBD-product line
- Wellness products: to have a full range of topical skincare

SCU SOUTHEAST ASIA  
SDN BHD



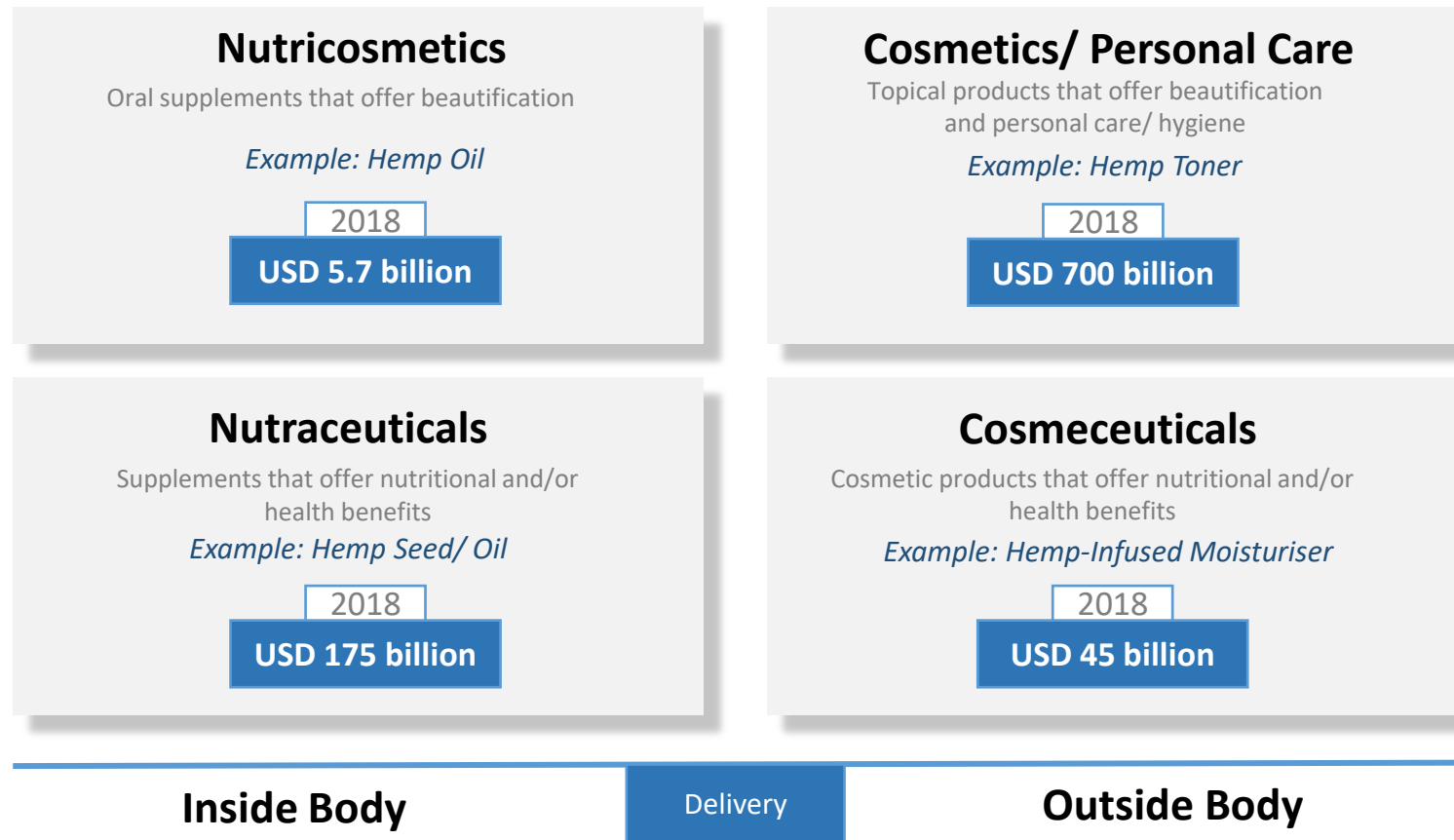
### R&D and Incubation

- Our plant stem cell biotechnology as our core focus
- To select good value projects to commercialize Intellectual Property (IP)
- To develop product scalability

- GuangZhou University of Chinese Medicine (TCM)

# LARGE ADDRESSABLE MARKET

## HEMP VERSATILITY IN GLOBAL PERSONAL CARE PRODUCT MARKET

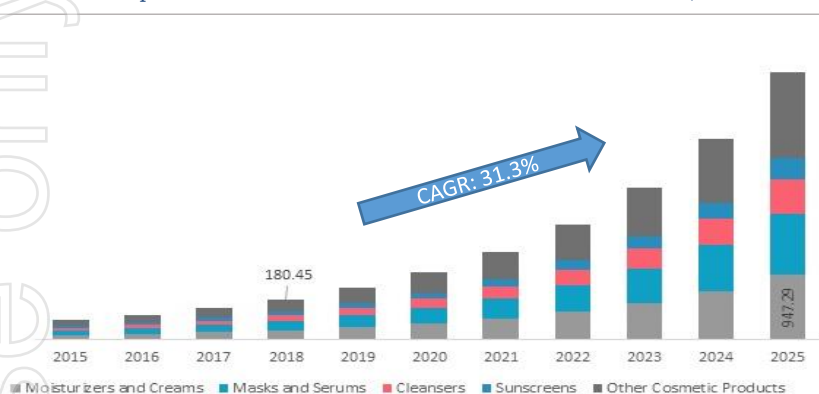




# LARGE ADDRESSABLE MARKET

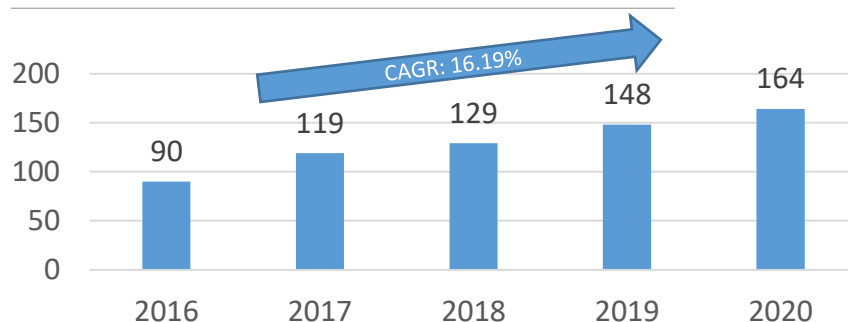
## CBx APPLICATION: PERSONAL CARE & COSMETICS

Global Hemp Personal Care & Cosmetics Outlook (USD Million)<sup>1</sup>



- Main factor of growth: Growing skincare market in Asian countries, changes in regulatory scenarios across the globe (e.g. Thailand<sup>3</sup>)
- China's growing aging population and growing health-consciousness among millennials: CBD is anti-aging and provides myriad of health benefits

China Personal Care & Cosmetics Outlook<sup>2</sup>



■ China Personal Care & Cosmetics Market (RMB '00 Million)

### GROWING TRENDS IN ASIA: PLANT-BASED EXTRACTS

Active Ingredient	Product
1. Blue Algae	Moisturiser, Mask, Toner
2. Kojic Acid - mushrooms/fermented rice	Cream, Lotion, Serums
3. Pumpkin/ cucurbita	Mask, Serum, Chapstick
4. Mushroom phenolics, polyphenolics,	Serum, Moisturiser, Cream
5. Hemp/ CBD	Facial Beauty Mask and Ointment

Source:

1. Adroit Market Research 2019 - Global CBD Cosmetics Market To Witness Noteworthy Growth With CAGR Of 31.3% Between 2019 And 2025

2. Chinese Academy of Industry Economy Research

3. Bangkok Post quoted FDA secretary general, Tares Krassanairawong

# LARGE ADDRESSABLE MARKET

## EVOLUTION OF KEY FACTORS IN THE SKINCARE INDUSTRY

Factors	2015	2021	2025
Inside-out approach	Product development on pain points like aging	Balance between beauty and food Multi-functional products for multiple target groups	Emergence of preventive nutri-cosmetics products
Natural Ingredients	"Organic"	More green chemistry based products with efficient processing More plant-based	Natural ingredients using white biotechnology
Technology	Modification of existing technologies for several applications	Implementation of technologies for controlled release of ingredients	Nutri-genomics based products
Consumer Awareness	Moderate awareness	Increased interest in ingredients & look for evidence-based scientific claims	Increased consumer demand for permanent solutions

# KEY STRATEGIC PARTNERS

## China Tobacco as our Key Cultivation & Innovation Partner





- Key plantation partner with vast available land resources for hemp cultivation
- Research collaboration: Establishing a Research Centre for Plant Stem Cell Bioengineering at Kunming
- HSBIC (Innovation Centre) to showcase product innovations of hemp textiles and furniture
- Over 1 million retail points worldwide

### Sources:

1. Conyers on Bloomage Biotechnolgy

# POTENTIAL CBx APPLICATION & PERSONAL CARE

## Market Description, Outlook and Growth Opportunities

Product	Description	Market Trends	Stage	Business Structure	Partners' Resources	Demography	Sector Growth
 CBD Skincare Series	Nano-packaged CBD in skincare products like serum & cream	Increasing demand as more countries open up for CBD Personal Care and Cosmetics <sup>1</sup>	Commercialisation (CAPEX for production)	Joint Venture	<ul style="list-style-type: none"> <li>• licenced to manufacture &amp; distribute</li> </ul>	China and Asia Pacific	✓✓✓
 CBD Pain Relief Designer Patches	Adhesive patch infused with CBD that provides a slow release of CBD through the skin	Gaining popularity as an alternative as CBD patches provide convenience and it is a non-invasive drug delivery system	Prototype Development	Contract distribution	<ul style="list-style-type: none"> <li>• R&amp;D Partner - Leading university in Malaysia for Halal certification</li> </ul>	Europe and Middle East	✓✓

## Product Innovation and Characteristics

- **Non-invasive:** External application
- **Aesthetic:** Patches come in different design
- **Slow Release of CBD:** Provide continuous, sustained-release of CBD into bloodstream
- **Convenience:** Easy handling and convenient storage
- **Halal certification:** Muslim communities

### Sources:

1. Adroit Market Research 2019 - Global CBD Cosmetics Market To Witness Noteworthy Growth With CAGR Of 31.3% Between 2019 And 2025
2. Conyers on Bloomage Biotechnology

# CBx APPLICATION & PERSONAL CARE

## Green Caviar (Sea Grapes)

### Sea Grape's Properties: Polysaccharides, APIs <sup>1</sup>

- Moisturizing effects to give the damaged skin with deep moisturizing effect
- Anti-oxidants  
Protect skin by limiting the production of free radicals, which can damage skin cells



## Cannabidiol, CBD

### CBD's Properties <sup>2</sup>:

- Inhibit oil production on oil-producing glands
- Anti-inflammatory effects to reduce the flare up of acnes

Source:

1. Susilowati, A., Mulyawan, A. E., & Putri, T. W. (2019). Antioxidant activity of the sea Grape (caulerpa Racemasa) as a lotion. Oriental Journal Of Chemistry, 35(4), 1443-1447. doi:10.13005/ojc/350427
2. HealthEuropa: Asia Pacific: cannabis testing and the untapped CBD market

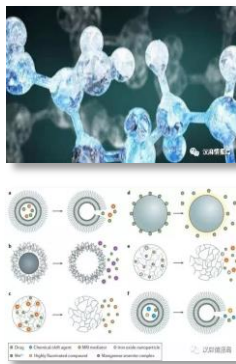
# CBx APPLICATION & NANOPACKAGING (under development)

## Cannabinoids' Pain Points

- **High lipo-philicity** of CBD: Insoluble in water<sup>1</sup>
- **Low safety profile:** Presence of contaminants
- **Low stability:** High degradation rate
- **Low penetration power into skin:** Only accumulate on upper skin layer<sup>1</sup>
- **Low bioavailability:** Low systemic absorption hence reduced effectiveness

## Nanopackaging as the Solution

- Production of pharmaceutical-grade cannabinoid using nanobiotechnology approaches
- E.g.: liposomal CBD-carrier in transdermal drug delivery system



## Advantages of Nanopackaging



### Economical

- Low Cost of Application
- Higher Product Value
- High Scalability (High Yield)



