

Sex-linked Inheritance of Color-blindness

In a pedigree, squares represent males while circles represent females. Shaded circles or squares indicate an affected individual.

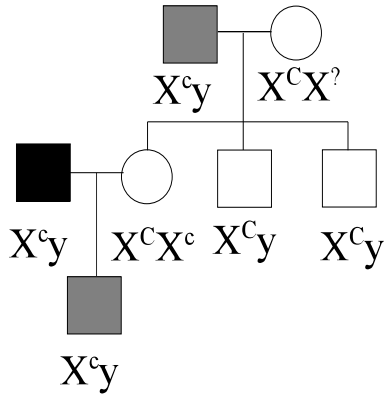


Figure 1

a) Consider the cross between a color-blind female and a normal male. Construct a Punnett square for the cross. If color-blindness is recessive, what are the phenotypes of the female and male children of the cross?

b) If one of the daughters in the cross above married a color-blind man, what are the chances of them having a color-blind son? A color-blind daughter?

c) What are the phenotypes of the original parents in the pedigree in Figure 1?

d) How can you be sure the genotype of the daughter of the original parents is heterozygous?

e) Can the genotype of the original female be determined?

f) Could the sons have color-blind daughters. Explain.

g) Would it be possible for the sons to have color-blind sons? Explain.

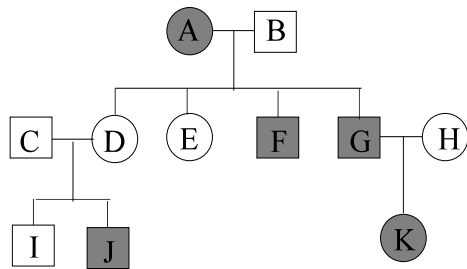


Figure 2

h) Fill in the genotype for each individual in the pedigree in Figure 2.

i) Show the possible phenotypes and genotypes from the cross between individuals C and D.