Supplementary Information

A Siglec-like sialic acid binding motif found in an adenovirus capsid protein

Christoph Rademacher¹, Thierry Bru², Ryan McBride¹, Elizabeth Robison¹, Corwin M. Nycholat¹, Eric J. Kremer², James C. Paulson¹*

Supporting Tables S1 and S2 Supporting Figures S1 and S2

Table S1: List of all complexes analyzed:

1CT1; 1DBN; 1DFQ; 1DQF; 1E8U; 1F31; 1FV2; 1FV3; 1G1T; 1H7T; 1HGE; 1HGG; 1HGH; 1HGI; 1JSH; 1JSI; 1JSN; 1JSO; 1KQR; 1MQM; 1MQN; 1MWE; 1MX1; 1MX5; 1N1Y; 1NSC; 1QDD; 1QFO; 1QWJ; 1RVT; 1RVX; 1RVZ; 1S0I; 1S0J; 1SE3; 1URL; 1USR; 1USX; 1UXA; 1UXB; 1V0F; 1V3C; 1VPS; 1W0O; 1W0P; 1W1X; 1W20; 1W21; 1WGC; 1WW4; 1YA4; 1YA8; 1YAH; 1YAJ; 1YYN; 1Z4X; 2BAT; 2BER; 2BF6; 2C25; 2C4A; 2C4L; 2CHB; 2DF3; 2DQY; 2DQZ; 2DR0; 2DS0; 2EHI; 2H7C; 2HRL; 2HRQ; 2HRR; 2I2S; 2JH7; 2JHD; 2JHL; 2KMB; 2OSX; 2P3I; 2P3J; 2P3K; 2QWB; 2R61; 2RDG; 2RFT; 2RFU; 2V73; 2VU9; 2W68; 2W9L; 2WBV; 2WBW; 2WGC; 2WR1; 2WR2; 2WR3; 2WR4; 2WR7; 2WRB; 2WRE; 2WRF; 2WRG; 2WRH; 2Z8L; 2ZG1; 2ZG3; 2ZOE; 3B50; 3BWR; 3CHB; 3E81; 3F53; 3F5A; 3F5E; 3GVJ; 3GVK; 3GVL; 3H72; 3HMY; 3HN1; 3HTP; 3HTQ; 3HTT; 3JU4; 4HMG; 5HMG

Chart #	Structure	IUPAC Nomenclature
1	β 4	Galβ(1-4)-GlcNAcβ-ethyl-NH ₂
2	$ \begin{array}{c} \rho \\ \beta \\ \beta \\ \beta \\ \end{array} $	Gal β (1-4)-GlcNAc β (1-2)-Man α (1-3)-[Gal β (1-4)-GlcNAc β (1-2)-Man α (1-6)]-Man β (1-4)-GlcNAc β -Asn-NH ₂
3	6S α 3 β 4	NeuAc α (2-3)-Gal β (1-4)-6-sulfo-GlcNAc β -propyl-NH ₂
4	a 3 β 4 3 a	NeuAc α (2-3)-Gal β (1-4)-[Fuc α (1-3)]-6-O-sulfo-GlcNAc β -propyl-NH ₂
5	6S α 3 β 4	NeuAc α (2-3)-6-O-sulfo-Gal β (1-4)-GlcNAc β -ethyl-NH ₂
6	$ \begin{array}{c} 6S \\ \beta 4 \\ 3 \\ \alpha \end{array} $	NeuAc α (2-3)-6-O-sulfo-Gal β (1-4)-[Fuc α (1-3)]-GlcNAc β -propyl-NH $_2$
7	6S α 3 β 3	NeuAc α (2-3)-Gal β (1-3)-6-O-sulfo-GlcNAc β -propyl-NH ₂
8	$\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{$	NeuAc α (2-3)-Gal β (1-4)-Glc β -ethyl-NH ₂

Table S2: Oligosaccharide probes included in the glycan microarray

Chart #	Structure	IUPAC Nomenclature
9		NeuAc α (2-3)-Gal β (1-4)-GlcNAc β -ethyl-NH ₂
10		NeuAc α (2-3)-Gal β (1-4)-GlcNAc β (1-3)-Gal β (1-4)-GlcNAc β -ethyl-NH ₂
11		NeuAc α (2-3)-Gal β (1-4)-GlcNAc β (1-3)-Gal β (1-4)-GlcNAc β -ethyl-NH ₂
12	α 3 β 4	NeuAc α (2-3)-GalNAc β (1-4)-GlcNAc β -ethyl-NH ₂
13	α 3 β 3	NeuAc α (2-3)-Gal β (1-3)-GlcNAc β -ethyl-NH ₂
14		NeuAc α (2-3)-Gal β (1-3)-GlcNAc β (1-3)-Gal β (1-4)-GlcNAc β -ethyl-NH ₂
15		NeuAc α (2-3)-Gal β (1-3)-GlcNAc β (1-3)-Gal β (1-3)-GlcNAc β -ethyl-NH ₂
16		NeuAc α (2-3)-Gal β (1-3)-GalNAc β (1-3)-Gal α (1-4)-Gal β (1-4)-Glc β -ethyl-NH ₂
17	$\mathbf{A}_{\alpha 3} \mathbf{A}_{\beta 3} \mathbf{A}_{\alpha}$	NeuAca(2-3)-Gal β (1-3)-GalNAca-Thr-NH ₂
18	$ \begin{array}{c} \beta \\ \beta \\ \alpha \\ 3 \\ \beta \\ 3 \\ \alpha \\ 3 \\ \beta \\ 3 \\ \alpha \\ 5 \\ 3 \\ \alpha \\ 5 \\ 3 \\ a $	NeuAc α (2-3)-Gal β (1-3)-[GlcNAc β (1-6)]-GalNAc α -Thr-NH ₂
19	$\begin{array}{c} & & & \\ & & & & \\ & & & \\ & & & & \\$	NeuAc α (2-3)-Gal β (1-4)-GlcNAc β (1-6)-[Gal β (1-3)]-GalNAc α -Thr-NH ₂

Chart #	Structure	IUPAC Nomenclature
20	$\begin{array}{c} \bullet \\ \alpha 3 \\ \hline \beta 4 \\ \hline \beta 3 \\ \hline \beta 4 \\ \hline \beta 4 \\ \hline \beta 6 \\ \hline \beta 4 \\ \hline \beta 6 \\ \hline \alpha \\ \hline \end{array}$	NeuAc α (2-3)-Gal β (1-4)-GlcNAc β (1-3)-Gal β (1-4)-GlcNAc β (1-6)-[Gal β (1-3)]-GalNAc α -Thr-NH ₂
21		NeuAca(2-3)-Gal β (1-4)-GlcNAc β (1-3)-GalNAc α -Thr-NH ₂
22		NeuAca(2-3)-Gal β (1-4)-GlcNAc β (1-3)-Gal β (1-4)-GlcNAc β (1-3)-GalNAc α -Thr-NH ₂
23	$\begin{array}{c} \bullet \alpha 3 \\ \bullet \alpha 3 \\ \bullet \alpha 3 \\ \bullet \alpha 3 \\ \bullet \beta 4 \\ \hline \beta 4 \\ \hline \beta 3 \\ \hline \beta 3 \\ \hline \beta 3 \\ \hline \alpha \hline \alpha$	NeuAc α (2-3)-Gal β (1-4)-GlcNAc β (1-3)- [NeuAc α (2-3)-Gal β (1-4)-GlcNAc β (1-6)]- GalNAc α -Thr-NH ₂
24	$\begin{array}{c} \bullet \\ \alpha 3 \end{array} \\ \bullet \\ \alpha 3 \end{array} \\ \bullet \\ \beta 4 \end{array} \\ \hline \beta 4 \end{array} \\ \hline \beta 3 \end{array} \\ \hline \beta 4 \end{array} \\ \hline \beta 4 \\ \hline \beta 3 \end{array} \\ \hline \beta 4 \\ \hline \beta 4 \\ \hline \beta 3 \end{array} \\ \hline \beta 4 \\ \hline \beta 4 \\ \hline \beta 3 \\ \hline \alpha \\ \hline \end{array}$	$\label{eq:alpha} \begin{split} &\text{NeuAca(2-3)-Gal}\beta(1-4)\text{-}GlcNAc}\beta(1-3)\text{-}Gal}\beta(1-4)\text{-}\\ &\text{GlcNAc}\beta(1-3)\text{-}[\text{NeuAca(2-3)-Gal}\beta(1-4)\text{-}\\ &\text{GlcNAc}\beta(1-3)\text{-}Gal}\beta(1-4)\text{-}GlcNAc}\beta(1-6)]\text{-}\\ &\text{GalNAc}\alpha\text{-}Thr\text{-}NH_2 \end{split}$
25	$ \begin{array}{c} & \alpha & 3 \\ & & \beta & 4 \\ & & \beta & 2 \\ & & \alpha & 3 \\ & & & \beta & 4 \\ & & & & \beta & 2 \\ & & & & & \alpha & 3 \end{array} $	$\label{eq:second} \begin{split} &\text{NeuAca}(2\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}2)\text{-}\text{Man}\alpha(1\text{-}3)\text{-}[\text{NeuAca}(2\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}2)\text{-}\\ &\text{Man}\alpha(1\text{-}6)]\text{-}\text{Man}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta\text{-}\\ &\text{Asn-NH}_2 \end{split}$
26	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\label{eq:alpha} \begin{split} & \text{NeuAca}(2\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\\ & \text{GlcNAc}\beta(1\text{-}2)\text{-}\text{Man}\alpha(1\text{-}3)\text{-}[\text{NeuAc}\alpha(2\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}2)\text{-}\\ & \text{A})\text{-}\text{GlcNAc}\beta(1\text{-}3)\text{-}\text{Glc}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}2)\text{-}\\ & \text{Man}\alpha(1\text{-}6)]\text{-}\text{Man}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta\text{-}\\ & \text{Asn-NH}_2 \end{split}$
27	$ \begin{array}{c} \bullet \\ \alpha 3 \end{array} \xrightarrow{} \\ \beta 4 \end{array} \xrightarrow{} \\ \beta 3 \end{array} \xrightarrow{} \\ \beta 4 \end{array} \xrightarrow{} \\ $	$\label{eq:alpha} \begin{split} & \text{NeuAca}(2\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}2)\text{-}\text{Man}\alpha(1\text{-}3)\text{-}[\text{NeuAca}(2\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}2)\text{-}\text{Man}\alpha(1\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}2)\text{-}\text{Man}\alpha(1\text{-}6)]\text{-}\text{Man}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}4)\text{-}GlcNA$
28	β β β β 4	NeuAc α (2-3)-[GalNAc β (1-4)]-Gal β (1-4)-GlcNAc β -ethyl-NH ₂
29	$\beta 4$ $\beta 4$ $\beta 4$	NeuAc α (2-3)-[GalNAc β (1-4)]-Gal β (1-4)-Glc β -ethyl-NH ₂

Chart #	Structure	IUPAC Nomenclature
30	β^{3}	Gal β (1-3)-GalNAc β (1-4)-[NeuAc α (2-3)]-Gal β (1-4)-Glc β -ethyl-NH $_2$
31		NeuAcα(2-3)-Galβ(1-4)-[Fucα(1-3)]- GlcNAcβ-propyl-NH ₂
32	$ \begin{array}{c} \alpha \\ \alpha \\ 4 \\ \beta \\ 3 \\ \beta \\ \beta$	NeuAc α (2-3)-Gal β (1-3)-[Fuc α (1-4)]- GlcNAc β (1-3)-Gal β (1-4)-[Fuc α (1-3)]- GlcNAc β -ethyl-NH ₂
33	$ \begin{array}{c} & \alpha & 3 \\ & \alpha & 3 \\ & \alpha & \alpha \\ & \alpha & \alpha \\ & \alpha & \alpha \\ & \alpha & \alpha$	NeuAc α (2-3)-Gal β (1-4)-[Fuc α (1-3)]-GlcNAc β (1-3)-Gal β (1-4)-[Fuc α (1-3)]-GlcNAc β -ethyl-NH ₂
34	$ \begin{array}{c} & & \alpha \end{array}{}_{\beta} 4 \\ & & \alpha \end{array}{}_{\alpha} \beta 4 \\ & & \alpha \end{array}$	NeuAc α (2-3)-Gal β (1-4)-[Fuc α (1-3)]-GlcNAc β (1-3)-Gal β (1-4)-[Fuc α (1-3)]-GlcNAc β (1-3)-Gal β (1-4)-[Fuc α (1-3)]-GlcNAc β -ethyl-NH ₂
35	$\alpha_3 + \beta_{\beta_4}$	NeuGc α (2-3)-Gal β (1-4)-GlcNAc β -ethyl-NH ₂
36	65 α 6 β 4	NeuAc α (2-6)-Gal β (1-4)-6-sulfo-GlcNAc β - propyl-NH ₂
37		NeuAc α (2-6)-Gal β (1-4)-Glc β -ethyl-NH ₂

Chart #	Structure	IUPAC Nomenclature
38		NeuAc α (2-6)-Gal β (1-4)-GlcNAc β -ethyl-NH ₂
39		NeuAc α (2-6)-Gal β (1-4)-GlcNAc β (1-3)-Gal β (1-4)-GlcNAc β -ethyl-NH ₂
40		NeuAc α (2-6)-Gal β (1-4)-GlcNAc β (1-3)-Gal β (1-4)-GlcNAc β (1-3)-Gal β (1-4)-GlcNAc β -ethyl-NH ₂
41	$ \begin{array}{c} $	NeuAc α (2-6)-Gal β (1-4)-GlcNAc β (1-3)- [NeuAc α (2-6)]-Gal β (1-4)-GlcNAc β -ethyl-NH ₂
42	α 6 β 4	NeuAc α (2-6)-GalNAc β (1-4)-GlcNAc β -ethyl-NH ₂
43	$\alpha = \frac{\alpha}{\beta^3} \alpha$	NeuAca(2-6)-[Gal β (1-3)]-GalNAca-Thr-NH ₂
44	$\begin{array}{c} \bullet \\ \alpha \\ 6 \\ \beta \\ \beta \\ \beta \\ \beta \\ \alpha \end{array}$	NeuAc α (2-6)-Gal β (1-4)-GlcNAc β (1-6)-[Gal β (1-3)]-GalNAc α -Thr-NH $_2$
45	$\begin{array}{c c} & & & & \\ & & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & &$	NeuAc α (2-6)-Gal β (1-4)-GlcNAc β (1-3)-Gal β (1-4)-GlcNAc β (1-6)-[Gal β (1-3)]-GalNAc α -Thr-NH ₂
46		NeuAca(2-6)-Gal β (1-4)-GlcNAc β (1-3)-GalNAc α -Thr-NH ₂
47		NeuAca(2-6)-Gal β (1-4)-GlcNAc β (1-3)-Gal β (1-4)-GlcNAc β (1-3)-GalNAc α -Thr-NH ₂

