

MEDICAL IMAGING SERVICES

UCB PA0010

**A PHASE 3, MULTICENTER, RANDOMIZED, DOUBLE-BLIND,
PLACEBO-CONTROLLED, ACTIVE REFERENCE STUDY EVALUATING
THE EFFICACY AND SAFETY OF BIMEKIZUMAB IN THE TREATMENT
OF SUBJECTS WITH ACTIVE PSORIATIC ARTHRITIS**

PHASE 3

Image Acquisition Guideline

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UCB – 235077 Image Acquisition Guideline

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Document Approvals

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This document has completed a review and is understood and accepted by the following:

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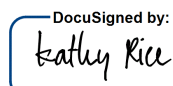
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Document Revision History

0.1	22-Aug-2018	Farhan Syed/ Shobitha Manikandan	Initial draft of the document
1.0	11-Oct-2018	Heather Eagle	Finalized document issued for signature
1.1	18-Feb-2019	Farhan Syed/ Shobitha Manikandan	As per the updated protocol, visits week 24 and week 36 are no longer applicable to the trial
1.2	26-Feb-2019	Heather Eagle	Image resolution requirements- Hardcopy films- updated wording related to supply of x-ray films. Small punctuation changes
2.0	27-Feb-2019	Heather Eagle	Finalized document updated for signature

Imaging Schedule

PAREXEL has developed the following **Image Acquisition Guidelines (IAGs)** for standardization of the study imaging components across radiology centers participating in the PA0010 clinical trial. This IAG will provide high level requirements for the imaging required in this study.

Visit Schedule ¹	Imaging Data
Screening ²	14-35 days ³
Week 16 ⁴	A posterior-anterior (PA) x-ray of each hand with wrist and an anterior-posterior (AP) x-ray of each foot
Week 52	
Early Termination	

¹ Visit windows of ±2 days are allowed for all visits up to Week 16 and ±3 days until termination.

² The X-ray at screening and at all follow up time points should include all the anatomies (right hand, left hand, right foot and left foot).

³ Please submit the screening visit images earlier in the screening window (2-3 days post screening at the latest) to allow for sufficient time for eligibility assessments.

⁴ Only for subjects who are rescued; performed once at the visit, a subject is determined to be eligible for rescue therapy

IMAGE RESOLUTION REQUIREMENTS

Digital Images: Images **MUST** be acquired with high resolution. A digital resolution of 100 microns (digital pixel spacing 0.10 x 0.10 mm) is preferred. If your instrument is not capable of 100-micron resolution, then PAREXEL may still be able to qualify your instrument at a different resolution (80 to 175 microns). This will be determined as part of site qualification. *Please use this optimal digital resolution for which your instrument was qualified for all study imaging during this trial.*

Hardcopy Films: Per protocol, sites with conventional scanners **MUST** acquire using **high resolution, single emulsion** or **mammography** grade film and compatible cassette. Hardcopy films should be 24 X 30 cm. To ensure compliance for this study, PAREXEL will provide these films to any site which requests to submit hardcopy images and not digital images. Please be sure to use these for all study imaging where applicable.

Phantom Image Submission and First Human Image Submission Qualification

Please submit a non-human phantom image acquired per IAG's and submitted similar to subject imaging. This needs to be submitted as part of scanner qualification prior to first subject imaging in order to confirm that the image acquisition is per guidelines.

Images from the first subject(s) imaged at each participating site will serve as the qualifying images. The purpose is to ensure that each site understands and is in compliance with the PAREXEL Imaging Acquisition Guidelines.

IMAGE TRANSFER METHOD

Digital Images: If images are digitally acquired, a digital transfer method is expected (i.e. **E-Transfer** or CD-ROM, DVD). Digital images cannot be printed on film for submission to PAREXEL. Digital images must be in uncompressed DICOM format or proprietary scanner format.

