Duke Central Immunology Laboratory
October 2008

User Guide
to the Luminescence Macro

The purpose of this user guide is to provide easy instructions on how to use the luminescence macro for data analysis in the TZM-bl neutralizing antibody assay.

I. Introduction

Overview

The luminescence macro is a series of commands and functions embedded in an Excel workbook that can automate a repetitive task for rapid data reduction.

Once the macro is properly installed, it can be initiated whenever the task needs to be performed.

The luminescence macro can:

- ***Calculate the percent neutralization for each serum dilution.***
- ***Calculate the neutralizing antibody titer.***
- ***Create a chart that plots neutralization curves for each sample.***

Download Source

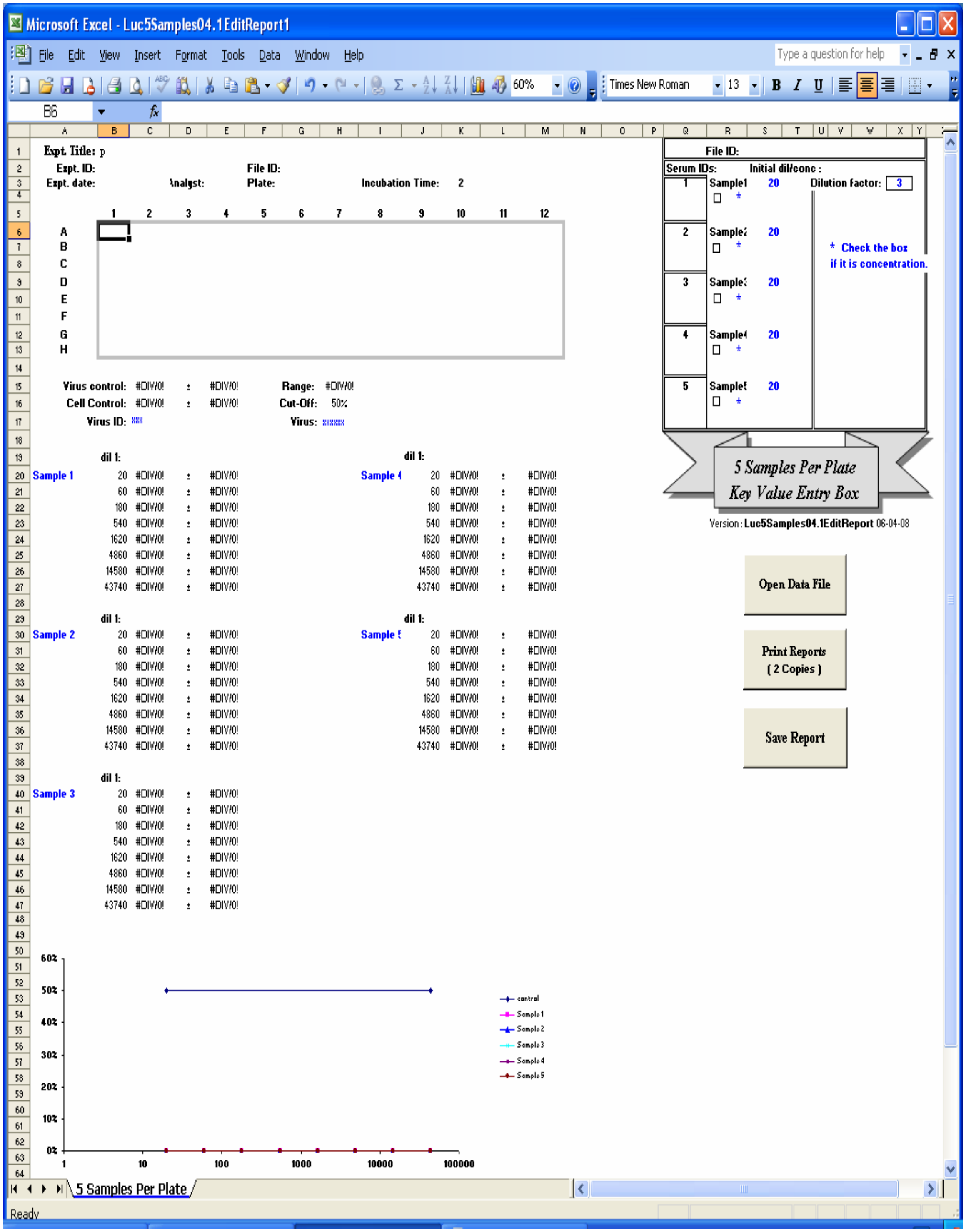
The luminescence macro can be downloaded from the following website:
http://www.hiv.lanl.gov/content/nab-reference-strains/html/home.htm

The full name of this macro program file is: **Luc5samples04xxx.xlt.**

- **Luc** is short for ***Luciferase assay***
- **5** refers to ***5 samples per plate***
- **04xxx** is ***the macro version number (Current version is Luc5samples04.vEditReport***

Features

Below is the screenshot of a blank macro file after opening the macro.


Microsoft Excel - Luc5Samples04.1EditReport1
File
Edit
View
Insert
Format
Tools
Data
Window
Help
Type a question for help
60%
Times New Roman
13
B6
5 Samples Per Plate
Ready
Open Data File
Print Reports (2 Copies)
Save Report
60%
50%
40%
30%
20%
10%
0%
1
10
100
1000
10000
100000
control
Sample 1
Sample 2
Sample 3
Sample 4
Sample 5

Expt. Title: p
Expt. ID:
File ID:
Expt. date:
Analyst:
Plate:
Incubation Time: 2

	1	2	3	4	5	6	7	8	9	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

Virus control: #DIV/0! ± #DIV/0!
Range: #DIV/0!
Cell Control: #DIV/0! ± #DIV/0!
Cut-Off: 50%
Virus ID: ###
Virus: ######

	dil 1:			
Sample 1	20	#DIV/0!	±	#DIV/0!
	60	#DIV/0!	±	#DIV/0!
	180	#DIV/0!	±	#DIV/0!
	540	#DIV/0!	±	#DIV/0!
	1620	#DIV/0!	±	#DIV/0!
	4860	#DIV/0!	±	#DIV/0!
	14580	#DIV/0!	±	#DIV/0!
	43740	#DIV/0!	±	#DIV/0!

	dil 1:			
Sample 4	20	#DIV/0!	±	#DIV/0!
	60	#DIV/0!	±	#DIV/0!
	180	#DIV/0!	±	#DIV/0!
	540	#DIV/0!	±	#DIV/0!
	1620	#DIV/0!	±	#DIV/0!
	4860	#DIV/0!	±	#DIV/0!
	14580	#DIV/0!	±	#DIV/0!
	43740	#DIV/0!	±	#DIV/0!

	dil 1:			
Sample 2	20	#DIV/0!	±	#DIV/0!
	60	#DIV/0!	±	#DIV/0!
	180	#DIV/0!	±	#DIV/0!
	540	#DIV/0!	±	#DIV/0!
	1620	#DIV/0!	±	#DIV/0!
	4860	#DIV/0!	±	#DIV/0!
	14580	#DIV/0!	±	#DIV/0!
	43740	#DIV/0!	±	#DIV/0!

	dil 1:			
Sample 5	20	#DIV/0!	±	#DIV/0!
	60	#DIV/0!	±	#DIV/0!
	180	#DIV/0!	±	#DIV/0!
	540	#DIV/0!	±	#DIV/0!
	1620	#DIV/0!	±	#DIV/0!
	4860	#DIV/0!	±	#DIV/0!
	14580	#DIV/0!	±	#DIV/0!
	43740	#DIV/0!	±	#DIV/0!

	dil 1:			
Sample 3	20	#DIV/0!	±	#DIV/0!
	60	#DIV/0!	±	#DIV/0!
	180	#DIV/0!	±	#DIV/0!
	540	#DIV/0!	±	#DIV/0!
	1620	#DIV/0!	±	#DIV/0!
	4860	#DIV/0!	±	#DIV/0!
	14580	#DIV/0!	±	#DIV/0!
	43740	#DIV/0!	±	#DIV/0!

File ID:

Serum IDs:		Initial dil/conc :
1	Sample1 ☐ *	20
2	Sample2 ☐ *	20
3	Sample3 ☐ *	20
4	Sample4 ☐ *	20
5	Sample5 ☐ *	20

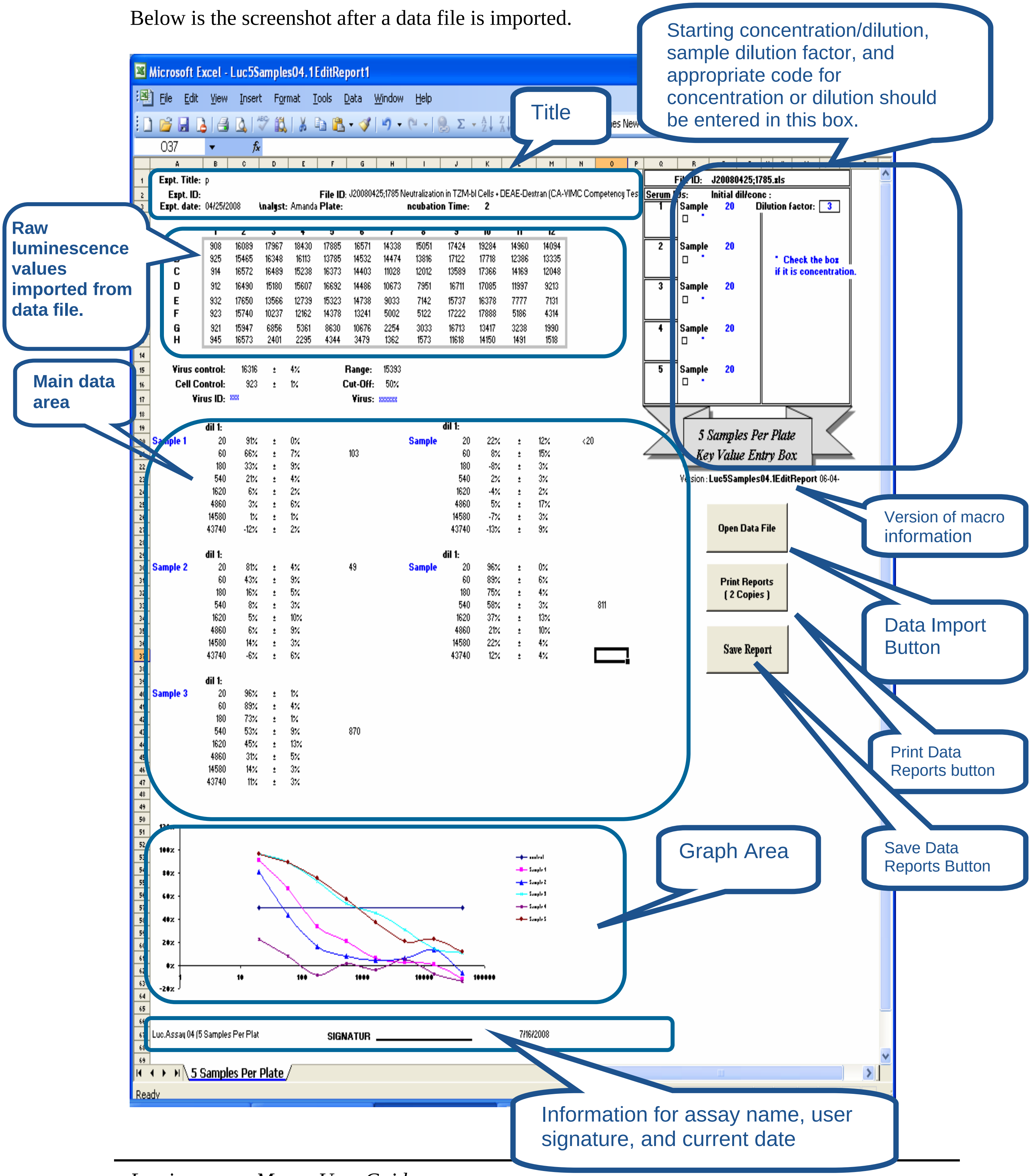
Dilution factor: 3

* Check the box if it is concentration.

