











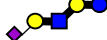























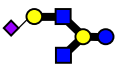








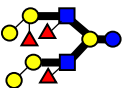
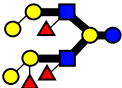





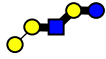



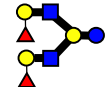
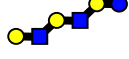
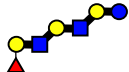


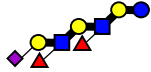
Table S1. Non human milk oligosaccharides

<i>Oligosaccharide</i>	<i>Structure</i>	<i>Symbols</i>	<i>References</i>
Cow (<i>Bos taurus</i>) colostrum or milk			
3'-GalNAcL	GalNAc α 1-3Gal β 1-4Glc		1
Isoglobotriose	Gal α 1-3Gal β 1-4Glc		1
<i>novo</i> -LNP I	Gal β 1-4GlcNAc β 1 ⁶ Gal β 1-4Glc Gal β 1 ³		1
	Gal β 1-4GlcNAc β 1 ⁶ GlcNAc β 1 ³ Gal β 1-4Glc		2
β 3'-GalNAcL	GalNAc β 1-3Gal β 1-4Glc		3
LacdiNAc	GalNAc β 1-4GlcNAc		2
A-tetrasaccharide	GalNAc α 1-3Gal β 1-4Glc Fuc α 1-2		2
N-acetylgalactosaminylglucose	GalNAc β 1-4Glc		4
3-FLN	Gal β 1-4GlcNAc Fuc α 1 ³		5
6'-SLN	Neu5Ac α 2-6Gal β 1-4GlcNAc		6
3''-S- β 3'-GL	Neu5Ac α 2-3Gal β 1-3Gal β 1-4Glc		7
6'-S- β 3'-GL	Gal β 1-3Gal β 1-4Glc Neu5Ac α 2 ⁶		2
3-SLNnT	Neu5Ac α 2-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc		2
	Neu5Ac α 2-6Gal β 1-4Glc GlcNAc β 1 ³		2
	Neu5Gc α 2-8Neu5Ac α 2-3Gal β 1-4Glc		2
	Neu5Ac α 2-8Neu5Gc α 2-3Gal β 1-4Glc		2

<i>Oligosaccharide</i>	<i>Structure</i>	<i>Symbols</i>	<i>References</i>
DSL	Neu5Ac α 2-8Neu5Ac α 2-3Gal β 1-4Glc		6
	Neu5Gc α 2-8Neu5Gc α 2-3Gal β 1-4Glc		7
	Neu5Ac α 2-3Gal β 1-3Gal β 1-4Glc 6 Neu5Ac α 2		7
Goat (<i>Capra aegagrus hircus</i>) colostrum or milk			
3'-S- β 6'-GL	Gal β 1-6Gal β 1-4Glc 3 Neu5Ac α 2		8
6'-S- β 3'-GL	Gal β 1-3Gal β 1-4Glc 6 Neu5Ac α 2		8
3'-SLN	Neu5Ac α 2-3Gal β 1-4GlcNAc		7
	Neu5Ac α 2-3GlcNAc β 1-3Gal β 1-4Glc		7
6'-Neu5GcLN	Neu5Gc α 2-6Gal β 1-4GlcNAc		7
3''-Neu5Gc- β 3'-GL	Neu5Gc α 2-3Gal β 1-3Gal β 1-4Glc		7
	Neu5Gc α 2-8Neu5Ac α 2-3Gal β 1-4Glc		7
	Neu5Gc α 2-3Gal β 1-3Gal β 1-4Glc 6 Neu5Ac α 2		7
Bactrian camel (<i>Camelus bactrianus</i>) colostrum/milk			
SLNPa	Gal β 1-4GlcNAc β 1 6 Gal β 1-4Glc 3 Neu5Ac α 2-3Gal β 1		9
SLNPb	Neu5Ac α 2-6Gal β 1-4GlcNAc β 1 6 Gal β 1-4Glc 3 Gal β 1		9

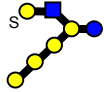

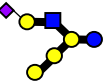




<i>Oligosaccharide</i>	<i>Structure</i>	<i>Symbols</i>	<i>References</i>
Sheep (<i>Ovis aries</i>) colostrum			
3'-Neu5GcL	Neu5Gc α 2-3Gal β 1-4Glc		7
3'-Neu5GcLN	Neu5Gc α 2-3Gal β 1-4GlcNAc		7
6'-Neu5GcL	Neu5Gc α 2-6Gal β 1-4Glc		7
6'-Neu5Gc- β 3'-GL	Gal β 1-3Gal β 1-4Glc 6 Neu5Gc α 2		7
	Neu5Gc α 2-3Gal β 1-3Gal β 1-4Glc 6 Neu5Ac α 2		7
Horse (<i>Equus ferus caballus</i>) colostrum			
iso-LNT	Gal β 1-4GlcNAc β 1-6Gal β 1-4Glc		10
Pig (<i>Sus scropha</i>) colostrum			
DGalLNnH	Gal α 1-3Gal β 1-4GlcNAc β 1 6 Gal β 1-4Glc 3 Gal α 1-3Gal β 1-4GlcNAc β 1		7
	Neu5Ac α 2-3Gal β 1-4GlcNAc β 1 6 Gal β 1-4Glc 3 GlcNAc β 1		7
Dog (<i>Canis lupus familiaris</i>) milk			
A-tetrasaccharide	GalNAc α 1-3Gal β 1-4Glc 2 Fuc α 1		11
Ezo brown bear (<i>Ursus arctos yesoensis</i>) milk			
Gal-LNFP III	Gal α 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc 3 Fuc α 1		12
DF D Gal-LNnH	Fuc α 1 3 Gal α 1-3Gal β 1-4GlcNAc β 1 6 Gal β 1-4Glc 3 Gal α 1-3Gal β 1-4GlcNAc β 1 3 Fuc α 1		12

<i>Oligosaccharide</i>	<i>Structure</i>	<i>Symbols</i>	<i>References</i>
Japanese black bear (<i>Ursus thibetanus japonicus</i>) milk			
3-F-isoglobotriose	Gal α 1-3Gal β 1-4Glc Fuc α 1 ³		13
B-tetrasaccharide	Gal α 1-3Gal β 1-4Glc Fuc α 1 ²		13
B-pentasaccharide	Gal α 1-3Gal β 1-4Glc Fuc α 1 ² Fuc α 1 ³		13
B-heptasaccharide type II chain	Gal α 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc Fuc α 1 ² Fuc α 1 ³		13
DF DGal-LNnT	Gal α 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc Fuc α 1 ³ Fuc α 1 ³		13
TF DGal-LNnH a	Gal α 1-3Gal β 1-4GlcNAc β 1 ⁶ Gal β 1-4Glc Gal α 1-3Gal β 1-4GlcNAc β 1 ³ Gal β 1-4Glc Fuc α 1 ³		13
TF DGal-LNnH b	Gal α 1-3Gal β 1-4GlcNAc β 1 ⁶ Gal β 1-4Glc Gal α 1-3Gal β 1-4GlcNAc β 1 ³ Gal β 1-4Glc Fuc α 1 ² Fuc α 1 ³		13
FS Gal-LNnH	Gal α 1-3Gal β 1-4GlcNAc β 1 ⁶ Gal β 1-4Glc Neu5Ac α 2-6Gal β 1-4GlcNAc β 1 ³		14
DFSGal-LNnH	Fuc α 1 ² Fuc α 1 ³ Gal α 1-3Gal β 1-4GlcNAc β 1 ⁶ Gal β 1-4Glc Neu5Ac α 2-6Gal β 1-4GlcNAc β 1 ³		14

<i>Oligosaccharide</i>	<i>Structure</i>	<i>Symbols</i>	<i>References</i>
Polar bear (<i>Ursus maritimus</i>) milk			
A-pentasaccharide	GalNAc α 1-3Gal β 1-4Glc Fuc α 1 ² Fuc α 1 ³		15
Galilipentasaccharide	Gal α 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc		15
B-hexasaccharide type II chain	Gal α 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc Fuc α 1 ²		15
Striped skunk (<i>Mephitis mephitis</i>) milk			
GalMSLNnH	Gal α 1-3Gal β 1-4GlcNAc β 1 ⁶ ₃ Gal β 1-4Glc Neu5Ac α 2-6Gal β 1-4GlcNAc β 1		16
Hooded seal (<i>Cystophora cristata</i>) milk			
LNFP IV	Fuc α 1-2Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc		17
DF-LNnH II	Fuc α 1-2Gal β 1-4GlcNAc β 1 ⁶ ₃ Gal β 1-4Glc Fuc α 1-2Gal β 1-4GlcNAc β 1		17
<i>para</i> -LNnH	Gal β 1-4GlcNAc β 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc		17
F- <i>para</i> -LNnH	Fuc α 1-2Gal β 1-4GlcNAc β 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc		17
FS-LNnH	Fuc α 1-2Gal β 1-4GlcNAc β 1 ⁶ ₃ Gal β 1-4Glc Neu5Ac α 2-6Gal β 1-4GlcNAc β 1		17
Asian elephant (<i>Elephas maximus</i>) milk			
MS- <i>para</i> -LNnH	Neu5Ac α 2-6Gal β 1-4GlcNAc β 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc		18
MSDF- <i>para</i> -LNnH	Neu5Ac α 2-3Gal β 1-4GlcNAc β 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc Fuc α 1 ³ Fuc α 1 ³		18


