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Supplementary material:

Table 1: Molecular interaction details of APN with different oligosaccharides. APN is docked with four oligosaccharides.

S. No.	Name of the Oligosaccharide	Interactive sites	Binding energy	Binding affinity	Hydrogen bond forming residue	Hydrophobic interactive residues	Non ligand residue involved in Hydrophobic interactions
1	Fuc2Hex3HexNAc3	295 NYT 297	-126.542	-81.5998	295N,296Y &297T	296 Y & 297 T	I257, N461, L465, R468 & V464.
2	Hex3HexNAc2	609 NTT 611	-81.8053	-68.3248	609N & 610T	609N, 617R & 651Q	R652, T612 & G 613
3	Fuc4Hex3HexNAc4	623 NRT625	-100.522	-94.941	621S, 624R & 625 T	621S & 625T	Q397, Q629, R 620, R632, V625, Q663, N654 & F662
4	Fuc3Hex3HexNAc3	751 NGS 753	-86.1063	-62.6317	752G, 754S & 761R	754S & 761R	F755, A800, S 809, Q798, R804, N749 C766 & R 751.

Table 2: Different conserved sites showing SASA values for various APN receptors

S. No.	**Type of site**	**Mammal**		**Insect**		**Bacteria**	
		Amino acid position in sequence	**SASA value**	**Amino acid position in sequence**	**SASA value**	**Amino acid position in sequence**	**SASA value**
1	**GAMEN**	GLY 316	112.3	GLY 323	111.4	GLY 316	212.3
		ALA 317	54.1	ALA 324	53.5	ALA 317	54.1
		MET 318	94.4	MET 325	92.9	MET 318	94.4
		GLU 319	124.5	GLU 326	123.4	GLU 319	124.5
		ASN 320	84.6	ASN 327	83.3	ASN 320	84.6
		TRP 321	213.5	TRP 328	210.4	TRP 321	113.5
		GLY 322	51.0	GLY 329	51.1	GLY 322	51.0
		LEU 323	124.6	LEU 330	116.2	LEU 323	114.6
2	**HEXXE**	HIS 352	226.6	HIS 359	226.9	HIS 352	226.6
		GLU 353	156.4	GLU 360	156.0	GLU 353	156.4
		LEU 354	192.7	ILE 361	189.7	LEU 354	176.7
		ALA 355	86.3	ALA 362	86.0	ALA 355	86.3
		HIS 356	237.0	HIS 363	236.7	HIS 356	237.0
3	**WWDNL**	TRP 367	208.3	TRP 374	209.9	ALA 370	78.3
		TRP 368	133.0	TRP 375	128.7	TRP 371	143.9
		THR 369	97.8	ASP 376	110.4	TRP 372	114.0
		HIS 370	116.1	ASN 377	93.6	ASP 373	98.9
		LEU 371	59.9	LEU 378	60.2	ASN 374	76.4
		TRP 372	112.5	TRP 379	111.2	LEU 375	48.9
		LEU 373	65.4	LEU 380	64.8	TRP 376	104.3
		ASN 374	78.4	ASN 381	78.1	LEU 377	50.6
		GLU 375	130.1	GLU 382	129.9	ASN 378	43.5
		GLY 376	43.6	GLY 383	43.3	GLU 379	94.5
		PHE 377	132.3	PHE 384	131.3	GLY 380	26.5
		ALA 378	110.3	ALA 385	110.0	PHE 381	73.6