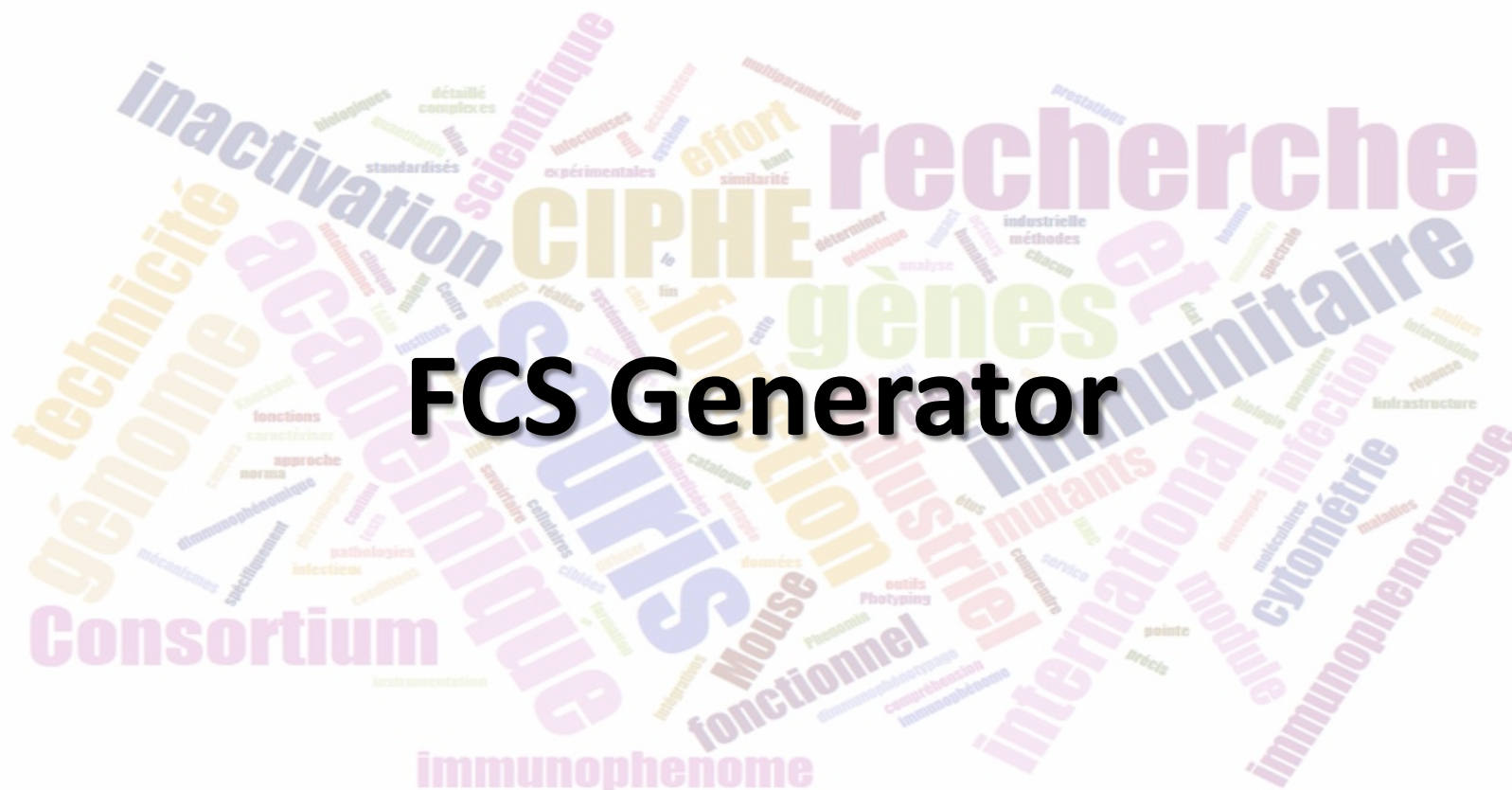
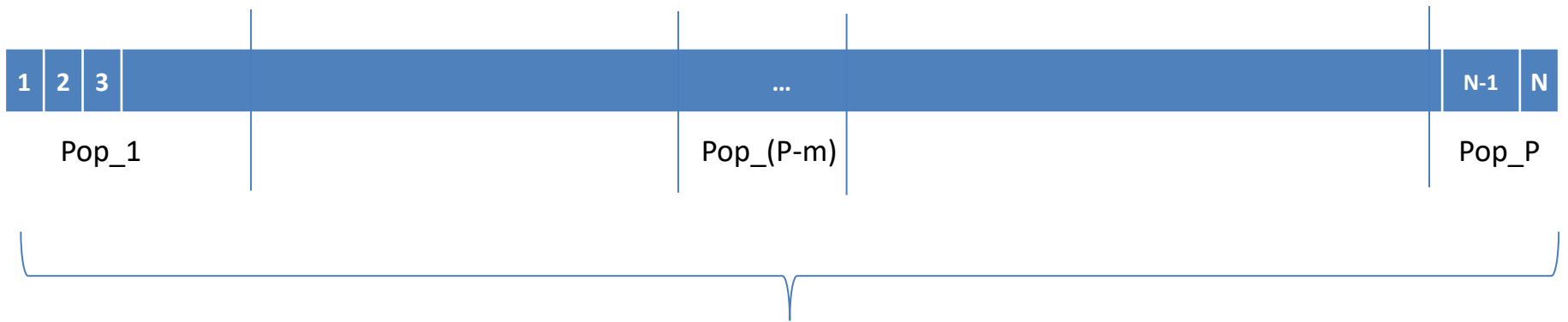


FCS Generator

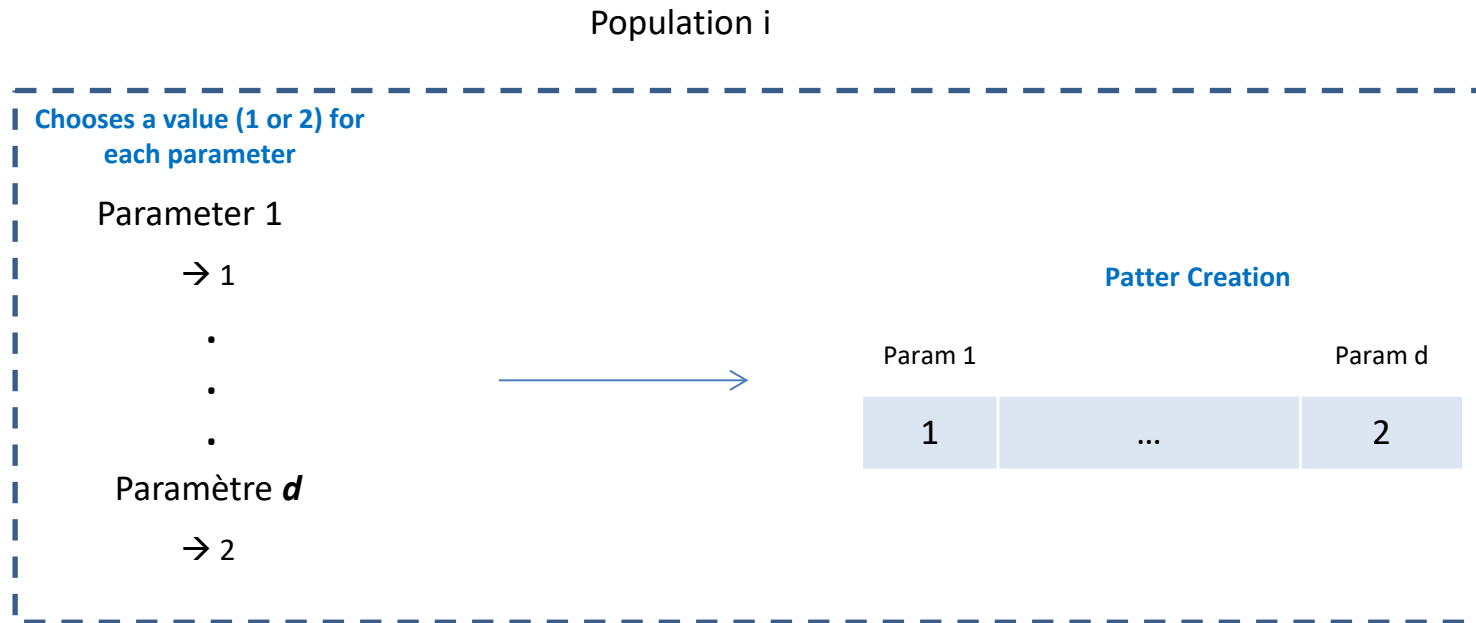


Generating a file containing N events and D parameters/markers, with P populations, among which m are rare



Events Ids list cut in $(P-m)$ lists with the same size and m shorter lists

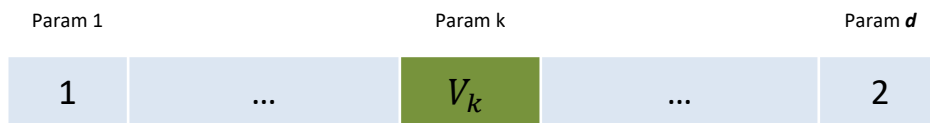
