



**Regeneus**  
(ASX: RGS)

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**CEO**

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**San Diego**  
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# Overview

**Sydney-based regenerative medicine company listed on the Australian stock exchange (ASX:RGS)**

## **3 world class technology platforms**

- Allogeneic adult stem cells (MSCs) from adipose tissue for osteoarthritis and other inflammatory conditions (Progenza, CryoShot)
- Immuno-therapy for oncology (RGS4K, Kvax)
- Cell-free secretions from adipose MSCs focused on inflammatory skin conditions

## **Diversified portfolio of clinical stage products**

- Human and animal health markets
- Multiple product opportunities addressing multiple significant unmet medical needs – many shots on goal
- Scalable manufacturing for allogeneic stem cells
- Strategic and growing IP portfolio covering wide range of inflammatory indications

## **Driven by innovation and collaboration**

- Track record of innovation, technology development and rapid translational R&D
- Successful technology and clinical collaborations
- Stable, experienced and commercially focused management team and Board
- Positioned to unlock significant value over next 6-12 months

# Pipeline Summary

## Human Health Development Pipeline

PROGRAM	TECHNOLOGY PLATFORM	PRE-CLINICAL	PHASE 1	PHASE 2	PHASE 3	FILING	APPROVAL
Progenza	Allogeneic Adipose MSCs & Secretions	Osteoarthritis					
		Pain					
RGSH4K	Immunotherapy for oncology	Solid Tumours					
Secretions	Allogeneic Adipose MSC Secretions	Dermatology					

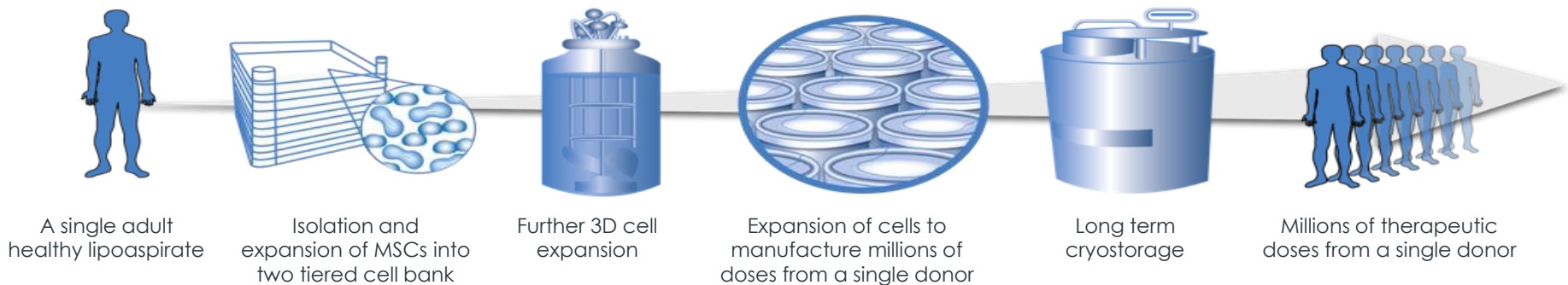
## Animal Health Development Pipeline

PROGRAM	TECHNOLOGY PLATFORM	MANUFACTURING & PROCESS DEVELOPMENT	SAFETY & EFFICACY STUDIES	PIVOTAL TRIAL	MARKET APPROVAL
CryoShot Canine	Allogeneic Adipose MSCs	Osteoarthritis			
CryoShot Equine	Allogeneic Adipose MSCs	Osteoarthritis			
Kvax	Immunotherapy for oncology	Naturally Occurring Advanced Cancers (Conditional Approval))			

# Progenza

## Allogeneic Stem Cell Platform

- Progenza is a patented, scalable, off-the-shelf stem cell technology platform **to treat a range of inflammatory conditions**
- Allogeneic mesenchymal stem cells (MSCs) are sourced from a healthy adult donor
  - no reprogramming of cells = **safety benefits** → **lower regulatory risk**
- Adipose (fat) tissue is the source of cells
  - large starting volume, and large number of MSCs in adipose vs. other tissue sources
    - Optimised production using proprietary IP → production of millions of doses from one donor = **scalable technology**
  - immuno-modulatory benefits of adipose derived cells (vs other sources)



