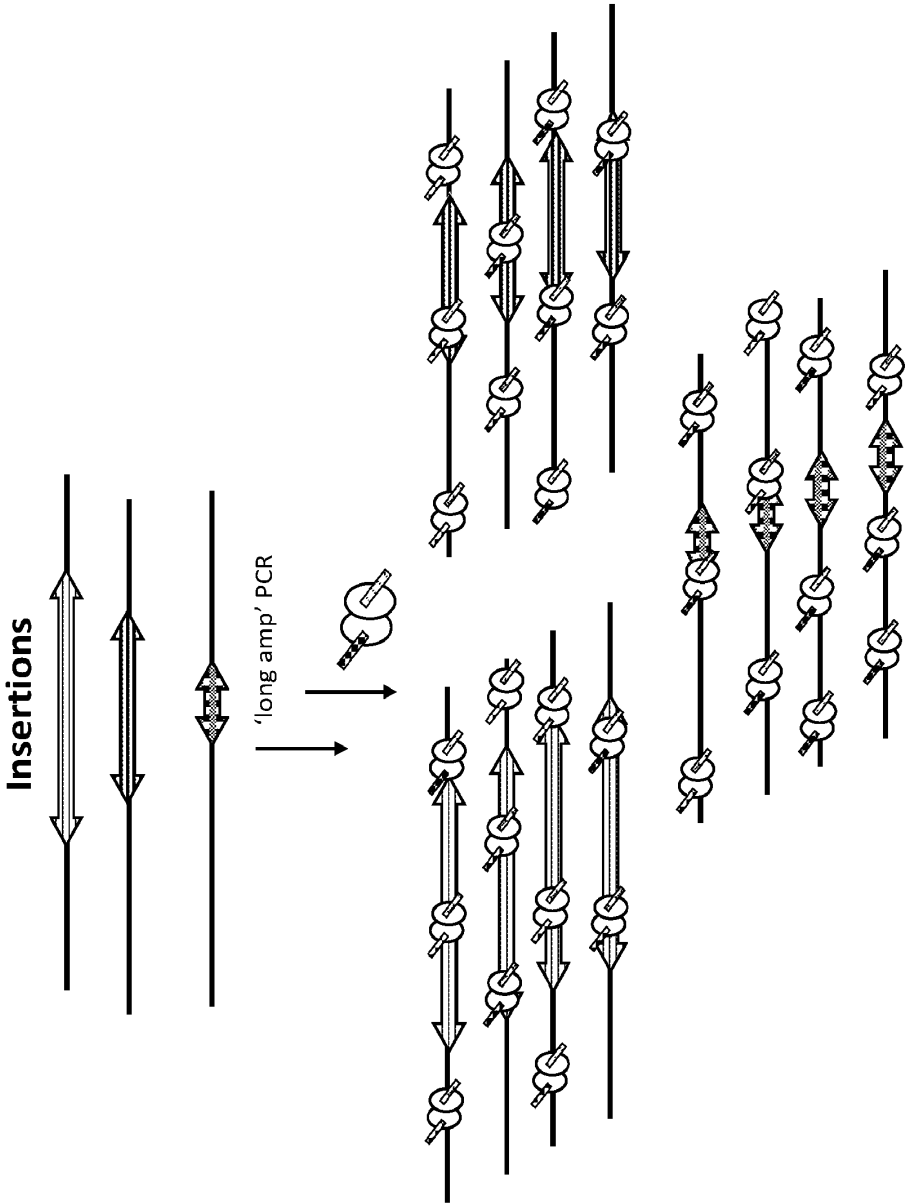




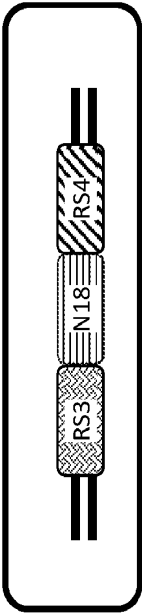


Fig. 2A

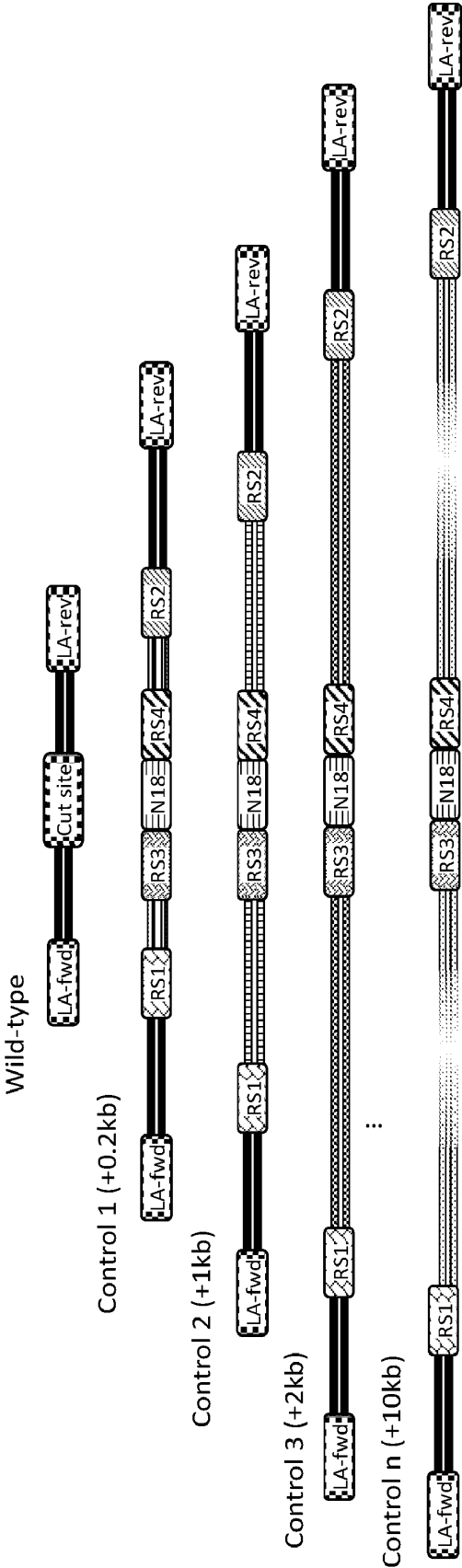


Fig. 2B

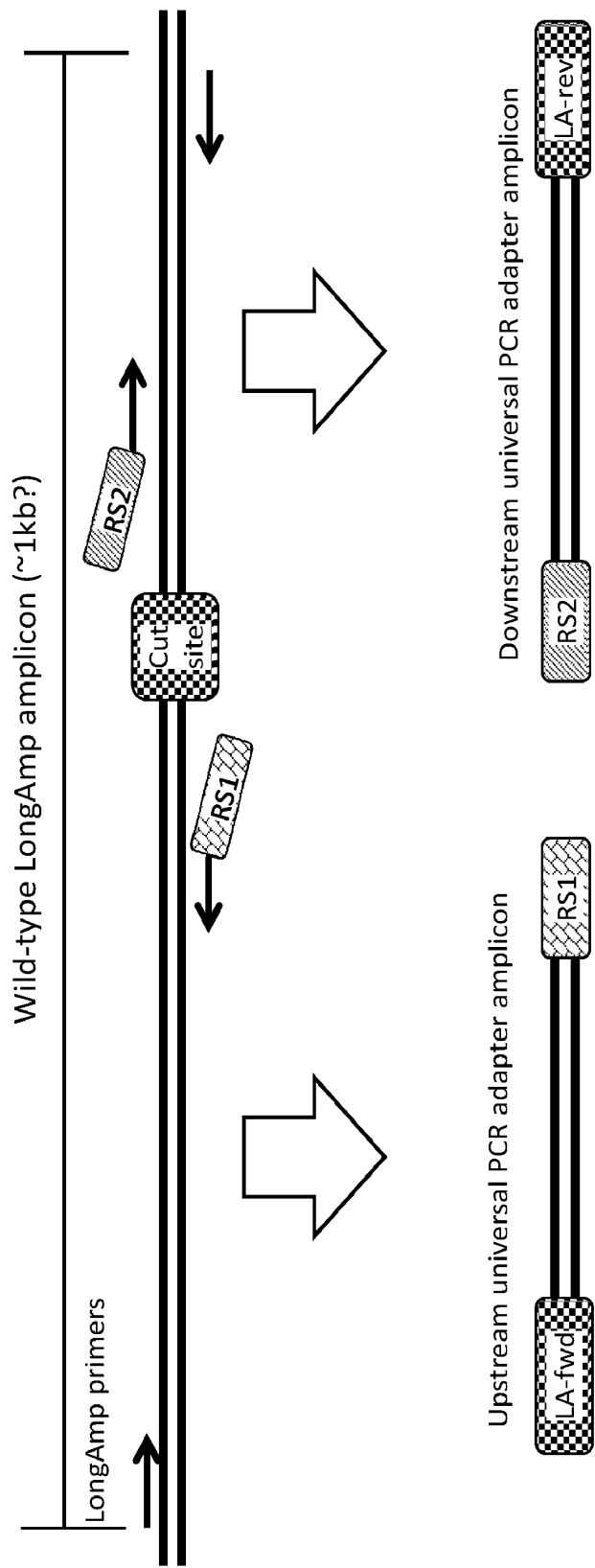


Fig. 3

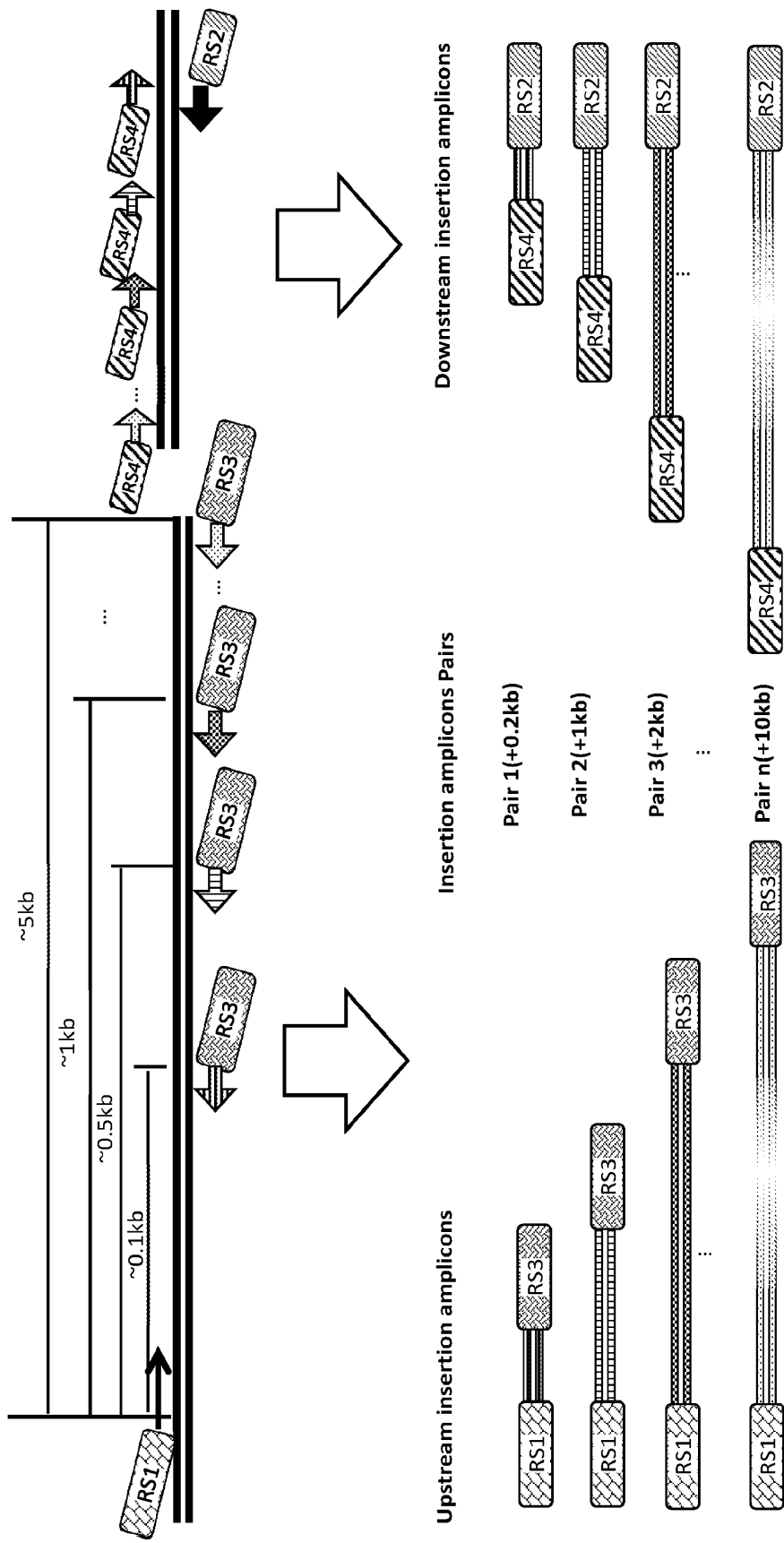


Fig. 4

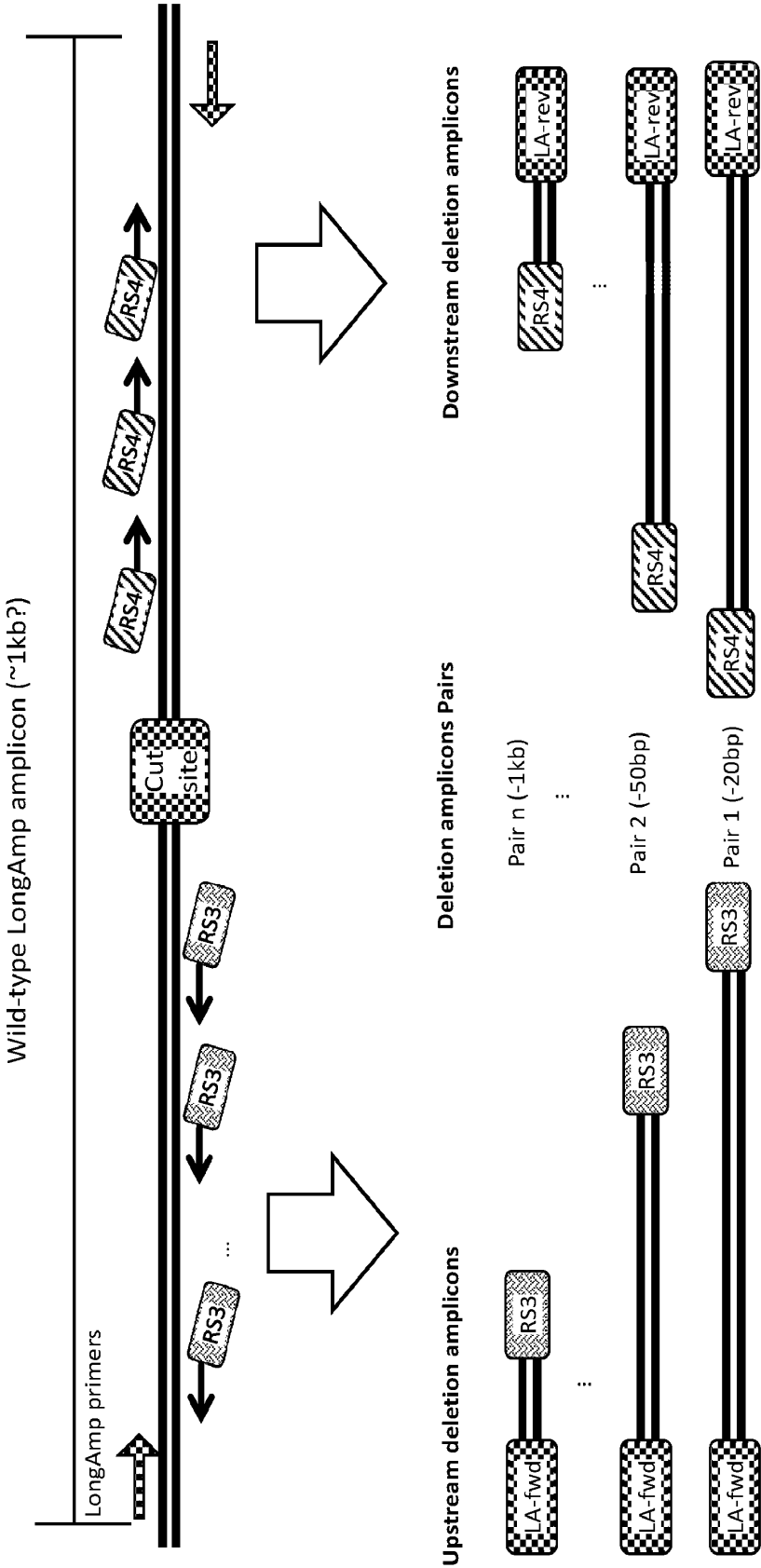


Fig. 5

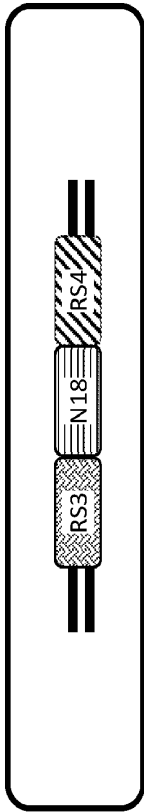


Fig. 6A

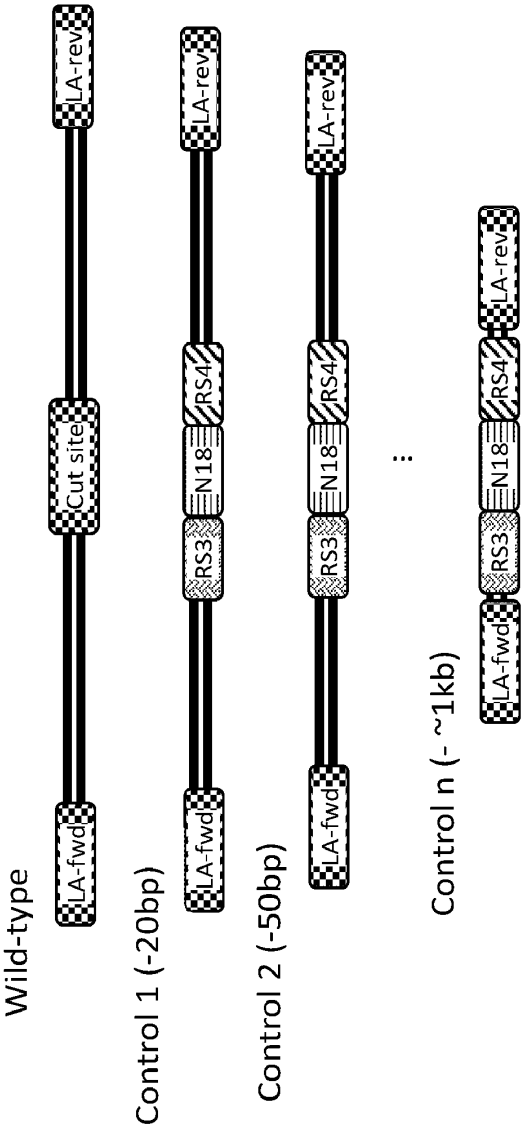


Fig. 6B

Max mass of control input into LongAmp reactions to avoid UMI-duplicates

flanking region length (bp):	1050 bp
assume 1kb + 50bp for primers	

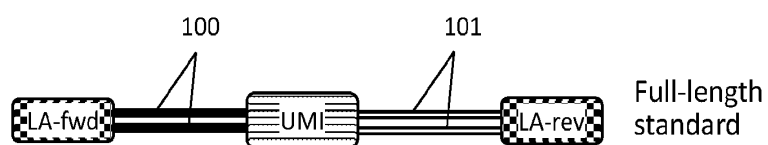
Synthetic dsDNA oligo (IDT gBlock; 200 ng scale)

Length of UMIs	# of UMIs	Cost	dsDNA oligo length	MW (g/mol)	Theoretical amt for all UMIs		
					#mol	#grams	#nanograms
