

## What are the 3 rarest blood types?

### The three rarest blood types include:

- ▶ Rh-null or golden blood
- ▶ AB Negative
- ▶ Bombay blood group

### What is special about golden blood type?

- ▶ The golden blood type or Rh null blood group contains no Rh antigens (proteins) in the red blood cells (RBCs). This is the rarest blood group in the world, with less than 50 individuals having this blood group. It was first seen in Aboriginal Australians.
- ▶ With the golden blood group, a person lacks all the Rh antigens whereas a person with the Rh-negative blood group lacks only RhD antigen.

### Who has the golden blood type?

- ▶ The golden blood group seems to be a result of genetic mutation (spontaneous change in a gene). It is commonly seen with mutations in the RHAG gene, which codes the Rh-associated glycoprotein. This protein is required for directing the Rh antigens to the RBC membrane.
- ▶ Consanguineous marriage
- ▶ Autosomal genes
- ▶ Changes or complete deletion of certain genes, which are RHD and RHCE or RHAG.

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## What are potential complications of the golden blood type?

- ▶ RHAG mutation is often associated with a disease called hereditary stomatocytosis. These individuals can have long-term, mild, hemolytic anemia and increased RBC breakdown.
- ▶ Rh incompatibility during pregnancy: If the mother is Rh null and the baby is Rh-positive, and if the mother's blood gets sensitized by the baby's positive blood, then the mother's blood may produce protective proteins called antibodies that could target future pregnancies or lead to abortion or miscarriage.
- ▶ Hemolytic crisis: Several studies have found that an infection or sepsis in such individuals may precipitate massive hemolysis, subsequent kidney failure, and other complications.

## Is golden blood type good? Can golden blood be donated?

- ▶ Yes, golden blood can be donated. Because of the absence of antigens on RBCs, a person with Rh null blood is considered to be a universal donor, and this blood can be donated to anyone with rare blood types within the Rh systems.
- ▶ Conversely, Rh null is usually not so good for the people who have it. If they ever require a blood transfusion, receiving any blood that does have the Rh antigen may inevitably cause a transfusion reaction. The worry with the golden blood group is that the donations of Rh null are incredibly scarce and difficult to obtain. An Rh null person has to rely on the cooperation of a small network of regular Rh null donors around the world if they need the blood. **Across the globe, there are only nine active donors for this blood group.** This makes it the world's most precious blood type, hence the name "golden" blood

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