Welcome to Plasmid Processor!

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Plasmid 1.02 Help file 3.7. 1996

Introduction

Plasmid Processor is a simple tool for plasmid presentation for scientific and educational purposes. It features both circular and linear DNA, user defined restriction sites, genes and multiple cloning site. In addition you can manipulate plasmid by inserting and deleting fragments. Created drawings can be copied to clipboard or saved to disk for later use. Printing from within program is also supported.

Plasmid Processor is freeware, so you can use and distribute it freely.

Drawing genes

Menus

Files

Edit

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Files

New

Clears drawing area and initiates new presentation.

Open

Loads an existing file.

Save

Saves the current file using its current name.

Save As

Saves the current file using a new name.

Fonts

Print

Sends the current file to printer.

Print Setup

Print setup.

Exit

Exits the program.

Edit

Copy

Copies drawing to clipboard.

Data

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Restriction sites

Add restriction sites by entering name and location, then clicking *Add site*-button. If the *Show Location*-box is checked, site location is also shown on the drawing. Delete restriction sites by selecting appropriate site, and then click the *Delete*-button.

Multiple cloning site

Add a multiple cloning site by entering its first site and MCS:s start/end location, then press Enter-key. After that you just enter new site names one by one, pressing Enter-key after each entry. So, you have to enter MCS location only once. If the *Show Start/End*-box is checked, MCS start/end is shown on the drawing.

Delete sites from MCS by selecting appropriate site from the list, and then click *Delete*-button. Delete the whole MCS by selecting the line containing text "MCS" from the list and then click *Delete*-button.

Genes

Add new gene by entering name, start/end location and then click *Add gene*-button. You can modify the appereance of the arrow depicting the gene from *Style*- and *Thickness*-lists. Modifications take place immediately, so it's possible to try out several line styles.

You can delete genes by selecting the gene from list and then clicking *Delete*-button.

Please note that every time you close the Gene dialog, current selection in gene list is unselected. That means that you have to select the gene every time you open the Gene dialog for the modifications to take effect.

There is a thickness zero for genes. By selecting it the gene itself doesn't show on the drawing, but the label shows up normally. This feature can be used whenever you need an additional text label in your drawing. To prevent misunderstandings you should use easily recognizable location for "label genes", for example from 0 to 10. Note that you can place several genes on top each other, so you should use same start/end locations for all "label genes". The location of gene labels is stored for both circular and linear presentations, so after you have placed a label in correct place it stays there.

Insert fragment

This dialog enables you to insert fragments into the vector. Enter starting location and fragment length, then click *Insert*-button. Insertions work only clockwise.

Inserting genes into the vector is a two-part process. First you insert an empty fragment of the same length. Second, you add gene from Gene dialog to the newly created "empty fragment". Sorry for the inconvenience...

Delete fragment

This dialog enables you to delete fragments from the vector. Enter start and end location for the fragment, then click *Delete*-button. Deletion works only in clockwise.

Please note, that any genes or restriction sites in deleted area destroyed automatically. If a gene is only partially in the deleted area the gene is only truncated.

Plasmid parameters

This dialog is used to enter name and length of a new plasmid. The length cannot be modified later from this dialog. Plasmid presentation mode is controlled from this dialog, if the *Linear*-box is checked, linear mode is in effect and vice versa. Please note that there is a much more convenient speedbutton for mode change.

Plasmid notes

This dialog enables you to enter additional information about the vector. The information is saved with the plasmid and also included in the lower left corner of the printout.

Authors

Plasmid Processor program was created during a programming project course held in Department of Computer Sciences and Applied Mathematics, University of Kuopio, Finland 1995 - 1996. The program was made for the Department of Biochemistry and Biotechnology, University of Kuopio, which helds the copyrights of the program.

For further information please contact the authors by e-mail, plasmid@uku.fi.

Visit Plasmid Processor homepage at http://www.uku.fi/~kiviraum/plasmid/plasmid.html

Programming team: T. Kivirauma, P. Oikari and J. Saarela.

Tips on drawing

The basic usage of the program is quite easy. You can move gene and restriction site labels with mouse. MCS-box can be moved by dragging from the title 'MCS'. Unfortunately only gene labels stay on place; restriction site and MCS labels change back to their calculated positions every time the whole screen is updated (circular/linear change, loading). Check before printing, that everything looks fine. If not, make the necessary corrections and proceed with printing.

Restriction site labels can be used as general pointers. Make gene labels titled 5' and 3' and insert them to linear mode line ends - you have a gene. Create a white "box-type" gene of same length as the vector - you get a two-stranded gene. Experiment with genes stacked on top each other.

Sometimes you get strange effects and if you encounter a bug you can report it to the programming team. It might be corrected...

Warranty

PLASMID PROCESSOR IS PROVIDED "AS IS". THERE IS NO WARRANTY OF ANY KIND. THE DEPARTMENT OF BIOCHEMISTRY [UNIVERSITY OF KUOPIO, FINLAND] IS NOT LIABLE FOR ANY DAMAGES OR HARM, WHICH MAY RESULT FROM THE USE OR INABILITY TO USE THIS PRODUCT.

PLASMID PROCESSOR CAN BE USED AND DISTRIBUTED FREELY. NO MODIFICATIONS ALLOWED.

Fonts

Font dialog allows you to change the presentation font. This can be necessary on some occasions (see Bugs), but usually it is used to enhance or flavor the presentation.

Please note, that some fonts/sizes may not work. If that's the case, try another font/size.

Important! In this version of the Plasmid Processor, you must load or create a new presentation for the font changes to take effect. Therefore it is advisable to use ready-made plasmids for experiments. When you find a pleasing font/size you can use it for your own creations.

Bugs

There are some known bugs (which aren't corrected yet).

1. Bugs due to Windows Small/Large fonts -selection

Plasmid Processor was created in an environment with Small fonts. Large fonts are sometimes used with large resolution displays. Large fonts will probably cause some problems in the plasmid presentation. Gene and restriction site labels will not show up, because of the "too large" font. This bug can be avoided by selecting "Small Fonts" from Plasmid Processor Font Dialog. The Size should be something like 6. See also Fonts.

2. Vertical line in left side of the Gene label

Sometimes a broken vertical line appears in the left side of the gene label and it stays there even when you move the label. You can erase the line by moving an another label over it. When you remove the another label, the line is gone.

3. Printout messed up with network printers

When you are printing the second time, the printout might be messed up. If you encounter this bug, you can avoid it by restarting the program. In other words, print only once, then start again.

4. Slow printing

With some network printers the printing may seem to take ages... Our advice: patience.