Chart #	Structure	IUPAC Nomenclature
48	$\begin{array}{c} \bullet \alpha 6 \\ \bullet \alpha 6 \\$	NeuAc α (2-6)-Gal β (1-4)-GlcNAc β (1-3)- [NeuAc α (2-6)-Gal β (1-4)-GlcNAc β (1-6)]- GalNAc α -Thr-NH ₂
49	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\label{eq:alpha} \begin{split} & \text{NeuAca}(2\text{-}6)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\\ & \text{GlcNAc}\beta(1\text{-}3)\text{-}[\text{NeuAca}(2\text{-}6)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\\ & \text{GlcNAc}\beta(1\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}6)]\text{-}\\ & \text{GalNAc}\alpha\text{-}\text{Thr-}\text{NH}_2 \end{split}$
50	$ \begin{array}{c} & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & & \\ & & & \\ & & & & \\ $	$\label{eq:Galbergenergy} \begin{split} Gal\beta(1-4)\text{-}GlcNAc\beta(1-2)\text{-}Man\alpha(1-3)\text{-}[NeuAc\alpha(2-6)\text{-}Gal\beta(1-4)\text{-}GlcNAc\beta(1-2)\text{-}Man\alpha(1-6)]\text{-}Man\beta(1-4)\text{-}GlcNAc\beta(1-4)\text{-}GlcNAc\beta\text{-}Asn\text{-}NH_2 \end{split}$
51	$ \begin{array}{c} & \beta & 4 \\ & \beta & 2 \\ & \alpha & 6 \\ & \beta & 4 \\ & \beta & 2 \\ & \beta & 4 \\ & \beta & 2 \\ & \beta & 4 \\ & \beta & 2 \\ & \beta & 4 \\ & \beta & 2 \\ & \beta & 4 \\ & $	NeuAca(2-6)-Gal β (1-4)-GlcNAc β (1-2)-Man α (1-3)-[Gal β (1-4)-GlcNAc β (1-2)-Man α (1-6)]-Man β (1-4)-GlcNAc β -Asn-NH ₂
52	$ \begin{array}{c} & & & \\ & & & & \\ & & & \\ & $	$\label{eq:GlcNAc} \begin{split} GlcNAc\beta(1\text{-}2)\text{-}Man\alpha(1\text{-}3)\text{-}[NeuAc\alpha(2\text{-}6)\text{-}Gal\beta(1\text{-}4)\text{-}GlcNAc\beta(1\text{-}2)\text{-}Man\alpha(1\text{-}6)]\text{-}Man\beta(1\text{-}4)\text{-}\\ GlcNAc\beta(1\text{-}4)\text{-}GlcNAc\beta\text{-}Asn\text{-}NH_2 \end{split}$
53	$ \begin{array}{c} & \alpha & 6 \\ & \beta & 4 \\ & \alpha & 6 \\ & & \beta & 4 \\ & & & & & & \\ & & & & & & \\ & & & &$	$\label{eq:second} \begin{array}{l} NeuAc\alpha(2\text{-}6)\text{-}Gal\beta(1\text{-}4)\text{-}GlcNAc\beta(1\text{-}2)\text{-}Man\alpha(1\text{-}3)\text{-}[NeuAc\alpha(2\text{-}6)\text{-}Gal\beta(1\text{-}4)\text{-}GlcNAc\beta(1\text{-}2)\text{-}\\ Man\alpha(1\text{-}6)]\text{-}Man\beta(1\text{-}4)\text{-}GlcNAc\beta(1\text{-}4)\text{-}GlcNAc\beta\text{-}\\ Asn\text{-}NH_2 \end{array}$
54	$ \begin{array}{c} \bullet \\ \alpha 6 \\ \bullet \\ \alpha 6 \\ \bullet \\ \alpha 6 \\ \bullet \\ \beta 4 \\ \hline \end{array} \begin{array}{c} \beta 4 \\ \hline \end{array} \end{array} \begin{array}{c} \beta 4 \\ \hline \end{array} \begin{array}{c} \beta 4 \\ \hline \end{array} \begin{array}{c} \beta 4 \\ \hline \end{array} \end{array} \begin{array}{c} \beta 4 \\ \end{array} \end{array} \end{array} \begin{array}{c} \beta 4 \\ \end{array} \end{array} \end{array} $	$\label{eq:scalar} \begin{array}{l} NeuAc\alpha(2-6)-Gal\beta(1-4)-GlcNAc\beta(1-3)-Gal\beta(1-4)-GlcNAc\beta(1-2)-Man\alpha(1-3)-[NeuAc\alpha(2-6)-Gal\beta(1-4)-GlcNAc\beta(1-2)-GlcNAc\beta(1-2)-GlcNAc\beta(1-4)-GlcNAc\beta(1-4)-GlcNAc\beta-Asn-NH_2 \end{array}$
55	$ \begin{array}{c} \bullet \\ \alpha 6 \end{array} \\ \hline \beta 4 \end{array} \\ \hline \beta 3 \end{array} \\ \hline \beta 4 \end{array} \\ \hline \beta 3 \end{array} \\ \hline \beta 4 \end{array} \\ \hline \beta 3 \end{array} \\ \hline \beta 4 \end{array} \\ \hline \beta 4 \end{array} \\ \hline \beta 2 \end{array} \\ \hline \alpha 6 \end{array} \\ \hline \beta 4 \bigg$ \\ \hline \beta 4 \bigg $ \left(\begin{array}{c} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $	$\label{eq:alpha} \begin{split} & \text{NeuAc}\alpha(2\text{-}6)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}2)\text{-}\text{Man}\alpha(1\text{-}3)\text{-}[\text{NeuAc}\alpha(2\text{-}6)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}2)\text{-}\text{Man}\alpha(1\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}2)\text{-}\text{Man}\alpha(1\text{-}6)]\text{-}\text{Man}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}4)\text{-}GlcNA$
56		NeuGc α (2-6)-Gal β (1-4)-GlcNAc β -ethyl-NH ₂
57	$ \begin{array}{c} & & & \\ & & & \\ & & & \\ & & $	$\label{eq:second} \begin{split} & \text{NeuAca}(2\text{-}3)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}2)\text{-}\text{Man}\alpha(1\text{-}3)\text{-}[\text{NeuAca}(2\text{-}6)\text{-}\text{Gal}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}2)\text{-}\\ & \text{Man}\alpha(1\text{-}6)]\text{-}\text{Man}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta(1\text{-}4)\text{-}\text{GlcNAc}\beta\text{-}\\ & \text{Asn-NH}_2 \end{split}$

