

# SAM User Guide

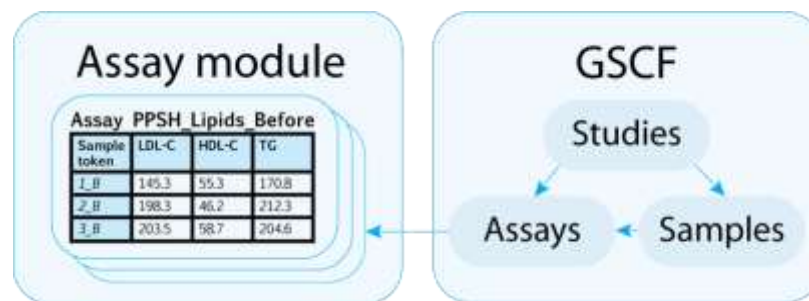
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This guide will help you walk through the Simple Assay Module (SAM), a module attached to the Generic Study Capture Framework (GSCF).

In this module it is easy to import bulk numerical data from e.g. Excel files. In general, it is used to store clinical data, such as Rules Based Medicine assays, but also physical measurements such as body weight of mice.



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## 1 GSCF – Studies, samples, assays

(See GSCF User Guide for more details.)

SAM makes use of sample information that is created in GSCF. Therefore, in GSCF you need to create a study, define study information, and create subjects and subject information. Then, by adding events and sampling events, together with subjects and subject groups, this will create samples. (E.g. a blood sampling event for 50 subjects, on every first day of the week during 5 weeks)

The last step in GSCF is to define assays. You can define which samples are analyzed in what type of assay. This will allow you, depending on the assay type, to attach measurements or data files to samples.

Example of different assay types from GSCF:

Show Study

Study Information	Subjects	Events timeline	Events table	Assays	Samples	Persons
Assay Name	Module	Link	Samples			
tissue_transcr	clean transcriptomics database	<a href="#">details</a>	1029-49_OrganSampling_2b_1w3d, 1029-49_OrganSampling_49_OrganSampling_2b_1w3d_2, 1031-50_OrganSampling_1031-50_OrganSampling_2b_1w3d_2, 1033-37_OrganSampling_1033-37_OrganSampling_2a_3d_2, 1034-38_OrganSampling_1034-38_OrganSampling_2a_3d_2 and 222 more			
blood_clin	simple assay module	<a href="#">details</a>	1029-49_Blood_2b_0sTailBlood, 1029-49_Blood_2b_1w, 1050_Blood_2b_1w, 1033-37_Blood_2a_0s, 1034-38_Blood_2105_Blood_2e_0sTailBlood, 1045-105_Blood_2e_12w, 1045105_Blood_2e_6wTailBlood, 1045-105_Blood_2e_9wTailBlood106_Blood_2e_12w, 1054-54_Blood_2b_1w and 218 more			
bloodLC	metabolomics	<a href="#">details</a>	1029-49_Blood_2b_0sTailBlood, 1029-49_Blood_2b_1w, 1050_Blood_2b_0sTailBlood, 1031-50_Blood_2b_1w, 1031-5037_Blood_2a_0s, 1033-37_Blood_2a_3dBloodSacrifice, 10338_Blood_2a_3dBloodSacrifice, 1035-39_Blood_2a_0s, 103105_Blood_2e_0sTailBlood and 282 more			

## 2 Features

### What is a feature?

A feature is a substance or indicator that is measured when a sample is taken. For example, glucose, leptin, CD40, bodyweight, urea.

### How can I create a feature manually?

</feature/create>

Go to *Browse > Features*. On top of the page, click *Create new feature*.

Enter a name (required) and click *Create* for a quick save.

Create a new feature

You will be able to add additional detail to this feature by choosing the 'Create and edit' option.

Name

☒ Create ☐ Create and edit

If you want to add a unit (optional), click *Create and edit*.

Create a new feature

You will be able to add additional detail to this feature by choosing the 'Create and edit' option.

Name

☐ Create ☒ Create and edit

In this screen you can also define a template (optional). This will allow you to add additional fields for this feature, or a group of features. E.g. to indicate a supplier of clinical chemistry data, by which features can also be grouped.

## How can I import a list of features?

</feature/importData>

Go to *Import* > *Features*. This will start the feature importer.

1. **Locate and upload your Excel file** with feature names and units:

	A	B
1	Feature name	Unit
2	Alpha-1 Antitrypsin	mg/mL
3	Adiponectin	ug/mL
4	Alpha-2 Macroglobulin	mg/mL
5	Alpha-Fetoprotein	ng/mL











2. **Match your columns** with name and unit.
3. **Check your input**, and make changes were needed.
4. **Save** your features.

## Where can I see and edit my uploaded features?

</feature/list>

Go to *Browse* > *Features* and click the pencil (on the right) to edit a certain feature.

### Feature list

Search: <input type="text"/>				
<input type="checkbox"/>	Name	Unit	Groups	
<input type="checkbox"/>	3-hydroxybutyrate	mmol/l		 
<input type="checkbox"/>	AST	U/l		 
<input type="checkbox"/>	Adiponectin (0.20)	ug/mL		 
<input type="checkbox"/>	Alpha-1 Antitrypsin			 
<input type="checkbox"/>	Alpha-1 Antitrypsin (0.011)	mg/mL		 

## 3 Measurements

### What is a measurement?

A measurement is a single value that belongs to a sample. For example, glucose level is measured for a sample.

