Reviewer’s report

Title: Array-CGH analysis in Rwandan patients presenting Development Delay/Intellectual Disability with Multiple Congenital Anomalies

Version: 1 Date: 22 April 2014

Reviewer: Santhosh Girirajan

Reviewer’s report:

The authors of the paper present data from array CGH and clinical evaluations on 50 individuals with intellectual disability and congenital malformation. They find a significant enrichment for rare CNVs associated with canonical syndromes as well as recently identified potentially pathogenic CNVs. The variants were identified using an Agilent 180K platform and then confirmed using MLPA and FISH. The study is elegant in its design and the clinical features have been meticulously documented. The Tables and Figures are very representative of the data and well done.

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

(1) It would be appropriate to only use the term “intellectual disability” and delete the term “mental retardation” throughout the manuscript.

(2) The References are not cited at appropriate locations throughout the manuscript (probably due to bug in the reference management software). Some sections need relevant citations – for example Lourov and colleagues (Page 13, paragraph 1) is not found in the bibliography.

a. Please cite Roper HH (Annual Rev of Genomics and Human Genet, 2010).

b. Citations for sections describing the role of array CGH in ID phenotypes and those for 7q11.23 and 22q11.2 CNVs should include original work

(3) It would be useful if the authors could add a sentence or two in the discussion about the genomic architecture surrounding 17q21.31 deletion. The H1 and H2 haplotypes are stratified in the European and African population (Steinberg, Nature Genetics, 2012). Could the authors comment on the ethnic background of the patient with the deletion in relevance to the genomic architecture (segmental duplications) at 17q21.31?

Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore): None

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

1. Typo page 11, last paragraph: change from “cor pulmonare” to “cor pulmonale”
2. Please follow one abbreviation: array-CGH or aCGH or a-CGH.
**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**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