

Table 1 Human milk oligosaccharides

<i>Oligosaccharide</i>	<i>Structure</i>	<i>Symbols</i>	<i>Ref.</i>
Neutral oligosaccharides			
2'-FL	Fuc(α 1-2)Gal(β 1-4)Glc		1
3-FL	Gal(β 1-4)Glc Fuc(α 1-3)		2
β 3'-GL	Gal(β 1-3)Gal(β 1-4)Glc		3
β 4'-GL	Gal(β 1-4)Gal(β 1-4)Glc		4
β 6'-GL	Gal(β 1-6)Gal(β 1-4)Glc		5
LNTri-II	GlcNAc(β 1-3)Gal(β 1-4)Glc		6
DF-L(LDFT)	Fuc(α 1-2)Gal(β 1-4)Glc Fuc(α 1-3)		7
LNT	Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-4)Glc		8
LNnT	Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)Glc		9
LNFP-I	Fuc(α 1-2)Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-4)Glc		10
LNFP-II	Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-4)Glc Fuc(α 1-4)		11
LNFP-III	Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)Glc Fuc(α 1-3)		12
LNFP-V	Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-4)Glc Fuc(α 1-3)		13
LNDFH-I	Fuc(α 1-2)Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-4)Glc Fuc(α 1-4)		14
LNDFH-II	Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-4)Glc Fuc(α 1-4)		15
LNDFH-III	Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)Glc Fuc(α 1-3)		3
LNH	Gal(β 1-4)GlcNAc(β 1-6) \ Gal(β 1-4)Glc Gal(β 1-3)GlcNAc(β 1-3) /		16
LNnH	Gal(β 1-4)GlcNAc(β 1-6) \ Gal(β 1-4)Glc Gal(β 1-4)GlcNAc(β 1-3) /		17
Para LNH	Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)Glc		18
Para LNnH	Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)Glc		18

(continued)

Table 1 (continued)

<i>Oligosaccharide</i>	<i>Structure</i>	<i>Symbols</i>	<i>Ref.</i>
F-LNH-I	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \end{array} \begin{array}{l} \diagup \\ \diagdown \end{array} \text{Gal}(\beta 1-4)\text{Glc} $		19
F-LNH-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \end{array} \begin{array}{l} \diagup \\ \diagdown \end{array} \text{Gal}(\beta 1-4)\text{Glc} $		20
F-LNH-III	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-4) \end{array} \begin{array}{l} \diagup \\ \diagdown \end{array} \text{Gal}(\beta 1-4)\text{Glc} $		21
F-LNnH-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \end{array} \begin{array}{l} \diagup \\ \diagdown \end{array} \text{Gal}(\beta 1-4)\text{Glc} $		18
F-LNnH-I	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-3) \end{array} \begin{array}{l} \diagup \\ \diagdown \end{array} \text{Gal}(\beta 1-4)\text{Glc} $		18
F-para-LNH-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		22
F-para-LNH-II	$ \begin{array}{c} \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		23
F-para-LNH-III	$ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} $		18
F-para-LNnH-I	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		18
F-para-LNnH-II	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		18
DF-LNH-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-4) \end{array} \begin{array}{l} \diagup \\ \diagdown \end{array} \text{Gal}(\beta 1-4)\text{Glc} $		16
DF-LNH-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \end{array} \begin{array}{l} \diagup \\ \diagdown \end{array} \text{Gal}(\beta 1-4)\text{Glc} $		19

(continued)

Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
DF-LNnH	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		24
DF-para-LNH	$ \begin{array}{c} \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-4) \qquad \qquad \text{Fuc}(\alpha 1-3) \end{array} $		25
DF-para-LNH-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		18
DF-para-LNH-III	$ \begin{array}{c} \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		18
DF-para-LNnH	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-3) \qquad \qquad \text{Fuc}(\alpha 1-3) \end{array} $		25
TF-LNH -I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		26
TF-LNH -II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		21
TF-para-LNH-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-4) \qquad \qquad \text{Fuc}(\alpha 1-3) \end{array} $		27
TF-para-LNH-II	$ \begin{array}{c} \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-4) \qquad \qquad \text{Fuc}(\alpha 1-3) \qquad \qquad \text{Fuc}(\alpha 1-3) \end{array} $		23
TF-para-LNnH	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-3) \qquad \qquad \text{Fuc}(\alpha 1-3) \qquad \qquad \text{Fuc}(\alpha 1-3) \end{array} $		23
iso-LNO	$ \begin{array}{c} \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		18

(continued)

Table 1 (continued)

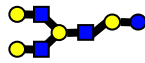
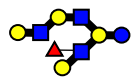
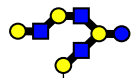
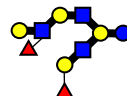
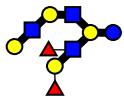
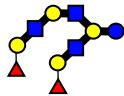
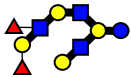
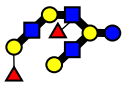
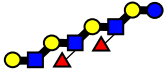
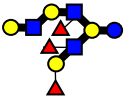
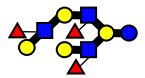
Oligosaccharide	Structure	Symbols	Ref.
<i>novo</i> -LNnO	$\begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) / \end{array} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc}$		18
F-LNO-I	$\begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) / \end{array} \text{Gal}(\beta 1-4)\text{Glc}$		28
F-LNO-II	$\begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) / \\ \text{Fuc}(\alpha 1-4) \end{array} \text{Gal}(\beta 1-4)\text{Glc}$		21
F-LNO-III	$\begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) / \end{array} \text{Gal}(\beta 1-4)\text{Glc}$		21
F-LNnO	$\begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) / \end{array} \text{Gal}(\beta 1-4)\text{Glc}$		29
F-LNnO-II	$\begin{array}{c} \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) / \end{array} \text{Gal}(\beta 1-4)\text{Glc}$		18
F-iso-LNO	$\begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) / \end{array} \text{Gal}(\beta 1-4)\text{Glc}$		30
F-iso-LNnO-I	$\begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) / \end{array} \text{Gal}(\beta 1-4)\text{Glc}$		18
F-novo-LNO	$\begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) / \\ \text{Fuc}(\alpha 1-4) \end{array} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc}$		18
F-novo-LNnO	$\begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) / \\ \text{Fuc}(\alpha 1-3) \end{array} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc}$		18
F-para-LNO	$\begin{array}{c} \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array}$		18
DF-iso-LNnO	$\begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) / \\ \text{Fuc}(\alpha 1-3) \end{array} \text{Gal}(\beta 1-4)\text{Glc}$		18

Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
DF-LNO-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \qquad \qquad \text{Fuc}(\alpha 1-3) \\ \qquad \qquad \qquad \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \qquad \qquad \qquad \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \qquad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		29
DF-LNO-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \qquad \qquad \qquad \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \qquad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		29
DF-LNO-III	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \qquad \qquad \qquad \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \qquad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		18
DF-LNnO-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-4) \qquad \qquad \text{Fuc}(\alpha 1-3) \\ \qquad \qquad \qquad \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \qquad \qquad \qquad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \qquad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		29
DF-LNnO-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \qquad \qquad \qquad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \qquad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		29
DF-LNnO-III	$ \begin{array}{c} \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \qquad \qquad \qquad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \qquad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		18
DF-iso-LNO-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-4) \qquad \qquad \text{Fuc}(\alpha 1-3) \\ \qquad \qquad \qquad \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \qquad \qquad \qquad \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \qquad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		31
DF-iso-LNO-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \qquad \qquad \qquad \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \qquad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		31
DF-iso-LNO-III	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \qquad \qquad \qquad \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \qquad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		18

(continued)

Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
DF-iso-LNO-IV	$ \begin{array}{c} \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \searrow \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \text{Fuc}(\alpha 1-4) \quad \end{array} $		18
DF-iso-LNO-V	$ \begin{array}{c} \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \searrow \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \quad \quad \quad \end{array} $		18
DF-iso-LNO-VI	$ \begin{array}{c} \text{Fuc}(\alpha 1-4) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \searrow \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \quad \quad \quad \end{array} $		18
DF-iso-LNO-VII	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \searrow \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \quad \quad \quad \end{array} $		18
DF-para-LNnO	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \text{Fuc}(\alpha 1-3) \quad \quad \quad \text{Fuc}(\alpha 1-3) \\ \quad \quad \quad \end{array} $		18
TF-LNO-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \quad \quad \quad \text{Fuc}(\alpha 1-3) \\ \quad \quad \quad \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \searrow \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \text{Fuc}(\alpha 1-4) \quad \end{array} $		29
TF-LNO-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \searrow \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \text{Fuc}(\alpha 1-4) \quad \end{array} $		18
TF-LNnO	$ \begin{array}{c} \text{Fuc}(\alpha 1-4) \quad \quad \quad \text{Fuc}(\alpha 1-3) \\ \quad \quad \quad \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \searrow \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \text{Fuc}(\alpha 1-3) \quad \end{array} $		26

