Title: Real-world evaluation of effectiveness, persistence and usage patterns of tofacitinib in treatment of psoriatic arthritis in Australia.

Subtitle: Protocol V1.0 date: 04 March 2021

Rationale and Background: Tofacitinib is a potent, selective inhibitor of the Janus kinase (JAK) family of kinases and is a targeted synthetic Disease-Modifying Anti-Rheumatic Drug (tsDMARD) indicated for the treatment of psoriatic arthritis (PsA). It was approved for use in PsA in Australia in May 2018 and subsidised through the Pharmaceutical Benefits Scheme (PBS) from May 2019. Limited data exist to described the characteristics and outcomes of patients with PsA who receive tofacitinib in a real-world setting. This study aims to use the OPAL dataset to provide real-world evidence about the evidence regarding general treatment patterns, clinical effectiveness, treatment persistence and patient-reported outcomes (PROs) among PsA patients being treated with tofacitinib in the post-approval setting.

Research Question and Objectives: To understand the patterns of treatment (lines of therapy, and use as combination or monotherapy), clinical effectiveness, PROs and treatment persistence among Australian adult patients with PsA treated with tofacitinib. Similar data will also be collected for patients treated with biologic disease-modifying anti-rheumatic drugs (bDMARDs) to provide descriptive information about clinical management of PsA in real-world Australian clinical practice.

The primary objectives of the study are to describe tofacitinib treatment patterns among Australian adult patients with PsA, as defined by line of usage, dosing patterns, use as monotherapy or in combination with conventional DMARDs (cDMARDs) and reasons for discontinuation of tofacitinib; to assess the clinical effectiveness of tofacitinib, as defined by disease severity markers (Disease Activity Score-28 (DAS28), Clinical Disease Activity Index (CDAI), Simple Disease Activity Index (SDAI)) Disease Activity Score Psoriatic Arthritis (DAPSA) and percent of patients reaching targeted treatment goals (remission or low disease activity), in Australia; and to assess PROs (Health Assessment Questionnaire – Disease Index (HAQ-DI), Functional Assessment Of Chronic Illness Therapy (FACIT)-Fatigue, Health Care Resource Utilisation (HCRU)) and treatment persistence in Australian adult patients with PsA who are prescribed tofacitinib.

Secondary objectives are to describe bDMARD treatment patterns among Australian adult patients with PsA, as defined by line of usage, dosing patterns, use as monotherapy or in combination with cDMARDs and reasons for discontinuation of bDMARDs; to assess PROs (HAQ-DI, FACIT-Fatigue, HCRU) and treatment persistence in Australian adult patients with PsA who are prescribed bDMARDs.

Study Design: This is a retrospective non-interventional cohort study and will involve extracting real-world patient data from the Australian OPAL dataset.

Population: Data from adult patients (aged 18 years or older) with a diagnosis of PsA, who have received treatment with tofacitinib or a bDMARD and have at least 1 year of follow-up will be extracted from the OPAL database. In order to address the observational nature of the database, propensity score matching will be undertaken between the tofacitinib and bDMARD groups.

Propensity score matching will be based on age, sex, DAS28 and baseline treatment combinations.

Variables: The following variables will be analysed: exposure (tofacitinib or bDMARDs), baseline characteristics (eg, baseline health, treatment history, clinical characteristics, PROs, treatment history) and outcomes (treatment patterns, clinical effectiveness and PROs).

Data Sources: All data for this study will be obtained from the OPAL dataset. The OPAL – Quality Use of Medicines Initiative is a point of care observational database.[1] Currently approximately 104 Australian rheumatologists and more than 192,000 patients with rheumatic disease are participating in the dataset. Data are captured into individual clinician's servers during routine clinical consultations, using the purpose-built worksheets in the Audit4 software.[4] Data de-identified for patient, clinic and clinician are exported from each of the OPAL member's local server to a central server for analysis.

Study Size: With 250 tofacitinib patients, proportions (eg, the proportion of first line users) can be estimated with a precision (ie, standard error of the estimate) of at worst ±7%. This is based on an estimated proportion of 50%.

Data Analysis: Descriptive summaries will be performed for each data cut and at the final analysis. No comparative analyses will be undertaken. Analyses will be repeated in the overall population and the propensity score matched population.

Milestones: Final study report completed by November 2022.