FORENSIC SCIENCE

BLOOD SPLATTER PART1

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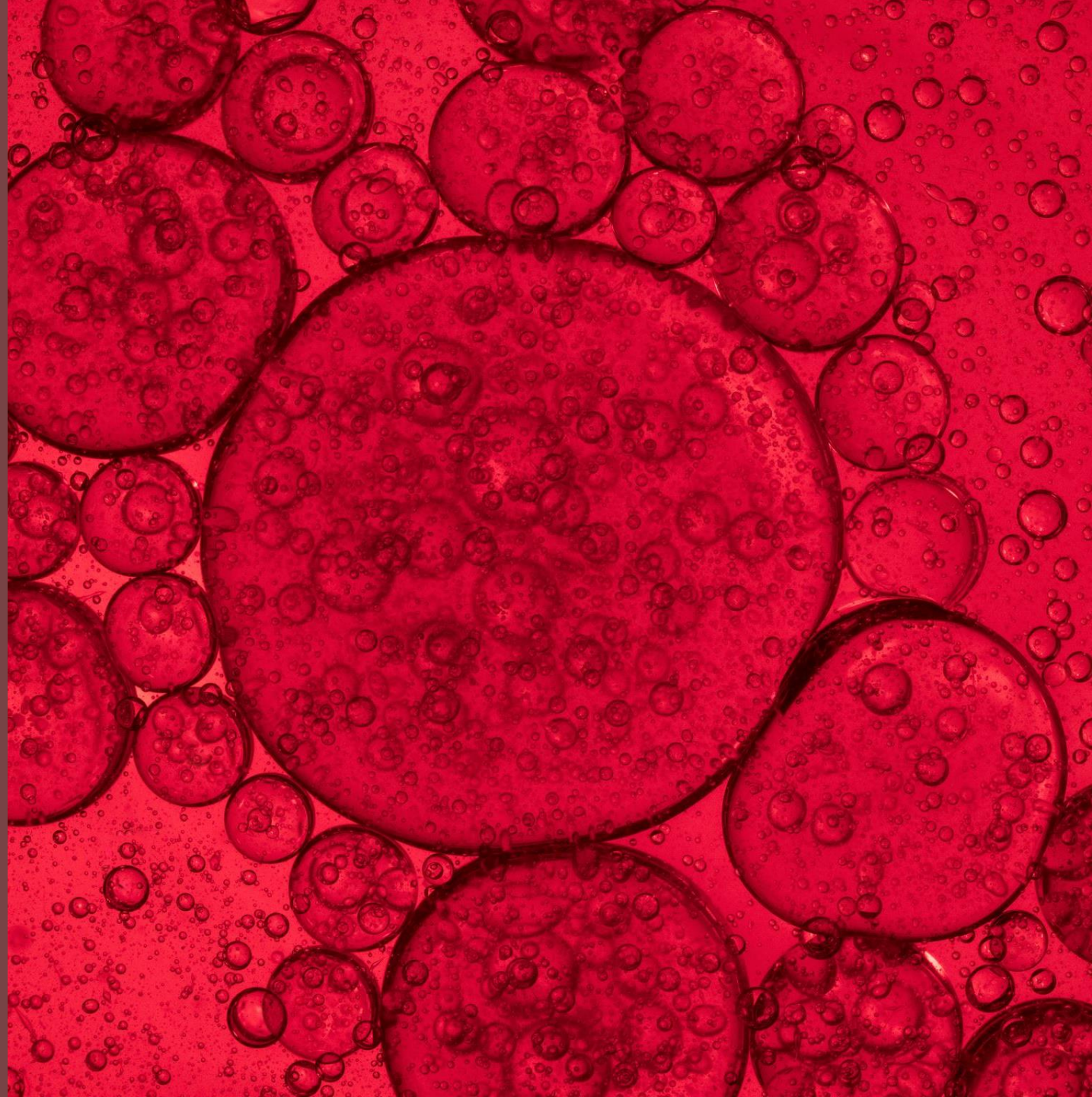
