



| CHARACTERISTICS OF BLOOD GROUP ANTIBODIES | | | | | | | | | | | | | | |
|---|-------------------------|------|------|-------------------|----------|-----------|--------------------|--------|---------|--------------------------------|------|------------------------|--------|--|
| Blood Group System | ANTIBODY | IgG | IgM | OPTIMAL TECHNIQUE | LISS-IAT | ENZYME | COMPLEMENT BINDING | IMMUNE | NATURAL | HEMOLYTIC TRANSFUSION REACTION | HDN | Antigen frequency % | | REMARKS |
| ABO | Anti-A | + | + | RT | + | Enhanced | + | o | + | + | Some | 43 | 27 | Frequencies do not include type AB. |
| | Anti-B | + | + | RT | + | Enhanced | + | o | + | + | Some | 9 | 20 | Frequencies do not include type AB. |
| | Anti-A ₁ | Some | + | RT | Some | Enhanced | Rare | Rare | + | Some | o | 33 | 19 | Anti-A ₁ is found in 1-2% of A ₂ individuals and 25% of A ₂ B individuals. |
| RH | Anti-D | + | Some | IAT | + | Enhanced | Rare | + | o | + | + | 85 | 92 | Occurs frequently with Anti-C. |
| | Anti-C | + | + | IAT | + | Enhanced | o | + | o | + | + | 68 | 27 | Occurs frequently with Anti-D or -e. |
| | Anti-E | + | + | RT OR IAT | + | Enhanced | o | + | + | + | + | 29 | 22 | Occurs frequently with Anti-c, may show dosage. |
| | Anti-c | + | Some | IAT | + | Enhanced | o | + | o | + | + | 80 | 98 | Occurs frequently with Anti-E, may show dosage. |
| | Anti-e | + | Some | IAT | + | Enhanced | o | + | o | + | Rare | 98 | 98 | Occurs frequently with Anti-C, may show dosage. |
| | Anti-C _w | + | + | RT OR IAT | + | Enhanced | o | + | + | + | + | 2 | 1 | |
| Hh | Anti-H | Some | + | RT OR LOWER | o | Enhanced | Some | o | + | + | Rare | 99.9 | 99.9 | Most RBCs have some H antigen expression. O>A ₂ >B> A ₂ B>A ₁ >A ₁ B |
| KELL | Anti-K | + | Some | IAT | + | No Effect | Rare | + | Rare | + | + | 9 | 2 | Kell, k (cellano), and Js ^a antigen expression may be depressed by the presence of Kp ^a . |
| | Anti-k | + | Some | IAT | + | No Effect | o | + | o | + | + | 99.8 | 100 | |
| | Anti-Kp ^a | + | o | IAT | + | No Effect | o | + | o | + | + | 2 | < 0.01 | |
| | Anti-Kp ^b | + | Rare | IAT | + | No Effect | o | + | o | + | + | 100 | 100 | |
| | Anti-Js ^a | + | Some | IAT | + | No Effect | o | + | Rare | + | + | < 0.01 | 20 | |
| | Anti-Js ^b | + | o | IAT | + | Variable | o | + | o | + | + | > 99.9 | 99 | |
| DUFFY | Anti-Fy ^a | + | Rare | IAT | + | Depressed | Rare | + | o | + | + | 66 | 10 | Some antibodies exhibit dosage. |
| | Anti-Fy ^b | + | Rare | IAT | + | Depressed | Rare | + | o | + | Rare | 83 | 23 | |
| LEWIS | Anti-Le ^a | Some | + | RT OR IAT | + | Enhanced | + | Some | + | Rare | o | 22 | 23 | Antibodies are frequently seen during pregnancy. |
| | Anti-Le ^b | Some | + | RT OR IAT | + | Enhanced | + | Some | + | o | o | 72 | 55 | |
| KIDD | Anti-Jk ^a | + | + | IAT | + | Enhanced | + | + | o | + | + | 77 | 92 | Some antibodies exhibit dosage, some require anti-complement for detection. |
| | Anti-Jk ^b | + | + | IAT | + | Enhanced | + | + | o | + | Rare | 74 | 49 | |
| MNS | Anti-M | + | + | RT OR IAT | Some | Depressed | o | + | + | Rare | Rare | 78 | 74 | May exhibit dosage or be pH dependent. |
