- Example: Flower colour of Snapdragons. Cross of $C^rC^r$ (red) and $C^wC^w$ (white) → $F_1$ [$C^rC^w$ (pink)] → $F_2$ [1 $C^rC^r$, 2 $C^rC^w$, 1 $C^wC^w$, 1:2:1 phenotypic ratio instead of 3:1]

### d. Codominance

- 2 alleles encode different gene products
- Heterozygote expresses both alleles
- Example: Human MN blood group → 1:2:1 phenotypic ratio instead of 3:1

| Gametes | $L^M$ | $L^N$ |
|---|---|---|
| $L^M$ | $L^M/ L^M$<br>M | $L^M/ L^N$<br>MN |
| $L^N$ | $L^M/ L^N$<br>MN | MM<br>N |

### e. Multiple Alleles in a population

- NOT bi-allelic genes, 3 or more alleles
- Example: Human ABO blood system (3 alleles, 6 genotypes, 4 phenotypes

### f. Two genes affecting a single trait

- Example: Skin pigmentation in corn snakes; one gene determines orange pigment and the other determines black pigment and *act independently*

| Mendelian $F_2$ ratio | Genotype | Phenotype |
|---|---|---|
| 9/16 | O_/B_ | Camouflaged |
| 3/16 | O_/bb | Orange |
| 3/16 | oo/B_ | Black |
| 1/16 | oo/bb | Albino |

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### g. Epistasis

- An interaction between 2 genes in a pathway whereby one gene interferes with the phenotypic expression of other gene