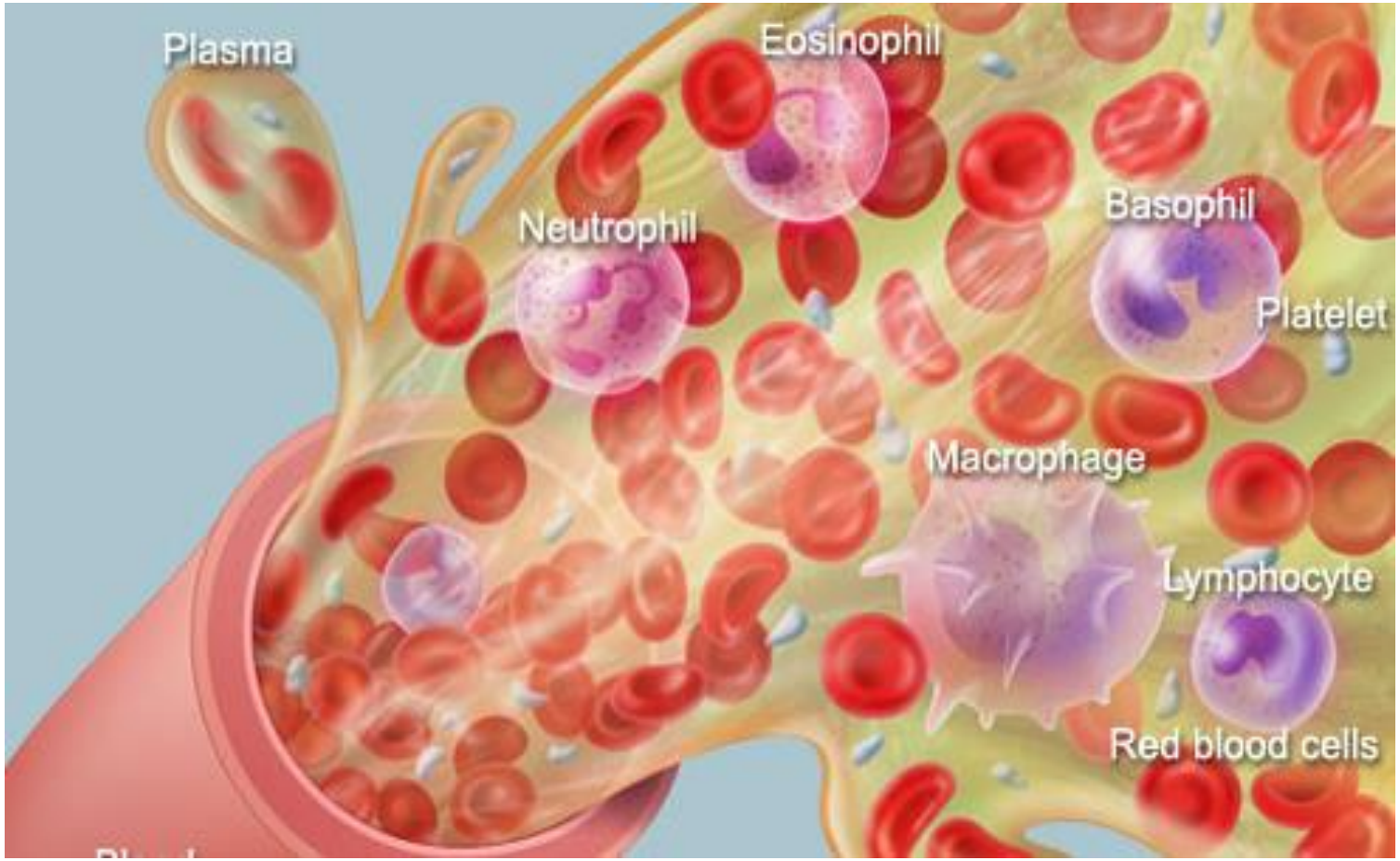
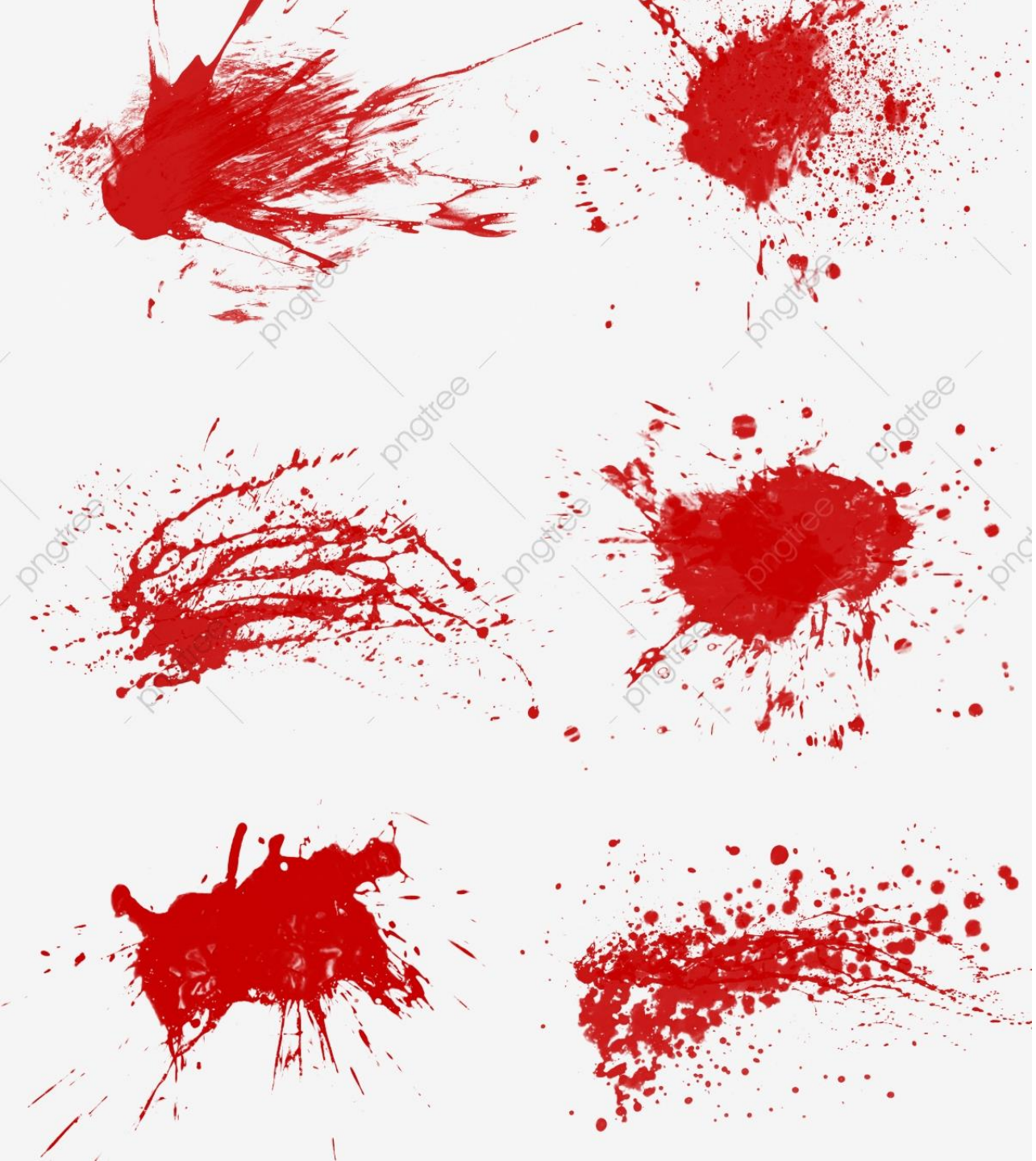
School Year 2021-2022