### Pharmaceutical

- Highest Purity
- High Safety Profile
- Free from Contaminants
- Pharmaceutical Grade
- High Stability
- Higher Bioavailability



### Commercial

- High Patentability (work-in-progress)
- Novel Drug Delivery System
- Wide Industrial Application









## Sources:

1. B.W. Barry, Novel mechanisms and devices to enable success-ful transdermal drug delivery, Eur. J. Pharm. Sci. 14 (2001) 101 - 114



# KEY TECHNOLOGIES AND IP

SCU Hemp acquires Competitive Technologies through Strategic Partnerships and Joint Ventures

TECH – Strategies	Description	IP Status	Partnership and Joint Ventures (JV)
<b>Academic and Joint Research Partnerships</b> 	<ul style="list-style-type: none"> <li>Partnerships with prominent research institutions University of Malaya (Malaysia) and Guangzhou University of Chinese Medicine (China)</li> <li>Biotechnology application on methodologies covering cultivation, extraction, and turn-key solutions in the field of industrial hemp</li> <li>Includes Plant Stem Cell technology application in Hemp</li> </ul>	Patents registered: <ul style="list-style-type: none"> <li>China</li> </ul>	 Patent Certificate
<b>Industry Collaboration</b> 	<ul style="list-style-type: none"> <li>Collaboration with leading industry players Sensi Seed, China Tobacco</li> <li>Data and seed access to world' s largest cannabis seed bank with more than 500 strains: Heilongjiang Academy of Agriculture of Science(HAAS)</li> <li>Leveraging on cross-breeding techniques and experience to develop new strains for Hemp Seed bank in China</li> </ul>	Development of new hemp strains with high CBD in progress	 Agreement with HAAS
<b>Product Innovation through Joint Ventures</b> 	<ul style="list-style-type: none"> <li>Establishment of innovation centre for product development and showcase under Hongyi-SCU Biotechnology Innovation Centre (HSBIC)</li> </ul>	Pending Product Development of Hemp Fibre applications	 Agreement with China Tobacco
<b>Evidence-based Technological Approach</b> 	<ul style="list-style-type: none"> <li>Nano-packaging technological application in the development of CBD-infused products in skincare, pharmaceutical and medical industries.</li> <li>Animal studies and evidence-based approach are focused to strengthen and support our key technologies</li> </ul>	<ul style="list-style-type: none"> <li>Patent application work-in-progress: Transdermal CBD gel for skin inflammation</li> </ul>	 Agreement with University of Malaya



# SCU TCM Project:

Dendrobium & Dragon Blood (Resina)



# OUR TECHNOLOGIES : Medicinal Orchid Specie *Dendrobium Officinale*

## DENDROBRIUM OFFICINALE

Wild *Dendrobium Officinale* Kimura et Migo (铁皮石斛) (“Dendrobium”) is a rare and endangered orchid under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) list. It can be found in tropical and subtropical areas of China at altitudes above 1,600 metres.

## FUNCTIONALITIES

1. **Enhancement of immune functions:** Increase immune cells & Improve immune systems<sup>1</sup>
2. **Anti-Cancer:** Regulate the DNA damage and oxidative stress and have shown anti-cancer properties over Human Lung Cancer cells, Liver cells, Human & Murine Teratoma Stem Cells, Murine Gastric cancer<sup>2</sup>
3. **Hepato-protective effect:** Increases liver enzyme and recover acute/chronic alcoholic liver injury<sup>3</sup>

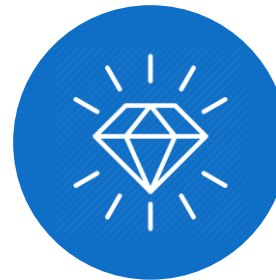
## IN BRIEF



One of China's historical  
“Nine Immortalities of Life”



Rare and Endangered  
Orchid Species



Wild ≈ US\$16,000 /kg  
Traditionally Cultivated  
≈ US\$1,000-3,000 /kg



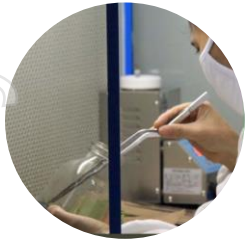
Found in China  
at altitudes above 1,600m

Source:

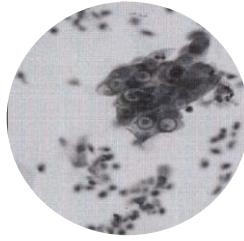
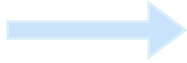
1. Liu X.F. *et al.*, (2010); Orally Administered *Dendrobium officinale* and its Polysaccharides Enhance Immune Function in BALB/c Mice
2. Zhao, Y *et al.*. (2016). Effect of *Dendrobium officinale* Extraction on Gastric Carcinogenesis in Rats. Evidence-Based Complementary and Alternative Medicine, 2016, 1 - 8. doi: 10.1155/2016/1213090
3. Tang, H., *et al.*. (2017). *Dendrobium officinale* Kimura et Migo: A Review on Its Ethnopharmacology, Phytochemistry, Pharmacology, and Industrialization. Evidence-Based Complementary and Alternative Medicine, 2017, 1 - 19. doi: 10.1155/2017/7436259

# OUR TECHNOLOGIES : DENDROBLIUM CULTIVATION & QUALITY

## SCU'S DENDOBRIUM STEM CELL



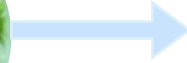
Extraction & Manipulation  
of Stem Cells



