Reviewer’s report

Title: Increased IL-4 mRNA Expression and Poly-aromatic Hydrocarbon Concentrations from Children with Asthma

Version: 1 Date: 16 July 2013

Reviewer: Philip McTernan

Reviewer’s report:

Summary
This study sought to address the impact of exposure to polyaromatic hydrocarbons (PAH) on the systemic inflammatory response in both children with and without asthma through assessment of mRNA expression in peripheral mono-nuclear blood cells as well as serum inflammatory cytokines and PAH. Further studies were undertaken to assess the impact of PAH in rodents on IL-4 inflammatory response. This represents an interesting novel study addressing the role of PAHs in children and the potential impact of environmental factors on the inflammatory response.

Abstract
The authors need to rephrase the objectives and improve the clarity of message.

Ensure that the use of the rodent studies is directly relevant to the human cohort studies currently it seems like an add on without a clear rationale.

The authors need a clear take home message in the conclusion, this may not be a cause and effect study, but it does appear that PAH are raised in children with asthma and rodent studies support the effect on IL-4 production to at least in part mediate the inflammatory response noted in asthma.

Methods
Can the authors add in the CV data for the lincoplex, as insert space between ‘andIFN-y concentration’ page 4

Results section, Chronic Exposure to PAH…. First line of paragraph details:

‘…….rats to bezopyrene resulted in the definition of a cytokine mRNA expression pattern that overlapped….’

This line should be rephrased or removed and mentioned in the discussion, however the use of the word ‘definition’ should be deleted as this is not appropriate.

Discussion
The first paragraph needs to be re-written. This paragraph should clearly state
the novel findings of this study before subsequent paragraphs discuss this in more detail.

Currently this paragraph opens by discussing the use of blood, and highlights that the blood from children can be useful without ‘allergen provocation’. This appears to contradict their findings since PAH correlates with IL-4 and children with asthma are already sub-clinically provoked.

The final sentence of the discussion detracts from the take home message of the role of PAH on IL-4, either delete or rephrase earlier in the discussion as a limitation of the study.

Minor

Do not use the phrase ‘asthmatic’ use instead children with or without asthma.
Discussion, all text should be the same font and size.
Figure 1A and 1B appear to be missing from my pdf version, all other figures were present

The authors use the phrase peripheral blood, but in the abstract context they are really referring to peripheral mononuclear blood cells (PMBC), they should state this fully at least once then use the abbreviation, PMBC.

Level of interest: An article of importance in its field

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'