Reviewer's report

**Title:** Oxidative stress in skin fibroblasts cultures from patients with Parkinson's disease

**Version:** 1  **Date:** 17 June 2010

**Reviewer:** Mark Cookson

**Reviewer’s report:**

del Hoyo and colleagues show that complex V of the mitochondrial respiratory chain has lower activity in fibroblasts from Parkinson’s disease patients compared to controls. Other mitochondrial complexes and markers of oxidative stress are not different between the two groups, suggesting a specific effect. The reason(s) for this difference are not identified but the data is helpful in the context of other studies that have claimed differences in mitochondrial function in PD vs control in different tissue and in the context of recent work suggesting a complex V deficiency in neurons of the substantia nigra.

**Major Compulsory Revisions**

The statistical methods should be clarified. The methods say “one-factor ANOVA test to look for significant differences and then post-hoc analyses (Bonferroni’s and Tukey’s honest test) were carried out. The results of each table were corrected for multiple comparisons by the use of Bonferroni’s correction. Correlation analyses were performed by using Pearson’s correlation coefficient.” This is not a powerful approach. ANOVA for a single factor is usually equivalent to a straightforward group test if there is only one factor to be compared; here PD vs controls, for each enzyme measure. If the data are normally distributed, or if this appears to be a reasonable assumption then t-tests would be appropriate; if not then a non-parametric test could be used, such as Mann-Whitney. I don’t see that multiple comparisons were used; each data point was used once in one comparison and it seems excessive to use a Bonferroni correction. The authors are free to disagree and use a strong correction, but it seems that this is likely to promote the rejection of significant differences. Also, I did not see any regression analyses but perhaps I missed them.

**Discretionary Revisions**

I would suggest the discussion and results should be separated. Also in the introduction, some more context as to why mitochondrial function might be important in PD and where it has been measured previously would be helpful for the reader.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable
**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests