Tutorial:

MINERVA platform for map reviewers

WP1

Funded by the Horizon 2020 Framework Programme of the European Union

February 2024

Tutorial:

MINERVA platform for map reviewers

University of Liège ONTOX Team

Funded by the Horizon 2020 Framework Programme of the European Union

Grant Agreement ID: 963845

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Here you will find relevant links:

The ONTOX MINERVA session is maintained by Elixir Luxembourg (https://minerva.pages.uni.lu/doc/).

General link for ONTOX's MINERVA: https://ontox.elixir-luxembourg.org/minerva/

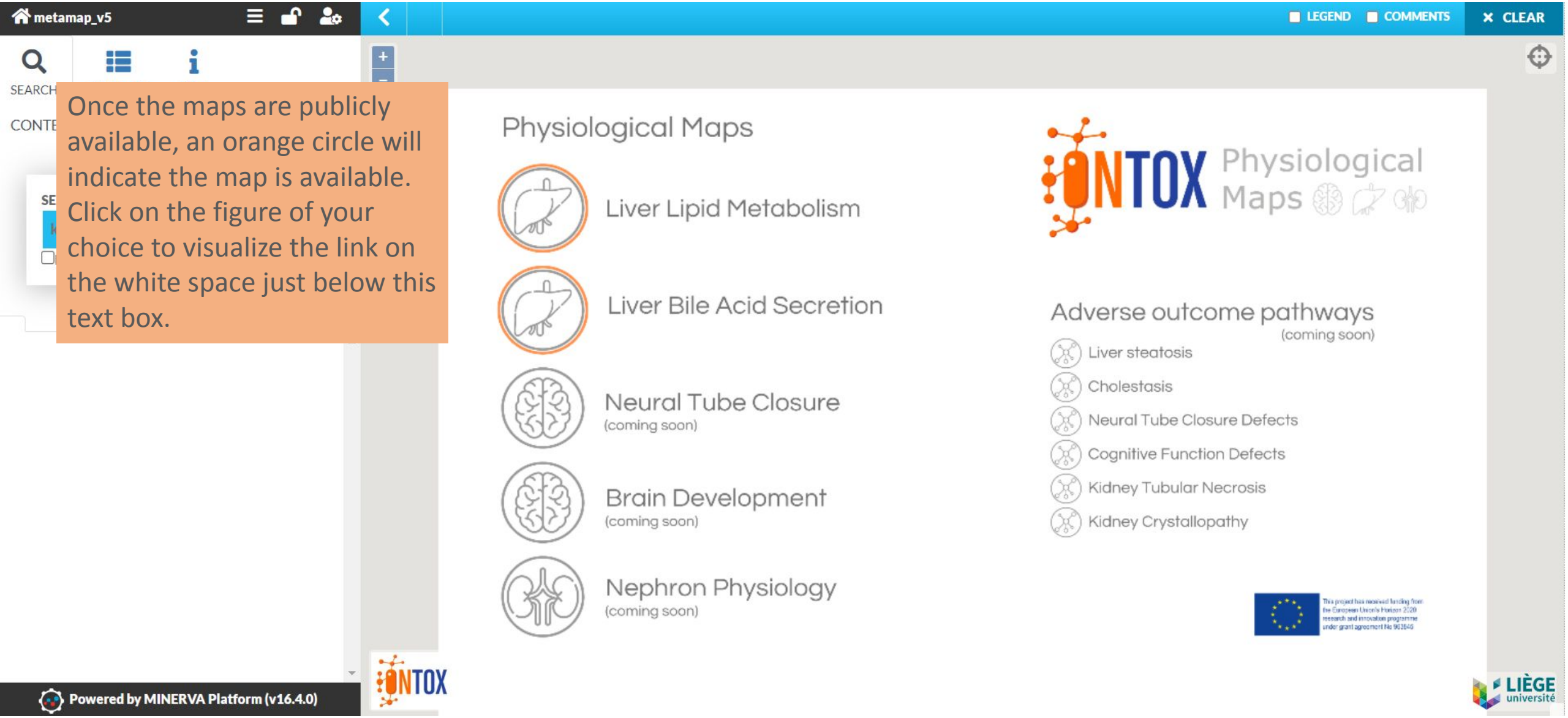
Physiological maps link:

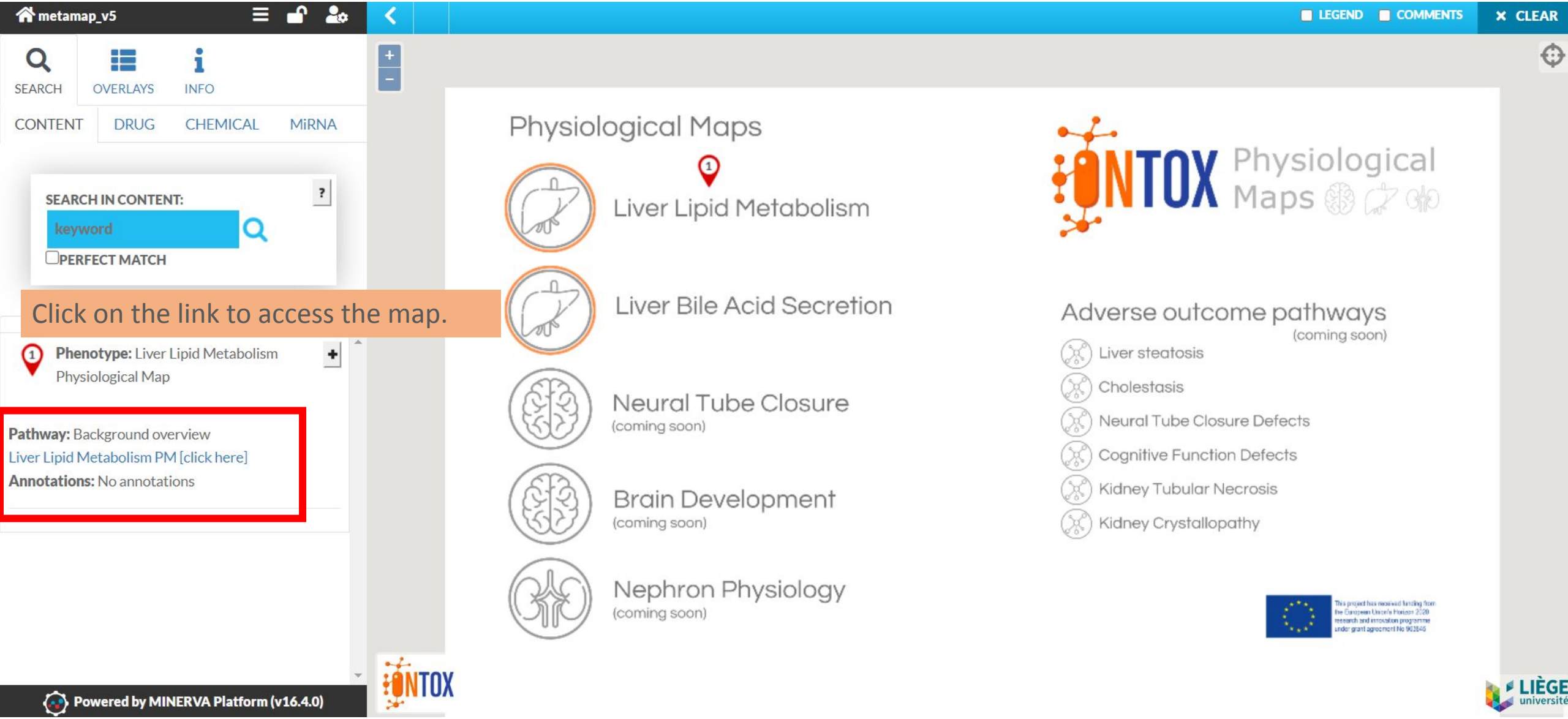
- Maps and ontologies can be found linked on the menu on our MINERVA instance: https://ontox.elixir-luxembourg.org/minerva/

For previous versions, please refer to the GitHub repository for each map or ontology: https://github.com/ontox-maps

If you need credentials for access, please contact us.

When accessing the ONTOX MINERVA link, you will land on a page like this one. At the time of this tutorial, the menu doesn't provide any link to the maps because this is a public version of our MINERVA platform. Links will appear as soon as we have the map's papers published.


metamap_v5
LEGEND
COMMENTS
CLEAR
SEARCH
Once the maps are publicly available, an orange circle will indicate the map is available. Click on the figure of your choice to visualize the link on the white space just below this text box.
Physiological Maps
Liver Lipid Metabolism
Liver Bile Acid Secretion
Neural Tube Closure
(coming soon)
Brain Development
(coming soon)
Nephron Physiology
(coming soon)
ONTOX Physiological Maps
Adverse outcome pathways
(coming soon)
Liver steatosis
Cholestasis
Neural Tube Closure Defects
Cognitive Function Defects
Kidney Tubular Necrosis
Kidney Crystallopathy
Powered by MINERVA Platform (v16.4.0)

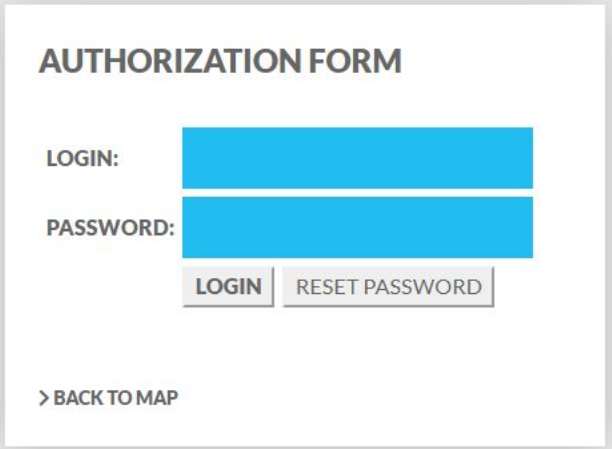

metamap_v5
LEGEND
COMMENTS
CLEAR
SEARCH
OVERLAYS
INFO
CONTENT
DRUG
CHEMICAL
MiRNA
SEARCH IN CONTENT:
keyword
PERFECT MATCH
Click on the link to access the map.
Phenotype: Liver Lipid Metabolism Physiological Map
Pathway: Background overview
Liver Lipid Metabolism PM [click here]
Annotations: No annotations
Powered by MINERVA Platform (v16.4.0)
Physiological Maps
Liver Lipid Metabolism
Liver Bile Acid Secretion
Neural Tube Closure
(coming soon)
Brain Development
(coming soon)
Nephron Physiology
(coming soon)
ONTOX Physiological Maps
Adverse outcome pathways
(coming soon)
Liver steatosis
Cholestasis
Neural Tube Closure Defects
Cognitive Function Defects
Kidney Tubular Necrosis
Kidney Crystallopathy
LIÈGE université


metamap_v5
LEGEND
COMMENTS
CLEAR
SEARCH
OVERLAYS
INFO
CONTENT
DRUG
CHEMICAL
MiRNA
If you are reviewing a map that is not listed here or is still not public, the UL team will send you a link to access it and credentials to log in.
Phenotype: Liver Lipid Metabolism Physiological Map
Pathway: Background overview
Liver Lipid Metabolism PM [click here]
Annotations: No annotations
Powered by MINERVA Platform (v16.4.0)
Physiological Maps
Liver Lipid Metabolism
Liver Bile Acid Secretion
Neural Tube Closure
(coming soon)
Brain Development
(coming soon)
Nephron Physiology
(coming soon)
ONTOX Physiological Maps
Adverse outcome pathways
(coming soon)
Liver steatosis
Cholestasis
Neural Tube Closure Defects
Cognitive Function Defects
Kidney Tubular Necrosis
Kidney Crystallopathy

If you arrive on this page, please use the credentials that have been sent to you. If you did not receive these credentials, please contact us.

