Low-immunogenic glycoconjugate linkers yield improved anti-glycans antibodies for cancer treatment

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A general feature of cancer cells is the presence of aberrant carbohydrate surface structures that promote metastasis, angiogenesis or suppression of the immune system. [1, 2]. Several of these tumor-associated carbohydrate antigens (TACAs) have already been described several decades ago, but their utilization as targets for therapeutic antibodies remained a challenge due to low immunogenicity, high hydrophilicity and limited availability of these antigens. [3]

To improve antibody generation during immunization, targeted glycans are commonly coupled to carrier proteins which support T cell activation mandatory for efficient antibody affinity maturation. Several techniques for random or site-specific coupling are currently used that employ artificial linkers whose haptenic structures often represent the central target of an immune response. Glycans can also be coupled directly to carrier proteins but the required harsh conditions often lead to truncated glycan structures. [4]

To avoid these problems during the generation of anti-TACAs antibodies, we developed a platform that links the TACA structure with a hydrophilic, monosaccharide-like non-immunogenic linker to the carrier protein.

Data supporting the concept and superiority of this approach will be presented, that enables and facilitates the identification of target-specific high-affinity anti-glycan antibodies and their subsequent *in vitro*/*in vivo* characterization.

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