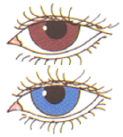
GENE

EG



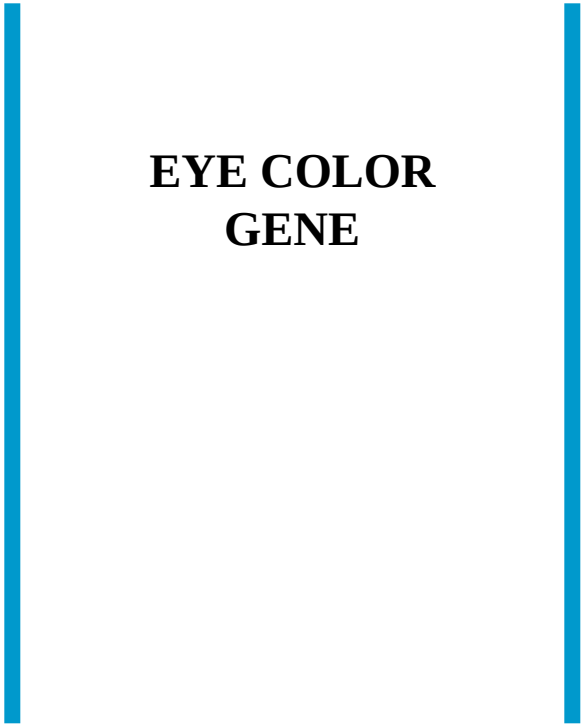
FUNCTIONAL DNA UNIT

GENE

GENE TERMS

EYE COLOR GENE

GENE TERMS



CHROMOSOMES

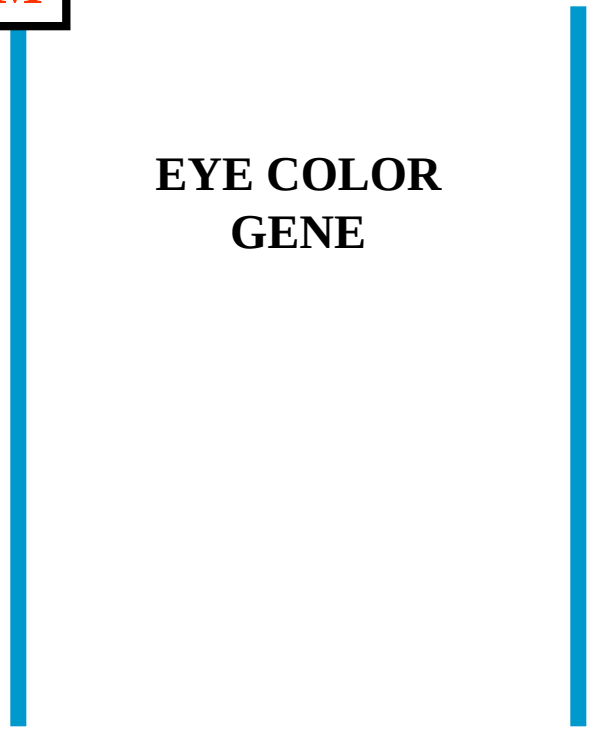
GENE TERMS

P

M

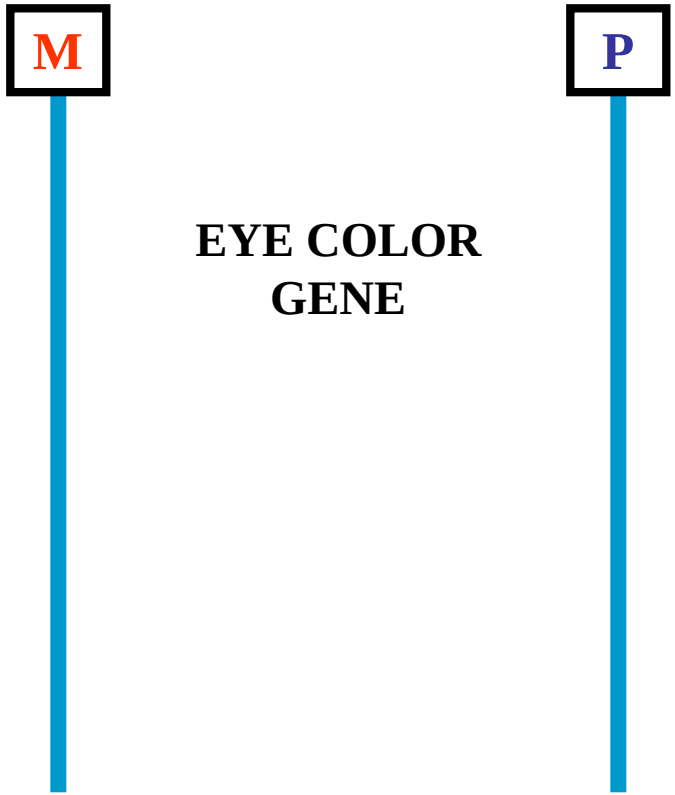
EYE COLOR GENE

M = MATERNAL



CHROMOSOMES

GENE TERMS



M = MATERNAL

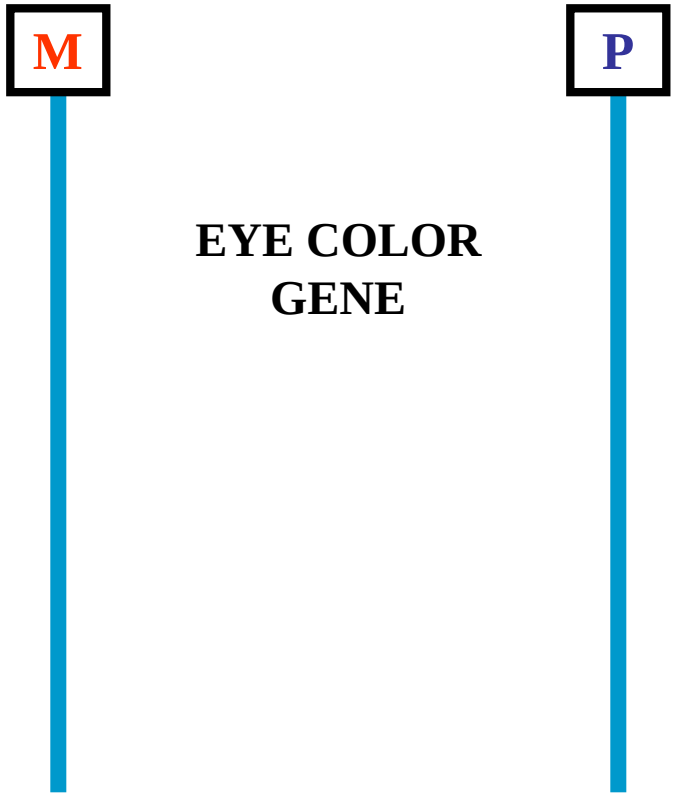
P = PATERNAL

CHROMOSOMES

L

2

GENE TERMS



M = MATERNAL

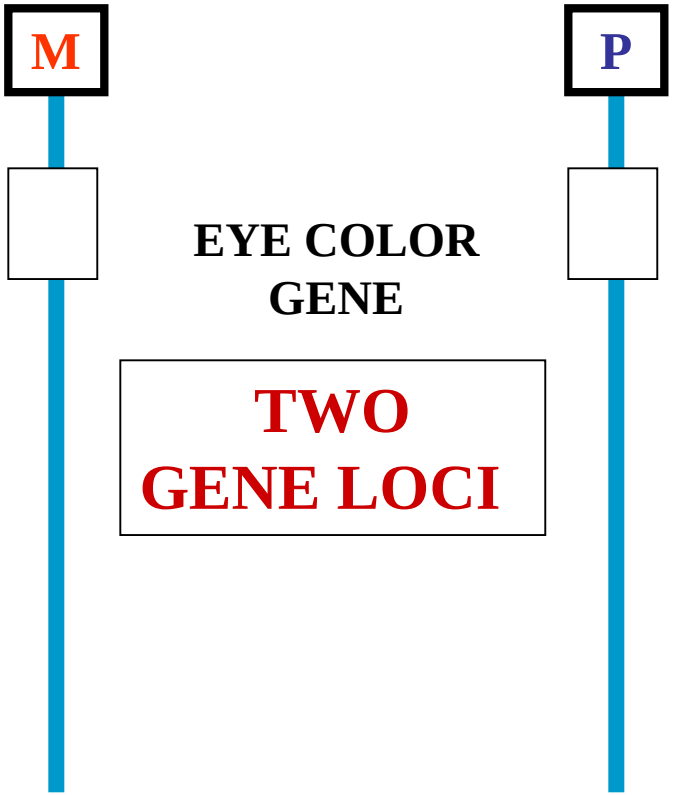
P = PATERNAL

HOMOLOGOUS CHROMOSOMES

L

1

GENE TERMS



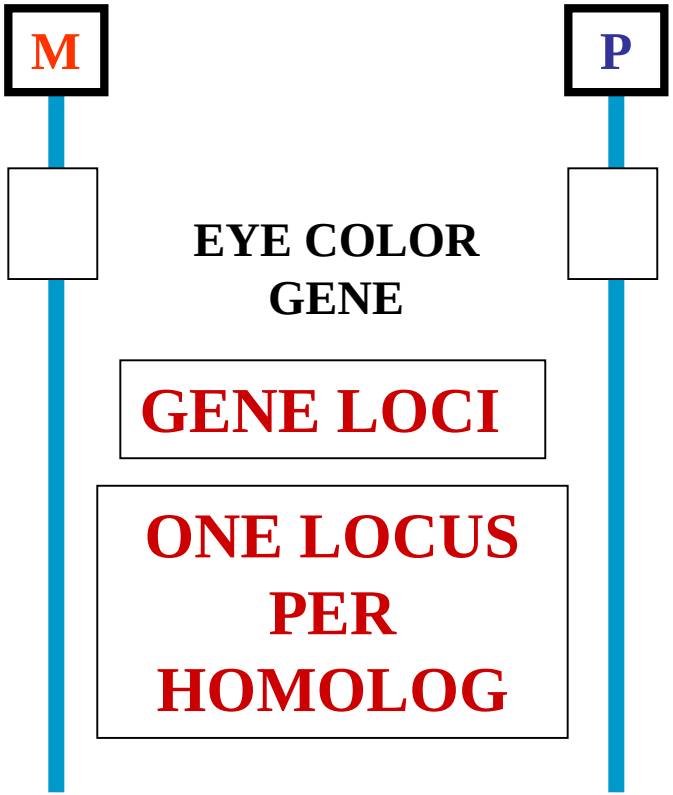
M = MATERNAL

P = PATERNAL

HOMOLOGOUS CHROMOSOMES

GENE TERMS

GL



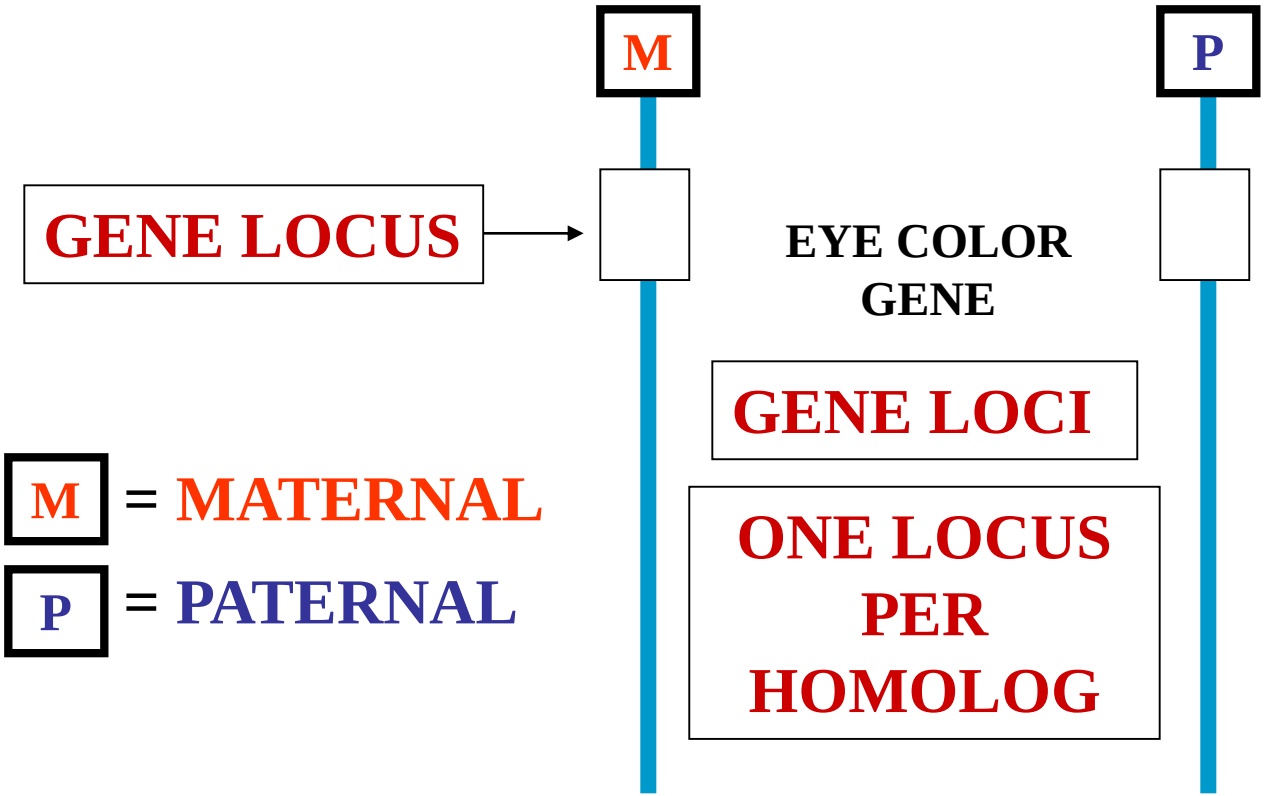
M = MATERNAL