After entering your login and password, you will be redirected to the next page.

If you use direct links to the maps, you can jump to slide 6.



MiNERVA version 16.2.6;
build 2022-07-07T09:19:53+0000;
git: 5906a54a4ba6efdbd564ec579a80bf2c83ad7346

PROJECTS | USERS | CONFIGURATION | GENOMES | PLUGINS

API docs (admin) LOGOUT

ADD PROJECT REFRESH

Show 25 entries

Search:

ProjectId	Created	Created by	Name			Status	Edit	Remove
empty	2014-03-27	admin				k		
Lipid_Metabolism_PM_20220310	2022-03-10	admin	Lipid_Metabolism_PM			k		
Liver_Bile_Production_and_Secretion_20220203	2022-02-21	admin	Liver_Bile_Secretion_PM			k		
physmap_108	2022-03-02	admin	Physmap			k		
physmap_92	2022-02-23	admin	Physmap			k		
physmap_97	2022-02-25	admin	Physmap	N/A	N/A	Ok		
physmap_99	2022-02-25	admin	Physmap	N/A	N/A	Ok		
vitD	2022-03-01	admin	VitaminD_PM	N/A	N/A	Ok		

Showing 1 to 8 of 8 entries

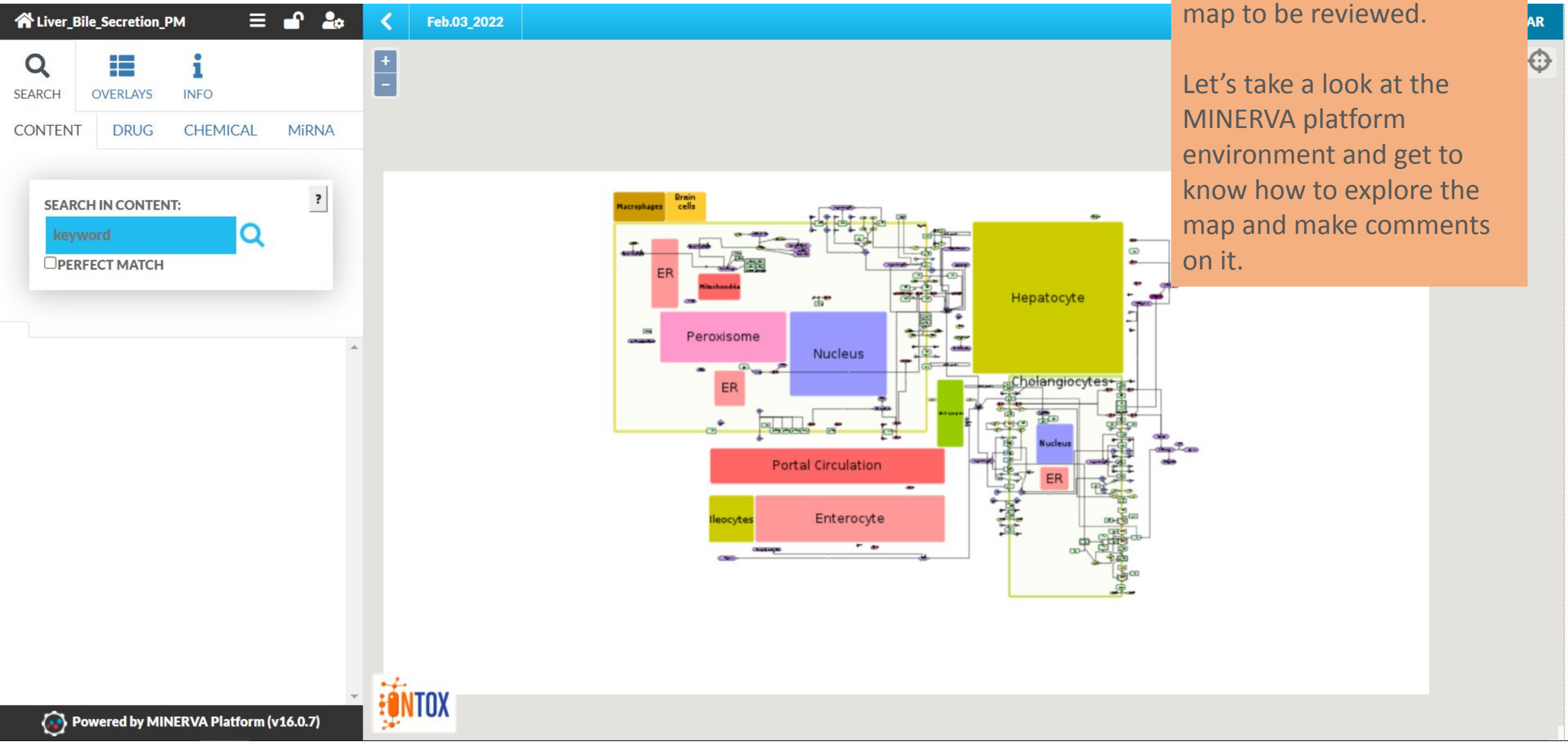
Previous 1 Next

ADD PROJECT REFRESH

After logging in, this is the page you will see. Here you will be able to choose between the available maps to open.

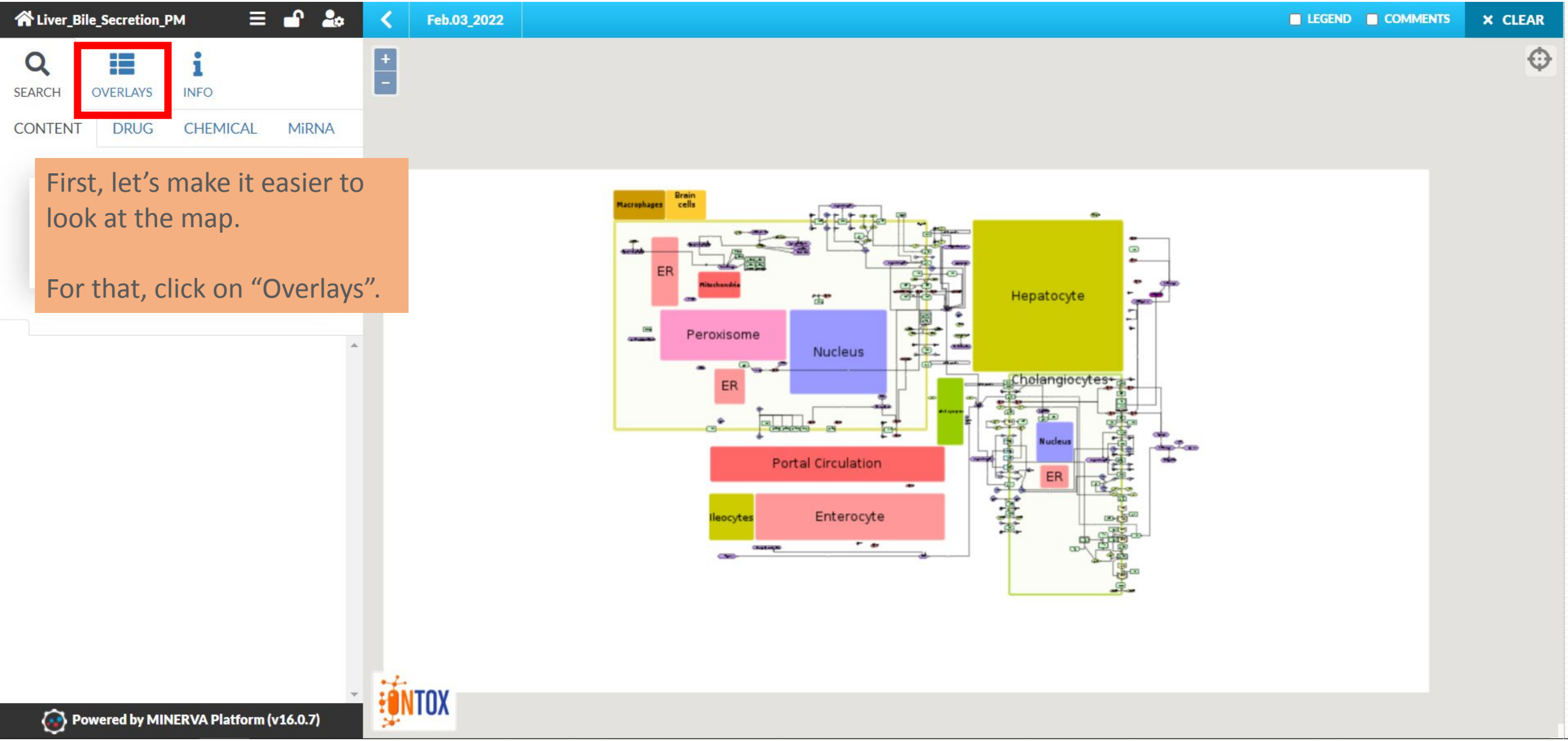
Don't worry! Only the maps you were asked to review will be available in this list.

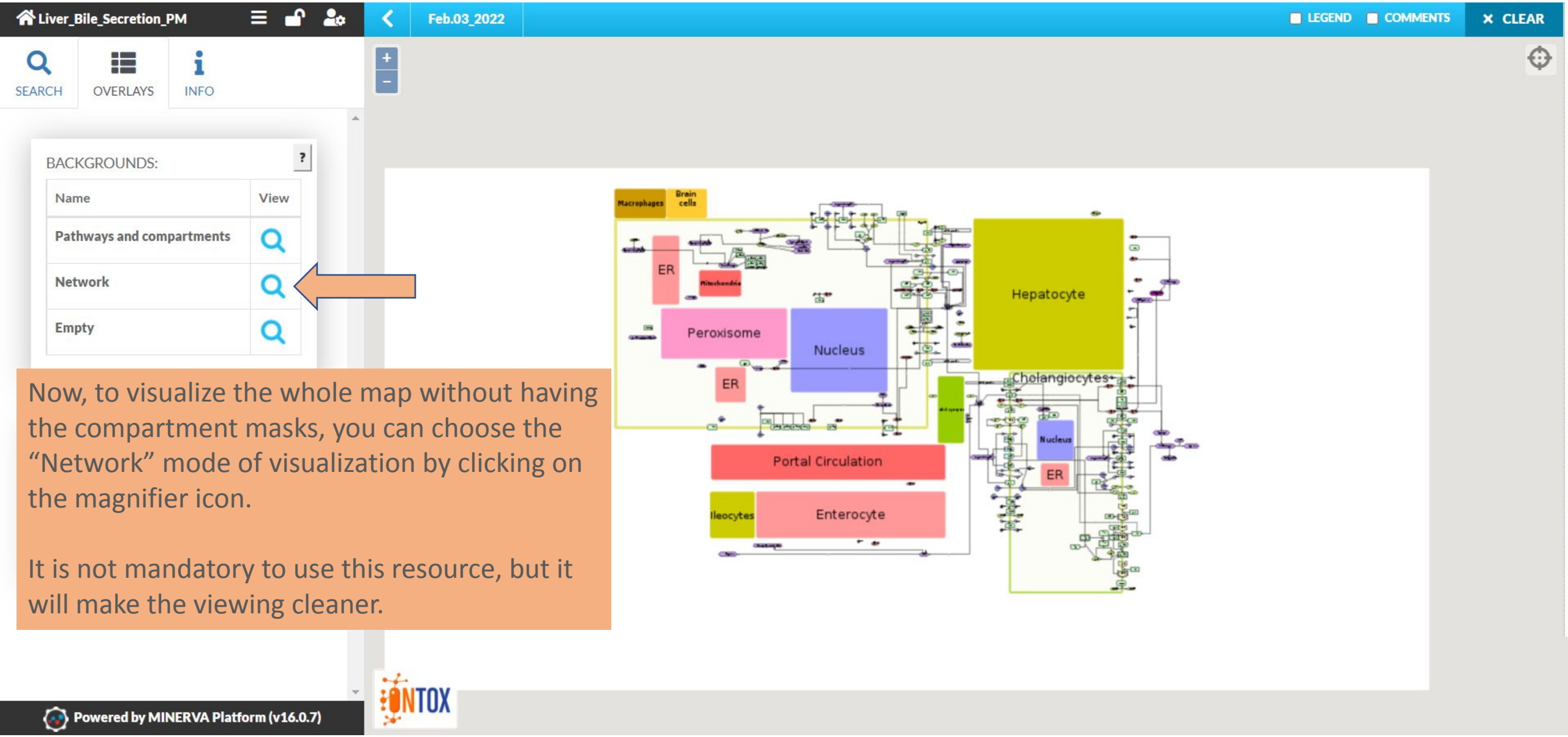
MiNERVA version 16.0.7;
build 2022-01-18T08:25:57+0000;
git: ad50a9d6800f1c135fca80cb2b559fa77300351c



