For those who want to know more about
retinoblastoma:
90% of individuals heterozygous for an RB mutation develop at least one tumor

Does this number seem remarkably high?
What additional information do you need?
1. # cells that can mutate to form a tumor
2. # cell divisions
3. specific types of lesions that occur (point mutation versus whole chromosome loss)
4. overall mutation rate of gene

Frequency of cancer worldwide:
1/20,000 children

5-10% of cases are inherited (pre-existing germline mutation)
20-30% of cases result from a new germline mutation in one parent
60-70% are sporadic somatic mutations only

Rate of mutation in the RB gene have been estimated to be about 1- 2 X 10^{-5} per cell division in both somatic and germline cells
Number of retinal blast cells per person = 8-10 million

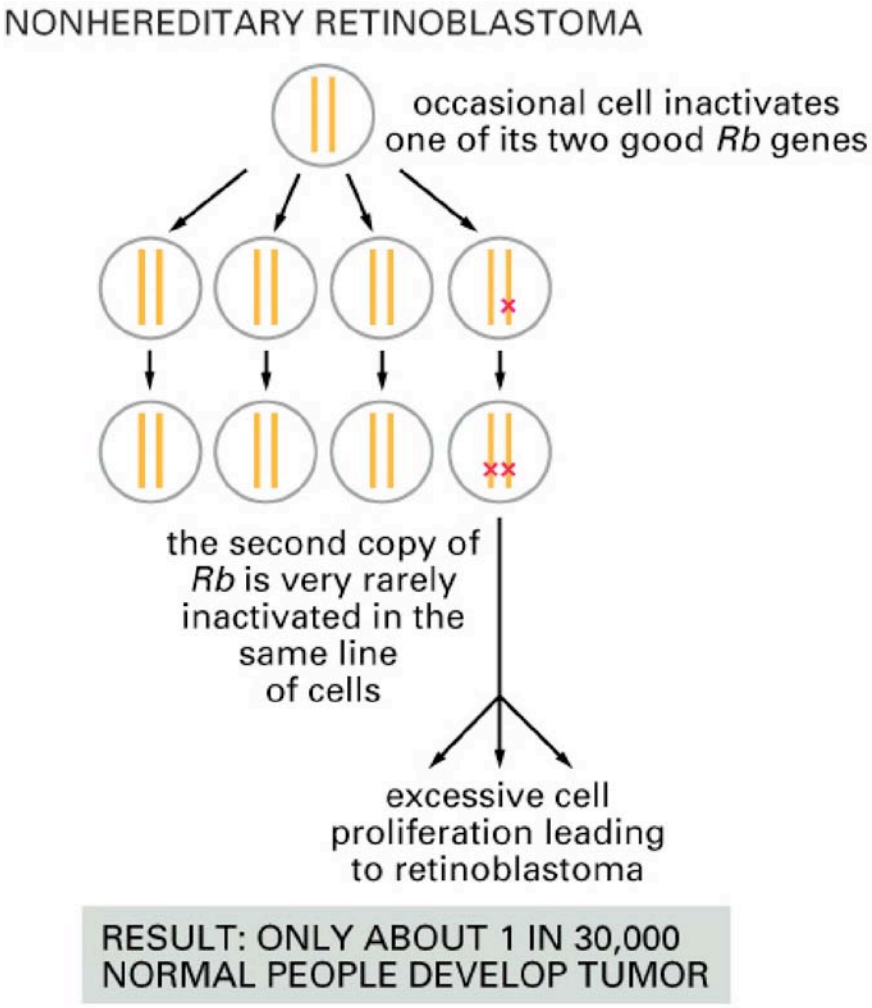

Figure 23–26 part 2 of 2. Molecular Biology of the Cell, 4th Edition.