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ASX Announcement

Primary safety endpoints met and efficacy showing significant reduction in knee pain and improvement in cartilage volume in STEP trial for Progenza

Sydney, Australia – 22 May 2017

Key points

- Primary endpoint of safety and tolerability met
- Significant, rapid and sustained reduction in knee pain in both Progenza groups
- Significant improvement in cartilage volume compared to placebo
- Positive signs of disease modification
- Positive clinical data to support near term Progenza licensing opportunities in Japan

Regeneus (ASX: RGS), a clinical-stage regenerative medicine company, today announced positive results from its Phase 1 safety trial of Progenza in patients with knee osteoarthritis (OA), meeting the primary endpoint of safety and tolerability. The study showed that a single injection into the knee of either dose of Progenza (3.9 million cells or 6.7 million cells) in patients appeared safe and was well tolerated. Progenza also showed durable and clinically meaningful pain relief in patients with knee OA. The STEP trial (Safety, Tolerability and Efficacy of Progenza) is the first clinical trial of Progenza, the company's allogeneic stem cell technology platform for the treatment of OA and other inflammatory conditions.

The double-blind, placebo-controlled trial randomised 20 patients into two dose cohorts to receive intra-articular knee injections of 3.9 million cells or placebo (4:1) in cohort 1, or 6.7 million cells or placebo (4:1) in cohort 2. In total, 16 (80%) patients received a single dose of Progenza and four (20%) patients received a placebo injection. Patients on study had a mean age of 53 years (range 40-64 years) and were diagnosed with knee OA (mild OA 25%, moderate OA 75%). Patients were monitored for safety for 12 months post injection.

Safety and tolerability

No serious adverse events occurred and a single injection of Progenza was well tolerated. The majority of adverse events in the study for Progenza were of mild severity and were of similar incidence and nature and comparable to patients treated with a placebo injection. No trends or findings of concern were identified from the data collected from patients' blood tests, physical examinations, ECGs, or other safety measurements.

Key secondary endpoints

Secondary endpoints were assessed to explore the impact of Progenza on efficacy outcomes. Pain was measured by Western Ontario and McMaster Universities Arthritis Index (WOMAC) as well as by visual analogue scale (VAS).

Patients treated at either dose of Progenza (n=16) showed a statistically significant within-group reduction in WOMAC pain subscale ($p<.001$, ITT population). The placebo group showed no statistically significant reduction in pain during the study. Measurement of pain using a visual analogue scale revealed very similar findings.

Examination of knee joint structure by MRI showed a statistically significant improvement in lateral tibial cartilage volume for patients treated with 3.9 million cells compared to a worsening in placebo patients ($p=0.028$). This builds on previously reported preclinical findings in an OA model which showed that Progenza-treated joints showed no deterioration from the time of injection, in contrast to the vehicle control group, which continued to deteriorate.

Leading Sydney-based sports medicine specialist, Dr Donald Kuah, the Principal Investigator on the trial said: "This study confirms a benign safety profile for Progenza when given as an intra-articular injection. Progenza significantly reduced pain, and in the majority of patients, Progenza alleviated pain to clinically meaningful levels, defined as 30% or more reduction from baseline. The same pain reduction was not seen in the placebo group. The beneficial effect of Progenza on the knee structure reinforces Progenza preclinical findings and may offer the potential for disease modification."

Regeneus CEO, John Martin said: "We are very pleased with these results. While we were always confident of the safety profile of Progenza, it is the initial efficacy effects relating to the reduction of pain, preservation of cartilage and potential for disease modification that we find most encouraging. We will use these results to advance our licensing discussions for Progenza in Japan and inform future clinical study designs for OA."

About Osteoarthritis
Osteoarthritis continues to be an unmet medical need and is a significant global concern due to wear and tear on joints for ageing populations. Worldwide, osteoarthritis is estimated to be the fourth leading cause of disability. There is no cure for the debilitating disease and non-steroidal anti-inflammatory medication is the most common treatment for the pain symptoms although they can have adverse effects with over use. Stem cell products, such as Progenza, may address the treatment gap for patients who have persistent joint pain and are seeking to delay or avoid total knee replacement.

About Progenza stem cell technology
Progenza is an allogeneic off-the-shelf stem cell technology platform developed for the treatment of knee osteoarthritis and other inflammatory conditions. Progenza cells work by secreting cytokines, growth factors and exosomes that act in concert to reduce inflammation and pain and encourage accelerated healing and repair of the damaged or diseased tissue.

Progenza is produced from expanded mesenchymal stem cells (MSCs) extracted from adipose (fat) tissue from a healthy donor who has been extensively screened. Unlike other stem cell products, Progenza includes secretions from MSCs that improves viability and functionality of the cells during the freezing and thawing process. Regeneus has shown that a combination of cells and secretions has a more powerful therapeutic effect than cells alone.

There are significant advantages in using adipose-derived MSCs to manufacture Progenza. Adipose tissue is readily available from donors in large quantities and has significantly higher MSCs per gram of tissue than other tissue sources such as bone marrow or cord tissue. Adipose-derived MSCs also have the added advantage of showing greater capacity for expansion than MSCs from other tissue types. The MSCs are expanded through the company's proprietary and scalable manufacturing process. The company has demonstrated the capacity to produce millions of therapeutic doses of Progenza from a single donor which helps avoid the need to pool donor material and seek multiple donors. The MSCs used in Progenza have not been reprogrammed as required for induced pluripotent stem cells thereby reducing manufacturing and clinical development risks.

Regeneus has been granted a patent in Australia covering the manufacture and use of Progenza for the treatment of osteoarthritis and other inflammatory conditions. The patent is also being pursued for grant in other territories including Japan, USA and Europe.

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About Regeneus:
Regeneus Ltd (ASX: RGS) is a Sydney-based clinical-stage regenerative medicine company using stem cell and immuno-oncology technologies to develop a portfolio of innovative cell-based therapies to address significant unmet medical needs in the human and animal health markets with a focus on osteoarthritis and other musculoskeletal disorders, oncology and dermatology.