May 2010

DIPSorter Freeware User Guide

For interpretation of results from the
Investigator DIPplex Kit

Software version 1.0.2

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Introduction

About this user guide

This user guide provides information about the functions and features of DIPSorter Freeware used in conjunction with the Investigator DIPplex Kit. Please refer to the *Investigator DIPplex Kit Handbook* for complete information about the Investigator DIPplex Kit.

This user guide describes the features of the software and associated tools and enables the user to manage and modify files and analyses.

This user guide provides information about DIPSorter Freeware in the following sections:

- Introduction
- Application
- Setup on the Analysis Computer
- DIPSorter Freeware
- Exporting Samples

Application

DIPSorter Freeware has been developed as a utility application for the Investigator DIPplex Kit. Its function is to re-sort genotype data of biallelic deletion or insertion markers — the so-called DIPs.

DIPSorter Freeware enables the import of Genotype Table text files exported from GeneMapper® ID, GeneMapper ID-X, or Genotyper® software and displays them as sorted genotype tables. Generated data can be printed and exported to *CSV and *PDF files.

Setup on the Analysis Computer

DIPSorter Freeware is a desktop application with a graphical user interface.

System requirements

DIPSorter Freeware is compatible with the following Windows® operating systems.

Windows 32 Bit

- Windows 2000 Professional/Server
- Windows Server 2003
- Windows XP Home/Professional
- Windows Vista®

Windows 64 Bit

- Windows Server 2003
- Windows XP
- Windows Vista

Minimum recommended system specifications:

- PC with Microsoft Windows 2000, XP, or Windows Vista
- 512 MB RAM or higher (we recommend using more than 512 MB RAM)
- Approximately 300 MB free hard disk storage unit (without database)
- Screen resolution of 1024 x 768 pixels

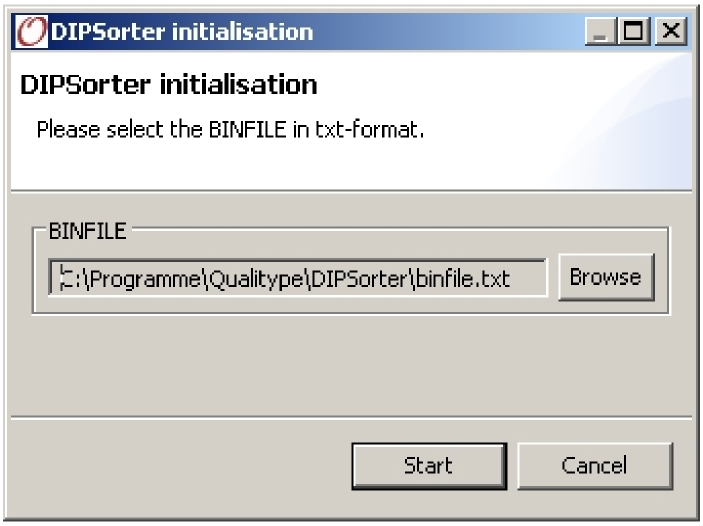
Installation and setup

1. **Download the DIPSorter Freeware from the QIAGEN Web site at www1.qiagen.com/Products/InvestigatorDIPplexKit.aspx. Alternatively, insert the software CD-ROM into your computer.**
2. **Start the operating system and close all active applications.**
3. **Start the setup application by double clicking the "DIPSorterSetup.exe" icon.**

   The setup program suggests a directory as a destination folder. It is possible to change the directory, but each directory should only contain one product. Do not install more than one version of DIPSorter Freeware in the same folder.
4. **Once installed, use the shortcut in the Windows start menu to start the application.**

The DIPSorter BINFILE

DIPSorter Freeware obtains information about all supported markers from analyzing a file included in the software distribution for the Investigator DIPplex Kit, called the DIPSorter BINFILE.



DIPSorter initialisation

DIPSorter initialisation

Please select the BINFILE in txt-format.

BINFILE: C:\Programme\Qualitype\DIPSorter\binfile.txt

Figure 1. DIPSorter Freeware initialization with selected BINFILE.

Another BINFILE can be selected in the initialization dialog. If you want to use the default BINFILE, simply press the start button.

DIPSorter Freeware

Figure 2 shows the application after startup. The "Sample View" window can be seen on the left side.