BELL RINGER

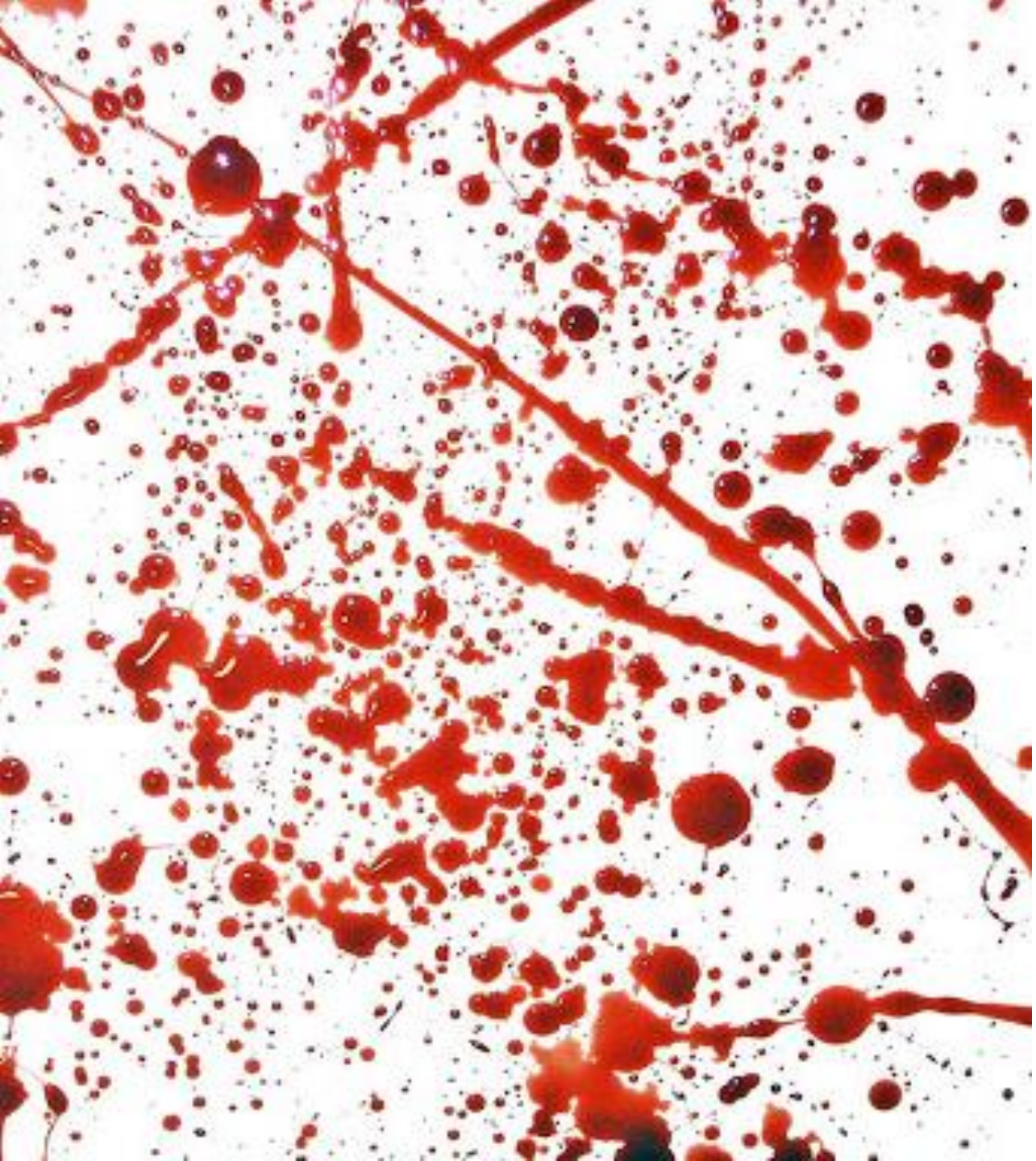


- What color is blood in the arterial vasculature?
- What color is blood in the venous vasculature?
- What element in blood accounts for its color?



