Collaborative Testing Services, Inc
FORENSIC TESTING PROGRAM

P.O. Box 650820
Sterling, VA 20165-0820
e-mail: forensics@cts-interlab.com
Telephone: +1-571-434-1925
Web site: www.cts-forensics.com

Human vs Non-Human Bone Origin Determination
Test No. 25-5501 Summary Report

Each sample pack consisted of digital images of five different bones of unknown origin. Participants were asked to determine if each bone was of human origin or non-human origin. Data were returned from 36 participants and are compiled into the following tables:

This report contains the data received from the participants in this test. Since these participants are located in many countries around the world, and it is their option how the samples are to be used (e.g., training exercise, known or blind proficiency testing, research and development of new techniques, etc.), the results compiled in the Summary Report are not intended to be an overview of the quality of work performed in the profession and cannot be interpreted as such. The Summary Comments are included for the benefit of participants to assist with maintaining or enhancing the quality of their results. These comments are not intended to reflect the general state of the art within the profession.

Participant results are reported using a randomly assigned "WebCode". This code maintains participant's anonymity, provides linking of the various report sections, and will change with every report.

Manufacturer's Information

Each digital sample pack consisted of several images of different bones. Participants were asked to determine which of the bones were human in origin and which were of non-human animal origin.

SAMPLE PREPARATION: Bones from a variety of species were selected and photographed. Photographs of several representative perspectives were chosen for each bone. These images were digitally resized to scale and adjusted for consistency of color and contrast. The images were then zipped and uploaded to the CTS Portal. The digital upload was then checked to ensure all items were accessible.

VERIFICATION: Predistribution results were consistent with each other and the manufacturer's preparation information.

Item	Source
1	Cattle, Talus
2	Armadillo, Femur
3	Human, Vertebrae
4	Human, Hamate
5	Human, Patella

Summary Comments

This test was designed to allow participants to assess their proficiency in determining whether a bone was of human origin or non-human origin. Participants were supplied with digital images of five different bones of unknown origin (Items 1 – 5). Items 1 and 2 were of non-human origin, and Items 3 through 5 were of human origin. Refer to the Manufacturer's Information for preparation details.

Of the 36 responding participants, 33 participants reported the origin for all items consistent with the manufacturer's preparation information. Of the three remaining participants, one identified Item 4 as being of non-human origin, one reported "Inconclusive" for the origin of Item 5, and one identified Item 1 as being of human origin and Items 4 and 5 as being of non-human origin.

Examination Results

What is the origin of the bone represented in the submitted photographs (Items 1-5)?

TABLE 1

WebCode	Item 1	Item 2	Item 3	Item 4	Item 5
2E4DRH	Non-Human	Non-Human	Human	Human	Human
4EB78N	Non-Human	Non-Human	Human	Non-Human	Human
4HWFAF	Non-Human	Non-Human	Human	Human	Human
8ZJHPL	Non-Human	Non-Human	Human	Human	Human
9GNUNA	Non-Human	Non-Human	Human	Human	Human
9HJDPB	Non-Human	Non-Human	Human	Human	Human
9V6RTB	Non-Human	Non-Human	Human	Human	Human
9Y44NB	Non-Human	Non-Human	Human	Human	Human
ALY869	Non-Human	Non-Human	Human	Human	Human
B4XKEA	Non-Human	Non-Human	Human	Human	Human
C9HYH8	Non-Human	Non-Human	Human	Human	Human
CVCL9G	Non-Human	Non-Human	Human	Human	Human
CZ9XW7	Non-Human	Non-Human	Human	Human	Human
D46DTF	Non-Human	Non-Human	Human	Human	Human
DGCTQP	Non-Human	Non-Human	Human	Human	Human
F8BDV2	Non-Human	Non-Human	Human	Human	Human
FQQMW3	Non-Human	Non-Human	Human	Human	Human
JVRAAA	Human	Non-Human	Human	Non-Human	Non-Human
KCV4GA	Non-Human	Non-Human	Human	Human	Human
NKCHZU	Non-Human	Non-Human	Human	Human	Human
PBKLAD	Non-Human	Non-Human	Human	Human	Human