18	6.87E+10	1439	268	1.77E+05	1.14E-13	2.02E-08	20.2

Control amplicons (containing UMI-dsOligo)

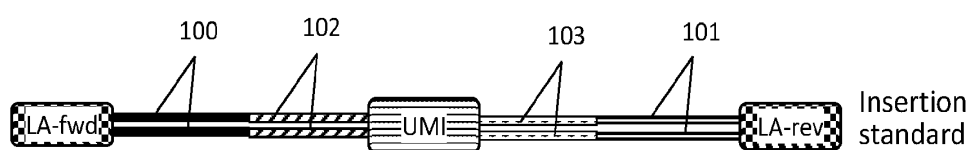
Theoretical amt for all UMIs (max amt to avoid UMI-duplicates)				Theoretical amt for all UMIs (max amt to avoid UMI-duplicates)			
Type	Control amplicon #	Insertion/Deletion Size	MW (g/mol)	Max molecules (#UMI)	#mol	#grams	#nanograms
insertion	1	200	8.25E+05	6.87E+10	1.14E-13	9.42E-08	94.2
insertion	2	1000	1.35E+06	6.87E+10	1.14E-13	1.54E-07	154.4
insertion	3	2000	2.01E+06	6.87E+10	1.14E-13	2.30E-07	229.8
insertion	n	10000	7.29E+06	6.87E+10	1.14E-13	8.33E-07	832.5
deletion	1	-20	6.80E+05	6.87E+10	1.14E-13	7.76E-08	77.6
deletion	2	-50	6.60E+05	6.87E+10	1.14E-13	7.53E-08	75.3
deletion	n	-1000	3.30E+04	6.87E+10	1.14E-13	3.77E-09	3.8

