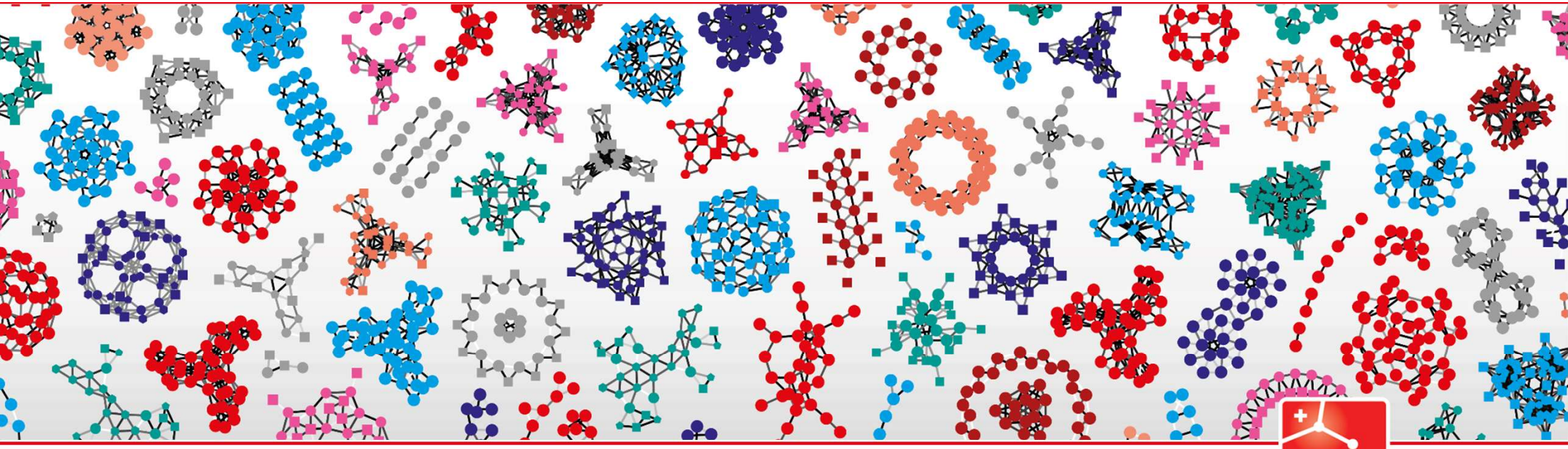


Swiss Institute of Bioinformatics

From bioinformatics to biodiversity informatics

Patrick Ruch

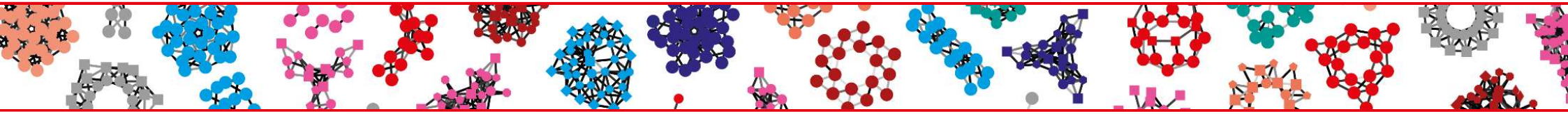
patrick.ruch@hes-so.ch

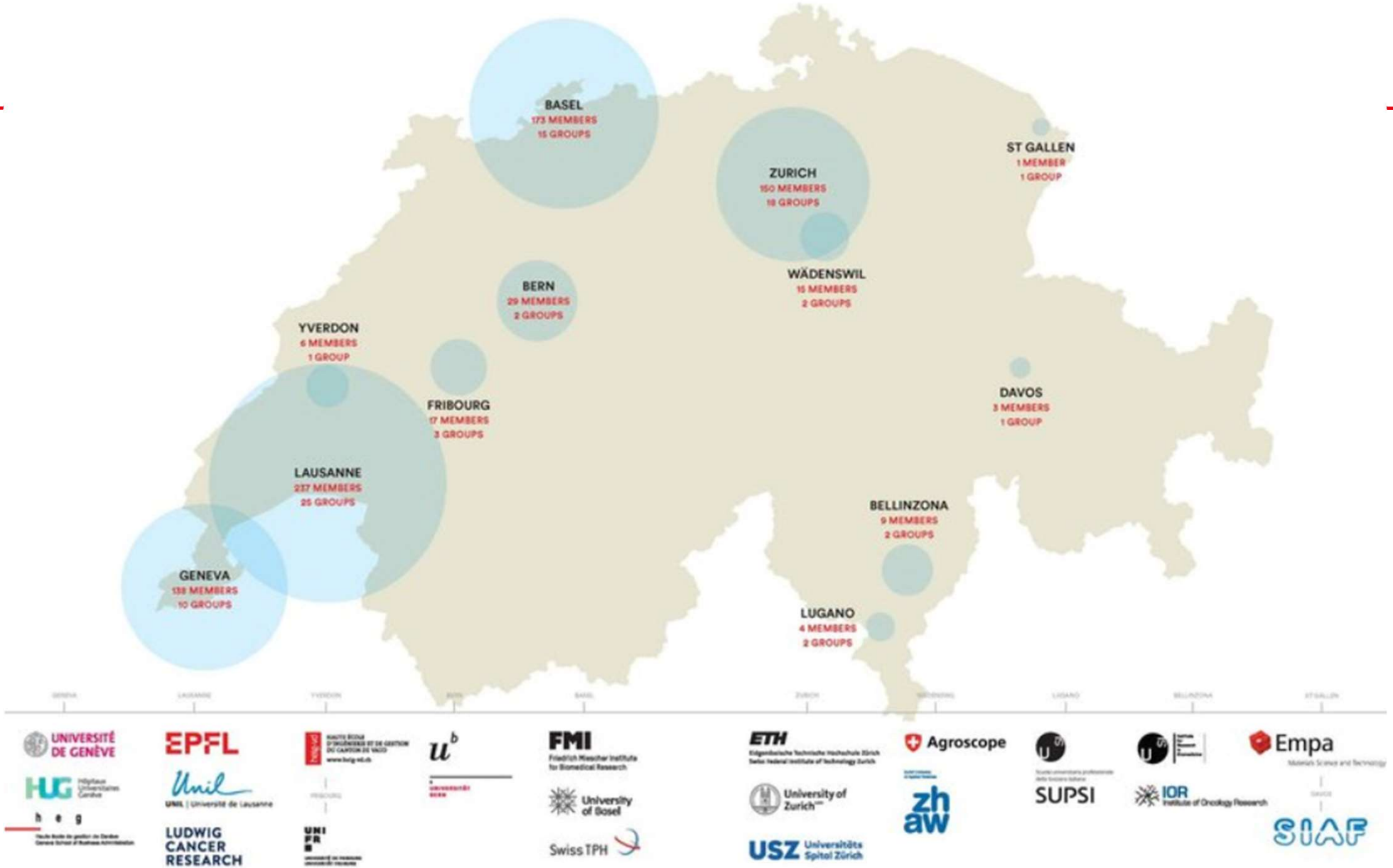
SIB & HES-SO / HEG Genève

elixir SWITZERLAND

Hes·so GENÈVE
Haute Ecole Spécialisée de Suisse occidentale

Overview




BASEL
173 MEMBERS
15 GROUPS
ZURICH
150 MEMBERS
18 GROUPS
ST GALLEN
1 MEMBER
1 GROUP
WÄDENSWIL
15 MEMBERS
2 GROUPS
BERN
29 MEMBERS
2 GROUPS
YVERDON
6 MEMBERS
1 GROUP
FRIBOURG
17 MEMBERS
3 GROUPS
DAVOS
3 MEMBERS
1 GROUP
LAUSANNE
237 MEMBERS
25 GROUPS
BELLINZONA
9 MEMBERS
2 GROUPS
GENEVA
138 MEMBERS
10 GROUPS
LUGANO
4 MEMBERS
2 GROUPS
UNIVERSITÉ DE GENÈVE
HUG
hes
EPFL
Unil
UNIL | Université de Lausanne
LUDWIG CANCER RESEARCH
UNI FR
FMI
Friedrich Miescher Institute for Biomedical Research
University of Basel
Swiss TPH
ETH
University of Zurich
USZ Universitäts Spital Zürich
Agroscope
zhaw
SUPSI
IOR
Institute of Oncology Research
Empa
SIAF

Swiss Institute of Bioinformatics

- Created in 1995 in Geneva as a public-funded private foundation
- Main funders: SEFRI and NIH
- 900+ bioinformaticians
- 88 research groups, incl. 5 internal group leaders

    Most group leaders are university professors [me @HES-SO Geneva]

    Literatures Services ~12 FTE

    Management of all literature contents to support molecular biology

    2012-2015 first projects in the field of biodiversity [FAO, NIBR]

    Today: Swiss Bio Data ecosystem (SBDe) project 2024-2025...

    Today: Metabarcoding + Biodiversity director being recruited

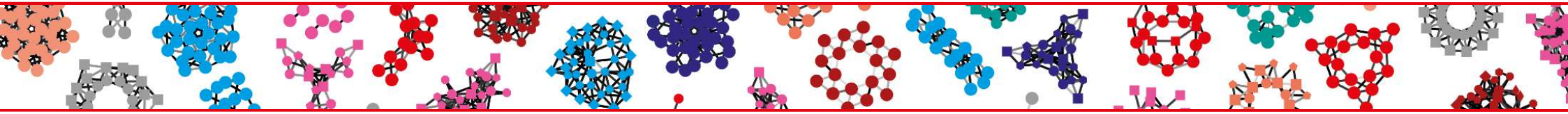
    Today: growing portfolio of EU projects (Infradev, Biodiversa, ...)

Scientific use cases

SIB is managing data to broadly support the work of **Swiss** – and beyond – biologists from precision medicine up to plant biology

- UniProt: the protein encyclopedia, whereby 50 biocurators capture (putatively) all knowledge in the field, e.g. sequences, functions, phenotypes, polymorphism, interactions, ...
- OMA «Orthologous matrix»: support characterization accross species
- Collaborate with various plant biodiversity projects: e.g., natural product chemistry GBGI @ Botanical Garden Fribourg [with Plazi/TB]
- Invasive species / zoonosis: virus spillover detection @ Arizona State University [with Plazi/TB]
- Sars-cov-2 data management, e.g. sequences, COVoc & COVTriage
- Future projects, HES-SO internal call for ecology [e.g., P. Prunier]
  Bring Your Own Needs, e.g. 2024 BioHackathon Europe in Barcelona

Overview



Nucleic Acids Res. 2020 Jul 2;48(W1):W12-W16. doi: 10.1093/nar/gkaa328.

SIB Literature Services: RESTful customizable search engines in biomedical literature, enriched with automatically mapped biomedical concepts

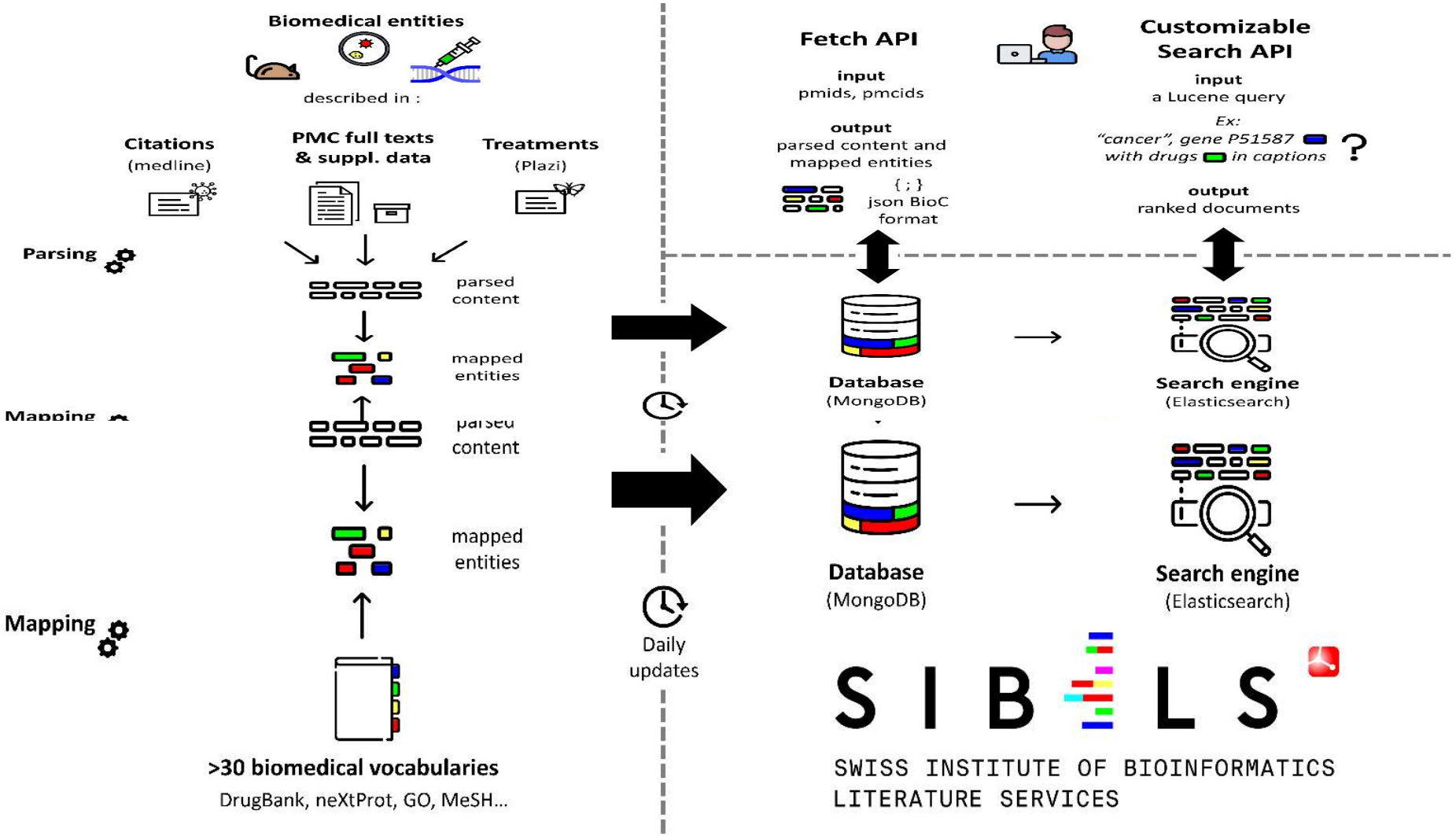
Julien Gobeill [1 2], Déborah Caucheteur [2], Pierre-André Michel [1], Luc Mottin [2], Emilie Pasche [1 2], Patrick Ruch [1 2]

Affiliations + expand

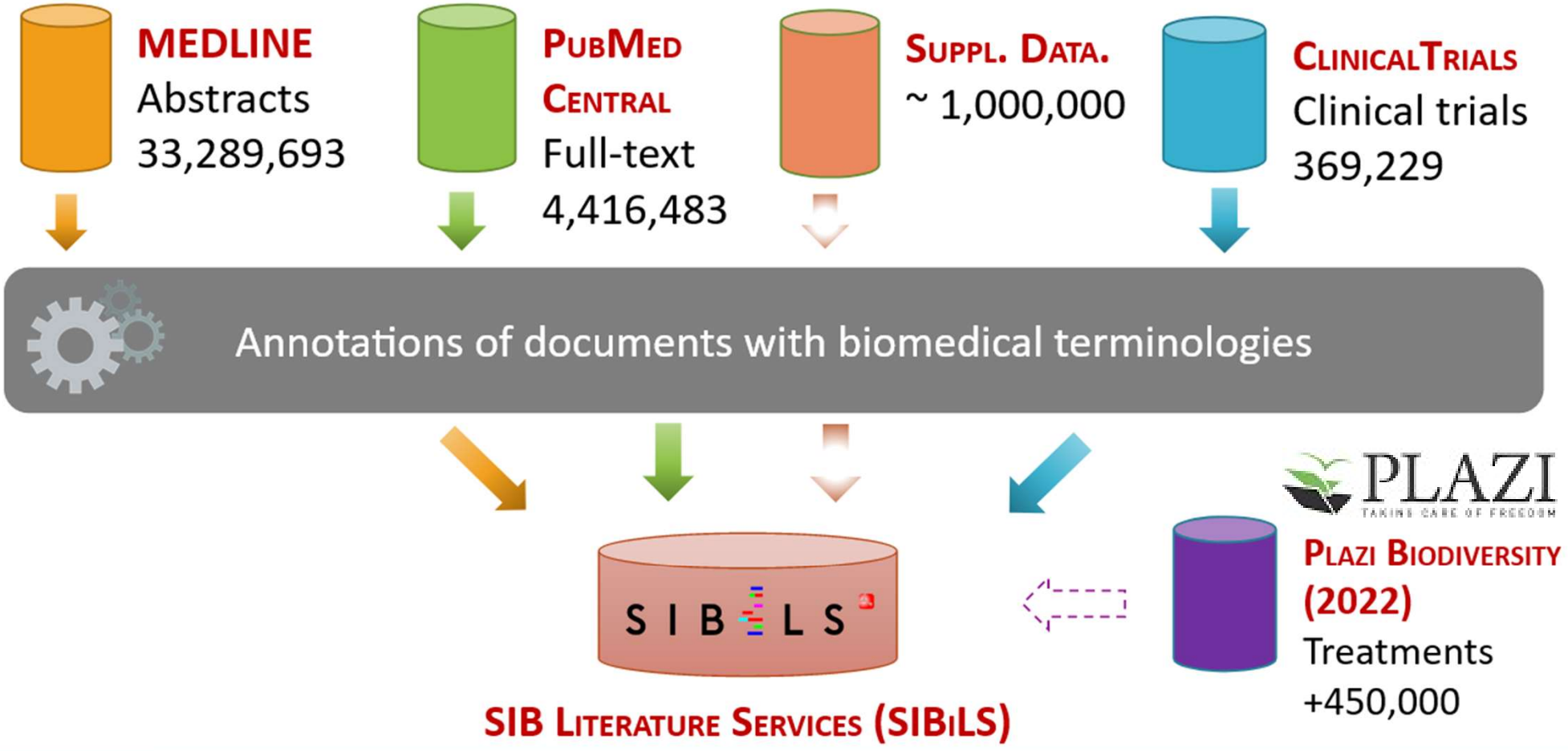
PMID: 32379317 PMCID: PMC7319474 DOI: 10.1093/nar/gkaa328

