

*Example Research Article Submission
Columbia Undergraduate Science Journal*

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To the Founding Editor:

Please find attached our original manuscript, "Do PAF-acetylhydrolase allelic variants affect plasma PAF-acetylhydrolase activity?", for your consideration for publication as a Research Article in the Columbia Undergraduate Science Journal. This work was completed when I was a student at White Station High School. No portion of this manuscript has been previously published or is under consideration for publication in another undergraduate journal.

This manuscript represents my contribution to the work of my faculty advisor on anti-inflammatory applications for platelet activating factor (PAF) acetylhydrolase, particularly how allelic variants of this enzyme may differ in anti-PAF activity. This manuscript should be of broad interest to the Columbia University community, with its use of biological theory applied to a medical question.

Sincerely,

Gabriel Morris

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3 **Do PAF-acetylhydrolase allelic variants affect plasma PAF-acetylhydrolase activity?**

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Abstract

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2 Plasma platelet-activating factor (PAF) is a pro-inflammatory phospholipid mediator.
3 Plasma PAF acetylhydrolase (PAF-AH) is an enzyme that degrades extracellular PAF. Three
4 allelic variants have been described for the *PAF-AH* gene: Arg92His, Ile198Thr, and
5 Ala379Val. Genomic DNA was amplified in a newly developed, allele specific real-time
6 PCR-based genotyping method. Enzyme activity levels were determined using a fluorescence
7 substrate. Therefore, in this study, *PAF-AH* specific genomic DNA allelic variants were
8 analyzed and compared to plasma PAF-AH activity in controls and ARDS patients to
9 determine if these variants affected plasma PAF-AH activity. Preliminary results indicate that
10 PAF-AH activity is lower in ARDS patients (n=61) than in healthy controls (n=5), that
11 PAF-AH is an indicator for ARDS severity, and the Arg92His variant leads to a reduced
12 PAF-AH activity. This study has implications for better treatment of diseases such as ARDS,
13 asthma, and other cardiovascular and inflammatory diseases.

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15 Key words: Clinical investigation; inflammation; plasma platelet activating factor; polymerase
16 chain reaction.

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Introduction

Abstract

Materials and Methods

Results

Discussion

Conclusions

Citation Format (Using EndNote)

(Kruse *et al.*, 2000) / (Stafforini *et al.*, 1999) / (McIntyre *et al.*, 1999)

References

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2 Kruse, S, Mao, X, Heinzmann, A, Blattman, S, Roberts, M, *et al.* (2000) The ile198thr
3 and ala379val variants of plasmatric paf-acetylhydrolase impair catalytic activity
4 and are associated with atopy and asthma. American Journal of Human Genetics
5 **66** 1422-1530.

6 McIntyre, T, Zimmerman, G, Makino, S, and Prescott, S (1999) Deficiency of platelet-
7 activating factor acetyhydrolase is a severity factor for asthma. Journal of Clinical
8 Investigation **102** 989-997.

9 Stafforini, D, Numan, T, Tsodikov, A, Vaitkus, D, Fukuda, T, *et al.* (1999) Deficiency of
10 platelet-activating factor acetyhydrolase is a severity factor for asthma. Journal of
11 Clinical Investigation **102** 989-997.

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