Hardcopy Films: Original high-resolution X-Rays should be provided to PAREXEL on **single emulsion or mammography grade film**. PAREXEL will provide these films to any site which requests to submit hardcopy images and not digital images. Please be sure to use these for all study imaging. Please complete and apply subject labels provided by PAREXEL. Use PAREXEL provided shipping supplies for courier shipment to PAREXEL. Original X-rays should be clearly marked as such and will be returned to the site, per the sites request, as soon as possible following acceptance at PAREXEL.

POSITIONING TEMPLATES

For all PA0010 subject imaging (irrespective of instrument type), please remember to use the PAREXEL positioning templates. Place the correct template (Left or Right accordingly) on the cassette/receptor and then position each hand/foot on top of the positioning template aligned with the hand/foot outline. If unable to align the hand to the positioning template as requested, please use positioning descriptions to best orient anatomy as described.

IMPORTANT: Imaging modality, anatomical positioning, coverage and imaging parameters should remain consistent across all imaging visits for any given study subject.

Confidentiality: Please ensure the **blinding of all confidential patient/site information** on all images (including marks or annotations determined at the investigator site).

Archival: All imaging data must be archived at the site as required by regulatory agencies. PAREXEL may request re-transmittal of the archived images.

Deviations:

The imaging for this study should be acquired in strict adherence to these guidelines. If there are any deviations from these parameters, please communicate to PAREXEL using this email address:

235077-imaging@PAREXEL.com

Image Acquisition Guidelines for Hand and Foot X-Ray Assessments

HAND X-RAYS (Unilateral Posterior-Anterior view)

Goal: Consistent, high quality images with good bone detail for assessment of juxta-articular new bone formation, joint space narrowing & erosions

Important Reminders:

- **Parameters and positioning used during Baseline imaging for the patient should be kept consistent for all follow up imaging.**
- **Always use the PAREXEL positioning template.**
- **Each hand must be imaged one at a time using one film/capture for each extremity.**
- **Remove jewelry where possible (if not, shift so does not obscure any joint). Please adhere to institutional policies and procedures for shielding.**

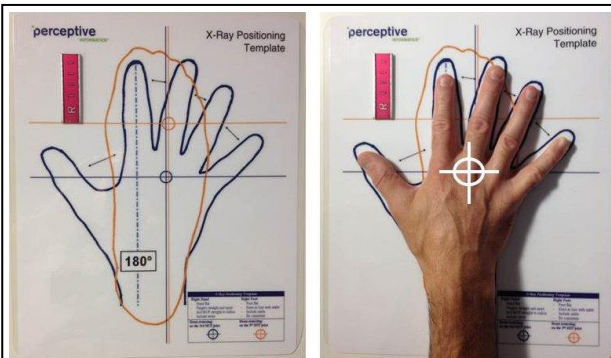


Fig. 1 Positioning Template (Right)



Fig. 2 Good Alignment



Fig. 3 Good Image Quality

Hand X-ray Patient Positioning:

1. Patient must be seated next to the imaging table with the **elbow flexed 90 degrees**. The **elbow should be at the same level as the shoulder**.
2. With the correct positioning template (Left or Right accordingly) on the cassette/receptor, position the hand/wrist (palm down) on the template according to the hand outline (Fig. 1).
3. Fingers straightened, if possible, and only slightly separated. Fingers should not be strained far apart.
4. Hand and wrist flat on the template (and cassette/receptor) to avoid joint magnification.
5. Align 2nd metacarpal in a straight line with the radius (180 degrees, Fig. 2). Use a sandbag placed across the forearm just above the wrist to avoid motion.

Hand X-ray Parameters:

- **Film/Resolution:** Conventional X-ray: **high resolution, single emulsion** film.
 - Digital: optimal and consistent digital resolution (100-micron pixel size preferred).
 - **Be consistent with the resolution accepted for your instrument during site qualification.**
- **Film Focus Distance (FFD): 40 inches (100 cm)**

- **Beam centering:** on the 3rd MCP joint, perpendicular to the plane of the film (Fig. 1).
- **Exposure settings:** Suggest 60kVp and 3 mAs. Optimize for sharp bone detail.
- **Collimate** to film.