P = PATERNAL

HOMOLOGOUS CHROMOSOMES

GENE TERMS

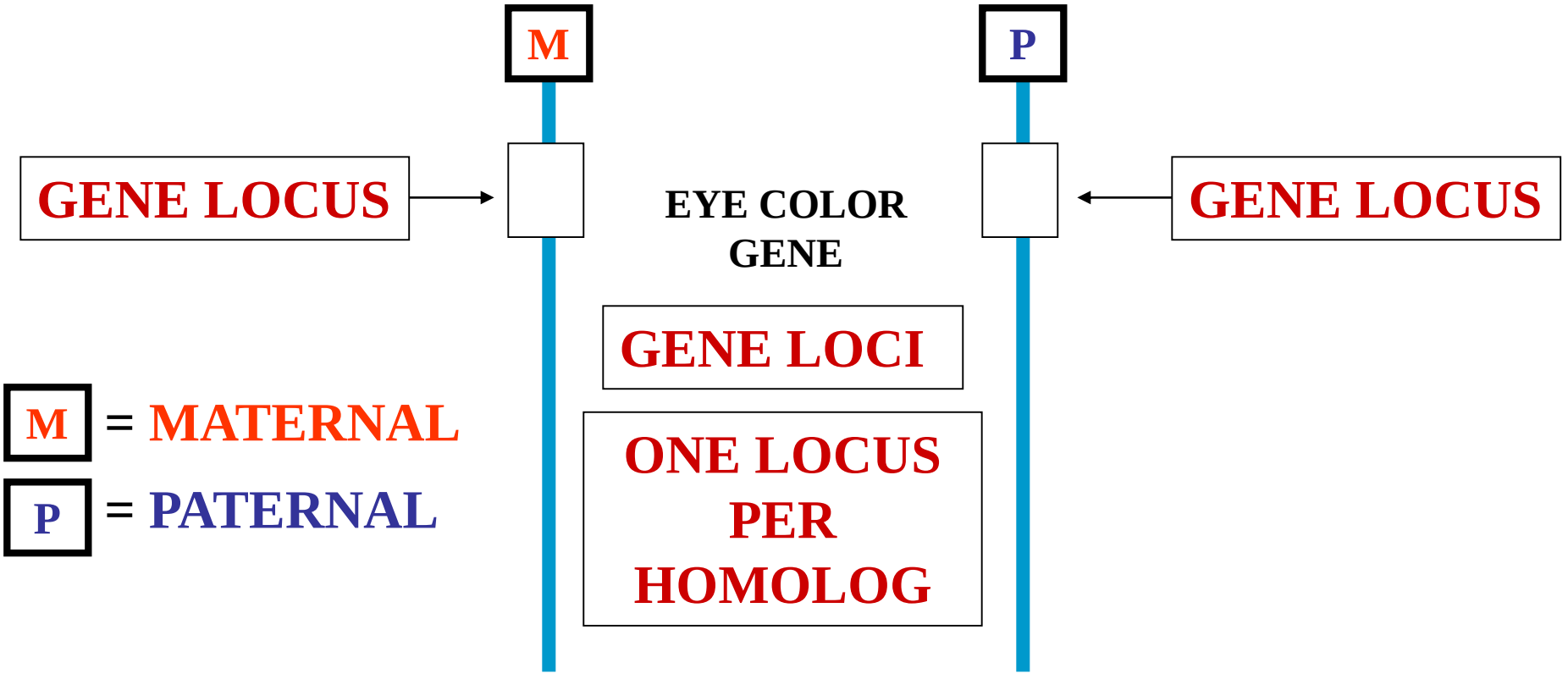
GL



HOMOLOGOUS CHROMOSOMES

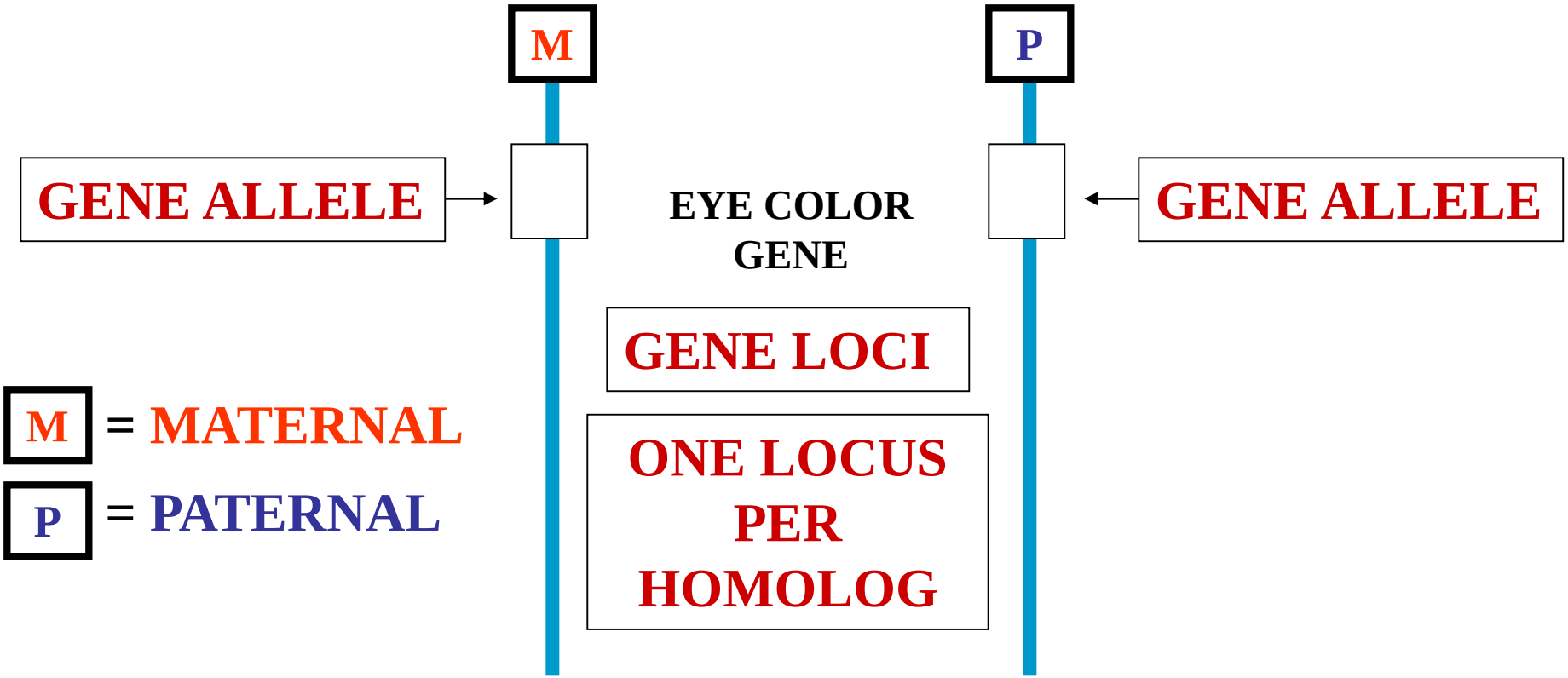
GA

GENE TERMS



HOMOLOGOUS CHROMOSOMES

GENE TERMS



HOMOLOGOUS CHROMOSOMES

ALLELE

U
B

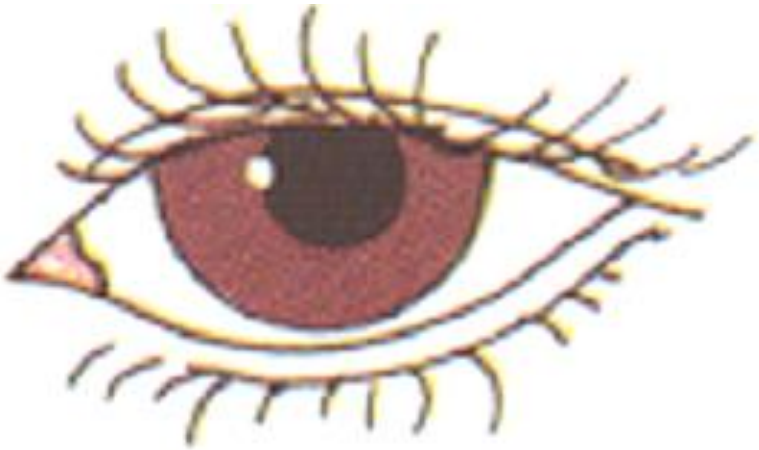
ALLELE

DIFFERENT GENE FORM

ALLELE

D

GENE TERMS



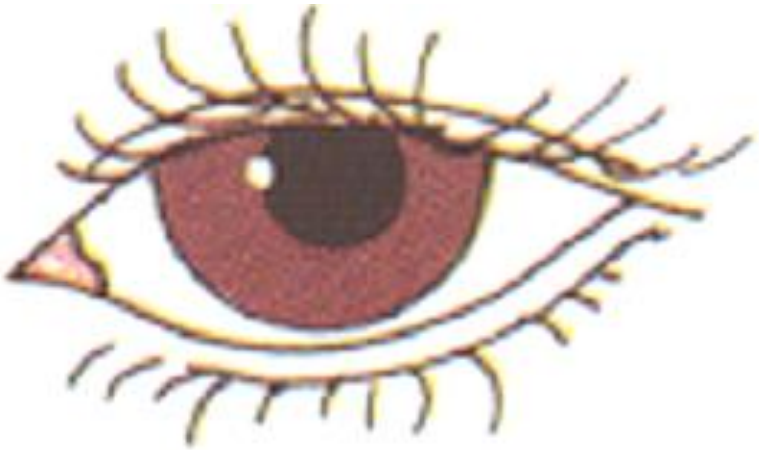
GENE
EYE COLOR

B

UPPER CASE ALLELE

B

GENE TERMS



GENE
EYE COLOR

B

DOMINATE ALLELE

L

b

GENE TERMS

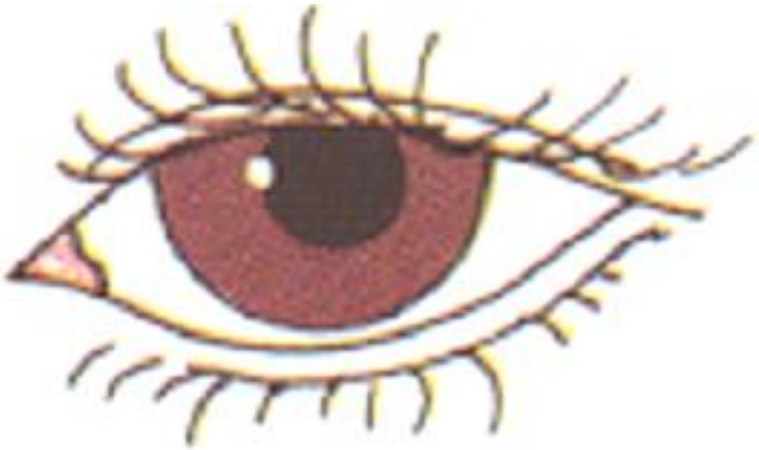
GENE
EYE COLOR

B

DOMINATE ALLELE
BROWN EYES

R

GENE TERMS



GENE
EYE COLOR

B

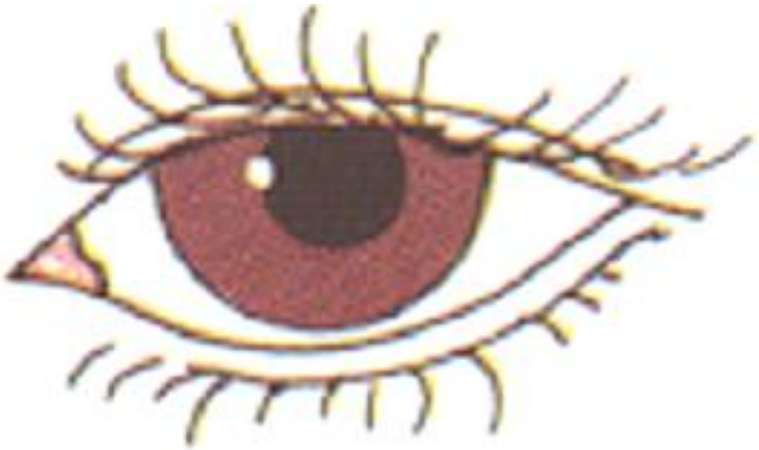
b

DOMINATE ALLELE BROWN EYES