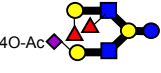
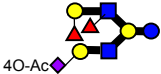
Oligosaccharide	Structure	Symbols	References
African elephant (<i>Loxodonta africana</i>) milk			
DFGal- <i>para</i> -LNnH	Gal α 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc Fuca1 ³ Fuca1 ³		19
MSMFLNnT I	Neu5Ac α 2-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc Fuca1 ³		19
MSMFLNnT II	Neu5Ac α 2-6Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc Fuca1 ³		19
MSMF- <i>para</i> -LNnH II	Neu5Ac α 2-6Gal β 1-4GlcNAc β 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc Fuca1 ³		19
Giant anteater (<i>Myrmecophaga tridactyla</i>) milk			
Neu5GcLNnT	Neu5Gc α 2-6Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc		20
Common bottlenose dolphin (<i>Tursiops truncatus</i>) milk			
Globotriose	Gal α 1-4Gal β 1-4Glc		21
GM ₂ tetrasaccharide	GalNAc β 1 ⁴ Gal β 1-4Glc Neu5Ac α 2 ³		21
Northern minke whale (<i>Balaenoptera acutorostrata</i>) milk			
S- <i>para</i> -LNnH	Neu5Ac α 2-3Gal β 1-4GlcNAc β 1-3Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc		22
Tammar wallaby (<i>Macropus eugenii</i>) milk			
Di-GalL	Gal β 1-3Gal β 1-3Gal β 1-4Glc		23
Tri-GalL	Gal β 1-3Gal β 1-3Gal β 1-3Gal β 1-4Glc		23
Tetra-GalL	Gal β 1-3Gal β 1-3Gal β 1-3Gal β 1-3Gal β 1-4Glc		23
Penta-GalL	Gal β 1-3Gal β 1-3Gal β 1-3Gal β 1-3Gal β 1-3Gal β 1-4Glc		23

Oligosaccharide	Structure	Symbols	References
<i>novo</i> -LNT	GlcNAc β 1 Gal β 1 ³ Gal β 1-4Glc		24
Gal- <i>novo</i> -LNP I	Gal β 1-4GlcNAc β 1 Gal β 1-3Gal β 1 ⁶ Gal β 1-4Glc		25
Red kangaroo (<i>Macropus rufus</i>) milk			
3''-S- β 3'-GL	Neu5Ac α 2-3Gal β 1-3Gal β 1-4Glc		26
	Neu5Ac α 2-3Gal β 1-3Gal β 1-3Gal β 1-4Glc		26
SLNPc	Neu5Ac α 2-3Gal β 1-4GlcNAc β 1 Gal β 1 ⁶ Gal β 1-4Glc		26
	Neu5Ac α 2-3Gal β 1-3Gal β 1-3Gal β 1-3Gal β 1-4Glc		26
	Gal β 1-4GlcNAc β 1 Gal β 1 ⁶ Gal β 1-4Glc		26
	Neu5Ac α 2-3Gal β 1-3Gal β 1 ³		26
	Neu5Ac α 2-3Gal β 1-4GlcNAc β 1 Gal β 1-3Gal β 1 ⁶ Gal β 1-4Glc		26
	3-SO ₃ -Gal β 1-3Gal β 1-3Gal β 1-4Glc		26
	3-SO ₃ -Gal β 1-3Gal β 1-3Gal β 1-3Gal β 1-4Glc		26
	Gal β 1-4GlcNAc β 1 Gal β 1 ⁶ Gal β 1-4Glc		26
	3-SO ₃ -Gal β 1-3Gal β 1 ³		26
	3-SO ₃ -Gal β 1-4GlcNAc β 1 Gal β 1-3Gal β 1 ⁶ Gal β 1-4Glc		26
	3-SO ₃ -Gal β 1-3Gal β 1-3Gal β 1-3Gal β 1-4Glc		26
	Gal β 1-4GlcNAc β 1 Gal β 1 ⁶ Gal β 1-4Glc		26
	3-SO ₃ -Gal β 1-3Gal β 1-3Gal β 1		26