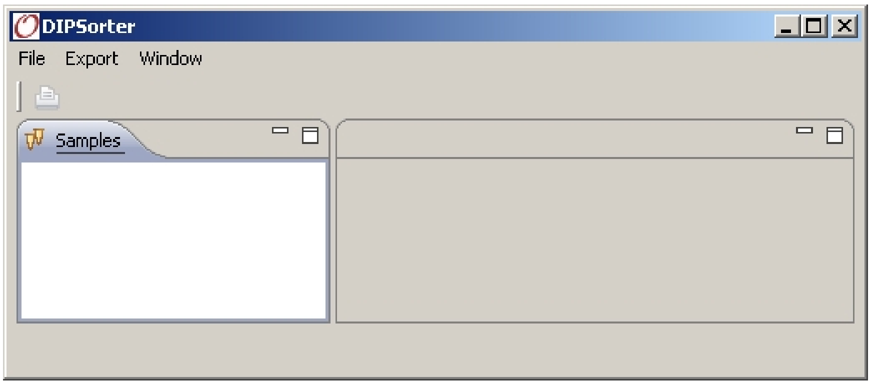


Figure 2. Application after startup, the Sample View.

Expected file formats

DIPSorter Freeware receives genotype data in a specific *txt format, also known as GeneMapper ID, GeneMapper ID-X, or Genotyper Export Table format. It consists of a header line, which is ignored by DIPSorter Freeware, and a list of lines, each defining alleles for a specific panel and a specific sample.

Four lines are generated per sample, one for each color panel. The panel dye order is given as blue, green, yellow, and red. The columns are solely delimited by a tabulator character (\t); field delimiters are not used. The order of columns is defined in Table 1 and Table 2.

Table 1. Export table from GeneMapper ID or GeneMapper ID-X software

Sample name	Marker	Dye	Allele 1	Allele 2	–	Allele 20	–

Table 2. Export table from Genotyper software

File name	Sample info	Category	Peak 1	Peak 2	–	Peak 20

Alleles for autosomal markers are defined as a string containing the name, directly followed by a ± sign. Double values are ignored (e.g., if there are two entries of D122–, the second one will be ignored). Gonosomal markers can be either X or Y.

If there are no peaks found within the allele ladder, the related value in the list of alleles will be set to OL (off ladder).

Note: To ensure the correct export format, use templates and table settings provided for the Investigator DIPplex Kit to analyze the samples with GeneMapper ID, GeneMapper ID-X, or Genotyper software. We recommend settings of “Table for 20 Alleles” for GeneMapper ID and GeneMapper ID-X and “Vertical Table for 20 Alleles” for Genotyper software.

Importing data

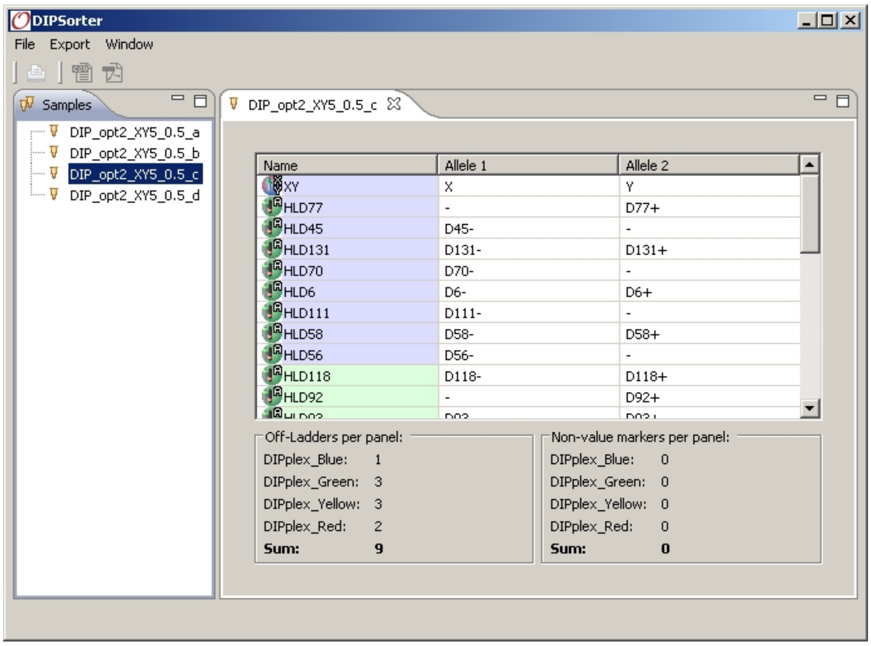
In order to import samples, use the “Import Sample file…” command in the “File” drop-down list. Select the desired file and click “Finish”. All samples included in the data file will be imported. They should now be visible in the “Sample View” window.