5 Samples Per Plate
Key Value Entry Box

Version : **Luc5Samples04.1EditReport** 06-04-08

Below is the screenshot after a data file is imported.



Microsoft Excel - Luc5Samples04.1EditReport1

Expt. Title: p
Expt. ID:
File ID: J20080425;1785 Neutralization in TZM-bl Cells + DEAE-Dextran (CA-VIMC Competency Tes
Expt. date: 04/25/2008
Analyst: Amanda
Plate:
Incubation Time: 2

	1	2	3	4	5	6	7	8	9	10	11	12
	908	16089	17967	18430	17885	16571	14338	15051	17424	19284	14960	14094
	925	15465	16348	16113	13785	14532	14474	13816	17122	17718	12386	13335
C	914	16572	16489	15238	16373	14403	11028	12012	13589	17366	14169	12048
D	912	16490	15180	15607	16692	14486	10673	7951	16711	17085	11997	9213
E	932	17650	13566	12739	15323	14738	9033	7142	15737	16378	7777	7131
F	923	15740	10237	12162	14378	13241	5002	5122	17222	17888	5186	4314
G	921	15947	6856	5361	8630	10676	2254	3033	16713	13417	3238	1990
H	945	16573	2401	2295	4344	3479	1362	1573	11618	14150	1491	1518

Virus control: 16316 ± 4%
Cell Control: 923 ± 1%
Virus ID: XXX
Range: 15393
Cut-Off: 50%
Virus: XXXXXX

	dil 1:							dil 1:					
Sample 1	20	91%	±	0%		Sample	20	22%	±	12%	<20
	60	66%	±	7%	103		60	8%	±	15%	
	180	33%	±	9%			180	-8%	±	3%	
	540	21%	±	4%			540	2%	±	3%	
	1620	6%	±	2%			1620	-4%	±	2%	
	4860	3%	±	6%			4860	5%	±	17%	
	14580	1%	±	1%			14580	-7%	±	3%	
	43740	-12%	±	2%			43740	-13%	±	9%	

	dil 1:						dil 1:				
Sample 2	20	81%	±	4%	49	Sample	20	96%	±	0%	
	60	43%	±	9%			60	89%	±	6%	
	180	16%	±	5%			180	75%	±	4%	
	540	8%	±	3%			540	58%	±	3%	811
	1620	5%	±	10%			1620	37%	±	13%	
	4860	6%	±	9%			4860	21%	±	10%	
	14580	14%	±	3%			14580	22%	±	4%	
	43740	-6%	±	6%			43740	12%	±	4%	

	dil 1:				
Sample 3	20	96%	±	1%	
	60	89%	±	4%	
	180	73%	±	1%	
	540	53%	±	9%	870
	1620	45%	±	13%	
	4860	31%	±	5%	
	14580	14%	±	3%	
	43740	11%	±	3%	

File ID: J20080425;1785.xls
Serum IDs: Initial dil/conc :

1	Sample ☐	20	Dilution factor: 3
2	Sample ☐	20	* Check the box if it is concentration.
3	Sample ☐	20	
4	Sample ☐	20	
5	Sample ☐	20	

5 Samples Per Plate
Key Value Entry Box

Version: Luc5Samples04.1EditReport 06-04-

Luc.Assay 04 (5 Samples Per Plat
SIGNATUR ______________
7/16/2008

File
Edit
View
Insert
Format
Tools
Data
Window
Help
O37
fx
A B C D E F G H I J K L M N O P Q R
Open Data File
Print Reports (2 Copies)
Save Report
100%
80%
60%
40%
20%
0%
-20%
1
10
100
1000
10000
100000
control
Sample 1
Sample 2
Sample 3
Sample 4
Sample 5
5 Samples Per Plate
Ready

Starting concentration/dilution, sample dilution factor, and appropriate code for concentration or dilution should be entered in this box.

Title

Raw luminescence values imported from data file.

Main data area

Version of macro information

Data Import Button

Print Data Reports button

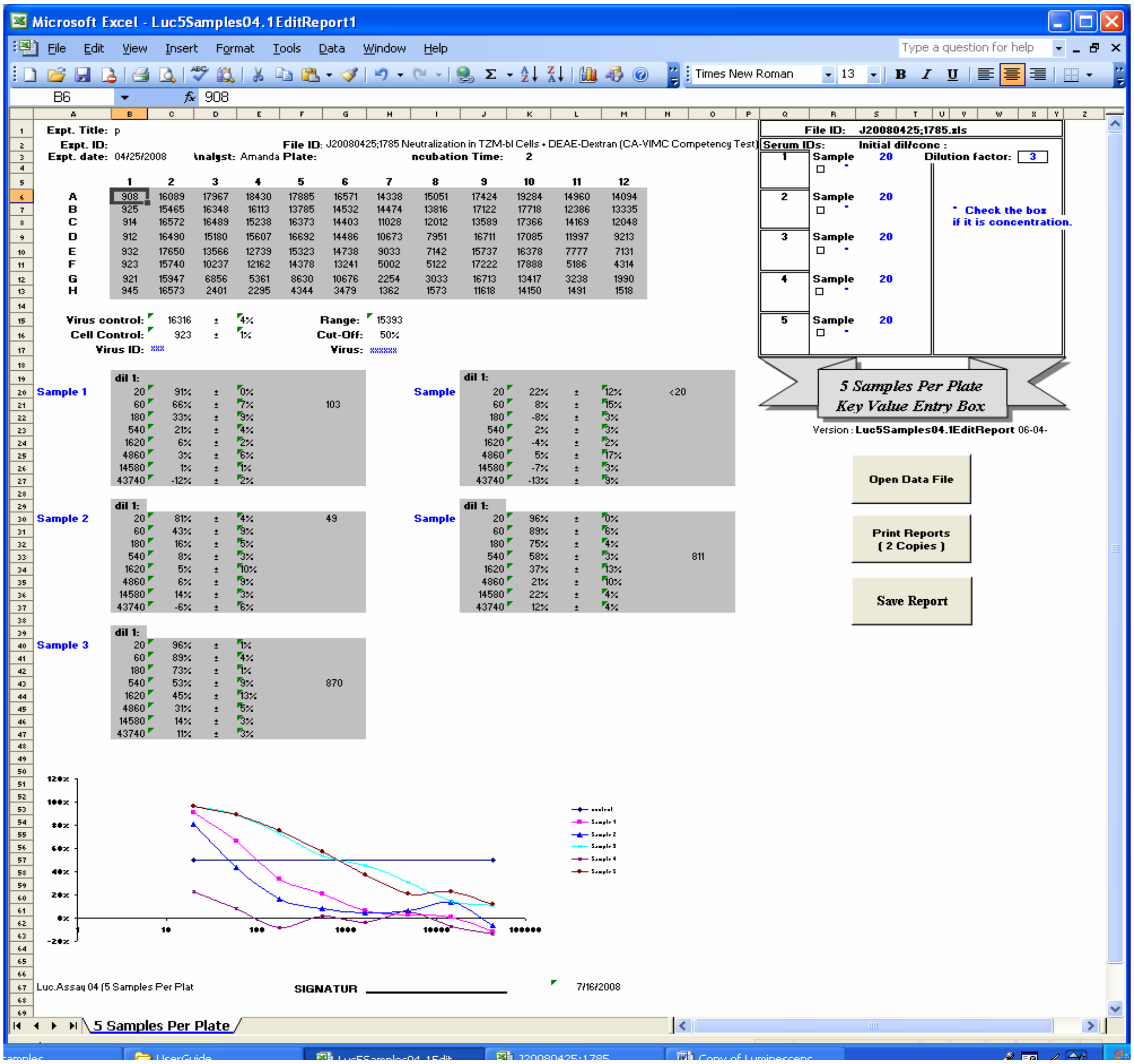
Save Data Reports Button

Graph Area

Information for assay name, user signature, and current date

Security Feature

In order to protect the worksheet from accidental changes, information in the shaded areas (see picture below) are locked via password protection.


Microsoft Excel - Luc5Samples04.1EditReport1
File
Edit
View
Insert
Format
Tools
Data
Window
Help
Type a question for help
Times New Roman
13
B6
Open Data File
Print Reports (2 Copies)
Save Report
5 Samples Per Plate
120%
100%
80%
60%
40%
20%
0%
-20%
1
10
100
1000
10000
100000
control
Sample 1
Sample 2
Sample 3
Sample 4
Sample 5

B6 908

Expt. Title: p
Expt. ID:
File ID: J20080425;1785 Neutralization in TZM-bl Cells + DEAE-Dextran (CA-VIMC Competency Test)
Expt. date: 04/25/2008 **\nalyst:** Amanda **Plate:** **ncubation Time:** 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	908	16089	17967	18430	17885	16571	14338	15051	17424	19284	14960	14094
B	925	15465	16348	16113	13785	14532	14474	13816	17122	17718	12386	13335
C	914	16572	16489	15238	16373	14403	11028	12012	13589	17366	14169	12048
D	912	16490	15180	15607	16692	14486	10673	7951	16711	17085	11997	9213
E	932	17650	13566	12739	15323	14738	9033	7142	15737	16378	7777	7131
F	923	15740	10237	12162	14378	13241	5002	5122	17222	17888	5186	4314
G	921	15947	6856	5361	8630	10676	2254	3033	16713	13417	3238	1990
H	945	16573	2401	2295	4344	3479	1362	1573	11618	14150	1491	1518

Virus control: 16316 ± 4% **Range:** 15393
Cell Control: 923 ± 1% **Cut-Off:** 50%
Virus ID: xxx **Virus:** xxxxxx

Sample 1

dil 1:				
20	91%	±	0%	
60	66%	±	7%	103
180	33%	±	9%	
540	21%	±	4%	
1620	6%	±	2%	
4860	3%	±	6%	
14580	1%	±	1%	
43740	-12%	±	2%	

Sample

dil 1:				
20	22%	±	12%	<20
60	8%	±	15%	
180	-8%	±	3%	
540	2%	±	3%	
1620	-4%	±	2%	
4860	5%	±	17%	
14580	-7%	±	3%	
43740	-13%	±	9%	