Free PMC article

Global workflow



SIB Literature Services



A growing collection of publications

Pensoft

- A sample collection (N=2000) has been imported
- All PenSoft publications (N > 60 000) currently being added

TB processed: European Journal of Taxonomy

BICIKL-CETAF Publisher round table: 14-15 in Geneva

Frontiers

- Discussions have started
- → UnPayWall

Annotations ~12 billions

	Medline	PMC	PMC (Author manuscripts)	PMC (Supplementary data)	Plazi	**Total**
Nb documents (files for suppdata)	35,559,059	5,254,751	833,920	6,121,241	495,952	48,264,923
Nb annotations	3,102,013,867	6,975,800,183	507,804,897	1,367,371,339	43,538,961	**11,996,529,247**
Avg anns/doc (anns/fils for suppD)	87	1,328	1,640	83	88	249

- Regularly updates (daily in most cases)
- Automatic annotation process
- 21 terminologies/ontologies, including 3 taxonomies [OToF/CoL, NCBI, ASU Mammals]

Original article in PubMed Central

Biomedicines. 2021 Jul; 9(7): 819.
Published online 2021 Jul 14. doi: 10.3390/biomedicines9070819
PMCID: PMC8301361
PMID: 34356883

Hexapod Assassins' Potion: Venom Composition and Bioactivity from the Eurasian Assassin Bug *Rhynocoris iracundus*

Nicolai Rügen,[1] Timothy P. Jenkins,[2] Natalie Wielsch,[3] Heiko Vogel,[4] Benjamin-Florian Hempel,[5,6] Roderich D. Süssmuth,[5] Stuart Ainsworth,[7] Alejandro Cabezas-Cruz,[8] Andreas Vilcinskas,[1,9,10] and Miray Tonk[9,10,*]

Leonardo Caputo, Academic Editor

▸ Author information ▸ Article notes ▸ Copyright and License information Disclaimer

Keywords: assassin bugs, venom, transcriptomics, proteomics, bioactivity, paralysis, cytolysis, antibacterial, neurolysis

1. Introduction

Go to: ▸

Venoms typically consist of a plethora of highly diverse toxins that affect a complex range of physiological targets [1]. Consequently, venom components have become highly specialized with the ability to perform complex and

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8301361/

Processing JATS documents

```
molecular components interesting for potential
biomedical applications. </p></abstract><kwd-group><kwd>
assassin bugs</kwd><kwd>venom</kwd><kwd>transcriptomics
</kwd><kwd>proteomics</kwd><kwd>bioactivity</kwd><kwd>
paralysis</kwd><kwd>cytolysis</kwd><kwd>antibacterial
</kwd><kwd>neurolysis
</kwd></kwd-group></article-meta></front><body><sec
sec-type="intro" id="sec1-biomedicines-09-00819"><title>
1. Introduction</title><p>Venoms typically consist of a
plethora of highly diverse toxins that affect a complex
range of physiological targets [<xref rid=
"B1-biomedicines-09-00819" ref-type="bibr">1</xref>].
Consequently, venom components have become highly
specialized with the ability to perform complex and
intricate biochemical tasks within their target
organism [<xref rid="B2-biomedicines-09-00819" ref-type=
"bibr">2</xref>]. This ability to precisely manipulate
```

via NCBI's FTP

SIBiLS fetch output for a PMC article: JATS → BioC


```
- document: {
    article_type: "research-article",
    language: "",
    medline_ta: "Biomedicines",
    journal: "Biomedicines",
    title: "Hexapod Assassins' Potion: Venom Composition and B
    pmid: "34356883",
    doi: "10.3390/biomedicines9070819",
    archive_id: "",
    manuscript_id: "",
    pmcid: "PMC8301361",
    publication_date: "14-07-2021",
    abstract: "Assassin bug venoms are potent and exert divers
  - keywords: [
      "assassin bugs",
      "venom",
      "transcriptomics",
      "proteomics",
      "bioactivity",
      "paralysis",
      "cytolysis",
      "antibacterial",
      "neurolysis"
    ],
  - body_sections: [
    - {
        id: "1",
        label: "",
        title: "Title",
      - contents: [
        - {
            tag: "p",
            id: "1.1",
            text: "Hexapod Assassins' Potion: Venom Com
          }
        ]
      },
    - {
        id: "2",
        title: "Abstract",
        label: "",
```

```
- sentences: [
  - {
      field: "title",
      tag: null,
      content_id: "0",
      sentence_number: 1,
      sentence_length: 112,
      sentence: "Hexapod Assassins' Potion: Venom Composition and Bioac
    },
  - {
      field: "abstract",
      tag: null,
      content_id: "0",
      sentence_number: 2,
      sentence_length: 114,
      sentence: "Assassin bug venoms are potent and exert diverse biolo
    },
  - {
      field: "abstract",
      tag: null,
      content_id: "0",
      sentence_number: 3,
      sentence_length: 153,
      sentence: "Besides feeding functions on arthropods, assassin bugs
    },
  - {
      field: "abstract",
      tag: null,
      content_id: "0",
      sentence_number: 4,
      sentence_length: 57,
      sentence: "However, assassin bug venoms remain poorly characteriz
    },
    {
      field: "abstract",
      tag: null,
      content_id: "0",
      sentence_number: 5,
      sentence_length: 136,
      sentence: "We collected the venom from the assassin bug Rhynocori
```

```
- annotations: [
  - {
      type: "mesh",
      concept_source: "mesh",
      version: "v2022",
      concept_id: "D014688",
      concept_form: "Venom",
      preferred_term: "Venoms",
      nature: "synonym",
      start_index: 27,
      end_index: 32,
      concept_length: 5,
      sentence_number: 1
    },
  - {
      type: "species",
      concept_source: "ott",
      version: "v3.3",
      concept_id: "629839",
      concept_form: "Rhynocoris iracundus",
      preferred_term: "Rhynocoris iracundus",
      nature: "pref_term",
      start_index: 92,
      end_index: 112,
      concept_length: 20,
      sentence_number: 1
    },
  - {
      type: "Species",
      concept_source: "ncbitaxon_full",
      version: "v.2022-12-12",
      concept_id: "488304",
      concept_form: "Rhynocoris iracundus",
      preferred_term: "Rhynocoris iracundus",
      nature: "pref_term",
      start_index: 92,
      end_index: 112,
      concept_length: 20,
      sentence_number: 1
    },
```