Dendrobium Stem Cells



Growing Stem Cells in  
Bioreactor



Filtration for  
Extract Processing

**DURATION: 2 – 3 MONTHS**

**VS. TRADITIONALLY GROWN**

**DURATION: 3 – 6 YEARS**



## SCU'S DENDOBRIUM STEM CELL

**37.82±0.60**

% of DOP

**VS. TRADITIONALLY GROWN**

**API CONTENT: 35.25±0.75**

**ACTIVE INGREDIENT**

**DENDOBRIUM OFFICINALE  
POLYSACCHARIDE (DOP)**

# OUR TECHNOLOGIES : DRAGON BLOOD PROCESSING & QUALITY

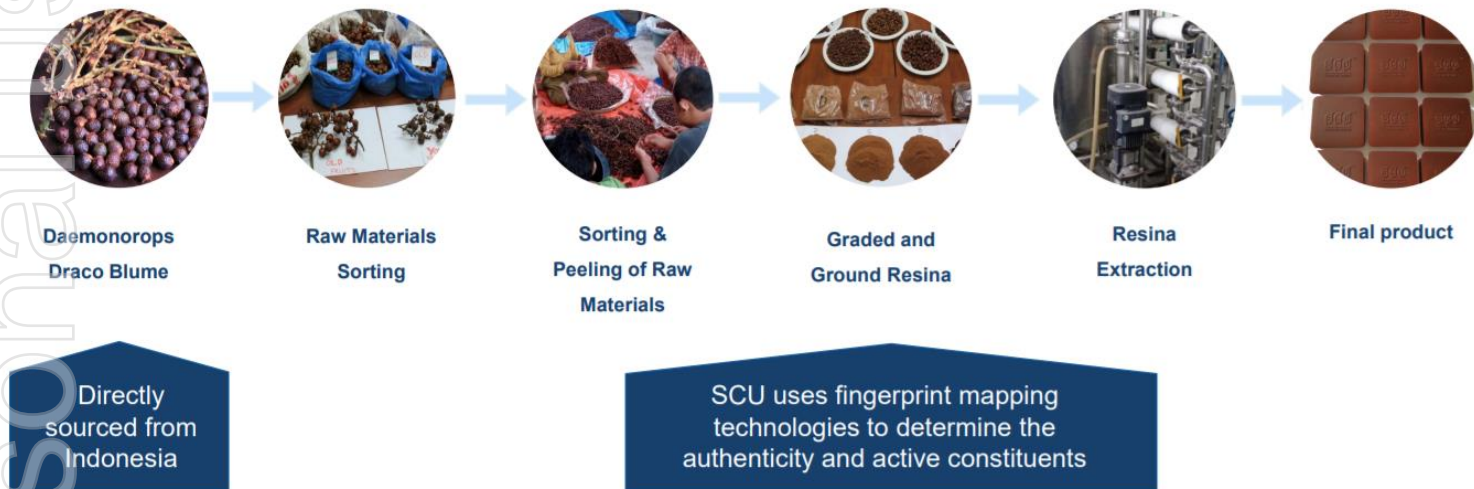
## DAEMONOROPS DRACO BLUME

Resina is extracted from *Daemonorops Draco Blume*, a plant that grows in the tropical rainforests of Indonesia. Resina extract is highly sought after in Asia, especially in Hong Kong and China. In China, Resina has high medicinal value and is used as an active ingredient in TCM products.

## FUNCTIONALITIES<sup>1</sup>

1. Treat body sprains and act as an analgesic
2. Treat blood stasis and help in blood circulation
3. Reduce bleeding and alleviating pain caused by external injuries
4. Promote tissue regeneration and healing wounds
5. Reduce pain from blood stasis, in particular due to traumatic injuries such as those resulting from falls and fractures

## DRAGON' S BLOOD PROPRIETARY PROCESSING FLOW



Source:  
1. Fan, J., Yi, T., Sze-To, C., Zhu, L., Peng, W., Zhang, Y., . . . Chen, H. (2014). A systematic review of the botanical, phytochemical and pharmacological profile of *dracaena cochinchinensis*, a plant source of the ethnomedicine "dragon' s blood". *Molecules*, 19(7), 10650-10669. doi:10.3390/molecules190710650



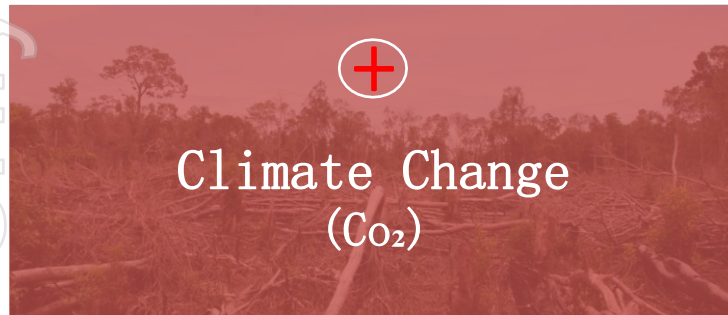


# SCU Sea Grape Project:

1. Natural Marine Plant-Based Proteins and Nutrients from Sea Grape and Other Seaweed
2. Aim to achieve 1% of total Singapore local produced food nutrition (Singapore Food Agency 30X30)

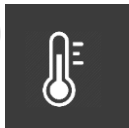


# PAINPOINT: Global Health is the Human Face of Climate Change



## Increase in Carbon Gas

Global Carbon emissions have risen 11% since 2010<sup>2</sup>



## Temperature

The atmosphere is expected to warm up by 1.5 degrees C in about 20 years, which could trigger massive food shortages and destruction<sup>2</sup>



## Impact on Food and Nutrients Production

Key environmental threats to our world such as climate change, lack of arable land and increase in green house gas emissions, which directly impacts food production



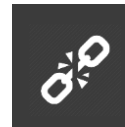
## Logistics of Food Supply

Serious environmental risks and current global pandemics disrupt critical check point



## Food Insecurity in Import-Reliant Cities

Essential food supply disruption threatens the food security adequacy of import-reliant cities like Singapore and Oman.



## Economic and Health Impact

Economic fallout from value chain disruption is worth 17% of total GDP of ASEAN countries<sup>1</sup>

Source:

1. PwC and Food Industry Asia, 2020: Report - Maintaining food resilience in a time of uncertainty
2. Emma Newburger, 2019: 'Any growth is more than we can afford': Carbon dioxide pollution hits record high as planet warms

# ABOUT US

The Sea Grape Project is developed to tackle **Food Insecurity** and mitigate **Climate Change**.

