



S-BIO Glycomics Services

A New Dimension in Biomarker Discovery & Development

S-BIO is dedicated to advancing glycomics to enable new innovations in disease diagnosis and therapeutic development. S-BIO's proprietary GlycanMap® platform introduces a new dimension to biomarker discovery by enabling glycomics research at a throughput and scale comparable to the complimentary fields of genomics and proteomics. See how working with S-BIO, typically under a fee-for-service project, can facilitate study of the largely untapped but biologically rich human glycome to advance your critical biomarker efforts.

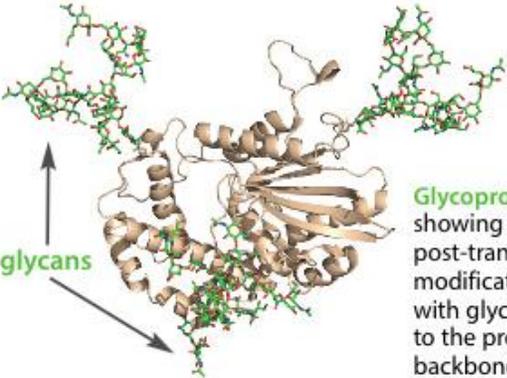
Understanding how glycosylation patterns change when tissues are exposed to disease and/or therapeutic agents opens a new door to:

- Disease diagnosis and prognosis
- Companion diagnostics
- Assessment of drug efficacy and safety
- Clinical and surrogate markers
- Disease mechanisms and target identification

Our biomarker research capabilities include identification of:

- Changes in post-translational modification (glycosylation patterns) of proteins
- Glycan profiles across various complex biological samples including serum/plasma, CSF, tissue extracts and cell extracts
- Novel glycan markers that correlate with disease or drug response
- Identification of parent glycopeptides/proteins to glycan markers
- Novel therapeutic and vaccine targets

Glycans in protein structure and function



Glycoprotein structure showing post-translational modification (PTM) with glycans attached to the protein backbone

Glycans impact a wide range of biologic processes:

- Glycans affect cell adhesion and signaling, as well as the stability, activity, binding and immunogenicity of proteins.
- Glycan structural changes have been observed across a wide range of diseases including inflammatory, oncology, CNS, immune and metabolic.
- Most secreted proteins are glycosylated, as are many important tumor biomarkers.

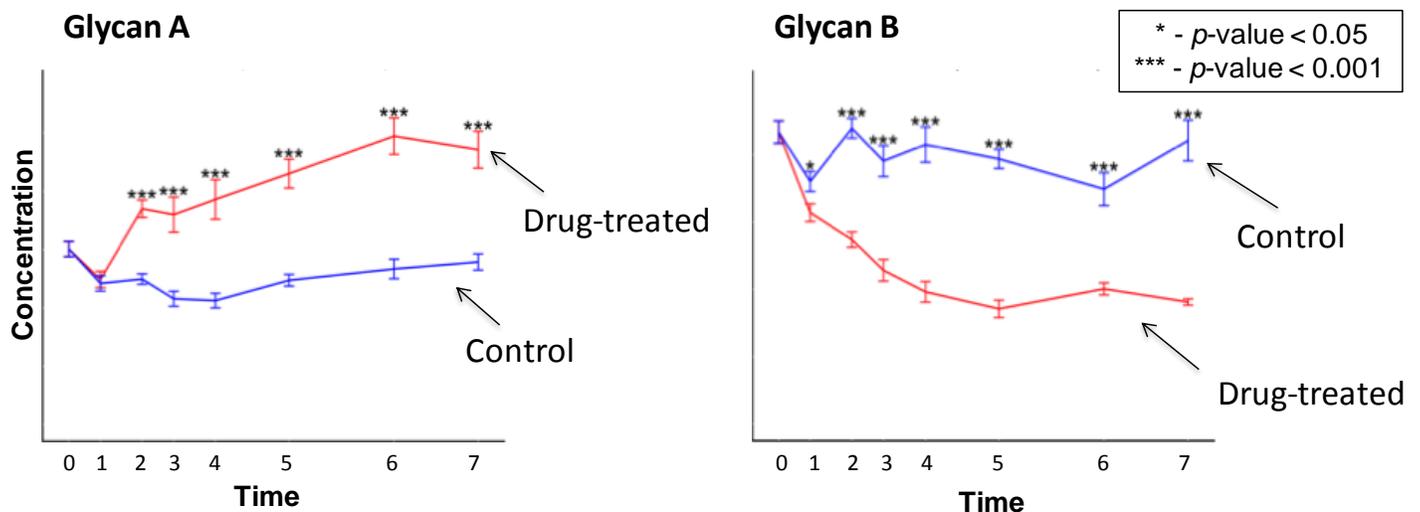
Glycan biomarkers already in clinical use:

CA19-9 – Glycan biomarker (sialylated Lewis (a) antigen) used in the management of pancreatic cancer

AFP-L3 – Glycoform variant (α 1-6 fucosylated) used in the risk assessment and early recognition of hepatocellular carcinoma

Case Study: Discovery of Biomarkers for Early Detection of Drug Efficacy

Early detection of drug efficacy can advance drug development, shorten clinical trials and result in better clinical decision-making. In this sponsored study, traditional genomic and proteomic studies had failed to identify early biomarkers of drug efficacy, so S-BIO was retained to evaluate glycosylation patterns as a novel source of early biomarkers. Approximately 150 plasma samples collected over 8 time points were analyzed using the GlycanMap® assay. More than 50 distinct glycans were detected in each sample, ranging from low molecular weight neutral glycans to large, tetra-antennary, sialylated glycans. While most of the detected glycan levels were unchanged after drug treatment, a small series of structurally-related groups exhibited statistically significant differences in response to drug, in some cases as early as the first post-treatment time point. This compared favorably to a “gold standard” biomarker, which was able to detect differences only at the 4th or 5th post-treatment time point. Representative glycans (structures redacted) that exhibited efficacy-associated increases (Panel A) and decreases (Panel B) are shown below.



About S-BIO

S-BIO is dedicated to advancing glycomics to enable new innovations in disease diagnosis and therapy. S-BIO's glycan analysis services are targeted to audiences who find glycan analysis a bottleneck in their development efforts and would benefit from our high-throughput capabilities to provide rapid and reliable glycan analysis. The company tailors these capabilities to the needs of our partners, typically under fee-for-service agreements. Established in 2009 as a US company, S-BIO is wholly-owned by Shionogi & Co., Ltd., Osaka, Japan. Since initiating operations S-BIO has established over fifty external projects and partnerships with pharma, biotech and academic collaborators. These include publicly announced collaborations or presentations with Genentech, Hirosaki University, Kyowa Hakko Kirin, Merck, NUI Galway, Sigma-Tau, Fast Forward (National Multiple Sclerosis Society), and the Michael J. Fox Foundation.

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