Allele segregation – Reference Summary

Alleles

An allele is a version of a gene that determines which trait will be expressed. This occurs because each allele encodes slightly different versions of the same protein product.

Segregation of Alleles

In **mitosis**, each daughter cell will end up with the same alleles as the original mother cell.

Therefore, if the mother cell possesses alleles B and b for gene 1, then both daughters will have both B AND b.

In **meiosis**, each gamete produced will have only one allele of each gene from the mother cell.

Therefore, if the mother cell possesses alleles D and d for gene 2, then each gamete will have either D **OR** d.

Which allele a gamete will inherit for one gene is independent of which allele it will inherit for another gene. This means that all of the allelic combinations shown in the diagram below are equally likely to arise in the gametes from the mother cell.