

Chapter 8 Blood and Blood Spatter

NAME _____ Period _____ Date _____

Introduction and History

Blood has been studied in one way or another for thousands of years

1901 – _____ discovers _____

1925 – discovered that _____ of population are “ _____ ”

1940 - _____ discovers _____ factor

1984 – Gallo identified _____ causing _____

1985 – Development of _____ test

Introduction and History

_____ provides _____ evidence

_____ provides _____ evidence

A _____ provides information

- the _____ of an account by a _____ or a _____
- the _____ of the _____
- the _____ and _____ of impact
- the _____ of _____ used

Composition of Blood

- _____—a _____ suspending other blood _____
- _____ blood cells (_____)—carries _____ to the body’s cells and _____ away
- _____ blood cells (_____)— _____ and foreign invaders and, alone, c _____

(What is the most important thing found in the cell nuclei?) _____

- _____ (_____)—aids in _____ and the repair of damaged blood vessels

Composition of Blood

Draw and label the Pie chart from your notes showing the composition of blood.

Types of Blood Cells

If all of the blood cells listed in the picture on slide 7 have a nucleus, which type of blood cell are they? _____

Cellular Components of Blood

What percentage composition of blood are the cellular components? _____

Because of this, what percentage of blood is made of the liquid component? _____

Blood Typing—Proteins

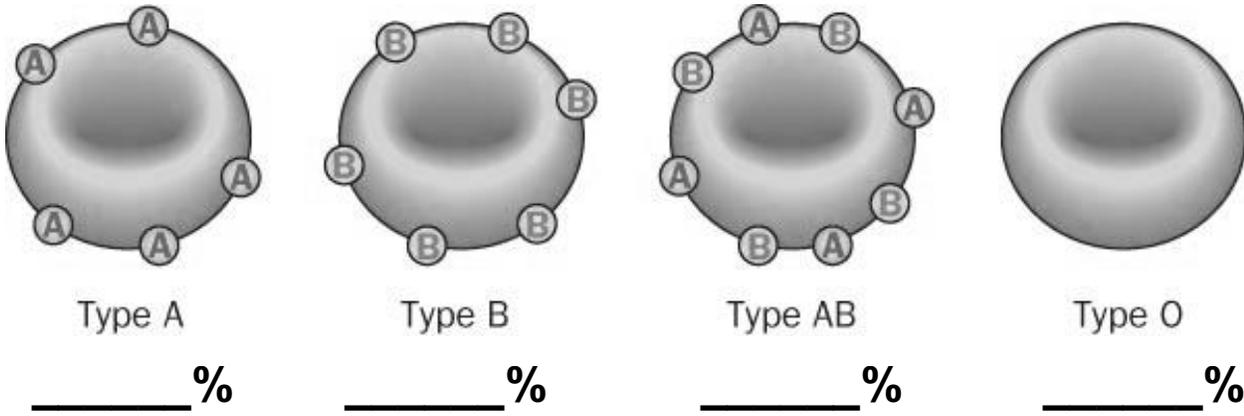
Discovered in 1900 by _____

Identifies the _____ or _____ of particular _____ embedded in the cell

**** _____ and _____ than _____

Produces _____ evidence but can still link a suspect to a crime scene or exclude a suspect

Blood Typing—Proteins *IMPORTANT*** BLOOD TYPE IS NAMED BY THE PROTEINS PRESENT ON THE BLOOD CELL**



of the population in the United States

Rh Factor

_____ % of the population has a protein called _____ on their blood cells

Blood Typing—Antibodies

- _____ are _____ proteins secreted by _____ blood cells that attach to antigens to destroy them
- _____ are _____ or cells that react with antibodies

Antigen Antibody Response

- When a foreign invader is recognized by the immune system and an attack is launched against that invader.
- _____ – when _____ antibodies _____ to multiple blood cells causing _____

