

# Comparing the effectiveness of morning and evening dosing of tofacitinib in inflammatory arthritis

<b>Submission date</b> 25/11/2021	<b>Recruitment status</b> Recruiting	<input checked="" type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 22/12/2021	<b>Overall study status</b> Ongoing	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 21/01/2026	<b>Condition category</b> Musculoskeletal Diseases	<input type="checkbox"/> Individual participant data <input checked="" type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims:

Circadian rhythms are physical, mental, and behavioral changes that follow a 24-hour cycle. Disruption of the circadian rhythm may lead to immune system dysregulation. In line with this, various inflammatory arthritis symptoms show a distinctive daily pattern, including pain and joint stiffness. However, in daily practice we often do not take advantage of these circadian rhythms, especially not with regard to treatment. The aim of this study is to compare the effectiveness of tofacitinib morning versus evening dosing in rheumatoid arthritis and psoriatic arthritis patients.

### Who can participate?

Patients aged 18 years or older with rheumatoid arthritis or psoriatic arthritis with active disease

### What does the study involve?

Patients are randomly allocated to morning or evening dosing of tofacitinib for 3 months, which is followed by switching to the other treatment schedule for the next 3 months. Patients will be assessed at the start of the study and after 1, 3 and 6 months of treatment. At each visit patients will fill out online questionnaires and are seen by the research nurse. Additional blood and faecal samples will be taken at the start of the study and after 1 month (only blood), 3 and 6 months. Finally, patients will wear an actigraph (like a wristwatch) on their wrist two times for 2 weeks at home. The actigraph will be picked up by the patient in the hospital 2 weeks before the visit.

### What are the possible benefits and risks of participating?

If successful, this study will show the best dosing time of tofacitinib and could be a step towards the use of this treatment on a regular basis in daily practice. It may also help better address well-known problems such as morning stiffness and fatigue, which often persist after reaching low disease activity.

Tofacitinib is approved and used according to the label so evening dosing of tofacitinib should not lead to any greater risks compared to morning dosing (routine care).

### Where is the study run from?

Erasmus Medical Center, Rotterdam (The Netherlands)

When is the study starting and how long is it expected to run for?  
January 2021 to March 2029

Who is funding the study?  
Pfizer B.V. (USA)

Who is the main contact?  
Dr P.H.P. de Jong  
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## Contact information

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Scientific

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Public

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## Additional identifiers

**Clinical Trials Information System (CTIS)**  
2021-004131-84

**ClinicalTrials.gov (NCT)**  
Nil known

**Protocol serial number**  
ChronIA001

# Study information

## Scientific Title

Chronotherapy in Inflammatory Arthritis: a randomized controlled trial comparing the effectiveness of morning and evening dosing of tofacitinib extended-release

## Acronym

ChronIA

## Study objectives

Evening dosing of tofacitinib XR will lead to a lower (self-reported) disease activity and improve sleep quality, morning stiffness and pain compared to morning dosing, because it is better synced with the circadian rhythm of inflammatory cytokines.

## Ethics approval required

Old ethics approval format

## Ethics approval(s)

Approved 14/02/2022, Medisch Ethische Toetsings Commissie (METC) Erasmus Medical Center (Postbus 2040, 3000 CA Rotterdam, the Netherlands; +31 107033625; metc@erasmusmc.nl), ref: NL78735.078.21

## Study design

Open-label randomized controlled trial

## Primary study design

Interventional

## Study type(s)

Treatment

## Health condition(s) or problem(s) studied

Inflammatory arthritis (rheumatoid arthritis and psoriatic arthritis)

## Interventions

Patients will be randomized using minimization randomization stratified for diagnosis and co-medication. Patients are randomized into morning or evening dosing of tofacitinib XR (11 mg q. d.) for 3 months, which is followed by switching to the alternate regimen for the next 3 months.

