

Nucleic Acids Sizes and Molecular Weights

Compound	Molecular Weight (g/mol)	
ATP	507.2	
CTP	483.2	Average: 499.5
GTP	523.2	
UTP	484.2	
AMP	347.2	
CMP	323.2	Average: 339.5*
GMP	363.2	
UMP	324.2	

* Used to calculate approx. M.W. (g/mol) of Nucleic Acid

Compound	Molecular Weight (g/mol)	
dATP	491.2	
dCTP	467.2	Average: 487.0
dGTP	507.2	
dTTP	482.2	
dAMP	331.2	
dCMP	307.2	Average: 327.0*
dGMP	347.2	
dTMP	322.2	

* Used to calculate approx. M.W. (g/mol) of Nucleic Acid

Molar mass of a dsDNA fragment = (# of bp) x (649 g/mol/bp)

Moles of ends of linear DNA = $2 \times (\text{g of DNA}) / (\# \text{ of bp}) \times (649 \text{ g/mol/bp})$

For linear DNA = (# of cuts) x (moles of DNA) x 2 (ends per cut) + 2 (ends of linear DNA) x (moles of DNA)

For circular DNA = (# of cuts) x (moles of DNA) x 2 (ends per cut)

Sizes and Molecular Weights of Various RNAs

RNA	Nucleotides	Molecular Weight (daltons)
<i>E. coli</i>		
tRNA	75	2.6×10^4
5S rRNA	120	4.1×10^4
16S rRNA	1541	5.2×10^5
23S rRNA	2904	9.9×10^5
<i>Drosophila</i>		
18S rRNA	1976	6.7×10^5
28S rRNA	3898	1.3×10^6
Mouse		
18S rRNA	1869	6.4×10^5
28S rRNA	4712	1.6×10^6
Rabbit		
18S rRNA	2366	8.0×10^5
28S rRNA	6333	2.2×10^6
Human		
18S rRNA	1868	6.4×10^5
28S rRNA	5025	1.7×10^6