### Introduction

- In cancer therapy, normal tissue abundance of a target antigen may cause unwanted side effects using classical protein binding antibodies that cannot discriminate between the cancer-associated and healthy tissue target antigen.
- Glycosylation is strongly altered in cancer, reflecting drastic changes in tumor metabolism [1] or genetic alterations.
- Changes in tumor glycosylation mostly due to mutated or mislocated glycosyltransferases and glycosidases give rise to truncated O-glycans [2] that are almost absent in healthy tissues.
- Thomsen nouvelle (Tn) antigen: GalNAcO3-
- Sialylated Thomsen nouvelle (STn) antigen: Neu5Acα2-6GalNAcO3-
- Thomsen-Friedenreich (TF) antigen: Galβ1-3GalNAcO3-

LYPD3 (C4.A4) is a glycosylphosphatidylinositol (GPI)-anchored, highly glycosylated cell surface protein that is associated with carcinogenesis in several different squamous cell carcinoma (SCC) of the head and neck and esophagized SCC (ESCC) [3].

- Under normal physiological conditions, LYPD3 is expressed in different epithelia and skin keratinocytes [4].
- We have developed an anti-LYPD3 antibody (GT-002) that targets the cancer-associated LYPD3 glycoform and thereby shows superior tumor specificity compared to conventional protein-binding anti-LYPD3 antibodies.

### Unique binding profile of GT-002

GT-002 selectively binds to TF- but not Tn-carrying LYPD3 (ELISA)

- The aLYPD3 poly Ab recognizes LYPD3 independently of its glycosylation status.
- GT-002 binds only to TF-decorated LYPD3 but not to the closely related glycoprotein Tn-LYPD3 or other irrelevant glycoproteins harboring truncated O-glycans.

### Strongly reduced binding to normal tissue

- GT-002 specifically binds to O-glycosylated LYPD3 (ELISA, flow cytometry)

- Binding of GT-002 is highly restricted to glycosylated LYPD3 as there is no binding to de-O-glycosylated LYPD3 protein or to cells expressing LYPD3 without O-glycans.
- A competitor - Luperutamb (BAY1112623) - recognizes LYPD3 independently of its glycosylation status.

### References


We aim to continuously expand our collaborations with industry partners and academic centers to further exploit the unique potential of our technology.