Fig. 7

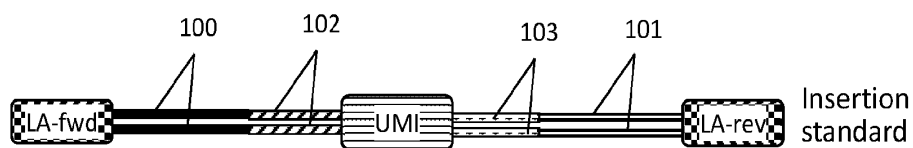


Full-length
standard

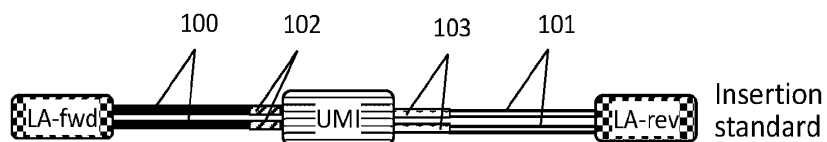
Fig. 8A



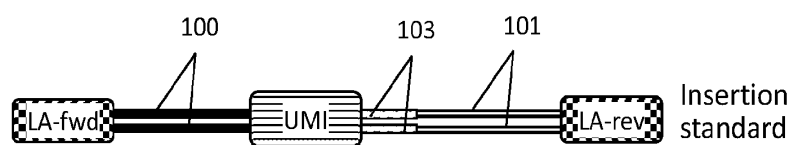
Insertion
standard



Insertion
standard

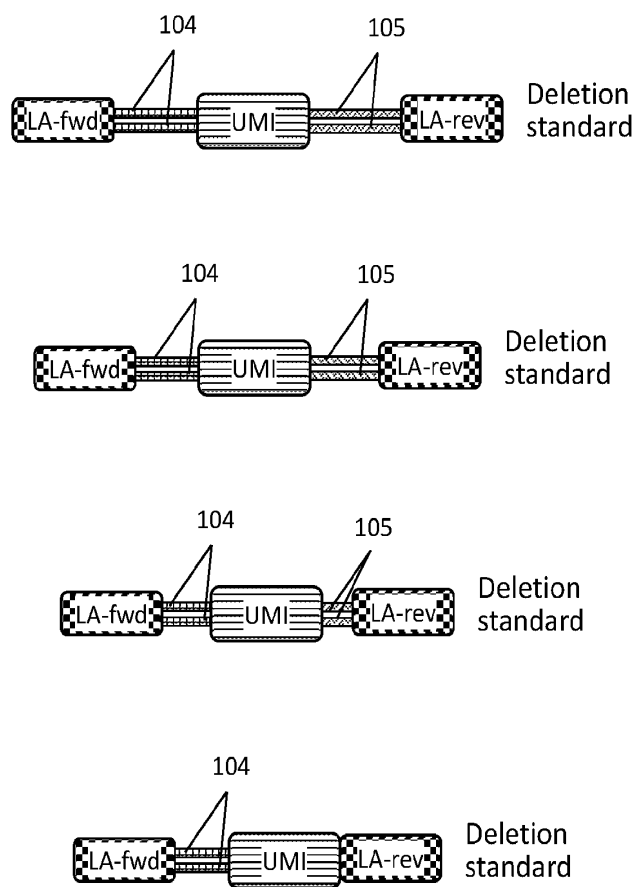


Insertion
standard



Insertion
standard

Fig. 8B

*Fig. 8C*

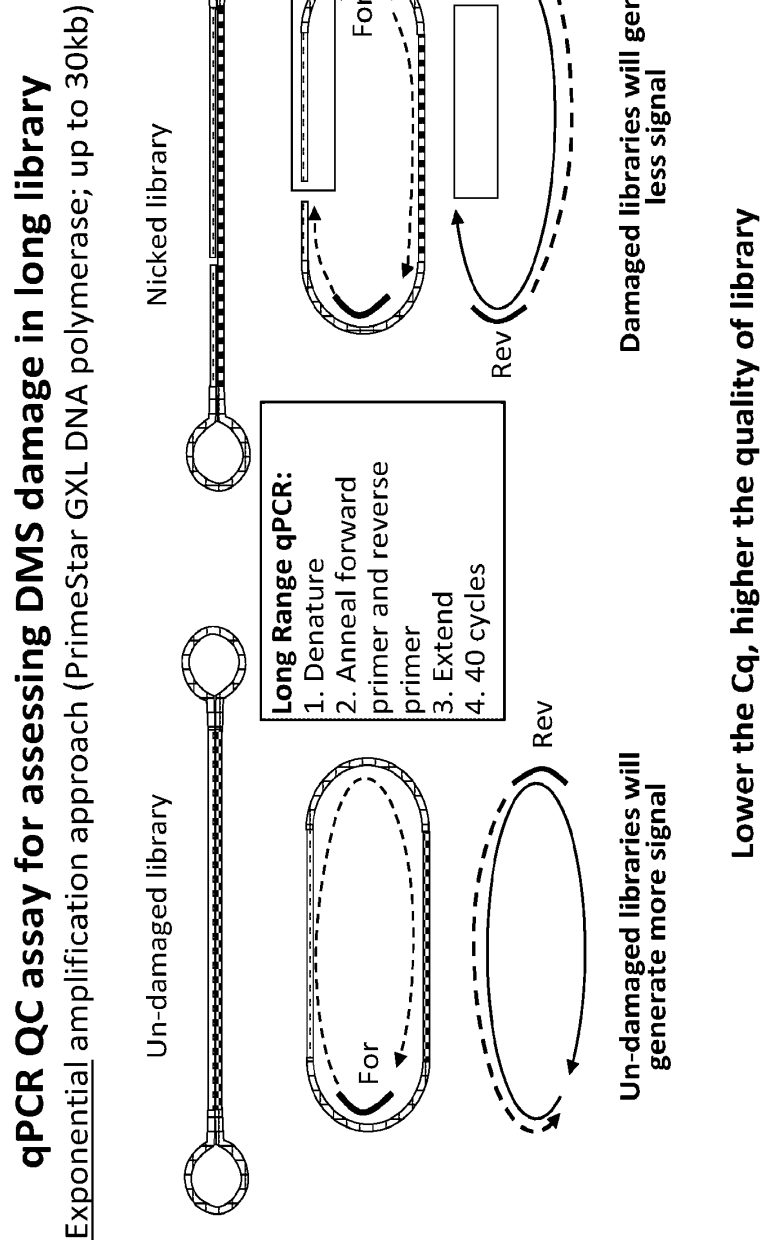
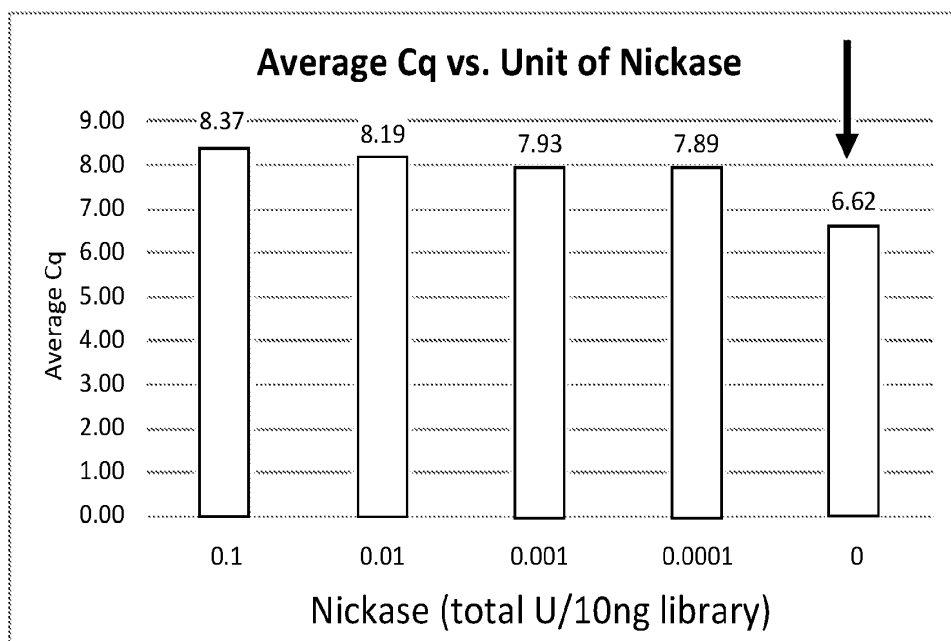
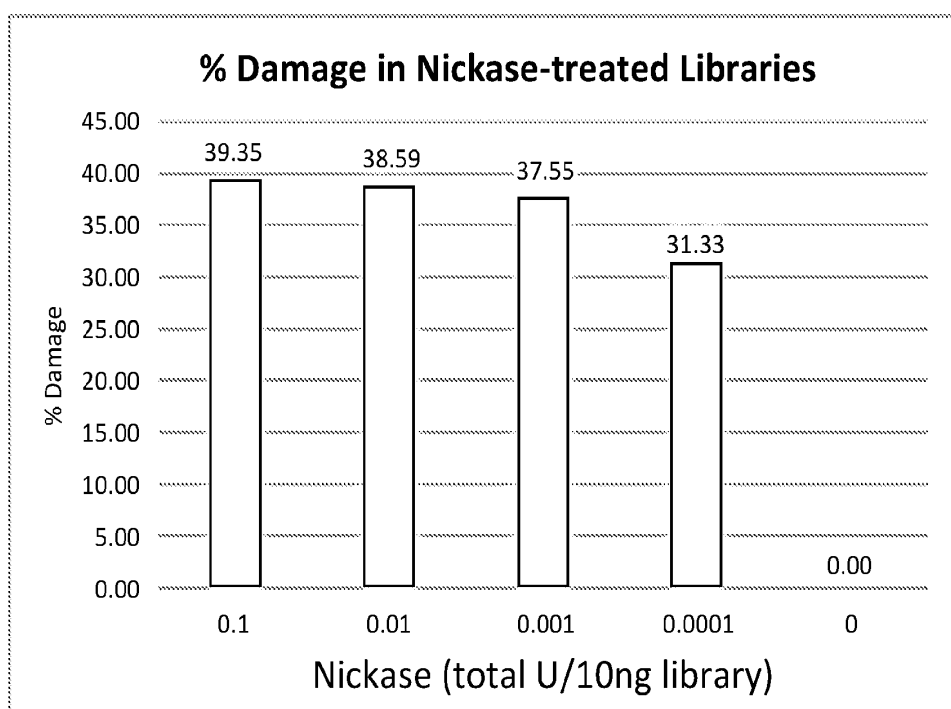