LOWER CASE ALLELE

B

GENE TERMS



GENE
EYE COLOR

B

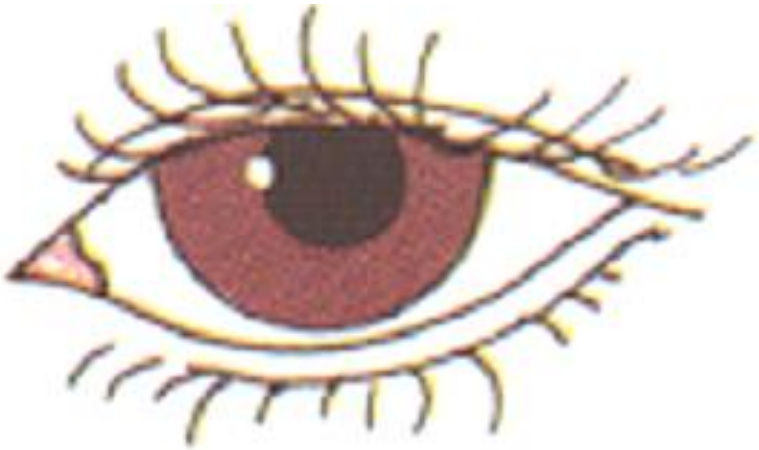
b

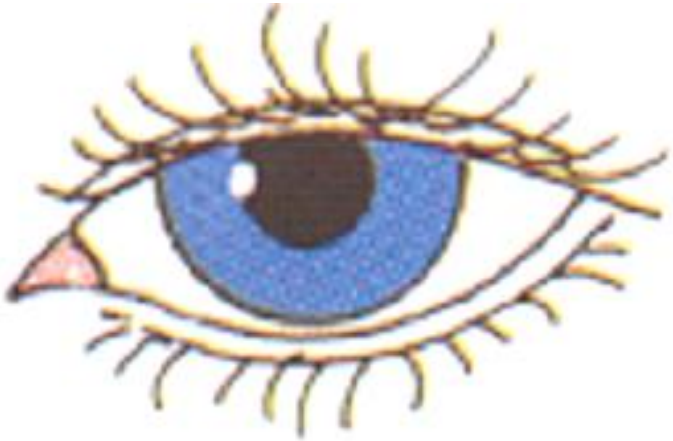
DOMINATE ALLELE BROWN EYES

RECESSIVE ALLELE

A

GENE TERMS





GENE
EYE COLOR

B

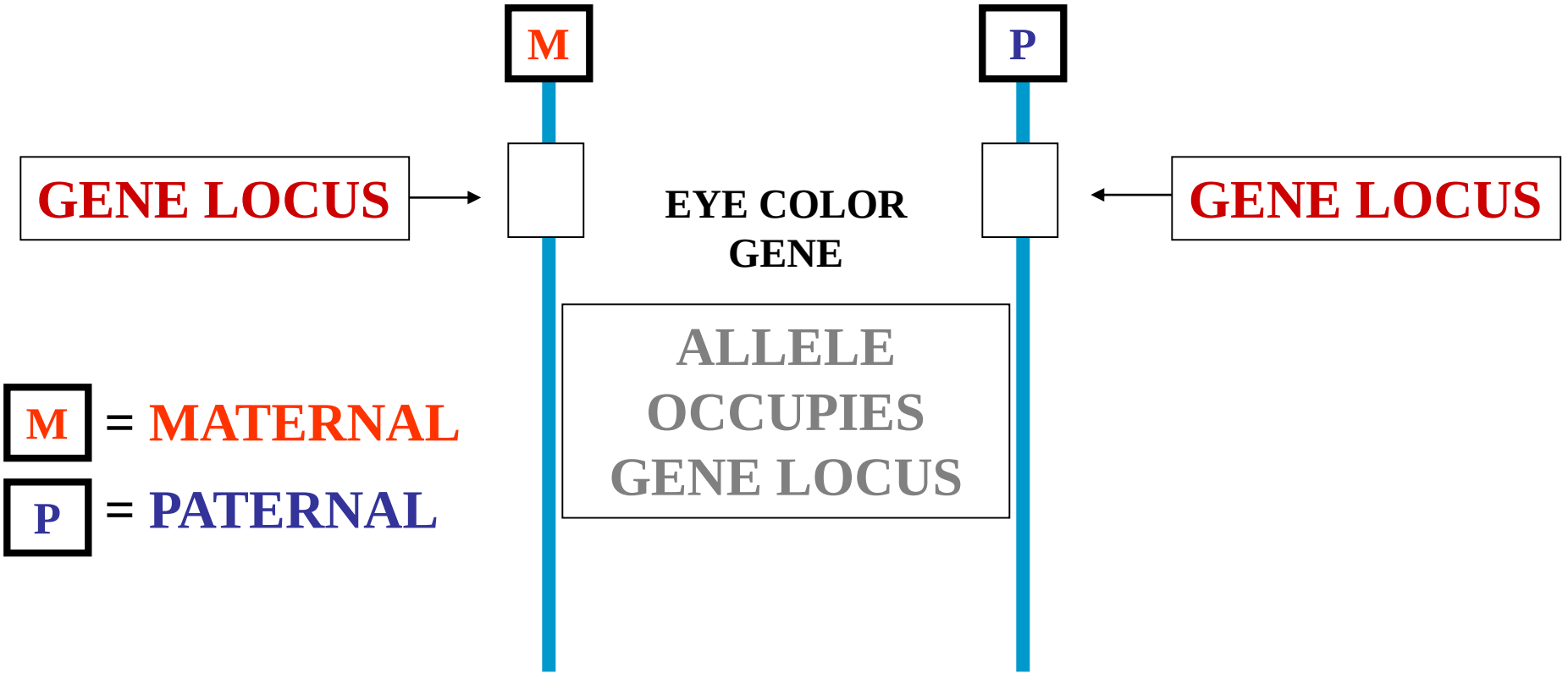
b

DOMINATE ALLELE BROWN EYES

RECESSIVE ALLELE BLUE EYES

B

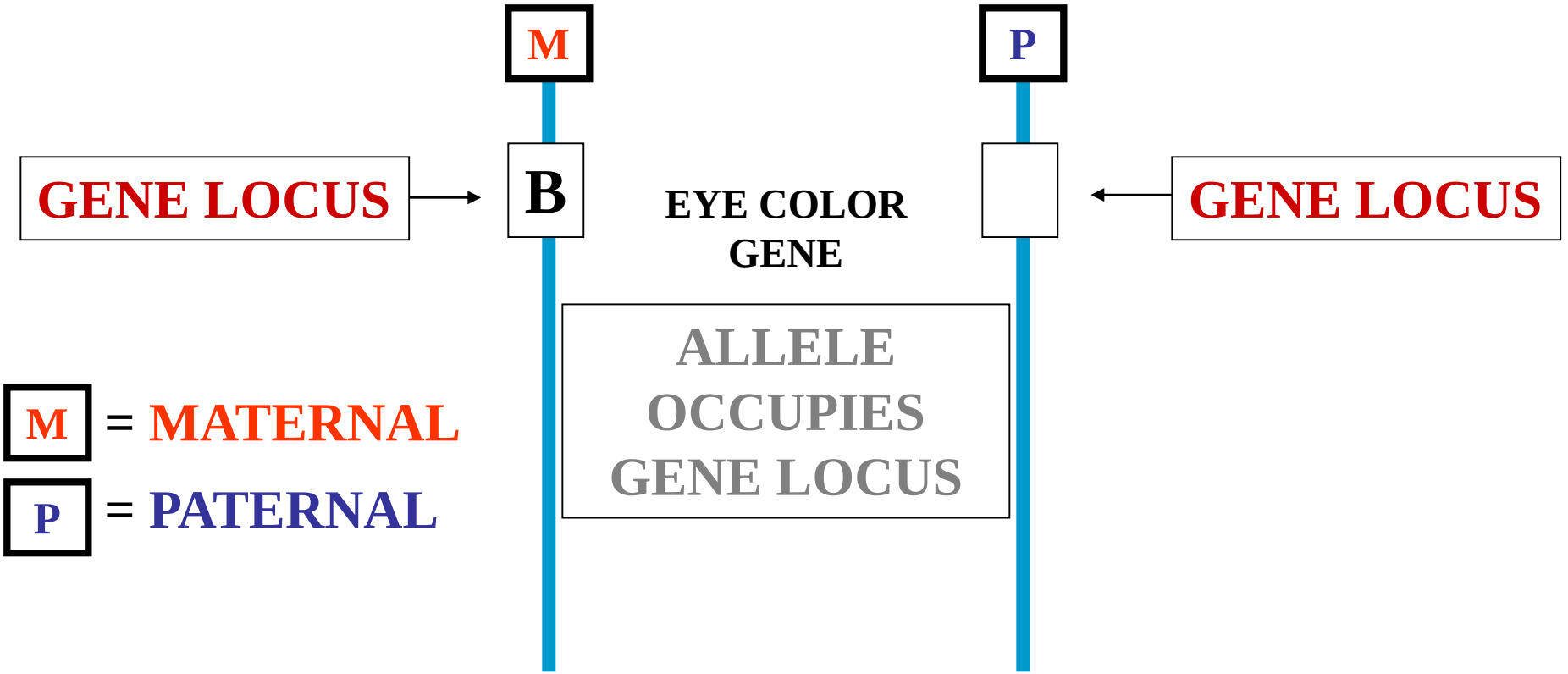
GENE TERMS



HOMOLOGOUS CHROMOSOMES

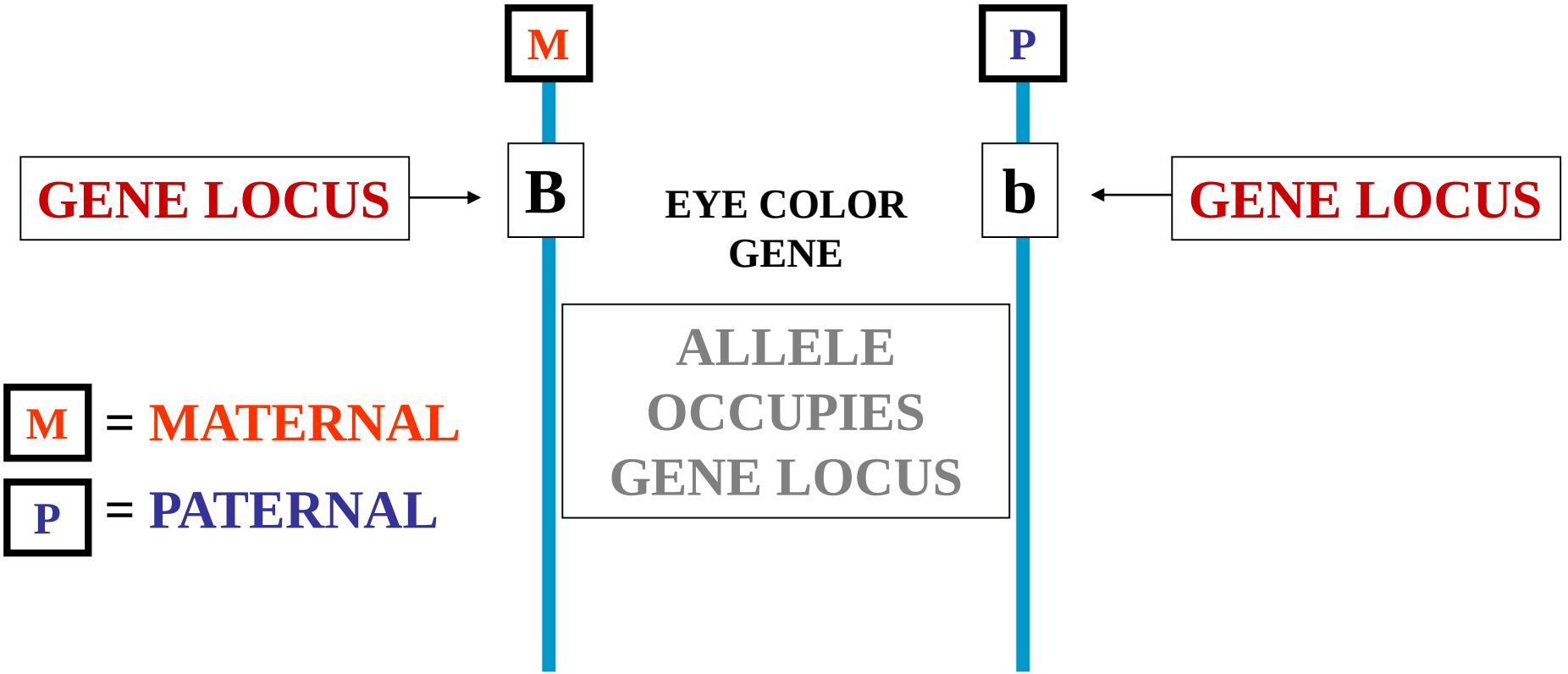
b

GENE TERMS



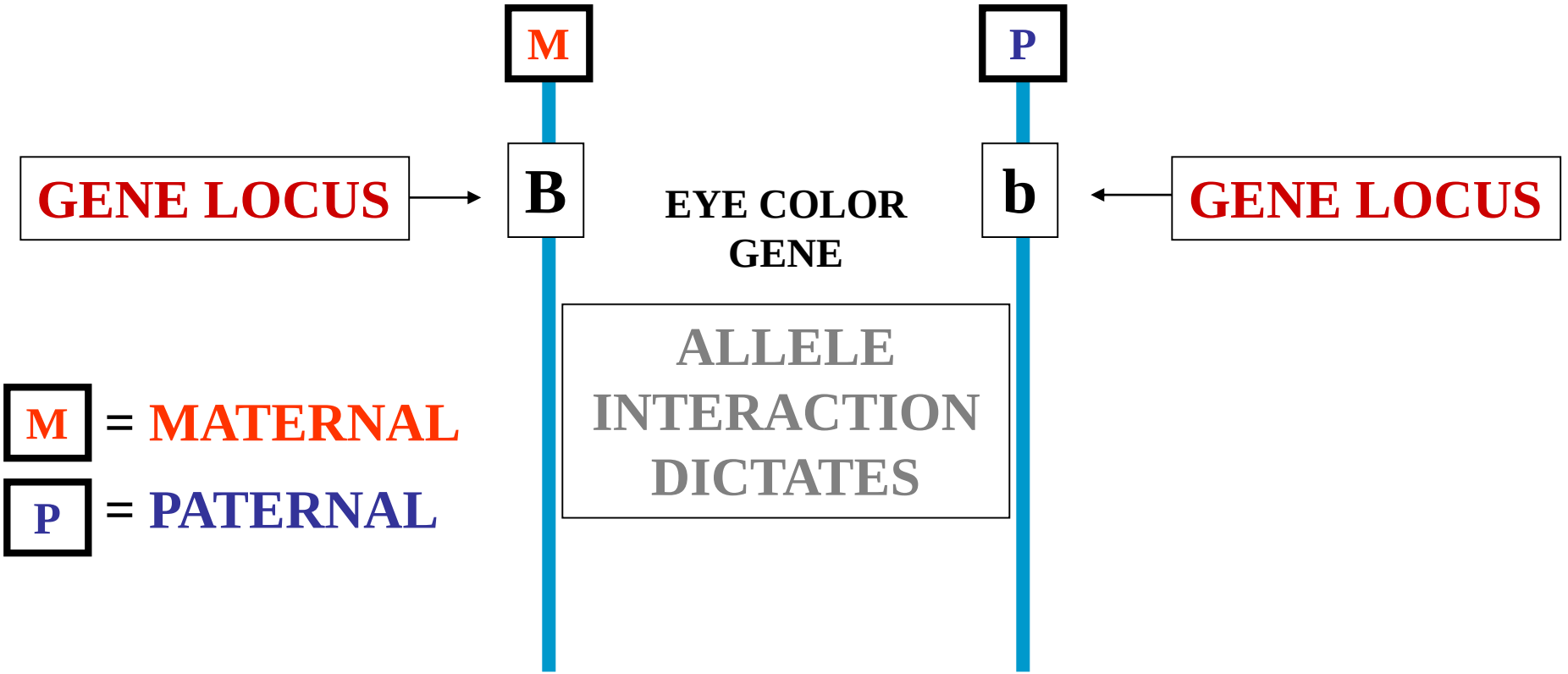
HOMOLOGOUS CHROMOSOMES

GENE TERMS



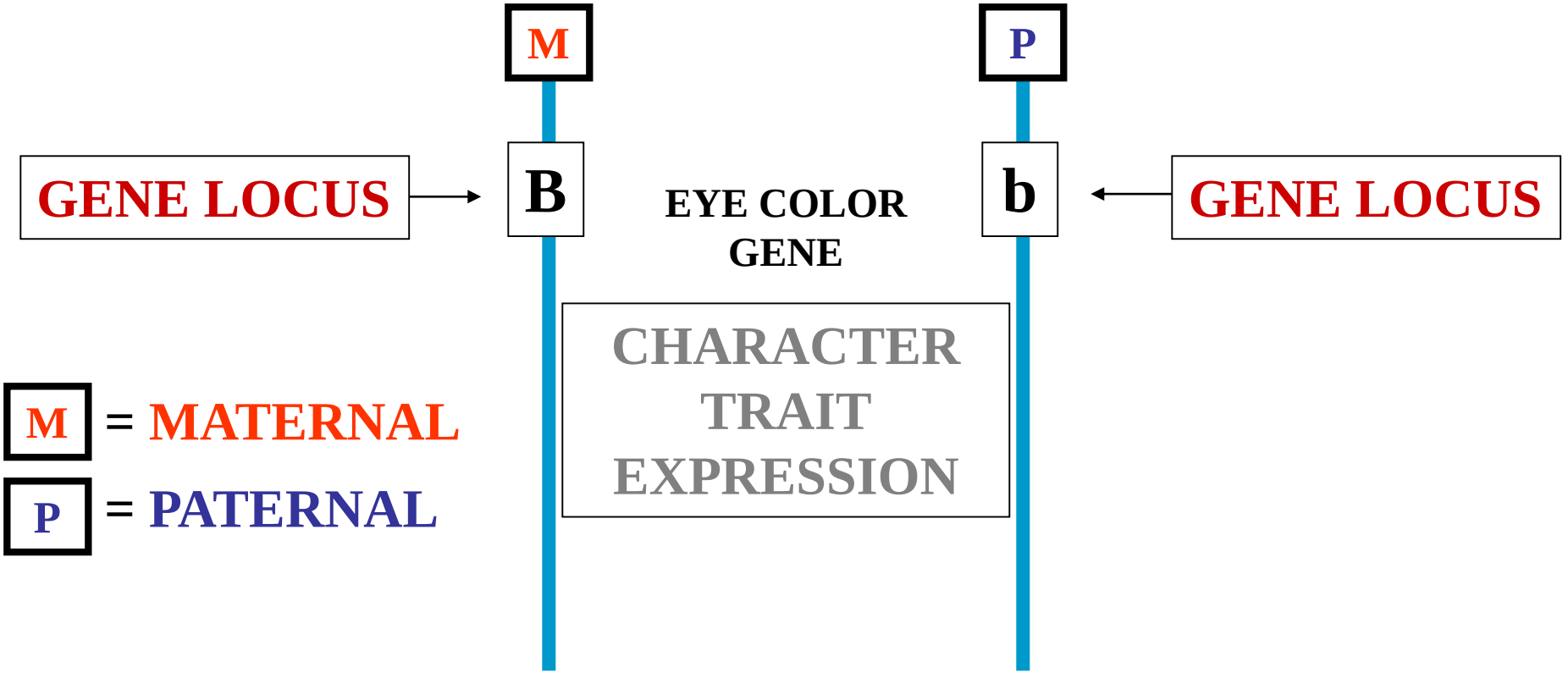
HOMOLOGOUS CHROMOSOMES

GENE TERMS



HOMOLOGOUS CHROMOSOMES

GENE TERMS



HOMOLOGOUS CHROMOSOMES

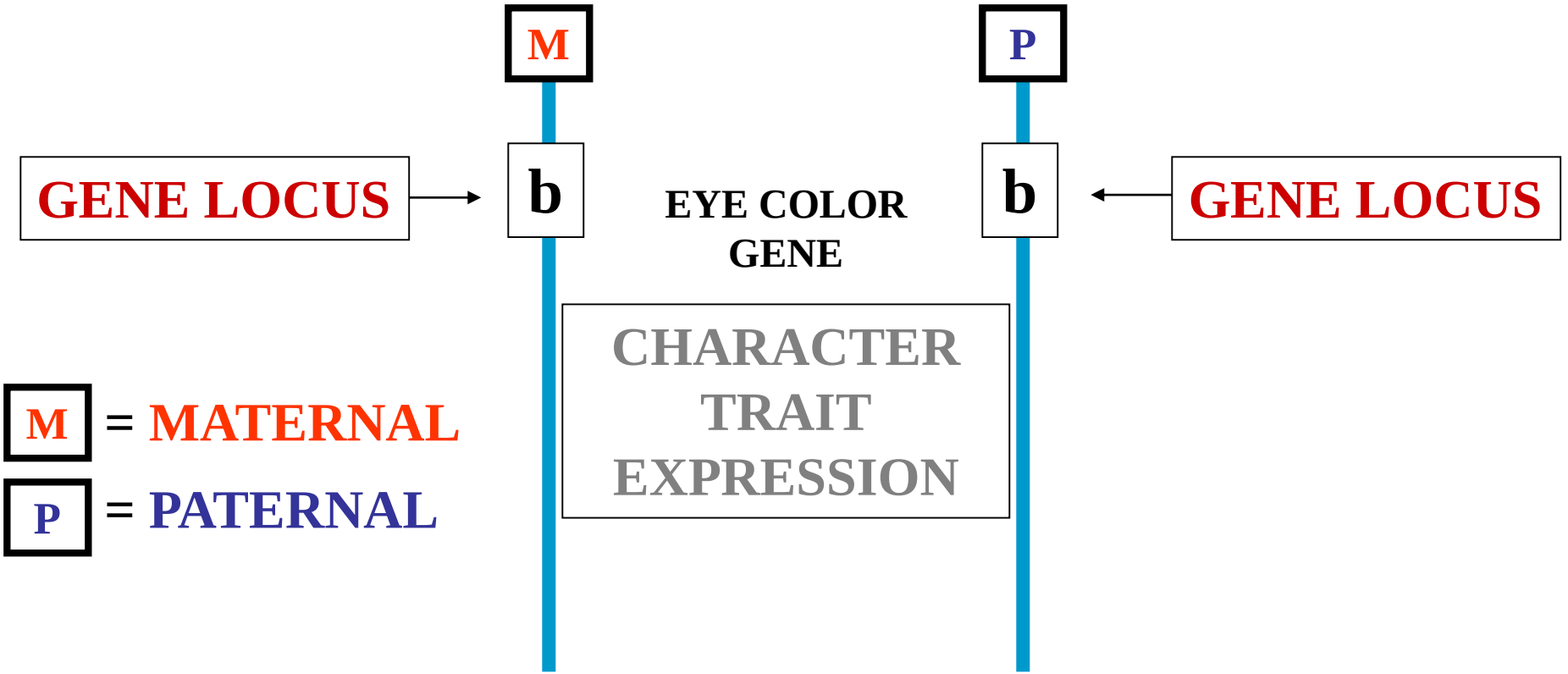
