

Symbol and Text Nomenclature for Representation of Glycan Structure Nomenclature Committee Consortium for Functional Glycomics

I. Symbol nomenclature

The Nomenclature committee evaluated symbol nomenclatures in wide use and consulted with a variety of interested parties. The committee selected a version adapted by the Editors of “*Essentials of Glycobiology*” from that originally put forward by Stuart Kornfeld, and further modified it to fit Consortium needs based on the following criteria:

- The nomenclature must be convenient for the annotation of mass spectra. To this end, it was decided that:
 - Each sugar type (eg sugars of the same mass: hexose, hexosamine and N-acetylhexosamine), should have the same shape.
 - Isomers of each sugar type (eg mannose/galactose/glucose) should be differentiated by color or by black/white/shading.
 - Where possible, the same color or shading should be used for derivatives of hexose (eg the corresponding N-acetylhexosamine and hexosamine).
 - Using the same shape but different orientation to represent different sugars should be avoided so structures can be represented either horizontally or vertically.
- The color version of the nomenclature should appear indistinguishable from the black and white version when copied or printed in black and white.
- Because 10% of the population is color blind, the use of both red and green for the same shaped symbols should be avoided.
- If desired, linkage information can be represented in text next to a line connecting the symbols (e.g. $\alpha 4$, $\beta 4$).

Symbol nomenclature – color version printed in color:

Hexoses: Circles

N-Acetylhexosamines: Squares

Hexosamines: Squares divided diagonally

• Galactose stereochemistry: **Yellow (255,255,0)** with Black outline



• Glucose stereochemistry: **BLUE (0,0,250)** with Black outline



• Mannose stereochemistry: **GREEN (0,200,50)** with Black outline



• Fucose: **RED (250,0,0)** with Black outline



• Xylose: (5-pointed star) **ORANGE (250,234,213)** with Black outline



Print in color

Acidic Sugars (Diamonds)

• NeuAc: **PURPLE (200,0,200)** with Black outline



• NeuGc: **LIGHT BLUE (233,255,255)** with Black outline



• KDN: **GREEN (0,200,50)** with Pattern & Black outline



• GlcA: **BLUE (0,0,250)**/Upper segment with Black outline



• IdoA: **TAN (150,100,50)**/Lower segment with Black outline



• GalA: **RED (250,0,0)**/Left segment with Black outline



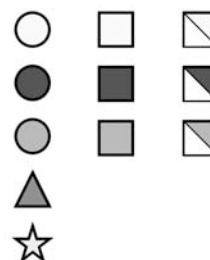
• ManA: **GREEN (0,200,50)**/Right segment with Black outline



Symbol nomenclature – color version printed in black and white:

Hexoses: CirclesN-Acetylhexosamines: SquaresHexosamines: Squares divided diagonally

- Galactose stereochemistry: Yellow (255,255,0) with Black outline
- Glucose stereochemistry: BLUE (0,0,250) with Black outline
- Mannose stereochemistry: GREEN (0,200,50) with Black outline
- Fucose: RED (250,0,0) with Black outline
- Xylose: (5-pointed star) ORANGE (250,234,213) with Black outline

*Print in
black & white*Acidic Sugars (Diamonds)

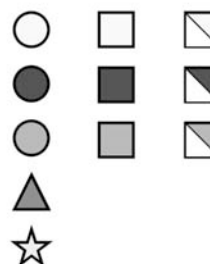
- NeuAc: PURPLE (200,0,200) with Black outline
- NeuGc: LIGHT BLUE (233,255,255) with Black outline
- KDN: GREEN (0,200,50) with Pattern & Black outline
- GlcA: BLUE (0,0,250)/Upper segment with Black outline
- IdoA: TAN (150,100,50)/Lower segment with Black outline
- GalA: RED (250,0,0)/Left segment with Black outline
- ManA: GREEN (0,200,50)/Right segment with Black outline



Symbol nomenclature – black and white version:

Hexoses: CirclesN-Acetylhexosamines: SquaresHexosamines: Squares divided diagonally

- Galactose stereochemistry: White with Black outline
- Glucose stereochemistry: Black with Black outline
- Mannose stereochemistry: Gray with Black outline
- Fucose: Gray with Black outline
- Xylose: (5-pointed star) White with Black outline

Acidic Sugars (Diamonds)

- NeuAc: Black with Black outline
- NeuGc: White with Black outline
- KDN: Gray with Pattern & Black outline
- GlcA: Black/Upper segment with Black outline
- IdoA: Black /Lower segment with Black outline
- GalA: Black /Left segment with Black outline
- ManA: Black/Right segment with Black outline



