



# Fingerprints B Forensic Science

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# Types of Fingerprints

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***Patent***- visible- needs no processing- clearly recognizable

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In grease, oil, blood

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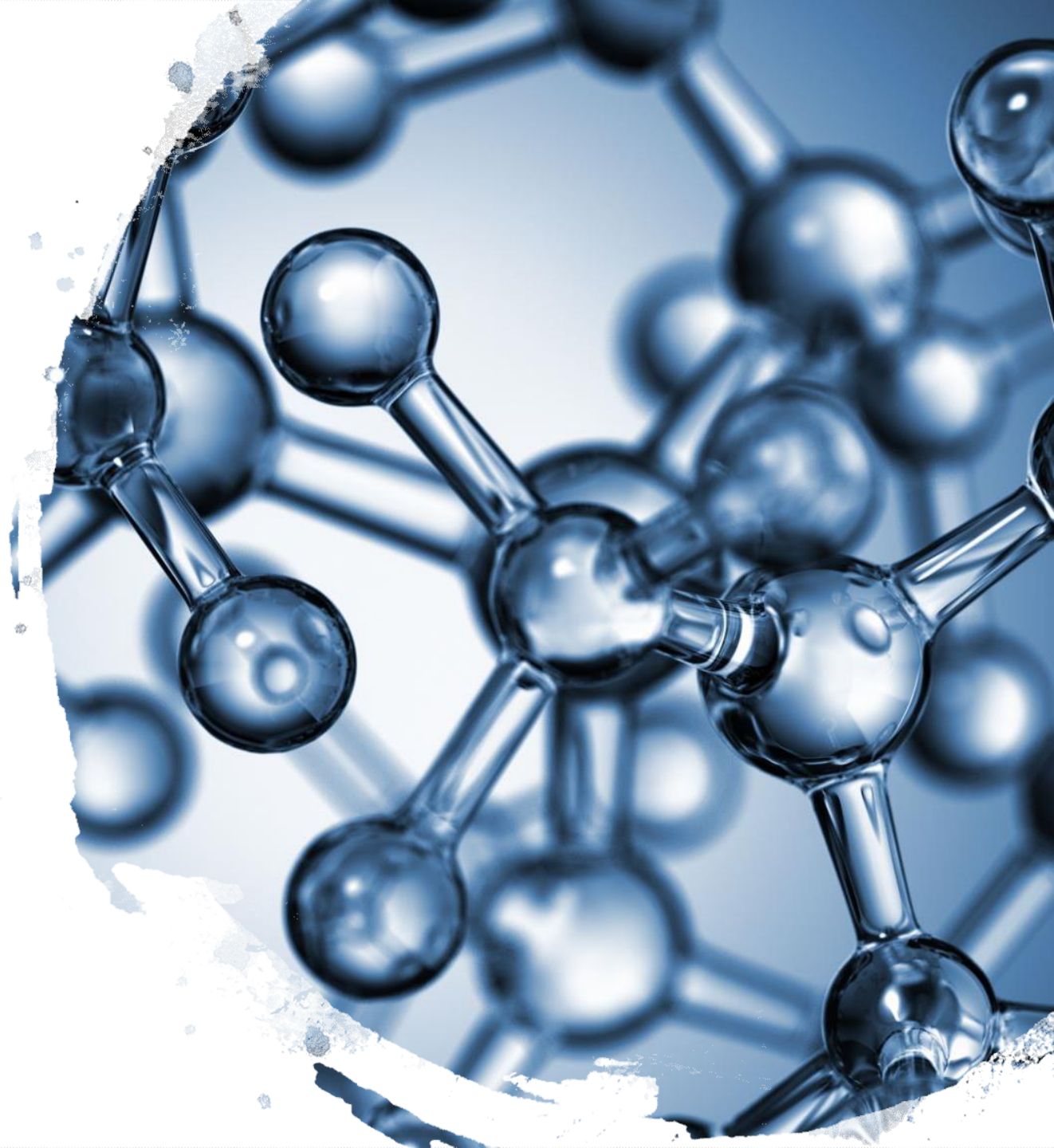
***Plastic-impresion, indentation-***  
recognizable fingerprint in soft surface