## Key Business Highlights

Core Business Capabilities Driver:

**Marine Plant-based Protein and Nutrients**

**Fresh Products:** Marine Leafy Vegetable;

**Downstream Products:** Marine Plant-based Extracts

**Precision Marine Crop Cultivation System** leveraging IOTs and data analytics

Consistent high yield generated in every harvest with controlled conditions managed by sensors and data stored in the cloud

**Smart Seeds Bank** Adaptable to Climates and Regions

Seed bank development with a focus on phenotypes for specific nutritional profile, higher growth rate or yield, and environmental stress resistant strains using AI Algorithm technology

**Strong International Team** with Deep Tech Expertise and Corporate Experience

Partnering with reputable international organisations and research institutions, our well-rounded team is on target to meet the deliverables and milestones

## At A Glance



23kg/m<sup>2</sup>

2.5kg/m<sup>2</sup>

Climate-Resilient Seeds

Sea Grape Yield

Carbon Dioxide Sequestration

Plant Stem Cell Technology



# SOLUTION:

## Redefining Sea Food -- Sea Grape As Future Food

Redefining Seafood

Sea Grape is the new "Marine Plant-based Protein and Nutrient"



### What is Sea Grape

- Macro-algae Species
- Scientific name: *Caulerpa Lentillifera*
- Dubbed as Green Caviar of Asia<sup>1</sup>
- High-yield, High-value crop



### Roles in Asia Pacific

- Okinawa, Japan: Longevity seaweed, "Umibudo"
- Philippines: Staple food and called as "Latok"
- Vietnam: Provincial support for Cultivation, "rho nong"<sup>2</sup>
- Malaysia: Staple food eaten raw, called "Lato"
- **Singapore: A sustainable future food supply to promote better health outcomes and to mitigate food insecurity, health and global warming**



### Key Value Propositions as Future Food

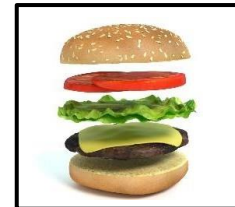
- Indigenous staple food with high commercial potential
- Good nutritional source: both macro & micro
- Fast and efficient growth
- Strong bio-remediation property without consuming microplastics<sup>3</sup>
- Carbon negative crop (carbon credit production)



### Our Focus



Seed Bank & Cultivation Technology



Marine Plant-based Downstream Products



Blue Carbon Credit

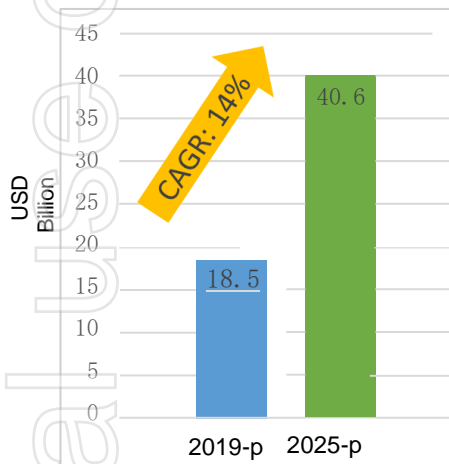
Source:

1. Dawes, Clinton J. (1998). Marine botany. New York: John Wiley. ISBN 978-0-471-19208-4
2. Jacobs, Ananda (April 22, 2014). "In search of the fruits of Okinawa's oceans". The Japan Times Online. Retrieved January 22, 2019..
3. <http://www.seaveg.com/blog/uncategorized/a-sea-of-plastic-but-is-it-on-my-seaweed/>

# The New Trend: Plant-Based Proteins

## Plant-based Protein Market is Blooming

- Increasing awareness about the benefits of plant-based protein and growing demand for protein-rich diet<sup>2</sup>
- Growing health & wellness trend<sup>2</sup>
- Increasing consumers focus on meat alternatives<sup>2</sup>
- Emerging region: **Southeast Asia, Middle East, Latin America & Africa**<sup>2</sup>



Market Size of Plant-Based Protein in 2019 and 2025<sup>1</sup>; p- projected



## Asia Pacific

will be the FASTEST Growing Regional Market <sup>2</sup>

- Asia is driving at 35% annual growth at least till 2025 to \$4.2tn, and accounts for 40% of global consumption in F&B, Nutraceutical and functional (\$135bn) sales .
- Plant-based Food Innovation: APAC 40% of global by 2025
- Reformulation: \$65bn to \$110bn by 2025
- Fortification: \$70bn to \$125bn by 2030
- Health Aging: from 650m to 1.3b by 2050
- Double-Burden: malnutrition and obesity

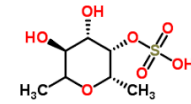
## Consumption of Animal Protein vs Plant-Based Protein <sup>3</sup>

- The consumption of plant-based protein is estimated to have a CAGR of 6.7% worldwide.
- Opportunity: Aquatic plants as new emerging sources of protein <sup>2</sup>



Consumption of Animal Protein vs Plant-Based Protein<sup>3</sup>

# SEA GRAPES HEALTH BENEFITS & FUCOIDAN



## Health Benefits

### Helps Strengthen the Heart<sup>1</sup>

Contains unsaturated fatty acids AA, LA, DHA, EPA and ALA

### Helps Prevent Constipation<sup>1</sup>

Contains very low sugar, enabling good bacterium to digest food and excrete waste quickly

### Strengthen Bones and Joints<sup>1</sup>

Rich in protein, calcium and polyunsaturated fatty acids found in omega-3 group (DHA, EPA, ALA)

### Boost in Collagen Production<sup>1</sup>

Rich with vitamin A, C, it is capable of producing collagen and antioxidants for healthy skin, nail and hair

### Helps Prevent Obesity<sup>1</sup>

Less in sugar but rich in calcium, zinc, iron, vegetable protein, vitamin C which are safe food for overweight and dieting consumers

## Benefits of Fucoidan

### Protect against Neuro-Degeneration<sup>4</sup>

Fucoidan prevents the death of brain cells affected by Alzheimer's disease and helps protect other healthy brain cells.

