

Final exam: Mon 12/14 11:00 am - 1:00 pm

DNA:

← transcription

TTCTGCTGAACACTTTTTGAAAACACTGGAGAGTGCACACTCATG

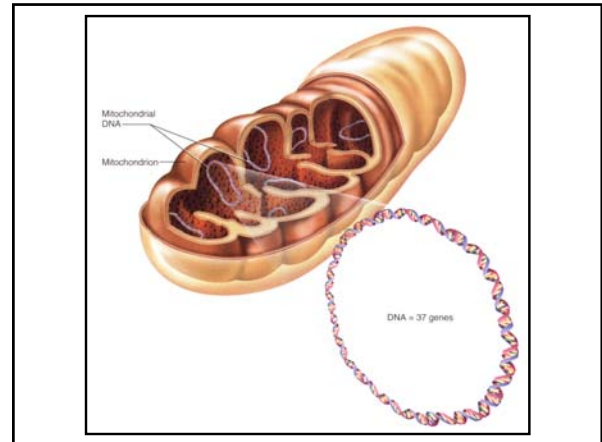
polypeptide:

methionine – lysine – cysteine – phenylalanine – glutamine – lysine

methionine codon: TAC

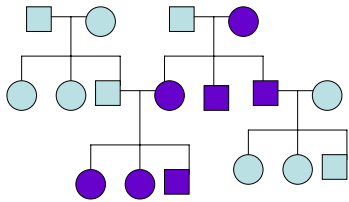
lysine codons: TTT, TTC

cystine: ACA, ACG



Mitochondrial DNA

mtDNA



Sex – influenced traits (autosomal)



Alleles:

B – bald; N – not bald

B is dominant in males

N is dominant in females

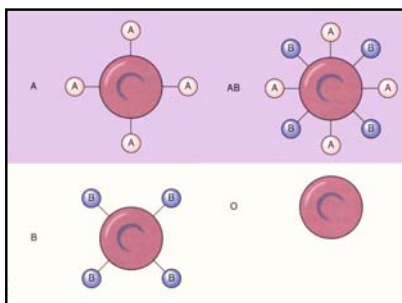


bald $\begin{matrix} BB \\ BN \\ NN \end{matrix}$

bald $\begin{matrix} BB \\ BN \\ NN \end{matrix}$

Male Pattern Baldness - a Sex-Influenced Trait

Multiple alleles



Human Blood Types

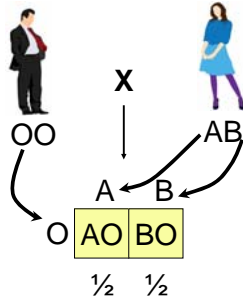
A Mendelian System with Three Alleles and Codominance

ABO Blood Groups

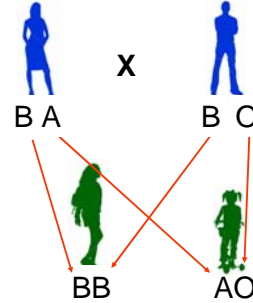
alleles – A, B, and O

genotype	blood group	can accept blood from
OO	O	O
AA	A	A, O
AO	A	A, O
BB	B	B, O
BO	B	B, O
AB	AB	AB, A, B, O,

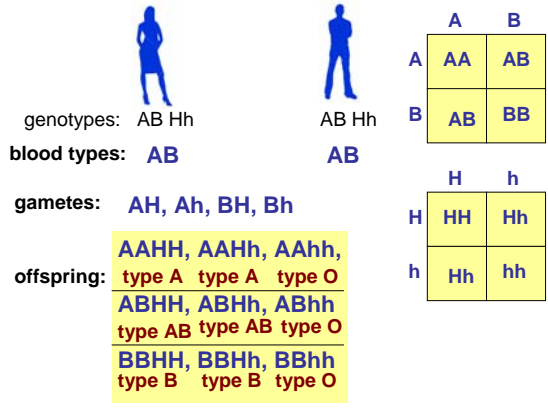
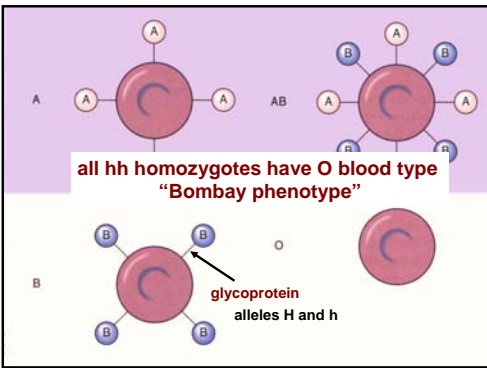
Mr. Saunders has blood group O, Mrs. Saunders has blood group AB. What blood groups can their children have?



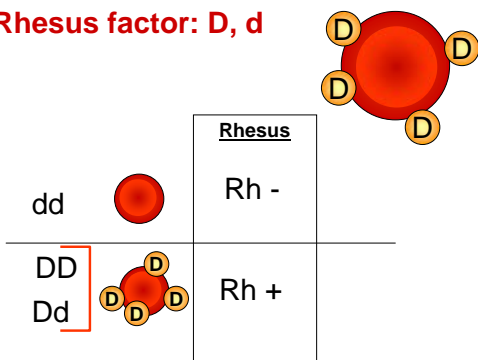
Maria has a BB genotype, her sister Maggie has an AO genotype. What are the genotypes of their parents?



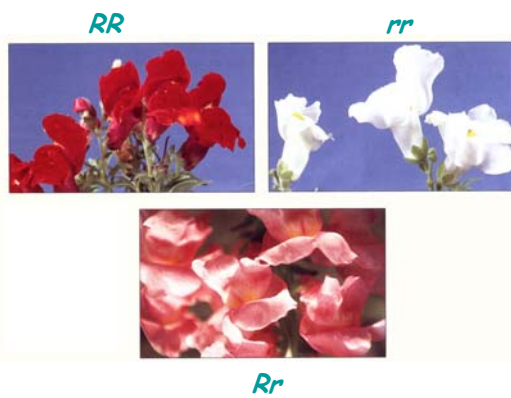
EPISTASIS -- effect of one gene MASKS the effect of another.



Rhesus factor: D, d



Codominance/incomplete dominance



PLEIOTROPY refers to a single gene affecting more than one trait

PORPHYRIA



PLEIOTROPY refers to when a gene affect more than one trait, which can make studying its mode of inheritance difficult. An example is PORPHYRIA, an autosomal dominant condition that is associated with abdominal pain, constipation, fever, dark red urine, insomnia, headaches visual problems, delirium, convulsions, and stupor. King George III of England, king during the American Revolution, was affected by this trait.

Variable expressivity/threshhold traits



Temperature Dependent Expressivity

Threshold traits: mandibular tori

