BioRad Microplate Reader Model 680 Quick Guide

Filters are 415nm, 450nm, 490nm and 655nm. Temperature can be set from ambient to 45oC. Plate-shaking available in 3 speeds. The Microplate Reader software can generate End-point, Kinetic and Multiple Plate protocols. The Microplate Manager User Guide is available on the computer desktop and on LSCF website.

1. All users must be trained by LSCF.

2. **ONLY use Microplate Manager software to operate reader.** Computer username= pnewcomb; password= Emilyis16

3. Plate reader power button is behind the instrument, near the plug. Enter password 00000 on the reader and hit "enter" key.

4. Set up a folder to store your data. This computer is not networked. Your thumbdrive must have last been opened on a networked university computer. LSCF is not responsible for your data.

5. **Protocols** are found under the FILE> menu. Select Endpoint (.epr), Kinetic (.kpr) and Multiple plate (.mpr) protocol. Use the software to select your wavelength, time, shaking, location of blanks and controls, and other parameters. Protocols are not saved automatically when you click on **RUN**. Save Protocol….or Save Protocol As….

6. Each protocol automatically generates a **Template** (if one wasn't pre-loaded) but needs to "RUN" to generate a data file (.mpm). Generating the data file saves your template.

7. **Templates** can be designed and saved for future use. FILE> New Template> and save it as a data file (.mpm). When you select your protocol there will be an option to select your template. It is possible to import plate information such as sample names using TXT, CSV and other formats.

8. Hit the **RUN** button in the protocol to read the plate. After reading your plate you can select what information to display and print using the **REPORTS** button. **DATA IS NOT SAVED AUTOMATICALLY**. Export your plate data as an Excel or .csv or .txt using FILE>Export. Save in your folder.

9. It is possible to re-analyze your data by uploading a different template. This will not change the reading parameters (wavelengths, temperature, shaking…..) but can change sample names, standard concentrations or calculations.

10. When finished please clean up any spills turn off both the reader and the computer. There is a biohazard trash bin available to you in B20 (provided no radiation or non-standard toxic chemicals are in your assay).

End-point Reports

1. Raw Data = uncorrected absorbance (without blank subtraction).
    a. Single-wavelength= absorbance at set filter.
    b. Dual-wavelength = measurement filter absorbance – reference filter absorbance
2. Absorbance Report = Raw Data absorbance – Blank absorbance (or average blank absorbance)
3. Limit report = qualitative YES/NO report. Asterisk (*) = values between the upper and lower limits; Minus signs (-) = values below the lower limit; Positive signs (+) = values greater than the upper limit
4. Matrix Report = qualitative report of the relative magnitude of the plate. Wells are ranked 1-10; over limit will be marked (+), and under limit are marked (-).
5. Cutoff Report = qualitative report of the relative magnitude of the absorbance values or converted concentrations on the plate. See user manual for details. (Cutoff Constant Ranged ,Cutoff Constant, Cutoff Control Ranged Cutoff Control, Cutoff Formula, Cutoff Ratio)
6. Curve Fit = regression analysis based on the absorbance values of a series of standards. See user manual for details.

Kinetic Reports

1. Kinetic plots = absorbance plots of each well in the plate, available for readers with the optional internal printer or with an external ESC/P printer which accepts ESC/P code.
2. Linear Regression = calculates reaction rate (Km) for each well using the linear regression.
3. GALT = (R2 – R1) * k Where: R1 = 1st reading R2 = 2nd reading k = GALT factor