TABLE 1

WebCode	Item 1	Item 2	Item 3	Item 4	Item 5
PKVK9U	Non-Human	Non-Human	Human	Human	Human
PP4GY6	Non-Human	Non-Human	Human	Human	Human
PT4RV6	Non-Human	Non-Human	Human	Human	Human
R3HMN2	Non-Human	Non-Human	Human	Human	Human
R8VW6Q	Non-Human	Non-Human	Human	Human	Human
RFP2YR	Non-Human	Non-Human	Human	Human	Human
TFNNQP	Non-Human	Non-Human	Human	Human	Human
TU8L3Z	Non-Human	Non-Human	Human	Human	Human
TX4ZEA	Non-Human	Non-Human	Human	Human	Human
V7UXJN	Non-Human	Non-Human	Human	Human	Human
VAU9EM	Non-Human	Non-Human	Human	Human	Human
WJQTUK	Non-Human	Non-Human	Human	Human	Human
Y8EKEU	Non-Human	Non-Human	Human	Human	Inc
YPUUEU	Non-Human	Non-Human	Human	Human	Human
YX7DRJ	Non-Human	Non-Human	Human	Human	Human

Response Summary

Participants: **36**

What is the origin of the bone represented in the submitted photographs (Items 1-5)?

	Item 1	Item 2	Item 3	Item 4	Item 5
Human	**1** ***(2.8%)***	**0** ***(0.0%)***	**36** ***(100.0%)***	**34** ***(94.4%)***	**34** ***(94.4%)***
Non-Human	**35** ***(97.2%)***	**36** ***(100.0%)***	**0** ***(0.0%)***	**2** ***(5.6%)***	**1** ***(2.8%)***
Inconclusive	**0** ***(0.0%)***	**0** ***(0.0%)***	**0** ***(0.0%)***	**0** ***(0.0%)***	**1** ***(2.8%)***

Additional Comments

TABLE 2

WebCode	Additional Comments
4EB78N	Bone number 3 is the first cervical (C1) or atlas vertebrae. There are transverse foramen present in the transverse processes, the size is good for an adult human, and the shapes of the superior & inferior articulating facets are morphologically similar to human. Shapes of facet is in line with expected variety in humans. HOWEVER: the anterior tubercle is quite pointed, the posterior tubercle quite rounded and the lateral masses adjacent to the inferior articulating facets appear to be quite large. This could be natural variation with regards to the tubercle and osteophytes causing the bony masses adjacent to the articulating facets. Internet research on monkey/chimpanzee C1 vertebrae have similar characteristics. It is difficult to be confident in this determination.
CVCL9G	Item 1 = Non human. Item 2 = Non human. Item 3 = Human (cervical 1 vertebra). Item 4 = Human (carpal=hamate). Item 5 = Human (patella).
DGCTQP	The armadillo is rarely seen in [Location] but quite distinct.
NKCHZU	Answers to the questions were provided based on the direct observation of the anatomical characteristics of the bone structures, considering size and shape. This allowed for the identification of which bones belong to a human and which belong to fauna. Specifically, the bones of the spine, hands, and feet show a clear differentiation between humans and animals due to the process of bipedalism
PKVK9U	Item 1: Animal bone, Animal Talus. The shape and size of the bone sample correspond to the characteristics of an animal's talus bones. Item 2: Animal bone, Animal femur. The shape and size of the bone sample correspond to the characteristics of an animal's femur. Item3: Human atlas. The shape and size of the bone sample correspond to the characteristics of a human atlas vertebra. Item4: Human hamate. The shape and size of the bone sample correspond to the characteristics of a human hamate bone. Item5: Human patella. The shape and size of the bone sample are consistent with human patellar characteristics.
R8VW6Q	Good quality photograps for the analysis. Good test.
RFP2YR	I´m pleased to participate in this type of testing and i hope we get to collaborate again between the labs.
V7UXJN	1. Fauna: Talus. 2. Fauna: Left femur. 3. Human: Atlas. 4. Human: Right Haematous Bone. 5. Human: Left Patella.
VAU9EM	The photos are of acceptable quality, but in some cases, the bone barely fills 10% of the frame, which is not normal or appropriate.
WJQTUK	Although I was able to download the images and see the thumbnails, all images were black when I opened the file.
Y8EKEU	Consensus results submitted. When a difference of opinion or level of confidence was present (item 5), the consensus result of 'undetermined' has been recorded (organisation policy). Otherwise, majority response has been recorded. Item 5- would like to view additional images to assist with determination (three dimensional bones require images from all aspects, not just two sides).