### Anticancer<sup>3</sup>

Fucoidan effectively induce apoptosis on cancer cells and has shown promising potential as a therapeutic agent

### Diabetic Syndrome Control<sup>5</sup>

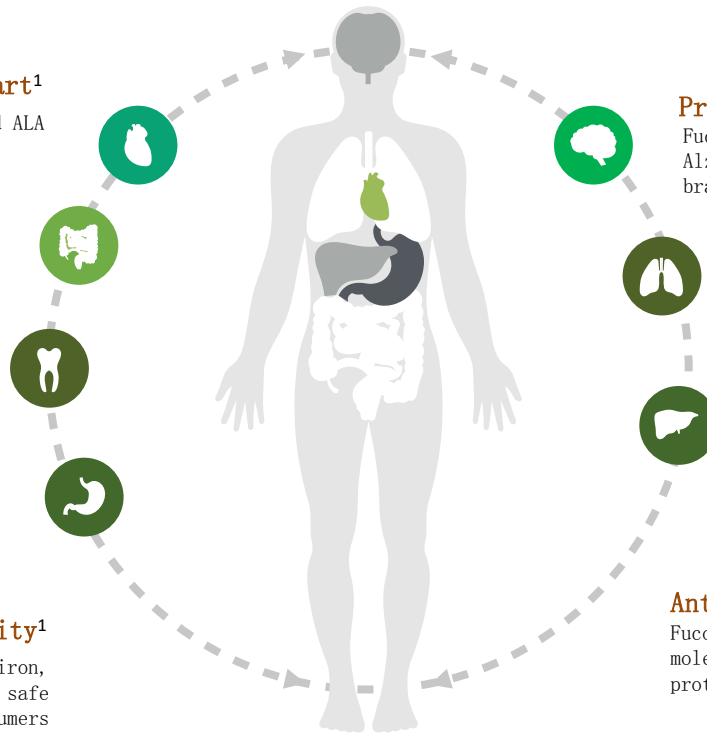
In-vitro studies have shown Fucoidan's ability to reverse classical symptoms of diabetes

### Anti-Viral<sup>2</sup>

Fucoidan aids in boosting the immune response towards seasonal influenza, such as Influenza-A.

### Anti-coagulant Function<sup>6</sup>

Fucoidan increase the production of messenger molecules that produces anti-blood clotting protein. It blocks the coagulation process.



Source:

1. Matanjun, P., Mohamed, S., Mustapha, N. M., & Muhammad, K. (2008). Nutrient content of tropical edible seaweeds, Eucheuma cottonii, Caulerpa lentillifera and Sargassum polycystum. Journal of Applied Phycology, 21(1), 75–80.

2. Inhibition of Influenza A Virus Infection by Fucoidan Targeting Viral Neuraminidase and Cellular EGFR Pathway. Wang W, Wu J, Zhang X, Hao C, Zhao X, Jiao G, Shan X, Tai W, Yu G Sci Rep. 2017 Jan 17; 7(1):407603.

3. EFFECT OF FUCOIDAN ON B16 MELANOMA CELL MELANIN FORMATION AND APOPTOSIS. Wang Z, Xu W, Liang JW, Wang CS, Kang Y. Afr J Tradit Complement Altern Med. 2017; 14(4):149-155.

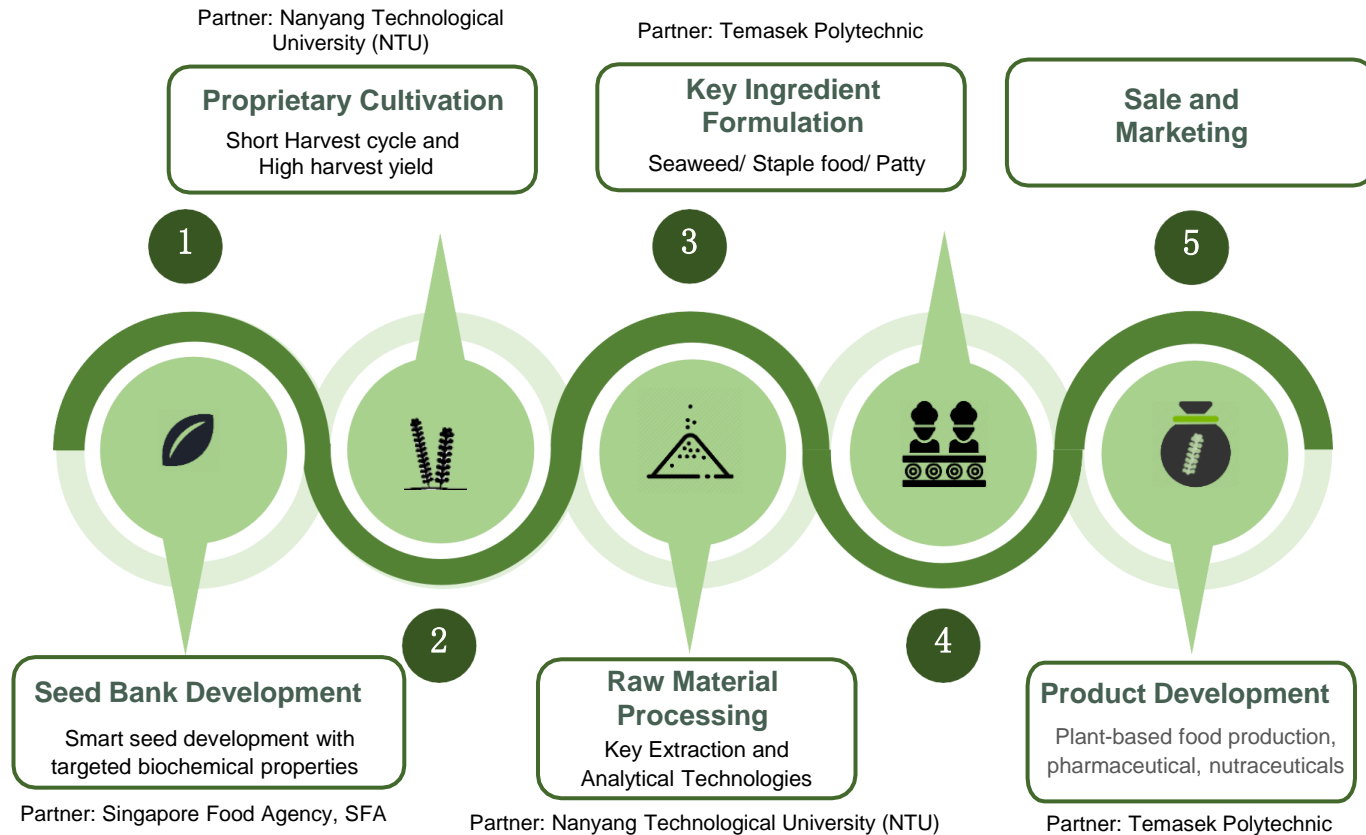
4. Jack H, Jaisankaras, Myung Bok Wie, Kim Harris, David MacTavish S. Kar, Fucoidan inhibits cellular and neurotoxic effects of  $\beta$ -amyloid (A $\beta$ ) in rat cholinergic basal forebrain neurons

5. In vitro and in vivo hypoglycemic effects of brown algal fucoidans. Shan X, Liu X, Hao J, Cai C, Fan F, Dun Y, Zhao X, Liu X, U C, Yu G Int J Biol Macromol. 2016 Jan; 82(1):249-55.

