

Homework 1 problem 1

Table 1.

batch	Biopsy	mTCC	Normal	sTCC-CIS	sTCC+CIS
1	0	11	0	0	0
2	0	1	4	13	0
3	0	0	4	0	0
4	5	0	0	0	0
5	4	0	0	3	12

Here we might see the batch effect, which happens when the variation in sample groups is caused by technical factors rather than biological factors, which can lead to false conclusions. It might be caused by numbers of experiments or sequencing lanes in Bottomly data, so it would be advised to optimise/randomise study design. It might be caused by technical issues such as different lab worker or equipment, epigenetic might also play a role here. To clarify, one needs to check/redesign the study again.