Fig. 9

**Fig. 10A****Fig. 10B**

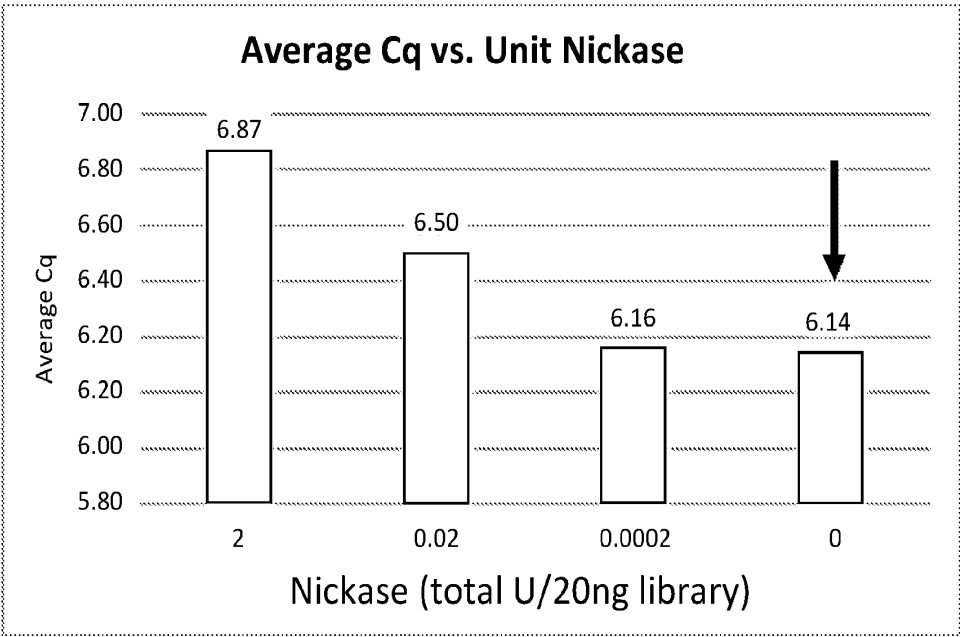


Fig. 10C

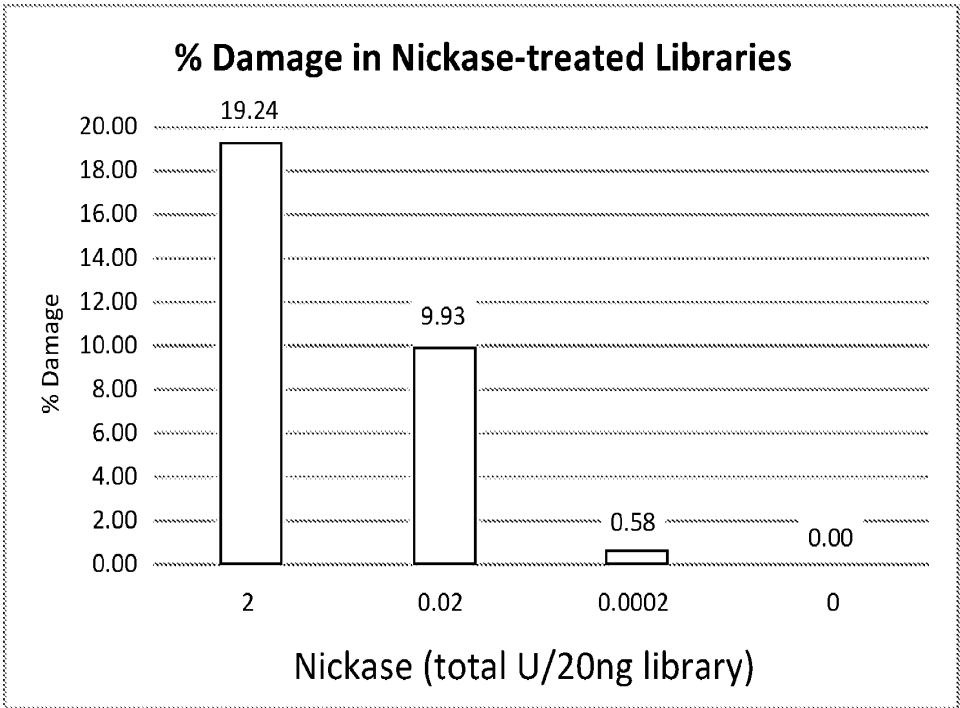


Fig. 10D

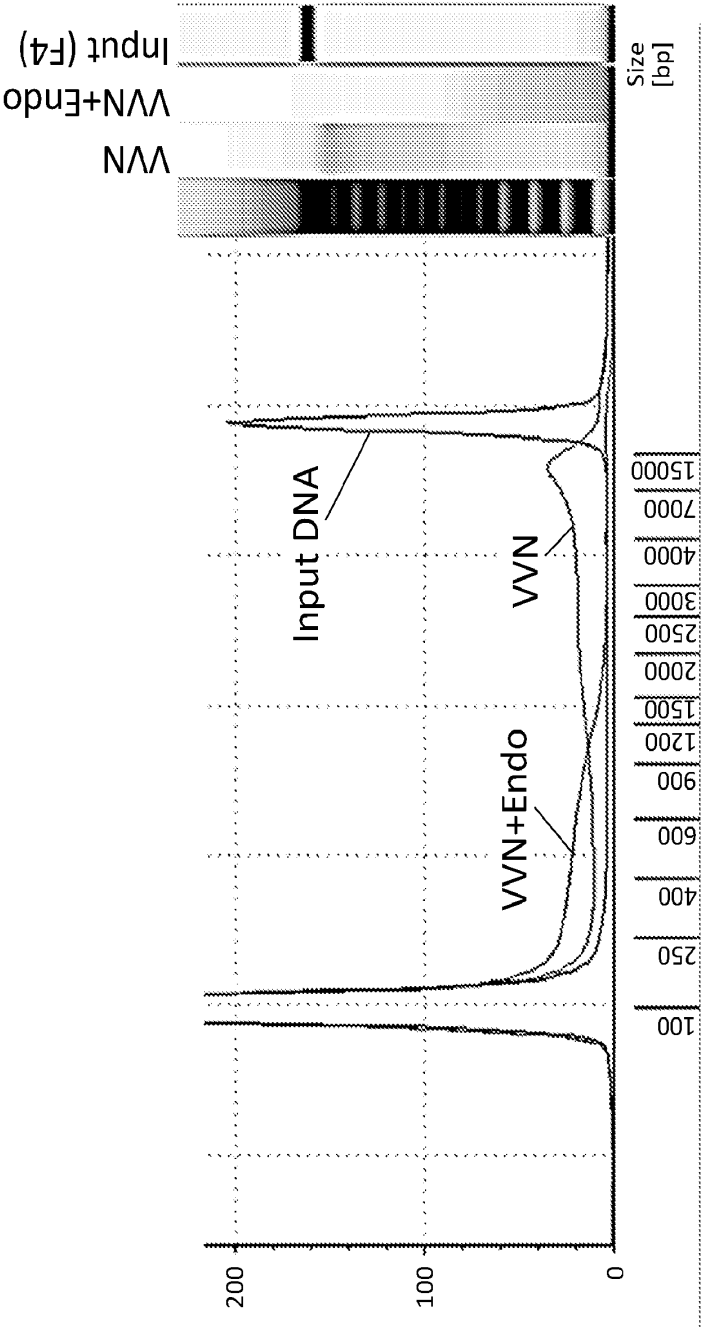


Fig. 11

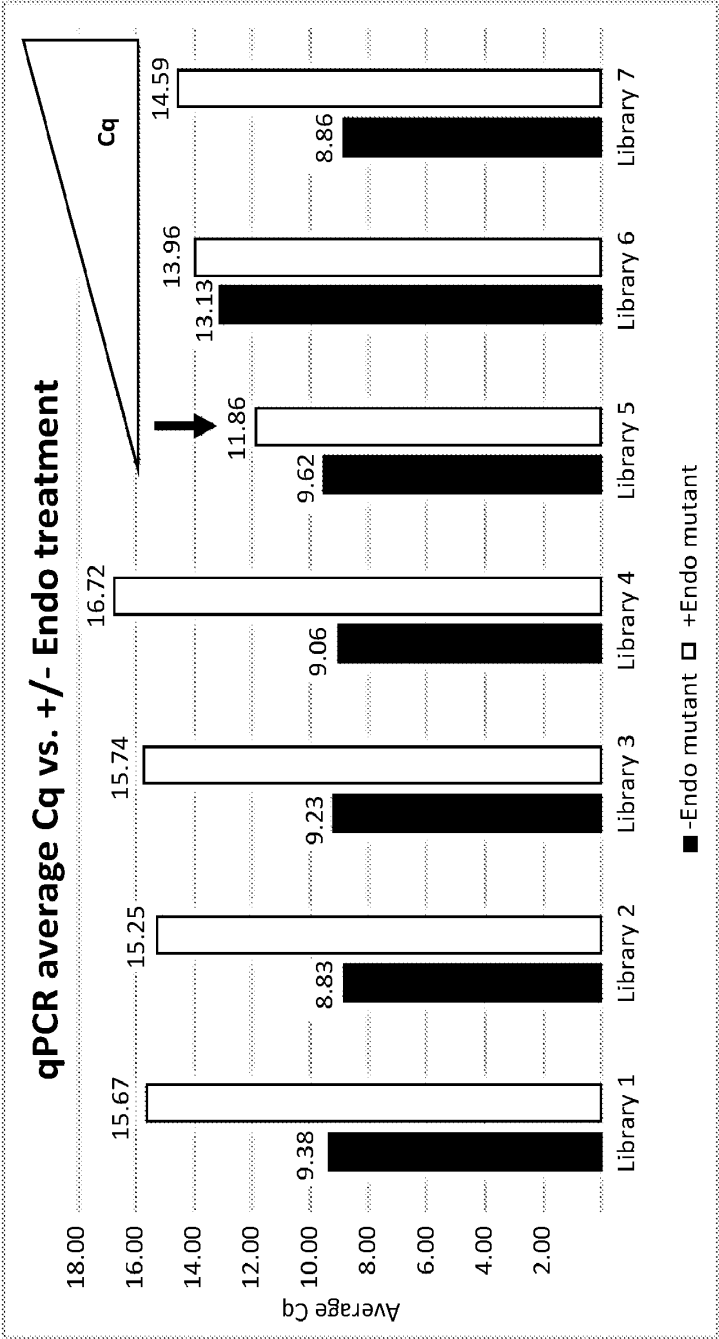


Fig. 12A

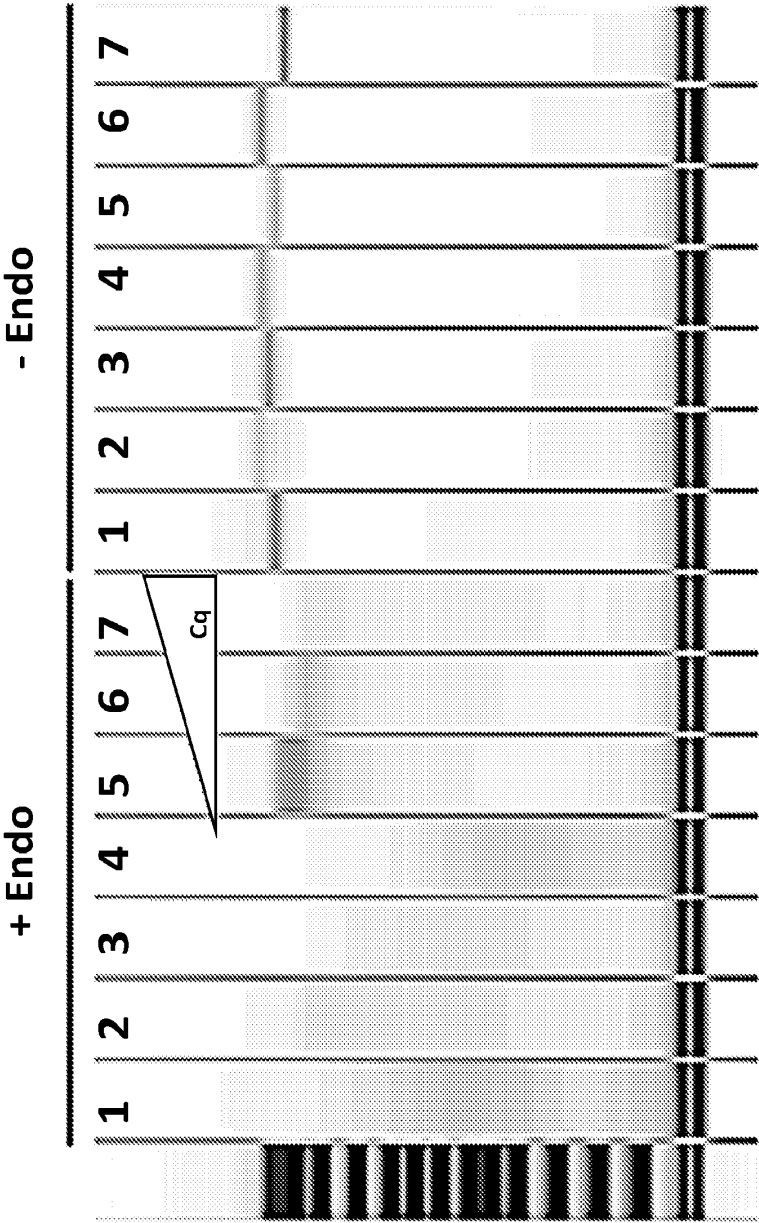