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Butter, silly putty, mud

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***Latent***- requires additional processing to be rendered visible



# What Makes Up Fingerprints?

- **Friction ridges:** on surface on hands, feet
- All have **pores** that sweat comes out of
- **Exocrine Glands-** sweat, water
- **Endocrine Glands-** oil
- Each has its own physical, chemical, and special illumination characteristics



# What Sweat Has

- Na+
- K+
- Ca<sup>++</sup>
- Cl<sup>-</sup>
- F<sup>-</sup>
- Br<sup>-</sup>
- I<sup>-</sup>
- HCO<sub>3</sub>
- PO<sub>4</sub>



- SO<sub>4</sub>
- NH<sub>4</sub>OH
- Mg<sup>++</sup>
- Zn<sup>++</sup>
- Cu<sup>++</sup>
- Fe<sup>++</sup>
- Co<sup>++</sup>
- Pb<sup>++</sup>
- Mn<sup>++</sup>

# Additionally Found In Sweat

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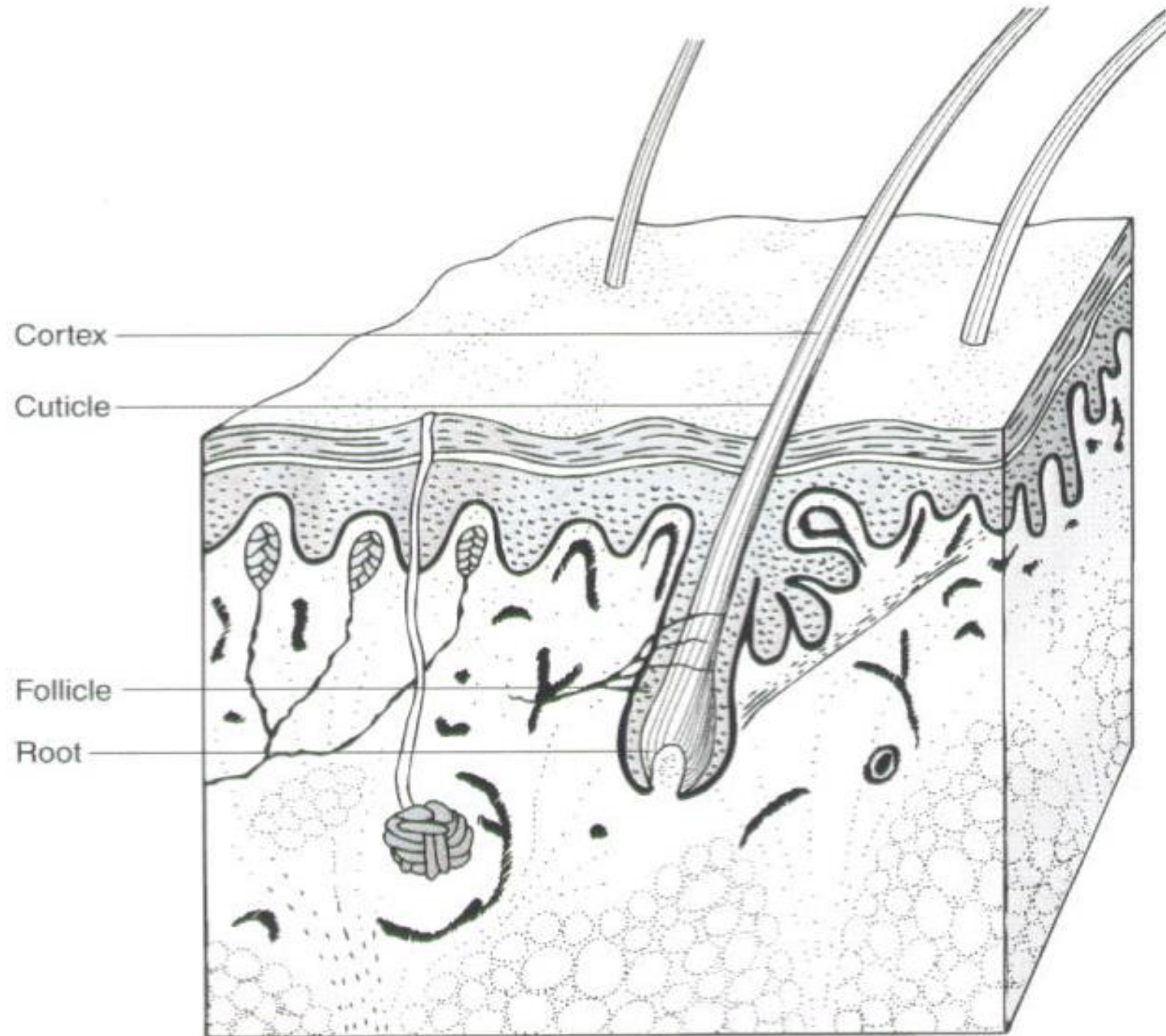
- Proteins
- Amino acids
- Lipids
- Glucose
- Lactate
- Urea
- Pyruvate
- Creatine
- Creatinine
- Glycogen
- Uric Acid
- Vitamins Sterols



