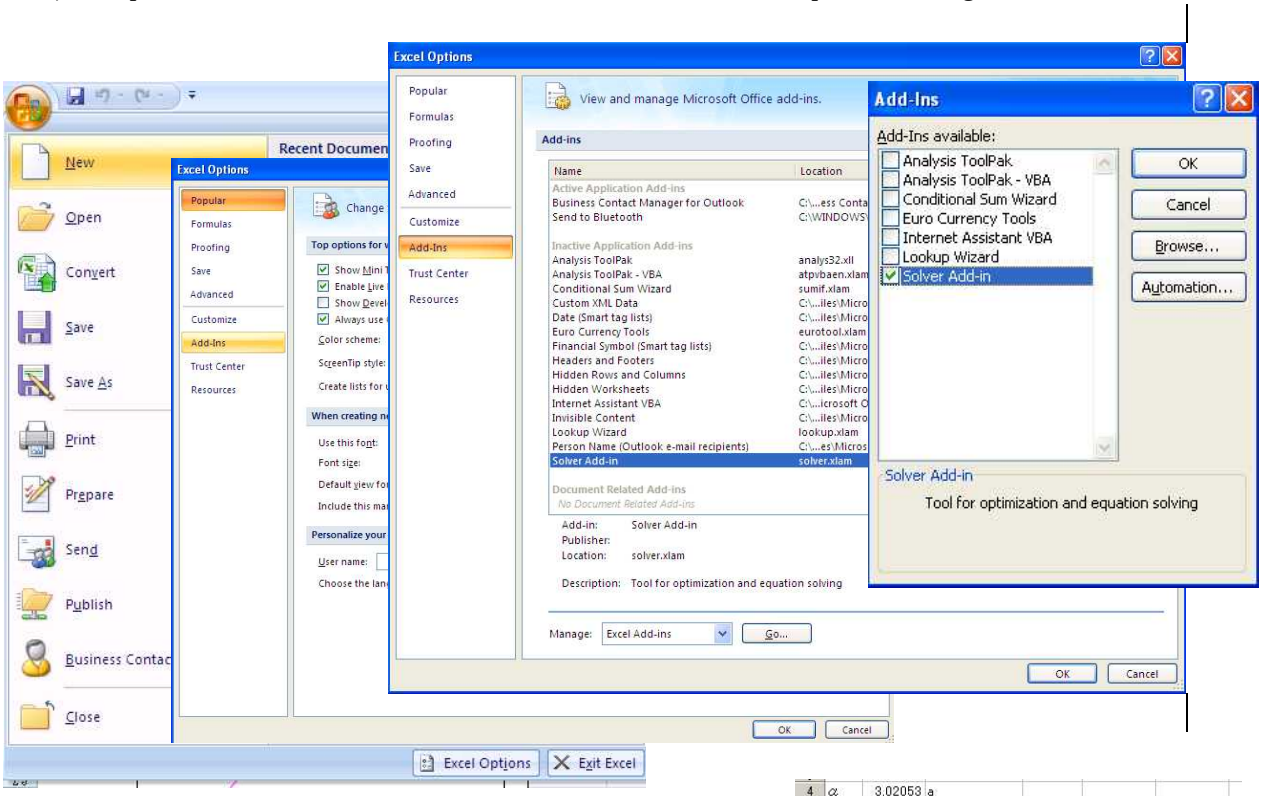
MBL ELISA Calculation Program: Operation Manual

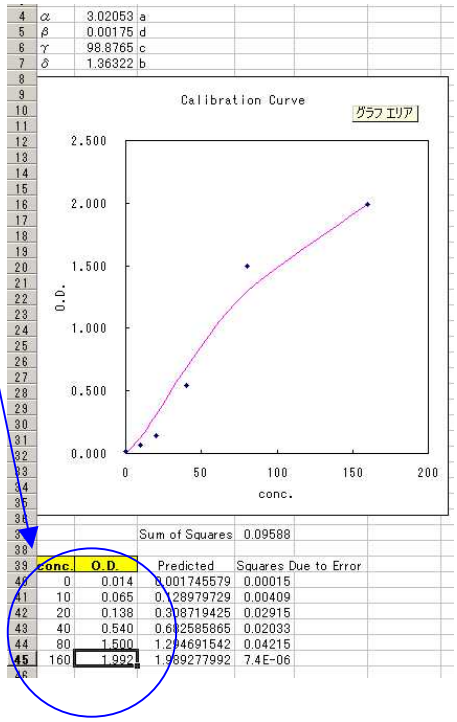
This program can calculate analyte concentrations from standard OD measurements obtained in ELISA experiments. It uses MS Excel's solver function to carry out a 4-parametric logistic calculation.

Solver should be incorporated by selecting, [Excel Options][Add-ins][Solver Add-in].

Cf) http://office.microsoft.com/en-us/excel/HA011245951033.aspx#Installing



Input OD and standard serum concentration obtained to calculate concentration in sample.



