

### Objectives

- Provide developers with **modular, extensible** and **easy-to-maintain** libraries.
- Provide users with **all the building blocks** they need to build a tool that meets their needs.
- Provide users with a **complete** and **generic online network visualisation tool**.

### Style manager

Manage **graph styles** according to **groups** of nodes and edges.

- Each **node** or **edge** is bound to one or several **groups**.
- Each **group** is bound to a **visual theme**.
- Each **theme** can be managed through the panel.

Style Manager

Class name	Style	Value
metabolite	height	25
	width	25
	strokeWidth	1
	opacity	1
	fill	
	stroke	
	shape	circle

### Mapping

Mapping

APPLY MAPPING

MAPPING LIST

Load mapping file

mappingMini.txt

Select a condition

cond1

Mapping type

Continuous

Mapping style

Background color

LAUNCH

Color scale selector

-1

Mapping value

48

OK

ADD STEP

DELETE STEP

RESET

CANCEL

Map **numerical values** through **nodes** (or **links**) and apply **graph styles** (Identified, discrete or continuous).

### Working group

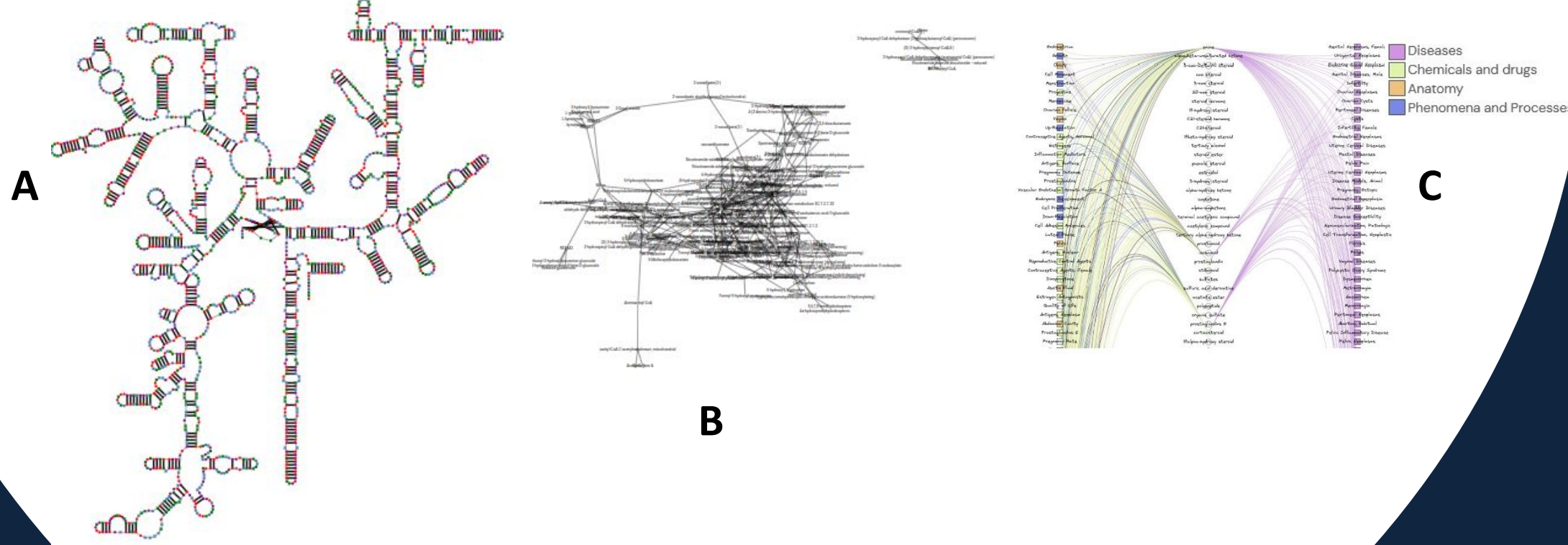
This project is being developed as part of **MetaboHUB**, the national metabolomics and fluxomics infrastructure, and as part of **Codev4Graph**, a DipSO INRAE project.



## VizCore

**Central component**  
**Dedicated to network visualisation only**

- Reads a JSON in **JSONGraph** format to display network.
- Provides methods to **manage, draw** and **manipulate** network.
- Emits various events to **connect** different components to **improve visualisation or possibilities**.
- Allows to display **any graph type**: **ARN16s structure** (Figure 1.A), **metabolic network** (Figure 1.B), **knowledge graph** (Figure 1.C), etc.