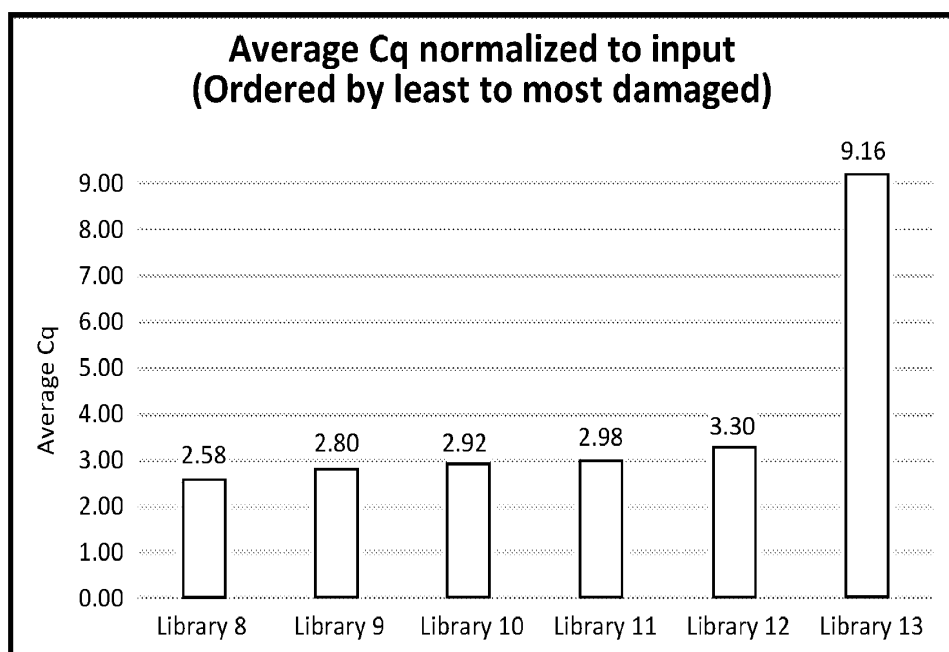
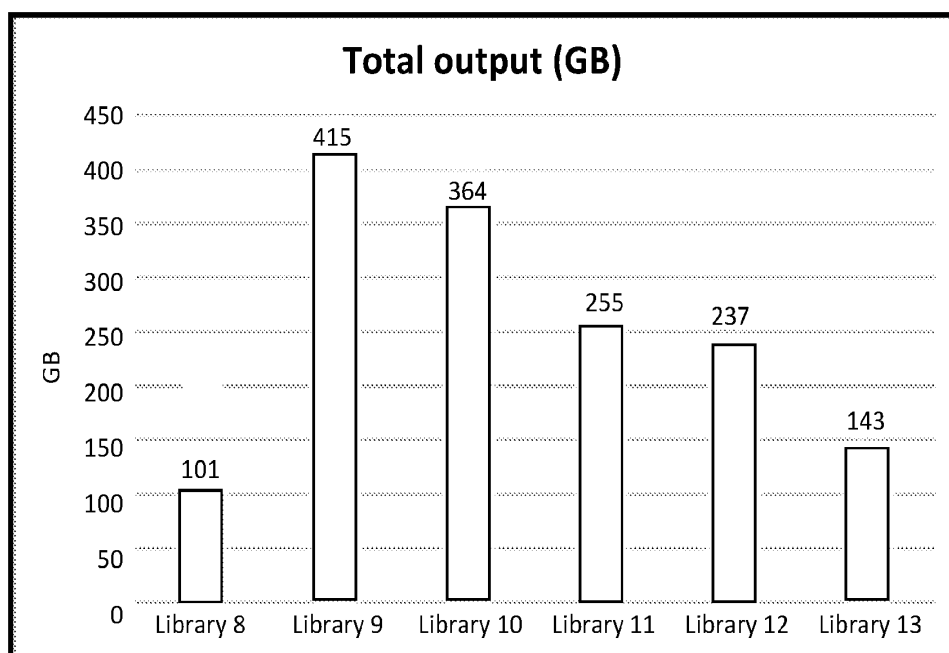
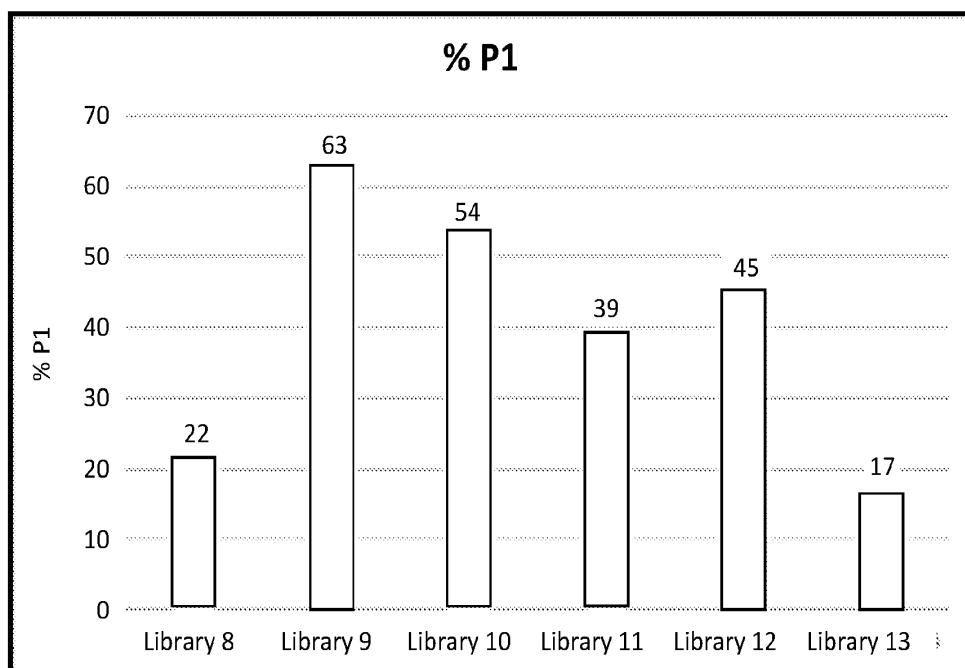
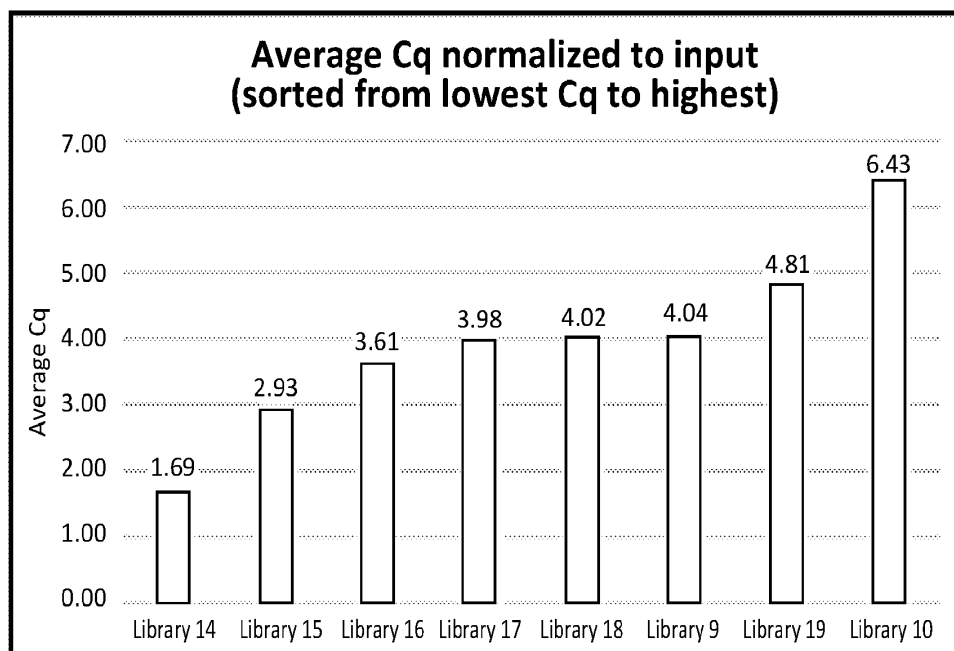
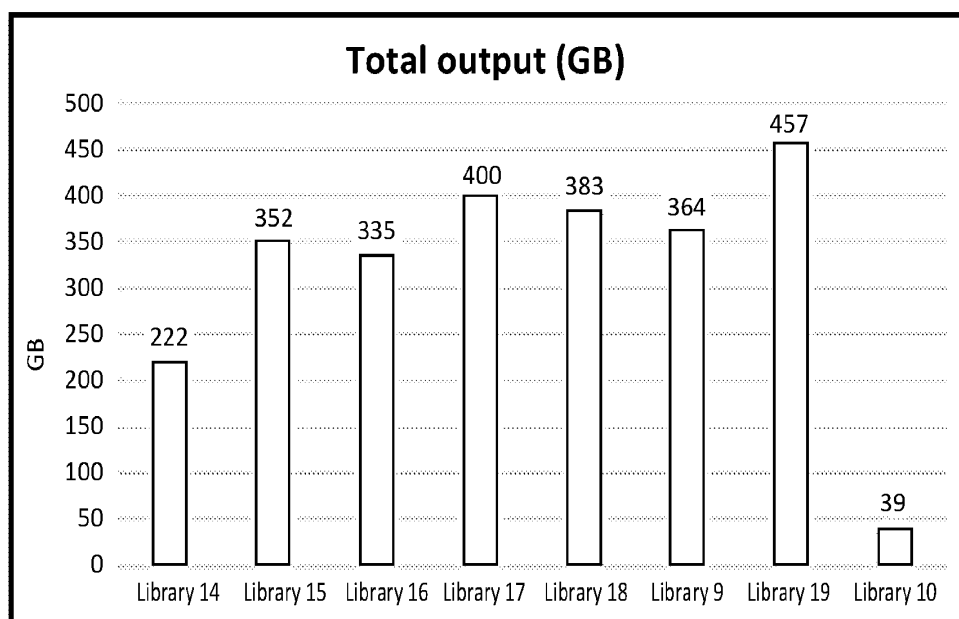
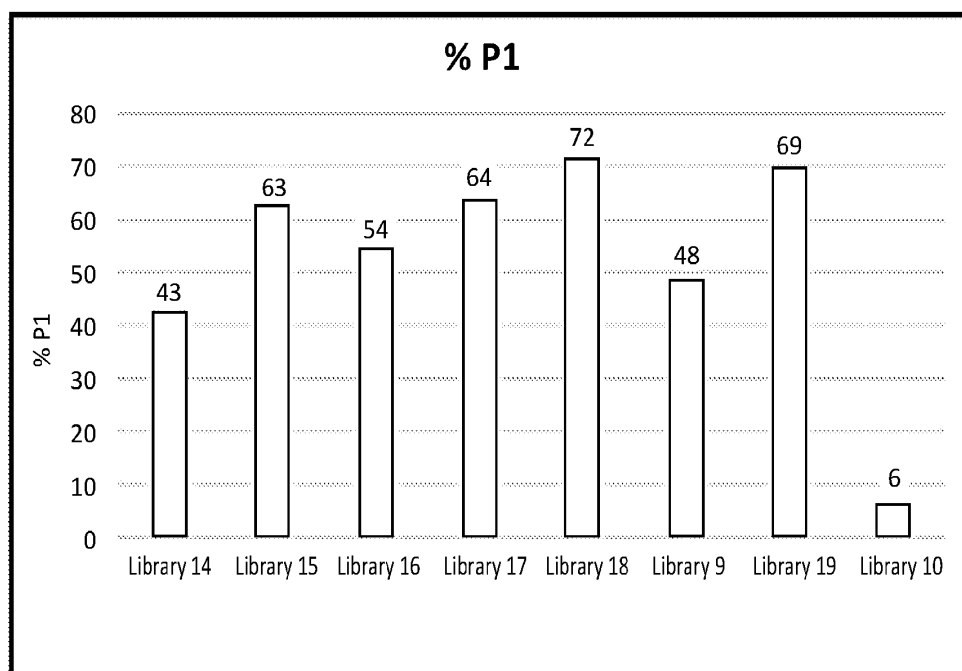
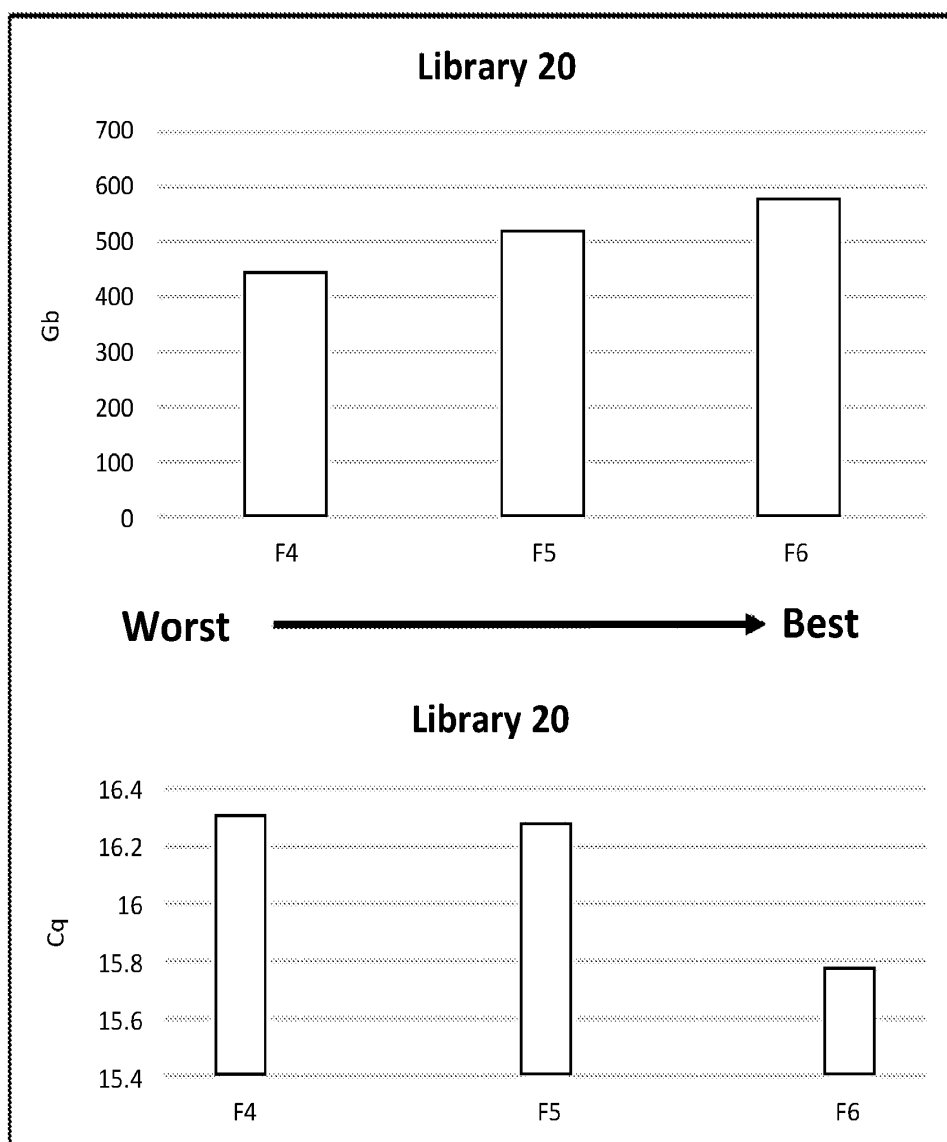


