The URGI grape genome manual annotation distributed system

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Abstract

As part of the French-Italian Public Consortium aimed to obtain a high-quality draft (12X) of the *Vitis vinifera* genome sequence of the highly homozygous genotype PN40024, the INRA-URGI bioinformatics unit is in charge to develop and maintain a genomic and genetic information system (GnpIS, http://urgi.versailles.inra.fr) for the grape scientific community.

The GnpIS information system is composed of 5 genomic and 3 genetic modules.

The GnpGenome module is a multispecies database relying on the international open source Generic Model Organism Database project (GMOD, http://www.gmod.org). It contains the 12X *Vitis vinifera* genomic sequence assembly and its structural annotation. The GMOD project provides tools (Apollo, Chado, Gbrowse) to produce efficiently a manual curated genomic annotation. Here we present the system we have developed for the distributed annotation of the grapevine genome sequence. Apollo is the graphical annotation editor allowing curators to change the gene structures according to various evidences (ESTs, short-reads, protein similarity, comparative genomics). Manual annotations (gene curation validated or in progress) are saved in a dedicated Chado database and shared with other members of the annotation community. When validated, genes/pseudogenes curated models are commited in a second database publicly accessible by Gbrowse.
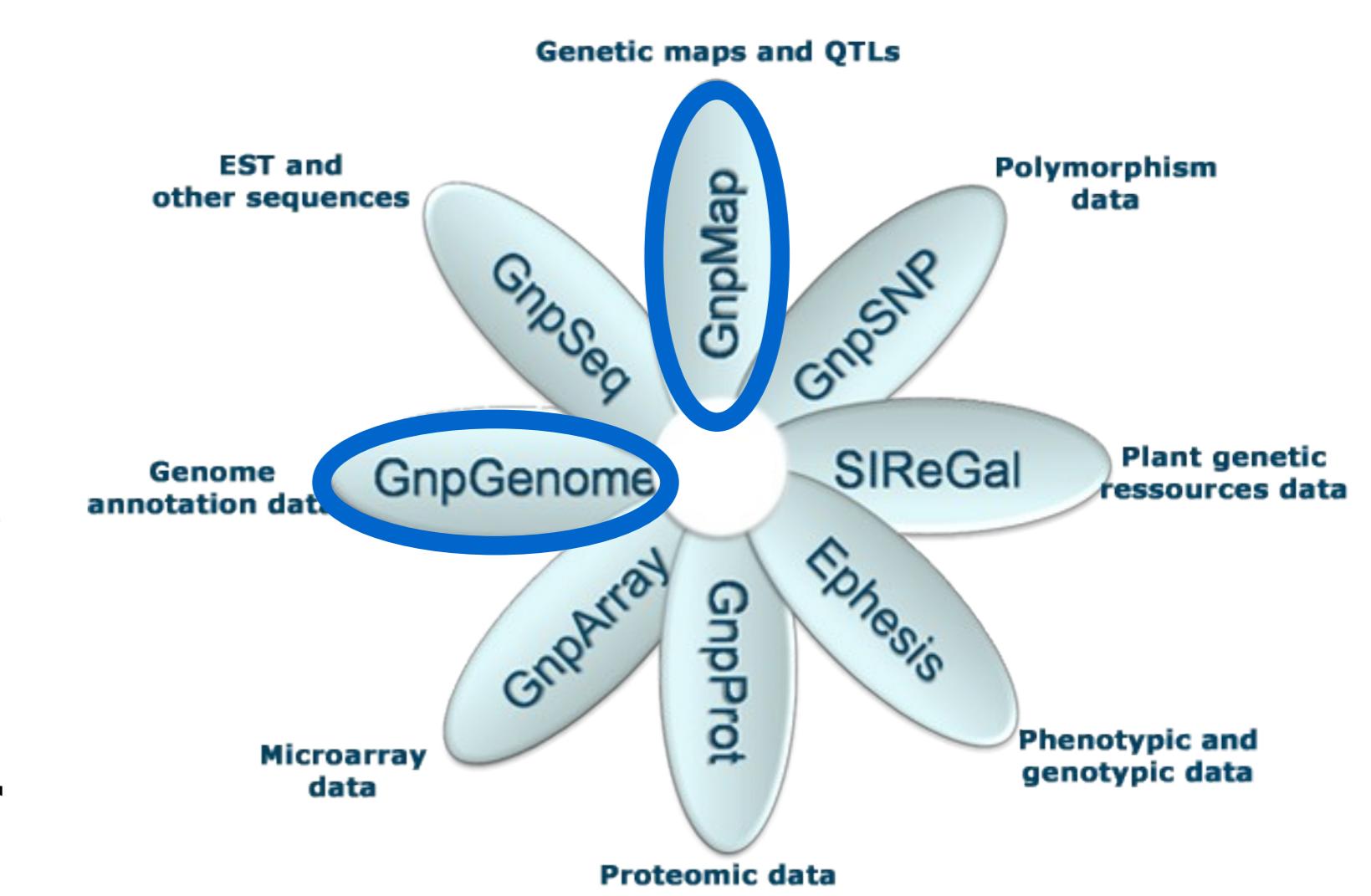
Roundtrip