And here we are, with the map to be reviewed.

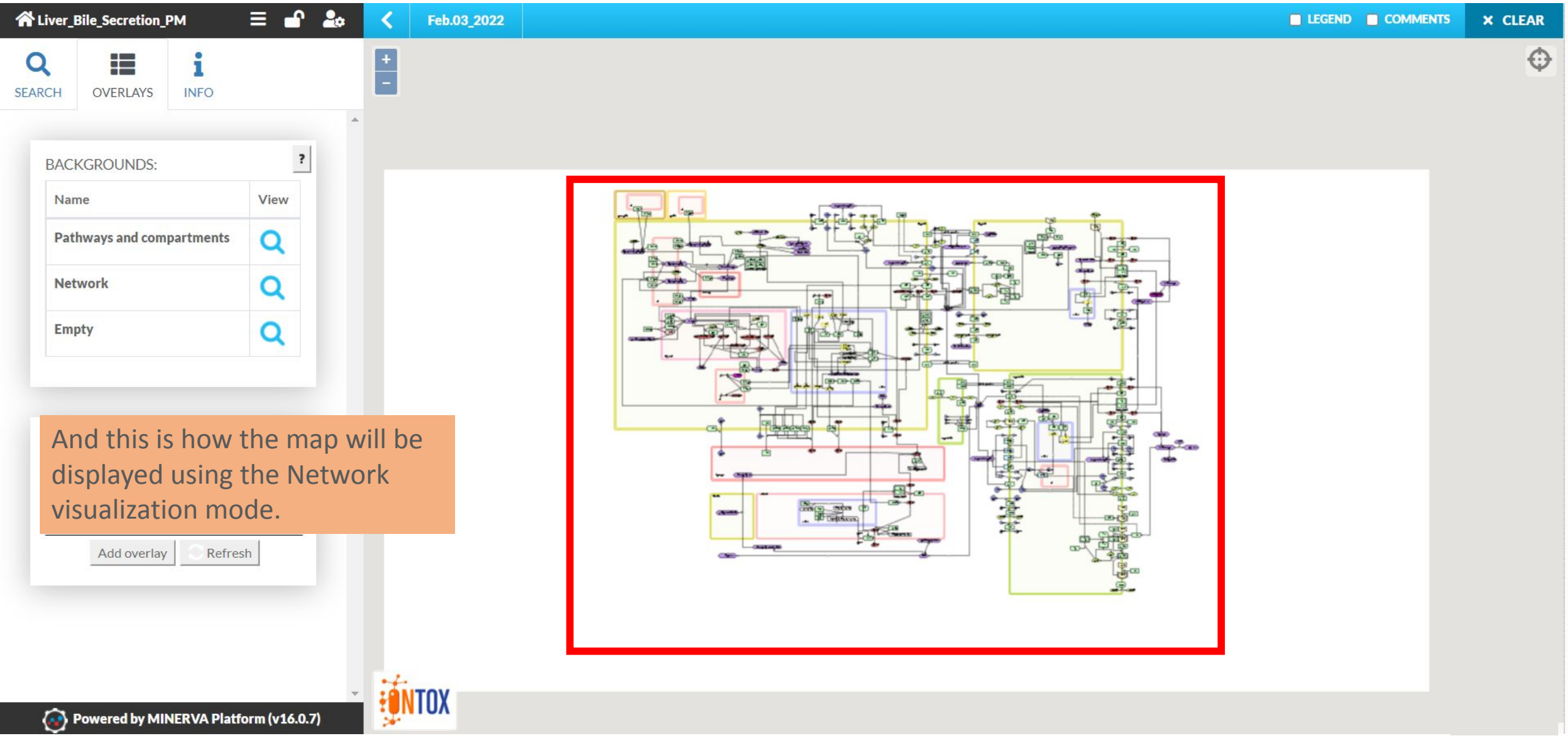
Let's take a look at the MINERVA platform environment and get to know how to explore the map and make comments on it.


Liver_Bile_Secretion_PM
Feb.03_2022
LEGEND
COMMENTS
CLEAR
SEARCH
OVERLAYS
INFO
CONTENT
DRUG
CHEMICAL
MiRNA
First, let's make it easier to look at the map.
For that, click on "Overlays".
Macrophages
Brain cells
ER
Peroxisome
Nucleus
ER
Hepatocyte
Cholangiocytes
Nucleus
ER
Portal Circulation
Ileocytes
Enterocyte
Powered by MINERVA Platform (v16.0.7)



Now, to visualize the whole map without having the compartment masks, you can choose the "Network" mode of visualization by clicking on the magnifier icon.

It is not mandatory to use this resource, but it will make the viewing cleaner.



And this is how the map will be displayed using the Network visualization mode.

Liver Lipid Metabolism

Physiological Map

SEARCH | OVERLAYS | SUBMAPS

CONTENT | DRUG | CHEMICAL

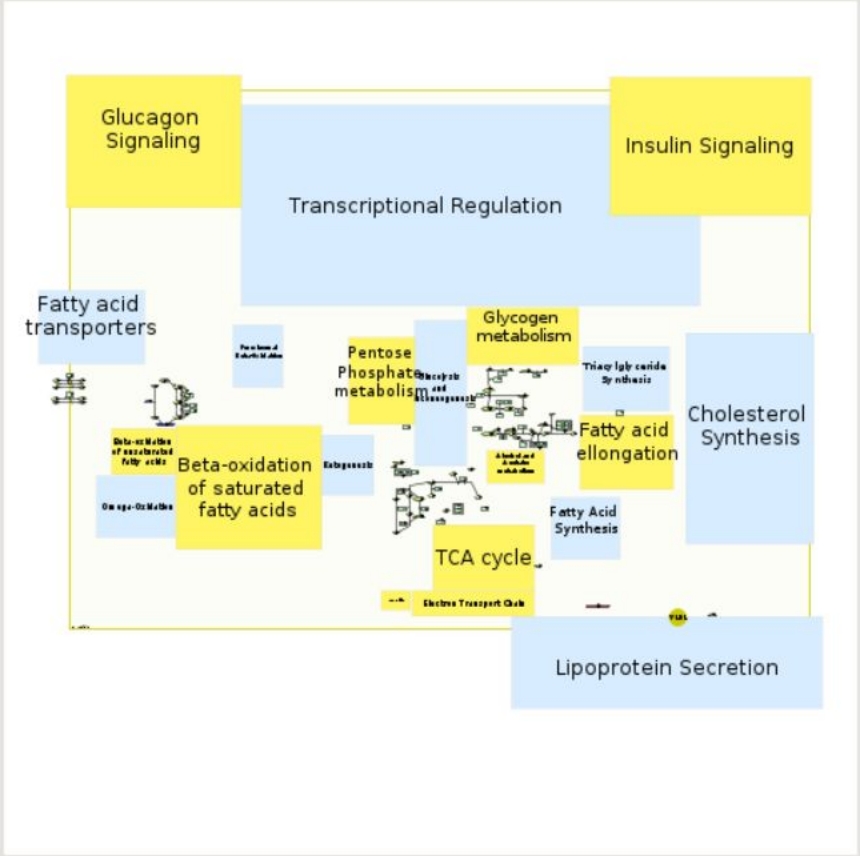
SEARCH IN CONTENT:

keyword

PERFECT MATCH

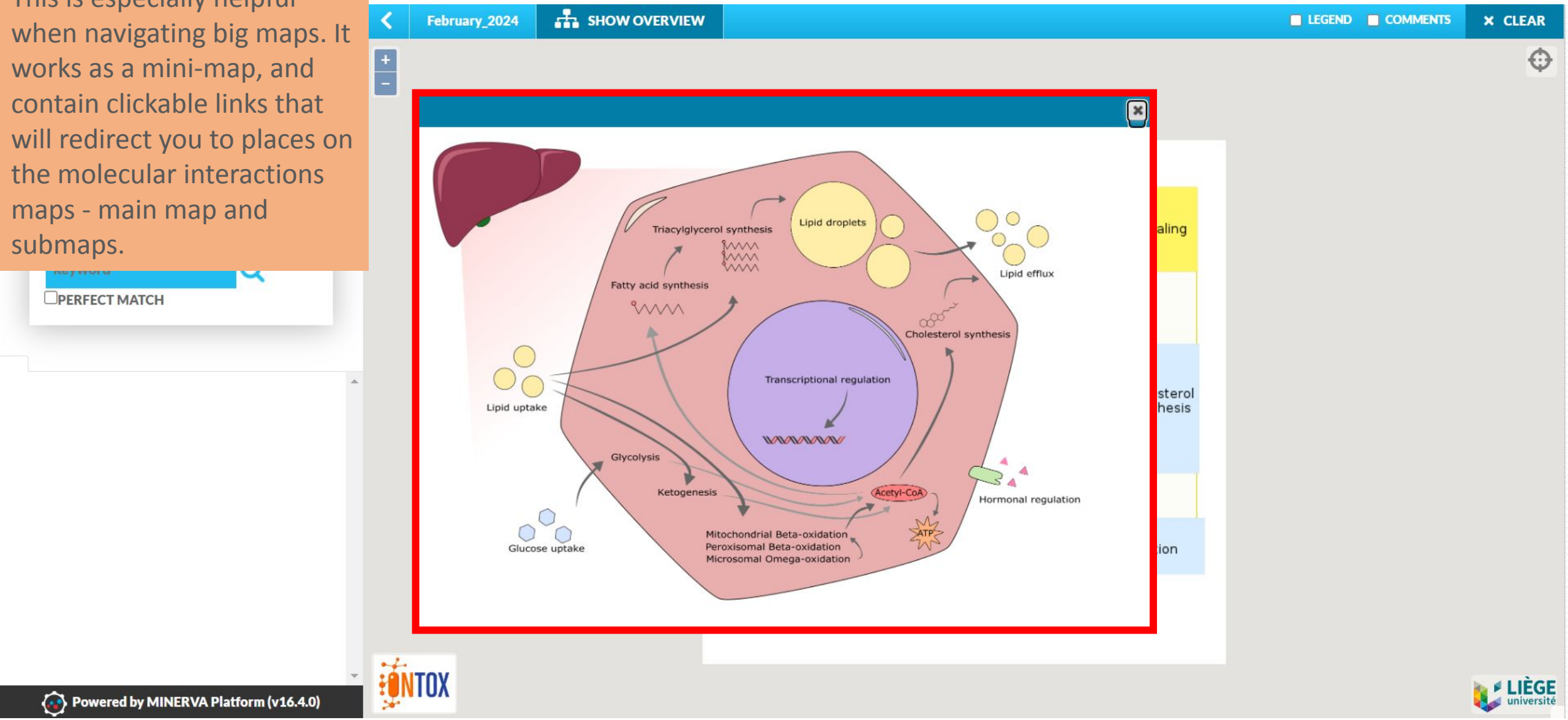
February_2024 | SHOW OVERVIEW | LEGEND | COMMENTS | CLEAR