6. Colicet S1, Fischer AM, Tapon-Bretaudiere J, Boisson C, Durand P, Jozefonvicz J. Anticoagulant properties of a fucoidan fraction.



# PARTNERS IN KEY TECHNOLOGIES ACROSS VALUE CHAIN





# Seed Bank Singapore: Macro Algae

The seed bank oversees propagation of new variety cultivars with selected and desired hereditary traits, that can be transplanted, and mass cultivated in diverse geographic regions.

## Repository of strains and species (library)

- Different strains and species of microalgae with distinct traits collected and stored in a seed repository
- Current 17 strains of *C. Lentillifera*, and expanding
- Strain specific traits (growth rates, morphology, taste and texture) are recorded for breeding reference

## Artificial Intelligence (AI) Genetic Algorithm

- AI Genetic Algorithm tool enables machine determination of which variations in a genome for breeding as well as gene editing efforts
- Strains with desired traits will be cross bred to produce new improved strains



▲ Seed Bank  
for different Macro algae

## Acclimatization & Selection

- Imported strains and species subjected to acclimatization to local seawater conditions
- Stress and conditional manipulation to determine suitability for specific target future cultivation sites

## Continuous Improvement via R&D

- Cultivation trials for better and cost-effective raw materials, precision technology and methodology
- Bioremediation by integration into multi-trophic seawater recirculation system

# INGREDIENT FORMULATION

## Sea Grape Powder

Dried powder of *Caulerpa Lentillifera* was produced from the ~5% of fresh biomass of sea grapes.

**Other health benefits**  
Anti-oxidants,  
immune-boosting



**High in Minerals**

Iodine (I); sodium (Na), magnesium (Mg);  
potassium (K); calcium (Ca), Iron (Fe), etc.

**High in Vitamins**

Vitamins A, C, E

## Sea Grape Special Biscuit



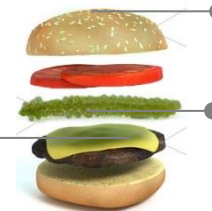
Sea Grape Special Biscuit was produced to cater to consumers who are more health-conscious as this biscuit has low glycemic index (GI), high in fibre and macronutrients.



## Sea Grape Marine Plant-Based Patty

Using Sea Grape dried powder, it will be integrated as one of the key ingredient in forming marine plant-based Sea Grape Patties and Buns.

**Sea Grape Patty**  
Anti-oxidants,  
immune-boosting



**Sea Grape Buns**

Iodine (I); sodium (Na), magnesium (Mg);  
potassium (K); calcium (Ca), Iron (Fe), etc.

**Fresh Sea Grapes**

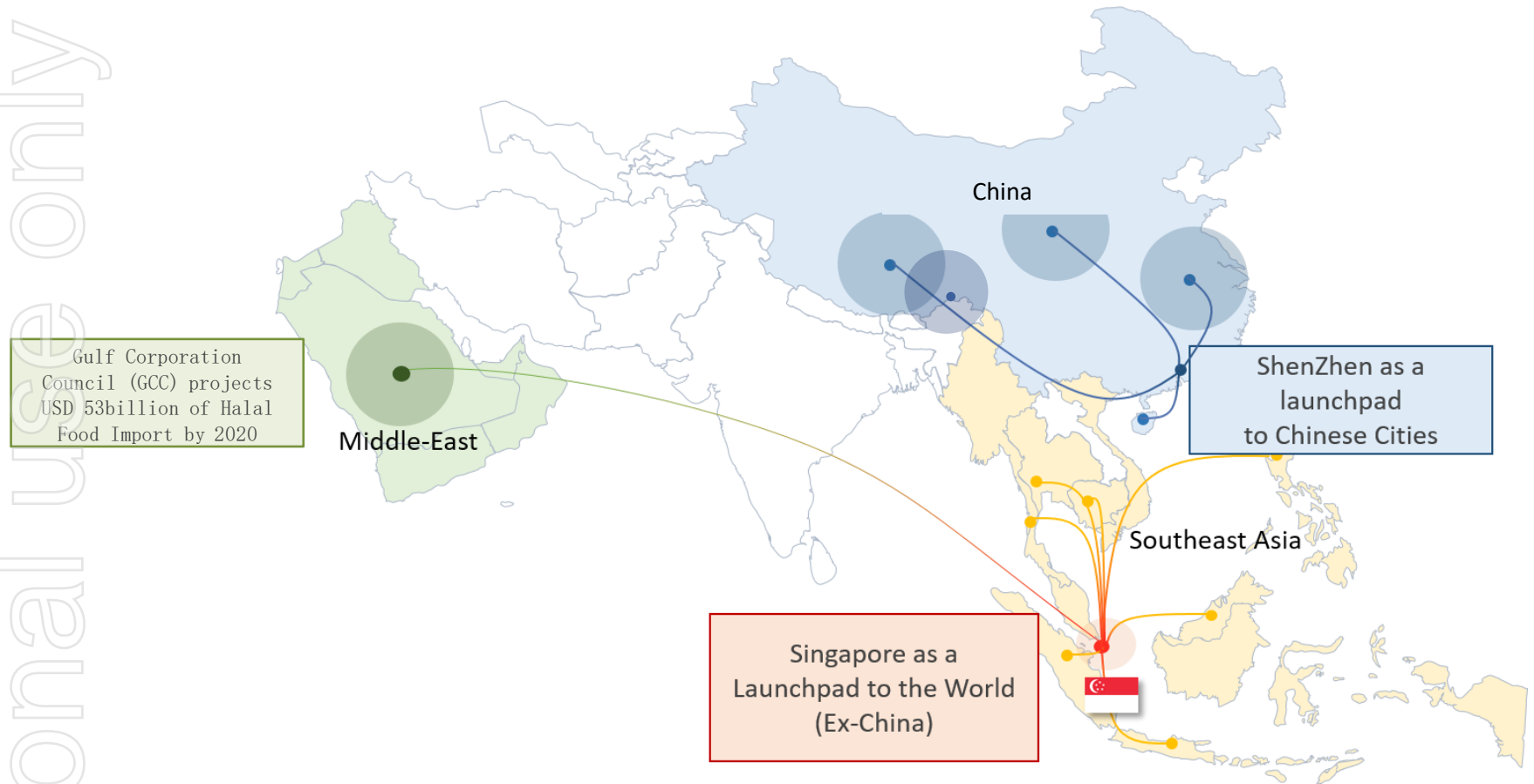
Iodine (I); sodium (Na), magnesium (Mg);  
potassium (K); calcium (Ca), Iron (Fe), etc.