Note: The file type (GeneMapper ID, GeneMapper ID-X, or Genotyper) will be determined automatically. Import will be aborted if the file type cannot be detected.

DIPSorter Freeware cannot store the imported samples. Therefore, the “Sample View“ will be overwritten by importing a new sample file. Only the sorted genotype tables can be exported.

Viewing a genotype table

Double clicking a sample opens the “Sample Editor”. A sorted genotype table is presented for each sample. Heterozygote genotypes are displayed by two entries for allele 1 and allele 2, homozygote alleles are displayed by only one entry for either allele 1 or allele 2.



Name	Allele 1	Allele 2
XY	X	Y
HLD77	-	D77+
HLD45	D45-	-
HLD131	D131-	D131+
HLD70	D70-	-
HLD6	D6-	D6+
HLD111	D111-	-
HLD58	D58-	D58+
HLD56	D56-	-
HLD118	D118-	D118+
HLD92	-	D92+

Off-Ladders per panel:
DIPplex_Blue: 1
DIPplex_Green: 3
DIPplex_Yellow: 3
DIPplex_Red: 2
Sum: 9

Non-value markers per panel:
DIPplex_Blue: 0
DIPplex_Green: 0
DIPplex_Yellow: 0
DIPplex_Red: 0
Sum: 0

Figure 3. Genotype table.

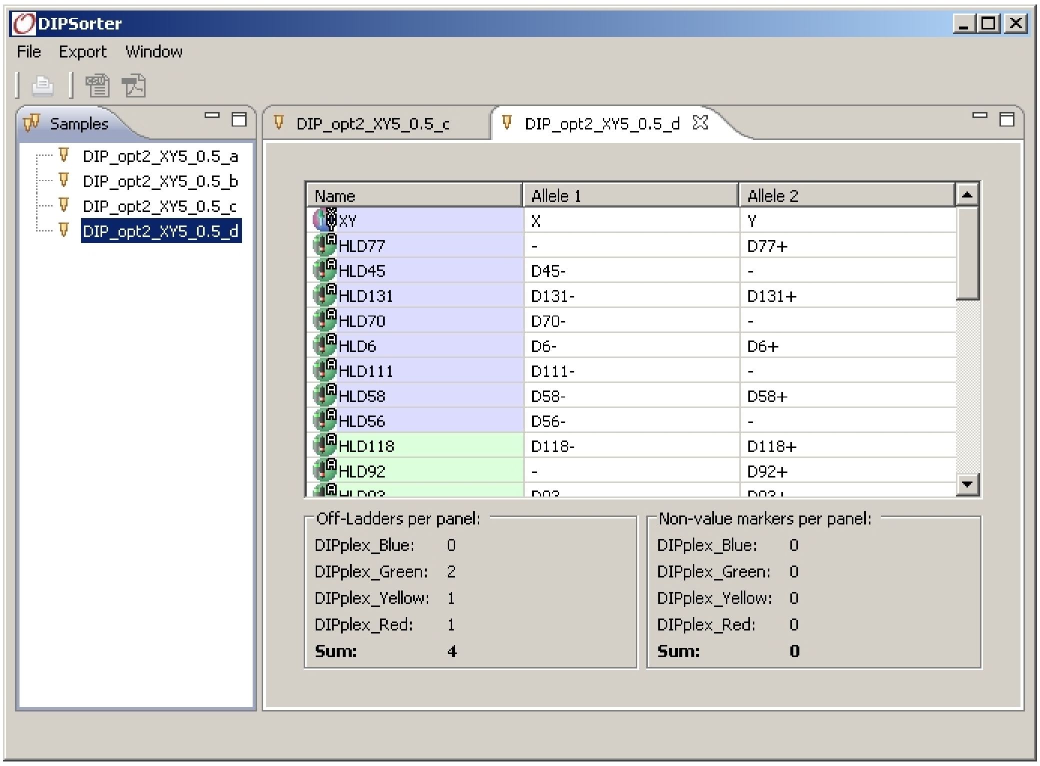
The number of off-ladder signals for each panel are counted and displayed in the summary, as well as the number of markers for which no alleles were found.

More than one sample can be opened by double clicking on another sample in the "Sample View" window.

Comparing samples

Two genotypes can be compared in DIPSorter Freeware by opening two samples and rearranging the editors.

First, open the two samples to be compared. Initially, they are displayed as two tabs (Figure 4).