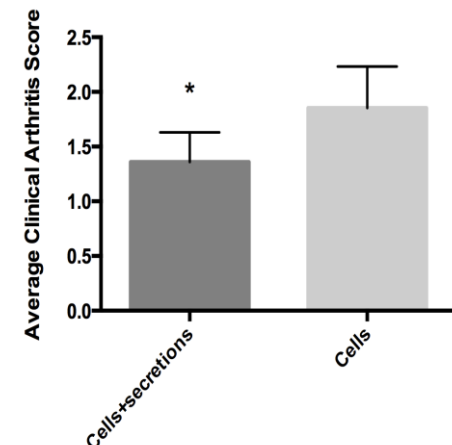
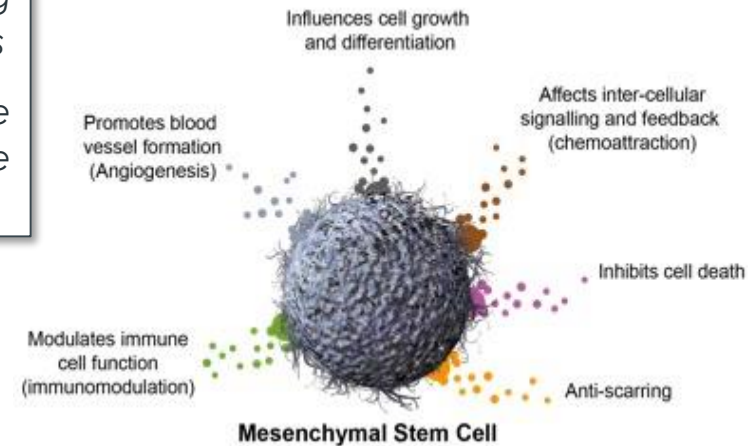
# Progenza

## Advantages of Secretions

*MSCs secrete a diverse variety of bioactive factors including cytokines, growth factors, extracellular vesicles and exosomes*

*Secretions respond to the local environment and are the driving force for reducing inflammation, promoting tissue repair and reducing scarring*

- Progenza is different from other MSC products as it includes secretions with cells which:
  - **improves functionality of cells**
    - ability to secrete and proliferate post thawing
  - **improves therapeutic effect**
    - e.g. rheumatoid arthritis model (CAIA) in mice tested MSC cells alone and MSC cells frozen in cell supernatant
      - Average Clinical Arthritis score were significantly lower with cells frozen in cell supernatant compared to cells alone





# Progenza – Phase 1 Osteoarthritis

## Safe and Tolerable

### Primary Endpoints Met

- Progenza at both doses was found to be safe and tolerable
- No serious adverse events occurred
- The majority of adverse events (AEs) were of mild severity
- No meaningful differences between placebo and PRG groups in incidence and nature of adverse events
- No trends or findings of concern were identified
  - from patients' vital signs, laboratory tests, physical examination, ECGs or other safety measurements

- Double-blind, placebo controlled and randomised 20 patient trial
  - Sydney - late 2015 through April 2017 (reported May'17)
- Single intra-articular injection and monitored for 12 months for safety
  - 2 cohorts, placebo (4:1)
- Mean age 53 years (40-64 years)
- Diagnosed with knee OA
  - mild OA 25% Moderate OA 75%

Do you have **KNEE PAIN**  
from osteoarthritis?

Are you between 40 and 65  
years old?

Are you experiencing moderate to  
severe pain in your knees?

Would you consider being a  
participant in a research study using  
a new treatment option?

If so, and if you haven't had surgery on  
your knees in the past 3 years, you may be  
eligible to participate in a research study  
being conducted by some of the doctors at  
this practice.

