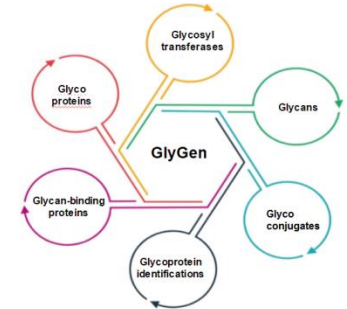




**MIRAGE**  
MIRAGE



# Tools and data resources for glycomics

René Ranzinger

Complex Carbohydrate Research Center

# NIH Common Fund

- Make glycomics and glycorelated information accessible
- Users inside and outside the glycomics community
- Integrate datasets from different resources allowing to answer questions that can not be answered by by the individual resources

# GlyGen – use cases

- Collected more than 250 use cases from the international researchers
- Organized a workshop to expand, organize and prioritize these use cases
- Evaluate what is doable?
- Use this as a starting point for the data integration

# GlyGen projects

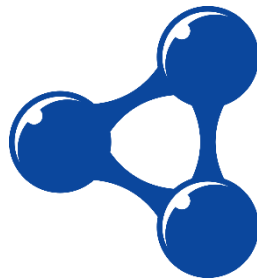


**GlyGen  
knowledge  
portal**



**Glycan Array  
data repository**

# GlyGen – data integration



**Data standardization  
and integration**


**RefSeq**

**PubChem** | OPEN  
CHEMISTRY  
DATABASE

**COSMIC**  
Catalogue Of Somatic Mutations In Cancer

**nextprot**

  
**NCBI**

**EMBL-EBI** 

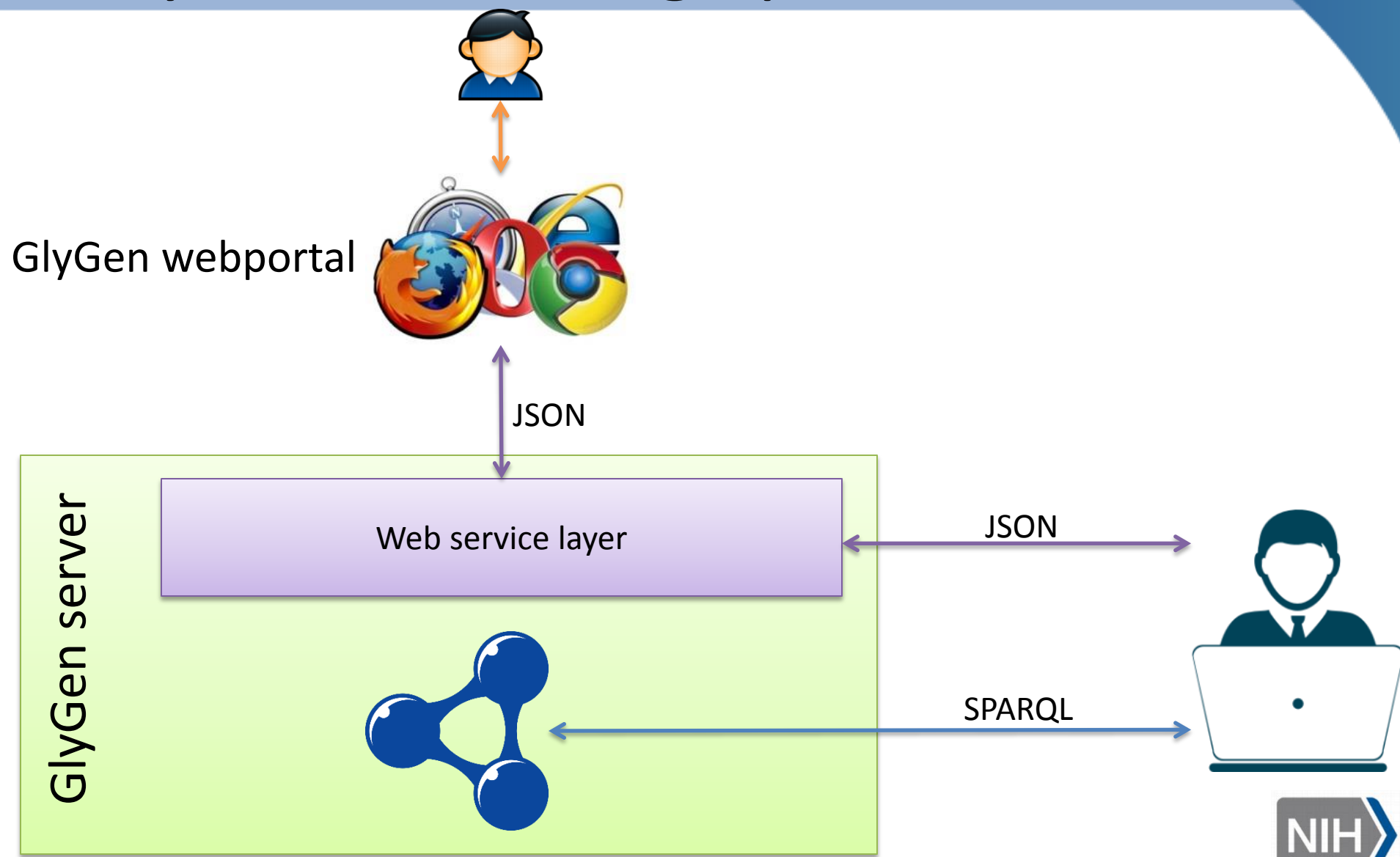


 **UniCarbKB**

**RCSB PDB**  
PROTEIN DATA BANK

**NIH**  
The Common  
Fund

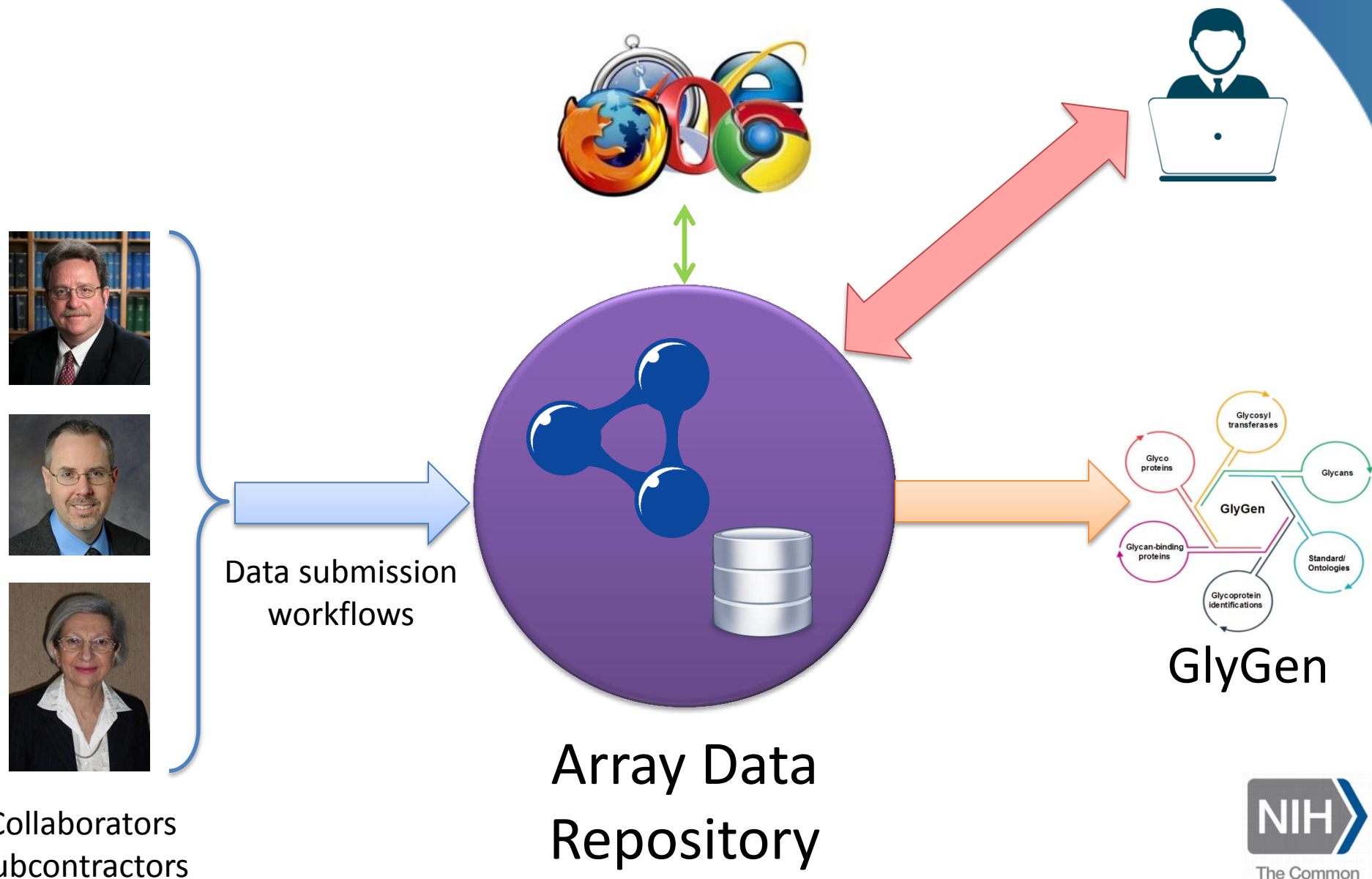
# GlyGen knowledge portal



# GlyGen use case implementation

- On top of traditional searching and browsing
- Novice level interface to complex queries
  - Which glycans might have been synthesized in mouse using **enzyme X**?
  - What are the orthologues of **protein X** and how does a glycosylation site and glycan structure change in different species?
  - Which genes may have been involved in the glycosylation of **protein X**?

# Glycan array data repository





# GlyGen – people

## Principal Investigators:

William York (*University of Georgia*)

Raja Mazumder (*George Washington University*)

## Advocates:

Radoslav Goldman (*Georgetown University*)

Judith Blake (*The Jackson Laboratory*)

Michael Pierce (*University of Georgia*)

## Key Collaborators/Co-Investigators:

Rene Ranzinger (*University of Georgia*)

Nathan Edwards (*Georgetown University*)

Kiyoko Aoki-Kinoshita (*Soka University*)

Matthew Campbell (*Griffith University*)

Richard Cummings (*Harvard University*)

Darren Natale (*Georgetown University*)

Cathy Wu (*Georgetown University*)

Evan Bolton (*NIH/NLM/NCBI*)

Jeff Gildersleeve (*NIH/NCI*)

Ten Feizi (*Imperial College London*)

Maria Martin (*EMBL-EBI*)