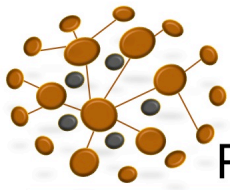


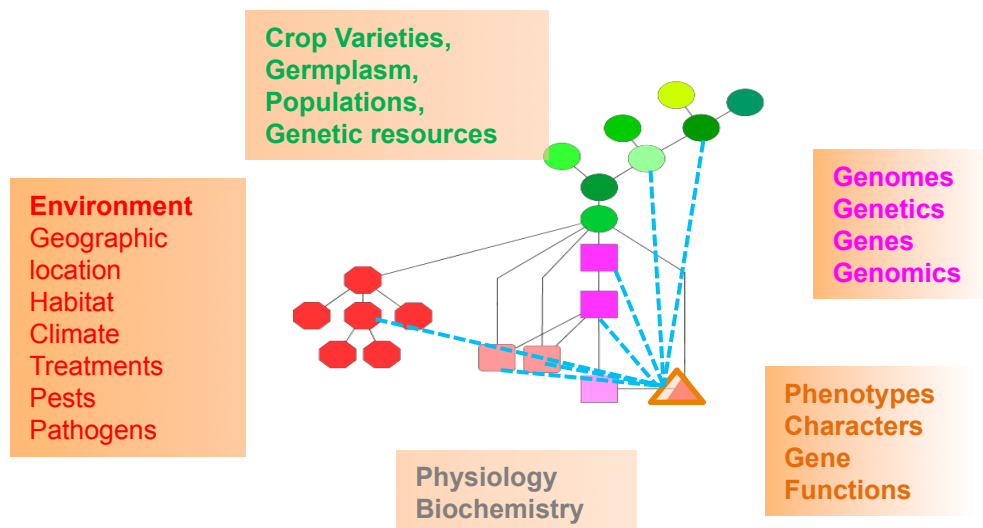
# Planteome Overview



Planteome

Common Reference Ontologies for Plants (cROP) and  
Tools for Integrative Plant Genomics

- Centralized platform where **reference ontologies for plants** will be used to access plant genomics data resources across a wide range of plant species
- Online informatics portal for **ontology-based, annotated data** for plant germplasm, gene expression, and non-model genomes
- Smart and semantic **data query, analysis, visualization** and **community-based annotation** and **curation tools**



- **Plant Ontology (PO)**
- **Plant Trait Ontology (TO)**
- **Plant Stress Ontology (PSO)**
- **Plant Experimental Conditions Ontology (PECO/EO)**
- Gene Ontology (plants)
- Phenotypic Qualities Ontology (PATO)
- Cell Type Ontology (CL)
- Chemicals (ChEBI)
- Protein Ontology (PRO)