| | Anti-N | + | + | RT OR IAT | Some | Depressed | o | Rare | + | o | o | 72 | 75 | |
| | Anti-S | + | + | RT OR IAT | + | Variable | Some | + | Some | Rare | Rare | 55 | 31 | |
| | Anti-s | + | + | RT OR IAT | + | Variable | Rare | + | o | Rare | Rare | 89 | 93 | |
| | Anti-U | + | o | IAT | + | No Effect | o | + | o | + | + | 99.9 | 99 | |
| LUTHERAN | Anti-Lu ^a | + | + | RT OR IAT | + | Variable | Rare | + | + | o | Rare | 8 | 5 | Antigen expression is variable. |
| | Anti-Lu ^b | + | + | RT OR IAT | + | Variable | Rare | + | o | + | + | 99.8 | 99.8 | |
| P-1PK | Anti-P ₁ | Some | + | RT OR LOWER | Some | Enhanced | Rare | Some | + | Some | o | 79 | 94 | Antigen expression is variable. |
| | Anti-PP ₁ PK | + | + | RT OR IAT | + | No Effect | + | o | + | + | + | > 99.9 | > 99.9 | Antibody is naturally occurring in individuals with the p phenotype. |
| I/i Collection | Anti-I | Rare | + | RT OR LOWER | Rare | Enhanced | + | o | + | o | o | > 99 | > 99 | Typically seen as a cold auto antibody. Allo anti-I is rare. |
| | Anti-i | Rare | + | RT OR LOWER | Rare | Enhanced | + | o | + | o | Rare | 100 | 100 | Anti-i are considered to be auto antibodies. |
| XG | Anti-Xg ^a | + | Some | RT OR IAT | + | Depressed | Some | + | Some | o | o | 89 Females 66 Males | | Inheritance by an X-linked gene. |
| COLTON | Anti-Co ^a | + | Rare | IAT | + | No Effect | Some | + | o | + | + | 99.5 | 99.5 | |
| | Anti-Co ^b | + | o | IAT | + | Enhanced | Rare | + | o | + | + | 10 | 10 | |
| DIEGO | Anti-Di ^a | + | o | IAT | + | No Effect | Some | + | Some | + | + | 0.01 | 0.01 | Di ^a antigen frequency highest in South American Indians, Japanese, Chippewa Indians |
| | Anti-Di ^b | + | o | IAT | + | No Effect | o | + | o | + | + | 100 | 100 | |
| | Anti-Wr ^a | + | + | RT OR IAT | + | No Effect | o | + | + | + | + | < 0.01 | < 0.01 | Anti-Wr ^a is often naturally occurring and can be found in the serum of 1-2% of blood donors. |
| DOMBROCK | Anti-Do ^a | + | o | IAT | + | Enhanced | o | + | o | + | o | 67 | 55 | Anti-Do ^a is rarely found as a single specificity. |
| | Anti-Do ^b | + | o | IAT | + | Enhanced | o | + | o | + | o | 82 | 89 | |
| | Anti-Gy ^a | + | o | IAT | + | Enhanced | o | + | o | + | o | 100 | > 99.9 | |
| | Anti-Hy | + | o | IAT | + | Enhanced | o | + | o | + | o | 100 | > 99 | |
| CARTWRIGHT | Anti-Yt ^a | + | o | IAT | + | Variable | Some | + | o | Some | o | > 99.8 | > 99.8 | |
| | Anti-Yt ^b | + | o | IAT | + | Variable | o | + | o | o | o | 8 | 8 | Anti-Yt ^b is rare; usually seen with other antibodies. |
| CHIDO/ROGERS/KNOPS | Anti-Ch1 | + | o | IAT | + | Depressed | o | + | o | o | o | 96 | 96 | |
| | Anti-Rg1 | + | o | IAT | + | Depressed | o | + | o | o | o | > 98 | > 98 | |
| | Anti-Kn ^a | + | o | IAT | + | Depressed | o | + | o | o | o | 94.5 | 99.9 | |
| | Anti-McC ^a | + | o | IAT | + | Depressed | o | + | o | o | o | 98 | 94 | |
| | Anti-Yk ^a | + | o | IAT | + | Depressed | o | + | o | o | o | 92 | 98 | |
| VEL COLLECTION | Anti-Vel | + | + | IAT | + | Enhanced | + | + | o | + | + | > 99 | > 99 | Vel antigen expression is variable on adult RBCs. |