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## **Other patterns of inheritance**

Three Some other Pattern of Inheritance

### **List of other patterns of inheritance**

## **Incomplete Dominance:**

### **Statement of Incomplete Dominance**

It states that when two organisms are crossed by considering a pair of contrasting character then dominant allele can be completely dominant over recessive alleles. Hence an intermediate phenotype is expressed in F1 Generation. When F1 Generation are allowed to self cross then three types of phenotype is produced in F2 generation. It is common in following plants and animals.

### **Activities in Incomplete dominance**

#### **List of examples of Incomplete dominance in Plant**

Four-o' clock flowers (*Mirabilis jalapa*-Malati Phool)

Snapdragon (*Antirrhinum majus*-Bhagute Phool)

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**Scientific name of Four o'clock flowers**

**Scientific name of Snapdragon flowers**

## **Example of flower of incomplete dominance**

**Activities in example of case of flower in incomplete dominance**

**Representation of pure homozygous red**

**Representation of pure homozygous white**

In these plant when pure homozygous red (RR) is crossed with pure homozygous white (rr) then neither Red (R) or White (r) become dominant and intermediate phenotype pink (Rr) is produced in F1 generation.

**Cause of intermediate phenotype in first filial generation**

**Phenotype of intermediate character in first filial generation**

When F1 pink flowered plants are allowed to self cross then.....

**Result of self crossing of plants at the first filial generation**

Three types of plants are produced in F2 generation i.e. 1 Red: 2: pink and 1 white

**Phenotypic ratio in second filial generation in incomplete dominance**

The ratio 1:2: 1 is incomplete dominance ratio

Similarly genotypic ratio is 1:2:1 (Pure Red Hybrid Pink and pure white)

**Genotypic ratio in second filial generation in incomplete dominance**

## **Example of Incomplete dominance in animals**

Andalusian chickens have three colours i.e. black -BB (Homozygous dominant) white -bb (homozygous recessive) and blue (heterozygous)

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When Black BB and white bb fowls are crossed then Blue -Bb colored fowls are produced in F1 generation. On self crossing of F1 hybrids three types of fowls are produced in F2 generation i.e. Black-BB, Blue-Bb and White-bb in the ratio of 1:2:1

Similarly genotypic and phenotypic ratio become same

Phenotypic ratio=Genotypic ratio

## **Co-dominance**

According to Mendel F1-hybrid resembles to only one parent because only one allele of a gene is expressed as dominant.

### **Statement of co dominance in Mendel's exception**

But in co-dominance both dominant and recessive alleles lack their relation and express their characters in equal amount.

#### **a. Roan Coat Colour in Shorthorn Cattle**

In short horned cattle Homozygous red (CRCR) and Homozygous white (CrCr). If these genotype are crossed then offspring will have both red and white hairs (CRCr): Roan

These offspring are heterozygous and called "roan". When these F1 roan are self crossed then three types of cattles are produced in F2 Generation.

## **Codominance in Human Blood Group AB**

AB blood group in Human: Human Blood Group ABO consists of three allele IA, IB and IO

Marriage between homozygous person having blood group A (IAIA) and having blood group B (IBIB) will produce their offspring with Blood Group AB as IA and IB are co dominant with each other.