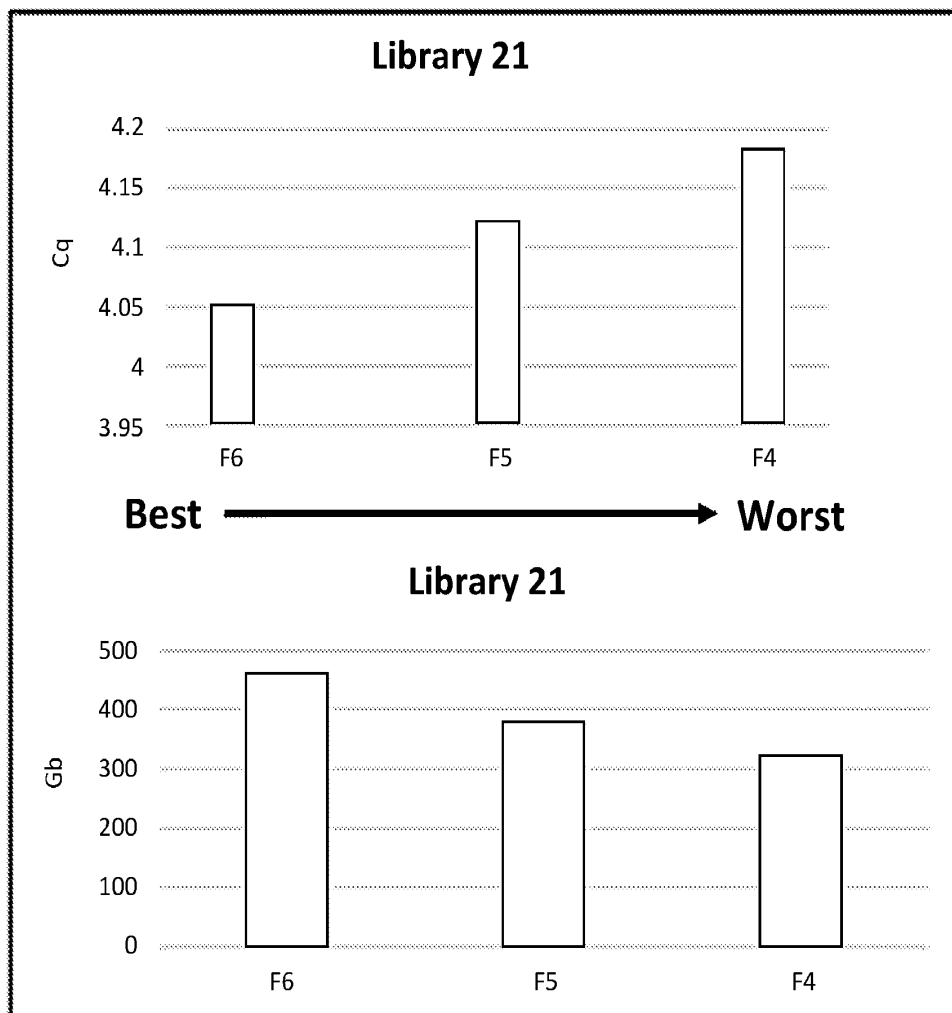
Fig. 12B

*Fig. 13A**Fig. 13B*

**Fig. 13C****Fig. 14A**

**Fig. 14B****Fig. 14C**

**Fig. 15A**

**Fig. 15B**

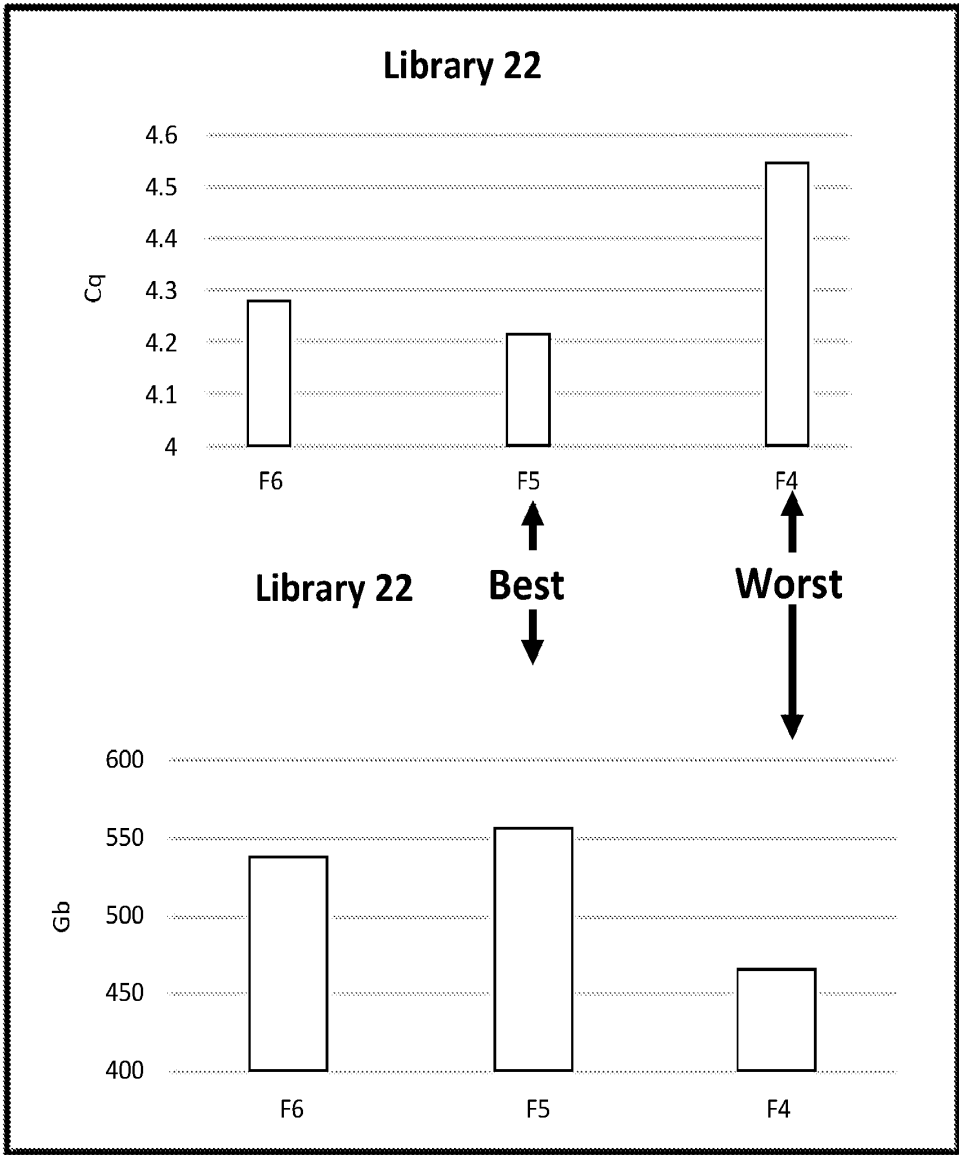