Sample 2

dil 1:				
20	81%	±	4%	49
60	43%	±	9%	
180	16%	±	5%	
540	8%	±	3%	
1620	5%	±	10%	
4860	6%	±	9%	
14580	14%	±	3%	
43740	-6%	±	6%	

Sample

dil 1:				
20	96%	±	0%	
60	89%	±	6%	
180	75%	±	4%	
540	58%	±	3%	811
1620	37%	±	13%	
4860	21%	±	10%	
14580	22%	±	4%	
43740	12%	±	4%	

Sample 3

dil 1:				
20	96%	±	1%	
60	89%	±	4%	
180	73%	±	1%	
540	53%	±	9%	870
1620	45%	±	13%	
4860	31%	±	5%	
14580	14%	±	3%	
43740	11%	±	3%	

File ID: J20080425;1785.xls
Serum IDs: **Initial dil/conc :** **Dilution factor:** 3

1 Sample ☐ 20
2 Sample ☐ 20
3 Sample ☐ 20
4 Sample ☐ 20
5 Sample ☐ 20

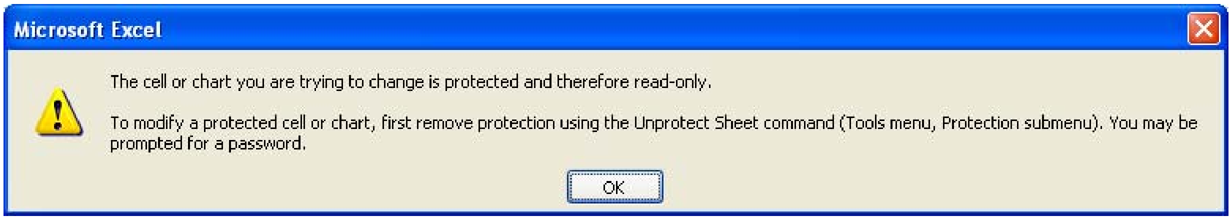
* Check the box if it is concentration.

5 Samples Per Plate Key Value Entry Box

Version : **Luc5Samples04.1EditReport** 06-04-

Luc.Assay 04 (5 Samples Per Plat **SIGNATUR** ________ 7/16/2008

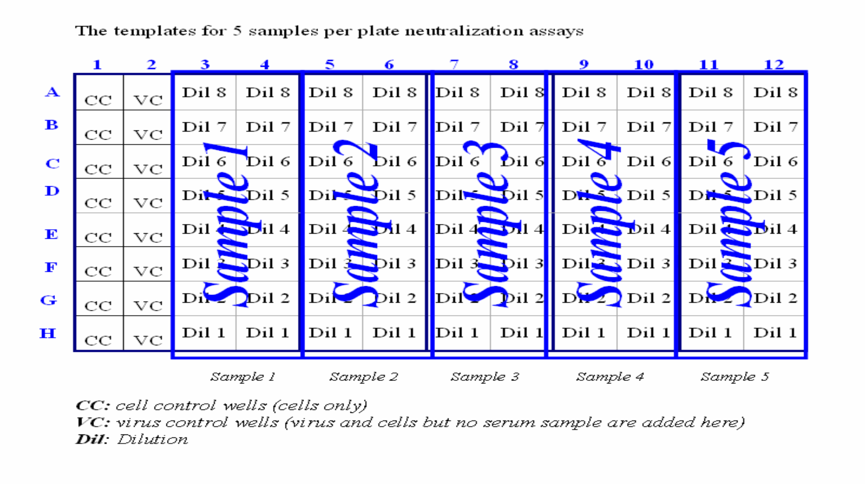
A warning dialog box (see below) will appear with each attempt to enter information in a restricted cell (shown as a shades section above).


Microsoft Excel
OK

The cell or chart you are trying to change is protected and therefore read-only.

To modify a protected cell or chart, first remove protection using the Unprotect Sheet command (Tools menu, Protection submenu). You may be prompted for a password.

Template of 5 Samples per Plate



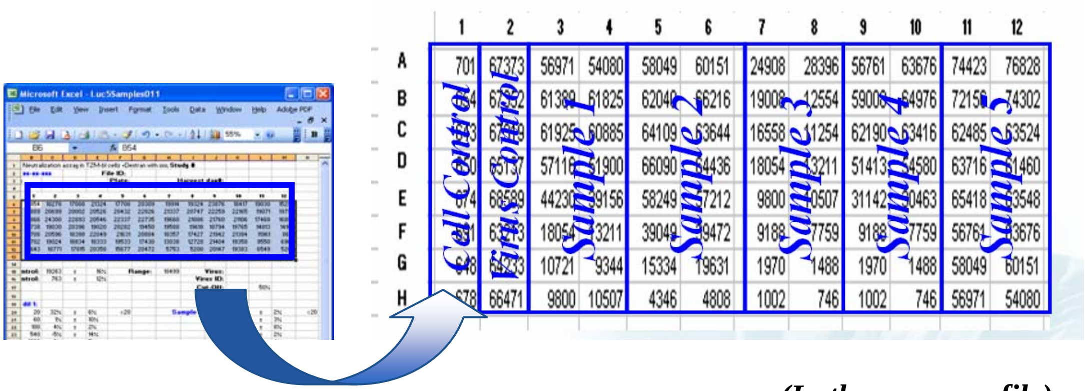
The templates for 5 samples per plate neutralization assays

	1	2	3	4	5	6	7	8	9	10	11	12
A	CC	VC	Dil 8	Dil 8	Dil 8	Dil 8	Dil 8	Dil 8	Dil 8	Dil 8	Dil 8	Dil 8
B	CC	VC	Dil 7	Dil 7	Dil 7	Dil 7	Dil 7	Dil 7	Dil 7	Dil 7	Dil 7	Dil 7
C	CC	VC	Dil 6	Dil 6	Dil 6	Dil 6	Dil 6	Dil 6	Dil 6	Dil 6	Dil 6	Dil 6
D	CC	VC	Dil 5	Dil 5	Dil 5	Dil 5	Dil 5	Dil 5	Dil 5	Dil 5	Dil 5	Dil 5
E	CC	VC	Dil 4	Dil 4	Dil 4	Dil 4	Dil 4	Dil 4	Dil 4	Dil 4	Dil 4	Dil 4
F	CC	VC	Dil 3	Dil 3	Dil 3	Dil 3	Dil 3	Dil 3	Dil 3	Dil 3	Dil 3	Dil 3
G	CC	VC	Dil 2	Dil 2	Dil 2	Dil 2	Dil 2	Dil 2	Dil 2	Dil 2	Dil 2	Dil 2
H	CC	VC	Dil 1	Dil 1	Dil 1	Dil 1	Dil 1	Dil 1	Dil 1	Dil 1	Dil 1	Dil 1

Sample1
Sample2
Sample3
Sample4
Sample5
Sample 1
Sample 2
Sample 3
Sample 4
Sample 5

CC: cell control wells (cells only)
VC: virus control wells (virus and cells but no serum sample are added here)
Dil: Dilution

Plate Set-up

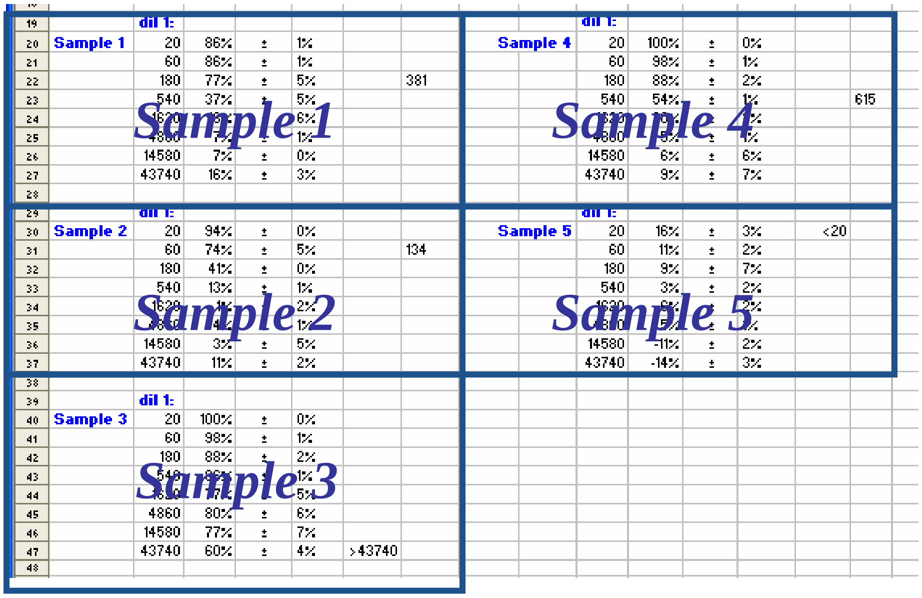


Microsoft Excel - Luc5Samples011
Cell Control
Virus Control
Sample 1
Sample 2
Sample 3
Sample 4
Sample 5

	1	2	3	4	5	6	7	8	9	10	11	12
A	701	67373	56971	54080	58049	60151	24908	28396	56761	63676	74423	76828
B	[illegible]	[illegible]	61389	61825	62040	66216	19008	12554	59008	64976	72156	74302
C	[illegible]	[illegible]	61925	60885	64109	63644	16558	11254	62190	63416	62485	63524
D	[illegible]	65137	57116	61900	66090	64436	18054	13211	51413	54580	63716	61460
E	[illegible]	68589	44230	39156	58249	57212	9800	10507	31142	30463	65418	63548
F	[illegible]	[illegible]	18054	13211	39049	39472	9188	7759	9188	7759	56761	63676
G	[illegible]	[illegible]	10721	9344	15334	19631	1970	1488	1970	1488	58049	60151
H	678	66471	9800	10507	4346	4808	1002	746	1002	746	56971	54080

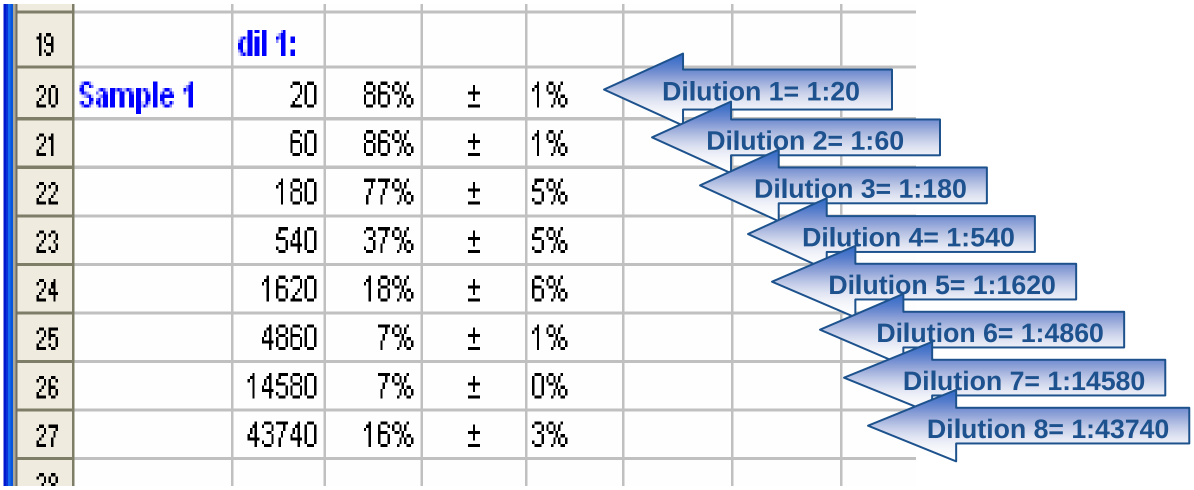
(In the program file)

Below are the positions of the 5 samples in the main data area.


