Reviewer's report

Title: Transcriptome-scale similarities between mouse and human skeletal muscles with normal and myopathic phenotypes

Version: 1 Date: 26 January 2006

Reviewer: Steen Knudsen

Reviewer's report:

General

The paper describes a transcriptome analysis of human and mouse muscle types and concludes that mouse soleus has a transcription profile that is most similar to human skeletal muscle. The authors suggest that mouse soleus be considered as a model for human skeletal muscle.

The similarity is calculated using Pearson correlation coefficient between homologous genes.

Comparing genes across organisms and DNA microarray types with different probe sets is tricky, but the obtained correlation coefficients show that the authors have succeeded in overcoming some of the difficulties.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. The analysis is thorough and convincing but contains more detail and information than necessary to support the four points listed in the conclusion. The principal components analysis is a substantial part of the paper but even though the correlation analysis is repeated using genes that are selected with PCA, it does not strengthen the conclusion significantly. Thus, the PCA should be omitted from the paper. The finding that disease state is a weaker contributor than skeletal muscle grouping to the global sample variation is evident from Figure 3 as well as from the PCA analysis in Figure 1.

2. Why is a non-parametric test of significance used? Is the parametric test not significant or are its assumptions not met?

3. Why was cell plasma membrane chosen for subset ST1? Was it due to dystrophin or were other GO subsets tested?

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
Discretionary Revisions (which the author can choose to ignore)

4. Figure 3 is hard to interpret at first glance. The reader could be aided by adding a name to the category axis of 3A and 3C: Mouse samples.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests