Reviewer’s report

Title: Gene expression profiles in Finnish twins with multiple sclerosis

Version: 3 Date: 20 December 2005

Reviewer: Alex MacGregor

Reviewer’s report:

Referee 1’s comments have been addressed.

Referee 2 has legitimate concerns regarding the size of the dataset, the potential clinical variation among subjects, the problems of using cross sectional data in inferring cause and effect, and the problems in the statistical interpretation of gene expression data.

In defence of the authors:
The discordant MZ twin model is of unique interest; these subjects are rare. The limited size and potential clinical variation in the data is not hidden from readers. The authors have followed conventional lines in reporting gene overexpression and underexpression in their data. The analysis of this type of data is a subject that is evolving and, as Referee 2 implies, alternative and possibly superior approaches may well exist. However, in revising their manuscript, the authors now explicitly state the rationale for and the details of the approach that they have used here. Current and future readers of this manuscript will be in a position to interpret these findings in their correct context.

On balance I would favour acceptance. However, I think the authors need to add an additional caveat that, given the sample size, clinical variation among subjects and limitations of the cross-sectional design, this exercise should be regarded as descriptive and hypothesis-generating.

Also: the two dendrograms on Figure 1 need more explanation as to how they were derived as well as interpretation and comment in the text if they are to be retained.