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BIPAA, Bioinformatics Platform for the Agroecosystems Arthropods.

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BIPAA is a bioinformatics platform from the **French National Institute for Agricultural, Food and Environment (INRAE)** to assist genomics and post-genomics programs developed on insects associated to agroecosystems. It is located in Rennes (France) and is integrated in **GenOuest** platform infrastructure (<https://www.genouest.org/>).

Contacts : bipaa@inrae.fr , <https://bipaa.genouest.org/>

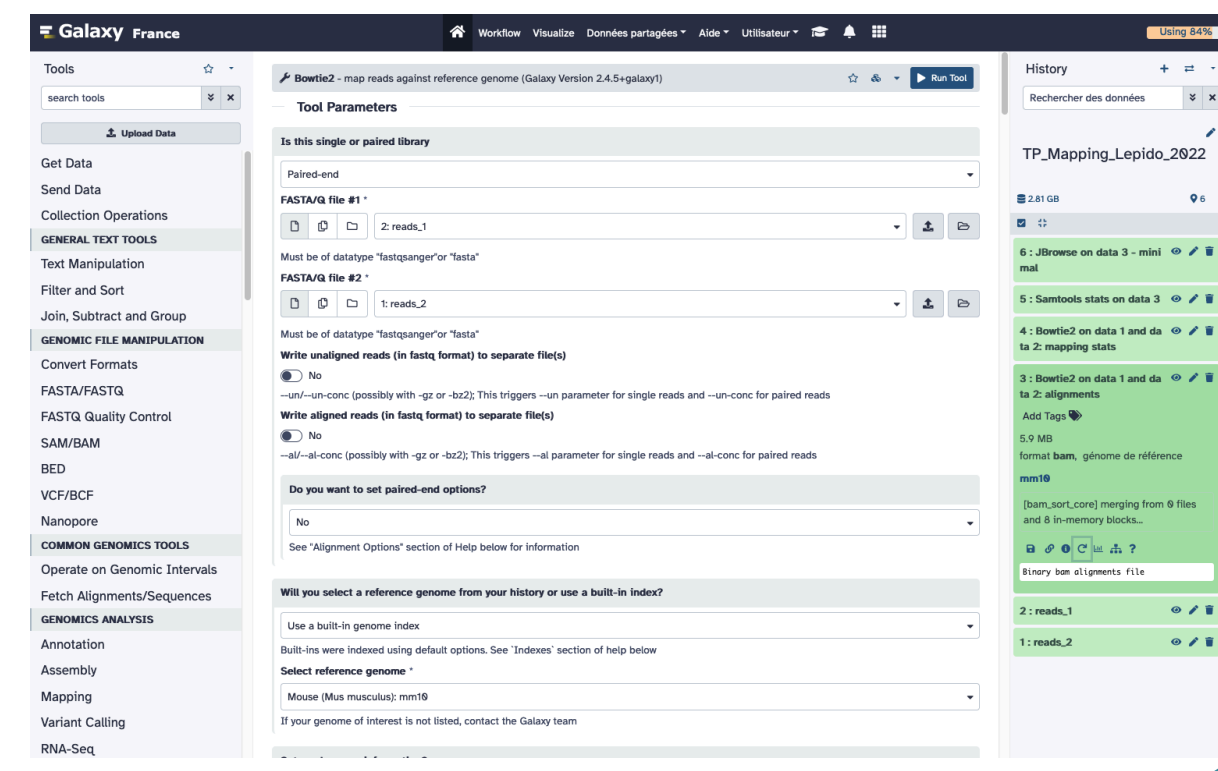
Data analysis

BIPAA supports a network of scientists from various french labs for analyzing their **genomics data**. BIPAA proposes personal guidance for developing scripts, running complex workflows on a computing cluster.