Sample 1
Sample 2
Sample 3
Sample 4
Sample 5

19		dil 1:							dil 1:					
20	Sample 1	20	86%	±	1%			Sample 4	20	100%	±	0%		
21		60	86%	±	1%				60	98%	±	1%		
22		180	77%	±	5%		381		180	88%	±	2%		
23		540	37%	±	5%				540	54%	±	1%		615
24		1620	18%	±	6%				1620	[illegible]	±	[illegible]		
25		4860	7%	±	1%				4860	[illegible]	±	1%		
26		14580	7%	±	0%				14580	6%	±	6%		
27		43740	16%	±	3%				43740	9%	±	7%		
28														
29		dil 1:							dil 1:					
30	Sample 2	20	94%	±	0%			Sample 5	20	16%	±	3%	<20	
31		60	74%	±	5%		134		60	11%	±	2%		
32		180	41%	±	0%				180	9%	±	7%		
33		540	13%	±	1%				540	3%	±	2%		
34		1620	1%	±	2%				1620	6%	±	2%		
35		4860	4%	±	1%				4860	[illegible]	±	[illegible]		
36		14580	3%	±	5%				14580	-11%	±	2%		
37		43740	11%	±	2%				43740	-14%	±	3%		
38														
39		dil 1:												
40	Sample 3	20	100%	±	0%									
41		60	98%	±	1%									
42		180	88%	±	2%									
43		540	[illegible]	±	1%									
44		1620	[illegible]	±	5%									
45		4860	80%	±	6%									
46		14580	77%	±	7%									
47		43740	60%	±	4%	>43740								
48														

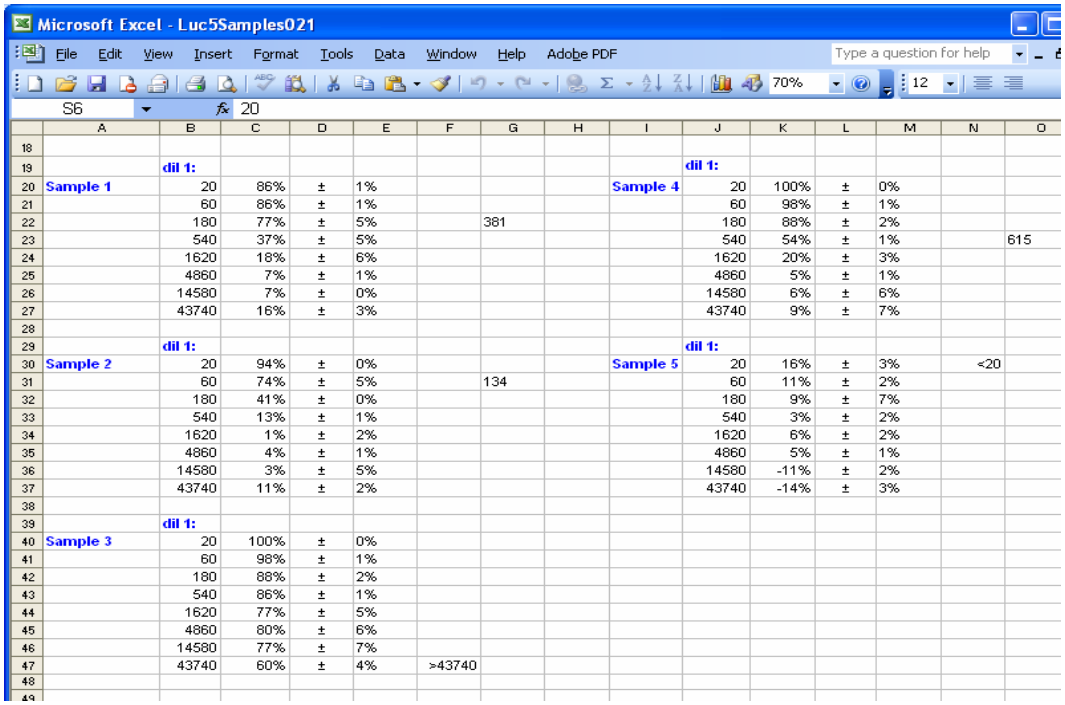
Let's take sample 1 as an example. From the top to bottom are dilutions 1 - 8.


Dilution 1= 1:20
Dilution 2= 1:60
Dilution 3= 1:180
Dilution 4= 1:540
Dilution 5= 1:1620
Dilution 6= 1:4860
Dilution 7= 1:14580
Dilution 8= 1:43740

19		dil 1:				
20	Sample 1	20	86%	±	1%	
21		60	86%	±	1%	
22		180	77%	±	5%	
23		540	37%	±	5%	
24		1620	18%	±	6%	
25		4860	7%	±	1%	
26		14580	7%	±	0%	
27		43740	16%	±	3%	

Note: dil stands for dilution.

Column Information


Microsoft Excel - Luc5Samples021
File Edit View Insert Format Tools Data Window Help Adobe PDF
Type a question for help
70%
12
S6
20

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
18															
19		**dil 1:**								**dil 1:**					
20	**Sample 1**	20	86%	±	1%				**Sample 4**	20	100%	±	0%		
21		60	86%	±	1%					60	98%	±	1%		
22		180	77%	±	5%		381			180	88%	±	2%		
23		540	37%	±	5%					540	54%	±	1%		615
24		1620	18%	±	6%					1620	20%	±	3%		
25		4860	7%	±	1%					4860	5%	±	1%		
26		14580	7%	±	0%					14580	6%	±	6%		
27		43740	16%	±	3%					43740	9%	±	7%		
28															
29		**dil 1:**								**dil 1:**					
30	**Sample 2**	20	94%	±	0%				**Sample 5**	20	16%	±	3%	<20	
31		60	74%	±	5%		134			60	11%	±	2%		
32		180	41%	±	0%					180	9%	±	7%		
33		540	13%	±	1%					540	3%	±	2%		
34		1620	1%	±	2%					1620	6%	±	2%		
35		4860	4%	±	1%					4860	5%	±	1%		
36		14580	3%	±	5%					14580	-11%	±	2%		
37		43740	11%	±	2%					43740	-14%	±	3%		
38															
39		**dil 1:**													
40	**Sample 3**	20	100%	±	0%										
41		60	98%	±	1%										
42		180	88%	±	2%										
43		540	86%	±	1%										
44		1620	77%	±	5%										
45		4860	80%	±	6%										
46		14580	77%	±	7%										
47		43740	60%	±	4%	>43740									
48															

Columns A and I:	***Sample name, bleed date, etc***
Columns B and J:	***Dilution or concentration of each test sample***
Columns C and K:	***Neutralization Efficiency (%) for each sample***
Columns E and M:	***Standard Deviation of Neutralization Efficiency***
Columns F, G and N, O:	***Titer Value (dilution or concentration)***

Data File

The new version of the macro can read the Luminometer Raw Data File and as well as modify any report file which was previously generated.

1 Luminometer Raw Data File

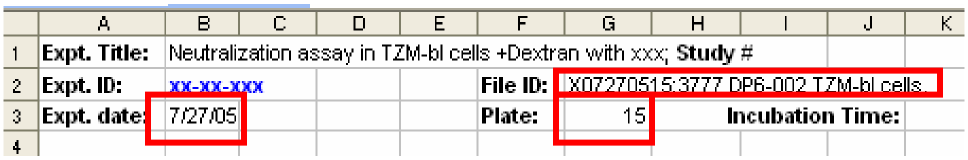
The luminometer data file may be saved with a name in the format of Xmmddyy$$;####.xls.

Raw data are generated from the luminometer using the Wallac 1420 software package from PerkinElmer Life Sciences). These raw files will be exported individually from the Wallac1420 Manager and renamed in the format of "Xmmddyy$$;####.xls" .

- X: a unique character assigned to the assay operator
- mm: current month
- dd: current day
- yy: current year
- $$: plate number(1-99)
- #### : Four digit unique number automatically assigned by the luminometer

For example: A07220512;3767 corresponds to the twelfth plate read by operator " A" on July 2 , 2005. The 3767 corresponds to the unique number assigned by the luminometer.

If the data file is saved in the format of "Xmmddyy$$;####.xls", some information (like Experiment Date, plate number, File ID) indicated by the red boxes below in the Title Part will be automatically filled in.



	A	B	C	D	E	F	G	H	I	J	K
1	**Expt. Title:**	Neutralization assay in TZM-bl cells +Dextran with xxx; **Study #**									
2	**Expt. ID:**	xx-xx-xxx				**File ID:**	X07270515;3777 DP6-002 TZM-bl cells.				
3	**Expt. date:**	7/27/05				**Plate:**	15	**Incubation Time:**			
4											

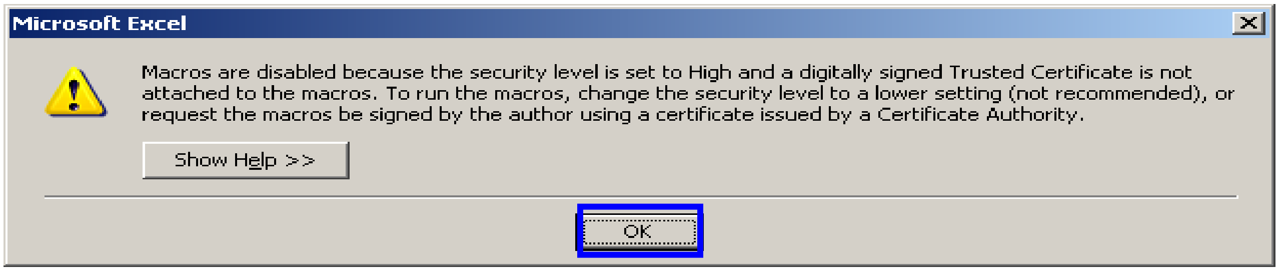
2 Report File

An operator may want to modify the report at a later time due to typographic errors. This version of the macro allows operators to modify the input fields in data report file. Using Open Data File button, select the report name to be opened and then click it. The macro will input the report data to the macro.
Note: If the name of the report does not include "report", the macro can not open the report automatically.
Please note that the raw and analyzed data section is still locked and cannot be modified!

II. Configuration

Macro Security Setting Change

The first time the luminescence macro program is opened, the following dialog box may appear, prompting the operator to change the Excel Macro security settings.