Hand X-ray Anatomical Coverage and Image Quality Control Checks:

- **Ensure inclusion of the entire hand and wrist, including at least 1 inch of forearm.**
- **Ensure optimal visualization of the wrist, MCP, PIP & DIP joints (Fig. 3).**
- **Posterior-anterior view with left/right markers visible and accurate to anatomy. *Oblique views are not required.***
- **Ensure that the follow-up timepoints are consistent with the Baseline Visit: X-ray instrument, patient positioning, acquisition parameters (mAs, kV, FFD, focal spot, film and cassette type or digital resolution).**

FOOT X-RAYS (Unilateral Anterior-Posterior view)

Goal: Consistent, high quality images with good bone detail for assessment of juxta-articular new bone formation, joint space narrowing & erosions

Important Reminders:

- **Parameters and positioning used during Baseline imaging for the patient should be kept consistent for all follow up imaging.**
- Always use the PAREXEL positioning template.
- Each foot must be imaged one at a time using one film/capture for each extremity.
- Please adhere to institutional policies and procedures for shielding.
- Remove jewelry where possible (if not, shift the jewelry so it does not obscure any joint).

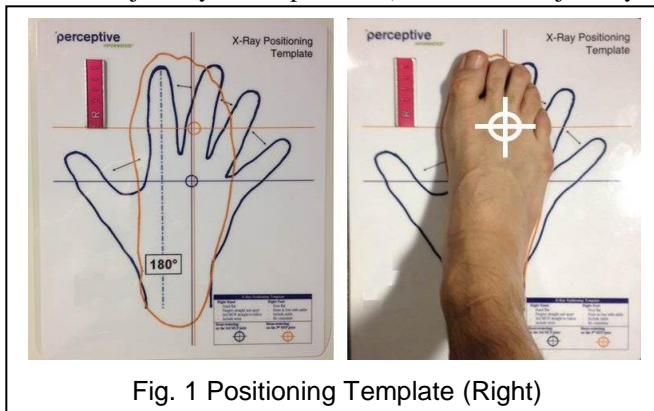


Fig. 1 Positioning Template (Right)



Fig. 2 Good Image Quality

Foot X-ray Patient Positioning:

1. The patient should be **lying supine on the imaging table** with the **knee flexed** and the plantar surface of the foot centered flat on the cassette/panel with the long axis of the foot parallel to the midline of the film/receptor.
2. Align the **knee with the ankle** (no internal or external rotation).
3. Ensure that the **foot is placed flat on the template and cassette/receptor** to avoid magnification of joints (Fig. 1).
4. If possible, toes should be flat and not compressed by tight socks.

Foot X-ray Parameters: Film/Resolution: Conventional X-ray: **high resolution, single emulsion film**. Digital: optimal and consistent digital resolution (100-micron pixel size preferred). Be consistent with the resolution accepted for your instrument during site qualification.

- **Film Focus Distance (FFD): 40 inches** (100 cm)
- **Beam centering:** between the 2nd and 3rd MTP joints, angled 10 degrees towards the head (Fig. 1).
- **Exposure settings:** Suggest 60kVp and 3 mAs. Optimize for sharp bone detail.

- Collimate to film.

Foot X-ray Anatomical Coverage and Image Quality Control Checks:

- Ensure inclusion of the entire foot and ankle including at least 2 inches of distal tibia (Fig.1).
- Ensure optimal visualization of the forefoot (Fig. 2).
- Anterior-posterior view with left/right markers visible and accurate to anatomy.
Be Consistent: For follow-up timepoints use the same x-ray instrument, patient positioning, acquisition parameters (mAs, kV, FFD, focal spot, film and cassette type or digital resolution) as that used for the Baseline Visit.

Please contact PAREXEL if your methods or results deviate from these guidelines or from those used at Baseline for each patient.

For inquiries regarding these guidelines, please contact:

Project Team 235077, PAREXEL
Fax: +448002790101
Email: 235077-Imaging@PAREXEL.com

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