Topics :

- Genome assembly and annotation
- Transcriptomics analysis and non coding RNA
- Transposable elements
- Genomes comparison (Orthology)
- Variant identification
- Genomics and epigenomics data integration

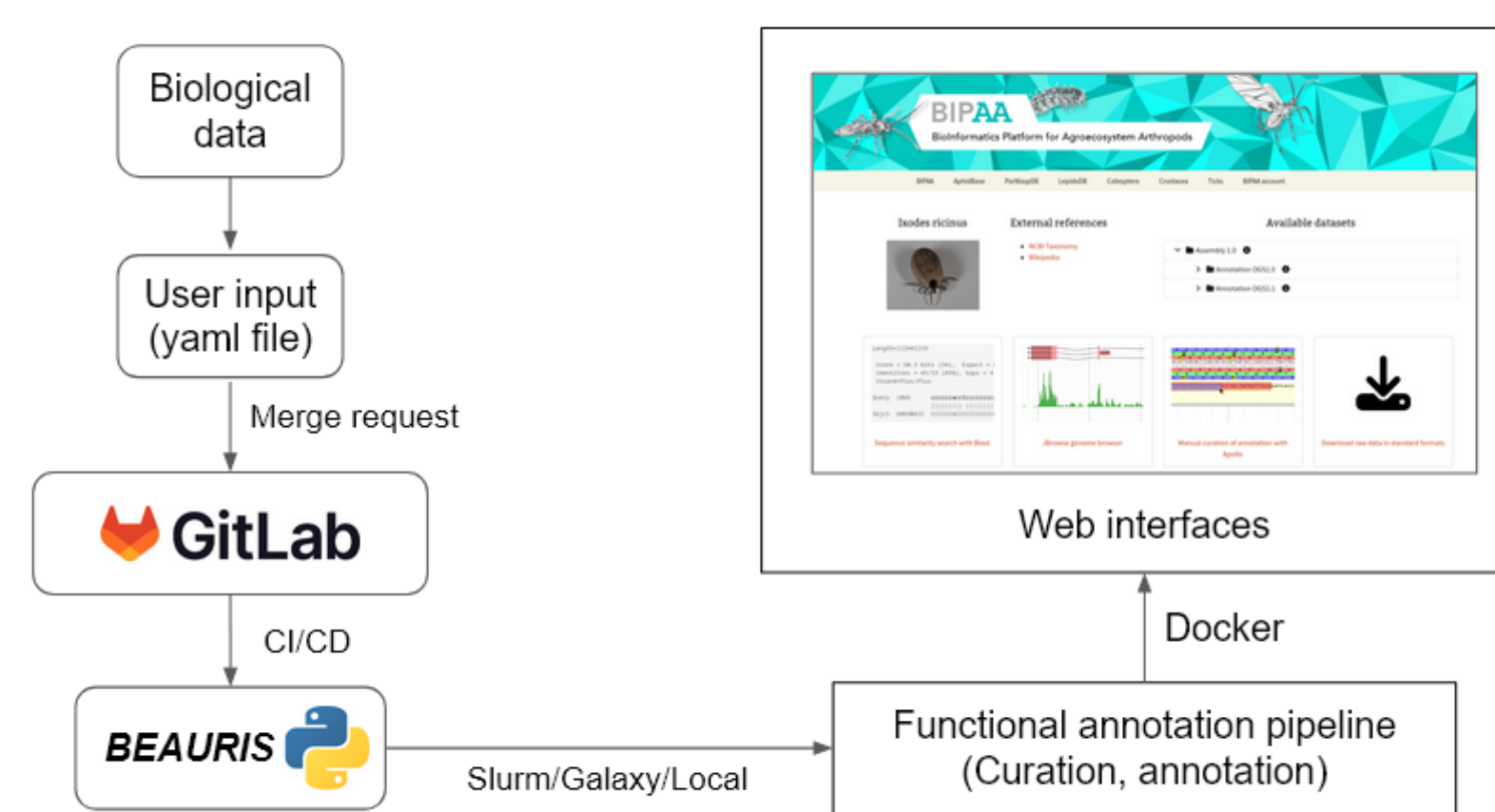
BIPAA contributes to the national **Galaxy** server usegalaxy.fr



Information systems

BIPAA Information systems are based on the **BEAURIS project** <https://gitlab.com/beauris/beauris> and **Galaxy Genome Annotation** <https://galaxy-genome-annotation.github.io/>

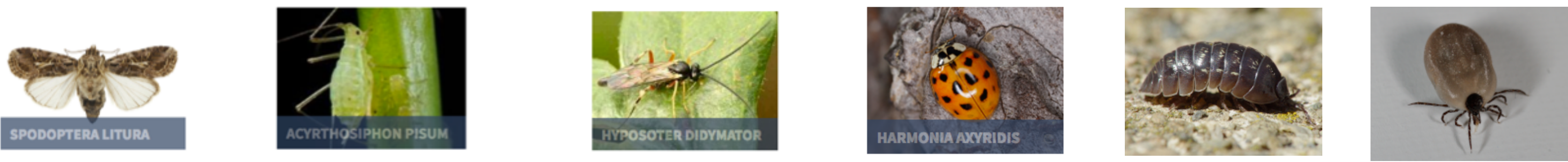
BEAURIS: How does it work?