b
b

GENE TERMS

EYE COLOR

CHARACTER TRAIT EXPRESSION

GENE TERMS



HOMOLOGOUS CHROMOSOMES

GENE TERMS

EYE COLOR

CHARACTER TRAIT EXPRESSION

H

HOMOZYGOUS GENE VS HETEROZYGOUS GENE

HOMOZYGOUS GENE

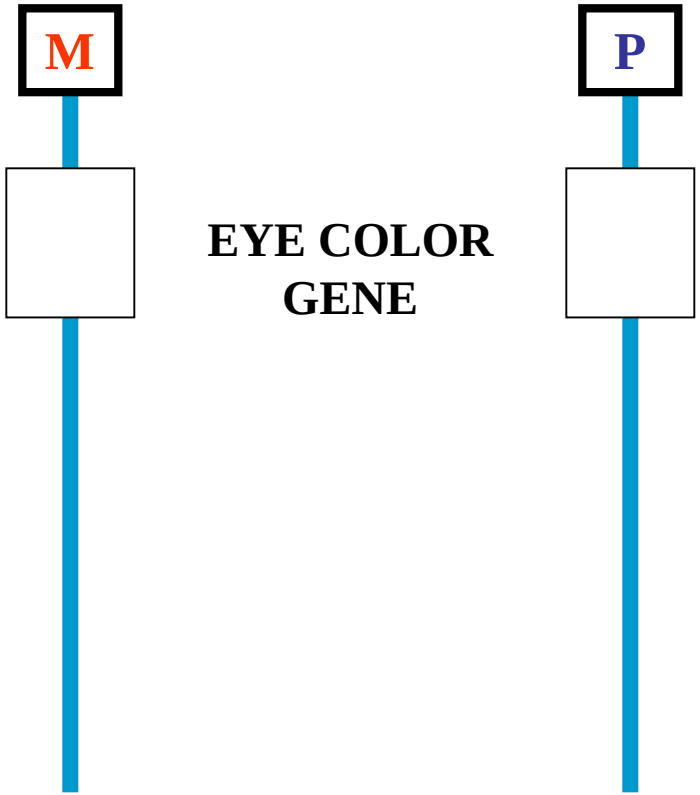
HOMOZYGOUS GENE

ALLELES IDENTICAL

HOMOZYGOUS GENE

HOMOZYGOUS VS HETERZYGOUS

B
B



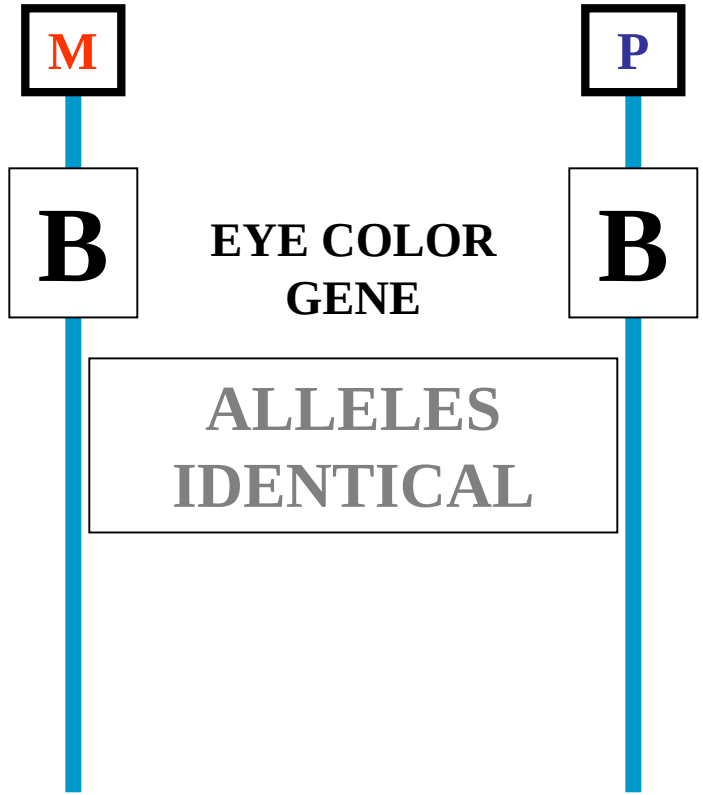
M = MATERNAL

P = PATERNAL

HOMOLOGOUS CHROMOSOMES

HOMOZYGOUS VS HETERZYGOUS

H



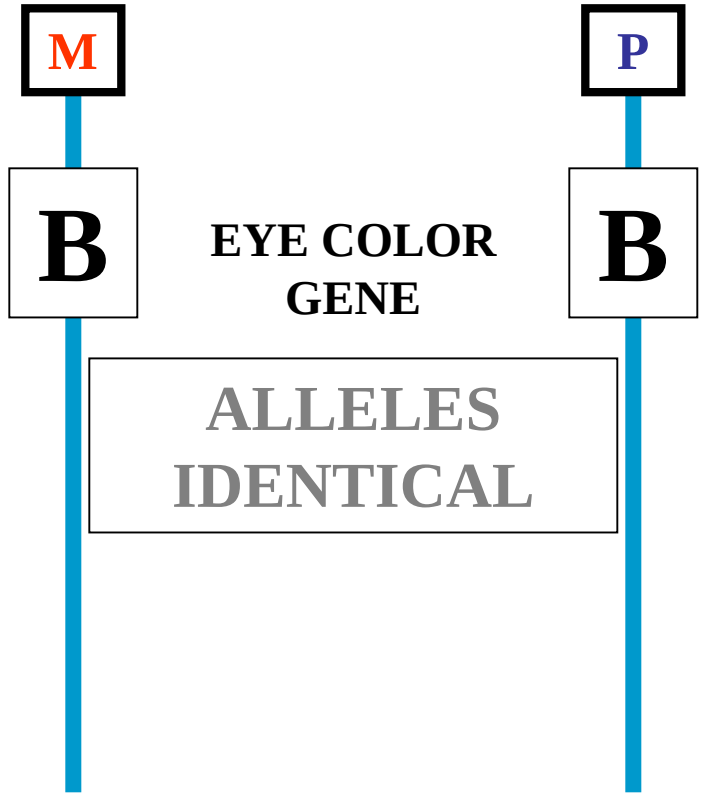
M = MATERNAL

P = PATERNAL

HOMOLOGOUS CHROMOSOMES

HOMOZYGOUS VS HETERZYGOUS

D



M = MATERNAL

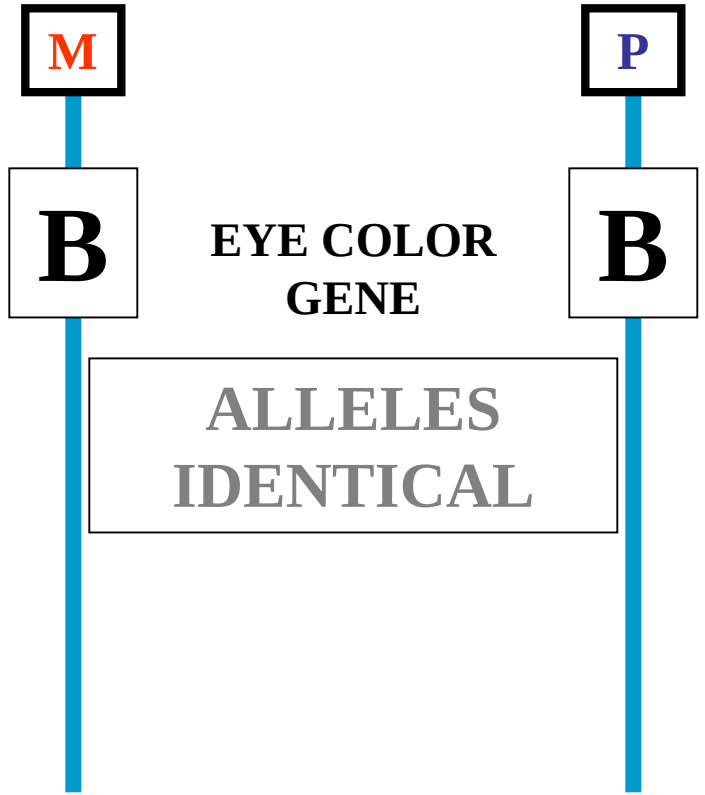
P = PATERNAL

HOMOZYGOUS GENE

HOMOZYGOUS VS HETERZYGOUS

H

!