Chart #	Structure	IUPAC Nomenclature
58	$ \begin{array}{c} & & & \\ & & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & $	NeuAca(2-6)-Gal β (1-4)-GlcNAc β (1-2)-Mana(1-3)-[NeuAca(2-3)-Gal β (1-4)-GlcNAc β (1-2)-Mana(1-6)]-Man β (1-4)-GlcNAc β (1-4)-GlcNAc β -Asn-NH ₂

Supporting Figure S1:



Glycan Number

Glycan array analysis of the WT and K503A CAV-2 fiber knob protein at 500 ug/ml final concentration. (Top) In addition to sialosides 5 and 6 found at lower protein concentrations (50 ug/ml), structures bearing terminal α 2,3)-linked Neu5Ac 25, 26, 29 and 57 are detected by the fiber knob protein. (Bottom) The mutant CAV-2 (K503A) does not bind significantly to the printed sialoside array at high concentrations.

Supporting Figure S2:



Sequence alignment and family tree of adeno fiber knobs:

A multiple sequence alignment of the adenoviral fibre protein family (PF00541) provided by the PFAM database was extended by the CAV-2 sequence (Uniprot: Q65914) in ClustalX (version 2.0.9). The following sequences contain the essential arginine stretch F<u>R</u>FLN: D3X7D1_9ADEN, C7E2U3_9ADEN, FIBP ADECC, FIBP ADECG, FIBP ADECR, FIBP ADECT. The knobs also contain a lysine residue in a similar position. A family dendrogram resulting from the alignment file was visualized using drawtree as implemented on the mobyle server (Felsenstein, J. 1993. PHYLIP (Phylogeny Inference Package) version 3.5c. Distributed by the author. Department of Genetics, University of Washington, Seattle.).