# Exploring Under The Skin

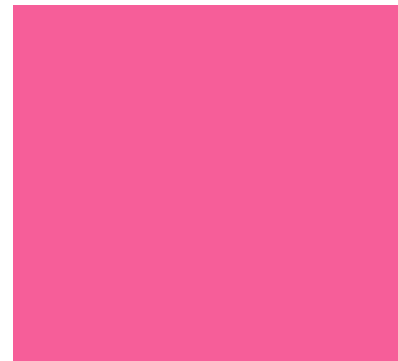
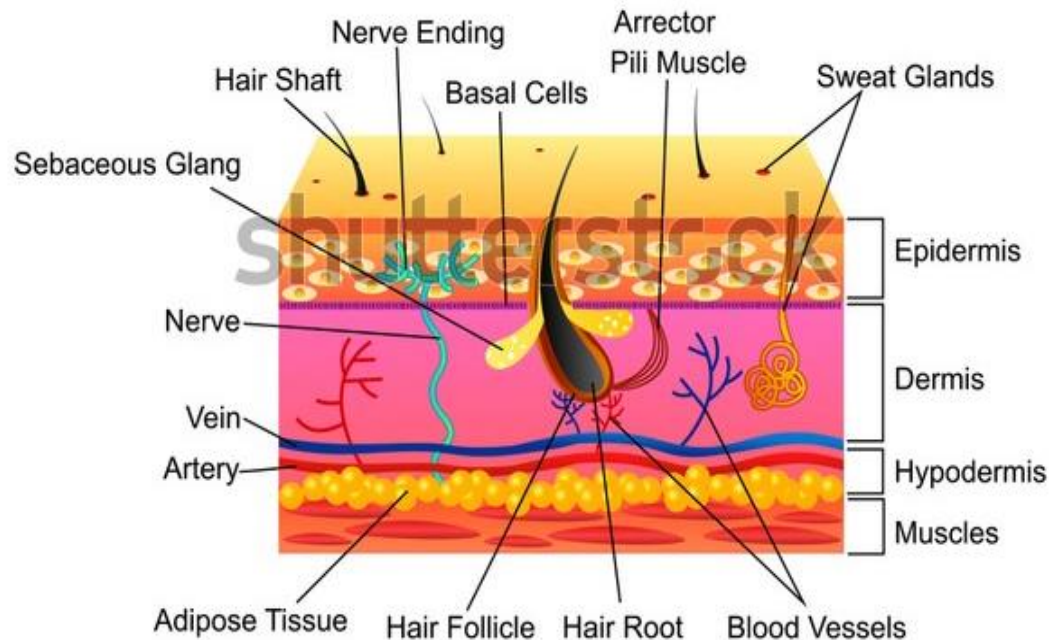
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- Epidermis
- Dermis
- Hypodermis



# Physical Methods & Chemical Methods

## Skin Structure



- **Powder dusting**-oils-sweat
- **Iodine fuming**-lipids
- **Ninhydrin**-amino acids
- **Superglue fuming**-polymerizes the residue into a plastic-then dusted
- **Oblique lighting**
- **Bloody fingerprints** in special situations



Thank You For Your  
Attention

Questions and Comments