Microsoft Excel

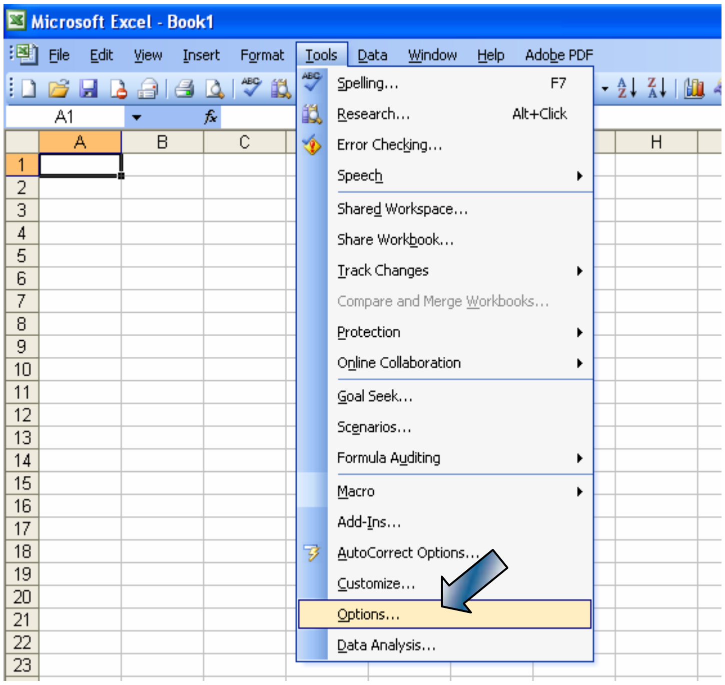
Macros are disabled because the security level is set to High and a digitally signed Trusted Certificate is not attached to the macros. To run the macros, change the security level to a lower setting (not recommended), or request the macros be signed by the author using a certificate issued by a Certificate Authority.

Show Help >>
OK

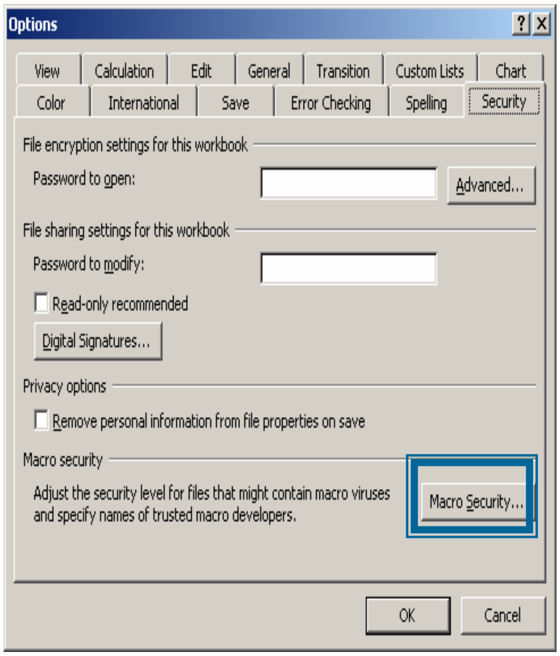
Windows XP Users:

To change the macro security level, please follow these steps,

1. Click **OK** button in the above dialog box.
2. On the **Tools** menu, click **Options**.
3. Click the **Security** tab.
4. Under **Macro Security**, click **Macro Security**.
5. Click the **Security Level** tab, and select **Medium**.
6. Click **Ok** to close the dialog boxes.



Microsoft Excel - Book1
File
Edit
View
Insert
Format
Tools
Data
Window
Help
Adobe PDF
A1
Spelling... F7
Research... Alt+Click
Error Checking...
Speech
Shared Workspace...
Share Workbook...
Track Changes
Compare and Merge Workbooks...
Protection
Online Collaboration
Goal Seek...
Scenarios...
Formula Auditing
Macro
Add-Ins...
AutoCorrect Options...
Customize...
Options...
Data Analysis...


Options
View
Calculation
Edit
General
Transition
Custom Lists
Chart
Color
International
Save
Error Checking
Spelling
Security
Advanced...
Digital Signatures...
Macro Security...
OK
Cancel

File encryption settings for this workbook

Password to open:

File sharing settings for this workbook

Password to modify:

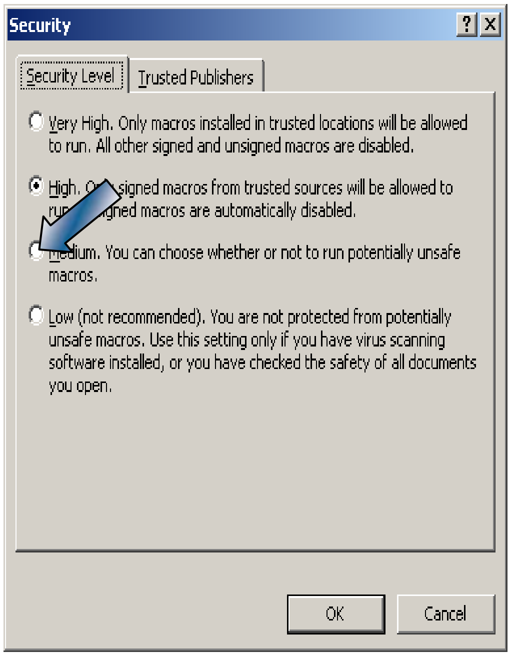
☐ Read-only recommended

Privacy options

☐ Remove personal information from file properties on save

Macro security

Adjust the security level for files that might contain macro viruses and specify names of trusted macro developers.


Security
Security Level
Trusted Publishers
OK
Cancel

○ Very High. Only macros installed in trusted locations will be allowed to run. All other signed and unsigned macros are disabled.

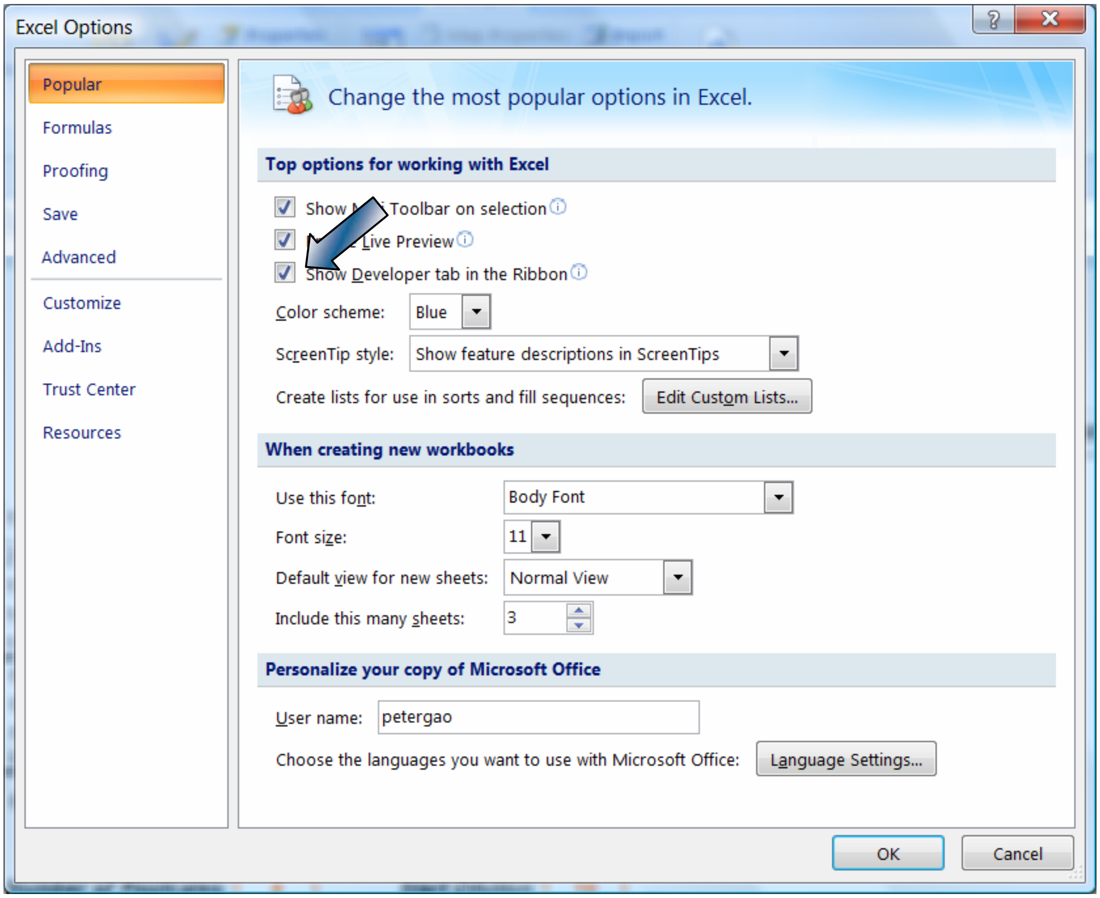
● High. O[illegible] signed macros from trusted sources will be allowed to ru[illegible]gned macros are automatically disabled.

○ Medium. You can choose whether or not to run potentially unsafe macros.

○ Low (not recommended). You are not protected from potentially unsafe macros. Use this setting only if you have virus scanning software installed, or you have checked the safety of all documents you open.

For Window Vista Users:,

1. Add the Developer tab to Excel from Excel option
2. Check the Show Developer tab in the Ribbon, and click OK button
3. From the developer tab, click Macro Security


Excel Options
Popular
Formulas
Proofing
Save
Advanced
Customize
Add-Ins
Trust Center
Resources
Change the most popular options in Excel.
Edit Custom Lists...
Language Settings...
OK
Cancel

Top options for working with Excel

☑ Show Toolbar on selection
☑ Live Preview
☑ Show Developer tab in the Ribbon

Color scheme: Blue
ScreenTip style: Show feature descriptions in ScreenTips
Create lists for use in sorts and fill sequences:

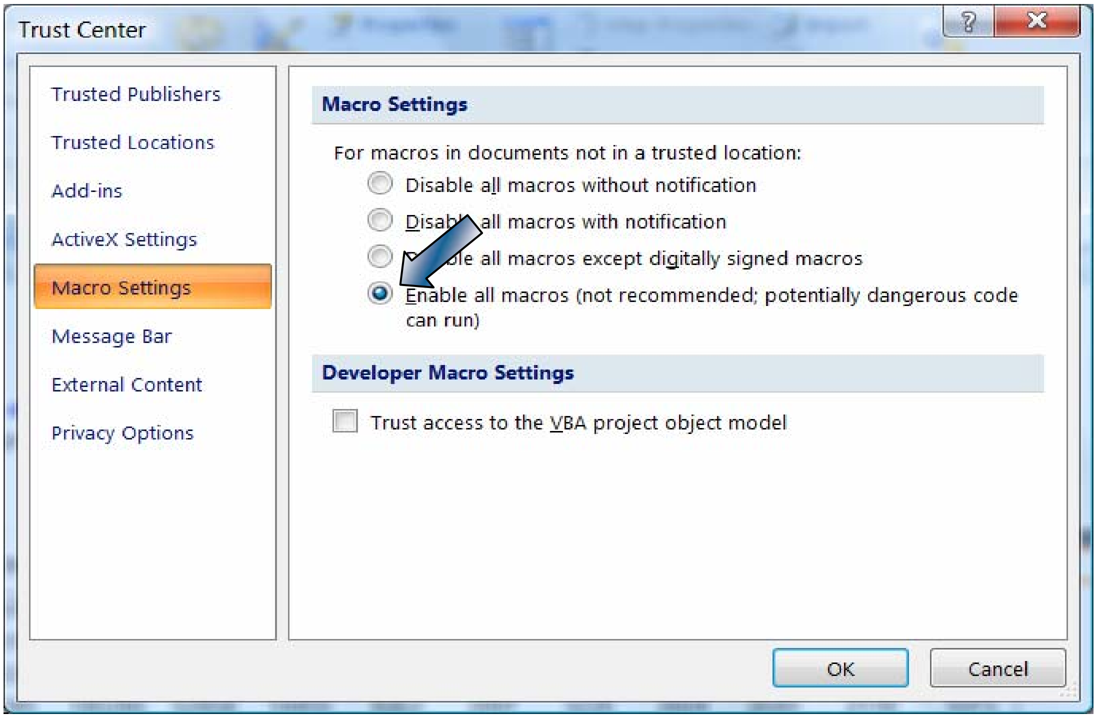
When creating new workbooks

Use this font: Body Font
Font size: 11
Default view for new sheets: Normal View
Include this many sheets: 3

Personalize your copy of Microsoft Office

User name: petergao
Choose the languages you want to use with Microsoft Office:

With the Trusted Center, check Enable all macros (not recommended; potentially dangerous code can run) , then click the OK button.