-End of Report-
(Appendix may follow)

Collaborative Testing Services ~ Forensic Testing Program

Test No. 25-5501: Human vs Non-Human Bone Origin Determination

DATA MUST BE SUBMITTED BY **March 17, 2025, 11:59 p.m. EDT** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A WebCode: LF82CF

The Accreditation Release section can be accessed by using the "Continue to Final Submission" button above. This information can be entered at any time prior to submitting to CTS.

Scenario:
In five unrelated cases, photographs of bones have been submitted for analysis to determine whether they are human or non-human in origin. Each Item (1-5) below represents a separate, independent case.

Items Submitted (Sample Pack HNH):
Item 1: Images 1a, 1b, 1c
Item 2: Images 2a, 2b, 2c, 2d, 2e
Item 3: Images 3a, 3b, 3c, 3d
Item 4: Images 4a, 4b, 4c, 4d
Item 5: Images 5a, 5b

To verify a complete and accurate download, the hash value for the downloaded .ZIP file is as follows:
25-5501 Human vs Non-Human.zip MD5 hash value: e609e62d5560daa16a83403c7a01e857
25-5501 Human vs Non-Human.zip SHA1 hash value: 19293c8c67696e8e2ce77e0de9d58ac0fadee15a

1.) What is the origin of the bone represented in the submitted photographs (Items 1-5)?

Item 1	Human ○	Non-Human ○	Inconclusive* ○
Item 2	Human ○	Non-Human ○	Inconclusive* ○
Item 3	Human ○	Non-Human ○	Inconclusive* ○
Item 4	Human ○	Non-Human ○	Inconclusive* ○
Item 5	Human ○	Non-Human ○	Inconclusive* ○

*Should an item(s) be marked "Inconclusive", please document the reason in the Additional Comments section of this data sheet.

Note: *Please use appropriate punctuation to indicate the end of sentences, sections, and statements in the free-form space below. Extra spacing and returns used for separation within your text will not transfer and may cause your information to be illegible in the Summary Report. The use of lists and tabular formats to deliver information is also cautioned against, as these do not transfer.*

2.) Additional Comments

RELEASE OF DATA TO ACCREDITATION BODIES

The Accreditation Release is accessed by pressing the "Continue to Final Submission" button online and can be completed at any time prior to submission to CTS.

CTS submits external proficiency test data directly to ANAB and/or A2LA. Please select one of the following statements to ensure your data is handled appropriately.

- ○ This participant's data is intended for submission to ANAB and/or A2LA. (Accreditation Release section below must be completed.)
- ○ This participant's data is **not** intended for submission to ANAB and/or A2LA.

Have the laboratory's designated individual complete the following steps
only if your laboratory is accredited in this testing/calibration discipline
by one or more of the following Accreditation Bodies.

Step 1: Provide the applicable Accreditation Certificate Number(s) for your laboratory

ANAB Certificate No.

A2LA Certificate No.

Step 2: Complete the Laboratory Identifying Information in its entirety

Authorized Contact Person and Title

Laboratory Name

Location (City/State)