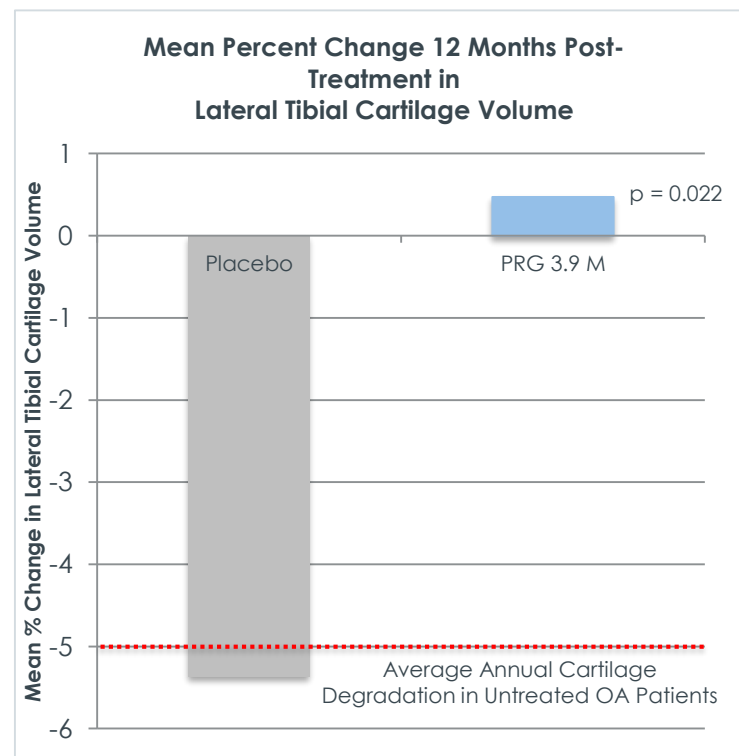
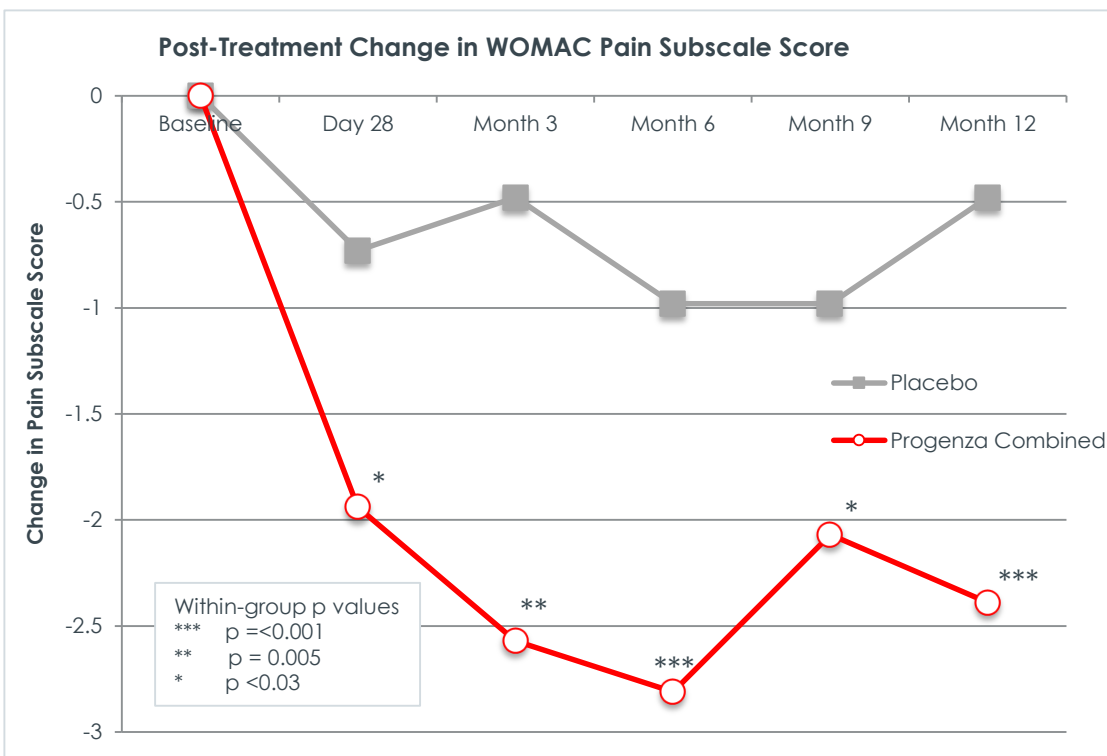
For more information about the study or to register your interest in becoming a  
participant, contact the Clinical Research Nurse Zuzana on [phone number].