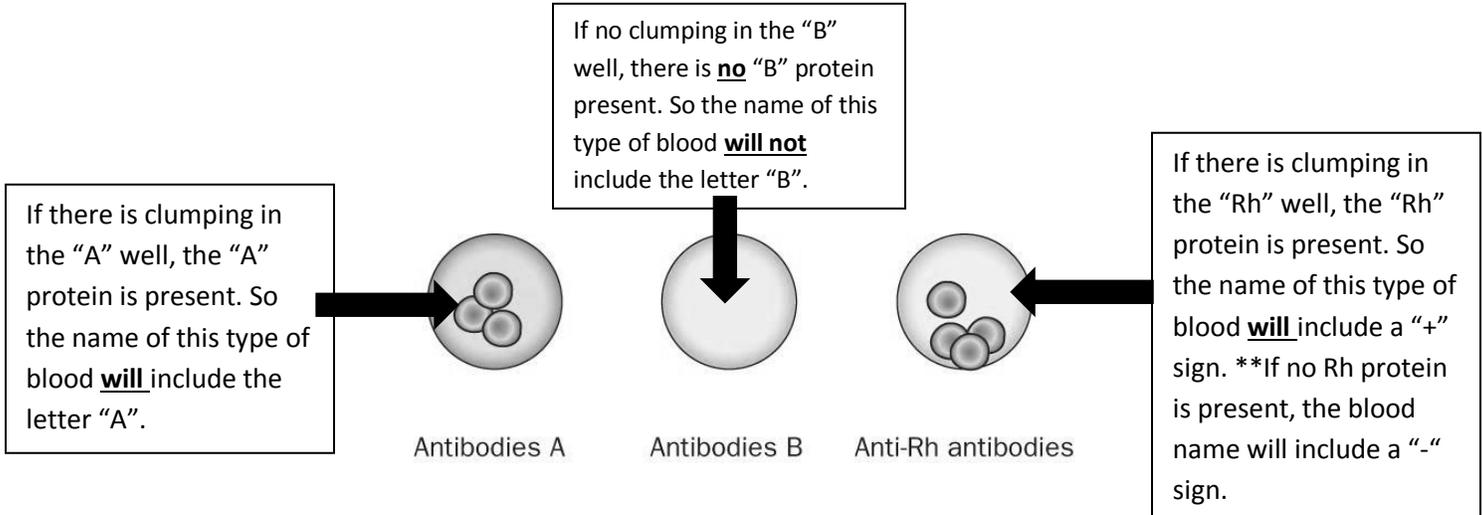
Blood typing tests

Patients' blood is mixed with _____ that bind to _____

Patients' blood is mixed with _____ that bind to _____

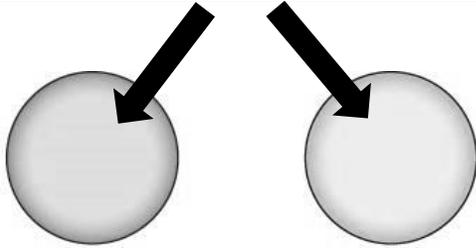
Patients' blood is mixed with _____ that bind to _____

ALL OF THESE ARE DONE IN SEPARATE WELLS OF A BLOOD TRAY



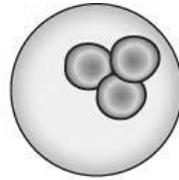
So, the blood type presented above would be called A+

Because there is no clumping in either the "A" or "B" antibodies, that means the "A" and "B" proteins are both absent. This would be classified as type "O" blood.



Antibodies A

Antibodies B



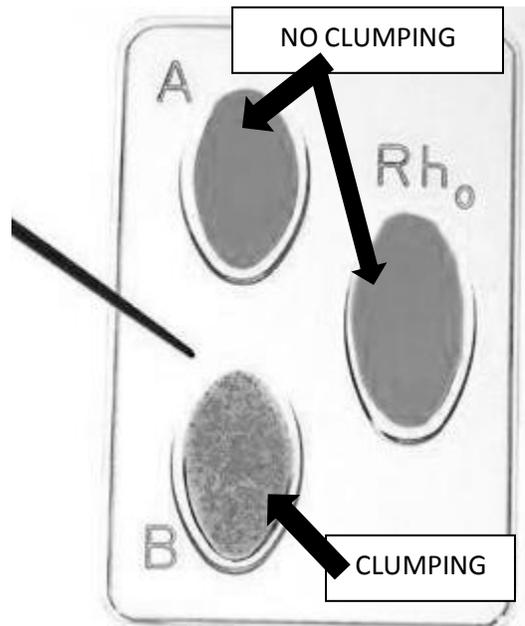
Anti-Rh antibodies

If there is clumping in the "Rh" well, the "Rh" protein is present. So the name of this type of blood **will** include a "+" sign. **If no Rh protein is present, the blood name will include a "-" sign.

So, the blood type presented above would be called O+

What type of blood is represented in the picture to the right?

BLOOD TYPE _____



Blood Enzymes

- _____ are complex _____ that _____ different biochemical reactions
- Many enzymes and proteins have been found in the _____ that are important for _____ purposes

Blood Typing

—Probability and Blood Types

The probability of a blood type _____ the _____ of probabilities for each protein group

If Type A = 42% and Rh Factor = 85%
Then A+ = .42 x .85 = .357 (35.7%)

The blood percentages must be converted into decimals for calculation. For example, 42% becomes .42 and 85% becomes .85

Knowing additional proteins and enzymes in the blood sample

_____ the population group

Increases the _____ of _____ a suspect

Secretors

- ____% of people are considered _____. Their blood-type antigens are _____ in high _____ in their OTHER body _____ such as _____, _____, _____ secretions and _____ juice. If you are a secretor, you will have a higher concentration of A and B antigens than does your blood!!
- With the advent of _____, the _____ evidence is not as _____ as it once was.

Crime Scene Investigation of Blood

Search for blood evidence

****MUST Determine****

- A. _____? (OR SOME OTHER RED SUBSTANCE)
- B. _____? (OR SOME OTHER ANIMAL)
- C. _____? (OR WHOSE BLOOD IS IT)

Interpret the findings:

- A. Does the _____ type match a _____ blood?
- B. If _____, _____ that _____
- C. If _____, decide if _____ is necessary

Presumptive & Confirmatory Tests

- _____ tests allow a _____ investigator to _____ evidence to _____ and to get a _____ identification.
ex) _____?
- _____ tests are used to make a more _____ identification.
Ex) _____?

Presumptive Test for blood

1. _____ color test
_____ reacts with _____
Turns _____ in _____ of blood
_____ and _____ also turn pink (gives false positive)

What is _____?

- A. _____
- B. transports _____ in blood stream
- C. Responsible for the _____ of blood

Tests for Blood

_____ test--reaction with _____ results in the production of _____ (glow in the dark)

Luminol

- _____ with blood to produce faint _____ glow
- Works even _____ on _____ stains
- Can reveal blood stains _____ by a factor of _____ (so cleaning blood doesn't help)
- Drawback: _____ the _____ of blood

Human vs Animal

_____ test--blood is injected into a _____; _____ are _____; rabbit's blood is extracted as an _____; the antiserum is placed on _____ blood. It will _____ with _____ proteins. This test is very _____ and requires only a _____ amount of blood.