GLIC Seminar Series

The Glycan Array Data Repository

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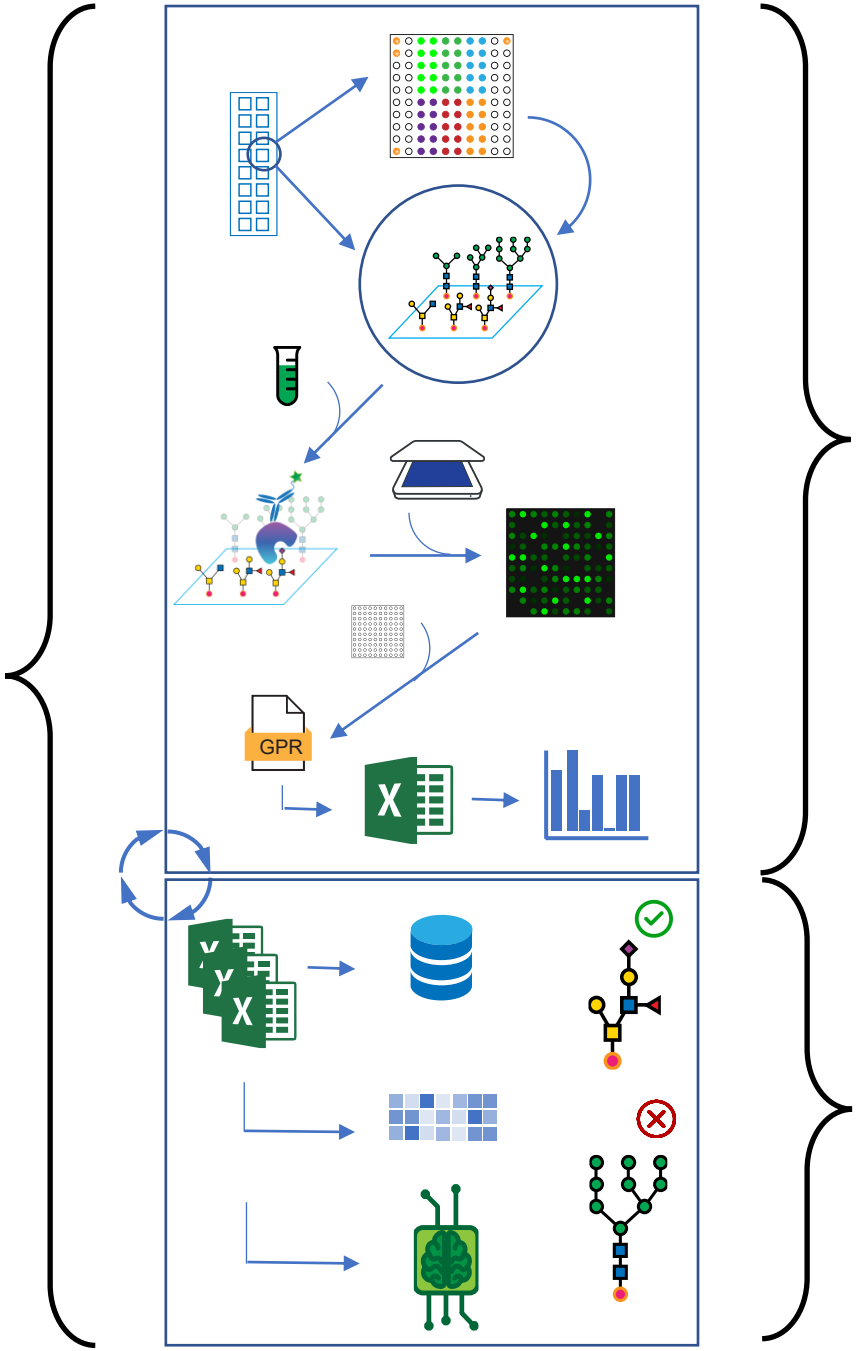
- Big Picture and Motivation
- Introducing the Repository
- Live Demo – Data access
- Data Submission Workflow
- Live Demo – Data submission
- Machine –readable access