# Progenza – Phase 1 Osteoarthritis Significant Secondary Endpoints

## Secondary Endpoints

- Significant reduction in knee pain in Progenza groups - rapid and sustained
- Significant improvement in cartilage volume compared to placebo in target dose
- Positive signs of disease modification





# Progenza – Osteoarthritis

## Data consistent with Preclinical Results

### Safe and tolerable

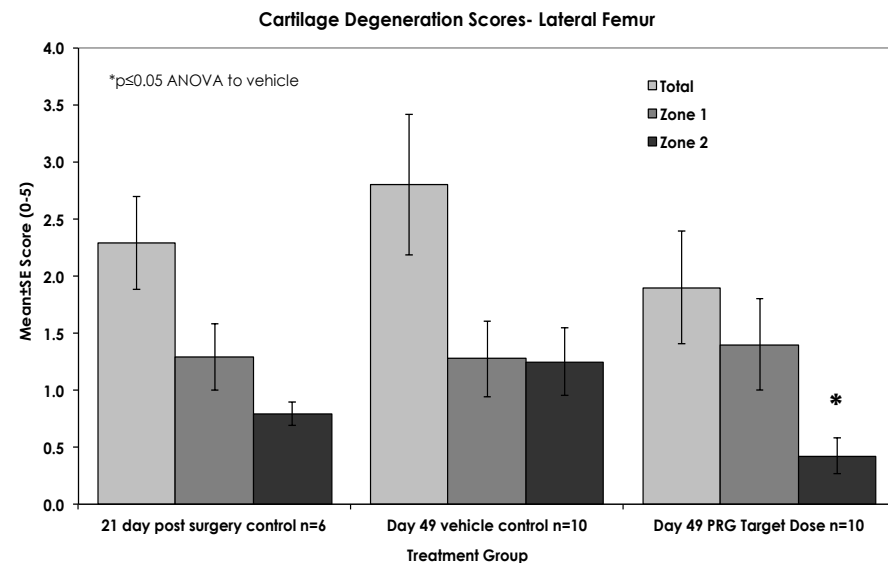
- No Progenza-related systemic or local toxicities or dose related adverse effects

### Significant Secondary Endpoints

- Significant reduction in cartilage degeneration scores with target dose
  - Middle load bearing femur zone (zone 2)
- No further progression of OA
  - Total degeneration scores in Progenza treated knees 4 weeks post-treatment showed no further progression of OA compared to the pre-treatment control group (21 days post surgery)

