

A Periodic Table of Monosaccharides

The table is organized into rows by carbon number (3, 4, 5, 6, 7, 8, 9, 10) and columns by functional group: Aldehydes, Ketoses, Aminosugars, Uronic Acids, and Deoxy sugars. A legend indicates the columns: Name, Glyc, Symbol, Formula, and Mass.

Carbon Number	Aldehydes	Ketoses	Aminosugars	Uronic Acids	Deoxy sugars
3	Triose				
4	Tetraose				
5	Pentose				
6	Hexose				
7	Heptose				
8	Octose				
9	Nonose				
10	Decose				

## A Periodic Table of Monosaccharides

### Description

It is important to recognize the great diversity of monosaccharides commonly encountered in animals, plants, and microbes, as well as to organize them in a visually interesting style that also emphasizes their similarities and relatedness. This article discusses the nature of building blocks, monosaccharides, and monosaccharide derivatives – terms commonly used in discussing ‘glycomolecules’ found in nature. To aid in awareness of monosaccharide diversity here is presented a Periodic Table of Monosaccharides. The rationale is given for the construction of the Table and the selection of 104 monosaccharides, which is largely based on those presented in the KEGG and SNFG websites of monosaccharides and includes room to enlarge as new discoveries are made. The Table should have educational value and is intended to capture the attention and foster the imagination of those unfamiliar with glycosciences and encourage researchers to delve deeper into this fascinating area.

