

Where Do Nucleotides Come From?

Dietary nucleotides, as their name implies, come from our diets. These are termed **exogenous** since they are created external to our body from various food sources. Our body can also create nucleotides. These are referred to as **endogenous** since they are created within. The creation of new nucleotides is referred to as **de novo synthesis**. For dietary sources of nucleotides, please refer to the following chart.

Dietary Sources of Nucleotides - (milligrams/100 grams)

Source Adenine Guanine Total Purines RNA

Beef liver	62	74	197	268
Beef kidney	42	47	213	134
Beef heart	15	16	171	49
Beef brain	12	12	162	61
Pork liver	59	77	289	259
Chicken liver	72	78	243	402
Chicken heart	32	41	223	187
Fresh seafood	8	185	411	341
Clams	14	24	136	85
Mackerel	11	26	194	203
Salmon	26	80	250	289
Sardines	6	118	245	243
Squid	18	15	135	100
Dried legumes	17	14	56	356
Split peas	88	74	195	173
Lentils	54	51	162	140
Blackeye peas	104	82	222	306
Pinto beans	46	39	144	485

Nucleotides are some of the largest molecules synthesized by our cells, and their creation requires many substrates, many steps and huge amounts of energy. The biosynthesis of nucleotides is under very tight control since energy is wasted when making too much, and DNA replication and cellular metabolism is slowed down when making too little. Our cells are also very sensitive to the amount of free nucleotides floating within the nucleus or the cytoplasm. The cell will always choose to use the nucleotides that have already been created before synthesizing new ones. Cellular energy is conserved and DNA replication is enhanced by making sure that your cells are constantly supplied with exogenous nucleotides.