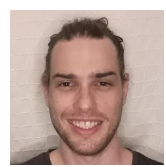


# Wikidata makes it easy to connect a knowledge base to other resources

## Wikidata for 5-star Linked Open Databases: A case study of PanglaoDB



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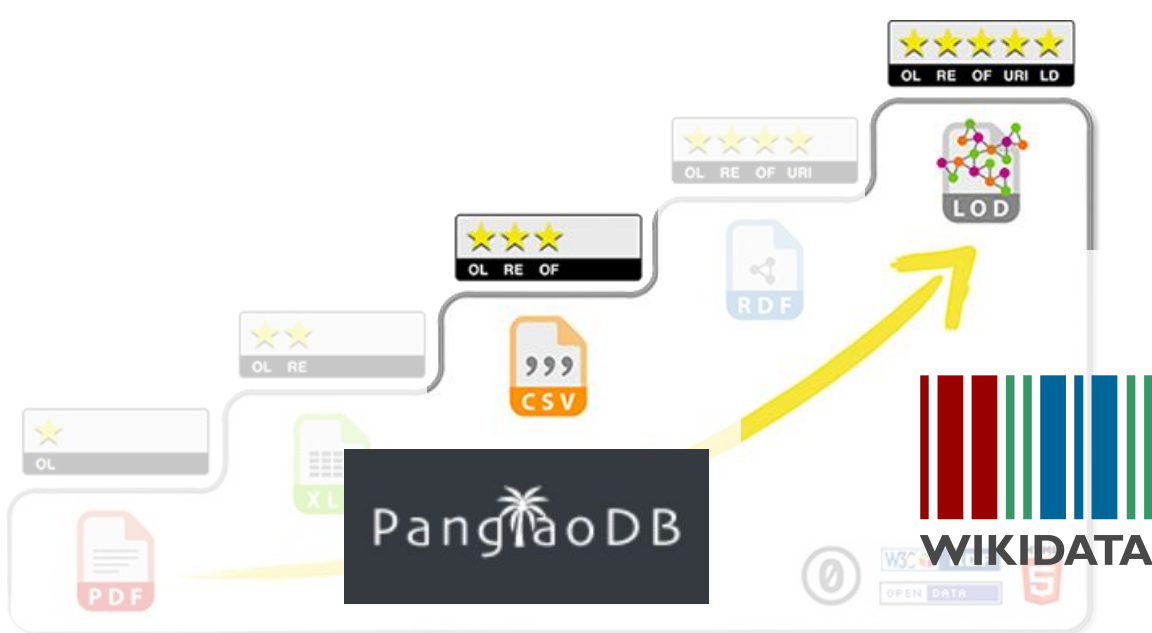


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## Overview:

- [PanglaoDB](#) is a database of cell type markers
- Data in PanglaoDB is available in tables, but not as linked data
- Wikidata is a platform for connecting knowledge in the context of Wikipedia and sister project
- We connected PanglaoDB to Wikidata, providing their curation in 5-star Linked Open Data .



### Moving from 3-stars to 5-stars improves interoperability.

3-stars imply that the data is open licensed (OL), machine readable (RE), and in an open format (OF). 5-star Linked Open Data implies additionally the use of W3C standards (URI) and the connection

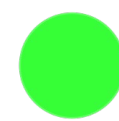
to other data providers (LD). Connecting data to Wikidata fulfills all criteria. More information about 5-star Linked Open Data [here](#))

## References:

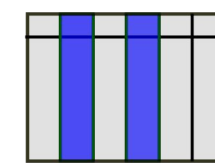
- 1- Oscar Franzén, Li-Ming Gan, Johan L M Björkegren, *PanglaoDB: a web server for exploration of mouse and human single-cell RNA sequencing data*, *Database*, 2019 [doi:10.1093/database/baz046](https://doi.org/10.1093/database/baz046)
- 2- Andra Waagmeester, et al. *Science Forum: Wikidata as a knowledge graph for the life sciences*. *Elife*, 2020 [doi.org/10.7554/eLife.52614](https://doi.org/10.7554/eLife.52614)