M = MATERNAL

P = PATERNAL

HOMOZYGOUS DOMINATE GENE

HOMOZYGOUS DOMINATE GENE

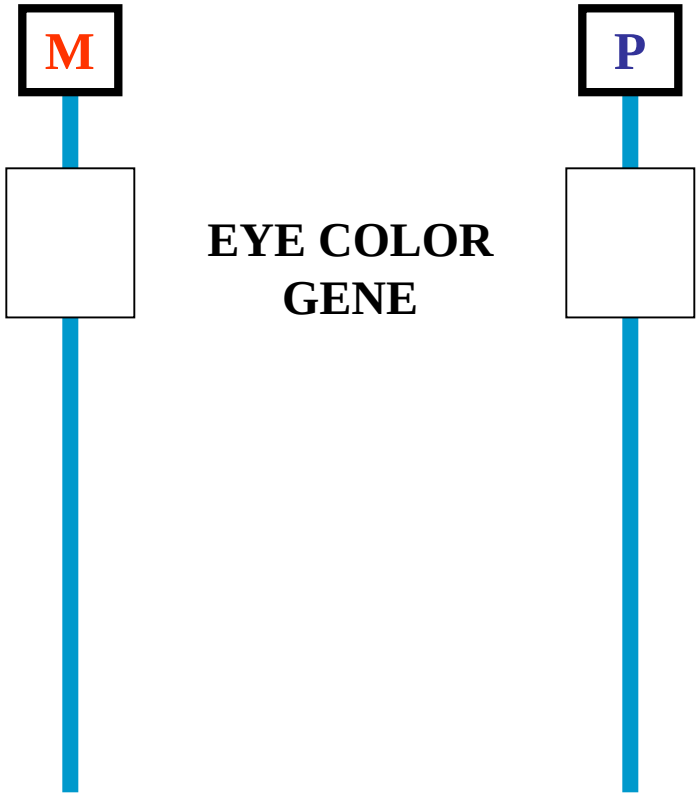
HOMOZYGOUS DOMINATE GENE

BOTH ALLELES DOMINANT

HOMOZYGOUS DOMINATE GENE

HOMOZYGOUS VS HETERZYGOUS

b
b



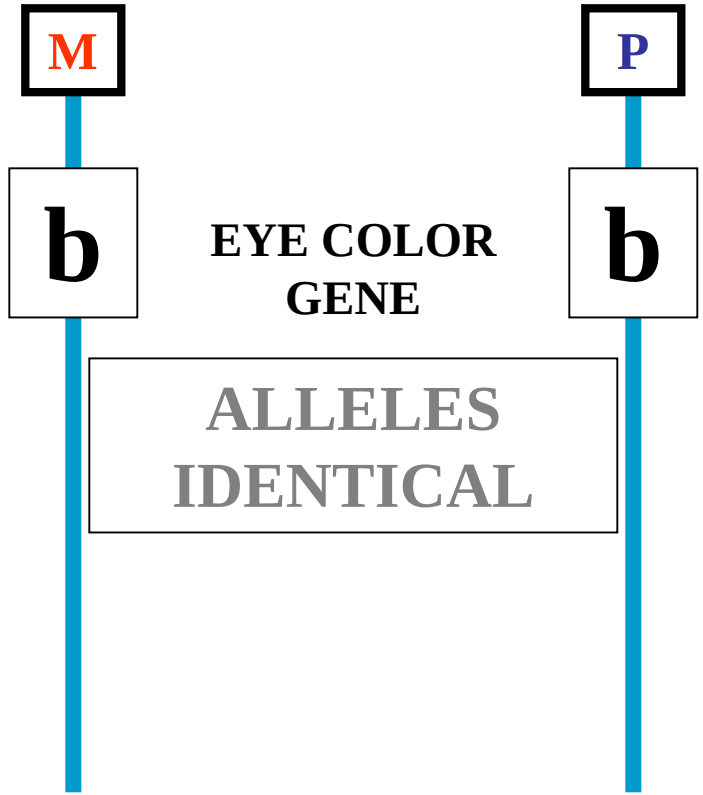
M = MATERNAL

P = PATERNAL

HOMOLOGOUS CHROMOSOMES

HOMOZYGOUS VS HETERZYGOUS

H



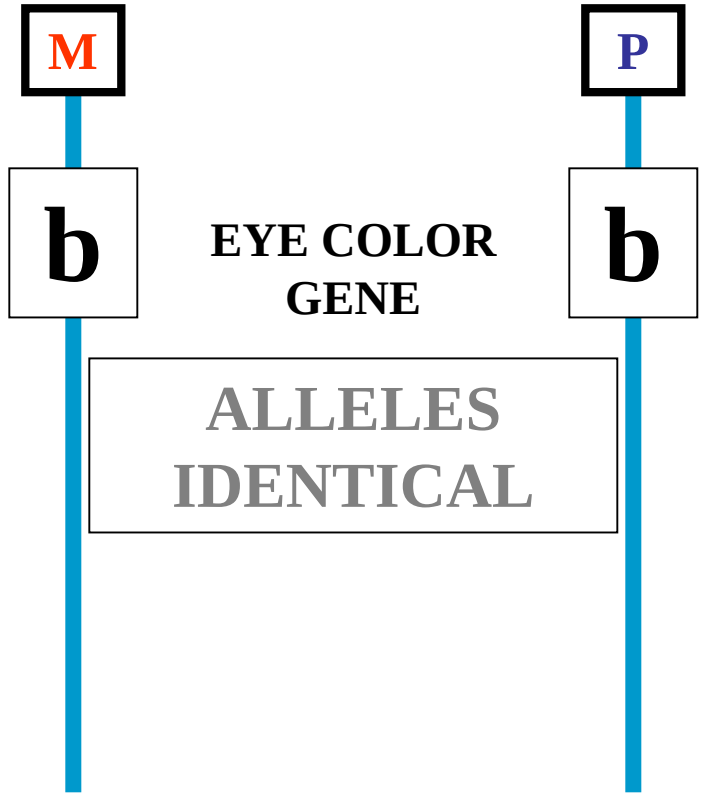
M = MATERNAL

P = PATERNAL

HOMOLOGOUS CHROMOSOMES

HOMOZYGOUS VS HETERZYGOUS

R



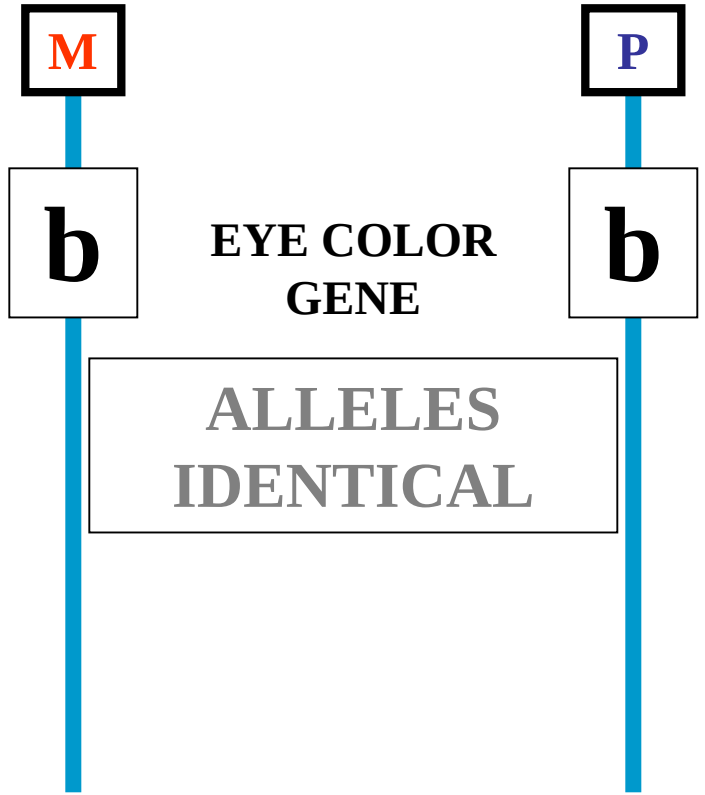
M = MATERNAL

P = PATERNAL

HOMOZYGOUS GENE

HOMOZYGOUS VS HETERZYGOUS

H
!



