Reviewer's report

Title: Identification of myeloid-derived suppressor cells in the synovial fluid of patients with rheumatoid arthritis: a pilot study

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Reviewer: Yuho Kadono

Reviewer's report:

In this study, the authors showed that myeloid-derived suppressor cells (MDSCs) were present in the synovial fluid (SF) of rheumatoid arthritis (RA) patients. The RA SF MDSCs suppressed the proliferation of peripheral blood mononuclear cells (PBMCs) induced by anti-CD3/CD28 or alloantigen. These function were similar to MDSCs they identified earlier in the SF of mice with autoimmune arthritis. They suggest that RA SF MDSCs are able to limit the expansion of joint-infiltrating T cells. However, the further data should be presented to support their conclusion.

Specific comment:

Major Compulsory Revisions

Figure 1
Please show total cell counts (cells/ml) of SF cells and MDSCs in 9 patients. Are there any relationship between MDSCs counts (or ratio to SF cells) and disease activity of RA?

Figure 2
Real counts of total thymidine incorporation may differ from a patient to others. Please show real counts in the presence or absence of SFC in 7 patients. Again, are there any relationship between counts and disease activity of RA?

For proliferation assay, the authors used whole SF cells, but not MDSCs themselves. Even though the majority of SF cells are MDSCs, other type of cells in SF might have suppressive function. The authors should show that there are no suppressive effects of SF cells without MDSCs on T cell proliferation, from at least one RA patient.

Table 3
Since the authors only showed the result form the patient RA #7, we could not say that this data was representative. They should repeat experiment using cells from more RA patients.

Level of interest: An article whose findings are important to those with closely
related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.