# A Periodic Table of Monosaccharides

	Aldoses			Ketoses		Aminosugars						Uronic Acids					
iose	Glycosiddehyde <b>Gly</b> C <sub>3</sub> H <sub>6</sub> O <sub>3</sub> 90.08			Dihydroxyacetone <b>DHA</b> C <sub>3</sub> H <sub>6</sub> O <sub>3</sub> 90.08													
rose	Threose <b>Thr</b> C <sub>4</sub> H <sub>8</sub> O <sub>4</sub> 126.09	Erythrose <b>Ery</b> C <sub>4</sub> H <sub>8</sub> O <sub>4</sub> 126.09		Erythrulose <b>Eru</b> C <sub>4</sub> H <sub>8</sub> O <sub>4</sub> 126.09													
tose	Ribose <b>Rib</b> C <sub>5</sub> H <sub>10</sub> O <sub>5</sub> 150.13	Xylose <b>Xyl</b> C <sub>5</sub> H <sub>10</sub> O <sub>5</sub> 150.13	Ebiose <b>Eib</b> C <sub>5</sub> H <sub>10</sub> O <sub>5</sub> 150.13	Ribulose <b>Ribu</b> C <sub>5</sub> H <sub>10</sub> O <sub>5</sub> 150.13	Xylulose <b>Xylu</b> C <sub>5</sub> H <sub>10</sub> O <sub>5</sub> 150.13												
	Anabinose <b>Ara</b> C <sub>5</sub> H <sub>10</sub> O <sub>5</sub> 150.13	Lyxose <b>Lyx</b> C <sub>5</sub> H <sub>10</sub> O <sub>5</sub> 150.13	Apiose <b>Api</b> C <sub>5</sub> H <sub>10</sub> O <sub>5</sub> 150.13														
xose	Glucose <b>Glc</b> C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> 180.16	Galactose <b>Gal</b> C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> 180.16	Mannose <b>Man</b> C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> 180.16	Fructose <b>Fru</b> C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> 180.16	Psicose <b>Psi</b> C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> 180.16	Glucosamine <b>GlcN</b> C <sub>6</sub> H <sub>11</sub> NO <sub>5</sub> 179.17	Galactosamine <b>GalN</b> C <sub>6</sub> H <sub>11</sub> NO <sub>5</sub> 179.17	Mannosamine <b>ManN</b> C <sub>6</sub> H <sub>11</sub> NO <sub>5</sub> 179.17	Bacillosamine <b>Bac</b> C <sub>6</sub> H <sub>11</sub> NO <sub>5</sub> 162.19	Desosamine <b>Des</b> C <sub>6</sub> H <sub>11</sub> NO <sub>5</sub> 175.23	Ailosamine <b>AilN</b> C <sub>6</sub> H <sub>11</sub> NO <sub>5</sub> 179.17	Glucuronic acid <b>GlcA</b> C <sub>6</sub> H <sub>10</sub> O <sub>7</sub> 194.14	Iduronic acid <b>IdoA</b> C <sub>6</sub> H <sub>10</sub> O <sub>7</sub> 194.14	Mannuronic acid <b>ManA</b> C <sub>6</sub> H <sub>10</sub> O <sub>7</sub> 194.14	N-Acetyl-D-glucosamine <b>L6dAltNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 205.21		
	Altrose <b>Alt</b> C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> 180.16	Alose <b>All</b> C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> 180.16	Idose <b>Ido</b> C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> 180.16	Tagatose <b>Tag</b> C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> 180.16	Sorbose <b>Sor</b> C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> 180.16	Idosamine <b>IdoN</b> C <sub>6</sub> H <sub>11</sub> NO <sub>5</sub> 179.17	Altrosamine <b>AltN</b> C <sub>6</sub> H <sub>11</sub> NO <sub>5</sub> 179.17	Talosamine <b>TalN</b> C <sub>6</sub> H <sub>11</sub> NO <sub>5</sub> 179.17	Gulosamine <b>GulN</b> C <sub>6</sub> H <sub>11</sub> NO <sub>5</sub> 179.17	Muramic acid <b>Mur</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 205.23	N-Acetyl-fucosamine <b>FucNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 205.21	L-Asuronic acid <b>LAltA</b> C <sub>6</sub> H <sub>10</sub> O <sub>7</sub> 194.14	Guluronic acid <b>GulA</b> C <sub>6</sub> H <sub>10</sub> O <sub>7</sub> 194.14	Fructuronic acid <b>FruA</b> C <sub>6</sub> H <sub>10</sub> O <sub>7</sub> 194.14	N-Acetyl-D-glucosamine <b>6dTalNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 205.21		
	Glucose <b>Gul</b> C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> 180.16	Talose <b>Tal</b> C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> 180.16				N-Acetyl-glucosamine <b>GlcNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 221.21	N-Acetyl-galactosamine <b>GalNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 221.21	N-Acetyl-mannosamine <b>ManNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 221.21	N-Acetyl-quinovosamine <b>QuiNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 221.21	N-Acetyl-rhamnosamine <b>RhaNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 221.21	N-Acetyl-allosamine <b>AilNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 221.21	Takuronic acid <b>TalA</b> C <sub>6</sub> H <sub>10</sub> O <sub>7</sub> 194.14	Galacturonic acid <b>GalA</b> C <sub>6</sub> H <sub>10</sub> O <sub>7</sub> 194.14	Auronic acid <b>AilA</b> C <sub>6</sub> H <sub>10</sub> O <sub>7</sub> 194.14			
						N-Acetyl-altrosamine <b>LaltNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 221.21	N-Acetyl-gulosamine <b>GulNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 221.21	N-Acetyl-idosamine <b>LidoNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 221.21	N-Acetyl-talosamine <b>TalNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>6</sub> 221.21	N-Acetyl-muramic acid <b>MurNAc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>7</sub> 265.27	N-Glycolyl-muramic acid <b>MurNGc</b> C <sub>6</sub> H <sub>11</sub> NO <sub>7</sub> 309.27	4-O-Methyl-D-glucuronic acid <b>meGlcA</b> C <sub>6</sub> H <sub>10</sub> O <sub>7</sub> 208.17					
tose	D or L-Glycero-D-manno-Heptose <b>ManHep</b> C <sub>7</sub> H <sub>14</sub> O <sub>7</sub> 210.18			Sedoheptulose <b>Sed</b> C <sub>7</sub> H <sub>14</sub> O <sub>7</sub> 210.18	Mannoheptulose <b>ManH</b> C <sub>7</sub> H <sub>14</sub> O <sub>7</sub> 210.18												
				Octose													
				D-erythro-L-galacto- <b>Oct</b> C <sub>8</sub> H <sub>16</sub> O <sub>8</sub> 240.21	3-Deoxy-D-manno-2-octulonic acid <b>Kdo</b> C <sub>8</sub> H <sub>16</sub> O <sub>8</sub> 238.19	Eriminose <b>Erw</b> C <sub>8</sub> H <sub>16</sub> O <sub>8</sub> 236.26	Methylthioinosamide <b>Mtl</b> C <sub>8</sub> H <sub>15</sub> NO <sub>7</sub> 255.32										
						Nonose											
						Pseudesaminic acid <b>Pse</b> C <sub>9</sub> H <sub>18</sub> O <sub>9</sub> 258.25	Acetaminic acid <b>Aci</b> C <sub>9</sub> H <sub>18</sub> O <sub>9</sub> 250.25	Legonaminic acid <b>Leg</b> C <sub>9</sub> H <sub>18</sub> O <sub>9</sub> 250.25	4-Ep-legonaminic acid <b>4eLeg</b> C <sub>9</sub> H <sub>18</sub> O <sub>9</sub> 250.25	8-Ep-legonaminic acid <b>8eLeg</b> C <sub>9</sub> H <sub>18</sub> O <sub>9</sub> 250.25	8-Ep-metaminic acid <b>8eAci</b> C <sub>9</sub> H <sub>18</sub> O <sub>9</sub> 250.25						
						7-Deoxy-D-glycero-D-galacto-nonulosonic acid <b>Kdn</b> C <sub>9</sub> H <sub>16</sub> O <sub>9</sub> 268.22	Neuraminic acid <b>Neu</b> C <sub>9</sub> H <sub>18</sub> NO <sub>9</sub> 267.23	N-Acetyl-neuraminic acid <b>Neu5Ac</b> C <sub>9</sub> H <sub>17</sub> NO <sub>10</sub> 309.27	N-Glycolyl-neuraminic acid <b>Neu5Gc</b> C <sub>9</sub> H <sub>17</sub> NO <sub>10</sub> 325.27	Fucaminic acid <b>Fus</b> C <sub>9</sub> H <sub>18</sub> NO <sub>9</sub> 305.27							

Name: Glucose  
Symbol: Glc  
Formula: C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>  
Mass: 180.16

## Category

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