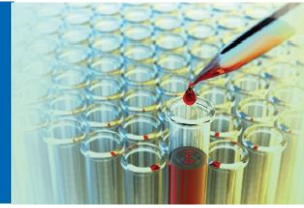


2



Human Blood Group Antigens



Chapter summary

- There are 36 blood group systems currently recognized by the ISBT.
- Blood group antigens are carbohydrate or protein in nature.
- Glycosyltransferases localized in the Golgi confer the genetic basis of carbohydrate antigens.
- Variations in protein backbone sequence confer the molecular basis of most blood group antigens.
- Exceptions to the above are null phenotypes where gene deletions (e.g. *RHD*) and silencing mutations (e.g. stop codons and splice site mutations) ablate the expression of that allele.
- The antigen carriers serve a wide variety of functions: membrane receptors, transporters, transporting immune complexes, inactivating complement, activation of pro-hormones, and removal of excess chemokines are some examples.
- A GATA-1 transcription factor binding site is mutated in the *Fy(a-b-)* phenotype, with the Duffy glycoprotein being expressed in non-erythroid tissues.