https://sibils.text-analytics.ch/api/fetch?col=pmc&ids=PMC8301361

PLAZI treatment in XML

```
<tp:taxon-treatment xmlns:tp="http://www.plazi.org/taxpub">
  <tp:treatment-meta>
    <mixed-citation>
      <named-content content-type="treatment-title">Austrolebias vazferreirai</named-content>
      <uri content-type="zenodo-doi">http://doi.org/10.5281/zenodo.6263700</uri>
      <uri content-type="treatment-bank-uri">http://treatment.plazi.org/id/1C0DB94C78F6201F849CF66A5FF07893</uri>
      <article-title>The South American annual killifish genus Austrolebias (Teleostei: Cyprinodontiformes: Rivulidae): phylogenetic relationships, des
      <uri content-type="publication-doi">http://www.zoobank.org/urn:lsid:zoobank.org:pub:3415A121-707B-4676-9259-4FD5CE1C3323</uri>
    </mixed-citation>
  </tp:treatment-meta>
  <tp:nomenclature>
    <tp:taxon-name>Austrolebias vazferreirai</tp:taxon-name>
  </tp:nomenclature>
  <tp:treatment-sec sec-type="description">
    <p>(Fig. 13)</p>
  </tp:treatment-sec>
  <tp:treatment-sec sec-type="reference_group">
    <p>
      <tp:taxon-name>Cynolebias vazferreirai</tp:taxon-name>
      Berkenkamp, Etzel, Reichert & Salvia, 1994: 11 (
      <tp:material-citation>type locality: km 44 of the road Ruta 44, from Melo to Riveira [correctly Rivera], Departamento Cerro-Largo, western [north
      [correctly 32°10.38’S 54°32.07’W]; holotype: SMF 18453</tp:material-citation>
      ).
    </p>
    <p>
      <tp:taxon-name>Cynolebias nioni</tp:taxon-name>
      Berkenkamp, Reichert & Prieto, 1997: 31 (
      <tp:material-citation>type locality: temporary swamp in canada Los Cinco Sauces, rio Negro system [rio Uruguay basin], km 331 of the road Ruta 26
      Berkenkamp, Etzel, Reichert & Salvia, 1994: 11 (
      <tp:material-citation>type locality: km 44 of the road Ruta 44, from Melo to Riveira [correctly Rivera], Departamento Cerro-Largo, western [north
      [correctly 32°10.38’S 54°32.07’W]; holotype: SMF 18453</tp:material-citation>
      ).
    </p>
    <p>
      <tp:taxon-name>Cynolebias nioni</tp:taxon-name>
      Berkenkamp, Reichert & Prieto, 1997: 31 (
      <tp:material-citation>type locality: temporary swamp in canada Los Cinco Sauces, rio Negro system [rio Uruguay basin], km 331 of the road Ruta 26
      32°10”S 55°15”W [correctly 32°5.45’S 55°8.90’W]; holotype: SMF 18457</tp:material-citation>
      ).
    </p>
  </tp:treatment-sec>
  <tp:treatment-sec sec-type="materials_examined">
    <p>Material examined</p>
    <p>
      <tp:material-citation>Uruguay: Cerro Largo: CTL 1574, 1; Ruta 44, km 44.4, rio Negro drainage, rio Uruguay basin; P. Laurino et al., 29 Aug. 2004
      <tp:material-citation>UFRJ 6151, 4; UFRJ 6152, 3 (c&s); CTL 1490a, 6; Ruta 26, km 372, rio Negro drainage, rio Uruguay basin, 32°17.29S 54°48.27W
```

