BIOINFORMATICS ASSIGNMENT 1 (Day 1 - 5) (SUMANJALI -anjuu1908@gmail.com)

Note: You will be added in a slack community of Bversity for further doubts and communications

1. Gene Name: RUNX1

2. Function of the Gene :

The protein encoded in RUNX1 represents the alpha subunit of CBF and is thought to be involved in the development of normal hematopoiesis. Chromosomal translocations involving this gene are well-documented and have been associated with several types of leukemia. Three transcript variants encoding different isoforms have been found for this gene.

3. NCBI accession number: >NC_000021.9

4. Forward Primer: CTCTGCTTTCTTGGGGAGGA
5. Reverse primer: TCAGAATCGGGTCAGTTGCT

6. Features of primers:

>>> primer size: min(18) opt(20) max(25)

>>>primer Tm :min(57) opt(59) max(70)

>>>product temperature: -1000000 to 1000000

>>>primer GC% : min(40) opt(50) max(60)

7. Amplicon length and sequence:

>>>amplicon length (product size): 163

>>>amplicon sequence: CTCTGCT

TTCTTGGGGAGGATTGTCTTTGTACTTCAGACTGACTTTATTAGTGGGGTTTAGGGGGCT

GTAGGAGGCCCCACAGCTGCTCACACACCGAGTACAGGGGCATGGAGCAACCAGTAGCAG

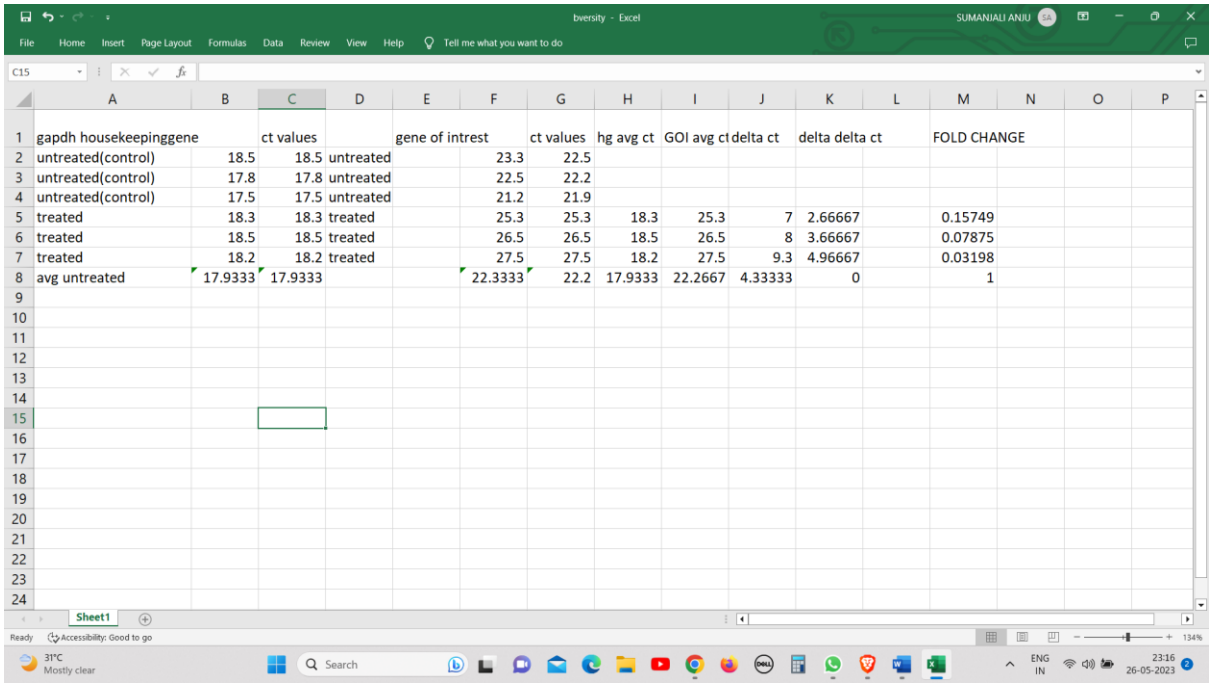
AAGCACCTTTGGAAACAGCAACTGACCCGATTCTGAA

qPCR Data analysis (DAY 5)

	Ct values	
Housekeeping genes(GAPDH)	Ct 1	Ct 2
Untreated (control)	18.5	18.5
Untreated (control)	17.8	17.8
Untreated (control)	17.5	17.5
Treated	18.3	18.3
Treated	18.5	18.5
Treated	18.2	18.2

	Ct values	
Gene of interest (HER2)	Ct 1	Ct 1
Untreated(control)	23.3	22.5
Untreated(control)	22.5	22.2
Untreated(control)	21.2	21.9
Treated	25.3	25.3
Treated	26.5	26.5
Treated	27.5	27.5

The following data are results of qPCR from cancer cell lines. HER2 stands for human epidermal growth factor. It's healthy in normal amounts, but too much may be a sign of a certain type of breast cancer. Calculate the 2 Delta Ct values for the following data and plot the values on a graph using graphpad prism.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	gapdh housekeepinggene		ct values		gene of intrest		ct values	hg avg ct	GOI avg ct	delta ct	delta delta ct		FOLD CHANGE			
2	untreated(control)	18.5	18.5	untreated		23.3	22.5									
3	untreated(control)	17.8	17.8	untreated		22.5	22.2									
4	untreated(control)	17.5	17.5	untreated		21.2	21.9									
5	treated	18.3	18.3	treated		25.3	25.3	18.3	25.3	7	2.66667		0.15749			
6	treated	18.5	18.5	treated		26.5	26.5	18.5	26.5	8	3.66667		0.07875			
7	treated	18.2	18.2	treated		27.5	27.5	18.2	27.5	9.3	4.96667		0.03198			
8	avg untreated	17.9333	17.9333			22.3333	22.2	17.9333	22.2667	4.33333	0		1			
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																
21																
22																
23																
24																