Creations of *patterns* giving a unique ID to each population:



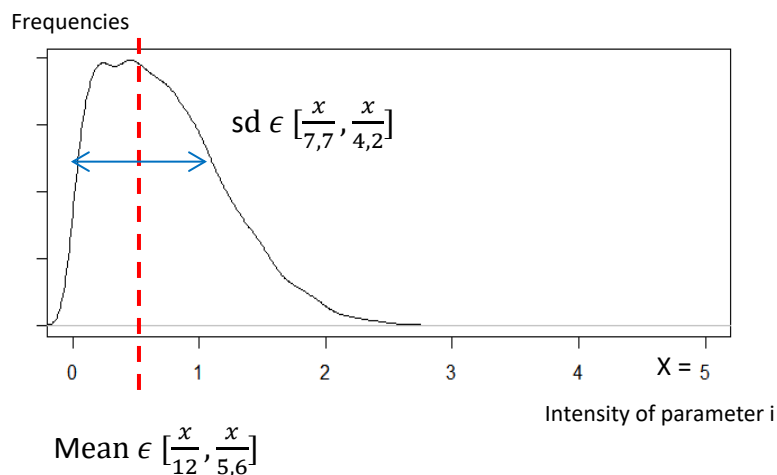
Unique pattern identifying population i →

1	...	2
---	-----	---

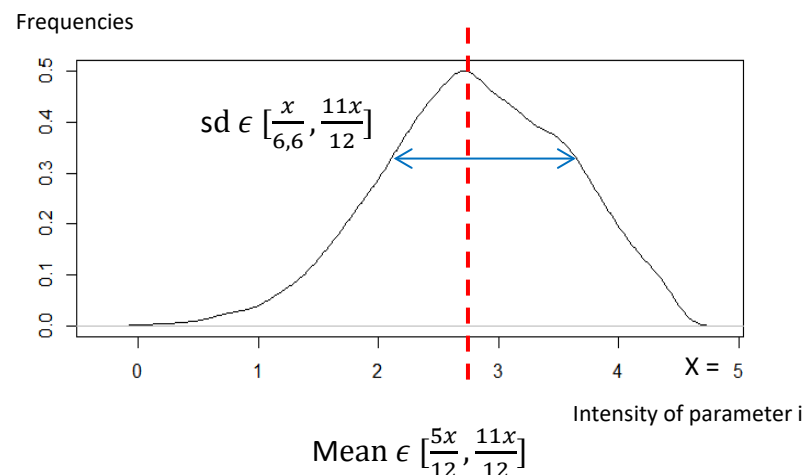
Patterns used to create **gaussians** determining the distribution of a population for each parameter