WHAT IS BLOODSPLATTER?

- A tool to help understand what took place and what did not take place
- Helps in interrogations
- Reconstruction
- Exonerate the accused
- Interpretation only as good as the information and the person using the information

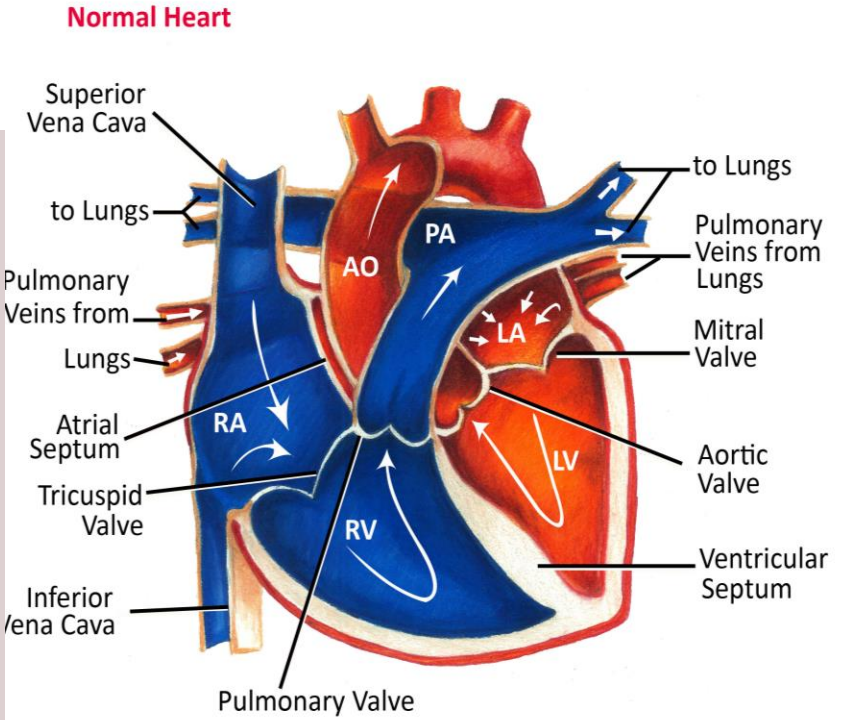


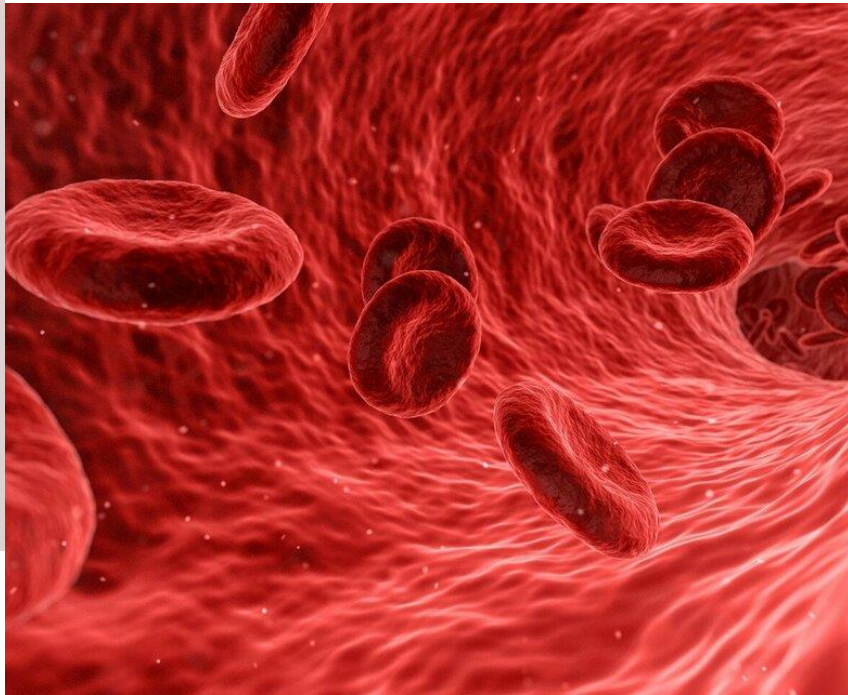
BLOODSPLATTER FYI

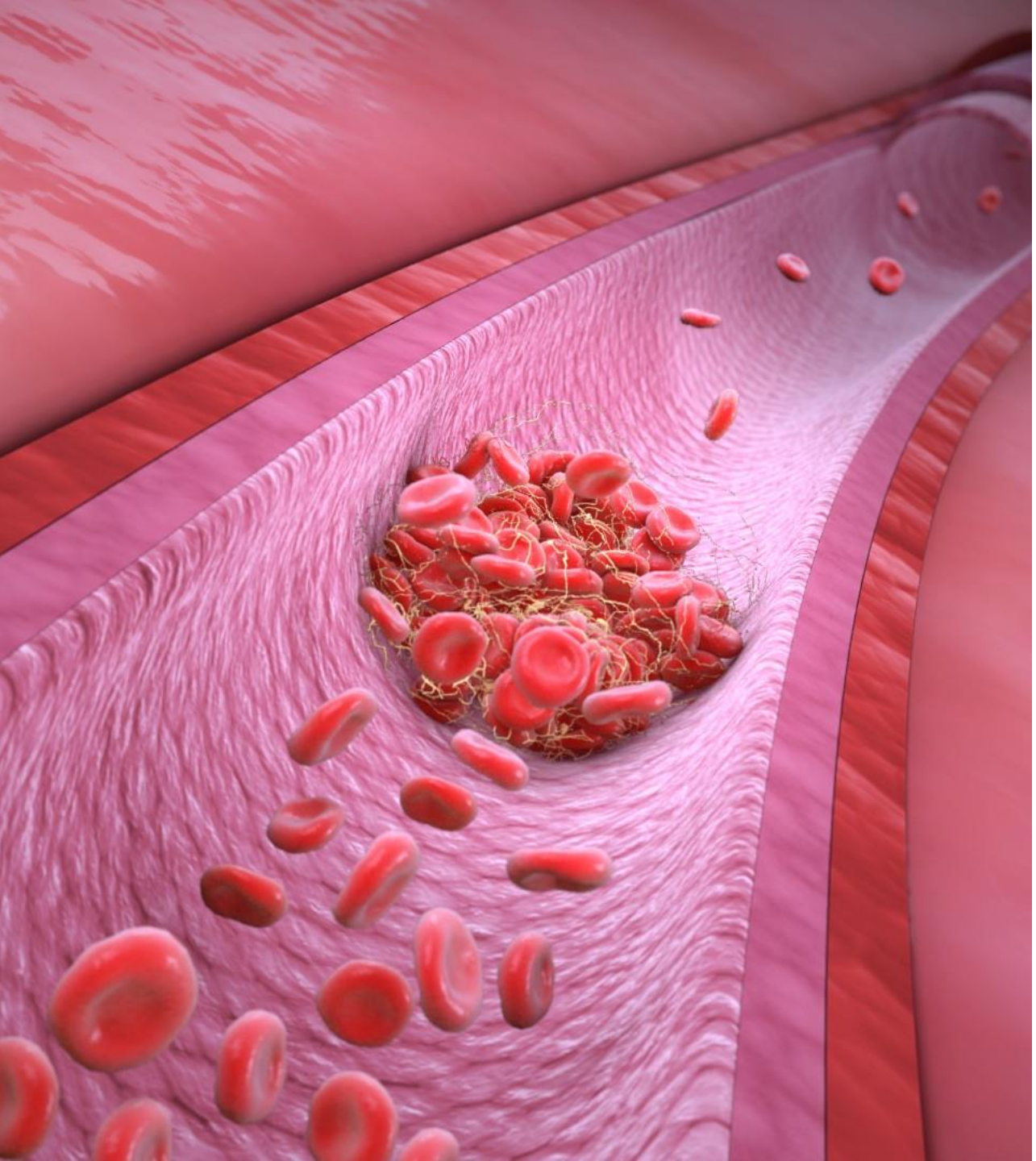
- Patterns of blood
- Became important in1955
- Dr. Paul Kirk- Ohio v. Samuel Sheppard
- Remember- The Fugitive
- This was an important case in blood evidence by the American Legal System

WHAT IS BLOOD?

- Circulates through the heart, arteries, veins, capillaries
- Transports O2, CO2, electrolytes, nourishments, hormones, vitamins and wastes
- Fluid portion- plasma- contains cellular components- RBC, WBW, platelets
- 45% of total volume







