**Author's response to reviews**

**Title:** Evaluation of Tocilizumab Therapy in Patients with Rheumatoid Arthritis Based on FDG-PET/CT

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Comments to the Reviewer 2,

Q1. “the major limitation of the method is that PET does not include the small joints of fingers and feet. Since these are the most frequent affected joint regions in RA, this method cannot be broadly used for typical patients with rheumatoid arthritis in routine practice”

A1. This phrase is often used by physicians whose RA patients are relatively short disease duration, however, in real routine outpatient clinic, especially in orthopedic outpatient clinic in Japan, we have many patients who have suffered from their large joint destructions and have needed to have surgery. Therefore, we have paid attention to those patients and large joints.

Q2. “in contrast to MRI or US, where small joints are easily accessible, PET seems to be less useful for evaluation of treatment response”

A2. We do not indicate that PET is more useful for evaluation of treatment response than MRI, and US. However, we would like to suggest that whole body FDG-PET/CT can detect the whole body inflammation at one time and semi-quantitatively, therefore it is to be one of the useful tools for monitoring RA treatment.

In addition, we revised our conclusion;

A reduction in the FDG uptake was observed at three and six months after the initiation of TCZ therapy. The disease activity estimated on FDG-PET/CT matched the conventional parameters following the TCZ therapy in RA patients.

Q3. “the statements in the introduction and discussion regarding the problem to
evaluate disease activity under tocilizumab are partially misleading and disproportional. In fact, it has been shown also in this rather small cohort of patients that also composite scores including acute phase reactants like DAS28-CRP properly reflect disease activity under tocilizumab treatment.”

A3. We have revised the sentences in the introduction and discussion.