M = MATERNAL

P = PATERNAL

HOMOZYGOUS RECESSIVE GENE

HOMOZYGOUS RECESSIVE GENE

^
H

HOMOZYGOUS RECESSIVE GENE

BOTH ALLELES RECESSIVE

HOMOZYGOUS RECESSIVE GENE

HETEROZYGOUS GENE

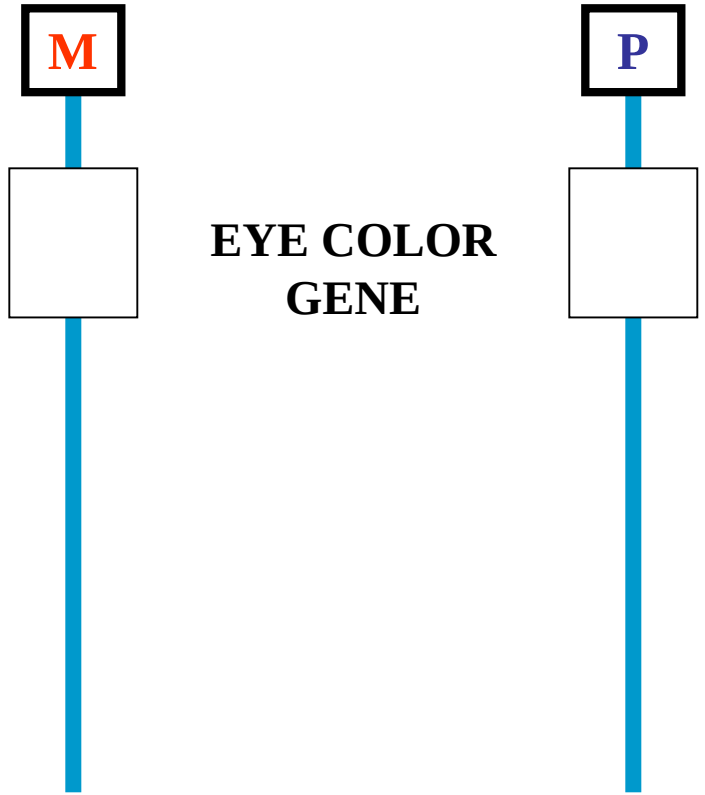
HETEROZYGOUS GENE

ALLELES DIFFER

HETEROZYGOUS GENE

HOMOZYGOUS VS HETERZYGOUS

b
B

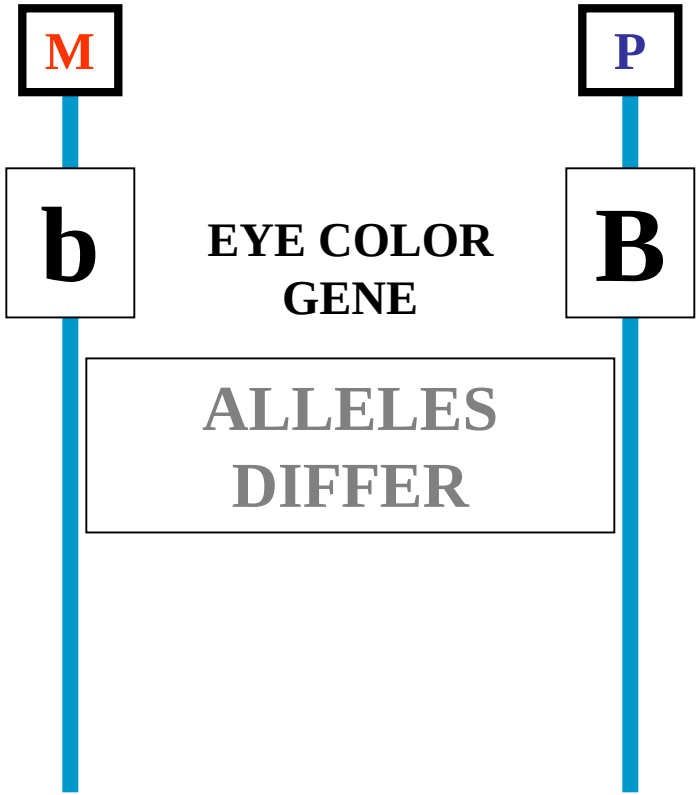


M = MATERNAL

P = PATERNAL

HOMOLOGOUS CHROMOSOMES

HOMOZYGOUS VS HETERZYGOUS



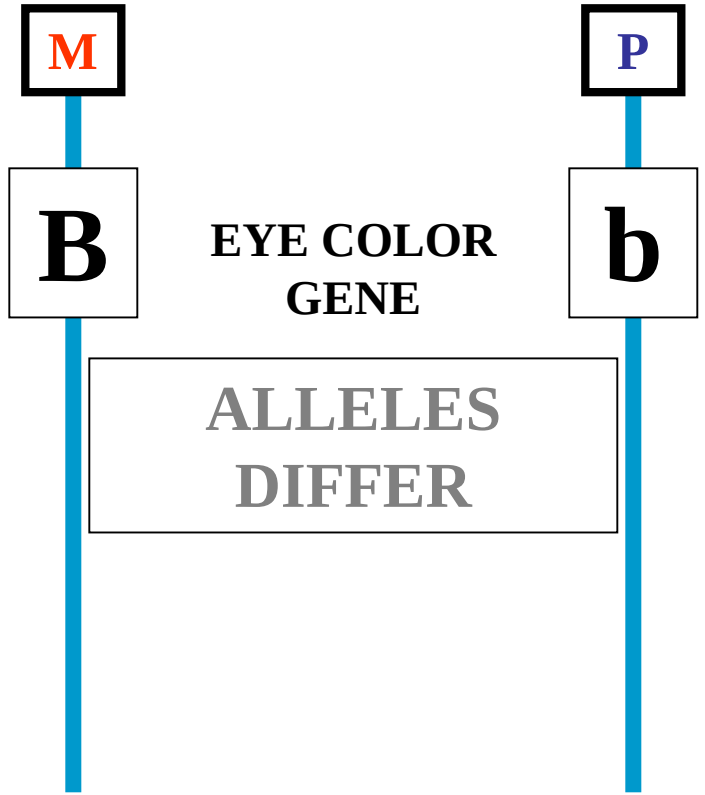
M = MATERNAL

P = PATERNAL

HOMOLOGOUS CHROMOSOMES

HOMOZYGOUS VS HETERZYGOUS

H

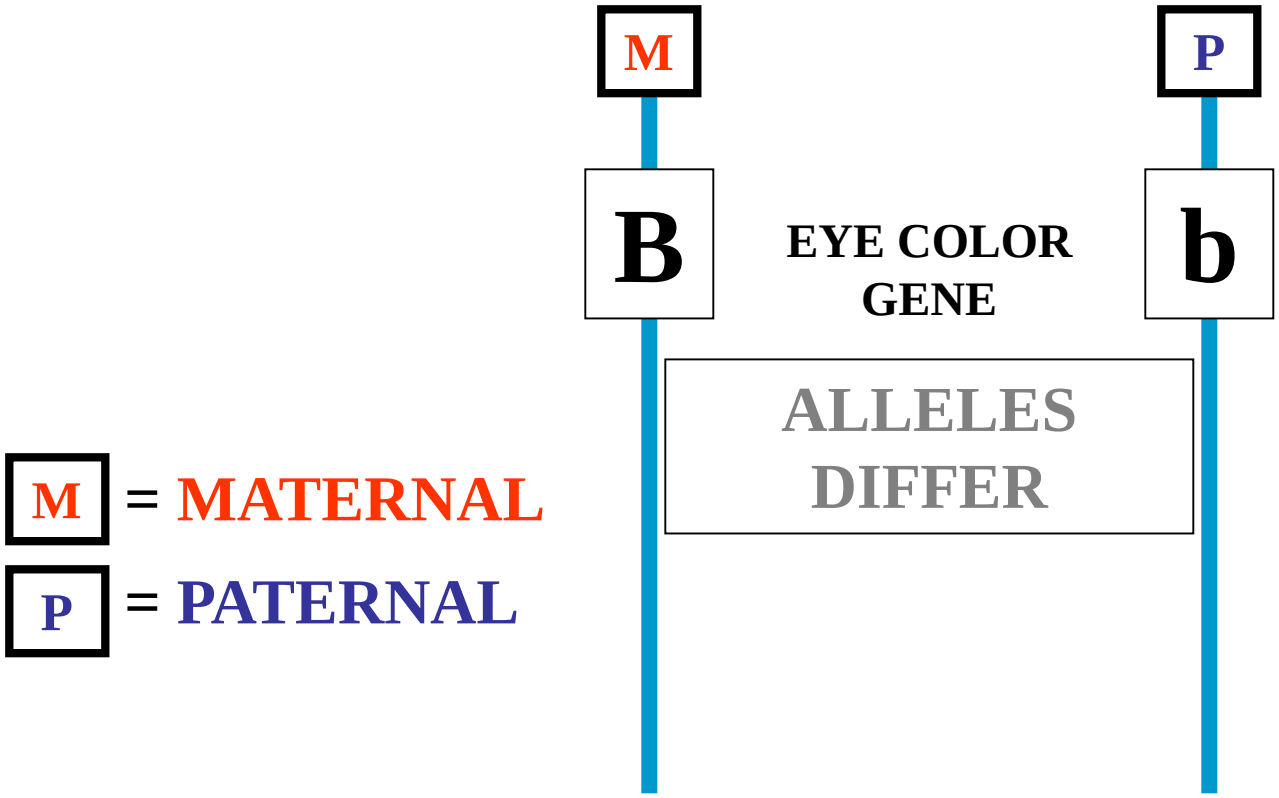


M = MATERNAL

P = PATERNAL

HOMOLOGOUS CHROMOSOMES

HOMOZYGOUS VS HETERZYGOUS



HETEROZYGOUS GENE

G

GENOTYPE
VS
PHENOTYPE

GENOTYPE

P

GENOTYPE

GENE/ALLELE COMBINATION

GENOTYPE

PHENOTYPE

PHENOTYPE

GENE/ALLELE EXPRESSION

PHENOTYPE

GENOTYPE VS PHENOTYPE APPLIED

CONSULT POWERPOINT LECTURE NOTES

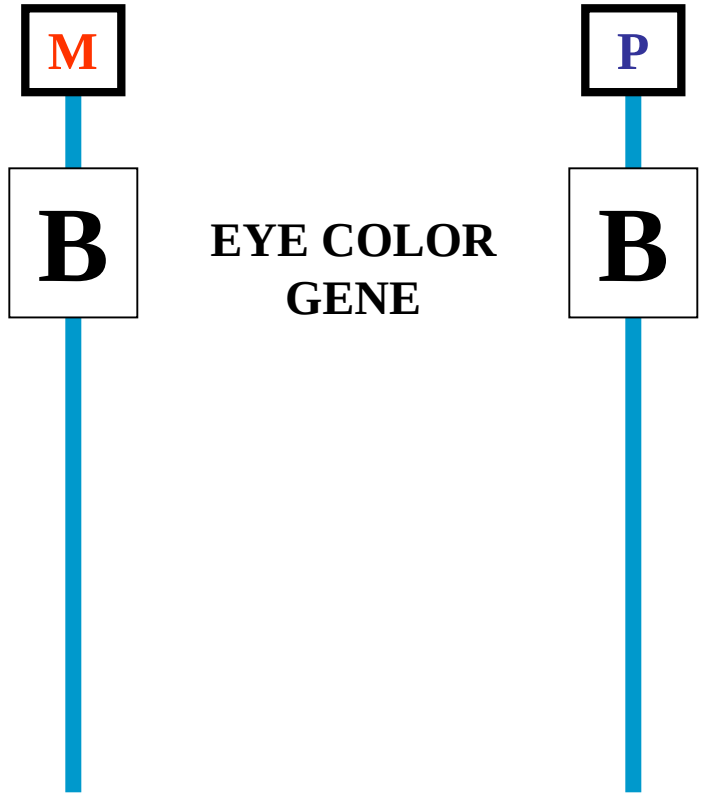
EG

GENE TERMS SUMMARY

GENE TERMS SUMMARY EXAMPLE #1

G

GENE TERMS SUMMARY

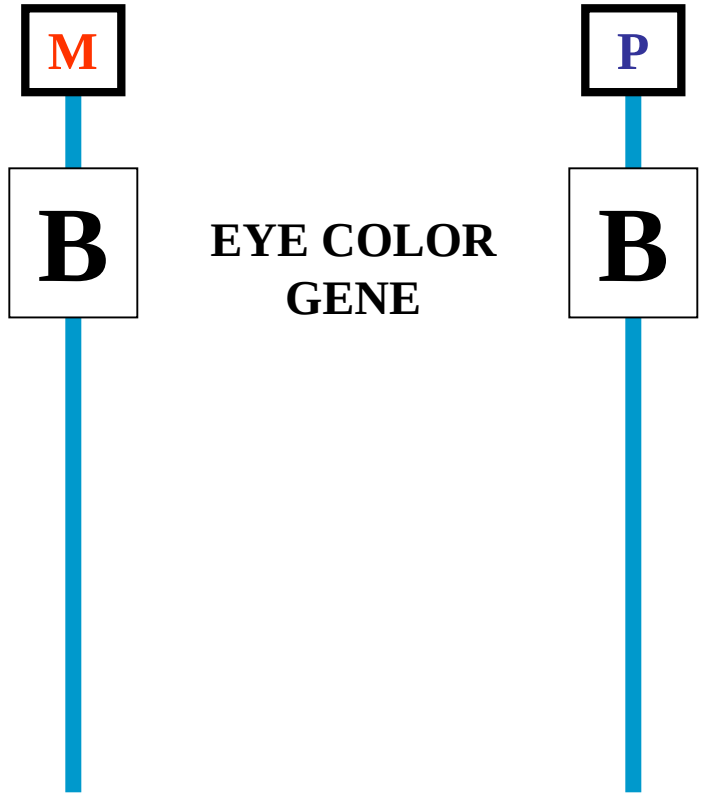


M = MATERNAL

P = PATERNAL

HOMOLOGOUS CHROMOSOMES

GENE TERMS SUMMARY

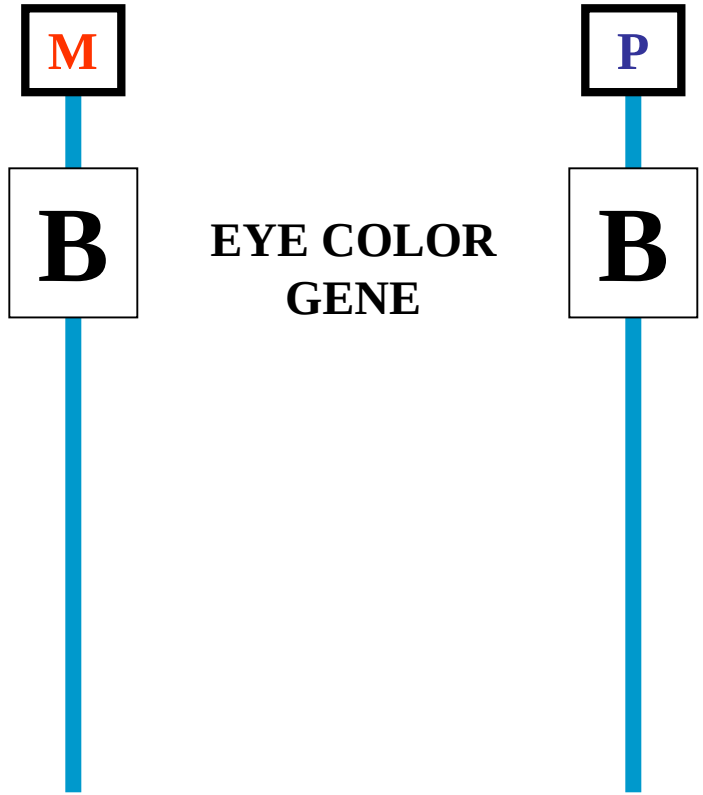


M = MATERNAL

P = PATERNAL

GENOTYPE

GENE TERMS SUMMARY

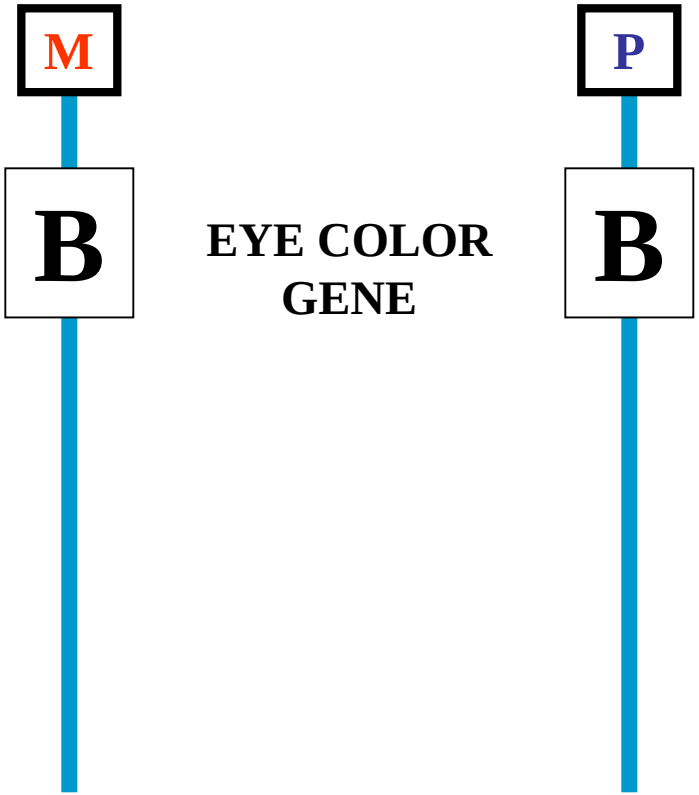


M = MATERNAL

P = PATERNAL

HOMOZYGOUS GENE

GENE TERMS SUMMARY

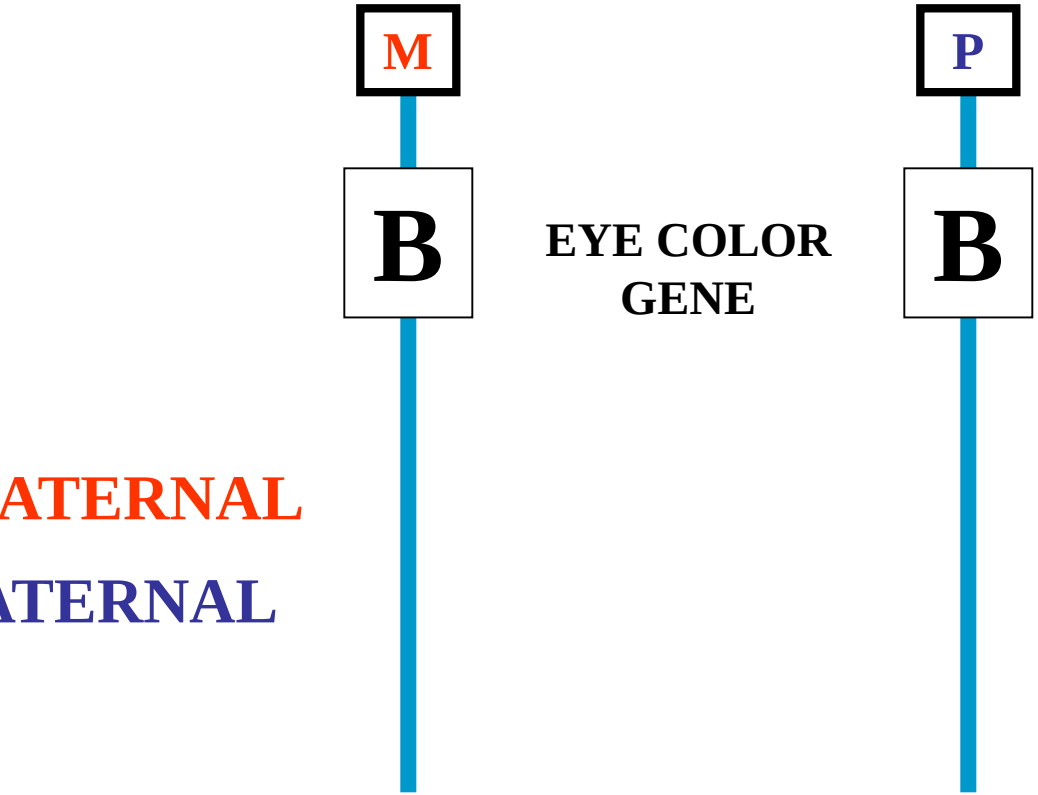


M = MATERNAL

P = PATERNAL

HOMOZYGOUS DOMINANT

