CSC 4780/6780
Mice Analysis

October 25, 2022

Here is the contingency table:

Gene	No Cancer	Has Cancer	
J	93	37	**130**
R	20	1	**21**
K	34	5	**39**
	147	**43**	**190**

Here are the conditional proportions:

Gene	No Cancer	Has Cancer	
J	71.5%	28.5%	**68.4%**
R	95.2%	4.8%	**11.1%**
K	87.2%	12.8%	**20.5%**
	77.4%	**22.6%**	

Here are the expected counts of the genes and cancer were independent:

Gene	No Cancer	Has Cancer	
J	100.6	29.4	**130**
R	16.2	4.8	**21**
K	30.2	8.8	**39**
	77.4%	**22.6%**	

$$X^2 = 8.4972$$

There are 2 degrees of freedom, so the p-value is given by:

$$p = 0.014284171167428195$$

It is unlikely that we would see these number if the genes and cancer were independent.