



Constructing a Pedigree

Demonstrated below is one possible way to construct a pedigree. You can however add components to the pedigree in any order that works for you. The final pedigree however, should look the same.

Family history

A few weeks after Tania was born, she was diagnosed with cystic fibrosis. Her parents, Helen and Dave, had two additional children, Christy and Mark, and had each tested in vitro. Neither has CF. Mark is a carrier, Christy is not. When Dave's sister Josephine found out that Tania had CF, she immediately had a sweat test done on her son Joe. Joe had a negative sweat test. She then had herself tested genetically to see if she carried CF. She tested negative for CF genes as did her husband Steve. Josephine and Steve later had a daughter, Sue. Dave's other sister Mary, and Helen's brother Bob do not have CF and have not had themselves tested.

Key to symbols

square = male

circle = female

open symbol = does not have or carry CF

filled symbol = has CF (2 copies of mutant gene)

half-filled symbol = carries CF (1 copy of mutant gene)

+ = normal CF gene

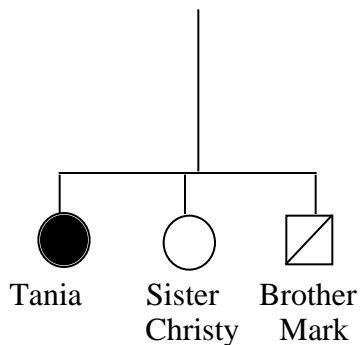
- = mutant CF gene

? in symbol = genotype of individual unknown

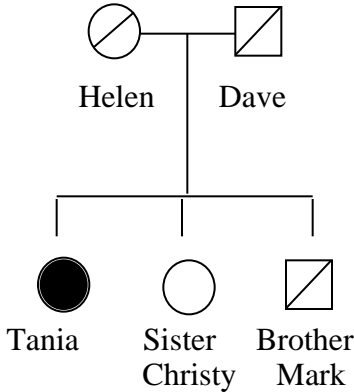
horizontal lines connecting two symbols indicate couples

symbols connected by a line above them are siblings and have the same parents

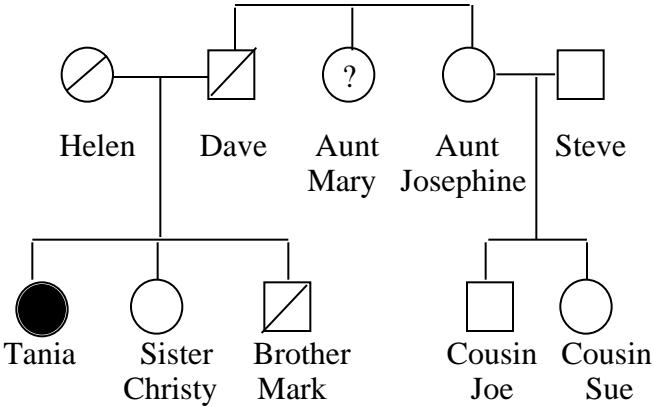
It is often easiest to start constructing a pedigree at the bottom and work backwards. We will start with Tania, who we know has CF (filled circle), her sister Christy who does not carry CF (open circle), and her brother Mark, who does carry CF (box with cross hatch).



Then we will add Tania's parents. Because Tania has CF, and her parents don't, you know they are both carriers (Tania must have inherited on CF gene from each of her parents).



We will the add Dave's sisters Mary (genotype unknown) and Josephine (not a carrier), and Josephine's partner Steve (not a carrier) and their two children, Joe and Sue (who can not be carriers since their parents aren't).



Lastly we will add Helen's brother Bob, and the grandparents. We do not know the genotype of any of these individuals. We know that either Helen's grandmother or grandfather is a carrier, but not which. The same is true for Dave's grandparents.