BLOOD FACTS

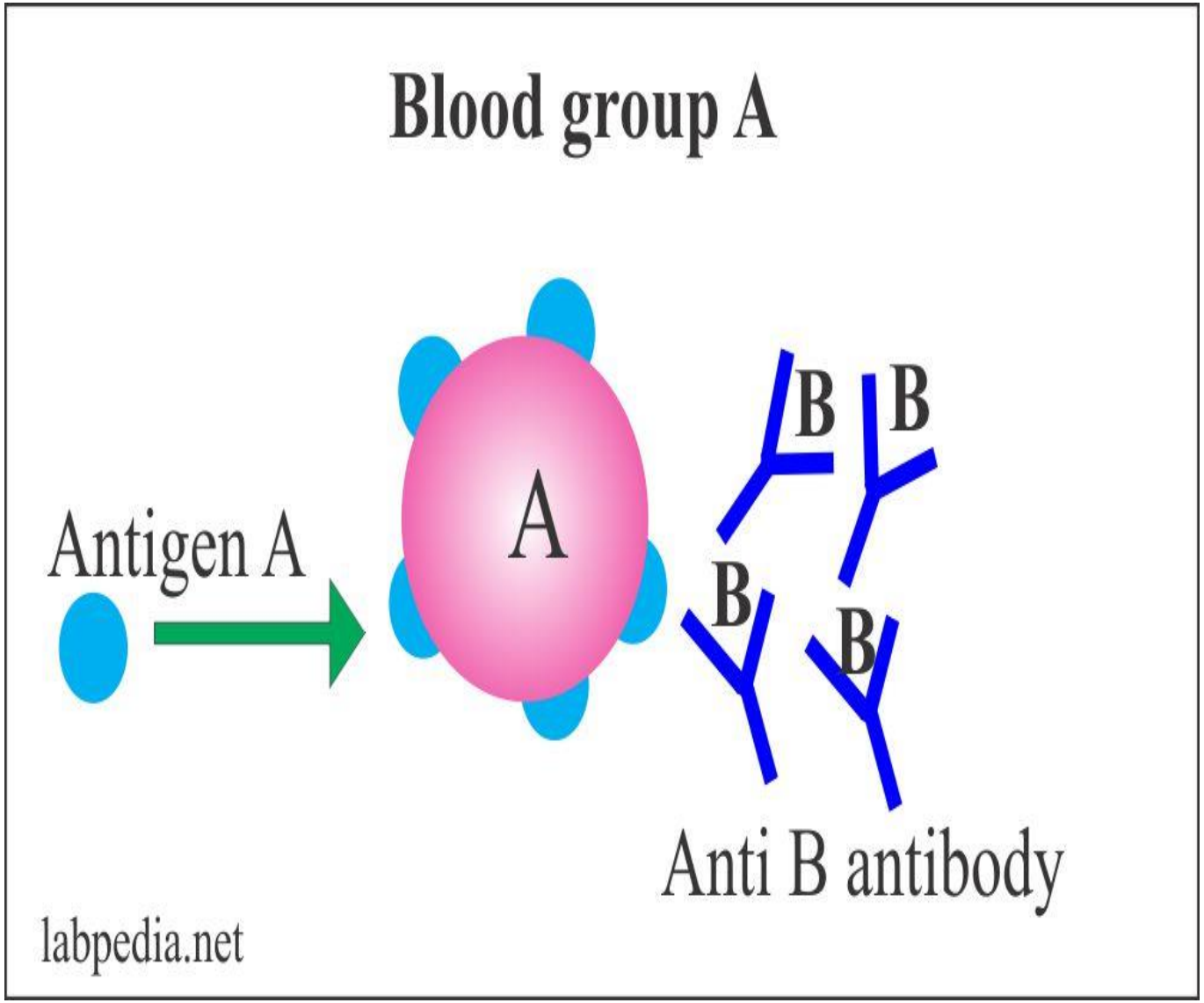
- How much blood do you have?
  - 4.5-6L
- When it clots, fluid portion of clotted blood is pushed out of clot- called serum
- What is in blood?
  - RBC- no nucleus
  - WBC- source of DNA
  - Platelets- clotting

ABO BLOOD TYPES

- When certain blood types mix- they clump and this can be a PROBLEM
- Antigen- surface proteins- on the RBC
- Antibodies- in the plasma- proteins
- Blood Typing