Trust Center
Trusted Publishers
Trusted Locations
Add-ins
ActiveX Settings
Macro Settings
Message Bar
External Content
Privacy Options
OK
Cancel

Macro Settings

For macros in documents not in a trusted location:

○ Disable all macros without notification
○ Disab all macros with notification
○ ble all macros except digitally signed macros
● Enable all macros (not recommended; potentially dangerous code can run)

Developer Macro Settings

☐ Trust access to the VBA project object model

Close and then restart the Excel program. The disabled macros message should not appear.

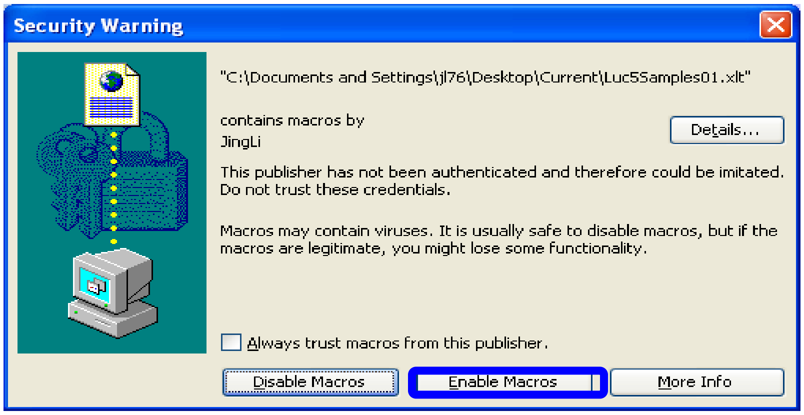
After this configuration is completed, it will not be necessary to change the macro security settings each time the macro is used.

III. Step by Step (Window XP)

1. Import the macro file entitled **“Luc5Samples04.xlt”**

2. Double click to open this file.

3. Click **“Enable Macros”.**


Security Warning
Details...
Disable Macros
Enable Macros
More Info

"C:\Documents and Settings\jl76\Desktop\Current\Luc5Samples01.xlt"

contains macros by
JingLi

This publisher has not been authenticated and therefore could be imitated. Do not trust these credentials.

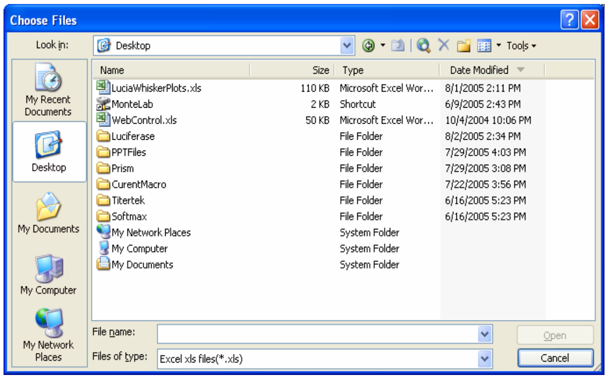
Macros may contain viruses. It is usually safe to disable macros, but if the macros are legitimate, you might lose some functionality.

☐ Always trust macros from this publisher.

After the macro file is opened, the data area is blank waiting for data input.

4. Click **“Open Data File”** button to read data file.

Users can either open a raw data file generated by luminometer or a report file which was previously generated.


Choose Files
Tools
My Recent Documents
Desktop
My Documents
My Computer
My Network Places
Open
Cancel

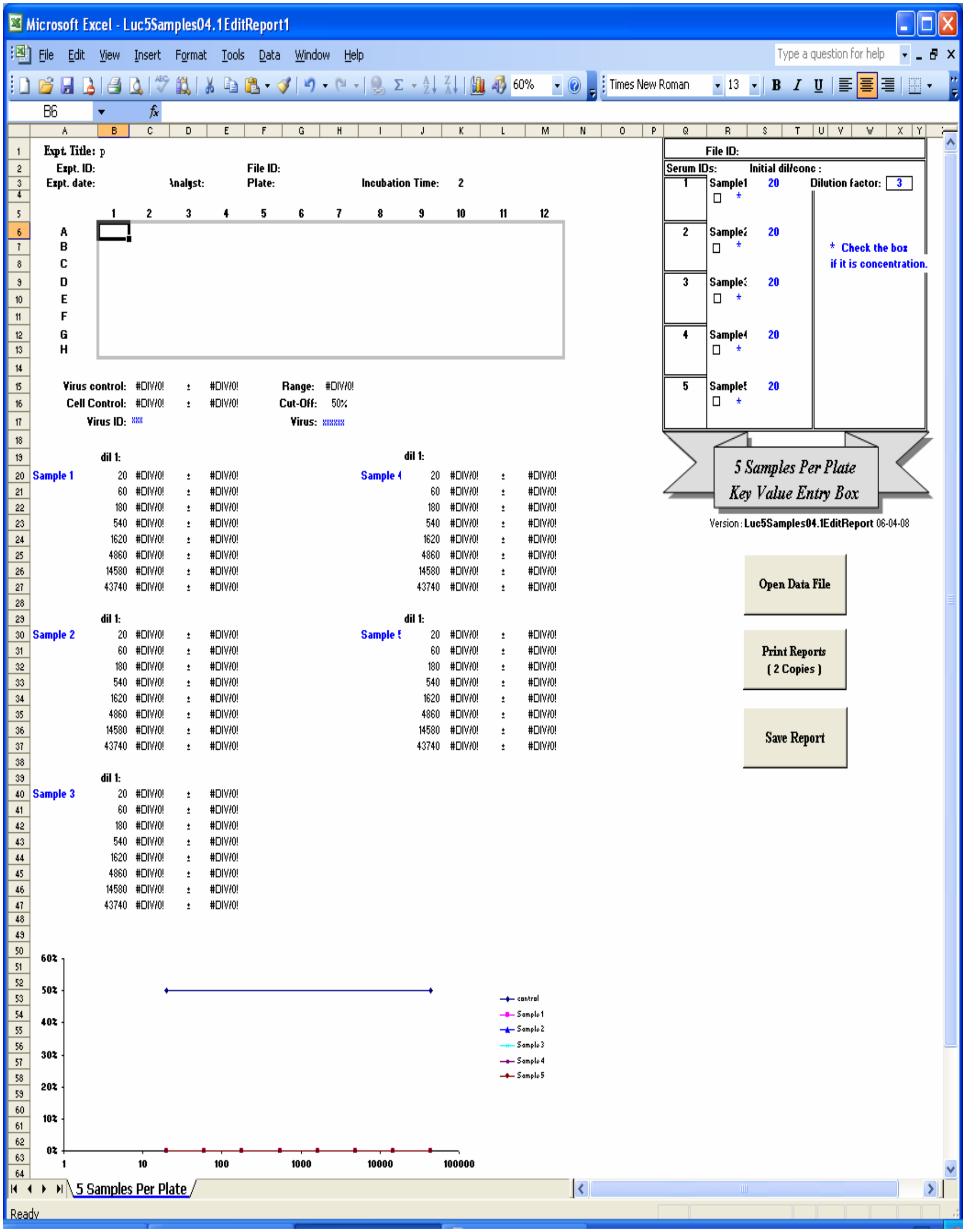
Look in: Desktop

Name	Size	Type	Date Modified
LuciaWhiskerPlots.xls	110 KB	Microsoft Excel Wor...	8/1/2005 2:11 PM
MonteLab	2 KB	Shortcut	6/9/2005 2:43 PM
WebControl.xls	50 KB	Microsoft Excel Wor...	10/4/2004 10:06 PM
Luciferase		File Folder	8/2/2005 2:34 PM
PPTFiles		File Folder	7/29/2005 4:03 PM
Prism		File Folder	7/29/2005 3:08 PM
CurentMacro		File Folder	7/22/2005 3:56 PM
Titertek		File Folder	6/16/2005 5:23 PM
Softmax		File Folder	6/16/2005 5:23 PM
My Network Places		System Folder	
My Computer		System Folder	
My Documents		System Folder	

File name:

Files of type: Excel xls files(*.xls)

5. Click the data file name and then click Open button to open the data file.


Microsoft Excel - Luc5Samples04.1EditReport1
File
Edit
View
Insert
Format
Tools
Data
Window
Help
Type a question for help
60%
Times New Roman
13
B6
5 Samples Per Plate
Ready

Expt. Title: p
Expt. ID:
Expt. date:
Analyst:
File ID:
Plate:
Incubation Time: 2

	1	2	3	4	5	6	7	8	9	10	11	12
A												
B												
C												
D												
E												
F												
G												
H												

Virus control: #DIV/0! ± #DIV/0!
Cell Control: #DIV/0! ± #DIV/0!
Virus ID: ###
Range: #DIV/0!
Cut-Off: 50%
Virus: ######

	dil 1:			
Sample 1	20	#DIV/0!	±	#DIV/0!
	60	#DIV/0!	±	#DIV/0!
	180	#DIV/0!	±	#DIV/0!
	540	#DIV/0!	±	#DIV/0!
	1620	#DIV/0!	±	#DIV/0!
	4860	#DIV/0!	±	#DIV/0!
	14580	#DIV/0!	±	#DIV/0!
	43740	#DIV/0!	±	#DIV/0!

	dil 1:			
Sample 4	20	#DIV/0!	±	#DIV/0!
	60	#DIV/0!	±	#DIV/0!
	180	#DIV/0!	±	#DIV/0!
	540	#DIV/0!	±	#DIV/0!
	1620	#DIV/0!	±	#DIV/0!
	4860	#DIV/0!	±	#DIV/0!
	14580	#DIV/0!	±	#DIV/0!
	43740	#DIV/0!	±	#DIV/0!

	dil 1:			
Sample 2	20	#DIV/0!	±	#DIV/0!
	60	#DIV/0!	±	#DIV/0!
	180	#DIV/0!	±	#DIV/0!
	540	#DIV/0!	±	#DIV/0!
	1620	#DIV/0!	±	#DIV/0!
	4860	#DIV/0!	±	#DIV/0!
	14580	#DIV/0!	±	#DIV/0!
	43740	#DIV/0!	±	#DIV/0!

	dil 1:			
Sample 5	20	#DIV/0!	±	#DIV/0!
	60	#DIV/0!	±	#DIV/0!
	180	#DIV/0!	±	#DIV/0!
	540	#DIV/0!	±	#DIV/0!
	1620	#DIV/0!	±	#DIV/0!
	4860	#DIV/0!	±	#DIV/0!
	14580	#DIV/0!	±	#DIV/0!
	43740	#DIV/0!	±	#DIV/0!

	dil 1:			
Sample 3	20	#DIV/0!	±	#DIV/0!
	60	#DIV/0!	±	#DIV/0!
	180	#DIV/0!	±	#DIV/0!
	540	#DIV/0!	±	#DIV/0!
	1620	#DIV/0!	±	#DIV/0!
	4860	#DIV/0!	±	#DIV/0!
	14580	#DIV/0!	±	#DIV/0!
	43740	#DIV/0!	±	#DIV/0!