SIBiLS FTP updated by Plazi

PLAZI treatment as BioC files

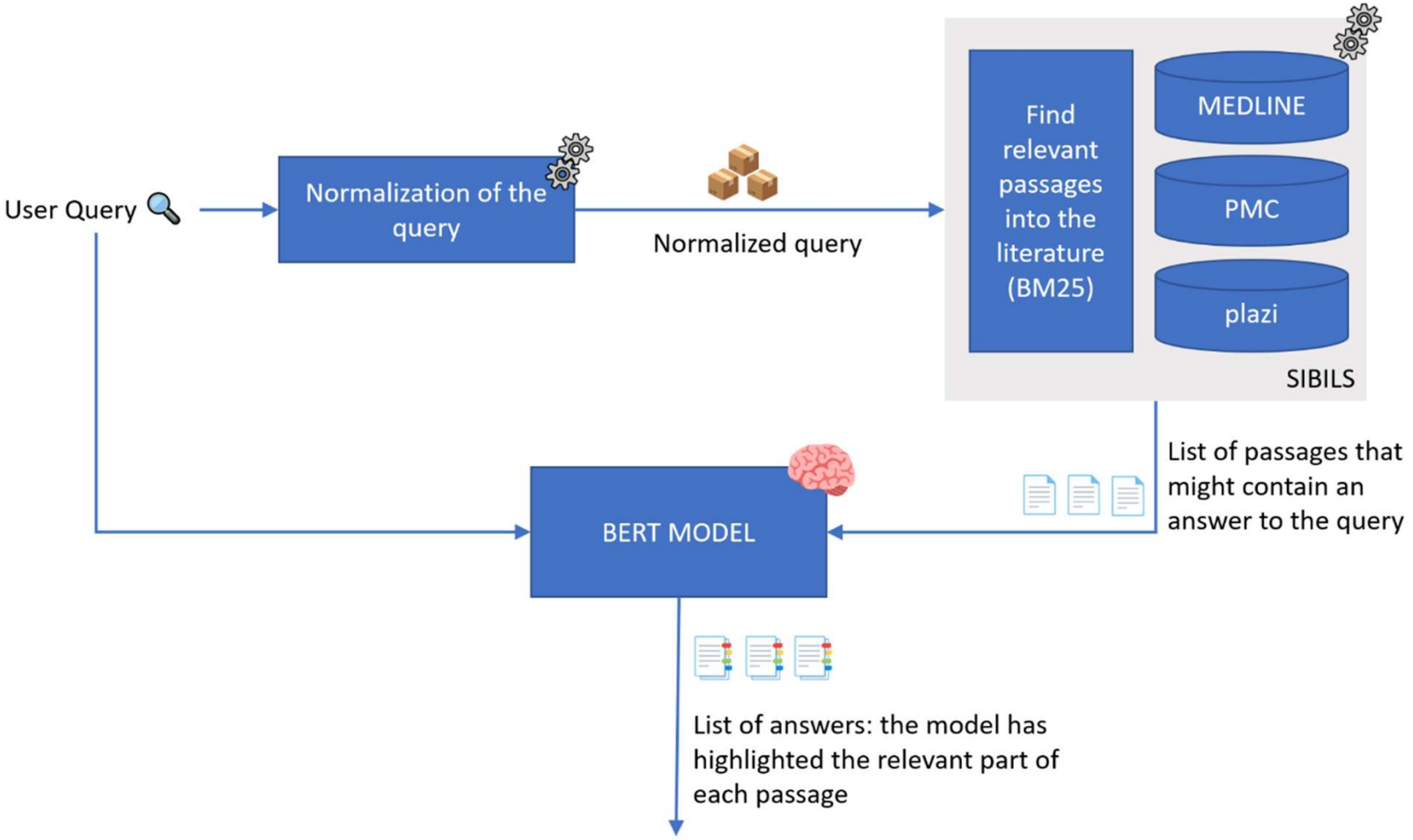

```
_id: "1C0DB94C78F6201F849CF66A5FF07893",
▾ document: {
    treatment_title: "Austrolebias vazferreirai",
    zenodo-doi: "http://doi.org/10.5281/zenodo.6263700",
    treatment-bank-uri: "http://treatment.plazi.org/id/1C0DB94C78F6201F849CF66A5FF07893",
    article-title: "The South American annual killifish genus Austrolebias (Teleostei: Cyprinodontiformes: Rivulidae): phylogenetic relationships, descripti
    and taxonomic revision.",
    publication-doi: "http://www.zoobank.org/urn:lsid:zoobank.org:pub:3415A121-707B-4676-9259-4FD5CE1C3323",
    nomenclature-taxon-name: "Austrolebias vazferreirai",
    text: "(Fig. 13)
    Cynolebias vazferreirai Berkenkamp, Etzel, Reichert & Salvia, 1994: 11 ( type locality: km 44 of the road Ruta 44, from Melo to Riveira [correctly River
    Departamento Cerro-Largo, western [northeastern] Uruguay, [rio Negro drainage, rio Uruguay basin], 32°15’S 54°30’W [correctly 32°10.38’S 54°32.07’W]; ho
    18453 ).
    Cynolebias nioni Berkenkamp, Reichert & Prieto, 1997: 31 ( type locality: temporary swamp in canada Los Cinco Sauces, rio Negro system [rio Uruguay basi
    the road Ruta 26, Departamento de Tacuarembo, northwestern [correctly northeastern] Uruguay, 32°10”S 55°15”W [correctly 32°5.45’S 55°8.90’W]; holotype:
    Material examined
    gray bars. Unpaired fins hyaline, with small dark gray spots; paired fins hyaline.
    ",
    text_reference_group: "Cynolebias vazferreirai Berkenkamp, Etzel, Reichert & Salvia, 1994: 11 ( type locality: km 44 of the road Ruta 44, from Melo to R
    [correctly Rivera], Departamento Cerro-Largo, western [northeastern] Uruguay, [rio Negro drainage, rio Uruguay basin], 32°15’S 54°30’W [correctly 32°10.
    54°32.07’W]; holotype: SMF 18453 ).
    Cynolebias nioni Berkenkamp, Reichert & Prieto, 1997: 31 ( type locality: temporary swamp in canada Los Cinco Sauces, rio Negro system [rio Uruguay basi
    the road Ruta 26, Departamento de Tacuarembo, northwestern [correctly northeastern] Uruguay, 32°10”S 55°15”W [correctly 32°5.45’S 55°8.90’W]; holotype:
    ",
    taxon_name_reference_group: "Cynolebias vazferreirai
    Cynolebias nioni
    ",
    material_citation_reference_group: "type locality: km 44 of the road Ruta 44, from Melo to Riveira [correctly Rivera], Departamento Cerro-Largo, western
    [northeastern] Uruguay, [rio Negro drainage, rio Uruguay basin], 32°15’S 54°30’W [correctly 32°10.38’S 54°32.07’W]; holotype: SMF 18453
    type locality: temporary swamp in canada Los Cinco Sauces, rio Negro system [rio Uruguay basin], km 331 of the road Ruta 26, Departamento de Tacuarembo,
    [correctly northeastern] Uruguay, 32°10”S 55°15”W [correctly 32°5.45’S 55°8.90’W]; holotype: SMF 18457
    ",
    text_materials_examined: "Material examined
    Uruguay: Cerro Largo: CTL 1574, 1; Ruta 44, km 44.4, rio Negro drainage, rio Uruguay basin; P. Laurino et al., 29 Aug. 2004. UFRJ 6151, 4; UFRJ 6152, 3
    1490a, 6; Ruta 26, km 372, rio Negro drainage, rio Uruguay basin, 32°17.29S 54°48.27W; P. Laurino et al., 29 Aug. 2004. UFRJ 61555, 2; UFRJ 6156, 2 (c&s
    Melo, Parque Rivera, rio Tacuari drainage, laguna dos Patos system, 32°22.46S 54°11.32W; P. Laurino et al., 18 Aug. 2002. CTL 219, 5; Melo, rio Tacuari
    laguna dos Patos system, 32°22.47S 54°12.32W; P. Laurino et al., 18 Aug. 2002. CTL 225, 1; Banados Conventos, 32°21.20S 54°14.22W; P. Laurino et al., 18
    CTL 1493, 4; Paso de Mazangano, Ruta 44, rio Negro floodplains, 32°6.68’S 54°39.96W; P. Laurino et al., 29 Aug. 2004. Tacuarembo: UFRJ 6153, 1; UFRJ 615
    CTL 185, 3; Ruta 26, km 331, rio Negro drainage, rio Uruguay basin, 32°5.45’S 55°8.90’W; P. Laurino et al., 17 Aug. 2002.
    ",
    material_citation_materials_examined: "Uruguay: Cerro Largo: CTL 1574, 1; Ruta 44, km 44.4, rio Negro drainage, rio Uruguay basin; P. Laurino et al., 29
    UFRJ 6151, 4; UFRJ 6152, 3 (c&s); CTL 1490a, 6; Ruta 26, km 372, rio Negro drainage, rio Uruguay basin, 32°17.29S 54°48.27W; P. Laurino et al., 29 Aug.
    UFRJ 61555, 2; UFRJ 6156, 2 (c&s); CTL 209, 4; Melo, Parque Rivera, rio Tacuari drainage, laguna dos Patos system, 32°22.46S 54°11.32W; P. Laurino et al
    ---
_id: "1C0DB94C78F6201F849CF66A5FF07893",
▾ document: {
    treatment_title: "Austrolebias vazferreirai",
    zenodo-doi: "http://doi.org/10.5281/zenodo.6263700",
    treatment-bank-uri: "http://treatment.plazi.org/id/1C0DB94C78F6201F849CF66A5FF07893",
    article-title: "The South American annual killifish genus Austrolebias (Teleostei: Cyprinodontiformes: Rivulidae): phylogenetic relationships, descripti
    and taxonomic revision.",
    publication-doi: "http://www.zoobank.org/urn:lsid:zoobank.org:pub:3415A121-707B-4676-9259-4FD5CE1C3323",
    nomenclature-taxon-name: "Austrolebias vazferreirai",
    text: "(Fig. 13)
    Cynolebias vazferreirai Berkenkamp, Etzel, Reichert & Salvia, 1994: 11 ( type locality: km 44 of the road Ruta 44, from Melo to Riveira [correctly River
    Departamento Cerro-Largo, western [northeastern] Uruguay, [rio Negro drainage, rio Uruguay basin], 32°15’S 54°30’W [correctly 32°10.38’S 54°32.07’W]; ho
    18453 ).
    Cynolebias nioni Berkenkamp, Reichert & Prieto, 1997: 31 ( type locality: temporary swamp in canada Los Cinco Sauces, rio Negro system [rio Uruguay basi
    the road Ruta 26, Departamento de Tacuarembo, northwestern [correctly northeastern] Uruguay, 32°10”S 55°15”W [correctly 32°5.45’S 55°8.90’W]; holotype:
    Material examined
    gray bars. Unpaired fins hyaline, with small dark gray spots; paired fins hyaline.
    ",
    text_reference_group: "Cynolebias vazferreirai Berkenkamp, Etzel, Reichert & Salvia, 1994: 11 ( type locality: km 44 of the road Ruta 44, from Melo to R
    [correctly Rivera], Departamento Cerro-Largo, western [northeastern] Uruguay, [rio Negro drainage, rio Uruguay basin], 32°15’S 54°30’W [correctly 32°10.
    54°32.07’W]; holotype: SMF 18453 ).
    Cynolebias nioni Berkenkamp, Reichert & Prieto, 1997: 31 ( type locality: temporary swamp in canada Los Cinco Sauces, rio Negro system [rio Uruguay basi
    the road Ruta 26, Departamento de Tacuarembo, northwestern [correctly northeastern] Uruguay, 32°10”S 55°15”W [correctly 32°5.45’S 55°8.90’W]; holotype:
    ",
    taxon_name_reference_group: "Cynolebias vazferreirai
    Cynolebias nioni
    ",
    material_citation_reference_group: "type locality: km 44 of the road Ruta 44, from Melo to Riveira [correctly Rivera], Departamento Cerro-Largo, western
    [northeastern] Uruguay, [rio Negro drainage, rio Uruguay basin], 32°15’S 54°30’W [correctly 32°10.38’S 54°32.07’W]; holotype: SMF 18453
    type locality: temporary swamp in canada Los Cinco Sauces, rio Negro system [rio Uruguay basin], km 331 of the road Ruta 26, Departamento de Tacuarembo,
    [correctly northeastern] Uruguay, 32°10”S 55°15”W [correctly 32°5.45’S 55°8.90’W]; holotype: SMF 18457
    ",
    text_materials_examined: "Material examined
    Uruguay: Cerro Largo: CTL 1574, 1; Ruta 44, km 44.4, rio Negro drainage, rio Uruguay basin; P. Laurino et al., 29 Aug. 2004. UFRJ 6151, 4; UFRJ 6152, 3
    1490a, 6; Ruta 26, km 372, rio Negro drainage, rio Uruguay basin, 32°17.29S 54°48.27W; P. Laurino et al., 29 Aug. 2004. UFRJ 61555, 2; UFRJ 6156, 2 (c&s
    Melo, Parque Rivera, rio Tacuari drainage, laguna dos Patos system, 32°22.46S 54°11.32W; P. Laurino et al., 18 Aug. 2002. CTL 219, 5; Melo, rio Tacuari
    laguna dos Patos system, 32°22.47S 54°12.32W; P. Laurino et al., 18 Aug. 2002. CTL 225, 1; Banados Conventos, 32°21.20S 54°14.22W; P. Laurino et al., 18
    CTL 1493, 4; Paso de Mazangano, Ruta 44, rio Negro floodplains, 32°6.68’S 54°39.96W; P. Laurino et al., 29 Aug. 2004. Tacuarembo: UFRJ 6153, 1; UFRJ 615
    CTL 185, 3; Ruta 26, km 331, rio Negro drainage, rio Uruguay basin, 32°5.45’S 55°8.90’W; P. Laurino et al., 17 Aug. 2002.
    ",
    material_citation_materials_examined: "Uruguay: Cerro Largo: CTL 1574, 1; Ruta 44, km 44.4, rio Negro drainage, rio Uruguay basin; P. Laurino et al., 29
    UFRJ 6151, 4; UFRJ 6152, 3 (c&s); CTL 1490a, 6; Ruta 26, km 372, rio Negro drainage, rio Uruguay basin, 32°17.29S 54°48.27W; P. Laurino et al., 29 Aug.
    UFRJ 61555, 2; UFRJ 6156, 2 (c&s); CTL 209, 4; Melo, Parque Rivera, rio Tacuari drainage, laguna dos Patos system, 32°22.46S 54°11.32W; P. Laurino et al
    ---
```


SIBiLS FTP updated by Plazi

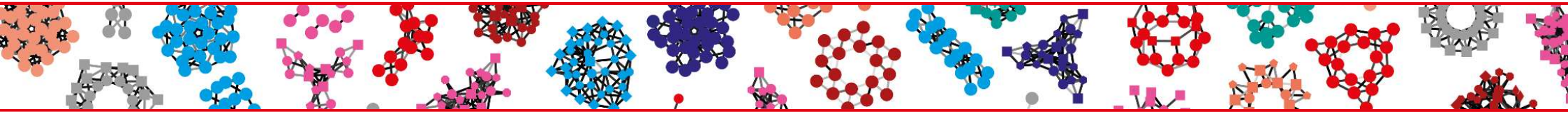
Beyond information retrieval, e.g. Question-Answering

https://sibils.text-analytics.ch/search/?query=Where%20Conyza%20canadensis%20is%20Invasive%20%3F#results-section