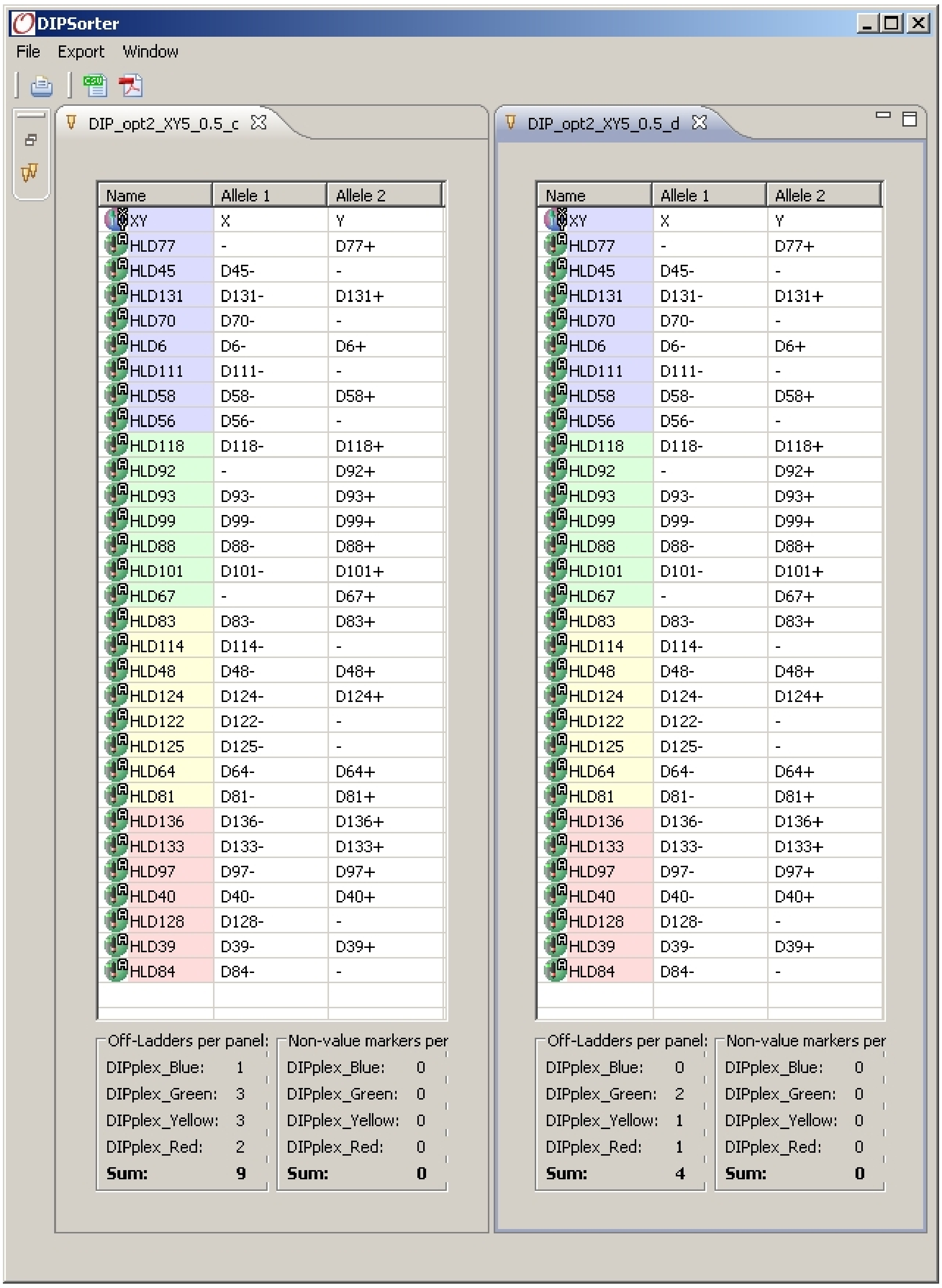
Name	Allele 1	Allele 2
XY	X	Y
HLD77	-	D77+
HLD45	D45-	-
HLD131	D131-	D131+
HLD70	D70-	-
HLD6	D6-	D6+
HLD111	D111-	-
HLD58	D58-	D58+
HLD56	D56-	-
HLD118	D118-	D118+
HLD92	-	D92+

Off-Ladders per panel:
DIPplex_Blue: 0
DIPplex_Green: 2
DIPplex_Yellow: 1
DIPplex_Red: 1
Sum: **4**

Non-value markers per panel:
DIPplex_Blue: 0
DIPplex_Green: 0
DIPplex_Yellow: 0
DIPplex_Red: 0
Sum: **0**

Figure 4. Comparing samples.

