



**The Development of a Deep Learning Model  
to Classify Inflammation from <sup>99m</sup>Tc-Maraciclalide Scans  
Presented at the BNMS Autumn Meeting 2023**

**London, UK, 31<sup>st</sup> October 2023**, Serac Healthcare Limited (“Serac Healthcare” or “the Company”), a clinical radiopharmaceutical company developing innovative molecular imaging technologies, announces that a poster titled “Automatic Classification of Inflamed Joint Regions in Rheumatoid Arthritis using Deep Networks with <sup>99m</sup>Tc-maraciclalide Imaging” is being presented at the British Nuclear Medicine Society meeting taking place on 31<sup>st</sup> October in London.

The poster presentation demonstrates that a deep learning model can be successfully applied to classify inflamed vs non-inflamed hand and wrist joint regions in patients with rheumatoid arthritis as identified by scans taken using an experimental imaging marker, <sup>99m</sup>Tc -maraciclalide. The next stage of the research will work to further improve the model and to predict individual joints within the hand.

This is part of an ongoing 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, to investigate the application of AI tools to provide diagnostic and prognostic information using <sup>99m</sup>Tc-maraciclalide. The presenting author is Robert Cobb, King’s College London. The poster is available [here](#).

Images from previous clinical studies in patients with rheumatoid arthritis have shown that the uptake of <sup>99m</sup>Tc-maraciclalide in inflamed synovium correlates with power Doppler ultrasound images. Machine learning methods have been applied to a dataset of images from 48 of these patients, with segmentation maps provided by a clinician of the normal and inflamed tissue within the scans.

**<sup>99m</sup>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.**

**About The BNMS Autumn Meeting**

The conference draws on the philosophy of the global Choosing Wisely initiative exploring themes of collaborative clinical decision making and a nuanced approach to door-to door imaging from image optimisation to dose conservation. Faculty is drawn from opinion leaders in clinical and nuclear medicine world. <https://www.bnms.org.uk/mpage/Autumn23welcome>

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**For more information, please contact:**

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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-maraciclatiside and inflammatory arthritis**

<sup>99m</sup>Tc-maraciclatiside is a radio-labelled tracer which binds with high affinity to  $\alpha v \beta 3$  integrin, a cell-adhesion molecule which is up-regulated on activated vascular endothelial cells, activated macrophages and osteoclasts.

<sup>99m</sup>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.

<sup>99m</sup>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.

**<sup>99m</sup>Tc-maraciclatiside is for investigational use only and is not approved by the FDA or UK and European regulatory authorities.**