Search + re-rank & extract answers with fine tune language models



Overview



e-Biodiv Matching Service

BACKGROUND

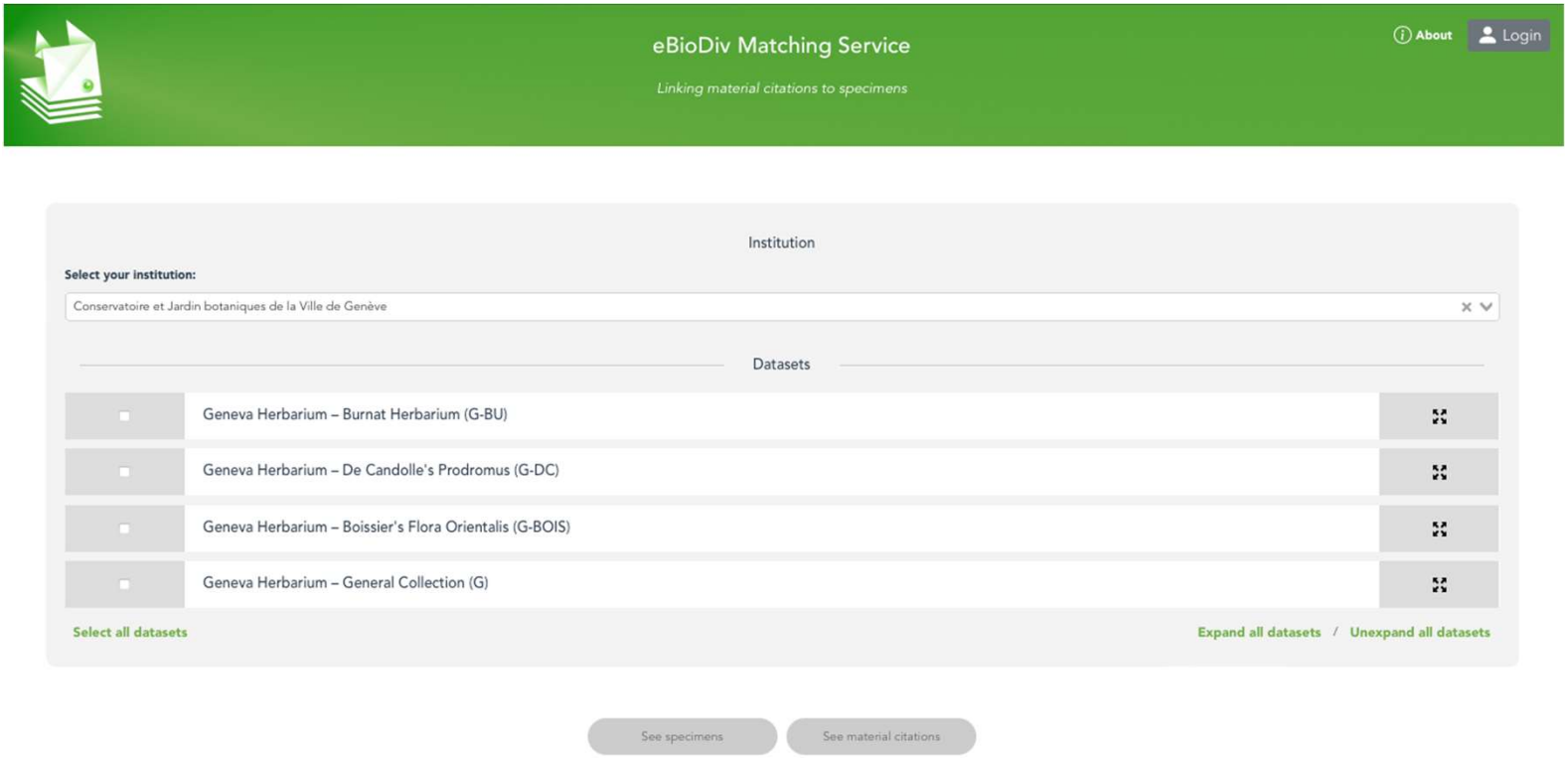
- Publications often contain references to biological specimen in natural history museum and botanical garden collections
- But references between publication and specimens are often not bidirectional

OBJECTIVE

- Develop a matching service to help bridge the gap between material citations and specimens… and vice-versa !
  - Based on crowdsourcing
  - Semi-automatic matching approach suggesting possible match along with scores indicating the probability of a match
  - Specimen are provided by GBIF.org
  - Material citations are provided by Plazi Treatment Bank

eBiodiv Matching Service

1) The process starts with the selection of an institution and a dataset



Note: additionnal access way are currently being developed:

- Country
- Taxon
- Article
- Author
- …

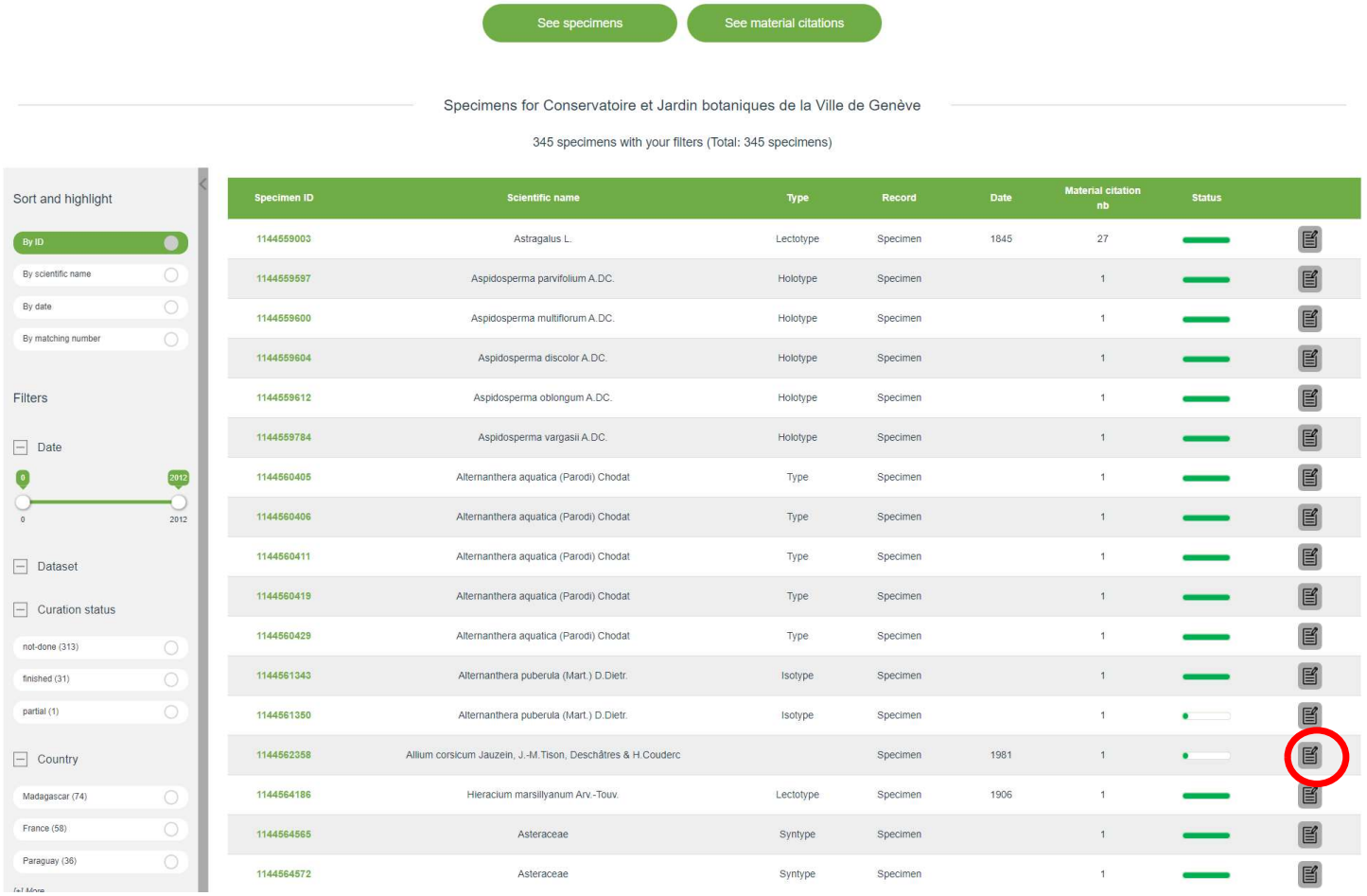
https://sandbox.ebiodiv.org/

https://prod.ebiodiv.org/?institutionKey=d200fcbc-972e-4488-bcb6-eaa47209148d&datasetKeys=4b0ccaf3-36eb-4dc8-acba-6d08fb9004bb,63e9e22d-a649-4087-b39e-acb1651af077,c72d40da-9245-44e5-91a6-febbf6496322,f577c9f3-ae71-4278-b6bf-512ba1dfaa21&format=specimen_matcit

eBiodiv Matching Service

2) The list of specimens or material citations is displayed and the user can use facets to filter the list