Fig. 15C

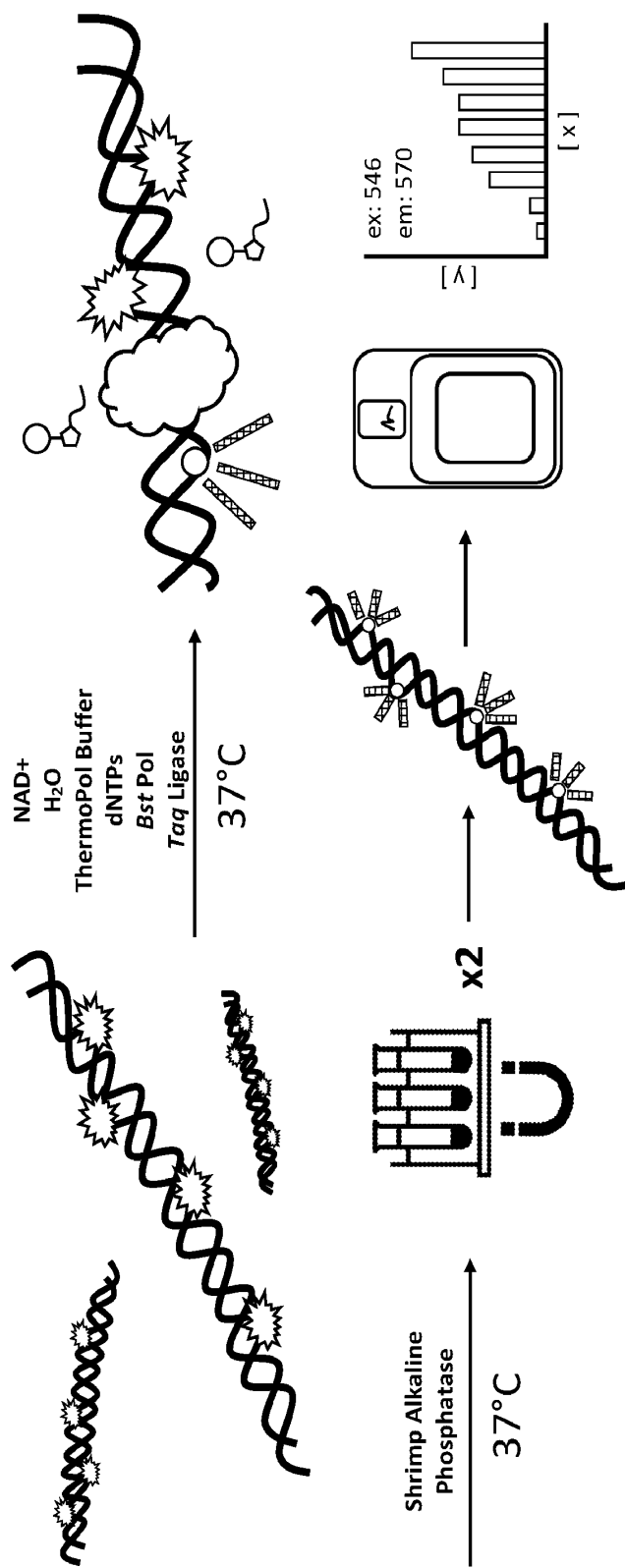


Fig. 16

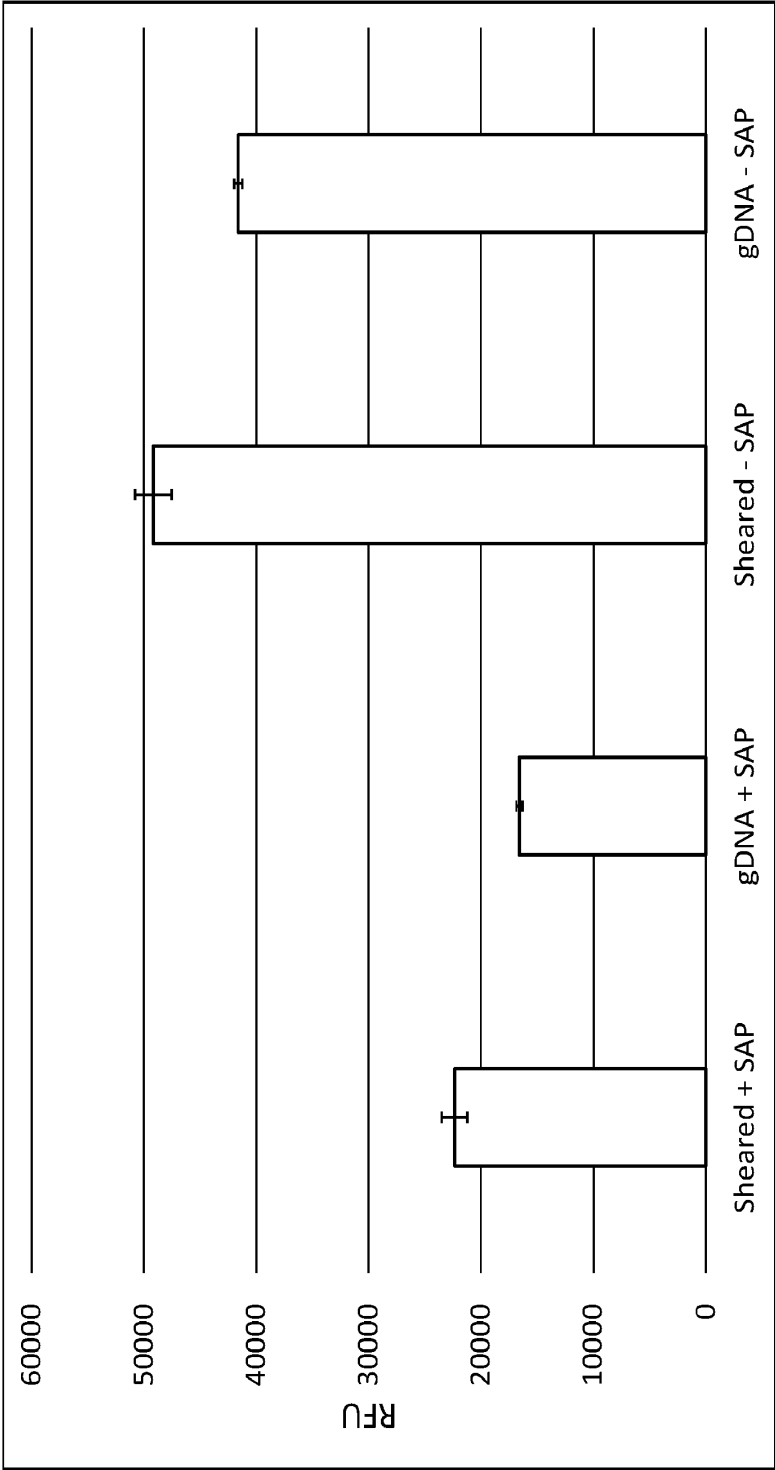


Fig. 17

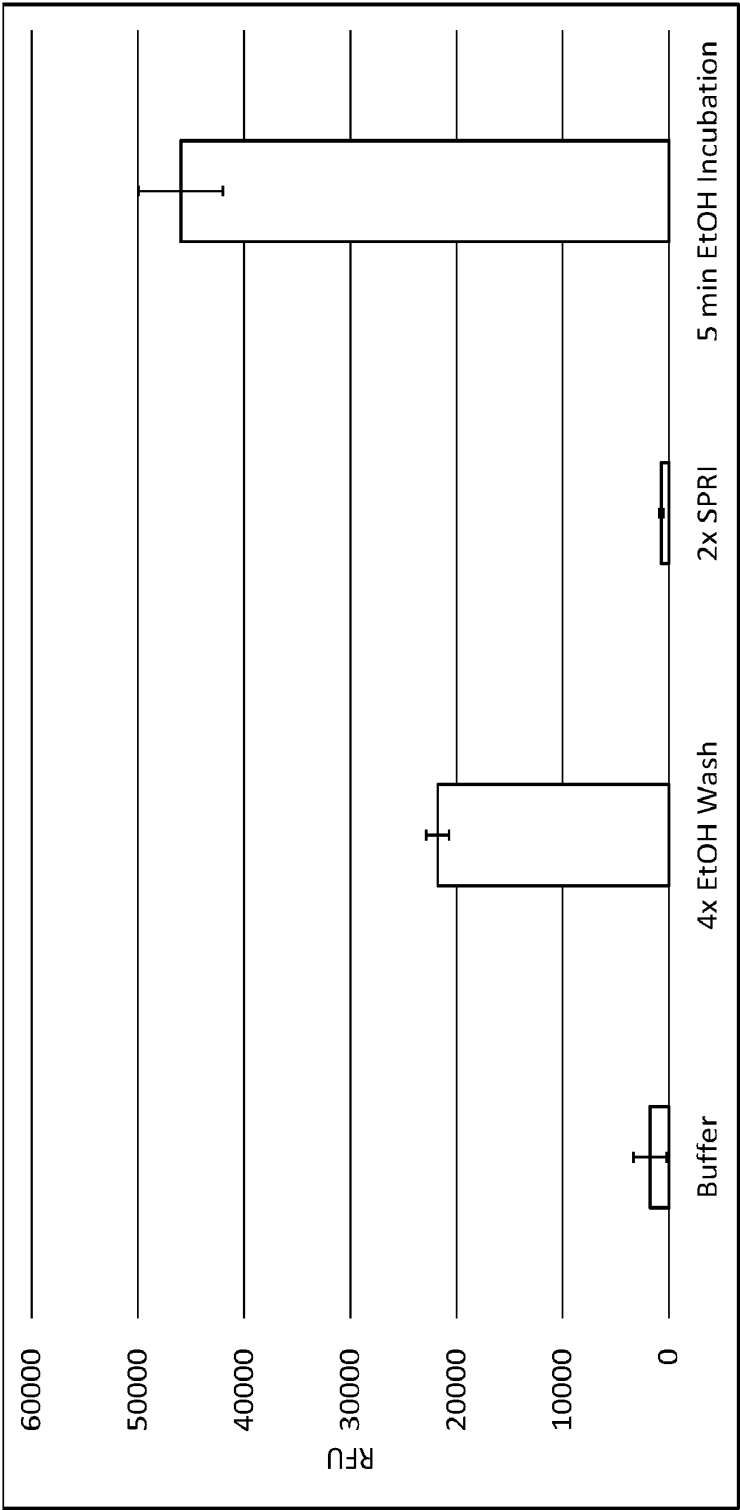


Fig. 18

