Workshop INTEGRAPE

Beyond COST Action INTEGRAPE: The Grapevine Genomics Encyclopedia Initiative

Matus, José Tomás, Rustenholz, Camille; Grimplet, Jérôme; Cantu, Dario; Holtgräwe, Daniela; Bombarely, Aureliano ; Carbonell, Pablo ; Alaux, Michael; Fasoli, Marianna; Moretto, Marco; Mietton, Camille ; Sanseverino, Walter ; Gruden, Kristina; Ware, Doreen ; Adam-Blondon, Anne-Françoise; Pezzotti, Mario

The GRAPEDIA Consortium

Abstract

The COST Action CA17111 INTEGRAPE, ending in September 2022, has greatly contributed in providing the basis for integrating grape resources. The Integrape community has been active and productive, generating guidelines for FAIR treatment and generation of standardized data, allowing them to be findable, accessible, interoperable and reusable. We have contributed to the release of the latest and most updated reference genome assembly of grape, together with the world's largest gene catalog of functional data. This COST Action has also served as a hub of all tools generated by the community, allowing data exploration and analysis. Despite these advances, there is still much room for improvement. These *in house* resources do not full interoperate, neither are they linked to other important, highly-accessed resources generated by the community, such as Grapegenomics.com, Vespucci, Vitviz, etc. With the aim to integrate and intercommunicate these resources, offering them to the community in an innovative, dynamic and centralized web portal, we have established the Grapevine Genomics Encyclopedia (GRAPEDIA) Initiative. GRAPEDIA will be structured in a federated database system that will converge different sources of open access data, integrating biological knowledge, genetic and genomic resources and will also offer customized services for the research community and industry that will allow the database to be commercially exploitable. GRAPEDIA aims to develop grapevine-tailored application programming interfaces (APIs) and implement innovative technologies such as deep learning and artificial intelligence methods to provide the community the best tools to face near-future challenges: improve or design new cultivars and agricultural systems to cope with environmental transition and pests, whilst ensuring vineyard sustainability. There are companies who have been involved in INTEGRAPE activities and have explicitly manifested their interest in contributing to GRAPEDIA, but first we need to fully understand and unite the needs of the whole community. For this reason, in this workshop we expect to interact with members of the community and discuss possible outcomes of the portal. We welcome all public and private entities to join this effort. Visit http://grapedia.org/ for more details.