GENE TERMS SUMMARY



M = MATERNAL

P = PATERNAL

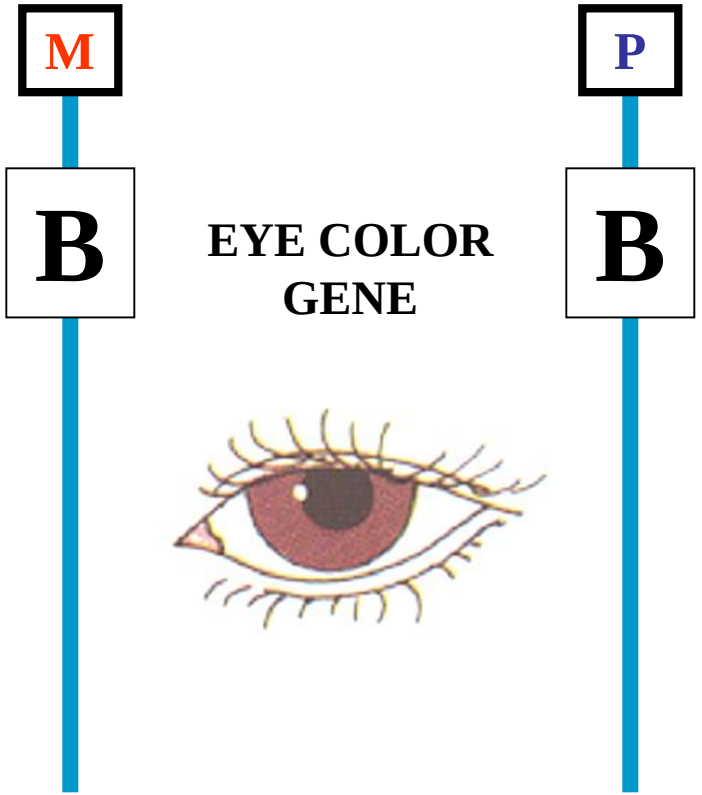
PHENOTYPE

EG

GENE TERMS SUMMARY

M = MATERNAL

P = PATERNAL

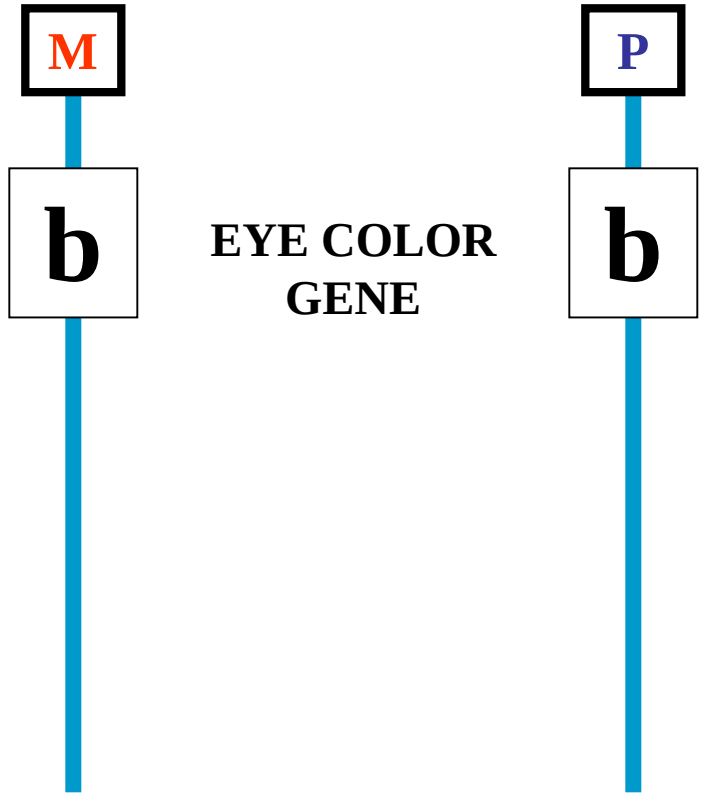


HOMOZYGOUS DOMINANT
BROWN EYES

GENE TERMS SUMMARY EXAMPLE #2

G

GENE TERMS SUMMARY

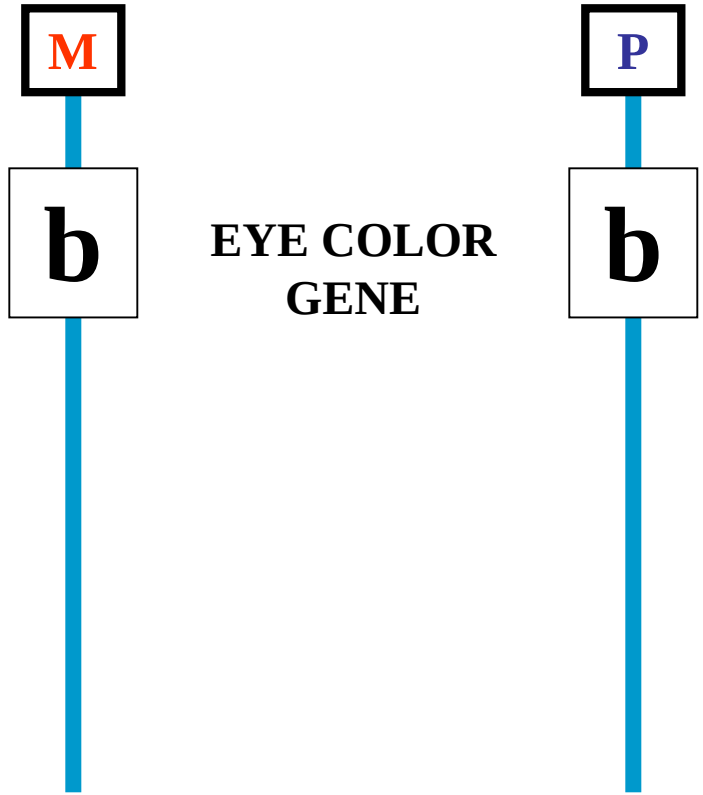


M = MATERNAL

P = PATERNAL

HOMOLOGOUS CHROMOSOMES

GENE TERMS SUMMARY

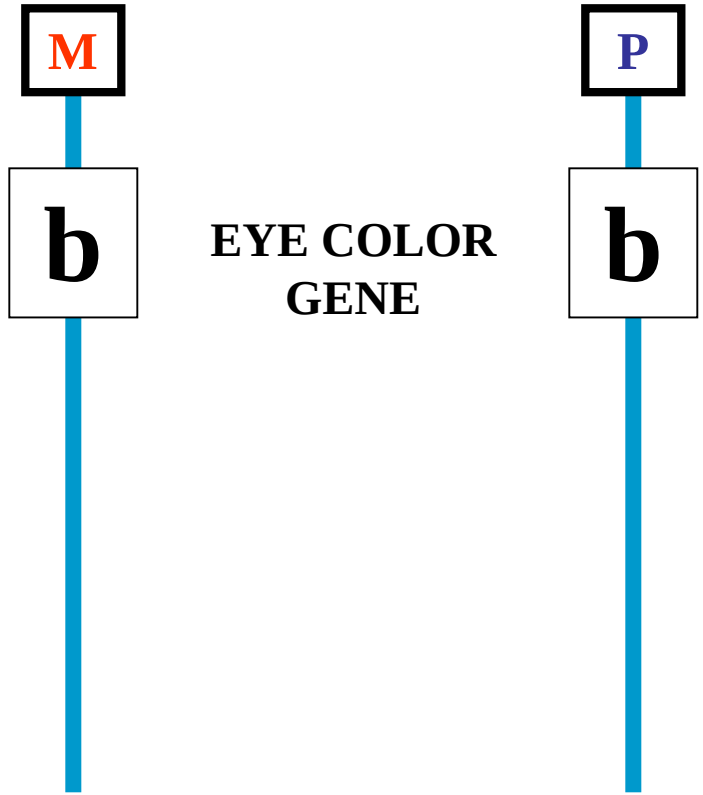


M = MATERNAL

P = PATERNAL

GENOTYPE

GENE TERMS SUMMARY

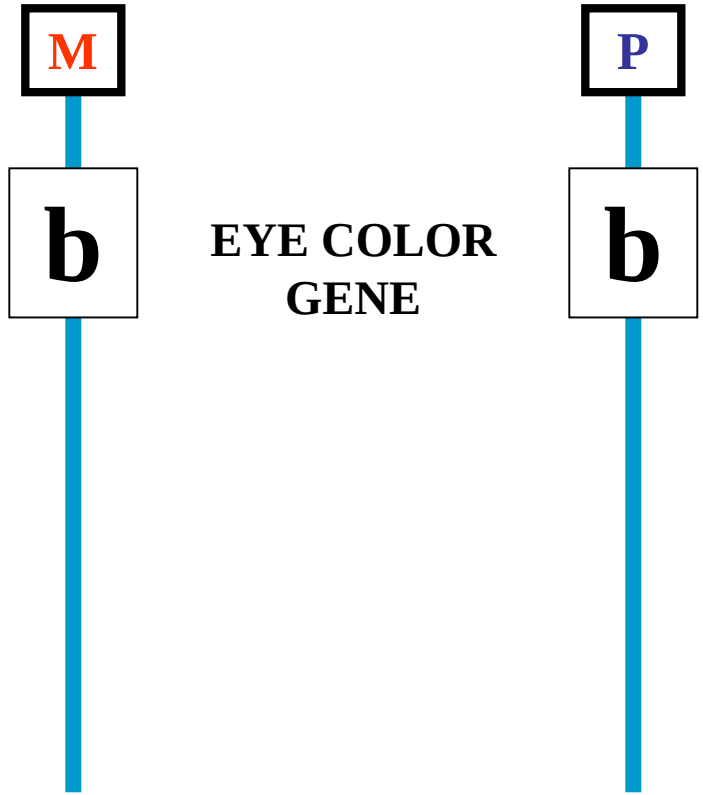


M = MATERNAL

P = PATERNAL

HOMOZYGOUS GENE

GENE TERMS SUMMARY

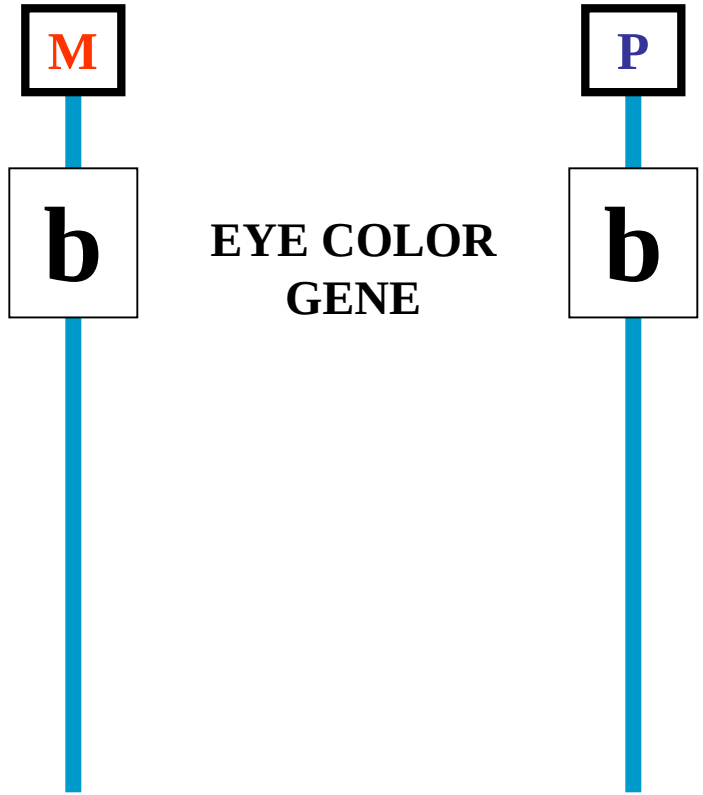


M = MATERNAL

P = PATERNAL

HOMOZYGOUS RECESSIVE

GENE TERMS SUMMARY



M = MATERNAL

P = PATERNAL

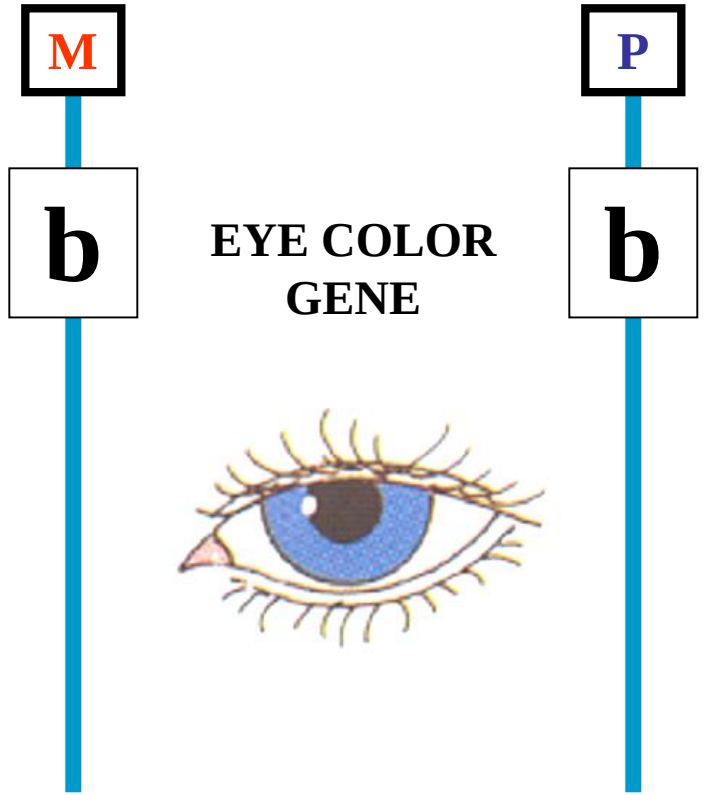
PHENOTYPE

EG

GENE TERMS SUMMARY

M = MATERNAL

P = PATERNAL

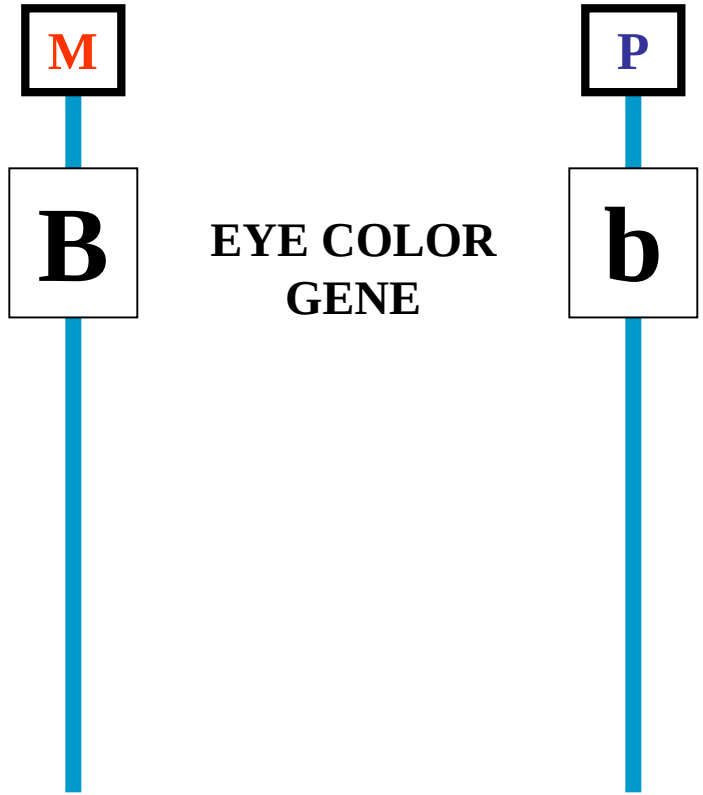


HOMOZYGOUS RECESSIVE BLUE EYES

GENE TERMS SUMMARY EXAMPLE #3

G

GENE TERMS SUMMARY

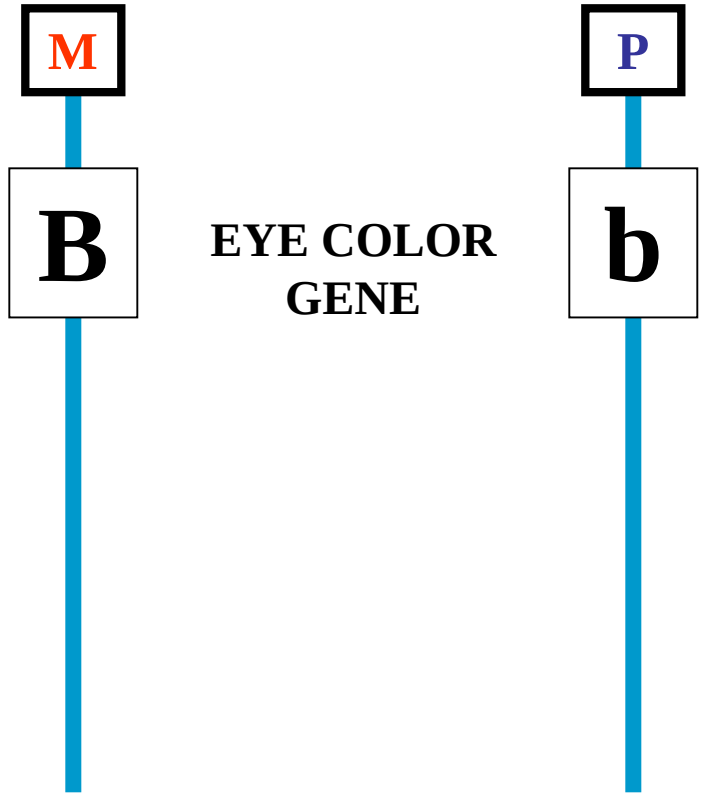


M = MATERNAL

P = PATERNAL

HOMOLOGOUS CHROMOSOMES

GENE TERMS SUMMARY

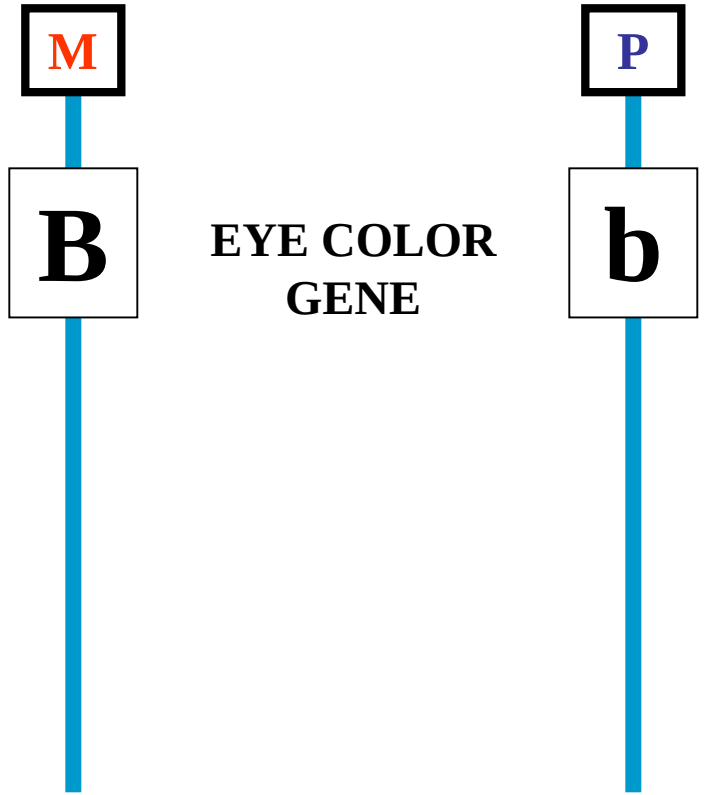


M = MATERNAL

P = PATERNAL

GENOTYPE

GENE TERMS SUMMARY

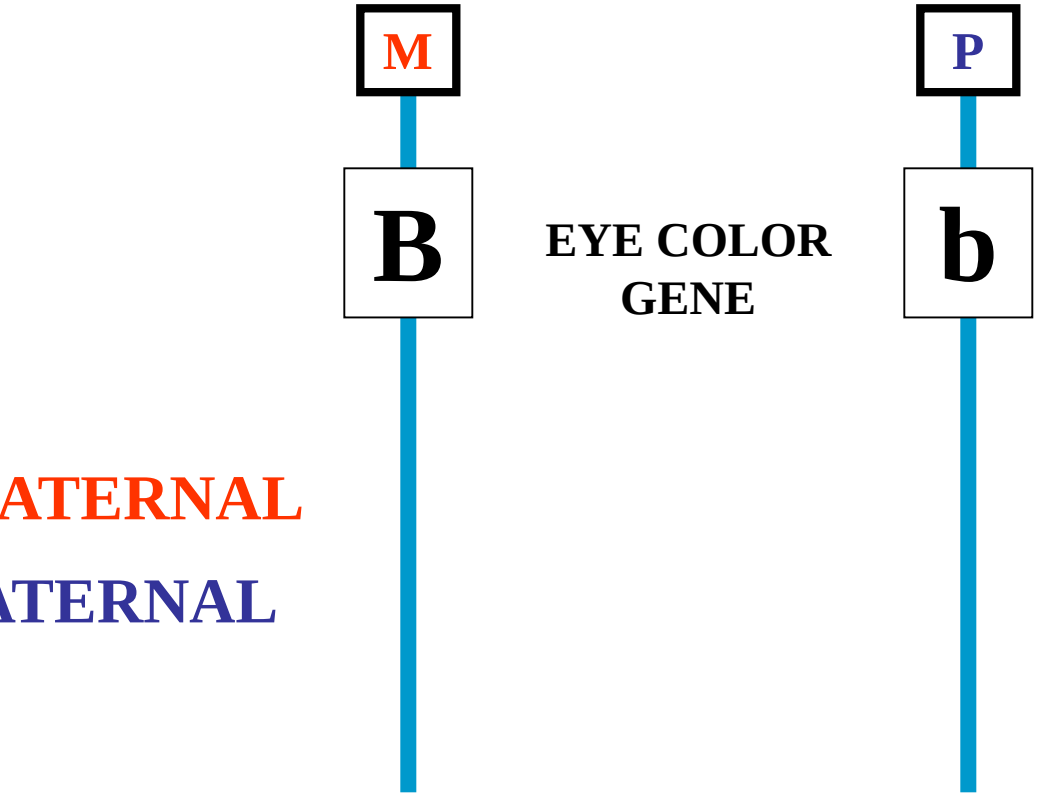


M = MATERNAL

P = PATERNAL

HETEROZYGOUS GENE

GENE TERMS SUMMARY



M = MATERNAL

P = PATERNAL

PHENOTYPE

GENE TERMS SUMMARY

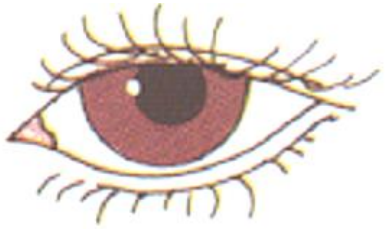
M = MATERNAL

P = PATERNAL