60%
50%
40%
30%
20%
10%
0%
1
10
100
1000
10000
100000
control
Sample 1
Sample 2
Sample 3
Sample 4
Sample 5

File ID:

Serum IDs:		Initial dil/conc :	Dilution factor: 3
1	Sample1 ☐ *	20	
2	Sample2 ☐ *	20	* Check the box if it is concentration.
3	Sample3 ☐ *	20	
4	Sample4 ☐ *	20	
5	Sample5 ☐ *	20	

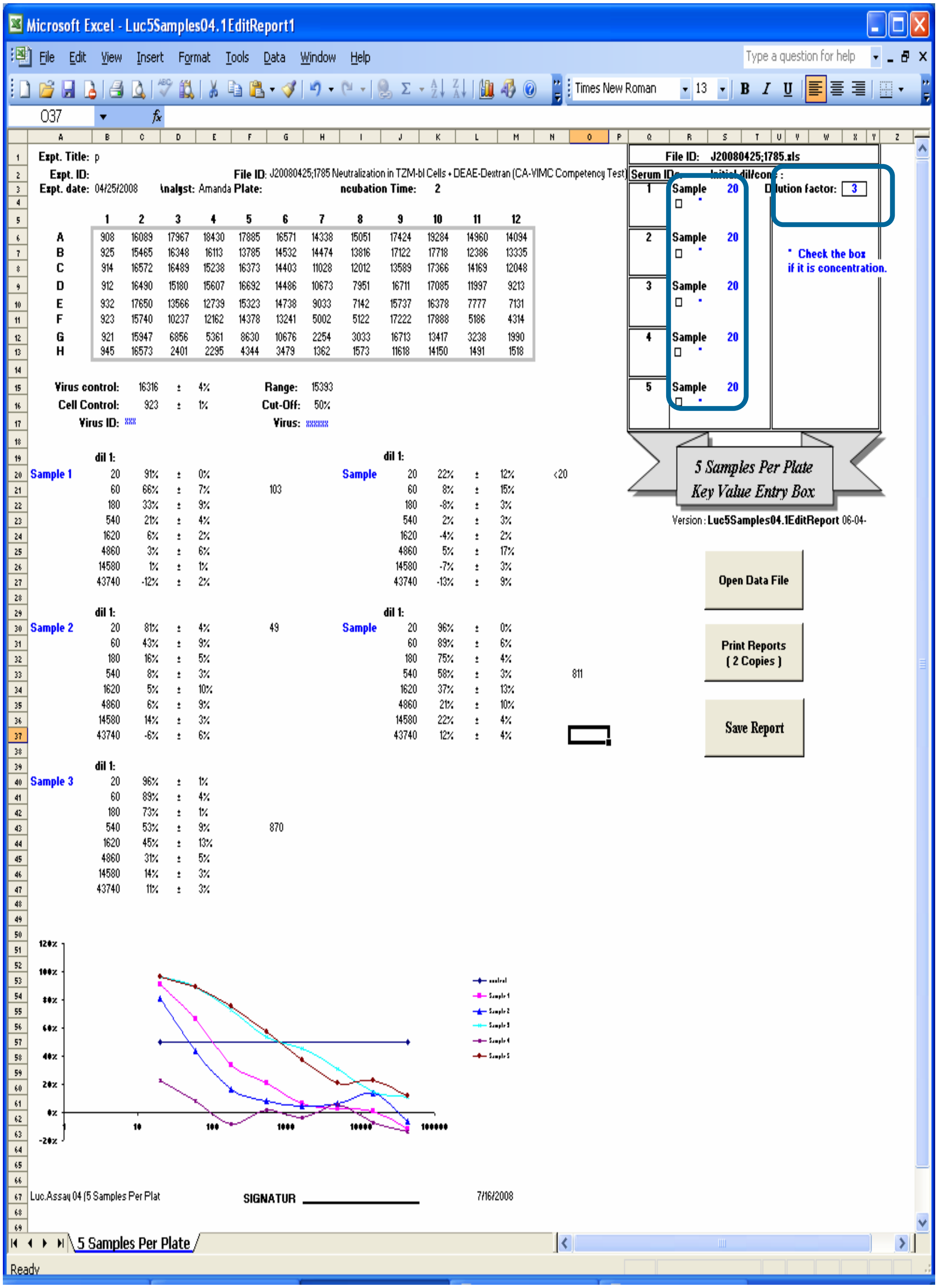
5 Samples Per Plate
Key Value Entry Box

Version : **Luc5Samples04.1EditReport** 06-04-08

Open Data File
Print Reports
(2 Copies)
Save Report

6. Enter appropriate sample **starting dilutions** (or **concentrations**) and **dilution factor**.

Enter the starting dilution, concentration code (if required) and dilution factor directly as indicated below.



Microsoft Excel - Luc5Samples04.1EditReport1
File Edit View Insert Format Tools Data Window Help
Type a question for help
Times New Roman 13
037
Open Data File
Print Reports (2 Copies)
Save Report
5 Samples Per Plate
Ready
120%
100%
80%
60%
40%
20%
0%
-20%
1
10
100
1000
10000
100000
Sample 1
Sample 2
Sample 3
Sample 4
Sample 5

Expt. Title: p

Expt. ID:

File ID: J20080425;1785 Neutralization in TZM-bl Cells + DEAE-Dextran (CA-VIMC Competency Test)

Expt. date: 04/25/2008 **\nalyst:** Amanda **Plate:** **ncubation Time:** 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	908	16089	17967	18430	17885	16571	14338	15051	17424	19284	14960	14094
B	925	15465	16348	16113	13785	14532	14474	13816	17122	17718	12386	13335
C	914	16572	16489	15238	16373	14403	11028	12012	13589	17366	14169	12048
D	912	16490	15180	15607	16692	14486	10673	7951	16711	17085	11997	9213
E	932	17650	13566	12739	15323	14738	9033	7142	15737	16378	7777	7131
F	923	15740	10237	12162	14378	13241	5002	5122	17222	17888	5186	4314
G	921	15947	6856	5361	8630	10676	2254	3033	16713	13417	3238	1990
H	945	16573	2401	2295	4344	3479	1362	1573	11618	14150	1491	1518

Virus control: 16316 ± 4% **Range:** 15393

Cell Control: 923 ± 1% **Cut-Off:** 50%

Virus ID: ### **Virus:** ######

	dil 1:						dil 1:				
Sample 1	20	91%	±	0%		**Sample**	20	22%	±	12%	<20
	60	66%	±	7%	103		60	8%	±	15%	
	180	33%	±	9%			180	-8%	±	3%	
	540	21%	±	4%			540	2%	±	3%	
	1620	6%	±	2%			1620	-4%	±	2%	
	4860	3%	±	6%			4860	5%	±	17%	
	14580	1%	±	1%			14580	-7%	±	3%	
	43740	-12%	±	2%			43740	-13%	±	9%	

	dil 1:						dil 1:				
Sample 2	20	81%	±	4%	49	**Sample**	20	96%	±	0%	
	60	43%	±	9%			60	89%	±	6%	
	180	16%	±	5%			180	75%	±	4%	
	540	8%	±	3%			540	58%	±	3%	811
	1620	5%	±	10%			1620	37%	±	13%	
	4860	6%	±	9%			4860	21%	±	10%	
	14580	14%	±	3%			14580	22%	±	4%	
	43740	-6%	±	6%			43740	12%	±	4%	

	dil 1:				
Sample 3	20	96%	±	1%	
	60	89%	±	4%	
	180	73%	±	1%	
	540	53%	±	9%	870
	1620	45%	±	13%	
	4860	31%	±	5%	
	14580	14%	±	3%	
	43740	11%	±	3%	