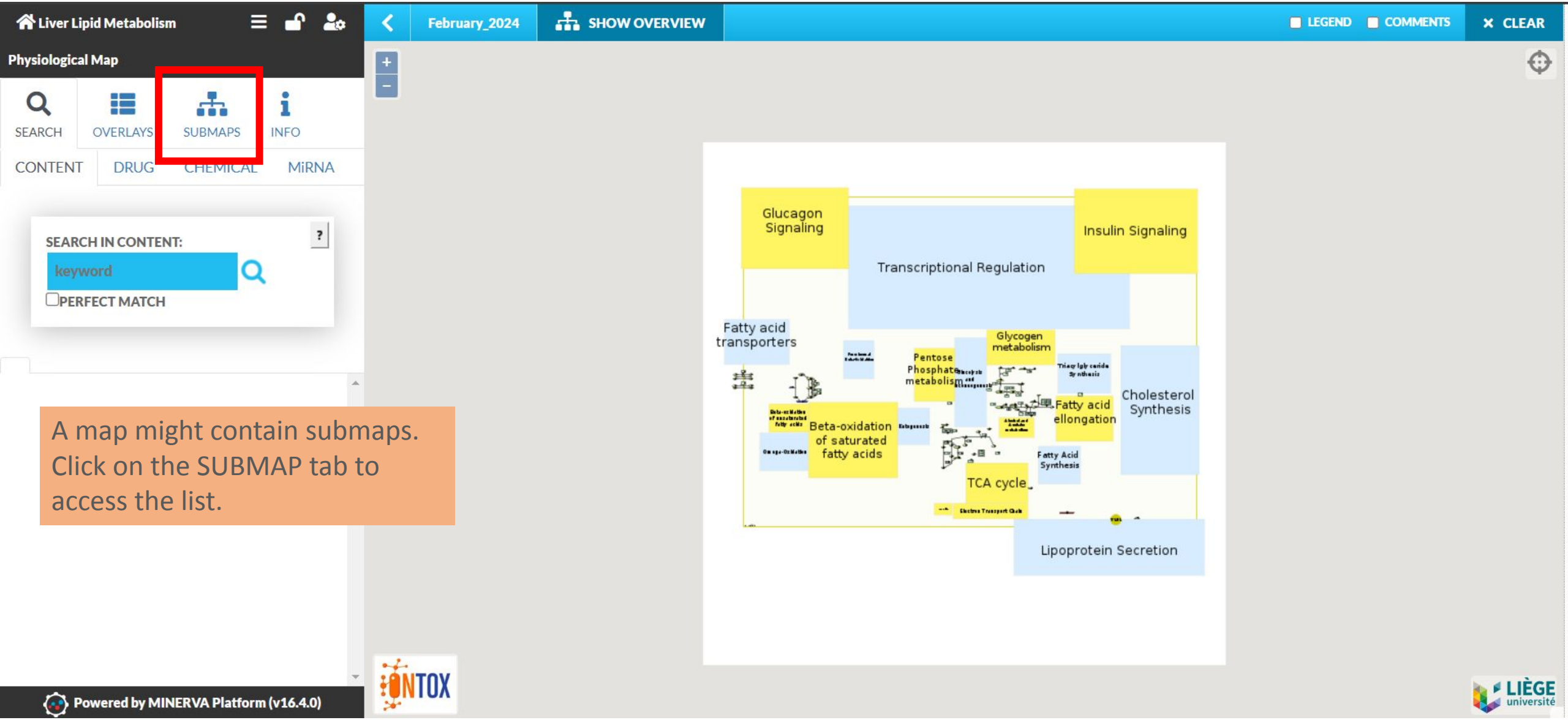
Some maps might contain an overview model that can be accessed on the button highlighted above.



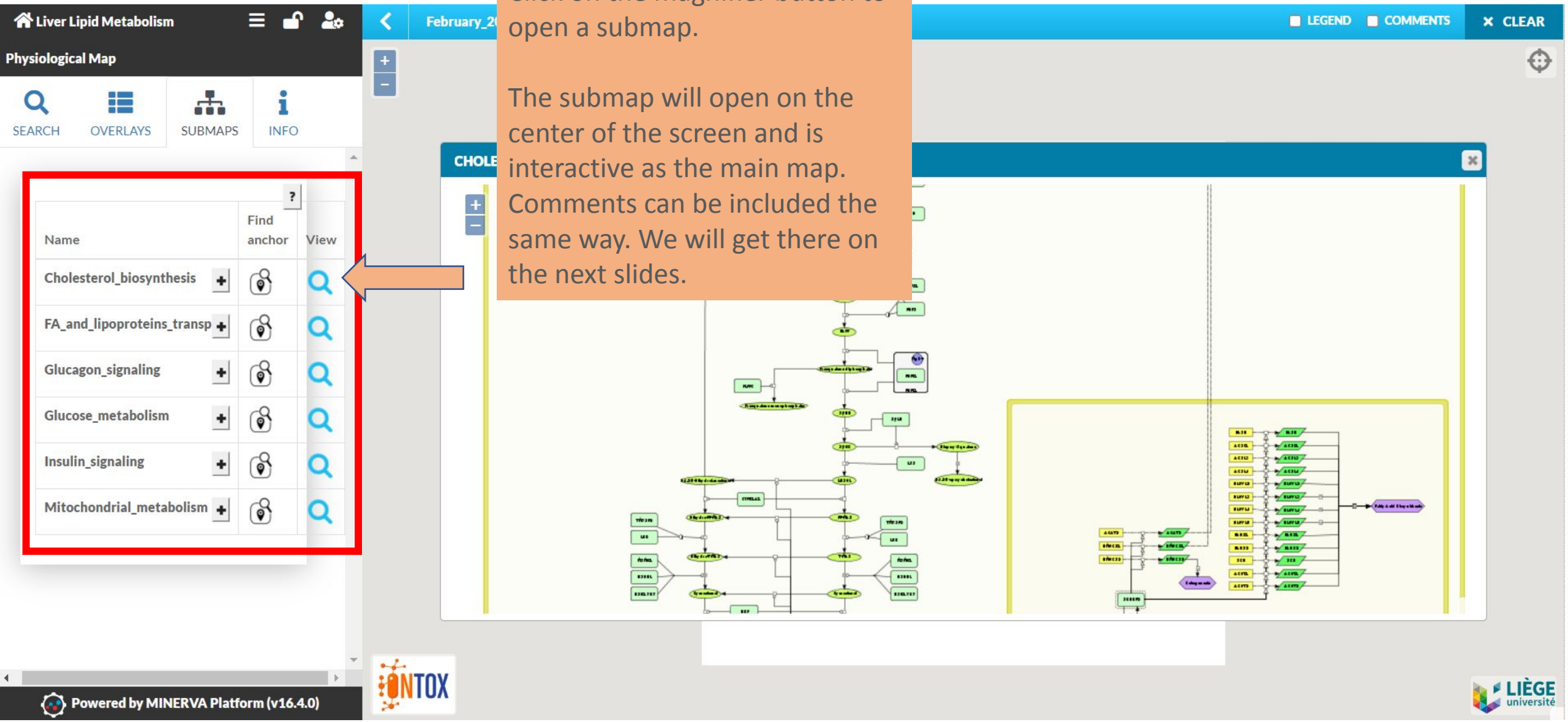
Powered by MINERVA Platform (v16.4.0)

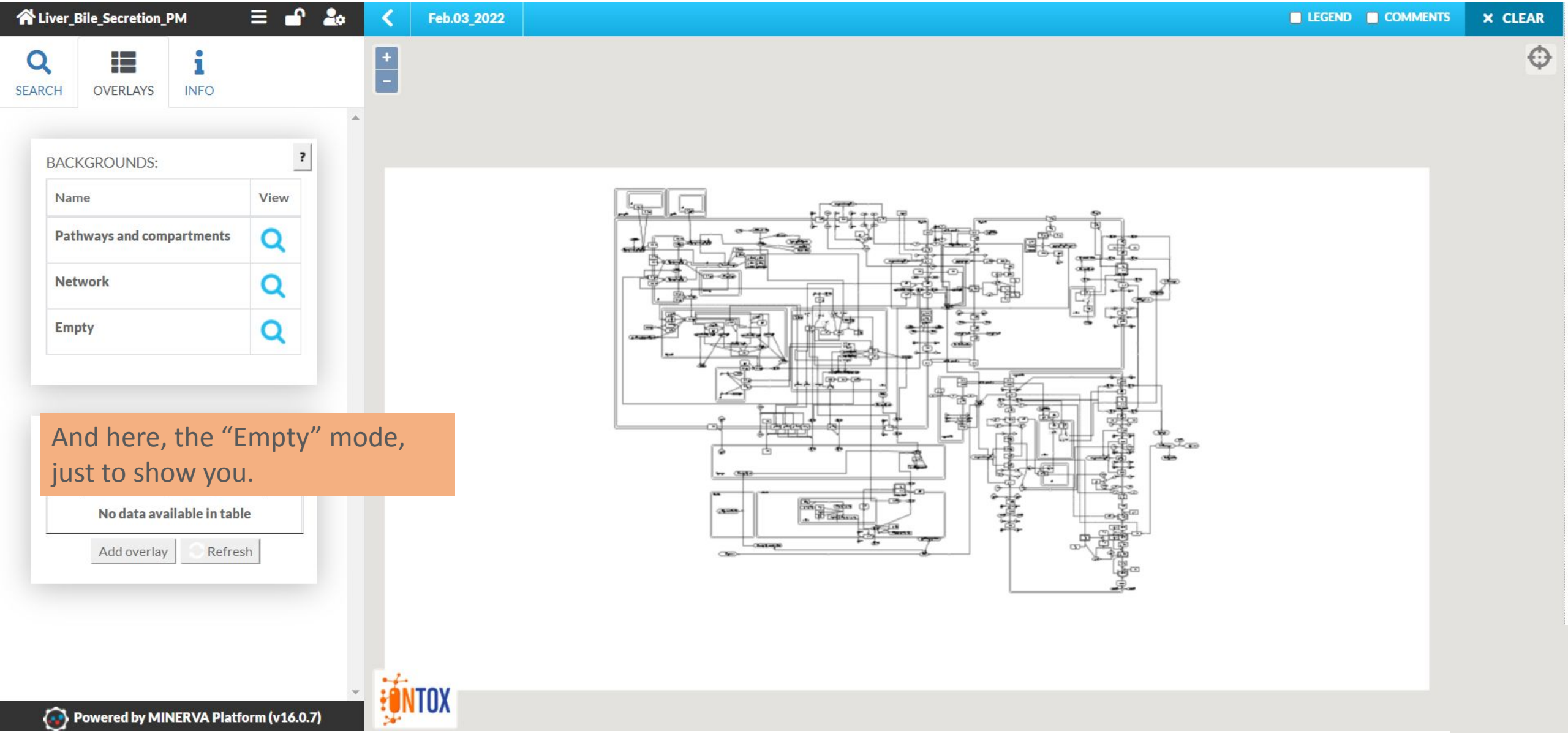
This is especially helpful when navigating big maps. It works as a mini-map, and contain clickable links that will redirect you to places on the molecular interactions maps - main map and submaps.



