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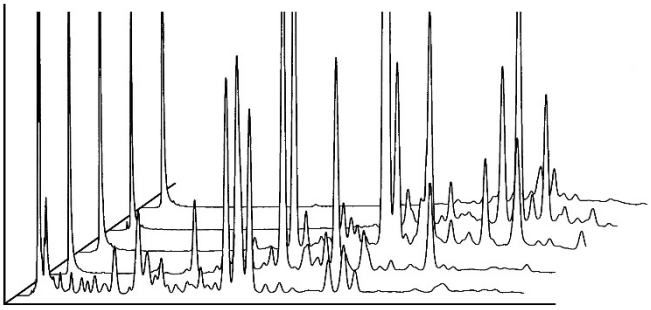
# “Glycan Atlas” and its applications

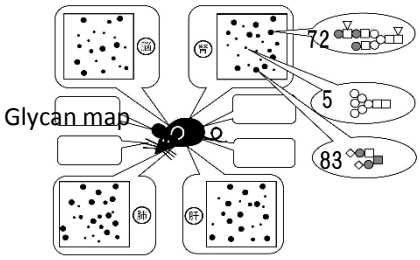
## Glycans are diverse



And you are at a loss how to analyze.

## What is “Glycan Atlas”?

Collection of glycan maps for a whole organism
Contents: Isomer structures, Quantity

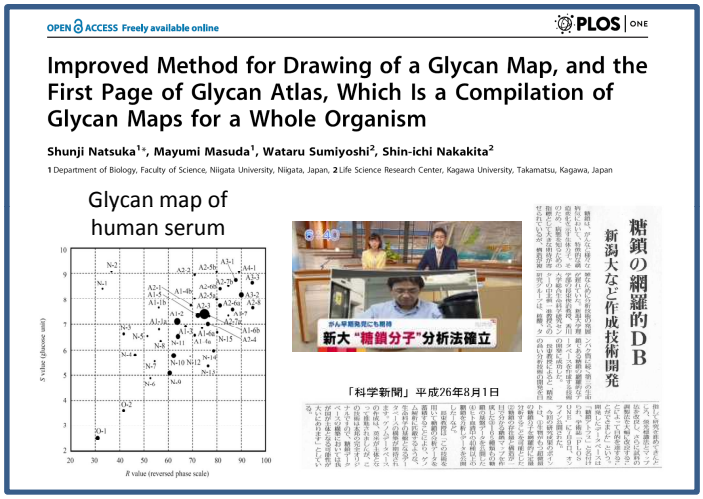


It is a map for the glycan world.

## Usefulness of “Glycan Altas”

How much person predicted the present situation when Human Genome Project began two decades ago?

1. Normalization od standard value
   ⇒ Detection of abnormal status
   - Biomarker searching
   - Biologics validation
1. Annotation
   - Biological function
   - Construction of artificial cell society



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**Improved Method for Drawing of a Glycan Map, and the First Page of Glycan Atlas, Which Is a Compilation of Glycan Maps for a Whole Organism**

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Glycan map of human serum









## Comparisons of human genome and Glcan Atlas projects

| | Human genome | Glycan Atlas |
|---|---|---|
| Target | A whole genome | All glycans |
| Goal | 3 billion bp | Several handreds glycans × organs , tissues |
| Term | 15 years from 1991 (done in 12 years) | 5 – 10 years? |
| Budget | $3 billion (NIH) | $0.1 billion? |
| Results | Life sciences depends on the genome database | Next generation of life sciences depends on the glycan database |

## Example of possible commissioned researches

- Glycan analysis of biologics
- Development of glycan related enzymes
- Development of glycan analytical methods
- Glycan analysis of trace biological components

Inquiries on matters of glycan research are also welcome.

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