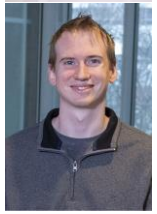
CarbArrayART
SOFTWARE



Introduction to glycan arrays

GLAD

CarboGrove



https://glic.glycoinfo.org/seminars/glycan-arrays-2023/

https://www.youtube.com/@glycoinformaticsconsortium

Sharing of glycan array data

MIRAGE

Printing surface

Glycan library

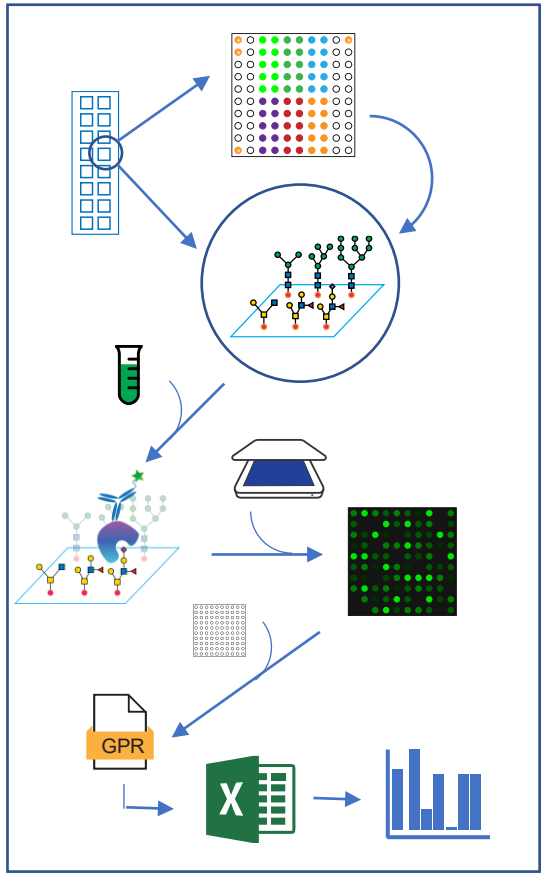
Glycan microarray with “Map”

Arrayer (Printer)

Sample and assay conditions

Detector and Data processing

Glycan microarray data presentation



Data

TIFF — Image

GPR — Raw data

X — Processed data

https://www.beilstein-institut.de/en/projects/mirage/guidelines/

Sharing of glycan array data in papers

MIRAGE

Printing surface ✓

Glycan library ✓

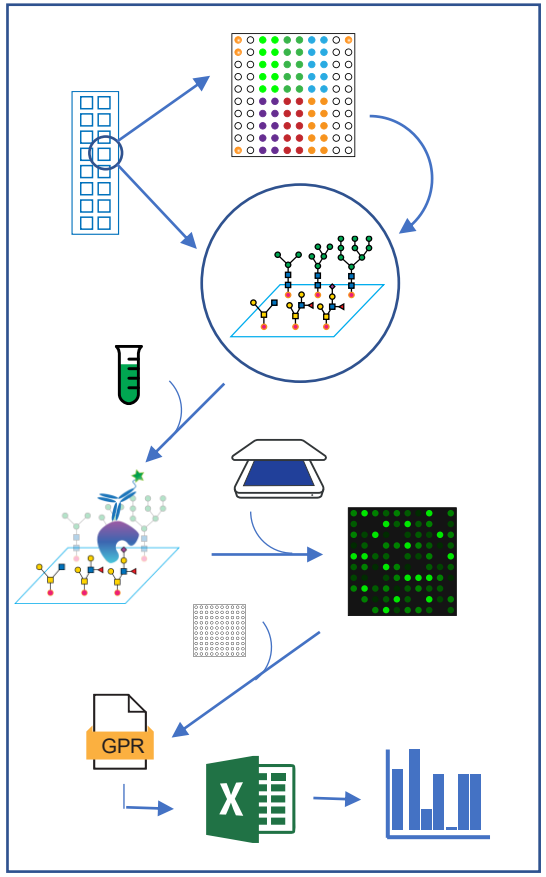
Glycan microarray with “Map” ✗

Arrayer (Printer) ✗

Sample and assay conditions ✓

Detector and Data processing ✓

Glycan microarray data presentation ✓



Data

TIFF Image ✗

GPR Raw data ✓

Processed data ✓

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The Glycan Array Data Repository