(continued)

Table 1 (continued)

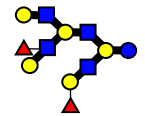
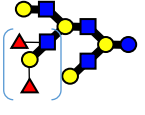
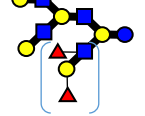
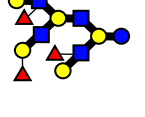
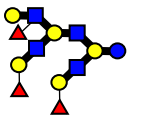
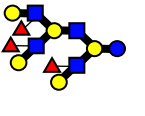
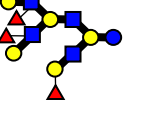
Oligosaccharide	Structure	Symbols	Ref.
TF-iso-LNO-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		32
TF-iso-LNO-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-4) \qquad \text{Fuc}(\alpha 1-3) \\ \qquad \qquad \qquad \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \qquad \qquad \qquad \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		30
TF-iso-LNO-III	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		18
TF-iso-LNO-IV	$ \begin{array}{c} \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		18
TF-iso-LNnO	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \qquad \text{Fuc}(\alpha 1-3) \\ \qquad \qquad \qquad \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \qquad \qquad \qquad \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		18
Tetra-F-iso-LNO	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		24
Tetra-F-para-LNO	$ \begin{array}{c} \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-4) \qquad \text{Fuc}(\alpha 1-3) \qquad \text{Fuc}(\alpha 1-3) \end{array} $		24
Penta-F-iso-LNO	$ \begin{array}{c} \text{Fuc}(\alpha 1-4) \qquad \text{Fuc}(\alpha 1-3) \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		24

(continued)

Oligosaccharide	Structure	Symbols	Ref.
LND	Gal(β1-4)GlcNAc(β1-6) Gal(β1-3)GlcNAc(β1-3)		32
F-LND-I	Fuc(α1-3) Gal(β1-4)GlcNAc(β1-6) Gal(β1-3)GlcNAc(β1-3)		32
F-LND-II	Gal(β1-4)GlcNAc(β1-6) Gal(β1-3)GlcNAc(β1-3)		33
DF-LND-I	Fuc(α1-3) Gal(β1-4)GlcNAc(β1-6) Gal(β1-3)GlcNAc(β1-3) Fuc(α1-2)Gal(β1-3)GlcNAc(β1-3)		34
DF-LND-II	Gal(β1-4)GlcNAc(β1-6) Gal(β1-3)GlcNAc(β1-3) Fuc(α1-4)		34
DF-LND-III	Fuc(α1-3) Gal(β1-4)GlcNAc(β1-6) Gal(β1-3)GlcNAc(β1-3) Fuc(α1-4)		34
DF-LND-IV	Fuc(α1-3) Gal(β1-4)GlcNAc(β1-6) Gal(β1-3)GlcNAc(β1-3) Fuc(α1-4)		34
DF-LND-V	Fuc(α1-3) Gal(β1-4)GlcNAc(β1-6) Fuc(α1-2)Gal(β1-3)GlcNAc(β1-3)		34

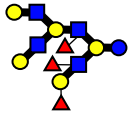
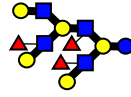
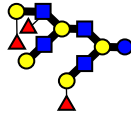
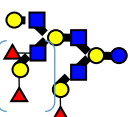
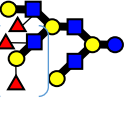
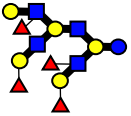
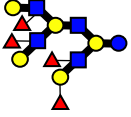
(continued)

Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
DF-LND-VI	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-4) \quad \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \end{array} \begin{array}{c} \diagup \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \diagup \text{Gal}(\beta 1-4)\text{Glc} \diagdown \end{array} $		34
	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3/4)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-4/3) \quad \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \end{array} \begin{array}{c} \diagup \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \diagup \text{Gal}(\beta 1-4)\text{Glc} \diagdown \end{array} $		34
	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3/4)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-4/3) \end{array} \begin{array}{c} \diagup \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \diagup \text{Gal}(\beta 1-4)\text{Glc} \diagdown \end{array} $		34
TriF-LND-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-4) \end{array} \begin{array}{c} \diagup \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \diagup \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \diagdown \\ \diagup \text{Gal}(\beta 1-4)\text{Glc} \diagdown \end{array} $		34
TriF-LND-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \end{array} \begin{array}{c} \diagup \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \diagup \text{Gal}(\beta 1-4)\text{Glc} \diagdown \end{array} $		34
TriF-LND-III	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-4) \end{array} \begin{array}{c} \diagup \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \diagup \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \diagdown \\ \diagup \text{Gal}(\beta 1-4)\text{Glc} \diagdown \end{array} $		34
TriF-LND-IV	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-4) \quad \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \end{array} \begin{array}{c} \diagup \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \diagup \text{Gal}(\beta 1-4)\text{Glc} \diagdown \end{array} $		34

(continued)

Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
TriF-LND-V	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \qquad \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		21
TriF-LND-VI	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \qquad \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-4) \qquad \qquad \text{Fuc}(\alpha 1-4) \end{array} $		21
TriF-LND-VII	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \qquad \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \end{array} $		21
	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3/4)\text{GlcNAc}(\beta 1-3) \qquad \text{Fuc}(\alpha 1-4/3) \text{ Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \end{array} $		34
	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3/4)\text{GlcNAc}(\beta 1-3) \qquad \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-4/3) \end{array} $		34
TetraF-LND-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \qquad \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		34
TetraF-LND-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \qquad \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-4) \qquad \qquad \text{Fuc}(\alpha 1-4) \end{array} $		34

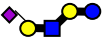
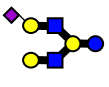
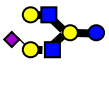
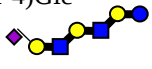
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Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
TetraF-LND-III	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \quad \backslash \\ \quad \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \text{Fuc}(\alpha 1-4) \end{array} $		34
	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3/4)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \quad \backslash \\ \quad \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3/4)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \text{Fuc}(\alpha 1-4/3) \quad \text{Fuc}(\alpha 1-4/3) \end{array} $		34
LNnD	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \quad \backslash \\ \quad \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		34
F-LNnD-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \quad \backslash \\ \quad \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		34
F-LNnD-II	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \quad \backslash \\ \quad \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		34
DF-LNnD	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \quad \backslash \\ \quad \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		34
iso-LND	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \quad \backslash \\ \quad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \quad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		18
DF-novo-LND	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		18
	$ \begin{array}{c} \text{Fuc}(\alpha 1-4) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \quad \backslash \\ \quad \text{Fuc}(\alpha 1-3) \quad \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \quad \backslash \\ \text{Fuc}(\alpha 1-4) \quad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		35

(continued)

Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
Acidic oligosaccharides			
3'-SL	Neu5Ac(α 2-3)Gal(β 1-4)Glc		36
6'-SL	Neu5Ac(α 2-6)Gal(β 1-4)Glc		37
F-SL	Neu5Ac(α 2-3)Gal(β 1-4)Glc Fuc(α 1-3)		38
LST a	Neu5Ac(α 2-3)Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-4)Glc		39
LST b	Neu5Ac(α 2-6) Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-4)Glc		39
LST c	Neu5Ac(α 2-6)Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)Glc		39
LST d	Neu5Ac(α 2-3)Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)Glc Fuc(α 1-3)		38
F-LST a	Neu5Ac(α 2-3)Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-4)Glc Fuc(α 1-4)		38
F-LST b	Neu5Ac(α 2-6) Fuc(α 1-2)Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-4)Glc		40
F-LST c	Neu5Ac(α 2-6)Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)Glc Fuc(α 1-3)		41
S-LNH-I	Neu5Ac(α 2-6)Gal(β 1-4)GlcNAc(β 1-6) \ Gal(β 1-4)Glc Gal(β 1-3)GlcNAc(β 1-3) /		16
S-LNH-II	Gal(β 1-4)GlcNAc(β 1-6) \ Gal(β 1-4)Glc Gal(β 1-3)GlcNAc(β 1-3) / Neu5Ac(α 2-6)		42
S-LNnH-I	Neu5Ac(α 2-6)Gal(β 1-4)GlcNAc(β 1-6) \ Gal(β 1-4)Glc Gal(β 1-4)GlcNAc(β 1-3) /		17
S-LNnH-II	Gal(β 1-4)GlcNAc(β 1-6) \ Gal(β 1-4)Glc Neu5Ac(α 2-6)Gal(β 1-4)GlcNAc(β 1-3) /		43
S-para-LNnH	Neu5Ac(α 2-6)Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)Glc		44