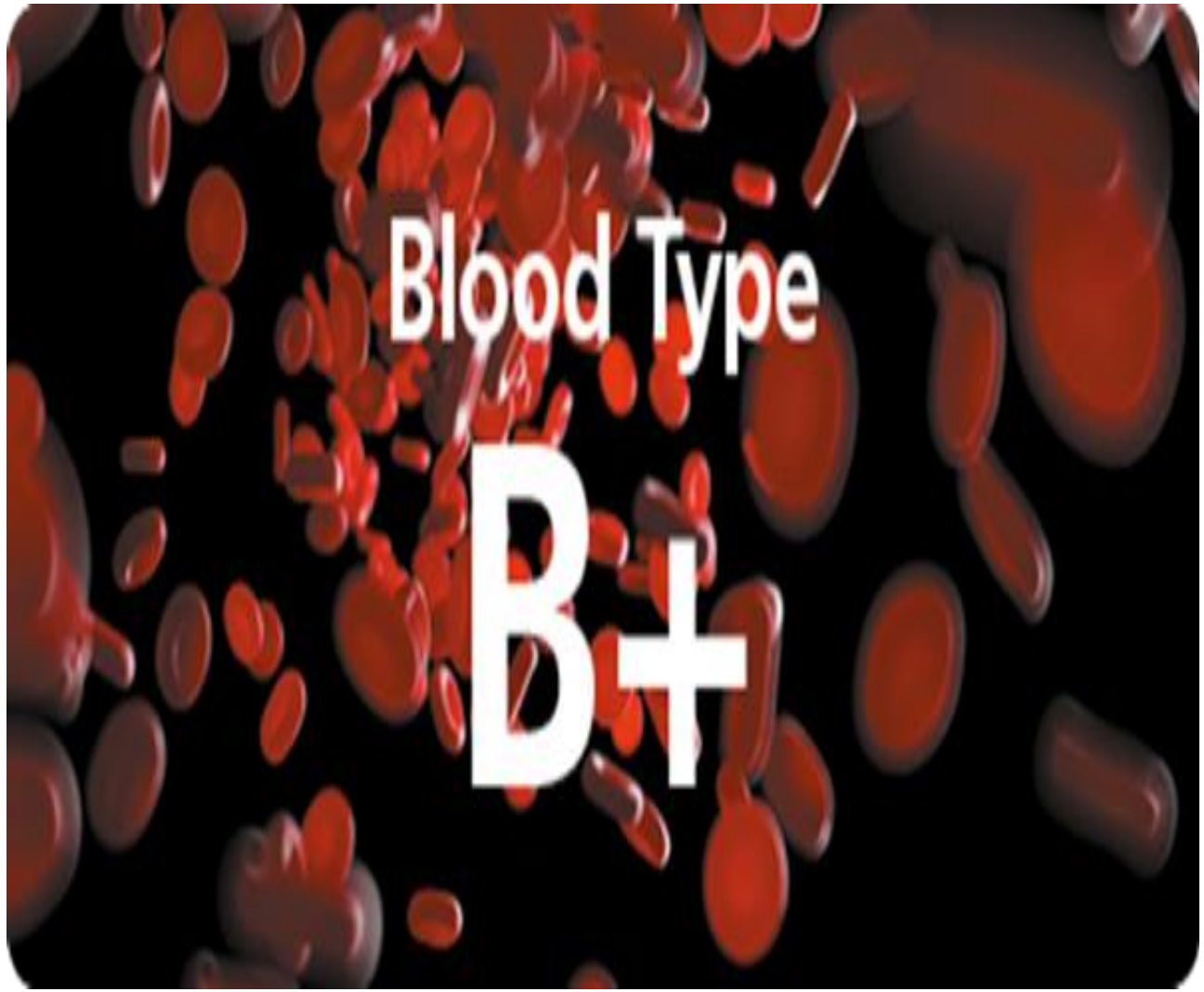
BLOOD TYPE A

- Antigens on RBC- A
- Antibody In Plasma- Anti-B
- Can Donate To- Type A and AB
- Can Receive From- A, O



BLOOD TYPE B

- Antigens on RBC- B
- Antibody In Plasma- Anti-A
- Can Donate To- Type B, AB
- Can Receive From- B,O

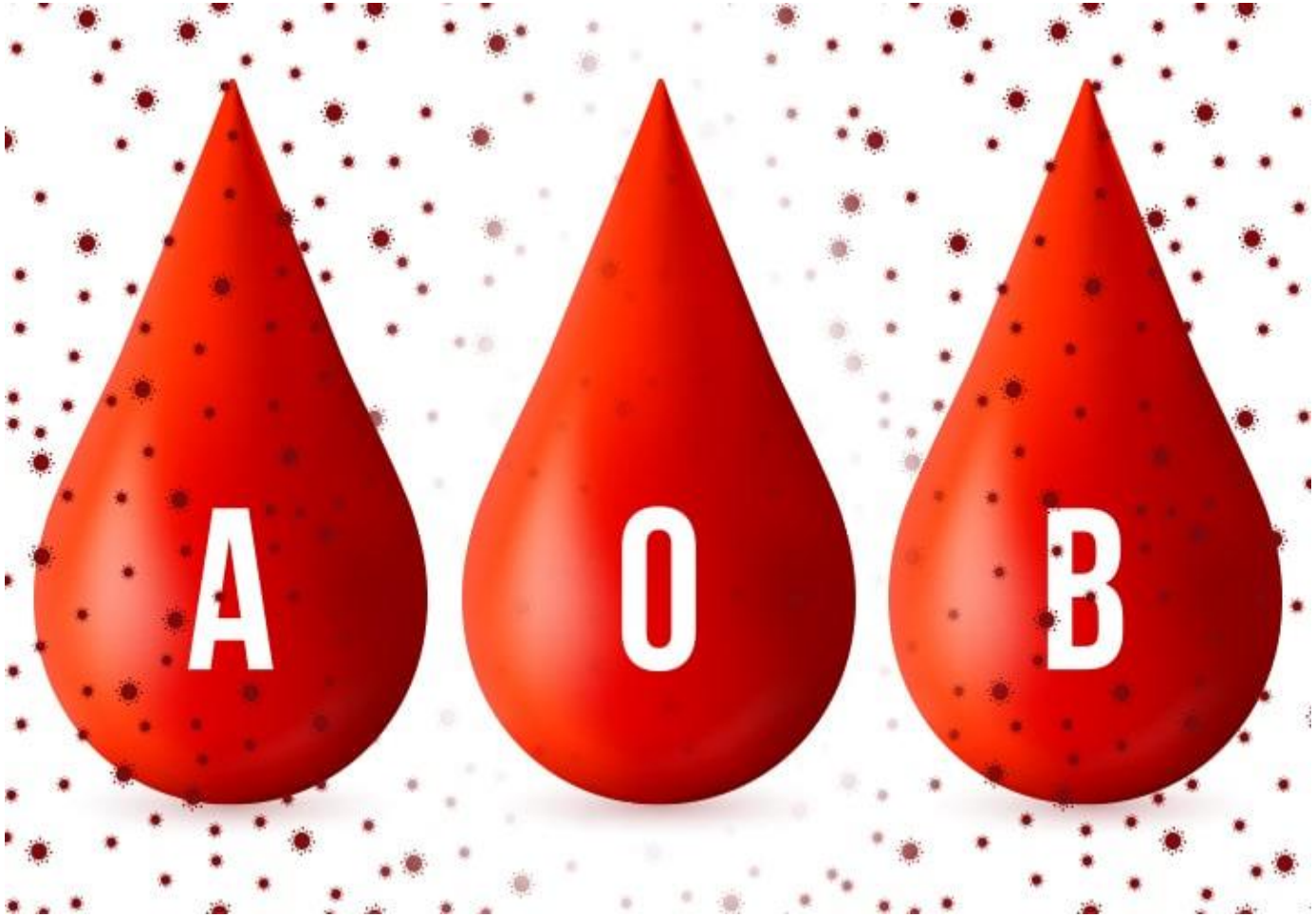


BLOOD TYPE AB

- Antigens on RBC- A and B
- Antibody In Plasma- Neither
- Can Donate To- Type AB
- Can Receive From- A, B, AB, O