If $V_k = 1$



If $V_k = 2$



L points extracted from the gaussian and attributed to the events of the population

With L = number of events in the population

Matrix created and FCS file written

	Parameter 1	Parameter2	...	Parameter d	Population
Population 1	1,1				1
			⋮		
	1,8				1
Population 2	4,1				2
			⋮		
	3,7				2
Population P					
					P
			⋮		
					p

Generate Populations Automatically: number of populations as input

FCS Generator

☒ Transform Values

Save All

Set 1 Hide/Show Remove Save

Control Files Hide/Show Remove Save

CTRL_events-10000__pop-6__dim-4__file-1_1_ Save Remove Show parameters

Generate a file ▾ Mutants View Panel

Generate Populations Automatically

Number of events
10000

Number of parameters
4

Number of populations
6

Rare Populations Parameters

Number of rare populations
1

Min frequency
0

Max frequency
0.1

Number of control files
1

Variable parameters:

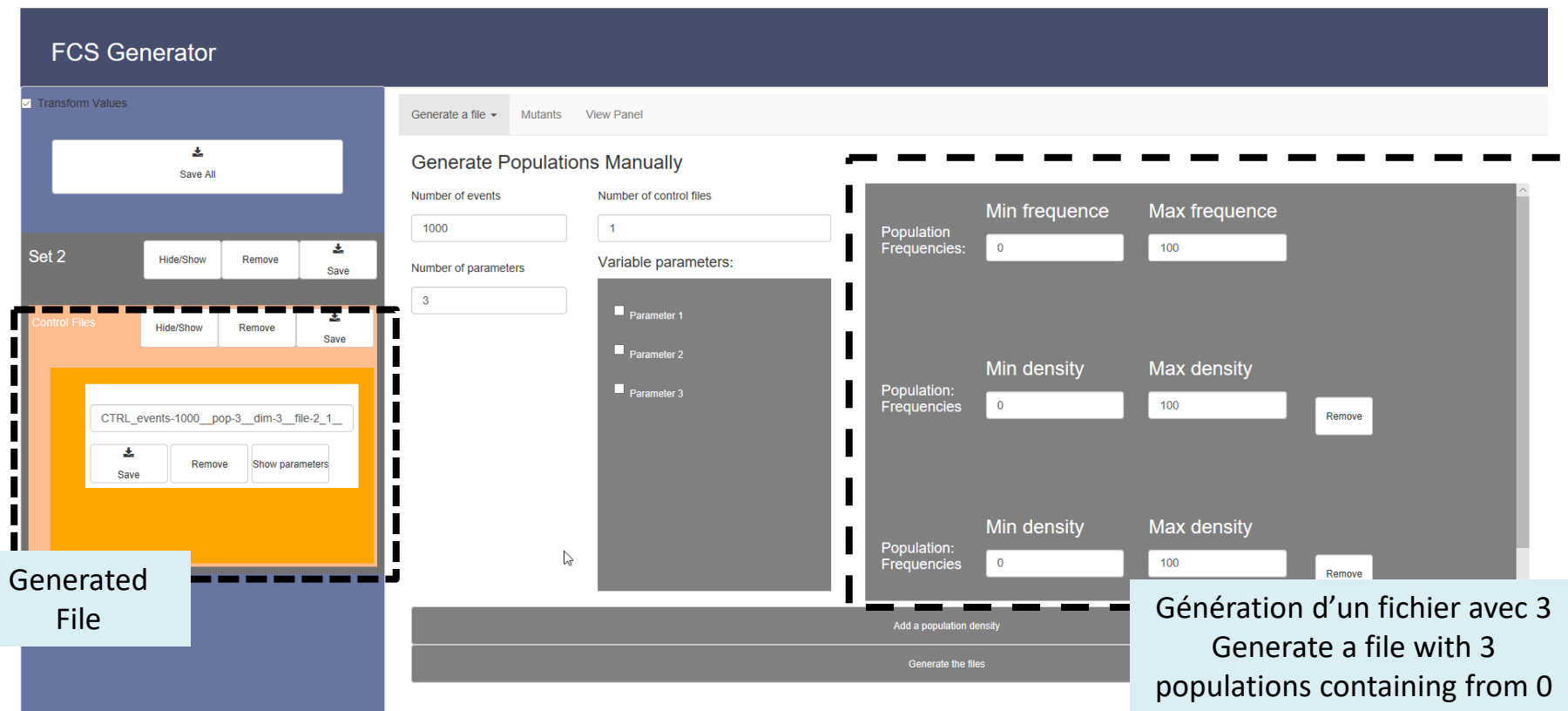
- ☐ Parameter 1
- ☐ Parameter 2
- ☐ Parameter 3
- ☐ Parameter 4