Oligosaccharide	Structure	Symbols	References
	$3\text{-SO}_3\text{-Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1\text{-3Gal}\beta 1\text{-3Gal}\beta 1$ $\begin{matrix} 6 \\ 3 \end{matrix} \text{Gal}\beta 1\text{-4Glc}$		26
Common brushtail possum (<i>Trichosurus vulpecula</i>) milk			
Gal-novo-LNP II	$\text{Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1$ $\begin{matrix} 6 \\ 3 \end{matrix} \text{Gal}\beta 1\text{-3Gal}\beta 1\text{-4Glc}$		27
	$\text{Neu5Ac}\alpha 2\text{-6Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1\text{-3Gal}\beta 1$ $\begin{matrix} 6 \\ 3 \end{matrix} \text{Gal}\beta 1\text{-4Glc}$		27
Koala (<i>Phascolarctos cinereus</i>) milk			
FLNP	$\text{Fuc}\alpha 1_3$ $\text{Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1$ $\begin{matrix} 6 \\ 3 \end{matrix} \text{Gal}\beta 1\text{-4Glc}$		28
Eastern quoll (<i>Dasyurus viverrinus</i>) milk			
Gal-novo-LNP III	$\text{Gal}\beta 1\text{-3Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1$ $\begin{matrix} 6 \\ 3 \end{matrix} \text{Gal}\beta 1\text{-4Glc}$		29
novo-LNO	$\text{Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1\text{-4GlcNAc}\beta 1_6$ $\text{Gal}\beta 1\text{-3Gal}\beta 1\text{-3Gal}\beta 1\text{-4Glc}$		29
SLNOa	$\text{Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1\text{-4GlcNAc}\beta 1_6$ $\text{Neu5Ac}\alpha 2\text{-3Gal}\beta 1\text{-3Gal}\beta 1\text{-3Gal}\beta 1\text{-4Glc}$		29

Oligosaccharide	Structure	Symbols	References
Platypus (<i>Ornithorhynchus anatinus</i>) milk			
Neutral oligosaccharides			
LNDFH III	Fuc α 1-2Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc Fuc α 1 ³		30
DF-LNnT	Gal β 1-4GlcNAc β 1-3Gal β 1-4Glc Fuc α 1 ³ Fuc α 1 ³		30
TF-LNnH a	Fuc α 1 ₃ Fuc α 1-2Gal β 1-4GlcNAc β 1 ₆ Gal β 1-4Glc Gal β 1-4GlcNAc β 1 ₃ Fuc α 1 ₃		30
TF-LNnH b	Fuc α 1 ₃ Gal β 1-4GlcNAc β 1 ₆ Gal β 1-4Glc Fuc α 1-2Gal β 1-4GlcNAc β 1 ₃ Fuc α 1 ₃		30
Acidic oligosaccharides			
	4-O-Ac-Neu5Ac α 2-3Gal β 1-4Glc Fuc α 1 ₃		31
and /or	4-O-Ac-Neu5Ac α 2-3Gal β 1-4GlcNAc β 1 ₆ Gal β 1-4Glc 4-O-Ac-Neu5Ac α 2-3Gal β 1-4GlcNAc β 1 ₃		31
	4-O-Ac-Neu5Ac α 2-3Gal β 1-4GlcNAc β 1 ₆ Gal β 1-4Glc 4-O-Ac-Neu5Ac α 2-3Gal β 1-4GlcNAc β 1 ₃		31
	Fuc α 1 ₃ 4-O-Ac-Neu5Ac α 2-3Gal β 1-4GlcNAc β 1 ₆ Gal β 1-4Glc Gal β 1-4GlcNAc β 1 ₃		31
	Fuc α 1 ₃ Gal β 1-4GlcNAc β 1 ₆ Gal β 1-4Glc 4-O-Ac-Neu5Ac α 2-3Gal β 1-4GlcNAc β 1 ₃		31