## Sea Grape Puchi-Puchi Healthy Snack



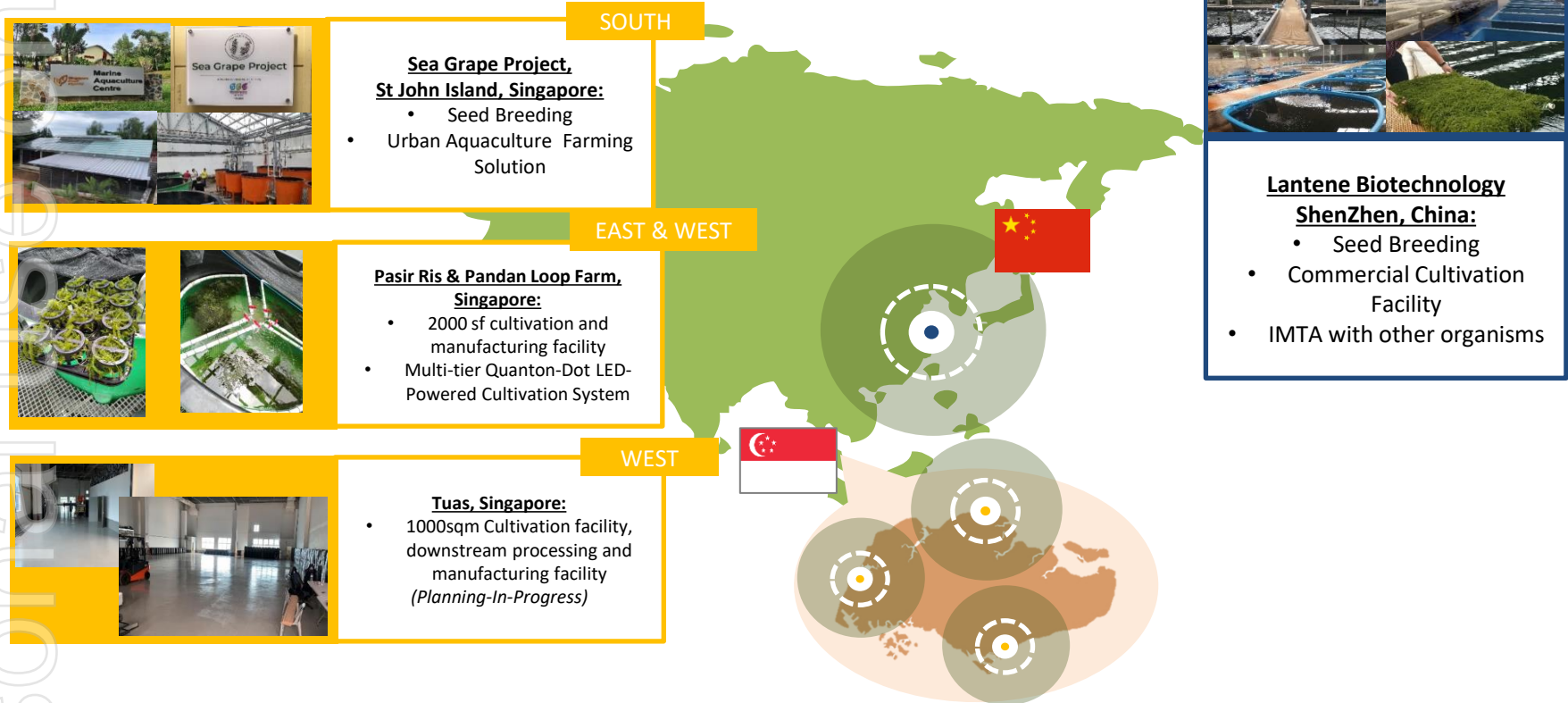
Puchi-puchi is marketed as a marine plant-based healthy snack for its crunchy and 'bursting' texture. High in nutrients and vegan-friendly, this snack is perfect for any occasion.

# SINGAPORE AND SHENZHEN AS LAUNCHPAD TO THE WORLD

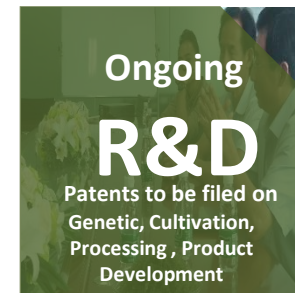
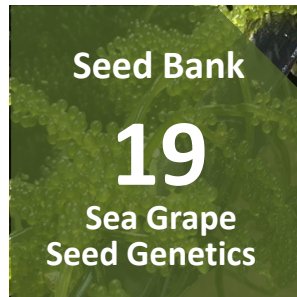


# ONGOING PROJECT DEVELOPMENT

Our Sea Grape Project currently operates in 2 countries: Singapore & China.



# KEY MILESTONES & INVESTMENT HIGHLIGHTS



\* Including approved & approval-pending patents

Source: Management





# Corporate Info

Company	Stemcell United Limited
Company Status	ASX Listed
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Country	Australia
Address:	Level 12, 680 George Street  Sydney NSW 2000 Australia
URL	<a href="http://www.scu.com.sg">www.scu.com.sg</a>

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Unlocking the  
Limitless Potential  
of Plant Stem Cell  
Biotechnology

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THANK YOU