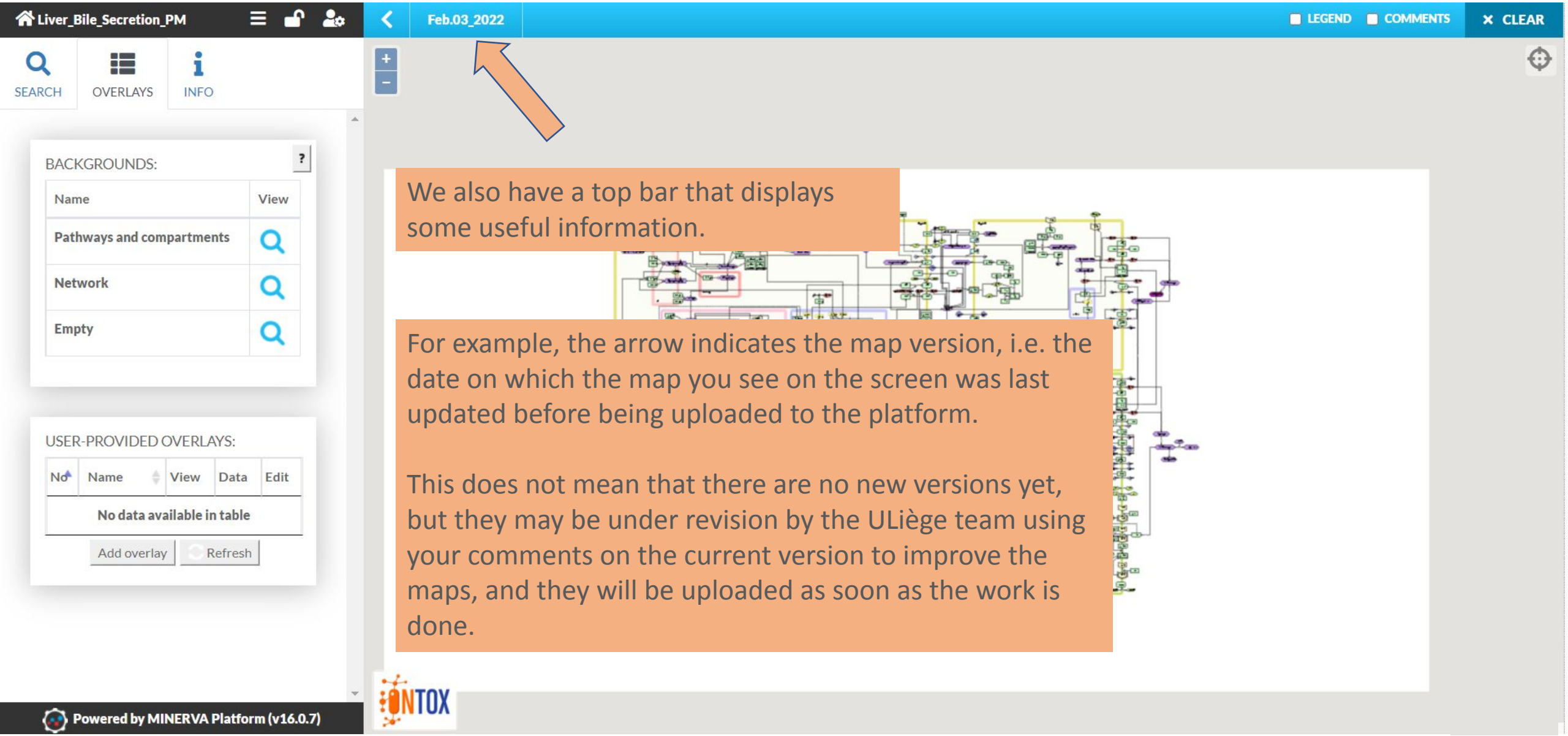


A map might contain submaps. Click on the SUBMAP tab to access the list.

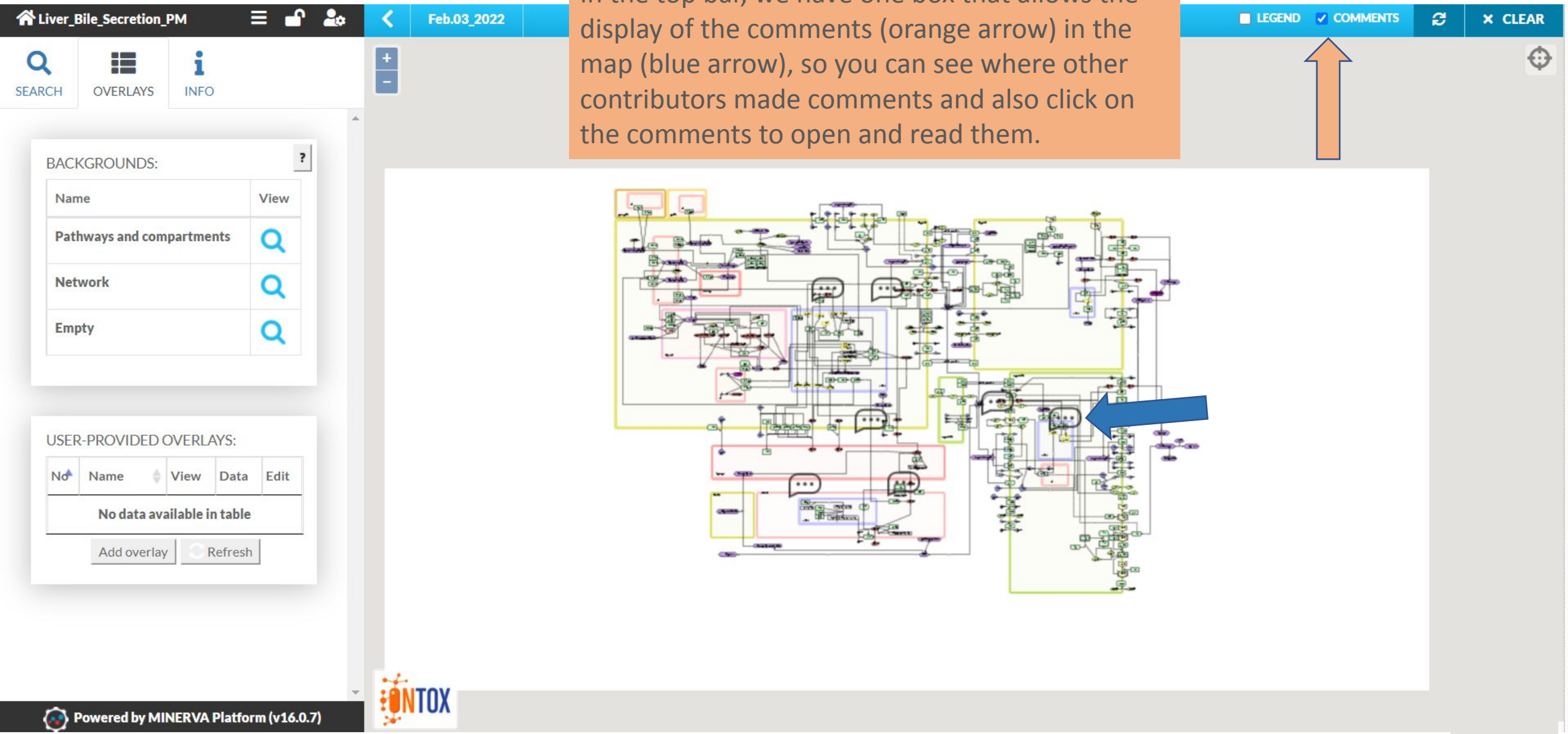

Liver Lipid Metabolism
Physiological Map
SEARCH
OVERLAYS
SUBMAPS
INFO
Name
Find anchor
View
Cholesterol_biosynthesis
FA_and_lipoproteins_transp
Glucagon_signaling
Glucose_metabolism
Insulin_signaling
Mitochondrial_metabolism
Powered by MINERVA Platform (v16.4.0)
LEGEND
COMMENTS
CLEAR
Click on the magnifier button to open a submap.
The submap will open on the center of the screen and is interactive as the main map. Comments can be included the same way. We will get there on the next slides.



And here, the “Empty” mode, just to show you.