## Approach:

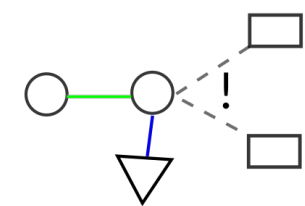
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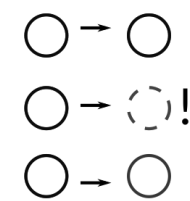
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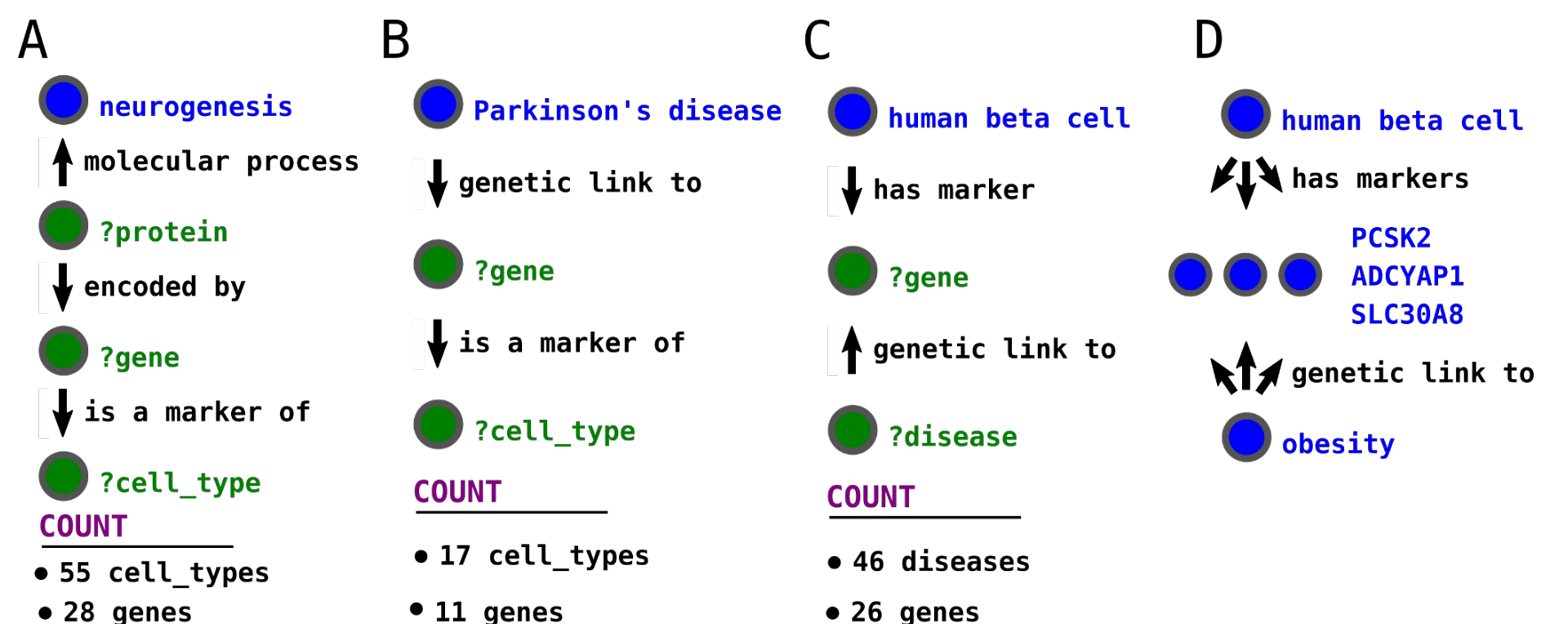


make integrative  
SPARQL queries



## Results:

- Panglao DB data on Wikidata can now be easily queried via the Wikidata Query Service
- Associations of cell types to diseases via markers and genetic associations might give hints on biological mechanisms of disease



### SPARQL queries in Wikidata now harness information from Panglao DB.

Queries with the above design were run on Wikidata. Results might change in real time with Wikidata updates by contributors A-C) Graphical representation of feasible SPARQL queries (<https://w.wiki/yQ6>, <https://w.wiki/yQD> and <https://w.wiki/3HjX>), D) Sample result from query C.

### Additional notes:

- More information on [https://jvfe.github.io/paper\\_wdt\\_panglao](https://jvfe.github.io/paper_wdt_panglao)
- T.L.'s work was funded by the São Paulo Research Foundation Grant #19/26284-1