

SAMUMED'S WNT PATHWAY MODULATOR SM04690 SHOWS POTENTIAL AS A DISEASE MODIFYING TREATMENT FOR OSTEOARTHRITIS (OA) OF THE KNEE

San Diego, CA—November 15, 2016 – A Phase 1 study of Samumed's investigational drug SM04690 demonstrated potential for cartilage regeneration, as well as improvements in pain and function associated with OA of the knee. At the 2016 American College of Rheumatology (ACR) Annual Meeting in Washington, D.C., Samumed presented today two separate posters about its Phase 1 results. "SM04690 continues to show promise. Its potential for disease modification, coupled with its safety profile makes it an exciting drug candidate for a clinician treating patients with OA of the knee," said Dr. Yusuf Yazici, Samumed's Chief Medical Officer.

SM04690 is one of two small molecule Wnt pathway modulators (together with SM04755 which is being studied for topical use in chronic tendinopathy, psoriasis, and scleroderma) about which Samumed has presented clinical and/or preclinical data across five different rheumatic diseases (including OA and degenerative disc disease) at the ACR Annual Meeting.

In addition to safety results, which were [previously presented](#), the Phase 1 study collected preliminary efficacy data, including radiographic measurement of joint space width (JSW), where signals of potential disease modifying activity were observed. The efficacy outcomes also included the Western Ontario and McMaster Universities Arthritis Index (WOMAC), a validated patient reported outcome measure for pain, function, and stiffness of OA. For methodology and a complete exposition of the results, please see Posters [2350](#) and [2368](#).

Potential Disease Modification: Maintenance or Increase of JSW

In Poster # 2350, Samumed reported that in the modified ITT population (mITT) at 24 weeks, subjects in the 0.07 mg cohort showed a statistically significant increase in mean medial JSW of 0.49 mm (SD \pm 0.75 mm, $P=0.02$) from baseline compared to placebo (vehicle diluent containing 0.5% carboxymethyl-cellulose sodium and 0.05% polysorbate 80 in pH 7.4 phosphate buffered saline). Clinicians generally perceive an increase in joint space as evidence of potential preservation or regeneration of cartilage. From baseline to 24 weeks, no change in mean medial JSW was observed in the 0.03 mg cohort (mean 0.00 mm, SD \pm 0.69 mm), a decrease in mean medial JSW of 0.15 mm (SD \pm 1.07 mm) was observed in the 0.23 mg cohort, and a mean decrease of 0.33 mm (SD \pm 0.87 mm) was observed in the placebo cohort.

Potential Treatment of Signs & Symptoms: OMERACT-OARSI Strict Responders

In Poster # 2368, the percentages of OMERACT-OARSI strict responders in the mITT population were calculated. Strict responders were defined as patients reporting either WOMAC pain or function

subscore improvement of ≥ 50 percent, coupled with a reduction in the given subscore of at least 20 points, scaled to [0-100].

Compared to placebo, data showed statistically more OMERACT-OARSI strict responders in the 0.07 mg cohort at week 12 (76 percent versus 36 percent in placebo, $P=0.04$). Numerically, there were more strict responders in the 0.03 mg cohort at week 24 (73 percent versus 36 percent in placebo, $P=0.07$). More patients in the 0.07 mg cohort met both the pain and function criteria versus placebo at 12 and 24 weeks. Responses in the 0.23 mg cohort were 44 percent at week 12 and 25 percent at week 24.

A Phase 2 clinical study of SM04690 with 445 patients (NCT02536833) is currently ongoing, further investigating safety, dose response, efficacy, and potential disease modification in patients with osteoarthritis of the knee.

FULL LIST OF SAMUMED'S ACR PRESENTATIONS REGARDING SM04690

Title: [Radiographic Outcomes from a Randomized, Double-Blind, Placebo-Controlled, Phase 1 Study of a Novel, Intra-Articular, Injectable, Wnt Inhibitor \(SM04690\) in the Treatment of Osteoarthritis of the Knee](#)

Date: November 15, 2016

Abstract number: 2350

Title: [Analysis of Pain and Function Components in Omeract-Oarsi Strict Responders from a Randomized, Double-Blind, Placebo-Controlled, Phase 1 Study of a Novel, Intra-Articular, Injectable, Wnt Inhibitor \(SM04690\) in the Treatment of Osteoarthritis of the Knee](#)

Date: November 15, 2016

Abstract number: 2368

Title: [Discovery of a Small Molecule Inhibitor of the Wnt Pathway \(SM04690\) As a Potential Treatment for Degenerative Disc Disease](#)

Date: November 15, 2016

Abstract number: 2120

Title: [A Small Molecule, SM04690, Has Inhibitory Effects on the Wnt Pathway and Inflammation in Vitro, with Potential Implications for the Treatment of Osteoarthritis](#)

Date: November 15, 2016

Abstract number: 2143

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ABOUT SAMUMED, LLC

Based in San Diego, CA, Samumed (www.samumed.com) is a pharmaceutical platform company focused on advancing regenerative medicine and oncology applications through research and innovation. Samumed has discovered new targets and biological processes in the Wnt pathway, allowing the team to develop small molecule drugs that potentially address numerous degenerative conditions as well as many forms of cancer.