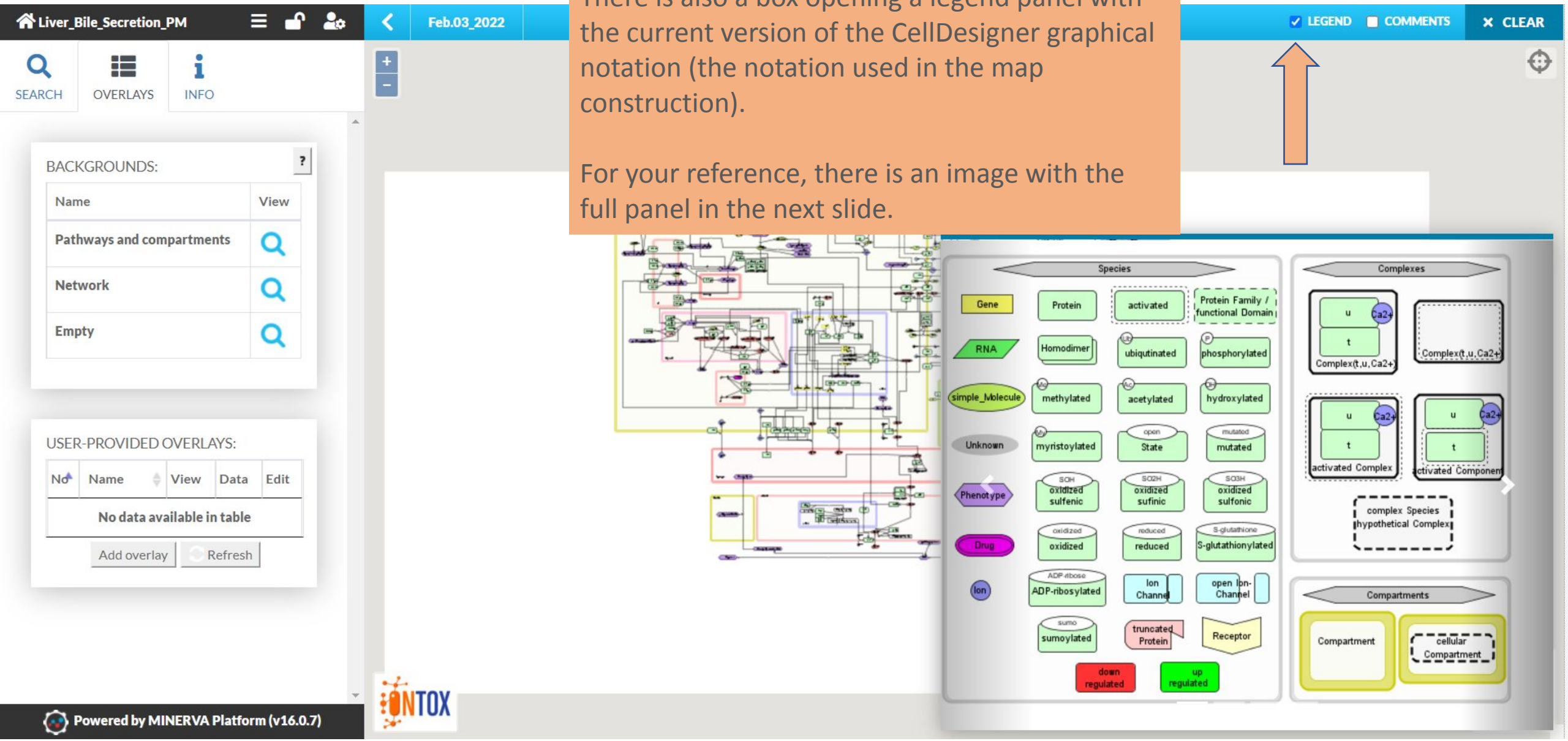

Liver_Bile_Secretion_PM
SEARCH
OVERLAYS
INFO
BACKGROUNDS:
Name
View
Pathways and compartments
Network
Empty
USER-PROVIDED OVERLAYS:
No
Name
View
Data
Edit
No data available in table
Add overlay
Refresh
Powered by MINERVA Platform (v16.0.7)
Feb.03_2022
LEGEND
COMMENTS
CLEAR
We also have a top bar that displays some useful information.
For example, the arrow indicates the map version, i.e. the date on which the map you see on the screen was last updated before being uploaded to the platform.
This does not mean that there are no new versions yet, but they may be under revision by the ULiège team using your comments on the current version to improve the maps, and they will be uploaded as soon as the work is done.

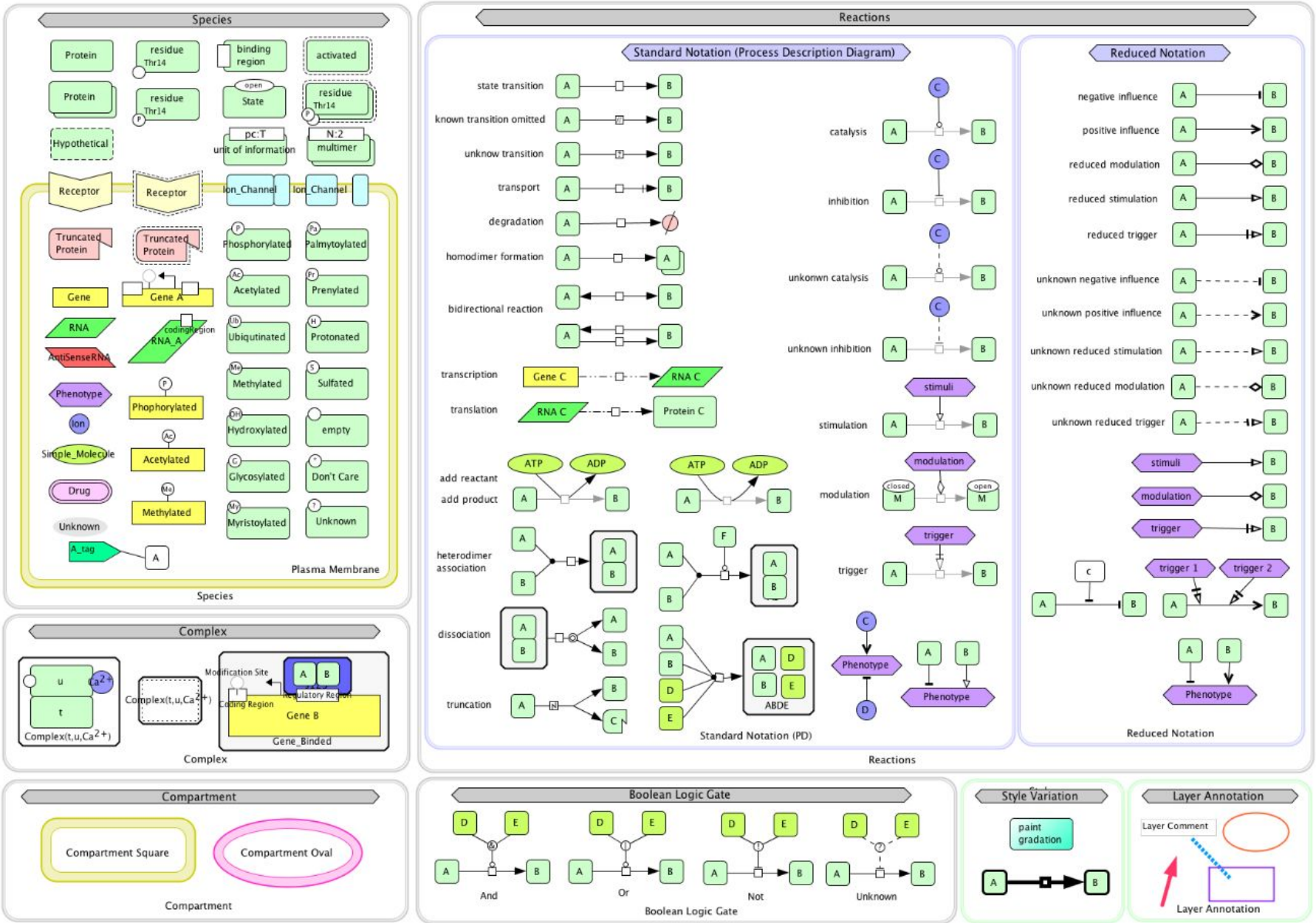
In the top bar, we have one box that allows the display of the comments (orange arrow) in the map (blue arrow), so you can see where other contributors made comments and also click on the comments to open and read them.



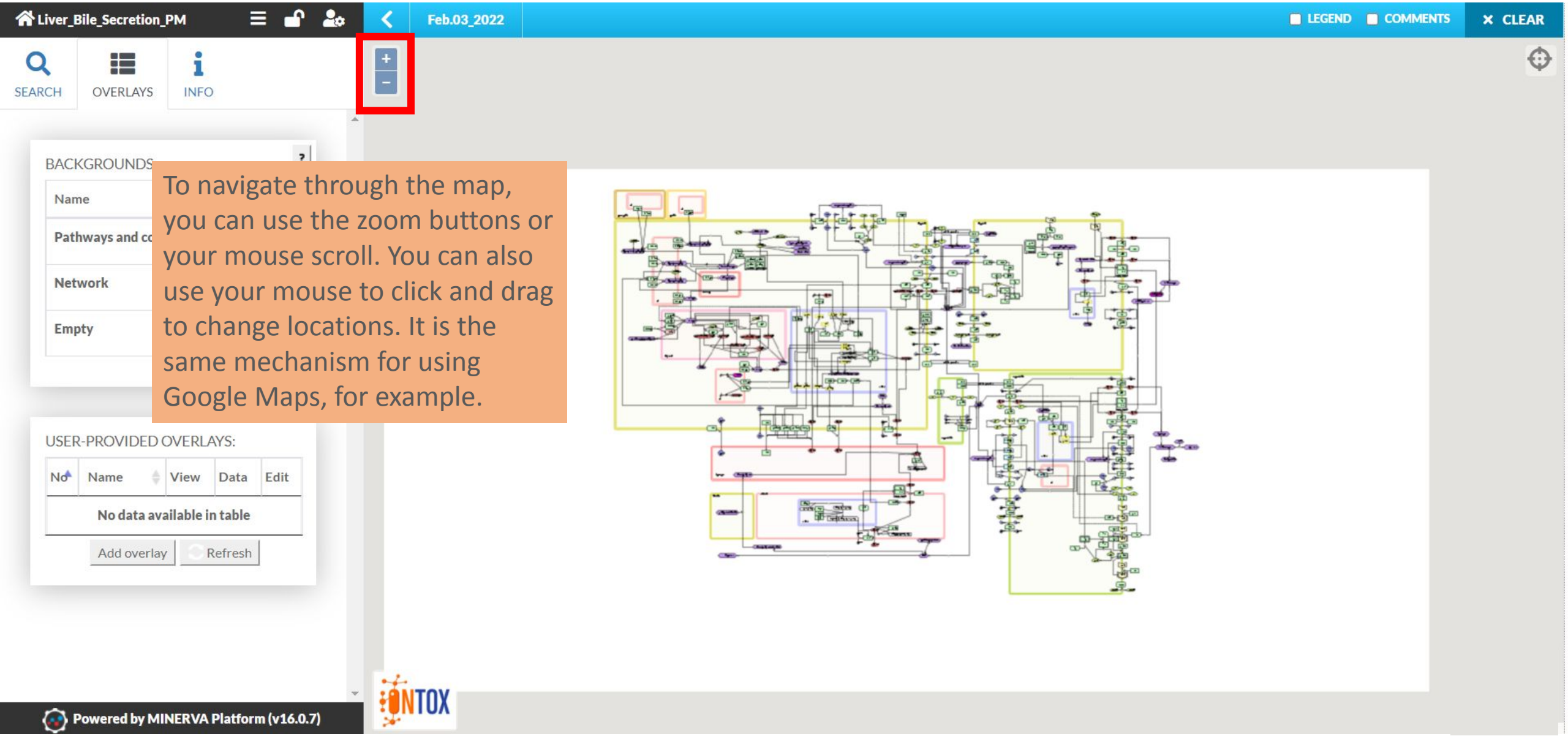
There is also a box opening a legend panel with the current version of the CellDesigner graphical notation (the notation used in the map construction).

