



**Generative Modelling methods for  $^{99m}\text{Tc}$ -maraciclalide presented at the  
Institute of Electrical and Electronics Engineers (IEEE)  
Medical Imaging Conference 2022**

London, UK, 10 Nov 2022, Serac Healthcare Limited (“Serac Healthcare” or “the Company”), the clinical radiopharmaceutical company developing innovative molecular imaging technologies, announces that an abstract titled ‘Single-Shot Generative Modelling for  $^{99m}\text{Tc}$ -maraciclalide Imaging’ is being presented today at the IEEE Medical Imaging Conference taking place 5-12 November in Milan, Italy.

$^{99m}\text{Tc}$ -maraciclalide is an unapproved molecular imaging marker, which is in development for the diagnosis and detection of two primary indications: endometriosis and inflammatory arthritis.

Images from previous clinical studies in patients with rheumatoid arthritis have shown the uptake of  $^{99m}\text{Tc}$ -maraciclalide in inflamed synovium, tendons and tendon sheaths which correlated with Power Doppler Ultrasound images. A small number of images from this  $^{99m}\text{Tc}$ -maraciclalide dataset have been analysed for the research being presented at the meeting today, which explores whether Artificial Intelligence (AI) using machine learning tools could be used to perform automatic segmentation of regions of interest and joint scoring.

This oral presentation will investigate the use of deep generative models to create realistic synthetic data for the purposes of training AI models for diagnostic applications. This includes convolutional generative models such as generative adversarial networks (GANs) to augment data from the limited number of images available.

This is the first presentation of research using machine learning and  $^{99m}\text{Tc}$ -maraciclalide, which is being conducted by a team led by Andrew Reader at the School of Biomedical Engineering and Imaging Sciences, King’s College London. The presenting author is Robert Cobb, King’s College London.

**David Hail, Chief Executive Officer of Serac Healthcare**, commented:

“AI has the potential to enrich the impact of this breakthrough imaging agent and we look forward to continuing to work with King’s College London as this research expands. Imaging using maraciclalide has the potential to improve the speed and ease of detecting and quantifying active disease in the joints of patients with inflammatory disease. AI opens up the possibility of further enhancing this imaging assessment to guide treatment decisions for patients.”

The next stage of this research will be to continue to apply machine learning techniques to a broader dataset.

**About The IEEE Medical Imaging Conference**

The IEEE Medical Imaging Conference (MIC) is a leading international scientific meeting to discuss the latest physics, engineering, and mathematical aspects of medical imaging. MIC has a unique focus on cutting edge technologies as well as their effective translation to clinical practice. In recent years, interest has increased in applications of machine learning, AI, and other rapidly emerging areas of research. [https://nssmic.ieee.org/2022/program/#mic\\_program](https://nssmic.ieee.org/2022/program/#mic_program)

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**Notes to Editors**

**About Serac Healthcare Ltd**

Serac Healthcare is a clinical radiopharmaceutical company with deep expertise in discovering, developing and commercialising innovative molecular imaging technologies. Using these targeted technologies to underpin personalised medicine in the fields of endometriosis and inflammatory arthritis, Serac Healthcare is focused on bringing to market effective tools to accelerate diagnosis, and to deliver earlier and more effective treatment decisions. Serac Healthcare Ltd is a wholly owned subsidiary of Serac Life Sciences Limited.

**About inflammatory arthritis**

Inflammatory arthritis encompasses a number of chronic, progressive, painful, incurable conditions in which the body's own immune system attacks the joints. If untreated they can result in irreversible joint damage and permanent disability. Multiple therapies are available that can slow or even halt disease progression, but current limitations in determining when joints are inflamed means that patients are often over or under treated.

**About <sup>99m</sup>Tc-maraciclalide and inflammatory arthritis**

<sup>99m</sup>Tc-maraciclalide is a radio-labelled tracer which binds with high affinity to  $\alpha\beta3$  integrin, a cell-adhesion molecule which is up-regulated on activated vascular endothelial cells, activated macrophages and osteoclasts.

<sup>99m</sup>Tc-maraciclalide planar imaging has the capacity to image the whole body, highlighting total synovial inflammatory load in a 20 minute scan, producing images which are easy to interpret to the untrained observer.

<sup>99m</sup>Tc-maraciclalide uptake in the joints has been shown to be highly correlated with Power Doppler Ultrasound (PDUS) in an initial proof of concept study and a subsequent 50 patient rheumatoid arthritis study. Further clinical studies in inflammatory arthritis are expected to commence next year.

**Maraciclalide is for investigational use only and is not approved by the FDA or UK and European regulatory authorities.**