FBI Approved Standards for Scientific Testimony and Report Language for the Microscopic Examination of Hairs

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Purpose

This document provides examples of the scientifically-supported conclusions and opinions approved for reporting examination conclusions and offering expert opinion statements during testimony by Hair Examiners within the Trace Evidence Unit. It is noted that these examples are not intended to be all inclusive and may be dependent upon the precedent set by the judge or locality in which a testimony is provided. Further, these examples are not intended to serve as precedent for other forensic laboratories and do not imply that statements by other forensic laboratories are incorrect, indefensible, or erroneous.

1 SCOPE

This document applies to Hair Examiners within the Trace Evidence Unit who prepare *Laboratory Reports* (7-1, 7-1 LIMS) and/or provide testimony for microscopic hair examinations.

2 STATEMENTS APPROVED FOR FBI MICROSCOPIC HAIR EXAMINATION TESTIMONY AND/OR LABORATORY REPORTS

For additional guidance on report writing, see the [TRACE-100: Quality Manual](#).

2.1 Somatic Origin

The Examiner may assert that a human hair is classified as a head hair, pubic hair, facial hair, transitional hair, or body hair. An examiner may further assert that a body hair exhibits characteristics of a limb hair, axillary hair, chest hair, or eyebrow/eyelash hair. Body area classifications are based on the macroscopic and microscopic characteristics which are typically observed in hairs from different areas of the body.

2.2 Characteristics of Ancestry

The Examiner may assert that a human hair exhibits European Ancestry (formerly Caucasian), African Ancestry (formerly Negroid) and/or Asian or Native American Ancestry (formerly Mongoloid) characteristics. Ancestral group classifications are based on characteristics which are typically observed in hairs from individuals of different ancestral groups and may or may not correspond with how an individual identifies his or her race or ethnic group.

2.3 Animal Hair Classification

The Examiner may assert that a hair is an animal (non-human) hair consistent with a particular type of animal (*e.g.,* cat, dog, mink). Animal hair classifications are based on characteristics which are typically observed in hairs from different types of animals. Identification Comparison

2.4   Growth Stage

The Examiner may assert that a hair exhibits characteristics of the anagen or telogen growth phase. Hairs in the anagen growth phase require some force to be removed from an individual; however, the amount of force required to remove a specific hair is unknown.

2.5   Damage

The Examiner may assert that a hair is consistent with having been cut, broken, crushed and/or burned; however, the specific source that caused the damage cannot be determined.

2.6   Artificial Treatment

The Examiner may assert that a hair has been artificially treated (*e.g.,* dyed or bleached) or that it exhibits characteristics of having been artificially treated.

2.7   Characteristics of Decomposition

The Examiner may assert that a hair exhibits characteristics of decomposition to include postmortem banding. These characteristics may be observed in hairs that have been removed from individuals postmortem; however, the possibility of other conditions causing the same or similar characteristics cannot be excluded.

2.8   Comparisons

2.8.1   *Inclusion*

2.8.1.1   *Human Hair*

The Examiner may assert that the questioned human hair is microscopically consistent with the known hair sample and accordingly, the source of the known hair sample can be included as a possible source of the questioned hair. Microscopic hair comparisons are meaningful due to the variation in macroscopic and microscopic characteristics between individuals. However, the comparison of hair characteristics does not constitute a basis for personal identification and the number of individuals who could be included as a possible source of a specific hair is unknown.

2.8.1.2   *Animal Hair*

The Examiner may assert that the questioned animal hair is microscopically consistent with the known animal hair sample and accordingly, the source of the known hair sample can be included as a possible source of the questioned hair. However, animal hairs do not typically possess sufficient differences in microscopic characteristics to distinguish between animals of similar breed and color.

2.8.2   *Exclusion*

The Examiner may assert that the questioned hair is microscopically dissimilar to the known hair sample. Accordingly, based on the known sample provided, the source of the known hair cannot be included as a possible source of the questioned hair.

2.8.3   Inconclusive

The Examiner may assert that no conclusion can be reached because the questioned hair exhibits both similarities and dissimilarities to the known sample or because the hair is of limited value for microscopic comparisons.

2.8.4   Suitability

The Examiner may assert that a hair is suitable, has limited suitability, or not suitable for meaningful microscopic comparison purposes.

3   STATEMENTS NOT APPROVED FOR FBI MICROSCOPIC HAIR EXAMINATION TESTIMONY AND/OR LABORATORY REPORTS

3.1   Individualization

The Examiner may not assert that a hair came from a particular source to the exclusion of all others.

3.2   Statistical Weight

The Examiner may not assert a statistical weight or probability to a conclusion or provide a likelihood that the questioned hair originated from a particular source.

3.3   Zero Error Rate

The Examiner may not assert that the method used in performing microscopic hair examinations has a zero error rate or is infallible.

3.4   Scientific Certainty

An Examiner shall not use the expressions 'reasonable degree of scientific certainty,' 'reasonable scientific certainty,' or similar assertions of reasonable certainty in reports or testimony unless required to do so by a judge or applicable law.

4   LABORATORY REPORT REVIEWS

The content of a Laboratory Report will be reviewed per the appropriate LAB-200: Operations Manual practices and the TRACE-100: Quality Manual to ensure compliance with the approved statements in this document.

5   TESTIMONY REVIEWS

Testimonies involving microscopic hair examinations and comparisons will be reviewed following the LAB-100: Quality Assurance Manual. The review will assess the testimony for compliance with the statements in this document.

6   REFERENCES

LAB-100: Quality Assurance Manual, FBI Laboratory (current version)

LAB-200: Operations Manual, FBI Laboratory (current version)

TRACE-100: Quality Manual, Trace Evidence Unit, FBI Laboratory (current version)

Department of Justice Uniform Language for Testimony and Reports for the Forensic Hair Discipline (current version)

7   REVISION HISTORY

Revision	Issue Date	Changes
05	01/28/2022	Reformatted document. Updated Scientific and Biometrics Analysis Unit name throughout. Updated referenced document names.
06	08/15/2024	Removed SBAU references.