Author's response to reviews

Title: Antagonistic pleiotropy as a widespread mechanism for the maintenance of polymorphic disease alleles.

Authors:

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Author's response to reviews: see over
Dear BMC Medical Genetics,

Enclosed please find our revised manuscript "Antagonistic pleiotropy as a widespread mechanism for the maintenance of polymorphic disease alleles" submitted for further review.

In response to reviewers’ comments regarding our manuscript, we have made the following changes:

Reviewer 1:
(1) The title of the manuscript has been changed to "Antagonistic pleiotropy as a widespread mechanism for the maintenance of polymorphic disease alleles."
(2) The reviewer expressed concern about the use of animal model studies in our argument and recommended deletion of this data. We respectfully disagree. We use non-human animal model information to support results from human studies in our main sections and when only non-human data is available we present these cases in our putative section where we make clear these scenarios are more speculative.
(3) Per the reviewer's suggestion, we have included the specific amino acid substitution for Sickle Cell Anemia.
(4) Per the reviewer's suggestion, we investigated evidence for the OPG gene as an additional example of antagonistic pleiotropy. We found some evidence but did not find specific well-characterized alleles associated with this trait and therefore, following the standards used throughout the paper, we included our description of this gene in the "putative" section of our manuscript.

Reviewer 2:
(1) We examined all specific grammatical issues described and fixed the specific punctuation, grammar, and spelling typos in our manuscript that were identified by the reviewer. Sentences which reviewer identified as confusing or unclear have been fixed for clarity and coherency. Additionally we took the manuscript to the on-campus writing center for additional professional writing advice and made some changes based upon their input. We also rechecked our in-text and reference page citations and corrected any incorrectly formatted ones to match BMC Medical Genetics standards.

Sincerely,

Ashley Carter
Andrew Nguyen