(continued)

Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
FS-LNH	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		45
FS-LNH-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Neu5Ac}(\alpha 2-6) \end{array} $		46
FS-LNH-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		47
FS-LNH-III	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		48
FS-LNH-IV	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		49
FS-LNnH-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		50
FS-LNnH-II	$ \text{Fuc}(\alpha 1- \left[\begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \nearrow \end{array} \right] \text{Gal}(\beta 1-4)\text{Glc} $		17
FS-para-LNnH-I	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		44
FS-para-LNnH-II	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		44
DFS-LNH-I	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		46
DFS-LNH-II	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		47

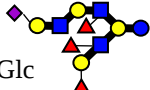
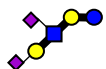
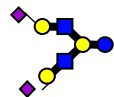
(continued)

Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
DFS-LNH-III	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		44
DFS-LNH-IV	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		44
DFS-LNnH	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		46
S-LNO	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		44
FS-LNO-I	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		48
FS-LNO-II	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		44
FS-iso-LNO	$ \begin{array}{c} \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		49
DFS-iso-LNO-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		49
DFS-iso-LNO-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-4) \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \quad \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		49

(continued)

Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
DFS-LNO-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		49
DFS-LNO- II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		44
DFS-LNO- III	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		44
TFS-LNO	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		44
TFS-iso-LNO	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		48
DS-LNT	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6) \\ \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \end{array} $		50
FDS-LNT-I	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6) \\ \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		51
FDS-LNT-II	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6) \\ \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		52
DS-LNH-I	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \nearrow \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		51

(continued)

Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
DS-LNH-II	$ \begin{array}{c} \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \diagup \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Neu5Ac}(\alpha 2-6) \end{array} $		51
DS-LNnH	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \diagup \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		46
FDS-LNH-I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \diagup \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Neu5Ac}(\alpha 2-6) \end{array} $		53
FDS-LNH-II	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \diagup \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Neu5Ac}(\alpha 2-6) \end{array} $		53
FDS-LNH-III	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \diagup \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-4) \end{array} $		47
FDS-LNnH	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-3/\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \text{Neu5Ac}(\alpha 2-3/\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \diagup \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Fuc}(\alpha 1-3) \end{array} $		53
TS-LNH	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \diagup \text{Gal}(\beta 1-4)\text{Glc} \\ \\ \text{Neu5Ac}(\alpha 2-6) \end{array} $		54
SLNnD	$ \begin{array}{c} \text{Neu5Ac}(\alpha 2-6)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3) \diagup \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \diagdown \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3) \diagup \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		44
-	$ \begin{array}{c} \text{Fuc}(\alpha 1-4) \\ \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc} \end{array} $		55
-	$ \begin{array}{c} \text{Fuc}(\alpha 1-4) \\ \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal} \end{array} $		55

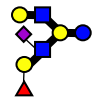
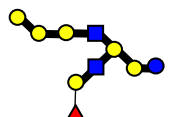
(continued)

Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
H-Tri	$\text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-4)\text{GlcNAc}$		56
Le ^x Tri	$\text{Gal}(\beta 1-4)\text{GlcNAc}$ $\text{Fuc}(\alpha 1-3)$		56
Le ^a Tri	$\text{Fuc}(\alpha 1-4)\text{GlcNAc}$ $\text{Gal}(\beta 1-3)$		56
Le ^b Penta	$\text{Fuc}(\alpha 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}$ $\text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)$		56
GalLNT	$\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc}$ $\text{Gal}(\beta 1-3)$		56
novoLNP	$\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{Glc}$ $\text{Gal}(\beta 1-3)$		56
DF-LNH-III	$\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{Glc}$ $\text{Fuc}(\alpha 1-4)\text{GlcNAc}(\beta 1-3)$ $\text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)$		56
TF-LNnH-III	$\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \text{Gal}(\beta 1-4)\text{Glc}$ $\text{Fuc}(\alpha 1-3)$ $\text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)$ $\text{Fuc}(\alpha 1-3)$		56
LNFP-IV	$\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc}$ $\text{Fuc}(\alpha 1-3)$		57
A-Tetra	$\text{GalNAc}(\alpha 1-3)\text{Gal}(\beta 1-4)\text{Glc}$ $\text{Fuc}(\alpha 1-2)$		58
A-Hexa	$\text{GalNAc}(\alpha 1-3)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc}$ $\text{Fuc}(\alpha 1-2)$		58