#### Rabbit Osteoarthritis Model - partial meniscectomy

- Single Progenza intra-articular injection 21 days post-surgery

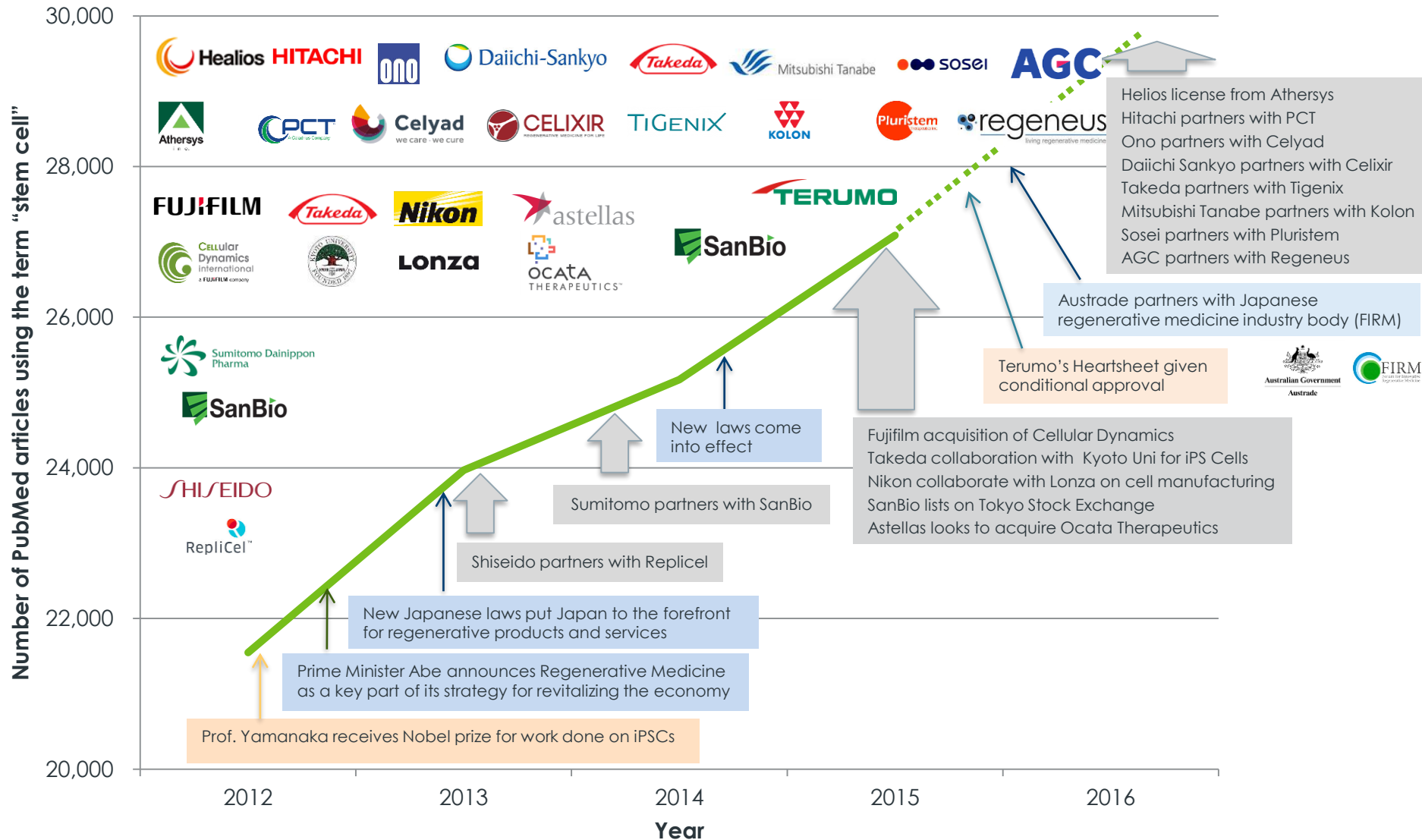


Conducted by US-based Pre-clinical Research Services, a degenerative OA model (partial meniscectomy) in rabbits (n=46; 23M, 23F)

### Next steps

- Pursuing licensing of Progenza for clinical development and commercialisation in Japan and ROW
- Targeting Phase 2 Progenza trial for OA in Japan under new cell therapy early access regulations

# Japan - key market for RegenMed



# Progenza

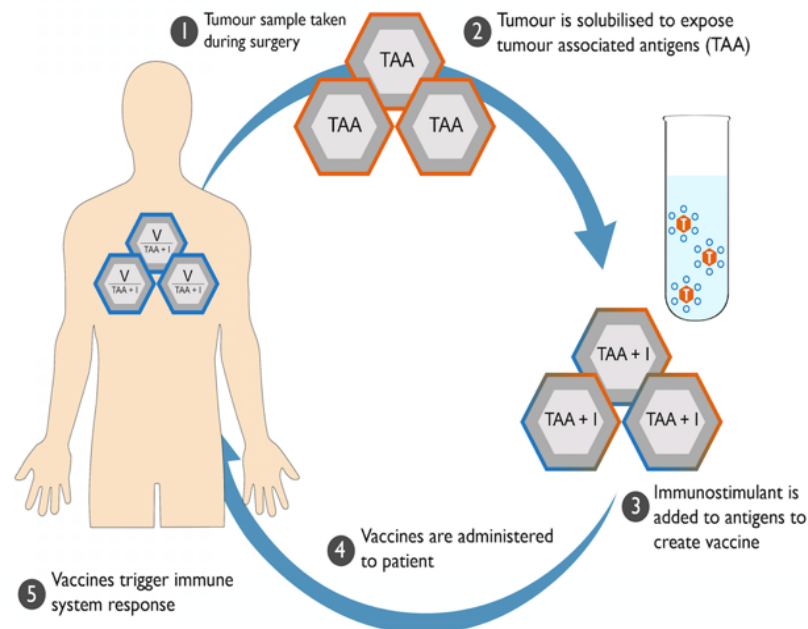
## Collaboration with AGC in Japan



	Received <b>US\$5.5M</b> Upfront licence fee	Entitled to <b>US\$11.0M</b> Specific milestone payments	Established 50/50 JV for licensing through partners the clinical development and marketing rights of Progenza for OA and all other indications in Japan	Entitled to 50% of Progenza clinical licensing, milestone payments and sales royalties
	Exclusive manufacturer of Progenza in Japan	Funds product development for GMP manufacture for Phase 2 Progenza trial		