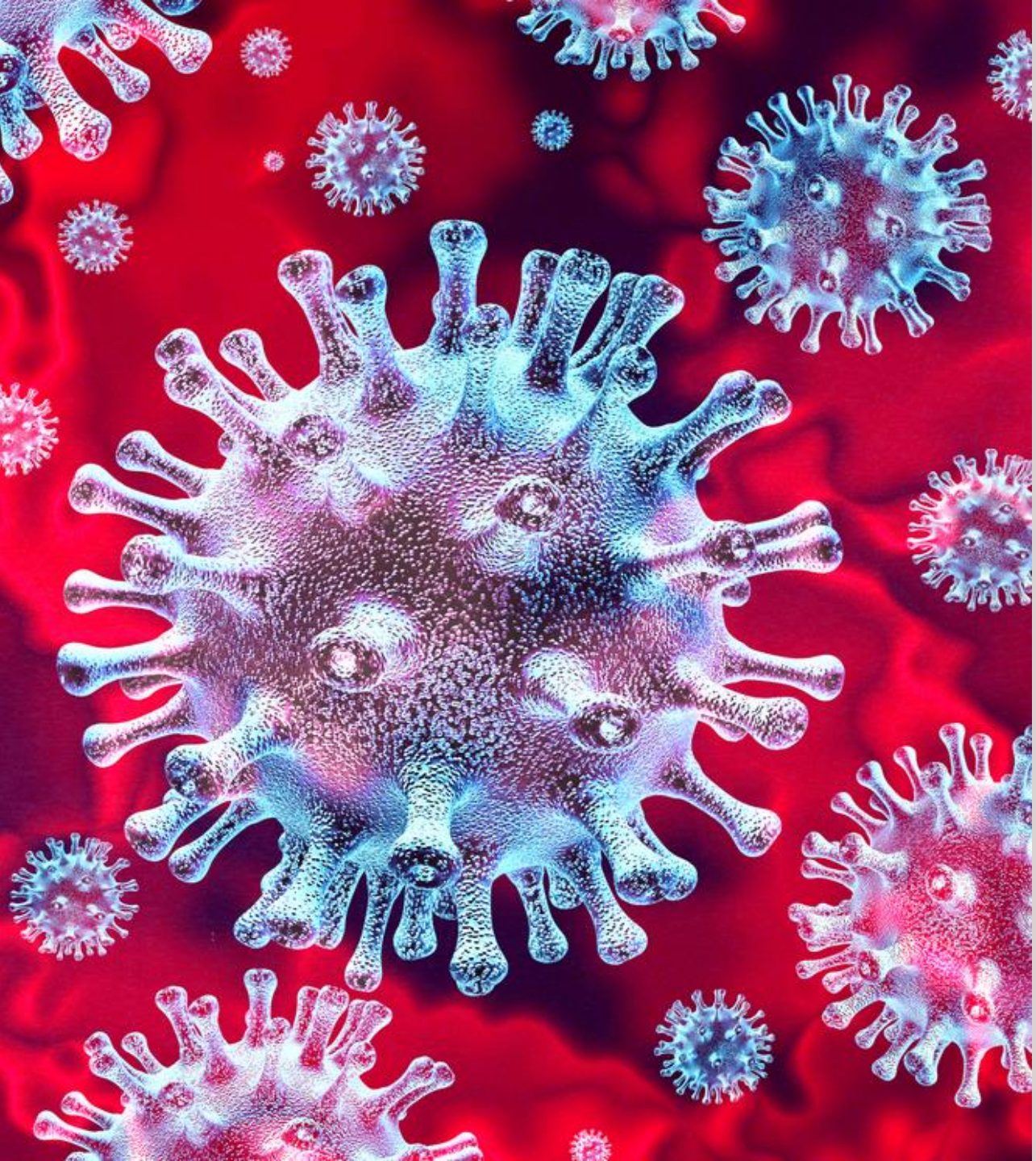
BLOOD TYPE O

- Antigens on RBC- Neither
- Antibody In Plasma- Anti-A and B
- Can Donate To- Type A, B, AB, O
- Can Receive From- O



PHYSICAL PROPERTIES

- Acts in predictable manner
- Strong cohesive molecular forces= surface tension (force that pulls surface molecules inward, ↓ surface area, liquid resists penetration)
- To create splatter, external force must overcome the surface tension of the blood
- Shape of blood drop is spherical NOT tear drop shaped



PHYSICAL PROPERTIES CONTINUED

- Viscosity- resistance to change in form or flow
- More viscous- move slowly
- Blood is 6X more viscous than water
- Blood drop falling will increase in velocity until the force of air resistance that opposes the drop is = to the force of the downward gravitational pull
- Terminal Velocity= 25.1 feet/second after falling 20-25 feet

THANK YOU!
☺

COMMENTS AND QUESTIONS?