(continued)

Table 1 (continued)

<i>Oligosaccharide</i>	<i>Structure</i>	<i>Symbols</i>	<i>Ref.</i>
3'-SLN	Neu5Ac(α 2-3)Gal(β 1-4)GlcNAc		56
6'-SLN	Neu5Ac(α 2-6)Gal(β 1-4)GlcNAc		56
F-LSTd	Neu5Ac(α 2-6)Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)Glc Fuc α 1-2 Gal(β 1-3)		56
FS-LNH-V	Gal(β 1-4)GlcNAc(β 1-6) Neu5Ac(α 2-6) Fuc(α 1-2)Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-4)Glc		56
FS-para-LNnH-III	Neu5Ac(α 2-3)Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)GlcNAc(β 1-3)Gal(β 1-4)Glc Fuc(α 1-3)		56
-	Gal(β 1-4) Glc Gal(β 1-2)		59
-	Gal(β 1-4) Glc Glc(α 1-2)		59
-	GalNAc(β 1-4)GlcNAc(β 1-6)Gal(β 1-4)Glc		59
-	Gal(β 1-4)Glc(β 1-4)Glc		59
-	Gal(β 1-6)Gal(β 1-?)Gal(β 1-4)GlcNAc(β 1-6) Fuc(α 1-2)Gal(β 1-3)GlcNAc(β 1-3)Gal(β 1-6)Gal(β 1-4)Glc		60

(continued)

Table 1 (continued)

Oligosaccharide	Structure	Symbols	Ref.
FS-novo-LN- I	$ \begin{array}{c} \text{Fuc}(\alpha 1-3) \\ \\ \text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-6) \backslash \\ \text{Neu5Ac}(\alpha 2-3)\text{Gal}(\beta 1-3) \swarrow \text{Gal}(\beta 1-4)\text{Glc} \end{array} $		40
DF-para-LNH sulfate I	$ \begin{array}{c} \text{6S} \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-3) \end{array} $		50
DF-para-LNH sulfate II	$ \begin{array}{c} \text{6S} \\ \\ \text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-4) \qquad \text{Fuc}(\alpha 1-3) \end{array} $		50
TF-para-LNH sulfate	$ \begin{array}{c} \text{6S} \\ \\ \text{Fuc}(\alpha 1-2)\text{Gal}(\beta 1-3)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{GlcNAc}(\beta 1-3)\text{Gal}(\beta 1-4)\text{Glc} \\ \qquad \qquad \qquad \\ \text{Fuc}(\alpha 1-4) \qquad \text{Fuc}(\alpha 1-3) \end{array} $		50

F, fucose; L, lactose; S, sialyl; DF, difucosyl; DS, disialyl; TS, trisialyl; FS, fucosyl sialyl; DFS, difucosyl sialyl; TFS, trifucosyl sialyl; FDS, fucosyl disialyl; DGal, digalactosyl; FL fucosyllactose; GL, galactosyllactose; LDFT, lacto difucotetraose; LNT, lacto-*N*-tetraose; LNnT, lacto-*N*-neotetraose; LNFP, lacto-*N*-fucopentaose; LNP, lacto-*N*-pentaose; LNDFH, lacto-*N*-difucohexaose; LNH, lacto-*N*-hexaose; LNnH, lacto-*N*-neohexaose; LNO, lacto-*N*-octaose; LNnO, lacto-*N*-neooctaose; LND, lacto-*N*-decaose; LNnD, lacto-*N*-neodecaose

CFG symbols are used to express individual monosaccharides with different colors, whereas different glycosidic linkages are shown by different bond angles in a clockwise format; i.e., 1-2 linkage (6:00 O'clock), 1-3(7:30), 1-4(9:00), and 1-6(10:30). On the other hand, α and β anomers are represented by thin and thick lines, respectively.

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