- Leading Japanese biopharma manufacturer with global capability and aligned goals
- Technology validation
- Drives Progenza development strategy for Japan and accelerates clinical licensing opportunities both in Japan and ROW

- Autologous cancer immunotherapy which uses a patient's own tumour as source coupled with a bacterial adjuvant
- Addresses tumour heterogeneity as all relevant tumour associated antigens are included
- Immune memory may be effective in reducing risk of tumour recurrence
- Straightforward and rapid manufacturing process
- Multi-tumour type potential



	Multiple Relevant Antigens	Potent Immunological Response	Ease of manufacture	Safety Profile	Ease of Use	Low COGS
<b>AUTOLOGOUS THERAPIES</b>						
<b>RGSH4K tumour cell vaccine</b>	✓	✓	✓	✓	✓	✓
Dendritic cell vaccine		✓		✓		
Peptide vaccine			✓	✓	✓	
<b>ALLOGENEIC THERAPIES</b>						
Peptide / HSP vaccine				✓	✓	
Oncolytic virus		✓	✓	✓		
Gene transfer		✓	✓		✓	

# RGSH4K

## Update on Phase 1



- Phase 1 Study for solid cancers (ACTIVATE Trial)
  - Multiple solid tumour types accepted
  - Patients with terminal cancer for which no other therapy exists
  - Varying levels of streptavidin to identify biologically active dose

Activity / Milestone	
ACTIVATE trial open for recruitment	<input checked="" type="checkbox"/>
HREC approved tumour bank	<input checked="" type="checkbox"/>
Patients in all cohorts safely treated	<input checked="" type="checkbox"/>
Patent granted	<input checked="" type="checkbox"/>
Last patient last visit	<input type="checkbox"/>
Analysis and final report	<input type="checkbox"/>

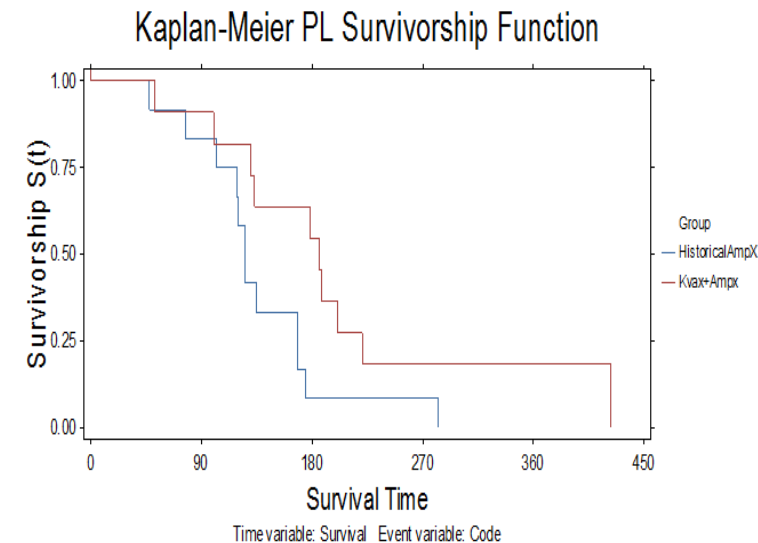
- Targeting Phase 2 RGSH4K trial for combination therapy with checkpoint inhibitors
- Pursuing early partnering opportunities

# Positive Experience with Canine Cancer Vaccine studies

- Safety Study results
  - >100 dogs treated & 17 different tumour types
  - No safety concerns
  - At census (25 dogs) - 71% exceeded survival time up to 22 months
- Osteosarcoma study results
  - Completed canine clinical trial with Dr Bergman of VCA, largest US vet services group
  - Single arm, Kvax only

*“Kvax after amputation is well tolerated and appears to confer increased PFI and survival compared to historically reported dogs with osteosarcoma treated with limb amputation only”*