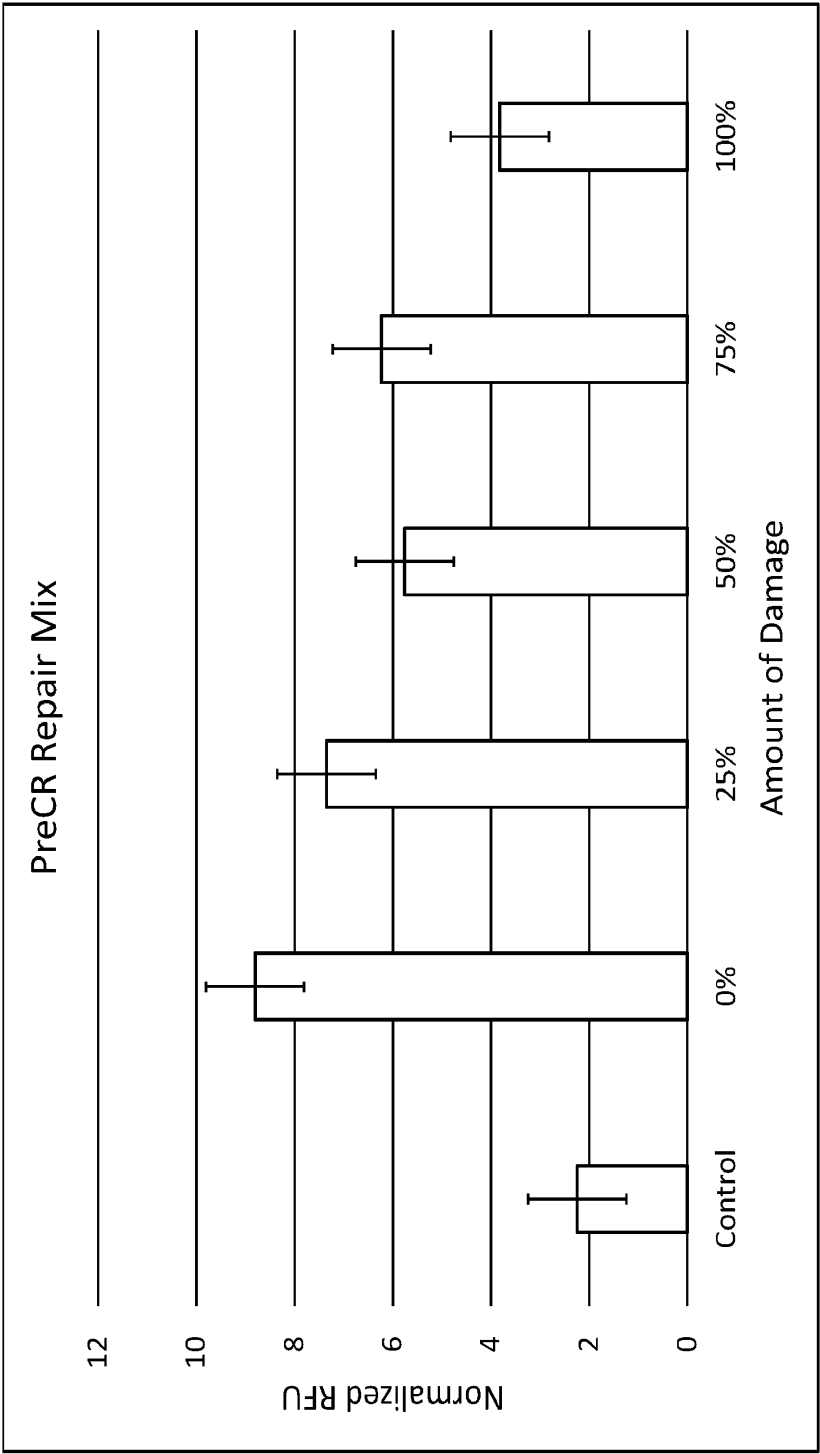


Fig. 19A

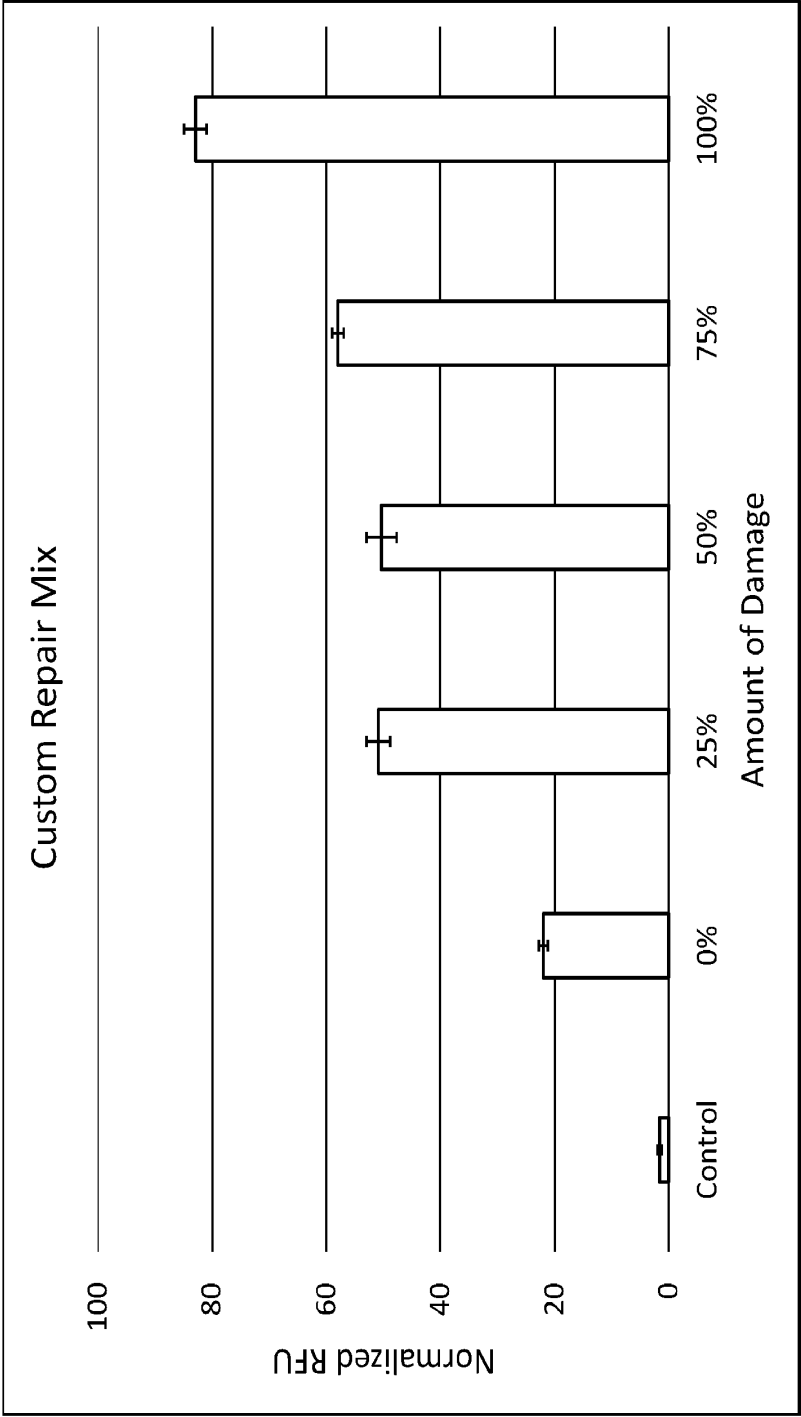


Fig. 19B

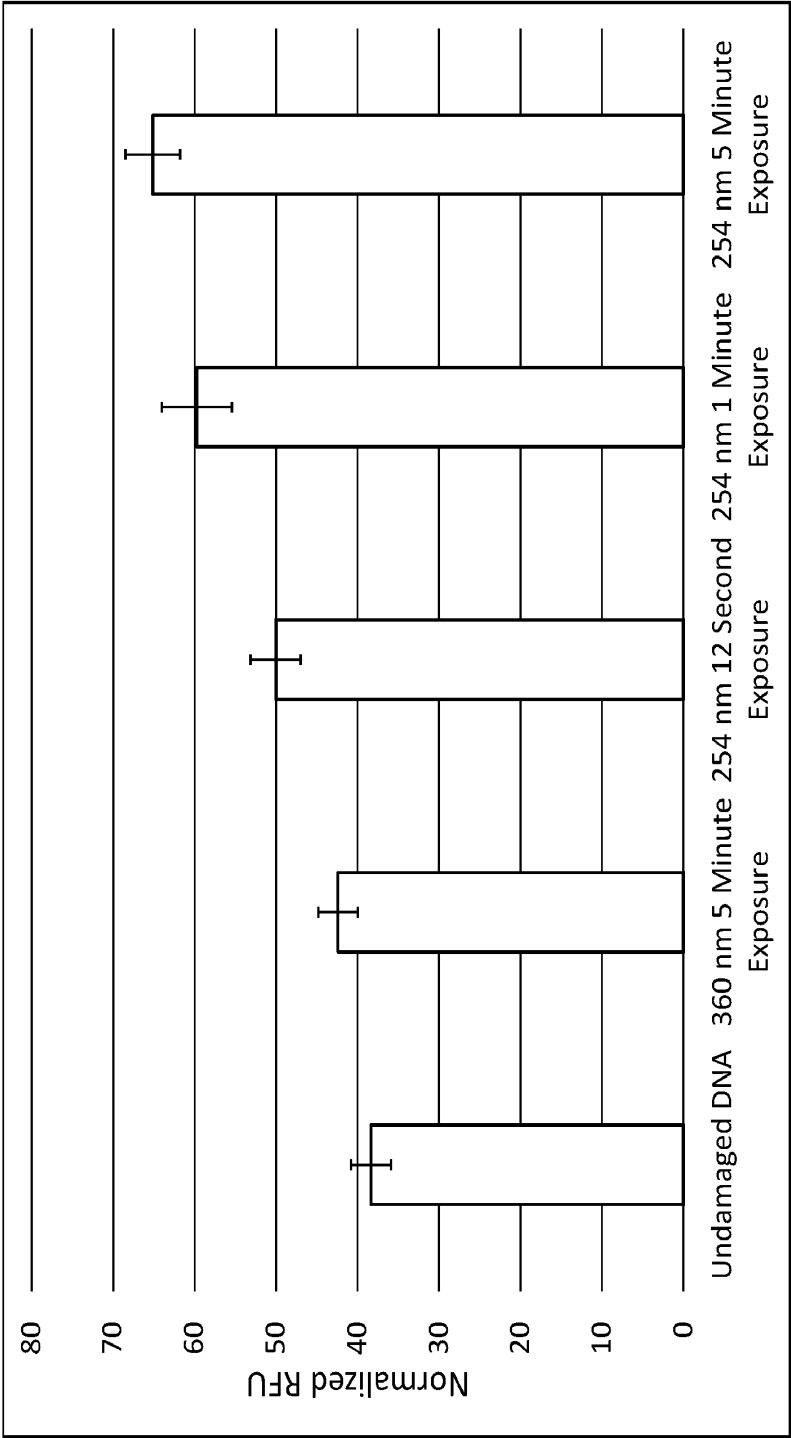


Fig. 20

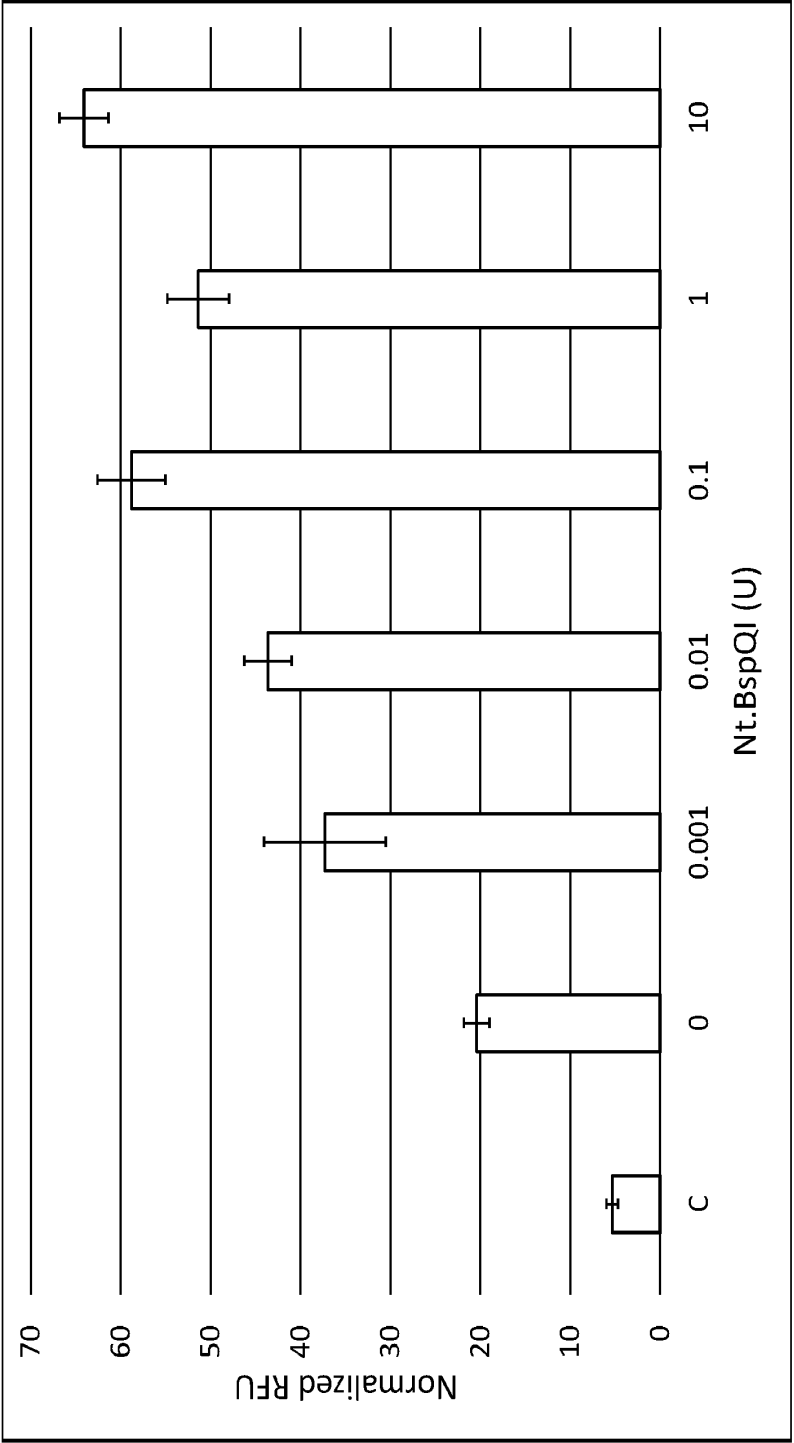


Fig. 21