Apollo ⟷ Chado ⟶ BIO::SeqFeature ⟶ Gbrowse

Vitis vinifera genome browser
http://urgi.versailles.inra.fr/cgi-bin/gbrowse/grape_pub/
*https://gpi.versailles.inra.fr/cgi-bin/gbrowse/vitis_12x/

Apollo for *Vitis vinifera*
*https://gpi.versailles.inra.fr/projects/Vitis/apollows.php
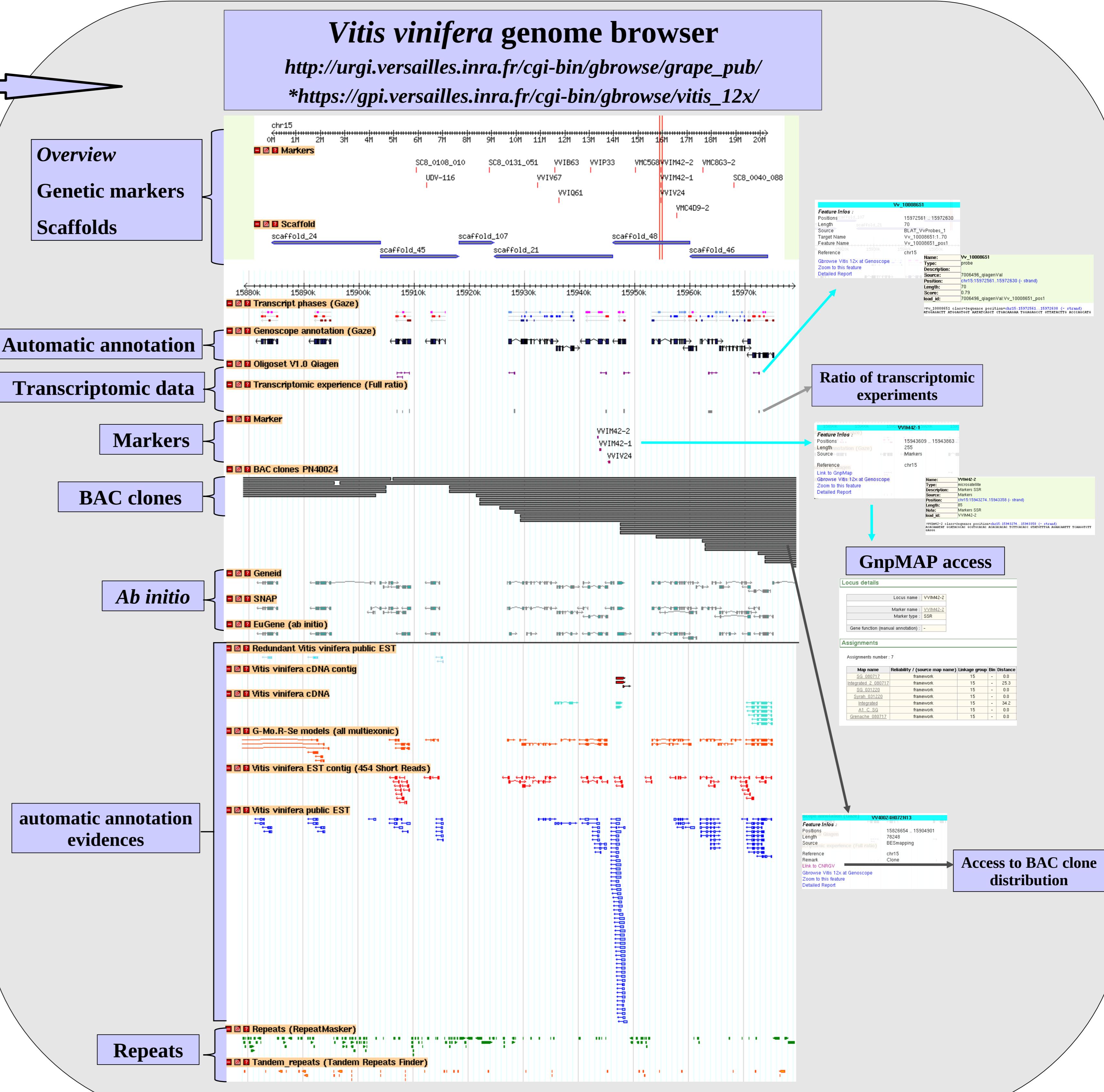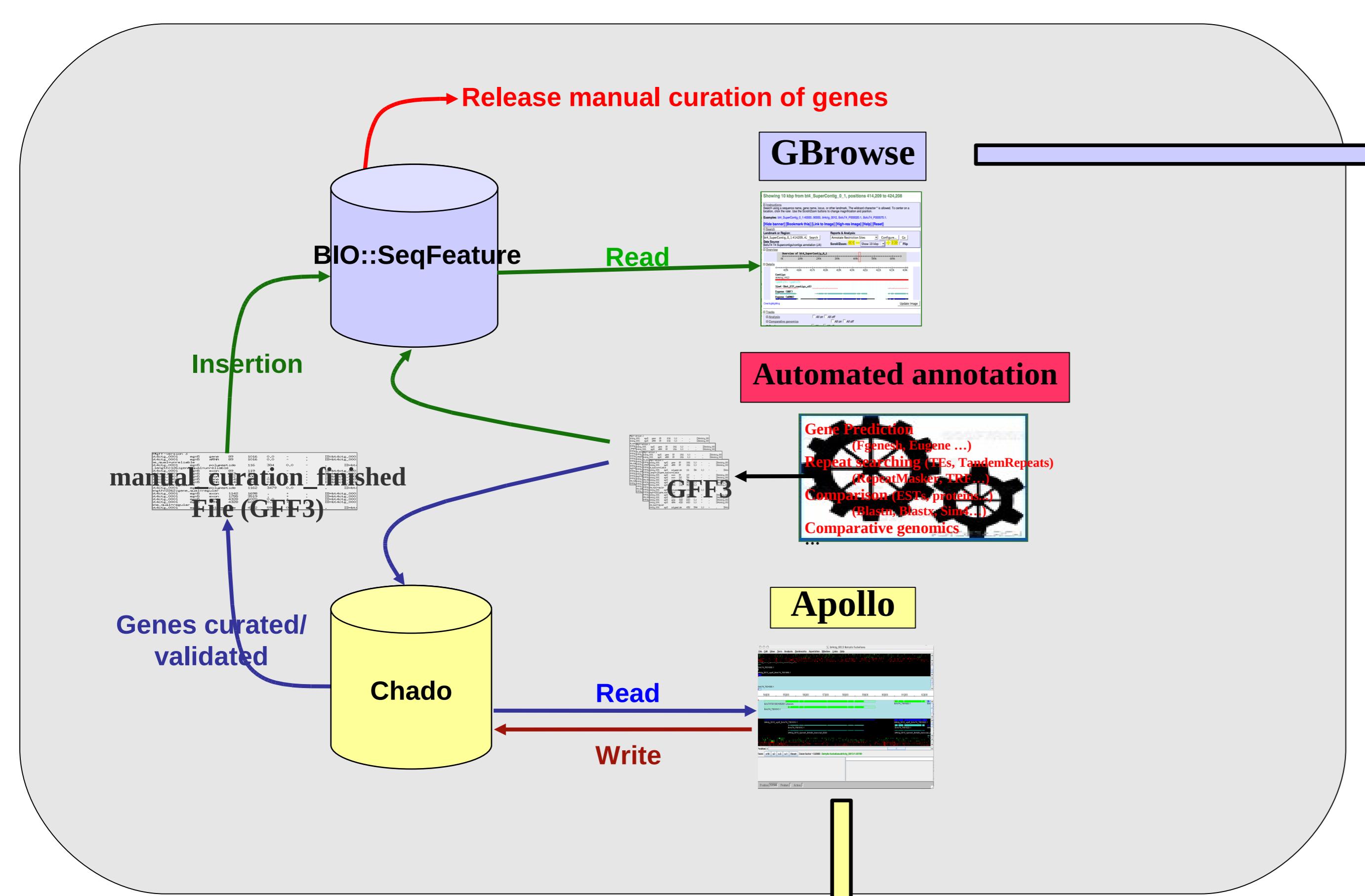
** Restricted site for the members of the grape annotation community and before publication
(for more information : urgi-contact@versailles.inra.fr)*

Related publications

The grapevine genome sequence suggests ancestral hexaploidization in major angiosperm phyla
Jaillon O. *et al*; French-Italian Public Consortium for Grapevine Genome Characterization. *Nature.*
2007 Sep 27;449(7161):463-7.