Data

Image

Raw data

Processed data

The Glycan Array Data Repository

- Repository for storing and sharing **glycan array data and MIRAGE metadata**.
- Free **submission by anybody**. Not limited to a group organization.
- **Free access to public data**
  - Data in original file formats
  - Data in repository file formats
  - Metadata
- **Graphical user interface** and machine-readable **API**
- **Not a data processing system**

GlyGen

Glycoscience

NIH Common Fund Glycoscience Program
1U01GM125267-01 (York & Tiemeyer & Mazumder)

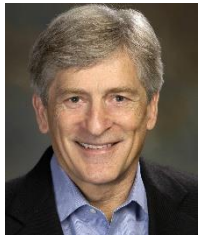
Advisor group

Imperial College London

NOVA University of Lisbon
University of Aveiro

National Cancer Institute (NIH)

Harvard University



Scripps Research

The Glycan Array Data Repository

- **Beta system**

https://glygen.ccrc.uga.edu/ggarray/

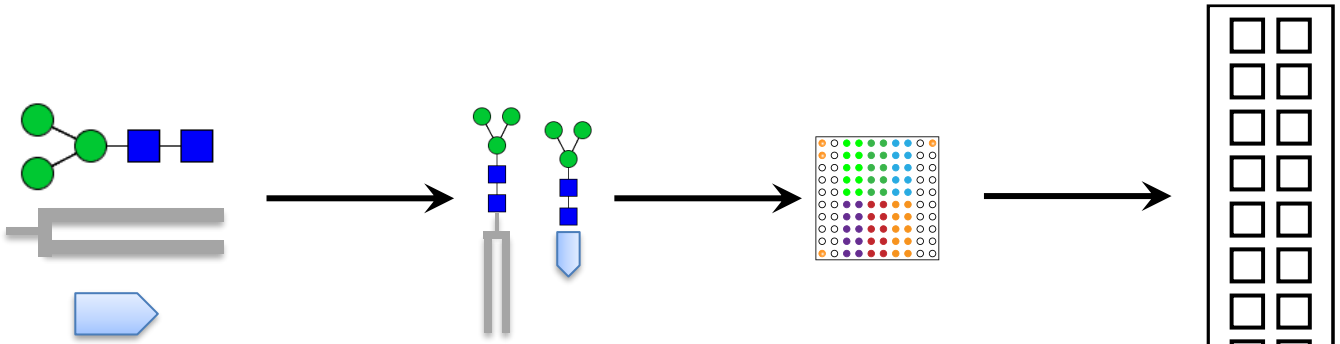
- **Production system**

https://glygen.ccrc.uga.edu/array/

Live Demo

Repository, data access and data retrieval

Submission workflow



Molecules Features Layout

Metadata for:

