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Authors' Response

Sir,

We would like to respond to the Letter to the Editor from Tobe and Nic Daeid, 2008, in which they comment on the study covered in Johnston et al. 2008 (1).

We concur with many of the points raised including their disappointment that this study only covers four presumptive blood tests, focusing mainly on the Hexagon OBTI kit. However, this experimental study was conducted for a King's College, London, M.Sc. project at the behest of the Directorate of Forensic Services, Metropolitan Police Service (MPS). The nonimmunologic presumptive tests included were those used by MPS Crime Scene Examiners or those contracted by the MPS in 2005 (when the experimental work was performed). The aim of this study was to compare tests already being used with another method (Hexagon OBTI) that was, at that time, being considered for use.

Tobe and Nic Daeid also note that luminol, a well-used test, was not included for comparison (point 3 in the letter). Luminol was not included as this is not used by MPS Crime Scene Examiners at volume crime scenes (burglary, motor-vehicle offenses, etc.) because of Health and Safety considerations.

This is the reason for only comparing four tests and why Hexagon OBTI is the focus of the study. We refer readers to the subsequent work of Tobe et al. (2) for a more comprehensive comparison of presumptive blood tests.

As Tobe and Nic Daeid note, some of this study has already been studied by other researchers (3,4) but for a new presumptive test to be introduced into standard operating procedures for Crime Scene Examiners, it is good practice to test in-house the new method against currently used tests and so some of the work needed to be repeated before a new kit could be considered for use. The novel part of the research was examination of the Hexagon OBTI buffer for subsequent DNA extraction. This we considered a potential feature of the Hexagon OBTI kit and therefore wanted to assess whether DNA could be extracted from the buffer solution. Carrying out DNA profiling on exactly the same source material as the presumptive test would be of benefit to forensic science. It is hoped that manufacturers of this type of kit will consider the subsequent use of the buffer and produce tamper-evident containers, which could then be exhibited to laboratories for DNA analysis.

We are pleased that their Letter brings other literature on presumptive blood testing to readers' attention (points 1 and 6 in the letter) and we admit that the original version of this study, submitted in August 2006, should have made reference to the study of Cox (5) and Olson (6). The study of Thorogate et al. (7), quoted in the letter, was carried out at King's College, London by an author on the Johnston et al.'s study (1) as a different approach for *in situ* blood testing, the results of which appear very promising. This study was carried out after the submission of Johnston et al. (1).

We recognize that few repetitions were conducted for each test and had further study been commissioned on presumptive blood tests, a more rigorous comparison, including other presumptive blood tests and testing on other nonhuman blood samples, would have been completed. Indeed, additional work could focus on the possible high-dose hook effect as a possible cause of the false negative results obtained (as noted in point 5 of their letter). For these reasons, the work was only submitted for consideration as a Technical Note and not a full Paper.

Correcting the phrase 'human specific' is justified. We were trying to draw attention to the added feature of this immunological test being more specific than the other nonimmunologic tests used—the immunological test would exclude the blood of *most* household pets. We hope the oversight in not mentioning ferret and skunk hemoglobin reactivity has not misled readers.

References

1. Johnston E, Ames CE, Dagnall E, Foster J, Daniel BE. Comparison of presumptive blood test kits including Hexagon OTI. J Forensic Sci 2008;53(3):687–9.
2. Tobe SS, Watson N, Nic Daeid N. Evaluation of six presumptive tests for blood, their specificity, sensitivity, and effect on high molecular-weight DNA. J Forensic Sci 2007;52(1):102–9.
3. Hochmeister MN, Budowle B, Sparkes R, Rudin O, Gehrig C, Thali M, et al. Validation studies of an immunochromatographic 1-step test for the forensic identification of human blood. J Forensic Sci 1999;44(3):597–602.
4. Hermon D, Shpitzen M, Oz C, Glattstein B, Azoury M, Gafny R. The use of the Hexagon OBTI test for detection of human blood at crime scenes and on items of evidence Part I: validation studies and implementation. J Forensic Identification 2003;53(5):566–75.
5. Cox M. A study of the sensitivity and specificity of four presumptive tests for blood. J Forensic Sci 1991;36(5):1503–11.
6. Olsen R. Sensitivity comparison of blood enhancement techniques. Identification News, 1985;Aug:10–4.
7. Thorogate R, Moreira J, Jickells S, Miele M, Daniel B. A novel fluorescence-based method in forensic science for the detection of blood in situ. Forensic Sci Int: Genetics 2008;2(4):363–71.

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