α	3.02053	a		
β	0.00175	d		
γ	98.8765	c		
δ	1.36322	b		
			Sum of Squares	0.09588
conc.	O.D.		Predicted	Squares Due to Error
0	0.014		0.001745579	0.00015
10	0.065		0.128979729	0.00409
20	0.138		0.308719425	0.02915
40	0.540		0.642585865	0.02033
80	1.500		1.204691542	0.04215
160	1.992		1.989277992	7.4E-06

Step 1: Enter measurements of standards

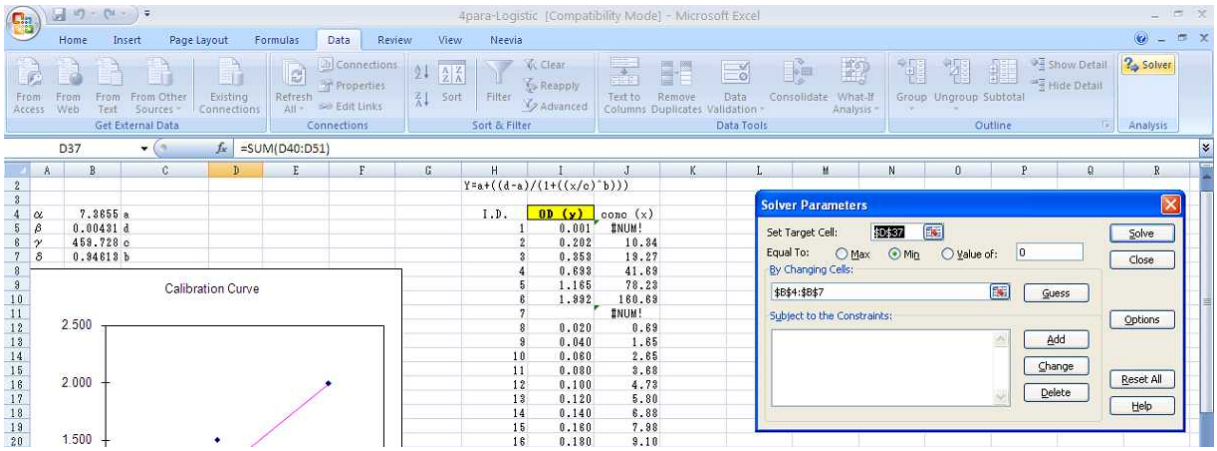
Under cell A40, enter standard curve concentration, and under B40, enter corresponding OD. Enter low concentrations first, high concentrations below.

The blue points in the graph will move depending moves.

Step 2: Optimize standard curve

Select [data]-[solver].

Press the "solve" button in the "Solver Parameters" dialog box (displayed when solver is started) . Solver optimizes the curve fit, and the resulting standard curve is shown in red in the graph.



Step 3: Additional optimization

If the red standard curve does not match the blue data points, repeat Step 2.

If the standard curve still does not match, enter values for parameters a, b, c, d as follows and then repeat Step 2:

I the standards seem to form a Sigmoid curve (S curve), enter for:

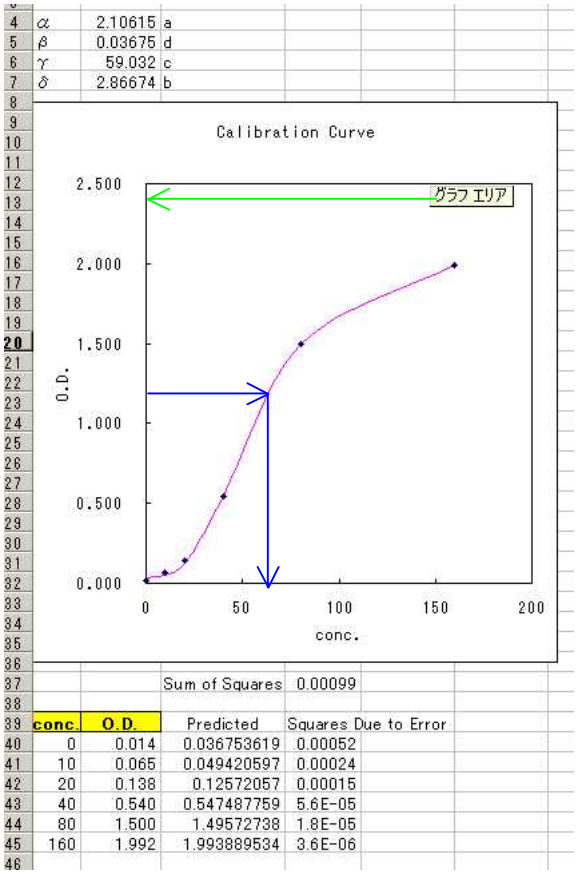
d： 0

a： OD of the highest standard (peak)

c： approximate concentration corresponding to half-maximal OD [conc(OD = ½ a)]

b： approximate slope

After entering a, d, c,gradually varying values may be entered for b until the standard curve fits well.



conc.	O.D.	Predicted	Squares Due to Error
0	0.014	0.036753619	0.00052
10	0.065	0.049420597	0.00024
20	0.138	0.12572057	0.00015
40	0.540	0.547487759	5.6E-05
80	1.500	1.49572738	1.8E-05
160	1.992	1.993889534	3.6E-06

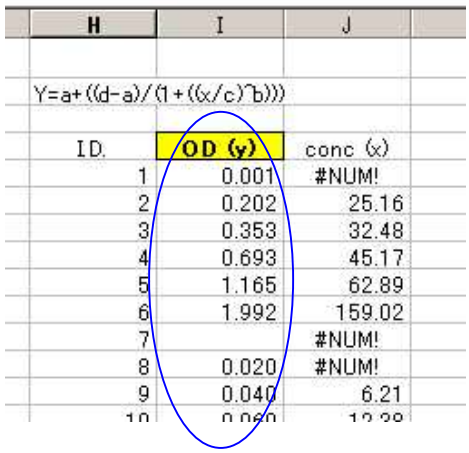
Step 4: Calculate sample concentration

Enter sample OD under cell I5.

The concentration is automatically calculated in column J.

Note)

The calculations may not duplicate faithfully when you copy from this worksheet. Please copy the entire file and then use the "logistic" worksheet for additional ELISA experiments.



ID.	OD (y)	conc (x)
1	0.001	#NUM!
2	0.202	25.16
3	0.353	32.48
4	0.693	45.17
5	1.165	62.89
6	1.992	159.02
7		#NUM!
8	0.020	#NUM!
9	0.040	6.21