Survey of Nucleotides - Part 1

Published by Garland Publishing, a member of the Taylor & Francis Group.

**BASES**

The bases are nitrogen-containing ring compounds, either pyrimidines or purines.

- Uracil
- Cytosine
- Thymine

**PHOSPHATES**

The phosphates are normally joined to the C5 hydroxyl of the ribose or deoxyribose sugar (designated 5'). Mono-, di-, and triphosphates are common.

- As in AMP
- As in ADP
- As in ATP

The phosphate makes a nucleotide negatively charged.

**NUCLEOTIDES**

A nucleotide consists of a nitrogen-containing base, a five-carbon sugar, and one or more phosphate groups.

**BASIC SUGAR LINKAGE**

N-glycosidic bond

The base is linked to the same carbon (C1) used in sugar-sugar bonds.

**SUGARS**

- Pentose: a five-carbon sugar

Each numbered carbon on the sugar of a nucleotide is followed by a prime mark; therefore, one speaks of the "5′-prime carbon," etc.

- α-ribose used in ribonucleic acid
- α-2-deoxyribose used in deoxyribonucleic acid