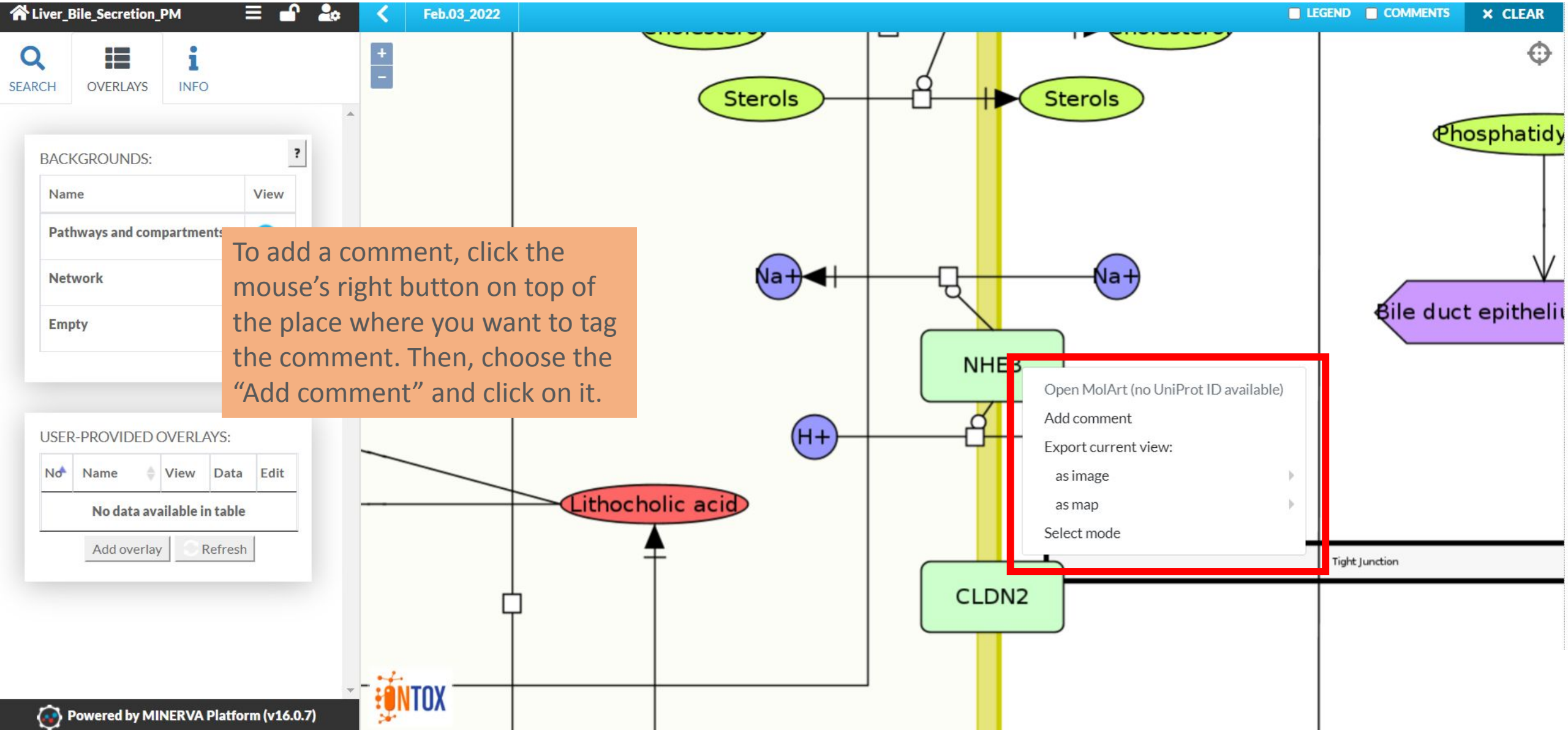
For your reference, there is an image with the full panel in the next slide.

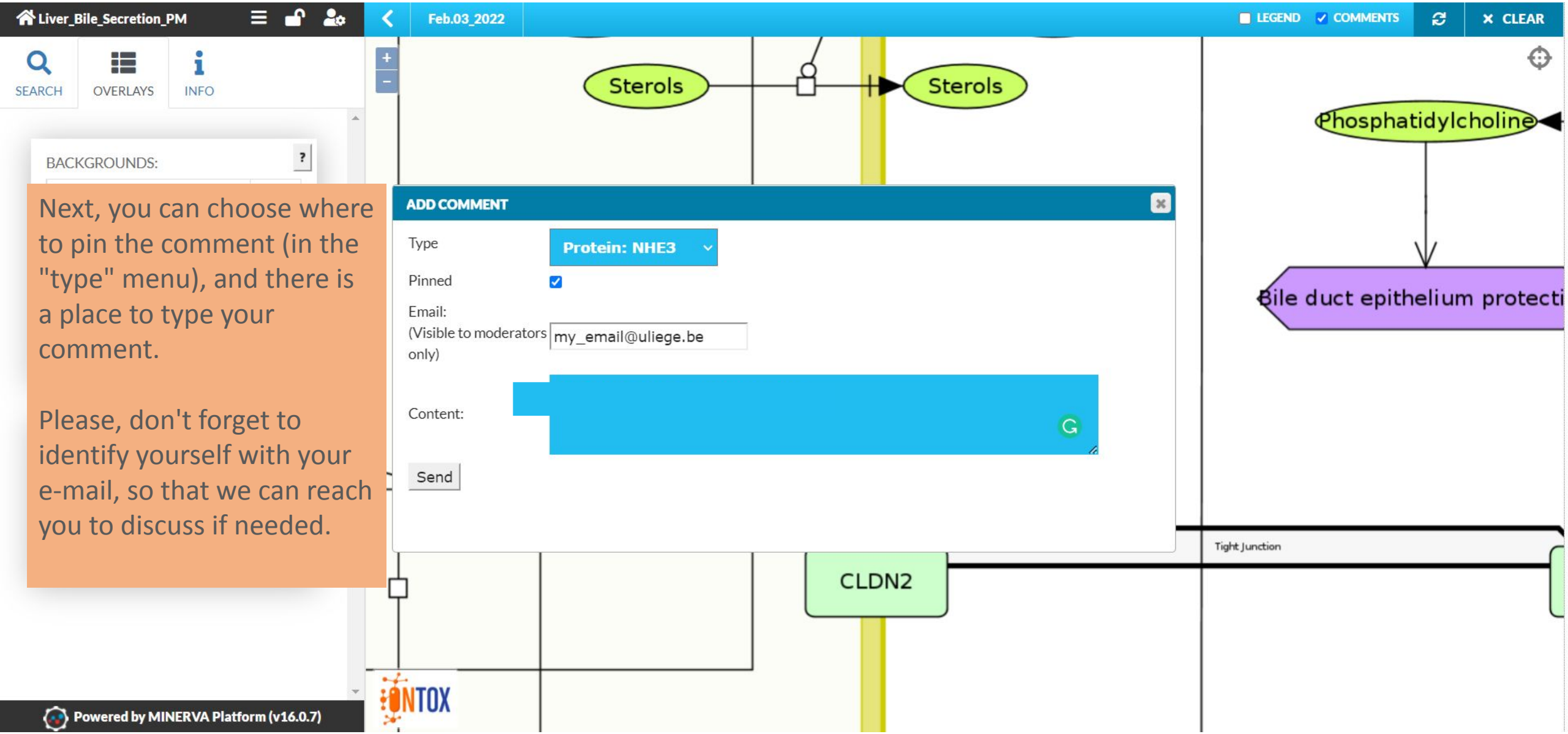




Source: https://www.celldesigner.org/features.html

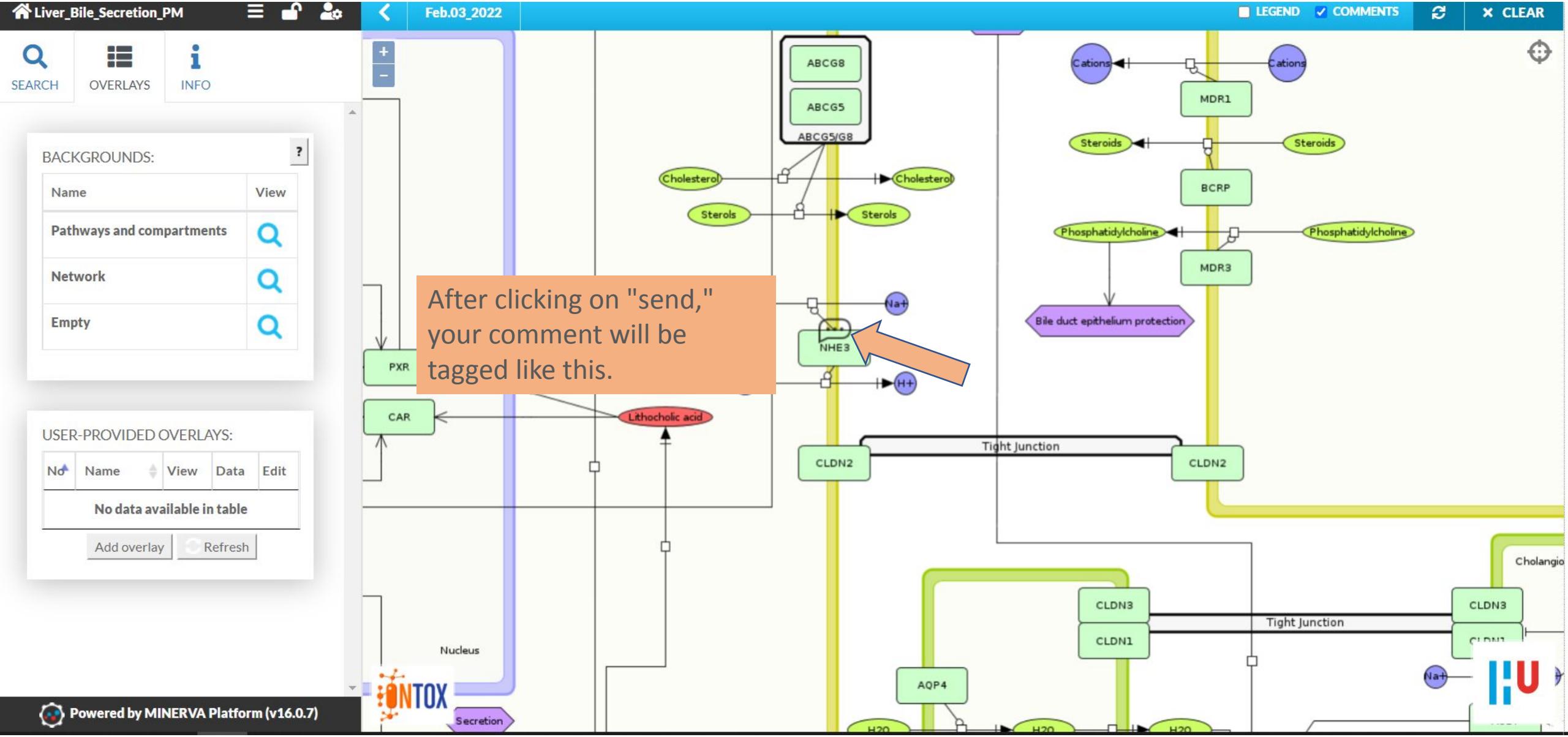

Liver_Bile_Secretion_PM
Feb.03_2022
LEGEND
COMMENTS
CLEAR
SEARCH
OVERLAYS
INFO
BACKGROUNDS
Name
Pathways and co
Network
Empty
To navigate through the map, you can use the zoom buttons or your mouse scroll. You can also use your mouse to click and drag to change locations. It is the same mechanism for using Google Maps, for example.
USER-PROVIDED OVERLAYS:
No
Name
View
Data
Edit
No data available in table
Add overlay
Refresh
Powered by MINERVA Platform (v16.0.7)