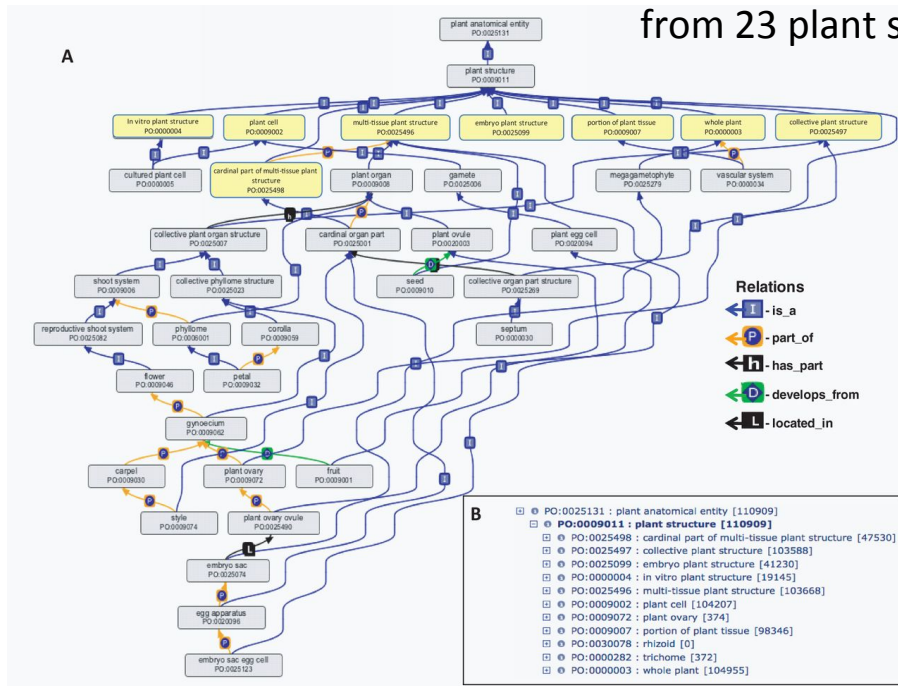
# Progress and Success Stories



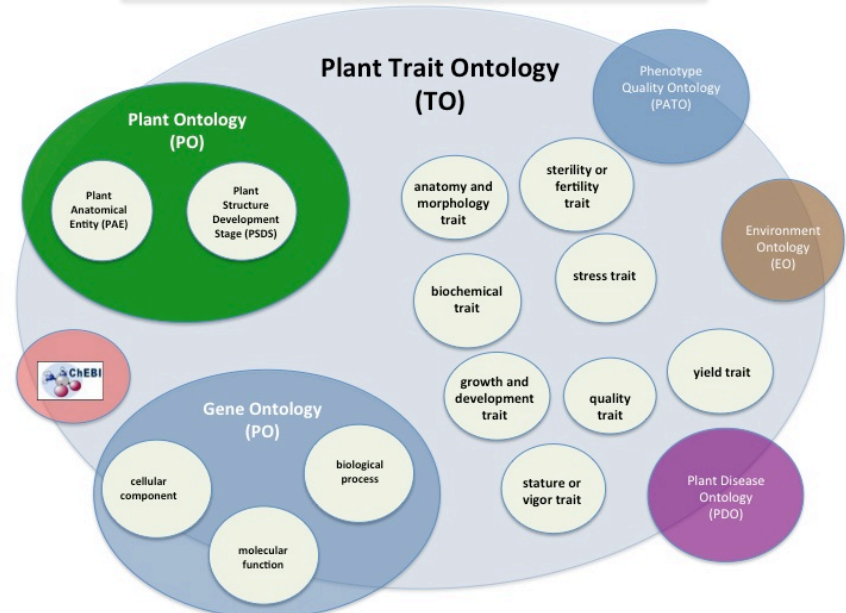
## Plant Ontology

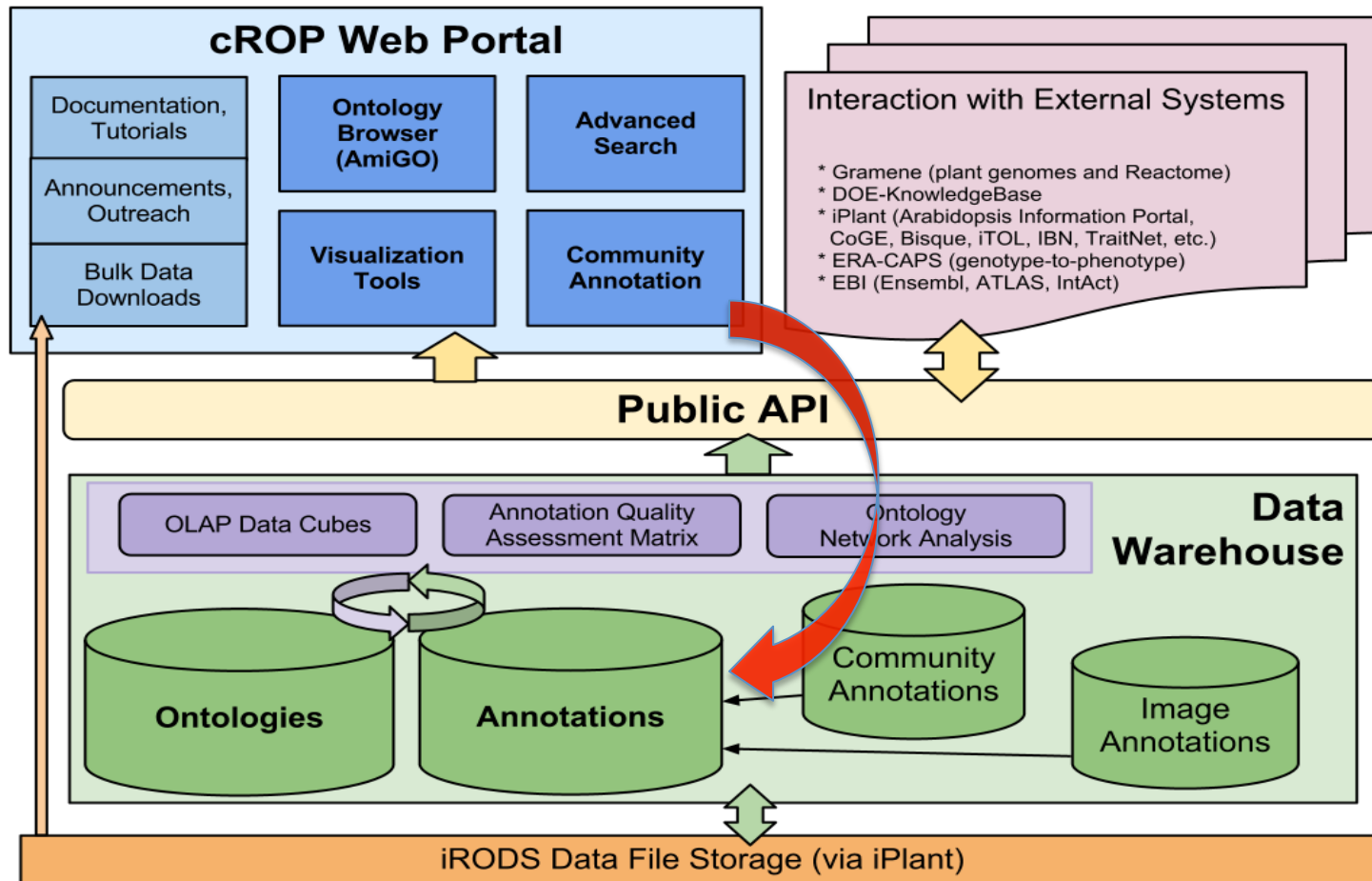
- A highly successful, collaborative, publicly-available resource with more than 50 collaborating partners
- Links plant genomics data sets to terms describing **plant anatomy and developmental stages across all plant species** for comparative studies and classroom teaching
- Currently over 1200 terms linked to more than 2.2 million data points from 23 plant species