3) The user can select the occurrence to edit

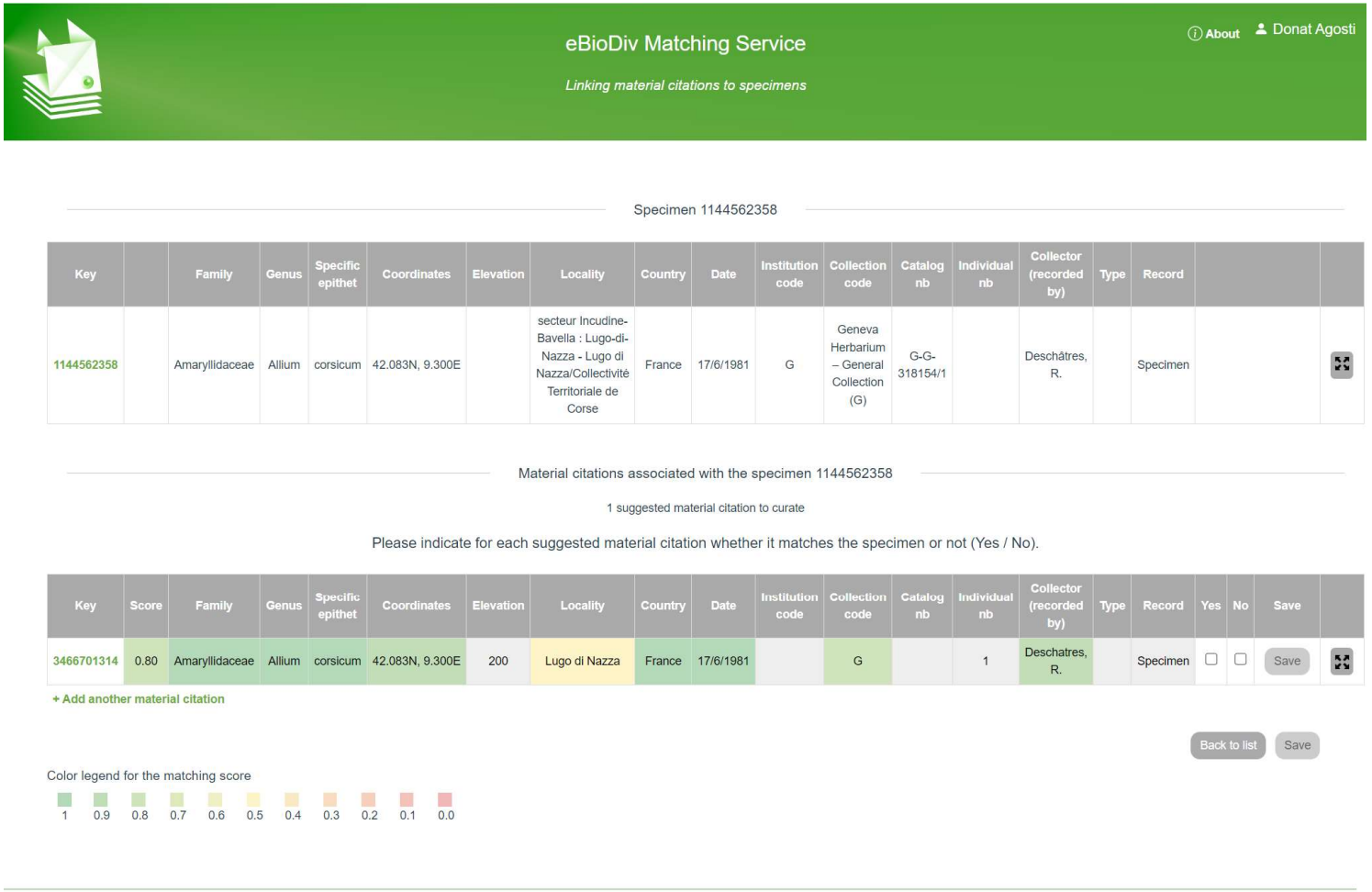


eBiodiv Matching Service

The matching screen presents the selected specimen and one or several material citations that are potentially matching the selected specimen.

The user can decide whether it is matching the specimen or not and save the decision. It requires to be logged with ORCID.

Note:
In the next version, a third decision (unknown) will be possible, as well as the possibility to write a comment.



Outreach

- Workshop on June 12 @HES-SO Neuchatel (15-20 participants)

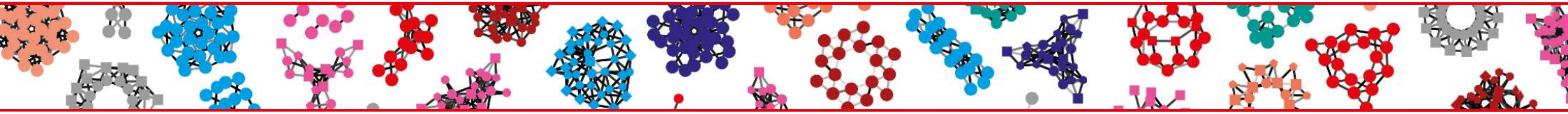
  «Text Mining to Support Biodiversity»

- Training material: http://plazi.org/posts/2023/03/specimen-material-citation-matching-service-training-course/
- TNA services

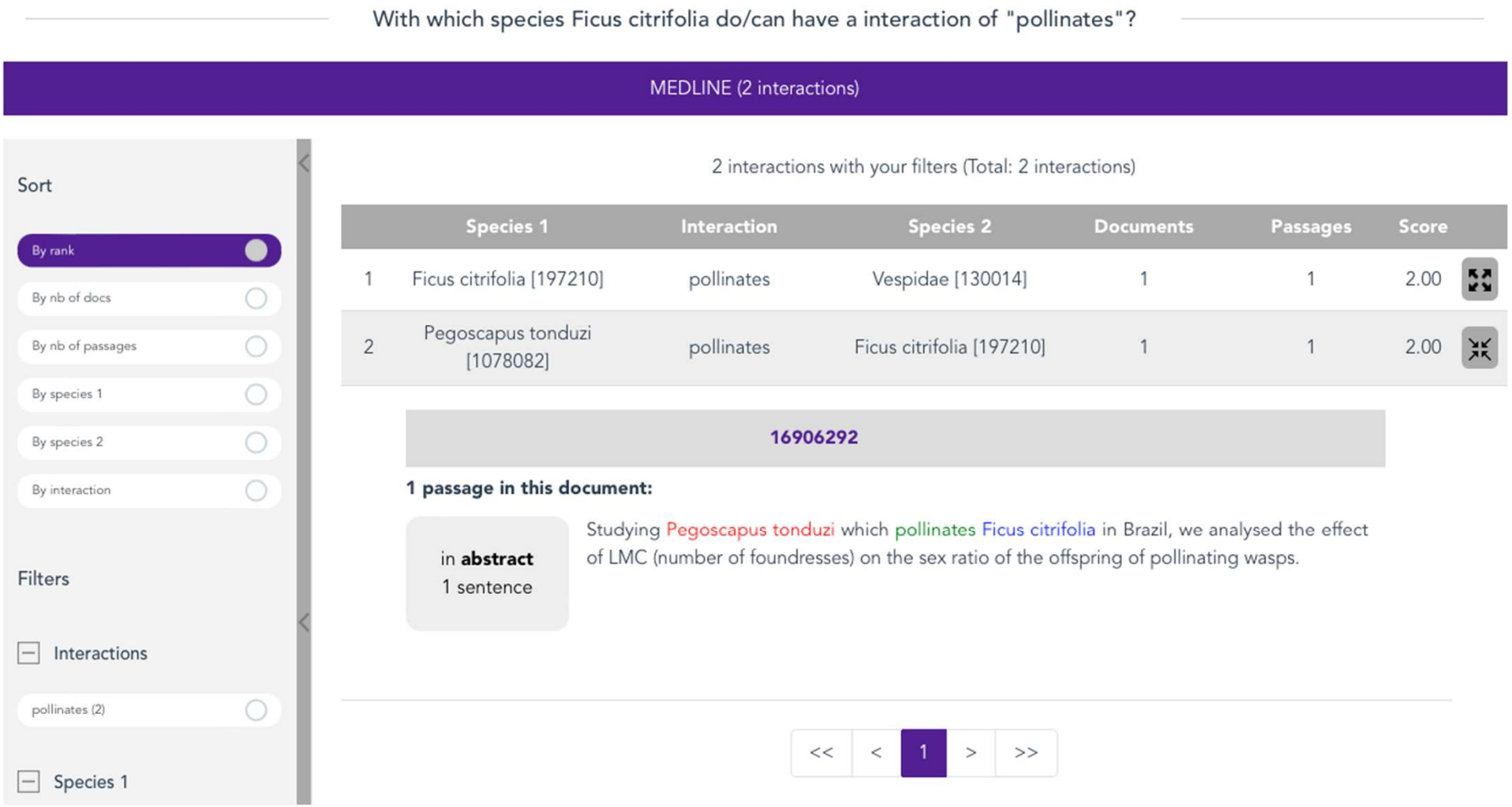
  -Funding - call for projects to support digitalization of collections and literature FAIR-ification – DBGI

