



**Development of A Deep Learning Approach for Analysing Scans of
Rheumatoid Arthritis Patients using ^{99m}Tc -Maraciclatiside
Presented at the IEEE Nuclear Science Symposium
and Medical Imaging Conference 2023**

London, UK, 8 November 2023. Serac Healthcare Limited (“Serac Healthcare” or “the Company”), a clinical radiopharmaceutical company developing innovative molecular imaging technologies, announces that a poster is being presented at the Institute of Electrical and Electronics Engineers Nuclear Science Symposium and Medical Imaging Conference 2023 taking place from 4 to 11 November in Vancouver, Canada.

The poster forms a part of a research project being conducted by a team led by Professor Andrew Reader and Professor Gary Cook at the School of Biomedical Engineering and Imaging Sciences, King’s College London. The objective of the research is to investigate and design AI tools to help clinicians read and interpret scans using a novel radiolabelled tracer, ^{99m}Tc-maraciclatiside, which is in development to diagnose and detect inflammation in patients with rheumatoid arthritis. Images from previous clinical studies in patients have shown that the uptake of ^{99m}Tc-maraciclatiside in inflamed synovium correlates with power Doppler ultrasound images, a widely used imaging method. The development of AI tools could enhance the potential of ^{99m}Tc-maraciclatiside as a new imaging marker.

The poster presentation on Wednesday 8 November, 2023 is titled: “Comparison of U-Net and Transformer-Based Swin-Unet Architectures for Segmenting Inflammation in Gamma Camera ^{99m}Tc-Maraciclatiside Imaging” which compares two deep-learning approaches and shows preliminary results that indicate that a convolutional-based U-Net outperforms a Swin-Unet model for the task of segmenting regions of inflammation in patients’ hands with ^{99m}Tc-maraciclatiside imaging.

The poster is available [here](#). The presenting author is Robert Cobb, King’s College London.

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

About the IEEE Nuclear Science Symposium and Medical Imaging Conference 2023

This conference is the premier meeting on the use of instrumentation in the Nuclear and Medical fields, covering state-of-the-art scientific and technological advances in subjects that include radiation detection, detector materials, electronics, image reconstruction algorithms, and complex radiation detector and imaging systems for research and applications in the fields of physics, medicine, biology, security and materials science. <https://nssmic.ieee.org/2023/>

-ENDS-

For more information, please contact:

Serac Healthcare Ltd

www.serachealthcare.com

David Hail, Chief Executive Officer

+44 (0)208 948 0000

info@seraclifesciences.com

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 ^{99m}Tc-maraciclatiside and inflammatory arthritis

^{99m}Tc-maraciclatiside 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.

^{99m}Tc-maraciclatiside 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.

^{99m}Tc-maraciclatiside 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 later this year.

^{99m}Tc-maraciclatiside is for investigational use only and is not approved by the FDA or UK and European regulatory authorities.