## Intervention Type

Biological/Vaccine

## Phase

Phase IV

## Drug/device/biological/vaccine name(s)

Tofacitinib extended release

## Primary outcome(s)

Disease activity measured with the Routine Assessment of Patient Index Data 3 (RAPID3) at 3 months

### **Key secondary outcome(s))**

Current secondary outcome measures as of 21/11/2023:

1. (Self-reported) disease activity (states) measured using Disease Activity Score (DAS) & Disease activity in PSoriatic Arthritis (DAPSA) at 3 and 6 months
2. Sleep measured using a sleep scale from the medical outcomes study (MOSS-ss) at 3 and 6 months
3. Morning stiffness (severity and duration) measured using a 10-point Likert scale at 3 and 6 months
4. Pain measured using a visual analogue scale (VAS) and the generalized pain questionnaire (GPQ) at 3 and 6 months
5. Fatigue measured using a visual analogue scale (VAS) and the Functional Assessment of Chronic Illness Therapy - Fatigue (FACIT-F) at 3 and 6 months
6. General health measured using a visual analogue scale (VAS) at 3 and 6 months
7. Functional ability measured using the health assessment questionnaire disability index (HAQ-DI) at 3 and 6 months
8. Quality of life measured using EuroQoL (EQ-5D-5L) at 3 and 6 months
9. Worker productivity measured using the Work Productivity and Activity Impairment (WPAI) at 3 and 6 months
10. Treatment satisfaction measured using a visual analogue scale (VAS) at 3 and 6 months
11. Compliance measured using the Medication Adherence Report Scale (MARS-5) at 3 and 6 months

Previous secondary outcome measures:

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7. Functional ability measured using the health assessment questionnaire disability index (HAQ-DI) at 3 and 6 months
8. Quality of life measured using EuroQoL (EQ-5D-5L) at 3 and 6 months
9. Worker productivity measured using the Work Productivity and Activity Impairment (WPAI) at 3 and 6 months
10. Treatment satisfaction measured using a visual analogue scale (VAS) at 3 and 6 months
11. Compliance measured using the Medication Adherence Report Scale (MARS-5) at 3 and 6 months

### **Completion date**

31/03/2029

## **Eligibility**

### **Key inclusion criteria**

Current inclusion criteria as of 21/11/2023:

1. Age  $\geq 18$  years
2. Diagnosed with rheumatoid arthritis (RA) or psoriatic arthritis (PsA), according to respectively the American College of Rheumatology (ACR)/European League Against Rheumatism (EULAR) 2010 criteria for RA and CLASSification for Psoriatic ARthritis (CASPAR) criteria
3. Active disease, defined as a Disease Activity Score (DAS)  $> 2.4$  or Disease Activity in PSoriatic Arthritis (DAPSA) score  $> 14$

Previous inclusion criteria:

1. Age  $\geq 18$  years
2. Diagnosed with rheumatoid arthritis (RA) or psoriatic arthritis (PsA), according to respectively the American College of Rheumatology (ACR)/European League Against Rheumatism (EULAR) 2010 criteria for RA and CLASSification for Psoriatic ARthritis (CASPAR) criteria
3. Active disease, defined as a Disease Activity Score (DAS)  $> 2.4$  or Disease Activity in PSoriatic Arthritis (DAPSA) score  $> 14$
4. Biological disease-modifying antirheumatic drug (bDMARD) usage  $< 3$

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Mixed

**Lower age limit**

18 years

**Upper age limit**

100 years

**Sex**

All

**Total final enrolment**

0

**Key exclusion criteria**

1. Current or previous treatment with a targeted synthetic (ts)DMARD
2. Prednisone (or equivalent) at a dose of  $> 7.5$  mg
3. (Relative) contraindications for the study medication
4. Work in shifts
5. Not being able to understand, speak and write in Dutch

**Date of first enrolment**

01/03/2022

**Date of final enrolment**

31/03/2028

# Locations

## Countries of recruitment

Netherlands

## Study participating centre

### Erasmus Medical Center

Doctor Molewaterplein 40

Rotterdam

Netherlands

3015 GD

## Study participating centre

### IJsselland Hospital

Prins Constantijnweg 2

Capelle aan den IJssel

Netherlands

2906 ZC

# Sponsor information

## Organisation

Erasmus MC

## ROR

<https://ror.org/018906e22>

# Funder(s)

## Funder type

Industry

## Funder Name

Pfizer

## Alternative Name(s)

Pfizer Inc., Pfizer Consumer Healthcare, Davis, Charles Pfizer & Company, Warner-Lambert, King Pharmaceuticals, Wyeth Pharmaceuticals, Seagen, Pfizer Inc

## Funding Body Type

Government organisation

**Funding Body Subtype**  
For-profit companies (industry)

**Location**  
United States of America

## Results and Publications

Individual participant data (IPD) sharing plan

**IPD sharing plan summary**  
Data sharing statement to be made available at a later date

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Participant information sheet</a>	Participant information sheet	11/11/2025	11/11/2025	No	Yes