  -Insertion in Biodiversity PMC with the related services: e.g. entity recognition (taxon, chemistry, phenotypes if available)

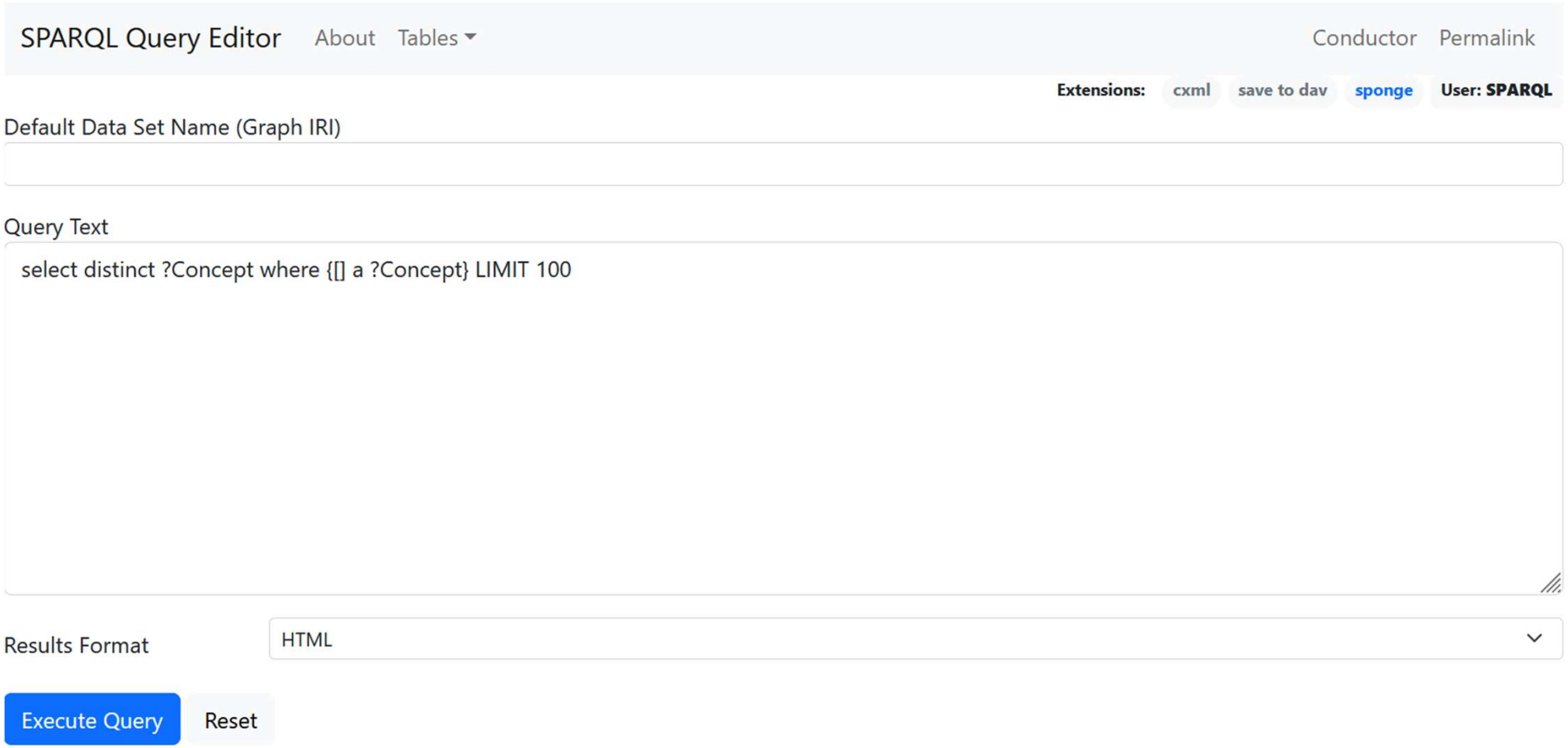
Overview



Biotic interactions

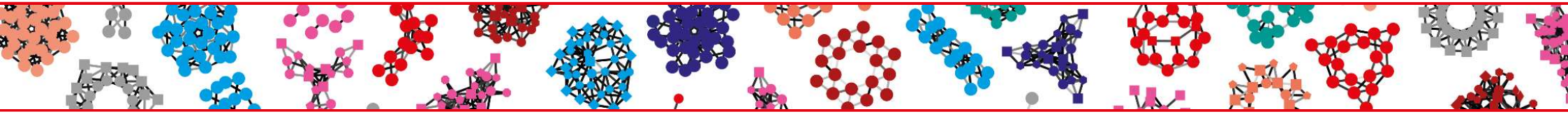


SPARQL endpoint



https://sibils.text-analytics.ch/sparql

Overview



01 SIB

02 From SIBiLS to Biodiversity PMC

03 e-BioDiv

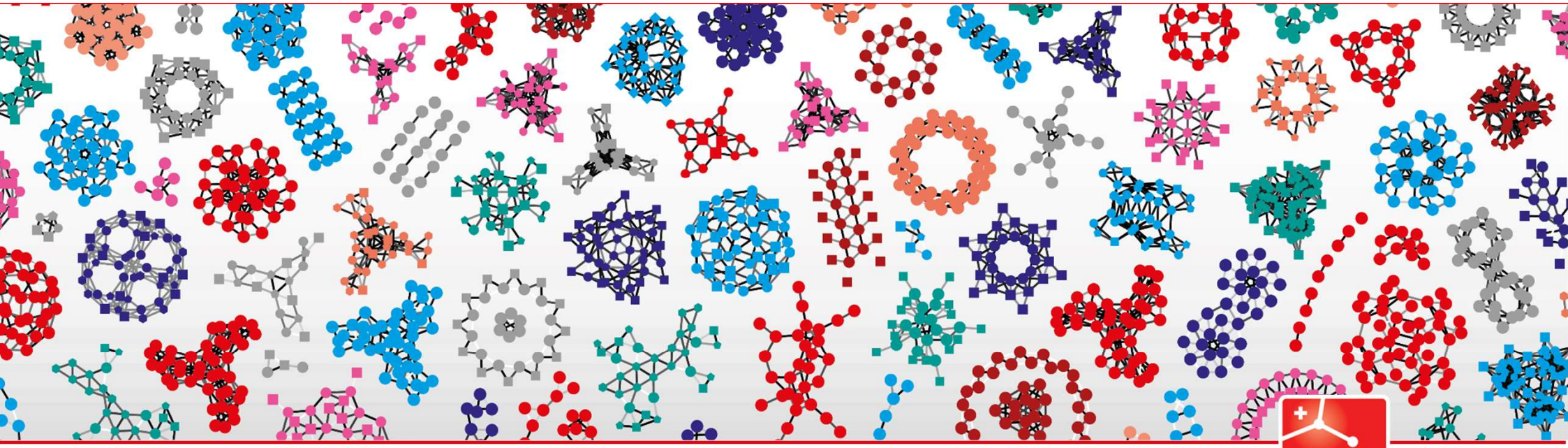
04 Biotic interaction graph

05 Conclusion

Recap and conclusion

- We have a few assets (services and databases) but we acknowledge we need to learn from those who curate collections
- Biodiversity PMC and e-BioDiv are research projects but SIB works to turn projects into sustainable resources provided it meets user needs

- SIB is investing in biodiversity with federal (e.g. SEFRI via SBDe, FOEN) and international support (e.g. ELIXIR, GBIF, NIH, GBC)
- We are open for discussion to identify actionable items far beyond digitalisation of collections !



SIB
Swiss Institute of Bioinformatics

Thank you very much for the invitation !

elixir SWITZERLAND

www.sib.swiss

Acknowledgements

Déborah Caucheteur
Alexandre Flament
Esteban Gaillac
Julien Gobeill
Julien Knafou
Pierre-André Michel
Nona Naderi, now Paris Saclay
Emilie Pasche
Jeevanthi Pathirana
Paul van Rijen

Donat Agosti, Plazi
Guido Sautter, Plazi
Felibe Simoes, Plazi

Nate Upham, ASU

Quentin Groom, Meise

Teodor Georgiev, PenSoft
Lyubo Penev, PenSoft