



AgroLD: A Knowledge Graph Database for plant functional genomics

Bertrand Pitollat, Ndomassi Tando, Mathieu Rouard, Gaetan Droc, Aravind Venkatesan, Gildas Tagny, Nordine El Hassouni, Imene Chentli, Valentin Guignon, Clement Jonquet, et al.

► To cite this version:

Bertrand Pitollat, Ndomassi Tando, Mathieu Rouard, Gaetan Droc, Aravind Venkatesan, et al.. AgroLD: A Knowledge Graph Database for plant functional genomics. JOBIM 2021, Jul 2021, Paris, France. 2018, 10.1101/325423 . hal-03269813

HAL Id: hal-03269813

<https://hal.science/hal-03269813>

Submitted on 9 Jul 2021

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

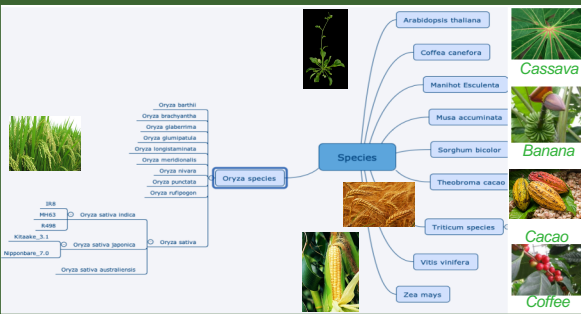
L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

The AgroLD project : A Knowledge Graph Database for plant functional genomics

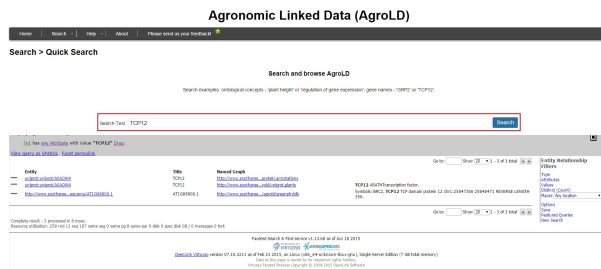
Pierre Larmande^{1,3}, Bertrand Pitollat^{2,3}, Ndomassi Tando^{1,3}, Valentin Guignon, Mathieu Rouard, Gaetan Droc^{2,3} and Manuel Ruiz^{2,3}

¹UMR DIADE IRD/UM/CIRAD, Univ. Montpellier France ²UMR AGAP CIRAD/INRAE/SupAgro, Univ. Montpellier France ³South Green Bioinformatics Platform, Bioversity, CIRAD, INRAE, IRD

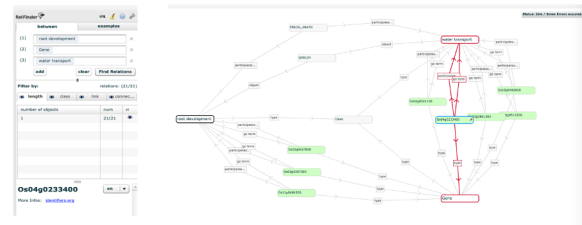
Species available



AgroLD (www.agrold.org)



Quick search is based on keyword search and aids in understanding the underlying knowledge.

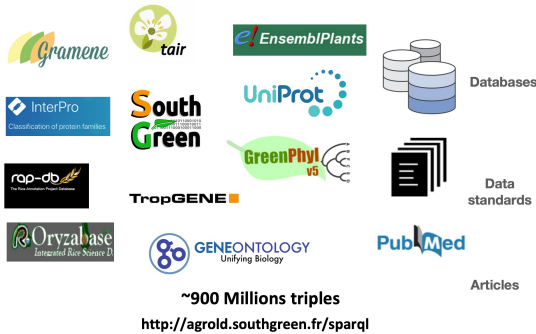


The **Explore Relationships** tool aids in exploring relationships between existing entities.



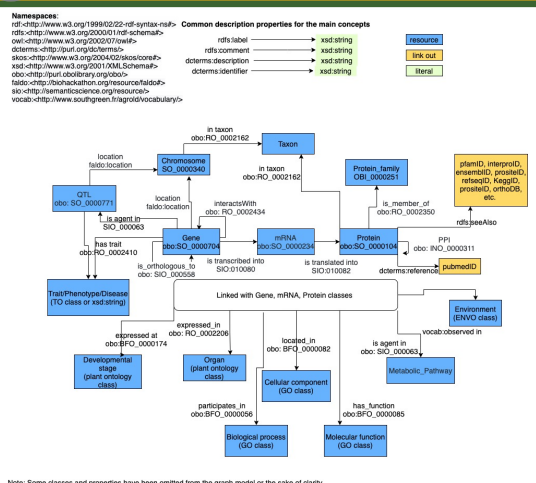
The **SPARQL Query Editor** provides an interactive environment to formulate SPARQL queries.

Data Sources and data types

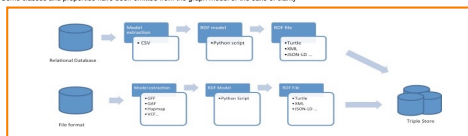


~900 Millions triples
<http://agrold.southgreen.fr/sparql>

AgroLD schema and ETL



Note: Some classes and properties have been omitted from the graph model or the sake of clarity



RDF Transformation workflows

Networks and supports



The **Advanced Search** query form is based on the REST API suite, developed under the AgroLD project. The aim of this effort is to provide non-technical users with a tool to query the knowledge base.

- 1 - Barrell, D. et al., 2009. The GOA database in 2009 - An integrated Gene Ontology Annotation resource. *Nuc. Ac. Res.* 37.
- 2 - Conte, M.G. et al., 2008. GreenPhylDB: A database for plant comparative genomics. *Nuc. Ac. Res.*, 36.
- 3 - Droc, G. et al., 2006. OryGenesDB: a database for rice reverse genetics. *Nuc. Ac. Res.* 34(Database issue), pp.D736-D740.
- 4 - Hamelin, C. et al., 2013. TropGeneDB, the multi-tropical crop information system updated and extended. *Nuc. Ac. Res.* 41(D1).
- 5 - Monaco, M.K. et al., 2014. Gramene 2013: Comparative plant genomics resources. *Nuc. Ac. Res.*, 42(D1).
- 6 - Larmande, P. et al., 2008. Oryza Tag Line, a phenotypic mutant database for the Genoplante rice insertion line library. *Nuc. Ac. Res.* 36.
- 7 - Venkatesan A. et al., 2018 Agronomic Linked Data (AgroLD): a Knowledge-based System to Enable Integrative Biology in Agronomy. *bioRxiv* 325423; doi: <https://doi.org/10.1101/325423>