[www.plantontology.org](http://www.plantontology.org)

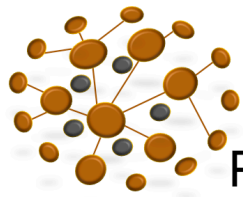


## TO Plant Trait Ontology





The Planteome informatics portal and the data store organization



# Planteome

## Structure of the Planteome Project: Data Generation, Access and Sharing- Open and Collaborative

iPlant Hosting platform

**Dennis Stevenson, Co-PI**  
New York Botanic Garden,

**Pankaj Jaiswal, PI**  
**Laurel Cooper,**  
Coordinator

**Justin Elser, Sys. Admin**  
Oregon State University  
NSF

**Chris Mungall, Co-PI**  
Gene Ontology

**Elizabeth Arnaud, Co-PI**  
Crop Ontology  
CGIAR Consortium

### Expansion & Maintenance of the Reference Ontologies for Plants and US Outreach

- Coordinate the overall project and lead Ontology Development
- Use case for the semantic integration framework
- Develop **data warehouse, visualization and analysis tools**
- Manage online resource at iPlant

**Georgios Gkoutos, Co-PI**  
PATO, Aberystwyth, UK

Gramene, KBase, SGN,  
MaizeGDB, AIP, UniProt,  
SoyBase, Oryzabase  
and many others...

**EBI**  
Paul Kersey

### Crop Ontology and the Integrated Breeding Platform

- Development of crop-specific ontologies to describe traits and annotations of
- wheat, rice, maize and other crops: cassava, sorghum, potato, yam and others
- Contribution to the semantic framework
- Community Engagement, **Breeding for Development**

**Barry Smith**  
OBO-Foundry & NCBO

**Ruth Bastow- GARNet**  
**Chris Rawlings-**  
Rothamsted Research  
UK, BBSRC

Phenotype RCN

**John Doonan,**  
National Plant Phenomics Center  
Aberystwyth Univ.

**Fabio Florani - Julich**  
**Bjorn Usadel – Aacehn**  
**Uli Schurr – Julich DROPS**  
Germany

**Cyril Pommier –BAP; Ephesis**  
**Jacques Legouis – GEDEC,**  
Breedwheat  
**Francois Tardieu- Phenome, DROPS**  
France, INRA

Divseek

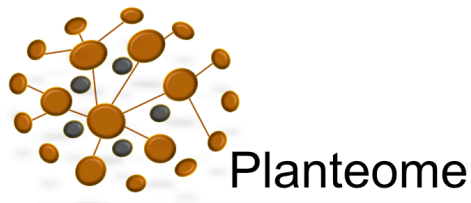
iDIV

**Luke Ramsay**  
**Dave Marshall**  
J. Hutton

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### Semantic integration framework

- Develop Trait Ontology for wheat, barley & Brassicaceae
- Environment Ontology from Phenotyping platforms
- Warehouse, mirroring on server –EBI
- Community engagement



# Planteome and DivSeek



## Many points of coincidence between Planteome and DivSeek:

1. Developing **common standards** and **descriptors** that allow data to be structured, shared and reconciled with existing data management schemes and that facilitate use by diverse scientific, crop and breeding communities.- ***Phase 1 Case Studies and Pilot Projects***
2. Establishing **new tools** and **approaches** that enable data exploration, mining and utilization
3. Characterize crop diversity using **state-of-the-art genomic, phenomic and molecular technologies**
4. Promote awareness of the **value of crop diversity** and mobilize the diverse resources required to accomplish these goals.