- Each genome is a multi-container application.
- This system permits automatic deployment of new genome and update.
- This is a reproducible, re-usable, modular and extensible system.

It organizes and manages genomics data generated by various international groups and offers **textual and graphical tools** for browsing and querying genomics data.

BIPAA hosts multiple arthropod genomes



LepidoDB Aphidbase

ParWaspDB

ColeoDB

CrustaDB

TickDB

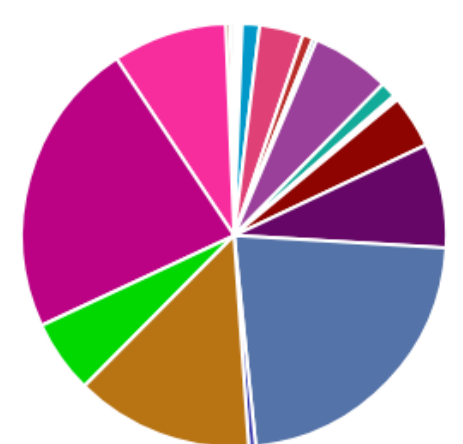
17 lepidopterans 12 aphids

15 parasitoid wasps

3 coleoptera 1 crustacea

4 ticks

For each genome, textual and graphical tools are available

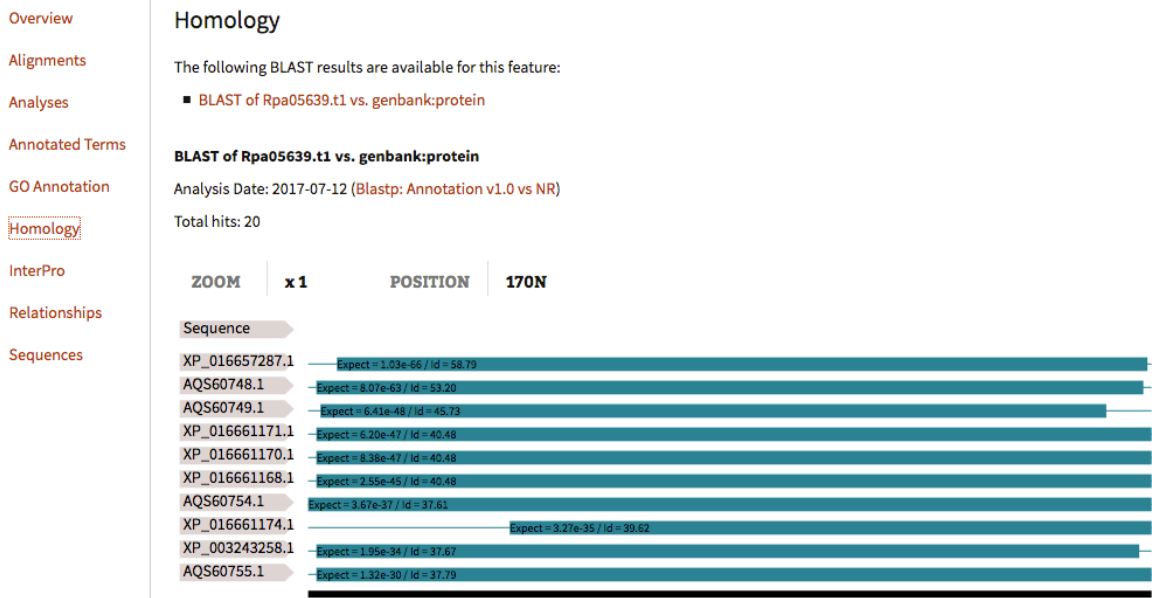


- immune system process
- multi-organism process
- reproduction
- multicellular organismal process
- cellular component organization or...

