

Role of Genetic Polymorphisms in Responses to Toxic Agents

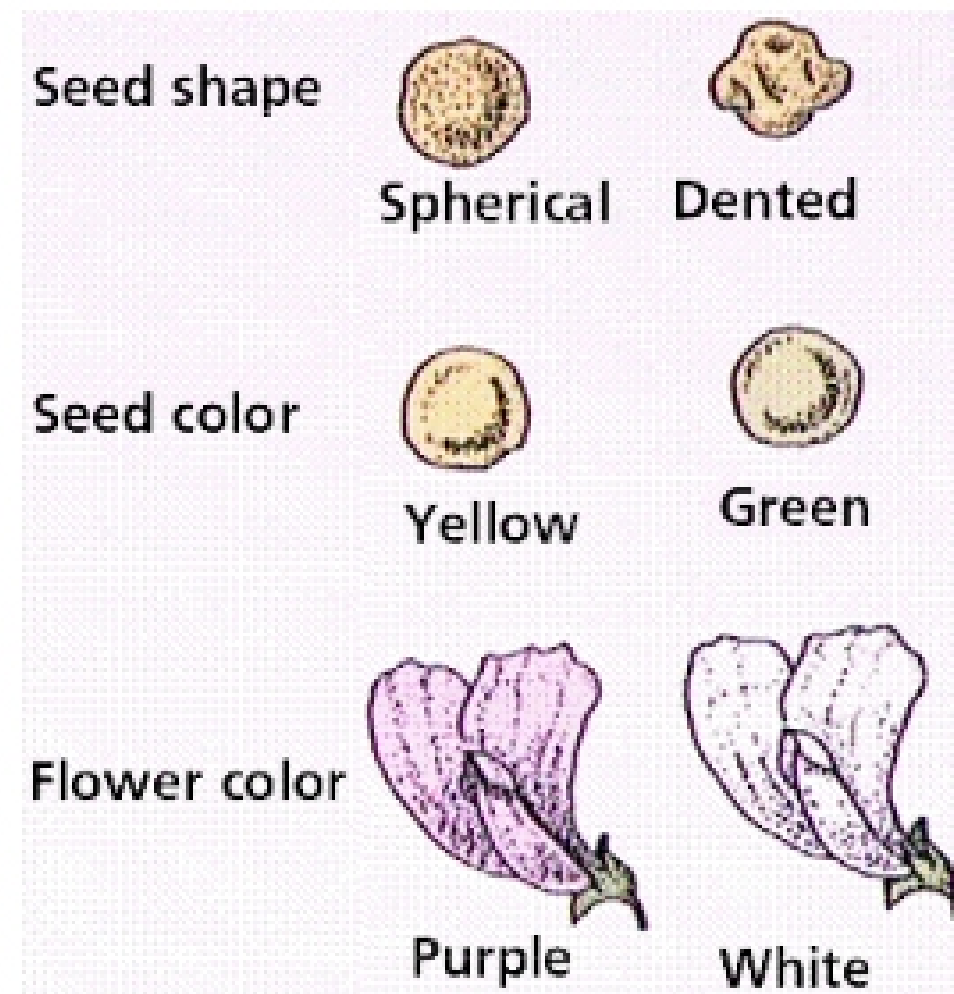
- Definitions
- “Forward genetics” and toxicology
- “Reverse genetics” and toxicology
- Genetic markers
- SNPs and their use in toxicology
- Ethical, Legal and Social Issues (ELSI)

*“Toxicology is concerned with the interaction between xenobiotics and biological molecules directly or indirectly coded in the DNA, and can be regarded as a branch of **GENETICS**.”*

Michael F.W. Festing (2001)



Gregor Mendel (1822 – 1884)



TERMINOLOGY

Gene: A sequence of DNA bases that encodes a protein

Allele: A sequence of DNA bases

Locus: Physical location of an allele on a chromosome

Linkage: Proximity of two alleles on a chromosome

Marker: An allele of known position on a chromosome

Distance: Number of base-pairs between two alleles

centiMorgan: Probabilistic distance of two alleles

Phenotype: An outward, observable character (trait)

Genotype: The internally coded, inheritable information

Penetrance: No. with phenotype / No. with allele