TOMVi: Tool for Overviewing Metadata Visualization

Release

v.1.3   2018/12/19

Introduction

Drastic improvements of DNA sequencing technology are happened in the recent decades, which allows to analyze microbial community and gene expression comprehensively. However, interpretation for the sequencing data may be a complex task, especially for non-bioinformaticians. An open source software TOMVi was developed for them. On this tool, researcher can manipulate the composition data (such as metagenome data) of each samples interactively to each experimental conditions such as location, time-series and others with GUI, and can visualize. The figure illustrated by this tool is not always correct as statistically but can provide an intuitive suggestion, and will be helpful to decide further analyzing tactics.

Availability of source code and requirements

- Project name: TOMVi
- Project home page: https://github.com/Daisuke-Kyoui/tomvi
- Programming language: HTML5, JavaScript and CSS
- Plugins: jQuery-3.3.1 and jCanvas are used.
- Browsers: Chrome, Safari and FireFox were tested.
- License: MIT license

No restrictions of use for academic or non-academic purposes.

Window overview
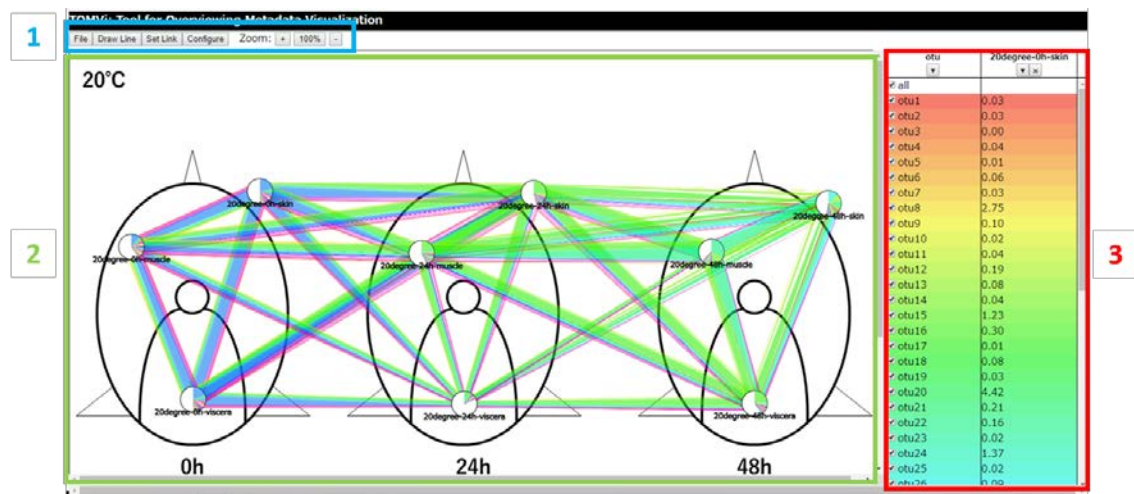
1   Button section

    1.1   <u>File button</u>:
        Data loading and Saving figure

    1.2   <u>Draw Line button</u>:
        Redraw links connecting samples

    1.3   <u>Set Link button</u>:
        Choose links which are required hidden or visible

    1.4   <u>Configure button</u>:
        Setting parameters for "Canvas section".

2   Canvas section

    2.1   <u>Background</u>:
        A figure of background which shows experimental condition such as sample location, time series or others.

    2.2   <u>Plot</u>:
        This describes a sample. Its inner circle shows composition in the sample as a circle-graph.

    2.3   <u>Link</u>:
        The line connecting between the plots. The width connecting to plot indicates the rate of OTU in the sample. The colors are corresponding to each OTUs.

3   Table section

    3.1   <u>Row</u>:
        Each row lists OTUs.

    3.2   <u>Column</u>:
        Each column lists samples.

Usage

1 <u>Data loading</u>
Click the "File" button, then a box is popped.
Choose "background file" and "data file".
Click the "Upload button", then the data will be loading and be visualized on "Canvas section".

!!The file formats are described in "File Formats" page.

2 <u>Manipulating Plots</u>
Drag each plots toward desirable position on the background.

!!The links connecting to the manipulating plot will be hidden.

3 <u>Re-draw links</u>
Click the "Draw Line" button, then links are redraw.

Optionally Usage

· <u>Save the canvas</u>
Click the "File" button, then a box is popped.
Then, you can save the image of "canvas section" and legends as jpeg of png format.

· <u>Choose links visibility</u>
If you want to set visibility of the links between specific plots, this option can be helpful.
Click "Set Link" button, then a box is popped.
Choose radio button "hidden" or "visible".
Choose plots combination which you want to setting the visibility.
Click "Apply Button", then the settings are reflected.

!!If you want to input the lists of combinations, you can upload the list. The file formats is described in "File Formats" page.

· <u>Choose OTU visibility</u>
If you want to set visibility of the specific OTUs, this option can be helpful.
Click the checkbox in "Table section", then the OTUs will be visible or hidden on the "Canvas section".

· <u>Show OTUs composition</u>
When you click the label under the plots, the rates of each OTUs in the sample are described on the "Table section".
If you click "▼" in the header, the rows will be sorted to descending order.
If you click "╳" in the header, the column will be discarded.

· <u>Configure setting</u>
Click "Congigure" button, then a box is popped.
In the box, you can set the parameters for "plot size", "label size", "color transparency" and "size of backgroung figure".
The parameters will be reflected when you click "Apply" button.

File Formats

1   background file:
   Any kind of figure can be used such as diagram, picture and graph.
   Just the file should be formatted in jpeg or png.

   !!If the filename extension is not ".jpg" or ".png", caution will be popped.

2   data file:
   This file should be tabular format. The top row lists the sample name. The left end column lists
   OTUs. The cells are inputted the rate of OTU in the sample as 0–1.

   !!If the filename extension is not ".txt" or ".tab", caution will be popped.

3   link list file:
   This file should be tabular format. The left end column and the next one on the same row are
   inputted the sample name each.

   !!If the filename extension is not ".txt" or ".tab", caution will be popped.

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