Free radicals are well-known causes of major damage to biological membranes, resulting in inactivation of membrane-bound proteins, membrane lysis and lipid peroxidation; in turn this damage decreases the membrane fluidity and increases leakiness of the membrane[20]. Formation of free radicals from α-T may also expose a number of non-target species to a free radical threat. Thus, some irreversible damage to those non-target species seems to be inevitable. Further studies are required to assess the role of α-T on the non-target species, with special reference to free radicals.

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Erratum

Crystal structure of the peanut lectin – T-antigen complex. Carbohydrate specificity generated by water bridges

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In the crystal structure of the complex, it was noticed that O4 in the GalNAc moiety of T-antigen (Galβ1-3GalNAc) was inappropriately positioned. This happened on account of the inadequacy of the geometrical restraints applied to this part of the molecule during refinement. O4 was refixed geometrically and 140 cycles of conjugate gradient refinement was carried out using XPLOR[1]. The final R-factor and R-free are 0.175 and 0.251, values identical to those obtained in the earlier refinement. The re-refined coordinates have been deposited in the PDB (code: 2TEP). Expectedly, there is no significant change in the structure except in the position of O4. The protein carbohydrate interactions in the re-refined structure are listed in Table 1. The only change in them is an additional possible interaction between GalNAc O4 and Leu 212 N. Thus the main difference in interactions between the T-antigen and lactose complexes remains the additional water bridges in the former. Efforts are on to assess the effect of the possible additional interaction.

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Table 1. Peanut lectin–T-antigen interactions. Lengths in the PNA-lactose interactions are in paranthesis. Distances are in Å

A. Hydrogen bonds

Sugar atom	Protein atom	Subunit 1	Subunit 2	Subunit 3	Subunit 4
Gal O3	Asp83 OD1	2.76 (2.67)	2.62 (2.43)	2.72 (2.58)	2.63 (2.49)
	Gly104 N	3.22 (3.08)	2.99 (2.92)	2.83 (3.07)	2.88 (2.81)
	Asn127 ND2	2.76 (2.86)	2.92 (3.00)	2.76 (3.12)	2.96 (3.02)
Gal O4	Asp83 OD2	2.73 (2.59)	2.66 (2.68)	2.57 (2.64)	2.91 (2.55)
	Ser211 OG	2.92 (2.62)	3.24 (2.82)	2.82 (2.66)	2.55 (2.76)
Gal O5	Ser211 OG	3.03 (3.12)	2.99 (3.34)	2.73 (3.09)	2.96 (3.16)
Gal O6	Asp80 OD2	2.85 (3.33)	2.95 (3.39)	3.48 (3.36)	3.13 (2.98)
Glycosidic O	Ser211 OG	3.24 (3.38)	3.34 (3.86)	3.20 (3.70)	3.25 (3.81)
GalNAc O4	Ser211 OG	3.09 (3.34)	2.78 (3.31)	3.07 (3.58)	3.07 (2.98)
	Gly213 N	2.73 (2.92)	2.88 (2.98)	2.78 (3.29)	2.76 (3.28)
	Leu212 N	3.34 (4.04)	3.21 (4.08)	3.01 (4.65)	3.08 (4.06)

B. Water-mediated interactions (distances averaged over four subunits)

GalO2--W1--Glu129 OE1	[O2--W1 = 3.03 (3.07); W1--OE1 = 3.30 (2.98)]
GalO2--W2--Gly104 N	[O2--W2 = 2.91 (2.67); W2--N = 2.91 (3.15)]
GalNAcO7--W3--Ile101 O	[O7--W3 = 3.06; W3--O = 2.95]
GalNAcO7--W4--Leu212 N	[O7--W4 = 2.78; W4--N=2.83]
GalNAcO7--W4--Asn41 ND2	[W4--ND2 = 2.65]

Water-mediated interactions involving W3 and W4 do not exist in the Lactose complex

C. Residues less than 4 Å from any sugar atom

Asp80, Ala82, Asp83, Gly103, Gly104, Tyr125, Asn127, Ser211, Leu212, Gly213, and Gly214.