M

B

EYE COLOR GENE



P

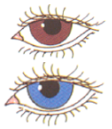
b

HETEROZYGOUS GENE
BROWN EYES

MONO-HYBRID CROSS

MONO-HYBRID CROSS

MONO-HYBRID CROSS

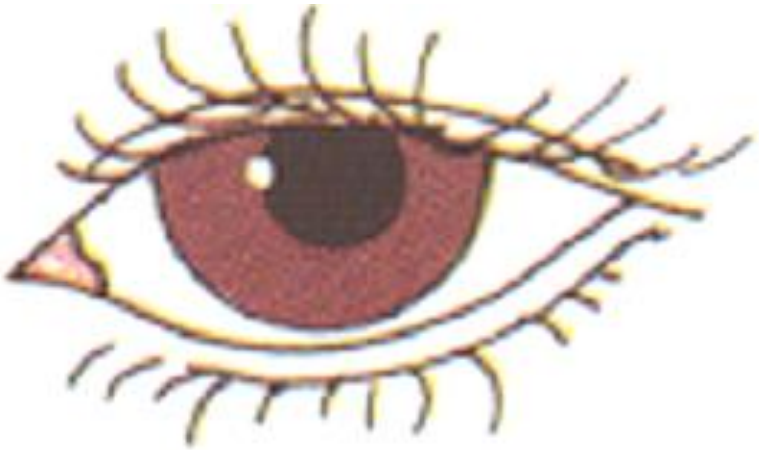


1 CHARACTER CROSS

MONO-HYBRID CROSS

B

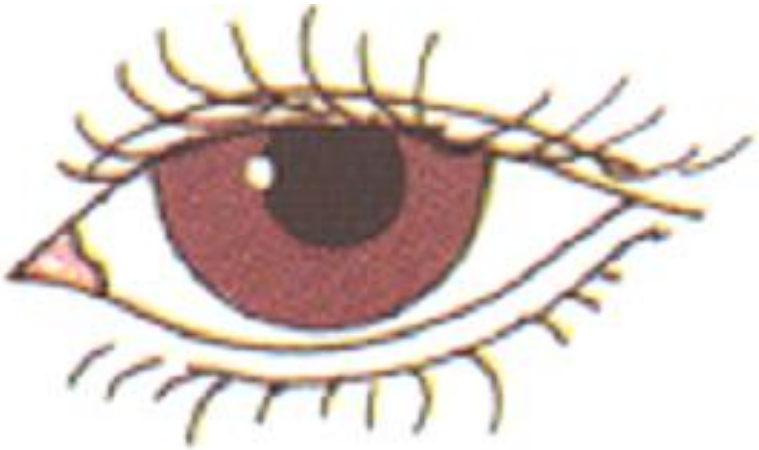
MONO-HYBRID CROSS



EYE COLOR

b

MONO-HYBRID CROSS

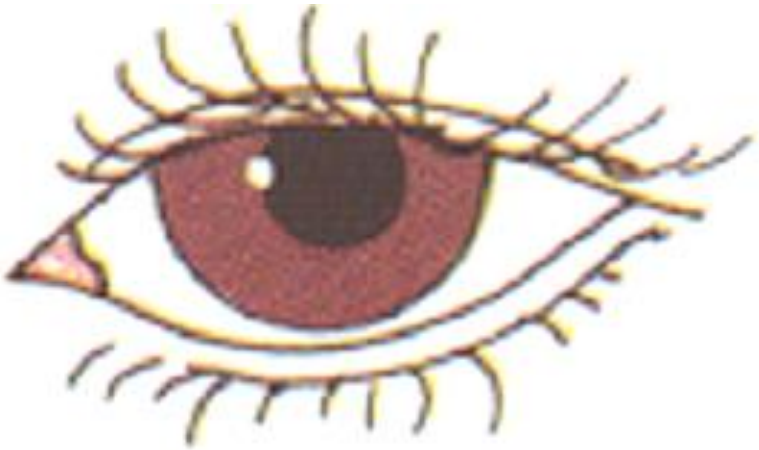


EYE COLOR

B

DOMINATE ALLELE BROWN EYES

MONO-HYBRID CROSS



EYE COLOR

B	b
DOMINATE ALLELE BROWN EYES	RECESSIVE ALLELE BLUE EYES

MONO-HYBRID CROSS EXAMPLE #1

HOMOZYGOUS DOMINANT INDIVIDUAL

X

HOMOZYGOUS RECESSIVE INDIVIDUAL

MONO-HYBRID CROSS

BB :

MONO-HYBRID CROSS

BB x bb

MONO-HYBRID CROSS

?

P1 = BB x bb

P1 = PARENTAL GENERATION

QUESTION

A

WHAT TOOL DO BIOLOGISTS USE TO DETERMINE GENOTYPIC RATIOS AND PHENOTYPIC RATIOS?

QUESTION

P

ANSWER

PUNNETT-SQUARE

ANSWER

PUNNETT-SQUARE

PUNNETT-SQUARE

METHOD PREDICTING GENOTYPIC & PHENOTYPIC OFFSPRING RATIOS

PUNNETT- SQUARE

G

GAMETE NUMBER PER PARENT

F

GAMETE NUMBER FORMULA

GAMETE NUMBER FORMULA

$$2^N$$

N = NO. OF CHARACTERS

GAMETE NUMBER FORMULA

$$1$$

$$2$$

N = NO. OF CHARACTERS

2

GAMETES/PARENT PUNNETT-SQUARE

MONO-HYBRID CROSS

P1 = BB x bb

1ST PARENT

PUNNETT SQUARE

= GAMETE

MONO-HYBRID CROSS

P1 = BB x bb

PUNNETT SQUARE

= GAMETE

MONO-HYBRID CROSS

P1 = BB x bb

2ND PARENT

PUNNETT SQUARE

= GAMETE

MONO-HYBRID CROSS

P1 = BB x bb

PUNNETT SQUARE

= GAMETE