**Figure 1.** Visualisation of different types of graph. **A)** ARN16s structure. **B)** Metabolic network. **C)** Knowledge graph

```
<template>
  <loadingMask v-if="globalProperties.loading" />
  <ul class="mainMenu">
    <li class="menuItem">
      <dropdownMenu
        class="ml-2 ml-2 mb-2"
        title="File &#x25BC;"
        items="fileItems"
      />
    </li>
  </ul>
  <ul class="subMenu">
    <li class="menuItem">
      <button v-on:click="openStyleWindow">
        Style Manager
      </button>
    </li>
    <li class="menuItem">
      <button v-on:click="openMappingWindow">
        Mapping
      </button>
    </li>
  </ul>
  <NetworkComponent
    :network="network"
    :graphStyleProperties="networkStyle"
    v-on:contextmenu.prevent
    @dragEnd="resumeCommit"
    @dragStart="stopCommit"
    @nodeRightClickEvent="openContextMenu"
  />
  <v-row>
    <v-col>
      <VizMapping
        v-if="panelOpen.mappingWindow"
        id="mappingWindow"
        :draggable="true"
        :inputAvailable="false"
        :name="props.mappingData.name"
        :conditions="props.mappingData.conditions"
        :data="props.mappingData.data"
        :y="mappingWindowPosition.y"
        :x="mappingWindowPosition.x"
        @launchMapping="applyMapping"
        @removeMapping="removeMapping"
      />
    </v-col>
    <v-col>
      <StyleManager
        v-if="panelOpen.styleWindow"
        id="styleWindow"
        :draggable="true"
        :nodeClass="networkStyle.nodeStyles"
        :linkClass="networkStyle.linkStyles"
        :y="styleWindowPosition.y"
        :x="styleWindowPosition.x"
        @returnNewStyle="updateStyle"
      />
    </v-col>
  </v-row>
  <ContextMenu
    v-if="menuProps.showMenu"
    :actions="menuProps.contextMenuActions"
    @action-clicked="useContextMenu.handleClick"
    @closeMenu="useContextMenu.closeContextMenu"
    :x="menuProps.menuX"
    :y="menuProps.menuY"
  />
</ContextMenu>
```

Drop-down menu component

Buttons bind to open the style and mapping panel

Visualisation component

Mapping manager component

Style manager component

Contextual menu component

#### JSONGraph

Data structures dedicated to network data

<https://jsongraphformat.info/>



#### Web Component

- Development in the form of **reusable** and **nestable** components.
- All different components can be **packaged** and **installed** via npm.

#### Vue.js

- JavaScript framework dedicated for **web development**.
- Reactive** components and simplified **communication** between them.
- Open-source** solution with a great **community**

#### TS

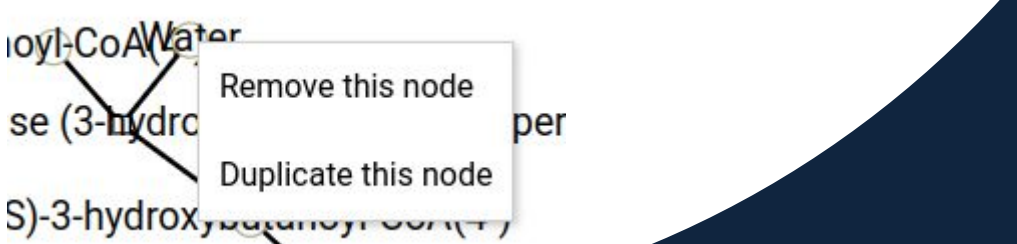
### Layouts

- Provide different **design algorithms** to best meet user requirements.
- Force layout** is currently available.
- A **metabolic network drawing algorithm** is under development.
- Allow the possibility to connect network to **various types of layout**:
  - Circular
  - Hierarchical,
  - ...

### Panel management

**Various components** developed to help **set up the page** and manage **functionalities**.

- Drop-down menu
- Contextual menu
- ...



#### Packaging

- All components are **package** separately and **stored** on the **MetaboHub GitLab** instance.
- Each component has specific **inputs, outputs** and **events** detailed in their respective README files.
- Each component can be installed using the **npm install** command line



### Demo page