<i>Oligosaccharide</i>	<i>Structure</i>	<i>Symbols</i>	<i>References</i>
and /or	$4\text{-O-Ac-Neu5Ac}\alpha 2\text{-3Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Fuc}\alpha 1^3$ $\text{Gal}\beta 1\text{-4Glc}$		31
	$4\text{-O-Ac-Neu5Ac}\alpha 2\text{-3Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Fuc}\alpha 1^3$ $\text{Gal}\beta 1\text{-4Glc}$		31
	$4\text{-O-Ac-Neu5Ac}\alpha 2\text{-3Gal}\beta 1\text{-4GlcNAc}\beta 1\text{-3Gal}\beta 1\text{-4Glc}$ $\text{Fuc}\alpha 1^3$		31
	$4\text{-O-Ac-Neu5Ac}\alpha 2\text{-3Gal}\beta 1\text{-4GlcNAc}\beta 1\text{-3Gal}\beta 1\text{-4Glc}$ $\text{Fuc}\alpha 1^3$ $\text{Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1\text{-4Glc}$		31
and /or	$4\text{-O-Ac-Neu5Ac}\alpha 2\text{-3Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Fuc}\alpha 1^3$ $\text{Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1\text{-4Glc}$		31
	$4\text{-O-Ac-Neu5Ac}\alpha 2\text{-3Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Fuc}\alpha 1^3$ $\text{Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1\text{-4Glc}$		31
and /or	$4\text{-O-Ac-Neu5Ac}\alpha 2\text{-6Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Fuc}\alpha 1^3$ $\text{Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1\text{-4Glc}$		31
	$4\text{-O-Ac-Neu5Ac}\alpha 2\text{-6Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Fuc}\alpha 1^3$ $\text{Gal}\beta 1\text{-4GlcNAc}\beta 1$ $\text{Gal}\beta 1\text{-4Glc}$		31

and /or	$\begin{array}{c} \text{Fuca1} \\ \text{Fuca1-2Gal}\beta\text{1-4GlcNAc}\beta\text{1} \\ \text{4-O-Ac-Neu5Ac}\alpha\text{2-3Gal}\beta\text{1-4GlcNAc}\beta\text{1} \end{array}$	$\begin{array}{c} \text{Gal}\beta\text{1-4Glc} \\ \text{Gal}\beta\text{1-4Glc} \end{array}$		31
	$\begin{array}{c} \text{Fuca1} \\ \text{Fuca1} \\ \text{4-O-Ac-Neu5Ac}\alpha\text{2-3Gal}\beta\text{1-4GlcNAc}\beta\text{1} \end{array}$	$\begin{array}{c} \text{Gal}\beta\text{1-4Glc} \\ \text{Gal}\beta\text{1-4Glc} \end{array}$		
and /or	$\begin{array}{c} \text{Fuca1} \\ \text{Fuca1-2Gal}\beta\text{1-4GlcNAc}\beta\text{1} \\ \text{4-O-Ac-Neu5Ac}\alpha\text{2-6Gal}\beta\text{1-4GlcNAc}\beta\text{1} \end{array}$	$\begin{array}{c} \text{Gal}\beta\text{1-4Glc} \\ \text{Gal}\beta\text{1-4Glc} \end{array}$		31
	$\begin{array}{c} \text{Fuca1} \\ \text{Fuca1-2Gal}\beta\text{1-4GlcNAc}\beta\text{1} \\ \text{4-O-Ac-Neu5Ac}\alpha\text{2-6Gal}\beta\text{1-4GlcNAc}\beta\text{1} \end{array}$	$\begin{array}{c} \text{Gal}\beta\text{1-4Glc} \\ \text{Gal}\beta\text{1-4Glc} \end{array}$		
and /or	$\begin{array}{c} \text{Fuca1} \\ \text{Fuca1-2Gal}\beta\text{1-4GlcNAc}\beta\text{1} \\ \text{4-O-Ac-Neu5Ac}\alpha\text{2-3Gal}\beta\text{1-4GlcNAc}\beta\text{1} \end{array}$	$\begin{array}{c} \text{Gal}\beta\text{1-4Glc} \\ \text{Gal}\beta\text{1-4Glc} \end{array}$		31
	$\begin{array}{c} \text{Fuca1} \\ \text{Fuca1-2Gal}\beta\text{1-4GlcNAc}\beta\text{1} \\ \text{4-O-Ac-Neu5Ac}\alpha\text{2-3Gal}\beta\text{1-4GlcNAc}\beta\text{1} \end{array}$	$\begin{array}{c} \text{Gal}\beta\text{1-4Glc} \\ \text{Gal}\beta\text{1-4Glc} \end{array}$		

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