

$$P(\text{genealogy} \mid \text{genetic sequences}) = \frac{P(\text{genetic sequences} \mid \text{genealogy}) P(\text{genealogy}) P(\text{demographic model}) P(\text{substitution model}) P(\text{molecular clock model})}{P(\text{genetic sequences})}$$

  
genetic  
sequences

  
genealogy

  
demographic  
model

  
substitution  
model

  
molecular clock  
model