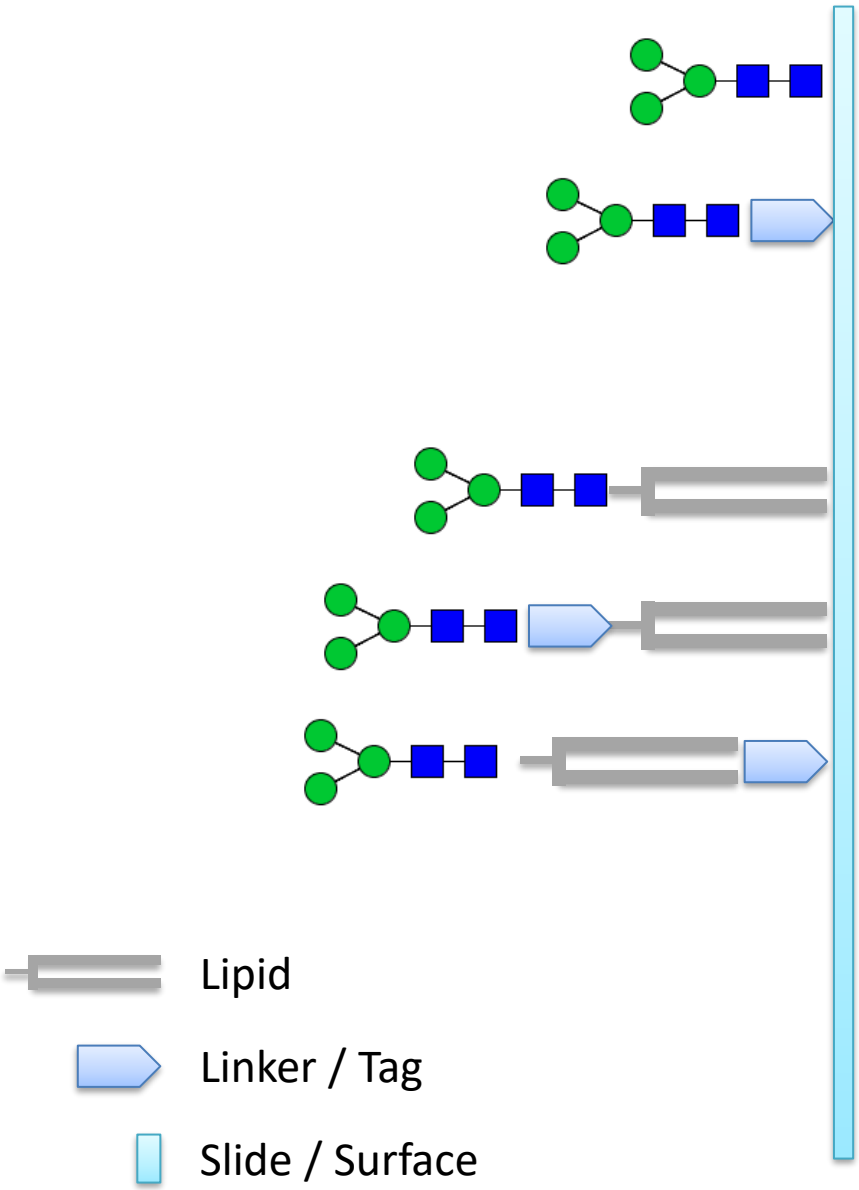
- Spot
- Slide
- Printer
- Sample
- Assay
- Scanner
- Image analysis
- Data processing