Generate the files

Generated File

Tool Parameters

Generate Populations Manually: The user adds the populations (rare or regular) and chooses their frequencies



FCS Generator

☒ Transform Values

Generate a file ▾ Mutants View Panel

Generate Populations Manually

Number of events:

Number of control files:

Number of parameters:

Variable parameters:

- ☐ Parameter 1
- ☐ Parameter 2
- ☐ Parameter 3

Generated File

Set 2:

Control Files:

CTRL_events-1000_pop-3_dim-3_file-2_1_

Population Frequencies:

	Min frequency	Max frequency
Population: Frequencies	<input type="text" value="0"/>	<input type="text" value="100"/>
	<input type="text" value="0"/>	<input type="text" value="100"/>
	<input type="text" value="0"/>	<input type="text" value="100"/>

!!Conditions!!
 $\text{Sum}(\text{min freq}) \leq 100$
 $\text{Sum}(\text{max freq}) \geq 100$

Génération d'un fichier avec 3
 Generate a file with 3
 populations containing from 0
 to 100% of the events of the
 file (reduced to 33% per file)

FCS Generator

Generate a file ▾

Mutants

View Panel

Generate Populations Automatically

Number of events

1000

Number of parameters

3

Number of populations

1

Rare Populations Parameters

Number of rare populations

0

Min frequency

0

Max frequency

10

Number of control files

7

Variable parameters:

☐ Parameter 1

☐ Parameter 2

☐ Parameter 3

Generate 7 identical files

NO BOX CHECKED

Generate the files

FCS Generator

Generate a file ▾ Mutants View Panel

Generate Populations Automatically

Number of events

1000

Number of parameters

3

Number of populations

1

Rare Populations Parameters

Number of rare populations

0

Min frequency

0

Max frequency

10

Number of control files

7

Variable parameters:

☒ Parameter 1

☐ Parameter 2

☒ Parameter 3

Generate 7 **similar** files


Values in parameters 1 and 3 are slightly different in each file (eg: 7 control files)

Generate the files


Generated Files
=
Control Files

FCS Generator


☒ Transform Values

 Save All


Set 1

Hide/Show
Remove
 Save

Control Files

Hide/Show
Remove
 Save

CTRL_events-1000__pop-1__dim-3__file-1_1

 Save
Remove
Show parameters

CTRL_events-1000__pop-1__dim-3__file-1_2

Generate a file ▾
Mutants
View Panel

Generate Populations Automatically

Number of events

1000

Number of parameters

3

Number of populations

1

Number of control files

7

Variable parameters:

☐ Parameter 1
☐ Parameter 2
☐ Parameter 3

Rare Populations Parameters

Number of rare populations

0

Min frequency

0

Max frequency

10

Generate the files

Mutants Generating Menu

FCS Generator

☒ Transform Values

Generate a file ▾

Mutants

View Panel

Save All

Set 1

Hide/Show

Remove

Save

Control Files

Hide/Show

Remove

Save

CTRL_events-1000__pop-1__dim-3__file-1_1

Save

Remove

Show parameters

CTRL_events-1000__pop-1__dim-3__file-1_2

Generate Populations Automatically

Number of events

1000

Number of parameters

3

Number of populations

1

Rare Populations Parameters

Number of rare populations

0

Min frequency

0

Max frequency

10

Number of control files

7

Variable parameters:

☐ Parameter 1
 ☐ Parameter 2
 ☐ Parameter 3

Generate the files

FCS Generator

☒ Transform Values

Save All

Set 1 Hide/Show Remove Save

Control Files Hide/Show Remove Save

CTRL_events-1000__pop-1__dim-3__file-1_1

Save Remove Show parameters

CTRL_events-1000__pop-1__dim-3__file-1_2

Generate a file ▾ Mutants View Panel

Create mutant files

Set of control Files To Use

Set 1 Refresh Load

Set 1

1000 events (100%)

Reduction in file 1

0

Reduction in file 2

0

Reduction in file 3

0

Reduction in file 4

0

Reduction in file 5

0

Reduction in file 6

Generate Mutants

Set selection: a set contains the control files we want to create the mutants from

Create mutant files

Set of control Files To Use

Set 1

Refresh

Load

List of the populations contained in the control files

How many events (in %) from the **considered population** should be distributed to the other populations of mutant file 1

Populations:

1000 events (100%)

Reduction in file 1

0

Reduction in file 2

0

Reduction in file 3

0

Reduction in file 4

0

Reduction in file 5

Generate Mutants

Mutants Generating Button

Mutant files
generated for
the control files
from Set 1

FCS Generator

Set 1

Hide/Show
Remove
Save

Control Files

Hide/Show
Remove
Save

CTRL_events-1000__pop-1__dim-3__file-1

Save
Remove

Show parameters

Mutant Files

Hide/Show
Remove
Save

MUT_events-1000__pop-1__dim-3__file-1

Save
Remove

Show parameters

Generate a file
Mutants
View Panel

Create mutant files

Set of control Files To Use

Set 1
Refresh
Load

Populations:

Generate Mutants

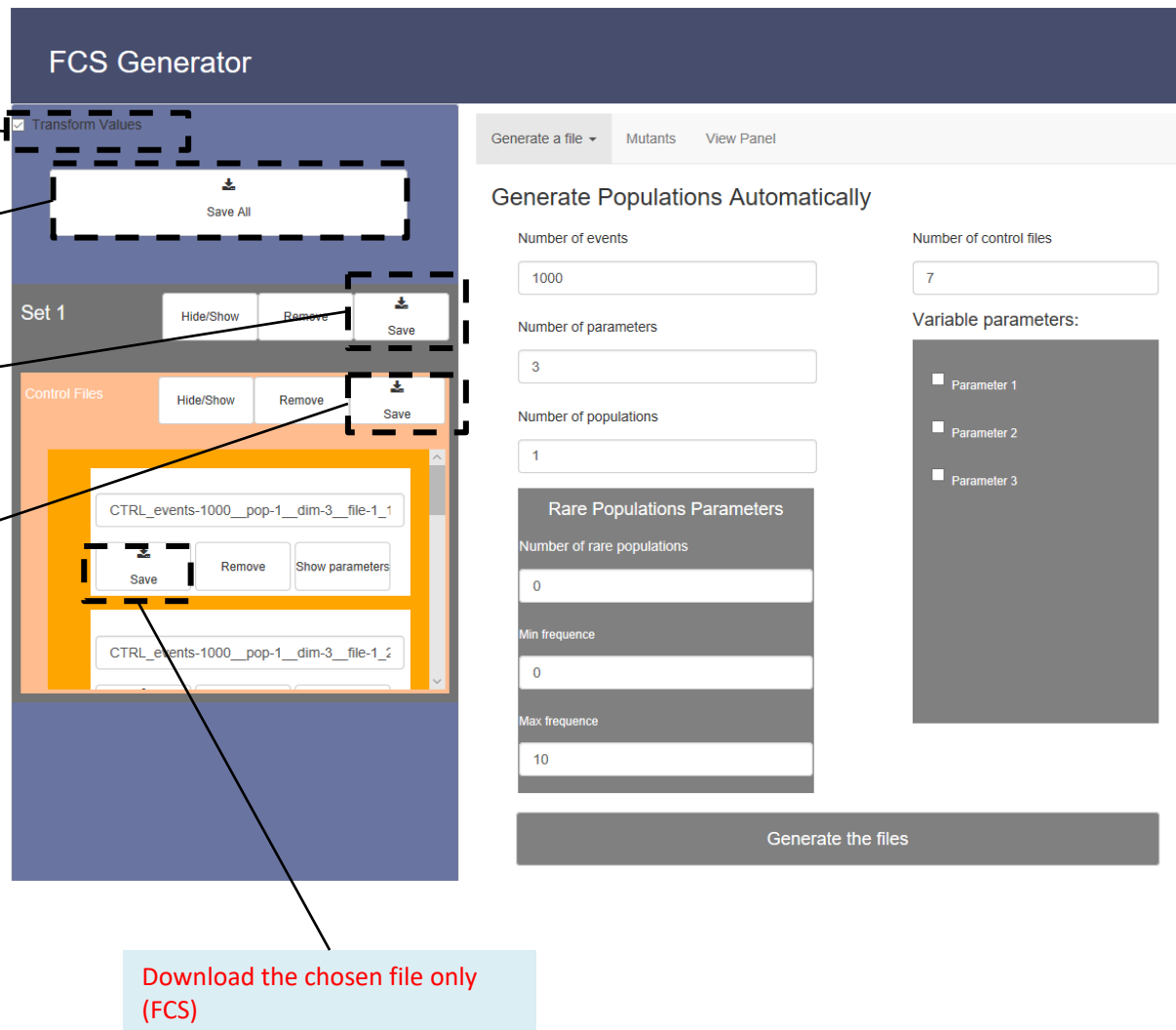


Raw or Transformed Data
(logicle transformation)

Download all files (zip)

Download Set 1 only (zip)

Download all control files from
Set 1 (zip)



The screenshot shows the FCS Generator interface. On the left, there are four callout boxes with arrows pointing to specific UI elements:

- Raw or Transformed Data (logicle transformation):** Points to the ☒ Transform Values checkbox.
- Download all files (zip):** Points to the Save All button.
- Download Set 1 only (zip):** Points to the Save button in the Set 1 section.
- Download all control files from Set 1 (zip):** Points to the Save button in the Control Files section.
- Download the chosen file only (FCS):** Points to the Save button in the file list.

The interface includes the following sections:

- FCS Generator Header:** Contains the title and navigation links: Generate a file, Mutants, View Panel.
- Generate Populations Automatically:** A section with input fields for:
 - Number of events: 1000
 - Number of parameters: 3
 - Number of populations: 1
 - Number of control files: 7
 - Variable parameters: Parameter 1, Parameter 2, Parameter 3 (all unchecked).
 - Rare Populations Parameters:
 - Number of rare populations: 0
 - Min frequency: 0
 - Max frequency: 10
 - Generate the files button.
- Set 1:** A section with buttons: Hide/Show, Remove, Save.
- Control Files:** A section with buttons: Hide/Show, Remove, Save.
- File List:** A list of files with columns for file name, Save, Remove, and Show parameters. The first file is CTRL_events-1000__pop-1__dim-3__file-1_1.