To view both samples at the same time, click on one tab, hold the left mouse button, and drag the tab to the right border of the application. Wait until the symbol turns into a black arrow pointing to the right and then release the button. The chosen sample editor is now placed to the right of the other open editor (Figure 5).



DIP_opt2_XY5_0.5_c

Name	Allele 1	Allele 2
XY	X	Y
HLD77	-	D77+
HLD45	D45-	-
HLD131	D131-	D131+
HLD70	D70-	-
HLD6	D6-	D6+
HLD111	D111-	-
HLD58	D58-	D58+
HLD56	D56-	-
HLD118	D118-	D118+
HLD92	-	D92+
HLD93	D93-	D93+
HLD99	D99-	D99+
HLD88	D88-	D88+
HLD101	D101-	D101+
HLD67	-	D67+
HLD83	D83-	D83+
HLD114	D114-	-
HLD48	D48-	D48+
HLD124	D124-	D124+
HLD122	D122-	-
HLD125	D125-	-
HLD64	D64-	D64+
HLD81	D81-	D81+
HLD136	D136-	D136+
HLD133	D133-	D133+
HLD97	D97-	D97+
HLD40	D40-	D40+
HLD128	D128-	-
HLD39	D39-	D39+
HLD84	D84-	-

Off-Ladders per panel:		Non-value markers per	
DIPplex_Blue:	1	DIPplex_Blue:	0
DIPplex_Green:	3	DIPplex_Green:	0
DIPplex_Yellow:	3	DIPplex_Yellow:	0
DIPplex_Red:	2	DIPplex_Red:	0
Sum:	**9**	**Sum:**	**0**

DIP_opt2_XY5_0.5_d

Name	Allele 1	Allele 2
XY	X	Y
HLD77	-	D77+
HLD45	D45-	-
HLD131	D131-	D131+
HLD70	D70-	-
HLD6	D6-	D6+
HLD111	D111-	-
HLD58	D58-	D58+
HLD56	D56-	-
HLD118	D118-	D118+
HLD92	-	D92+
HLD93	D93-	D93+
HLD99	D99-	D99+
HLD88	D88-	D88+
HLD101	D101-	D101+
HLD67	-	D67+
HLD83	D83-	D83+
HLD114	D114-	-
HLD48	D48-	D48+
HLD124	D124-	D124+
HLD122	D122-	-
HLD125	D125-	-
HLD64	D64-	D64+
HLD81	D81-	D81+
HLD136	D136-	D136+
HLD133	D133-	D133+
HLD97	D97-	D97+
HLD40	D40-	D40+
HLD128	D128-	-
HLD39	D39-	D39+
HLD84	D84-	-

Off-Ladders per panel:		Non-value markers per	
DIPplex_Blue:	0	DIPplex_Blue:	0
DIPplex_Green:	2	DIPplex_Green:	0
DIPplex_Yellow:	1	DIPplex_Yellow:	0
DIPplex_Red:	1	DIPplex_Red:	0
Sum:	**4**	**Sum:**	**0**

Figure 5. Two open sample editors for comparison.

Exporting Samples

DIPSorter Freeware provides two export file formats: *PDF and *CSV. Both formats offer the choice of exporting a single sample or a database containing all imported samples.

Exporting a single sample

To export a single sample, open the sample by clicking on it. Ensure that the sample of the chosen editor is currently being processed (note the color scheme of the tab). If in doubt, click on the editor's canvas to check. Choose one of the icons at the toolbar:

Click on this icon to export a sample to *CSV format.

Click on this icon to generate a PDF file.

After clicking on one icon, choose where to store the file.

Exporting all samples

Export all imported samples by choosing the "Export all samples to CSV…" or "Export all samples to PDF…" command in the "Export" menu.

Printing

To print the genotype table of a single sample, ensure that the sample of the chosen editor is currently being processed (note the color scheme of the tab). If in doubt, click on the editor's canvas to check. Click the printer icon in the toolbar. Send the genotype table to print by confirming the printer dialog for the operating system.

References

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Product	Contents	Cat. no.
Investigator Template Files (for Windows)	All template files for Investigator Human Identification PCR Kits for use with GeneMapper ID, Genotyper, and Genotyper software, as well as DIPSorter Freeware (CD-ROM)	389900
Related products		
Investigator DIPplex Kit (25)	Primer mix, reaction mix, DNA Polymerase, Control DNA, allelic ladder, DNA size standard, and nuclease-free water	384013
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