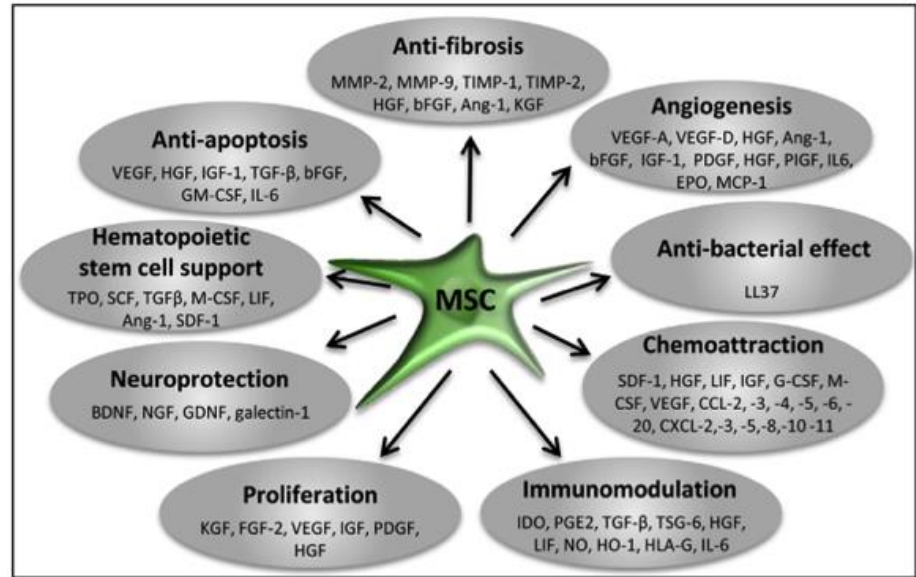
- B-cell lymphoma study ongoing
  - Study initiated at the Small Animal Specialist Hospital in Sydney
  - Placebo controlled, conjunction with standard of care chemotherapy



# MSC Secretions

## Emerging Technology Platform

- MSC Secretions show promise as a stand alone therapeutic platform
- MSCs secrete a diverse variety of bioactive factors including cytokines, growth factors, extracellular vesicles and exosomes
- Secretions respond to the local environment reducing inflammation and scarring, and promoting tissue repair
- Secretions can be used for various forms of administration such as topical, injectable
- Initial focus on topical applications for the management of acne and other inflammatory skin conditions
- Scalable technology – produce high volumes from a single donor





# Patent Portfolio Update

## Overview

- 56 patents or patent applications across 14 patent families
- 11 patents granted in Australia; 2 in NZ; 1 in US, EU, Japan, China and Singapore
- Pursuing all key territories
- Patents cover:
  - Methods of manufacture
  - Compositions and delivery
  - Use of products for treatment of a broad range of indications

## Key patents granted

- Patent granted in Australia, NZ, Japan covering Progenza technology – allogeneic stem cells and secretions for the treatment of osteoarthritis and other inflammatory conditions in humans and animals
- Patent granted in Australia covering cancer vaccine technology for the treatment of cancers in humans (RGSH4K) and animals (Kvax)

# Summary

- **Exposure to rapid growth global regenerative medicine market**
  - 4<sup>th</sup> therapeutic pillar of global healthcare
  - growing from US\$10bn in 2020 – US\$360bn in 2050
  - successful licence driven business model
- **World class stem cell and immuno-oncology technology platforms**
  - multiple product opportunities addressing multiple significant unmet medical needs – many shots on goal
  - lead platform Progenza, on accelerated approval pathway in Japan for osteoarthritis
  - scalable manufacturing for stem cell products
- **Technology validation** by positive preclinical and clinical data and technology collaboration with AGC in Japan
- **Strategic and growing IP portfolio** – 14 patent families with over 50 patents and patent applications with key patents granted in Australia and Japan
- **Unlocking significant value**
  - significant milestones met in H1 '17
  - emerging catalysts to unlock near term significant value
  - 18 month funding runway

# Catalysts over next 12 months

- Convert clinical licensing opportunities for Progenza in Japan & ROW
- Complete chronic pain preclinical study
- Advance partnering discussions on RGSH4K
- Complete recruitment and report on ACTIVATE trial (RGSH4K)
- Complete and report on preclinical trials for inflammatory skin conditions (Secretions)

# Further Information

## **ASX: RGS**

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