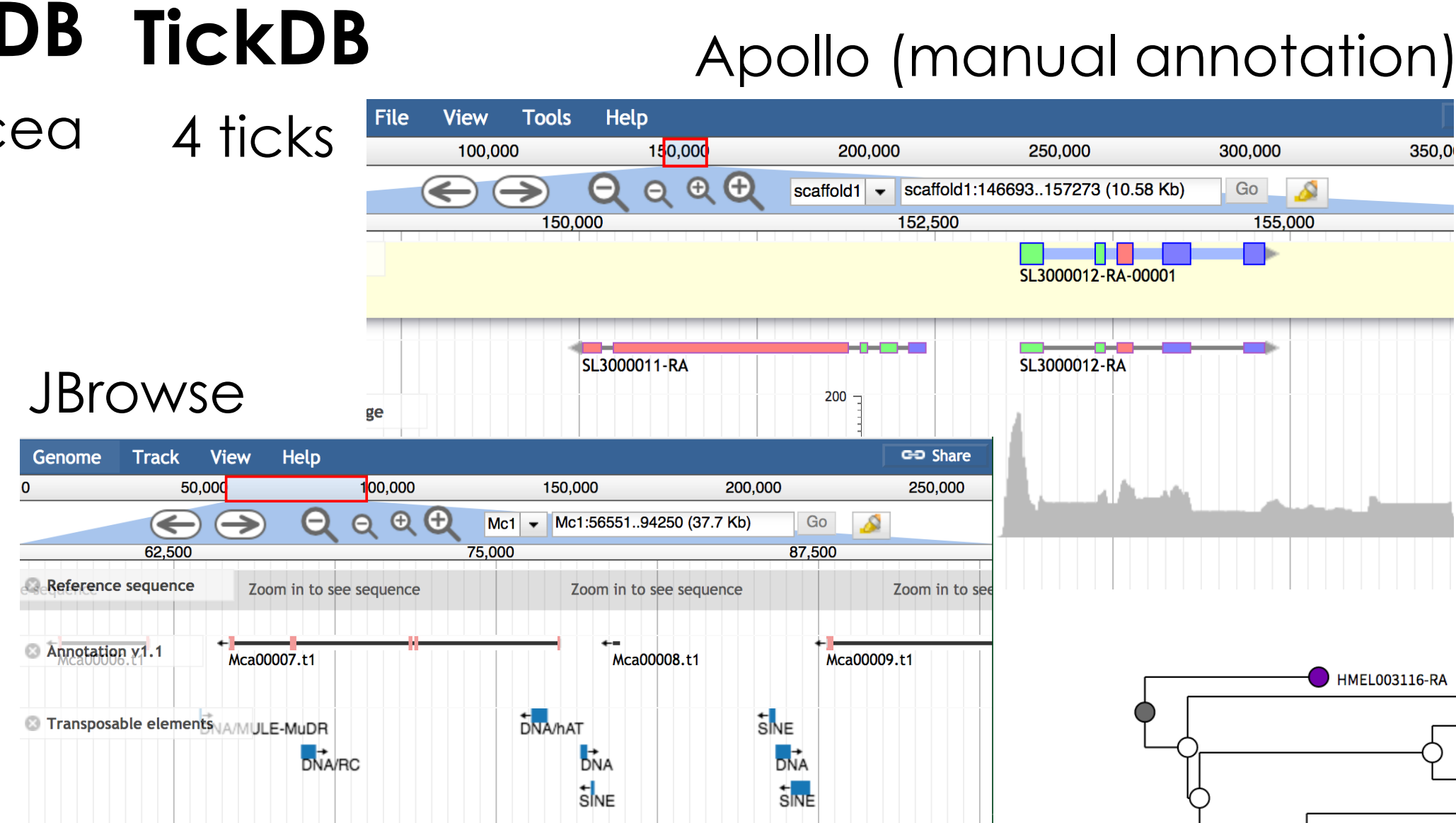
Gene Ontology

Rpa05639.t1-protein (polypeptide) Rhopalosiphum padi

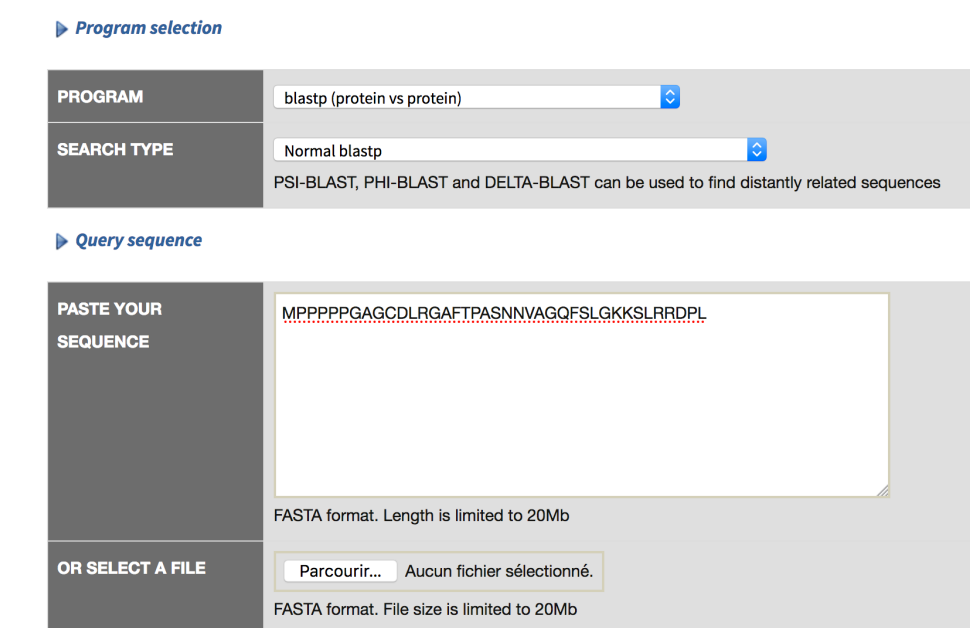
You are viewing a polypeptide, more information available on the corresponding mRNA page



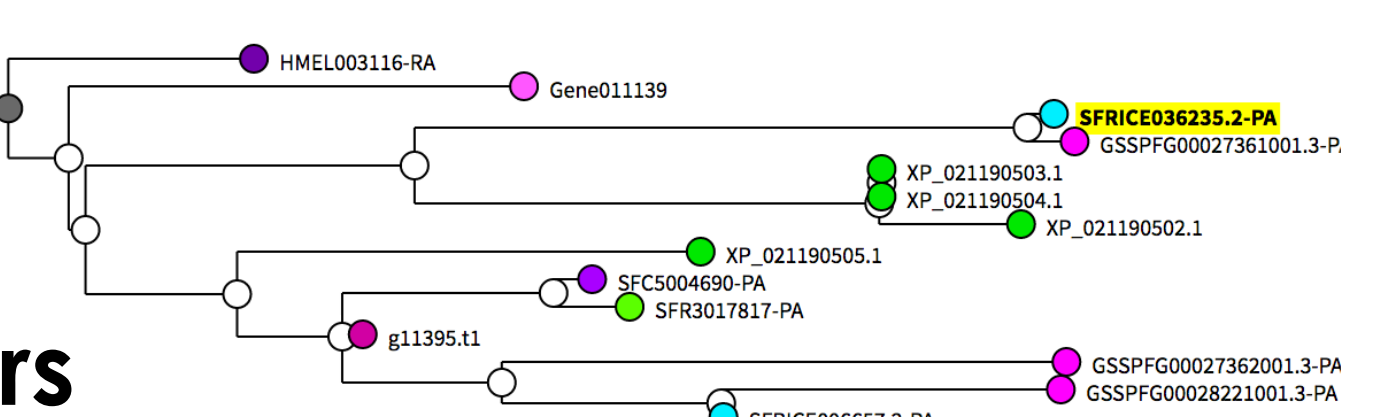
Sequence information



Genome browsers



Blast



Orthology and synteny

Collaborations

• Involved in various bioinformatics research projects, in collaboration with teams in **Inria/IRISA** in Rennes :

GenScale (complex genome assembly, variant identification)

Dyliss (data integration and mining, Askomics)



• Associated with 3 national networks of INRAE : **BAPOA** (Biologie Adaptative des Pucerons et Organismes Associés), **ADALEP** (Adaptation à l'environnement biotique chez les lépidoptères) and REACTION (Réseau d'échange sur les mécanismes Épigenétiques qui façonnent les interactions)

• Involved in international consortia and insect genome projects (**i5k** : sequencing of 5000 insect genomes)



• More than 700 users are currently listed

Trainings

BIPAA is involved in training sessions in partnership with the **GenOuest** bioinformatics platform and the **BARIC** (Bioinformatique pour l'Analyse, la Représentation et Intégration de Connaissances) community of INRAE, and in tutorials development in **Galaxy Training Network (GTN)**.

Project 2020-1-NL01-KA203-064717 is funded with the support of the Erasmus+ programme of the European Union. Their funding has supported a large number of tutorials within the GTN across a wide array of topics.