

# Evaluating Scientific Evidence for Hair and Drug Testing

UTLaw CLE

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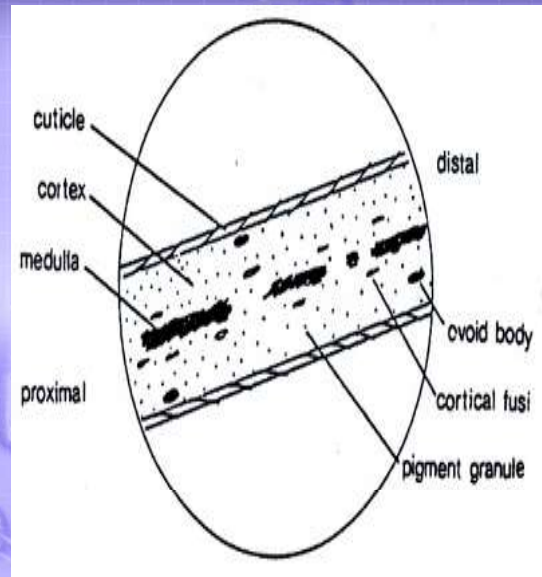
## Overview

- The Science of Hair & Hair Testing
- Major Issues with Hair Testing
- Cocaine and Bias Case Study

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# Hair Morphology

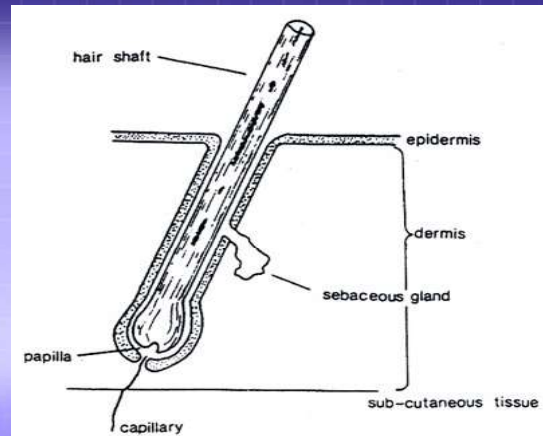
- The most basic components of hair are keratin, a very strong protein that is resistant to decomposition, and melanin, a pigment.
- The keratins form groups that interact and interconnect to form very stable fibrils. It is this property of hair that makes it such a prime example of physical evidence.



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# Hair Morphology

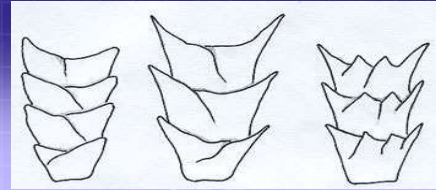
- Hairs are dead, cornified cells. The portion existing above the epidermis is called the shaft; below the epidermis, the root is embedded in the hair follicle.
- The hair shaft is composed of three layers:
  - Outer cuticle
  - Cortex
  - Central medulla



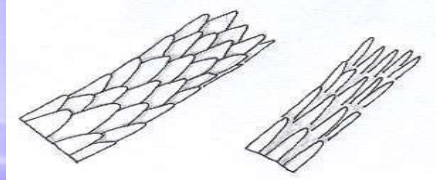
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# Cuticle

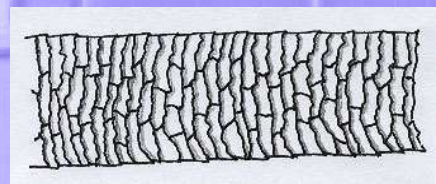
- The cuticle of a hair is the thin, translucent layer surrounding the shaft. It consists of scales of hardened, keratinized tissue that vary from species to species, and includes such patterns as:
  - Coronal, or “crown – like.” Rare in humans; typical of rodents. Found in hairs of very fine diameter.
  - Spinous, or “petal – like.” Never found in humans. Common in cats, seals, and minks.
  - Imbricate, or “flattened.” Common in humans.



Coronal



Spinous



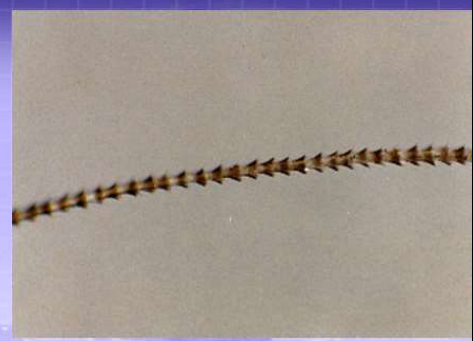
Imbricate

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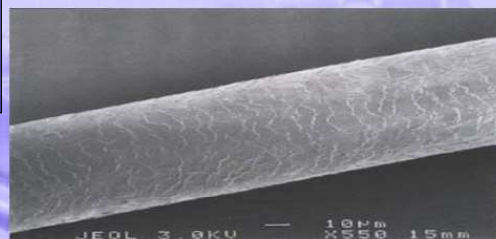
# Cuticle



Photomicrograph of a mink hair possessing a Spinous cuticle.



Photomicrograph of a bat hair possessing a Coronal cuticle.



Photomicrograph of a human hair possessing an Imbricate cuticle.

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First appeared as part of the conference materials for the 2020 Evaluating Scientific Evidence for Hair and Drug Testing session "Evaluating Scientific Evidence for Hair and Drug Testing"