Luc.Assay 04 (5 Samples Per Plat **SIGNATUR** ____________ 7/16/2008

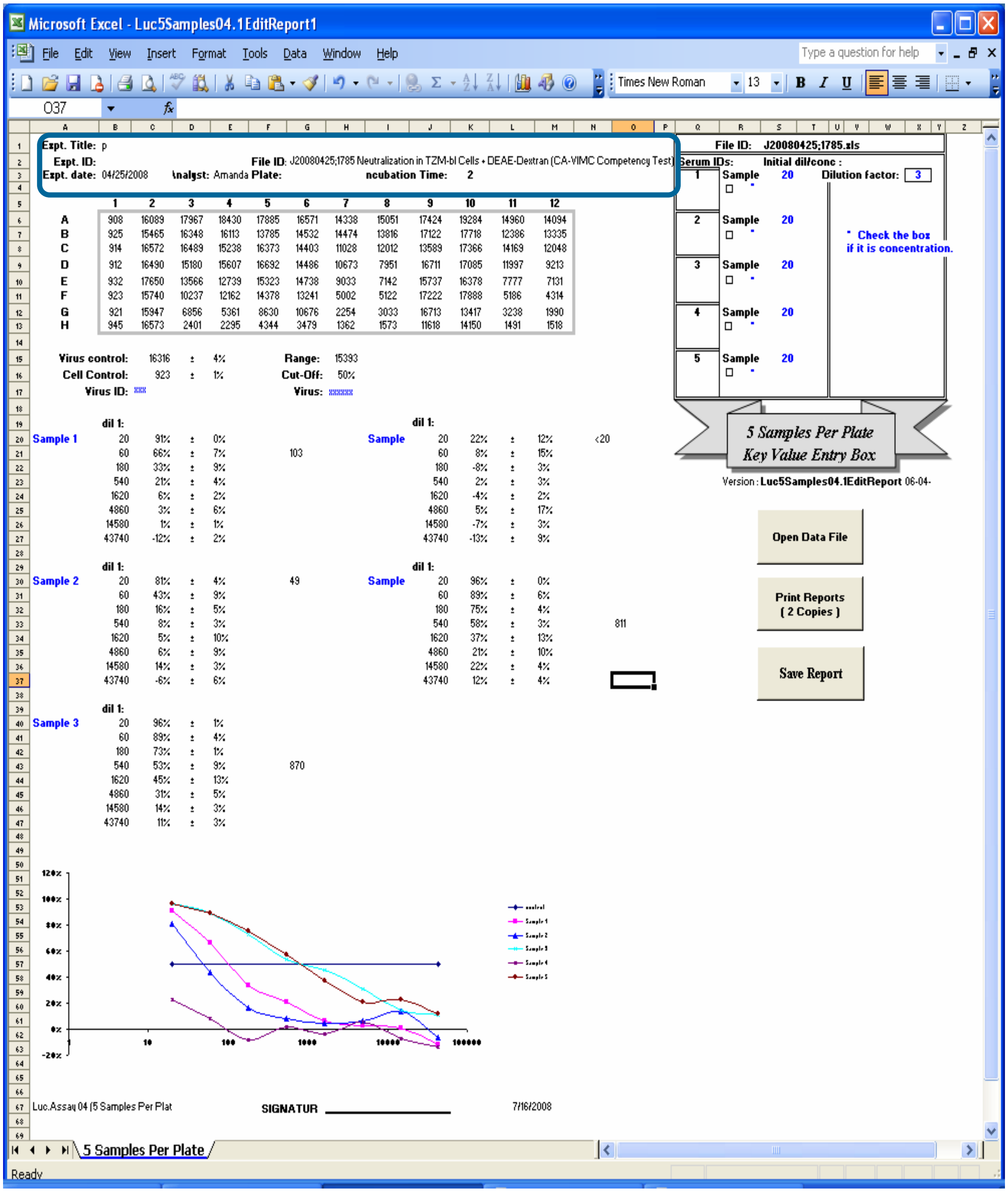
File ID: J20080425;1785.xls

Serum ID	Initial dil/con :	
1	Sample 20 ☐ *	Dilution factor: 3
2	Sample 20 ☐ *	* Check the box if it is concentration.
3	Sample 20 ☐ *	
4	Sample 20 ☐ *	
5	Sample 20 ☐ *	

5 Samples Per Plate
Key Value Entry Box

Version : **Luc5Samples04.1EditReport** 06-04-

7. Enter additional experiment Information in the Title section.
(e.g. Experiment title, Experiment ID, Study No, Incubation time.)


Microsoft Excel - Luc5Samples04.1EditReport1
File
Edit
View
Insert
Format
Tools
Data
Window
Help
Type a question for help
Times New Roman
13
B
I
U
O37
fx
120%
100%
80%
60%
40%
20%
0%
-20%
1
10
100
1000
10000
100000
control
Sample 1
Sample 2
Sample 3
Sample 4
Sample 5
5 Samples Per Plate
Key Value Entry Box
Open Data File
Print Reports (2 Copies)
Save Report
5 Samples Per Plate
Ready

Expt. Title: p
Expt. ID: **File ID:** J20080425;1785 Neutralization in TZM-bl Cells + DEAE-Dextran (CA-VIMC Competency Test)
Expt. date: 04/25/2008 **\nalyst:** Amanda **Plate:** **ncubation Time:** 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	908	16089	17967	18430	17885	16571	14338	15051	17424	19284	14960	14094
B	925	15465	16348	16113	13785	14532	14474	13816	17122	17718	12386	13335
C	914	16572	16489	15238	16373	14403	11028	12012	13589	17366	14169	12048
D	912	16490	15180	15607	16692	14486	10673	7951	16711	17085	11997	9213
E	932	17650	13566	12739	15323	14738	9033	7142	15737	16378	7777	7131
F	923	15740	10237	12162	14378	13241	5002	5122	17222	17888	5186	4314
G	921	15947	6856	5361	8630	10676	2254	3033	16713	13417	3238	1990
H	945	16573	2401	2295	4344	3479	1362	1573	11618	14150	1491	1518

Virus control: 16316 ± 4% **Range:** 15393
Cell Control: 923 ± 1% **Cut-Off:** 50%
Virus ID: ### **Virus:** ######

	dil 1:				
Sample 1	20	91%	±	0%	
	60	66%	±	7%	103
	180	33%	±	9%	
	540	21%	±	4%	
	1620	6%	±	2%	
	4860	3%	±	6%	
	14580	1%	±	1%	
	43740	-12%	±	2%	

	dil 1:				
Sample	20	22%	±	12%	<20
	60	8%	±	15%	
	180	-8%	±	3%	
	540	2%	±	3%	
	1620	-4%	±	2%	
	4860	5%	±	17%	
	14580	-7%	±	3%	
	43740	-13%	±	9%	

	dil 1:				
Sample 2	20	81%	±	4%	49
	60	43%	±	9%	
	180	16%	±	5%	
	540	8%	±	3%	
	1620	5%	±	10%	
	4860	6%	±	9%	
	14580	14%	±	3%	
	43740	-6%	±	6%	

	dil 1:				
Sample	20	96%	±	0%	
	60	89%	±	6%	
	180	75%	±	4%	
	540	58%	±	3%	811
	1620	37%	±	13%	
	4860	21%	±	10%	
	14580	22%	±	4%	
	43740	12%	±	4%	

	dil 1:				
Sample 3	20	96%	±	1%	
	60	89%	±	4%	
	180	73%	±	1%	
	540	53%	±	9%	870
	1620	45%	±	13%	
	4860	31%	±	5%	
	14580	14%	±	3%	
	43740	11%	±	3%	

Luc.Assay 04 (5 Samples Per Plat **SIGNATUR** ____________ 7/16/2008

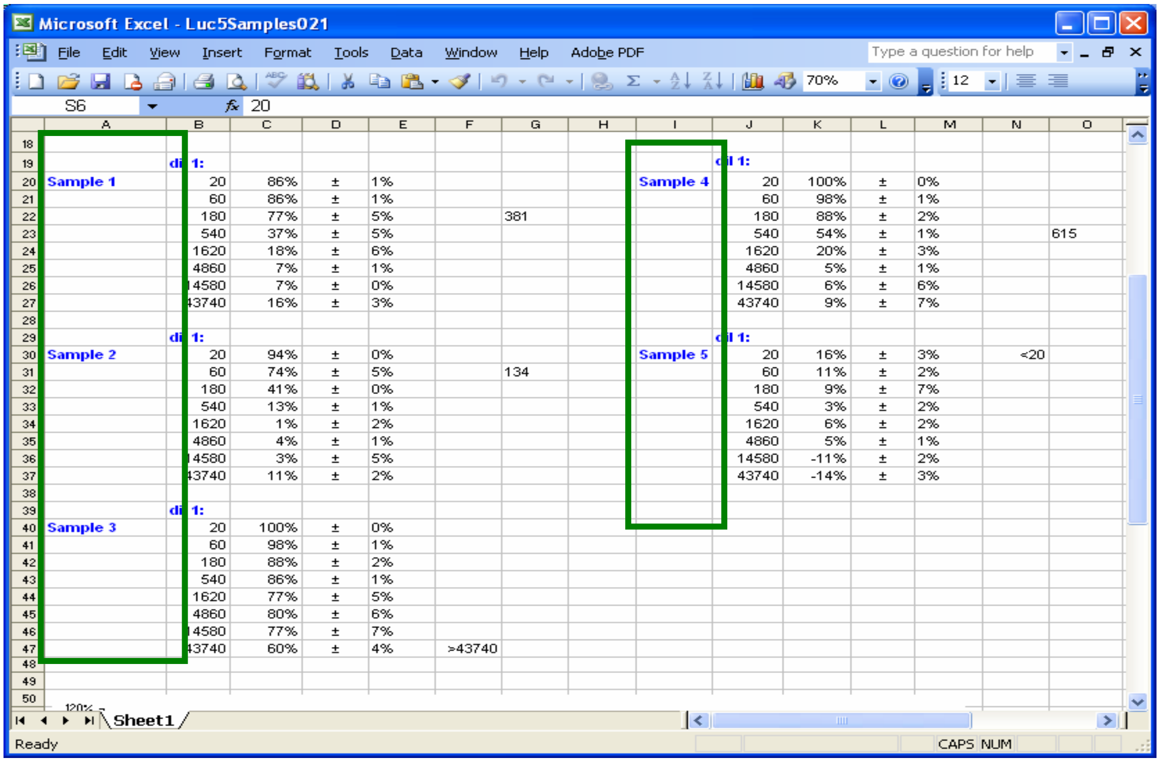
File ID: **J20080425;1785.xls**
Serum IDs: **Initial dil/conc :** **Dilution factor:** 3

1	Sample ☐ *	20
2	Sample ☐ *	20
3	Sample ☐ *	20
4	Sample ☐ *	20
5	Sample ☐ *	20

* Check the box if it is concentration.

Version : **Luc5Samples04.1EditReport** 06-04-

8. Enter **general sample information** in column A and column I indicated by green rectangles. *(e.g. Sample name, bleed number for each sample.)*


Microsoft Excel - Luc5Samples021
File Edit View Insert Format Tools Data Window Help Adobe PDF
Type a question for help
70%
12
Sheet1
Ready
CAPS NUM

S6 20

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
18															
19		di 1:								il 1:					
20	**Sample 1**	20	86%	±	1%				**Sample 4**	20	100%	±	0%		
21		60	86%	±	1%					60	98%	±	1%		
22		180	77%	±	5%		381			180	88%	±	2%		
23		540	37%	±	5%					540	54%	±	1%		615
24		1620	18%	±	6%					1620	20%	±	3%		
25		4860	7%	±	1%					4860	5%	±	1%		
26		14580	7%	±	0%					14580	6%	±	6%		
27		43740	16%	±	3%					43740	9%	±	7%		
28															
29		di 1:								il 1:					
30	**Sample 2**	20	94%	±	0%				**Sample 5**	20	16%	±	3%	<20	
31		60	74%	±	5%		134			60	11%	±	2%		
32		180	41%	±	0%					180	9%	±	7%		
33		540	13%	±	1%					540	3%	±	2%		
34		1620	1%	±	2%					1620	6%	±	2%		
35		4860	4%	±	1%					4860	5%	±	1%		
36		14580	3%	±	5%					14580	-11%	±	2%		
37		43740	11%	±	2%					43740	-14%	±	3%		
38															
39		di 1:													
40	**Sample 3**	20	100%	±	0%										
41		60	98%	±	1%										
42		180	88%	±	2%										
43		540	86%	±	1%										
44		1620	77%	±	5%										
45		4860	80%	±	6%										
46		14580	77%	±	7%										
47		43740	60%	±	4%	>43740									
48															
49															
50															

9. Print Reports (two copies).

Click this button and two copies of the data report will be printed; one for the Principal Investigator and the other one will be kept by the technician.

11. Click “Save Report” button to save the report.

Click this button to save the report of your assay data.

Help

Please feel free to contact Peter Gao (*juanfei.gao@duke.edu*) if you have any questions about this guide or encounter any problems. Any suggestions for improvement are also welcome.