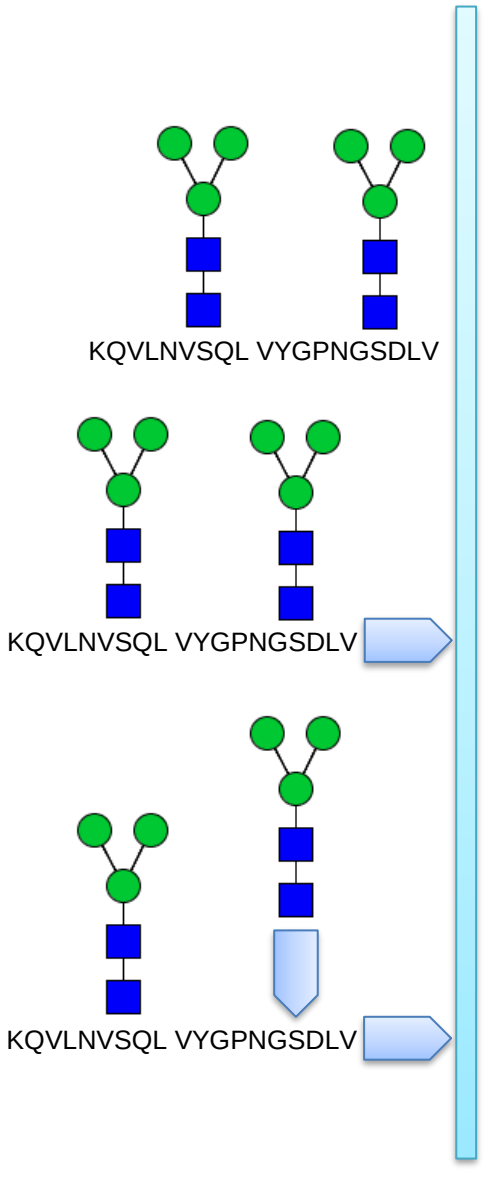
MIRAGE

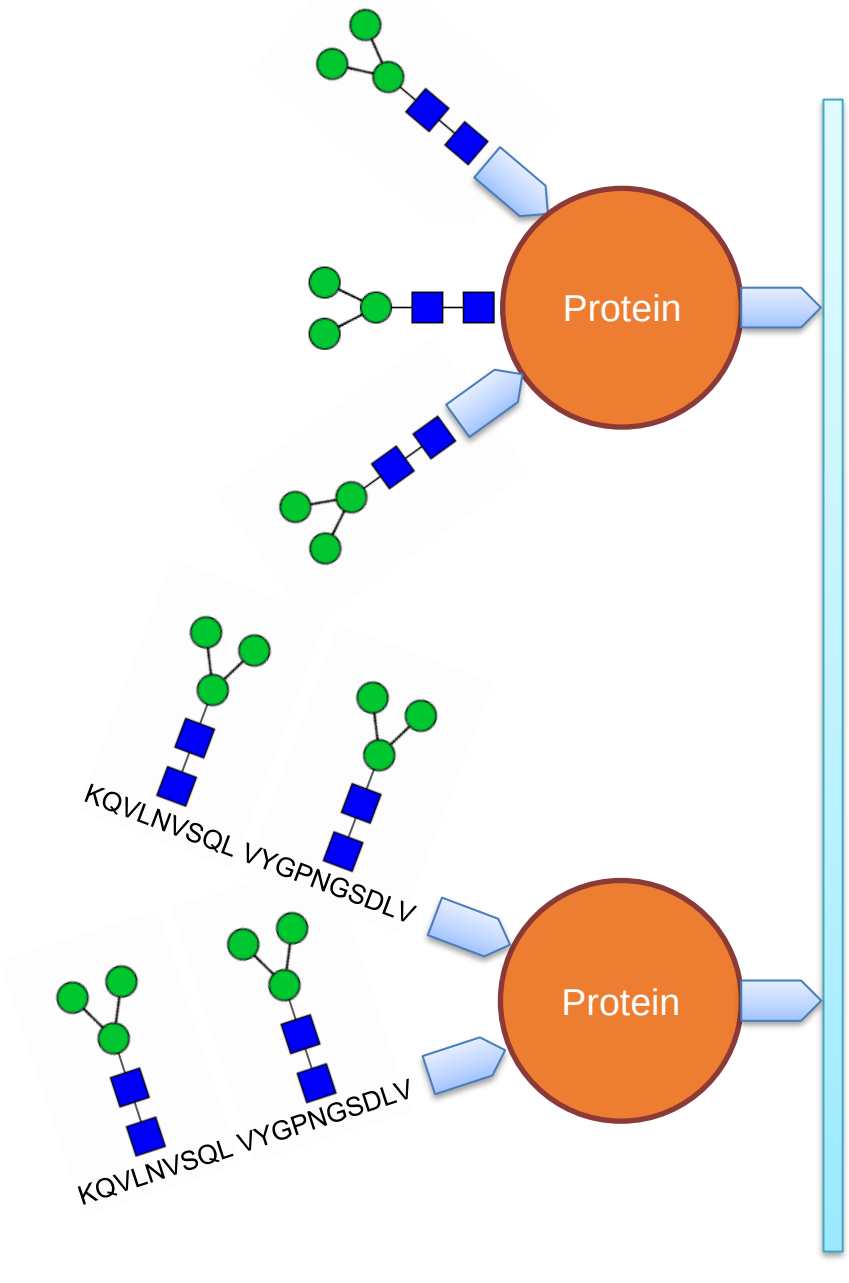
Live Demo

Data submission

Feature types







Machine-readable access

Triple store

As primary data store. With SPARQL endpoint for public data

WS API + Swagger

RESTful web service API for data access and submission with Swagger documentation

Java Client

Java client library for accessing the RESTful web service API

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