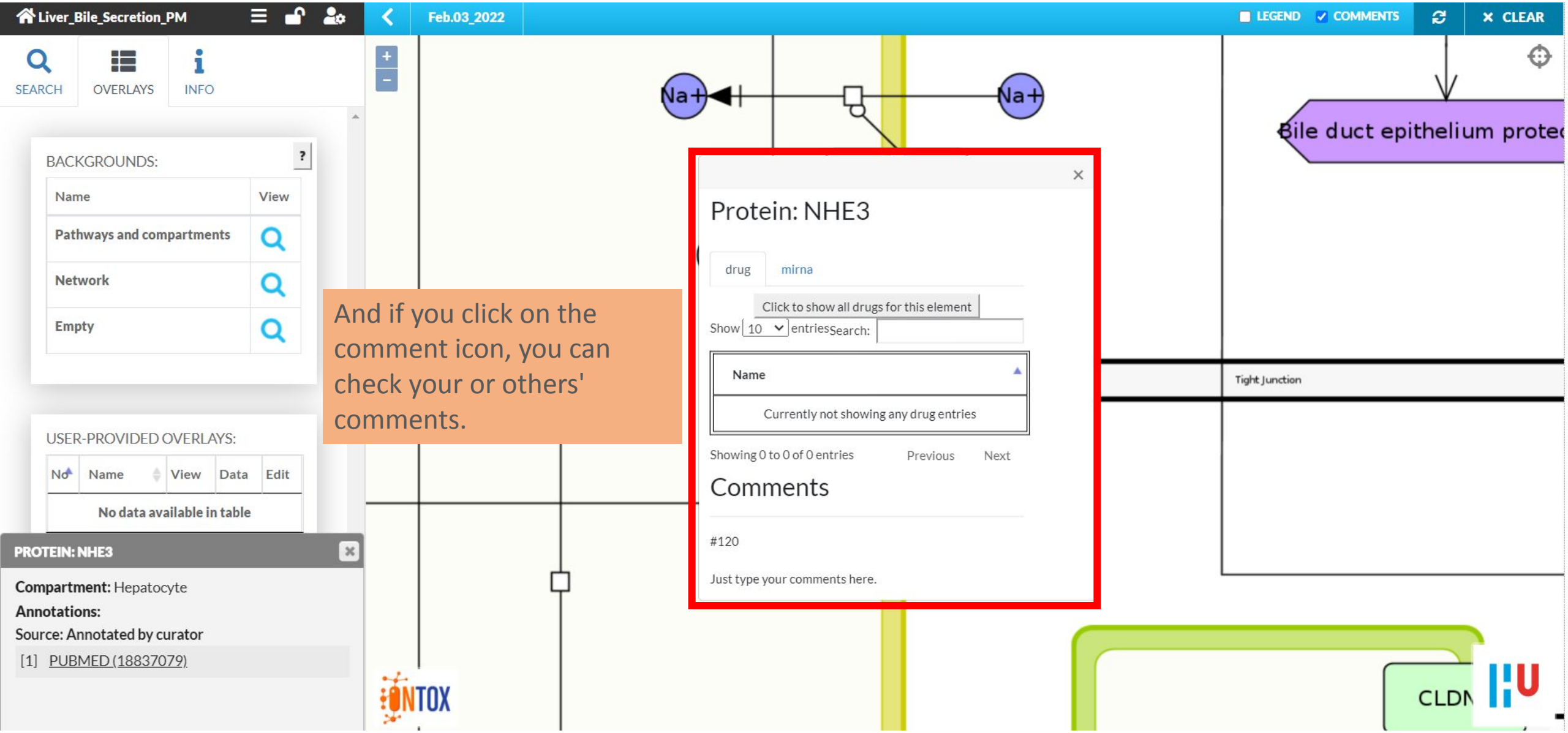

Liver_Bile_Secretion_PM
Feb.03_2022
LEGEND
COMMENTS
CLEAR
SEARCH
OVERLAYS
INFO
BACKGROUNDS:
Name
View
Pathways and compartments
Network
Empty
USER-PROVIDED OVERLAYS:
No
Name
View
Data
Edit
No data available in table
Add overlay
Refresh
To add a comment, click the mouse's right button on top of the place where you want to tag the comment. Then, choose the "Add comment" and click on it.
Sterols
Sterols
Phosphatidy
Na+
Na+
Bile duct epitheli
NHE
H+
Lithocholic acid
Open MolArt (no UniProt ID available)
Add comment
Export current view:
as image
as map
Select mode
Tight Junction
CLDN2
Powered by MINERVA Platform (v16.0.7)

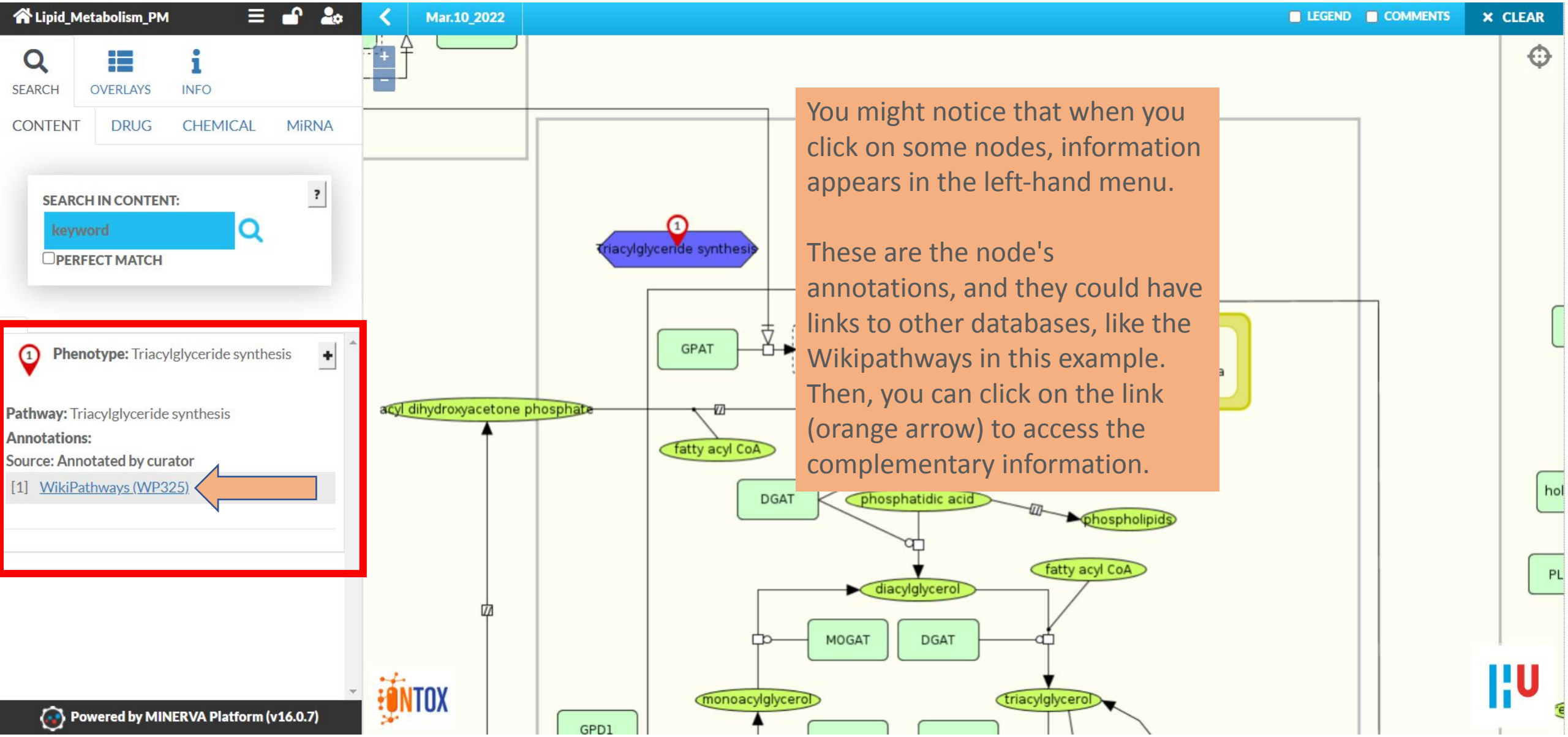


Next, you can choose where to pin the comment (in the "type" menu), and there is a place to type your comment.

Please, don't forget to identify yourself with your e-mail, so that we can reach you to discuss if needed.


Liver_Bile_Secretion_PM
Feb.03_2022
LEGEND
COMMENTS
CLEAR
SEARCH
OVERLAYS
INFO
BACKGROUNDS:
Name
View
Pathways and compartments
Network
Empty
USER-PROVIDED OVERLAYS:
No
Name
View
Data
Edit
No data available in table
Add overlay
Refresh
After clicking on "send," your comment will be tagged like this.
ABCG8
ABCG5
ABCG5/G8
Cholesterol
Sterols
Cations
MDR1
Steroids
BCRP
Phosphatidylcholine
MDR3
Bile duct epithelium protection
Na+
NHE3
H+
PXR
CAR
Lithocholic acid
CLDN2
Tight Junction
CLDN3
CLDN1
AQP4
H2O
Nucleus
Secretion
Powered by MINERVA Platform (v16.0.7)


Liver_Bile_Secretion_PM
Feb.03_2022
LEGEND
COMMENTS
CLEAR
SEARCH
OVERLAYS
INFO
BACKGROUNDS:
Name
View
Pathways and compartments
Network
Empty
USER-PROVIDED OVERLAYS:
No
Name
View
Data
Edit
No data available in table
PROTEIN: NHE3
Compartment: Hepatocyte
Annotations:
Source: Annotated by curator
[1] PUBMED (18837079)
Na+
Na+
Bile duct epithelium protec
Tight Junction
CLDN
Protein: NHE3
drug
mirna
Click to show all drugs for this element
Show 10 entries Search:
Name
Currently not showing any drug entries
Showing 0 to 0 of 0 entries
Previous
Next
Comments
#120
Just type your comments here.
And if you click on the comment icon, you can check your or others' comments.


Lipid_Metabolism_PM
SEARCH
OVERLAYS
INFO
CONTENT
DRUG
CHEMICAL
MiRNA
SEARCH IN CONTENT:
keyword
PERFECT MATCH
Phenotype: Triacylglyceride synthesis
Pathway: Triacylglyceride synthesis
Annotations:
Source: Annotated by curator
[1] WikiPathways (WP325)
Powered by MINERVA Platform (v16.0.7)
Mar.10_2022
LEGEND
COMMENTS
CLEAR
Triacylglyceride synthesis
GPAT
acyl dihydroxyacetone phosphate
fatty acyl CoA
DGAT
phosphatidic acid
phospholipids
diacylglycerol
fatty acyl CoA
MOGAT
DGAT
monoacylglycerol
triacylglycerol
GPD1
You might notice that when you click on some nodes, information appears in the left-hand menu.
These are the node's annotations, and they could have links to other databases, like the Wikipathways in this example. Then, you can click on the link (orange arrow) to access the complementary information.

Some considerations to take into account when reviewing a map:

The physiological maps are not homogeneous: this means that different mechanisms described could have very different levels of details, and this is not necessarily a problem. If you feel that a mechanism could benefit from more details, please do not hesitate to comment.

Including a reference in your comment is of great help for us doing the upgrades of the maps. The DOI or PubMed ID of a paper might be sufficient for us to find the information, but the more details you give us, the more we benefit from your comments.

And of course, you can always send your suggestions and questions also by email.

Thank you!

Useful links:

ONTOX's Physiological Maps Curation Guidelines:

https://github.com/ontox-maps/guides_and_documentation/tree/main/guidelines

MINERVA user manual:

https://minerva.pages.uni.lu/doc/user_manual/v15.0/index/

Basic exploration tools:

https://minerva.pages.uni.lu/doc/user_manual/v15.0/index/#basic-exploration-tools

Contacts:

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Luiz Ladeira - lcladeira@uliege.be

Alessio Gamba - agamba@uliege.be

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Tutorial:

MINERVA platform for map reviewers

WP1

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