### How can I import measurements?

[/measurement/importData](#)

Start the measurement importer by clicking, Import > Measurements.

Important: to attach measurements to samples you need to have an assay with samples (see 1 GSCF – Studies and Samples).

1. **Choose the assay** for which you want to upload measurements.

Note: if your assay is not in the list, please check your assay and samples in GSCF, because only assays that contain samples for SAM are listed here

2. **Locate and upload your Excel file** with measurements (see screenshot for an example)

3. **Choose your layout:**

Sample layout has multiple features per *sample*.

See example:

	A	B	C	D	E
1	Parameter	Na+ (mmol/l)	K+ (mmol/l)	tCO2 (mmol/l)	Cl- (mmol/l)
2	1B1	139	4.5	26	103
3	1B2	136	4.3	28	103
4	1B3	139	4.6	27	106
5	1B4	137	4.6	26	104
6	1F	133	4.5	29	98
7	2B1	137	3.9	27	101
8	2B2	139	3.9	25	100
9	2B3	135	4	26	101
10	2B4	138	4.2	25	103
11	2F	133	3.8	23	97

Subject layout contains measurements for multiple time points, and only 1 or a few features.

See example:

	A	B	C	D
1		glucose (mmol/l)	glucose (mmol/l)	glucose (mmol/l)
2	mu	t=0 wk	t=4,5 wk	t=8 wk
3	200	12.34	12.95	12.22
4	201	11.66	12.38	14.53
5	202	3.06	10.17	10.25
6	203	10.51	10.40	11.54
7	204	7.87	10.13	10.21
8	205	9.87	9.98	9.41
9	206	6.64	6.79	5.67
10	207	10.97	11.81	10.82
11	208		12.87	14.04
12	209	2.58	12.85	8.26

4. **Match your columns** with features (and time points). Click on *Add new feature* if you want to add more features.

**Match your rows** with subjects or sample names.

1. Choose Assay   2. Upload   3. Select Layout   **4. Select Columns**   5. Check

You have chosen the subject layout. On this page, we have tried to match your data with our default choice.

	fibrinogen (mg/ml) Fibrinogen (0.0098)	fibrinogen (mg/ml) Fibrinogen (0.0098)
	t=5 wk 5w	t=10 wk 10w
10 Subject 10	1.73	[Discard] 10w 5w 20w 15w
11 Subject 11	2.76	
12 Subject 12	1.58	2.03
13 Subject 13	2.49	2.33
14	2	2.49

5. **Check your input.**

In this step you can click on each cell of the measurements if you want to make any adjustments.

Note: if cells contained text instead of numerical data, this data is stored as a comment.

Cells become editable after click:

	Fibrinogen (0.0098) 5w	Fibrinogen (0.0098) 10w	Fibrinogen (0.0098) 15w	Fibrinogen (0.0098) 20w
Subject 10	1.73	2.42	0.23	1.87
Subject 11	2.76	2.12	1.13	1.42
Subject 12	1.58	1.80		
Subject 13	2.49	2.33		
Subject 14	2	2.49		
Subject 15	1.19	1.98		
Subject 16	2.11	1.03		
Subject 17	2.81	1.59		

**Edit cell contents**

Enter the measurement value (a number) here.  
2.22

Enter the operator (< or >) here.

Enter any comments here.

Confirm these changes

6. **Save** your measurements.

## How can I view my uploaded measurements?

Click Browse > Assays and click on the magnifying glass on the right, to view a certain assay with measurements.

## Can I edit a single measurement?

[/measurement/list](#)





















Yes. Click Browse > Measurements.

Here you can see a list of all measurements in your assays. This table can be *sorted* by assay, sample, feature and value. There is also a direct *search bar* on the top right.

Click the pencil on the right to edit a certain measurement.

Measurement list

Search:

Assay	Sample	Feature	Value	Operator	Comments	
clinical chemistry	Subject10_Blood_Group1_10wBlood	Alpha-1 Antitrypsin (0.011)	1.6			 
clinical chemistry	Subject10_Blood_Group1_10wBlood	Adiponectin (0.20)	1.4			 
clinical chemistry	Subject10_Blood_Group1_10wBlood	Alpha-2 Macroglobulin (0.061)	0.16			 
clinical chemistry	Subject10_Blood_Group1_10wBlood	Alpha-Fetoprotein (0.43)	1.4			 
clinical chemistry	Subject10_Blood_Group1_10wBlood	Apolipoprotein A1 (0.0066)	0.25			 
clinical chemistry	Subject11_Blood_Group1_10wBlood	Alpha-1 Antitrypsin (0.011)	1.5			 
clinical chemistry	Subject11_Blood_Group1_10wBlood	Adiponectin (0.20)	2.9			 
clinical chemistry	Subject11_Blood_Group1_10wBlood	Alpha-2 Macroglobulin (0.061)	0.13			 
clinical chemistry	Subject11_Blood_Group1_10wBlood	Alpha-Fetoprotein (0.43)	2.5			 
clinical chemistry	Subject11_Blood_Group1_10wBlood	Apolipoprotein A1 (0.0066)	0.24			 

Showing 1 to 10 of 608 entries

First Previous 1 2 3 4 5 Next Last

## Can I delete measurements?

Yes, you can delete all measurements from an assay: Click Browse > Assays and click on the magnifying glass on the right. In this screen you can see all your measurements for this assay.

At the bottom, click on *Delete all measurements*.