# Study protocol

## Adverse events with IL-17 and IL-23 inhibitors for psoriasis and psoriatic arthritis: a systematic review and meta-analysis of phase III studies.

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## Aim

The aim of this meta-analysis is to determine 1) the prevalence of adverse events (AEs) in patients with psoriasis or psoriatic arthritis treated with IL-17 or IL-23.

## Study design

Systematic review and meta-analysis

## Eligibility criteria

Published studies in English language, from any year and any healthcare setting are eligible to be included. To qualify for inclusion, studies must 1) be phase 3, phase 3b or open label extension of phase III studies 2) report the number of patients and/or prevalence of AEs in patients with psoriasis, psoriatic arthritis, generalized pustular psoriasis, or erythrodermic psoriasis treated with IL-17 and IL-23 inhibitors, and 3) report the adverse events after 12, 16, 24, and/or 52 weeks of treatment.

## Literature search

Two authors will independently screen the two medical databases (Pubmed and Embase). We will search the databases from inception using the search terms: "*(psoriasis* OR *psoriatic)* AND *(secukinumab* OR *ixekizumab* OR *brodalumab* OR *guselkumab* OR *risankizumab* OR *tildrakizumab)"*.

## Selection of studies and data extraction

Records will be screened according to title and abstract and duplicates will be removed. Studies that meet the inclusion criteria will be selected for full text screening as well as studies where eligibility is unclear based on title or abstract. Any disagreement between the two reviewers will be resolved through debate and the resulting decision must be unanimous. In the case that a study population is included in more than one publication, the newer publication will be included.

The literature selection and the reasons for study exclusion will be documented in a PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) flow diagram.

The following data will, where applicable, be retrieved from each publication: first author's name, year of publication, study name or NCT number, dosing schedule, week of evaluation, number and gender of patients, mean or median age, number and where applicable incidence of: AEs, serious AEs (SAE), discontinuation due to AE, death, and common AEs/SAEs or of interest including: Major adverse cardiovascular events (MACE), inflammatory bowel diseases (IBD), candida infections, upper respiratory tract infection (URTI), depression, infections, serious infectious episodes (SIE), injection site reactions (ISR), malignancies, malignancies excluding non-melanoma skin cancer (NMSC), nasopharyngitis, and arthralgia.

## Data synthesis

Data synthesis will be conducted using StatsDirect version 3 (StatsDirect Ltd., Cheshire, UK). Proportion meta-analysis will be performed to obtain pooled prevalence of adverse events after 12, 16, 24, and 52 weeks of treatment. Heterogeneity of studies will be assessed with Cochran's Q-test and I2 statistic. Estimates will be conducted using random effects model (Der Simonian and Laird). Publication bias will be assessed with funnel plots. The PRISMA guidelines will be followed when reporting results of this study.