

Appendix #2¹

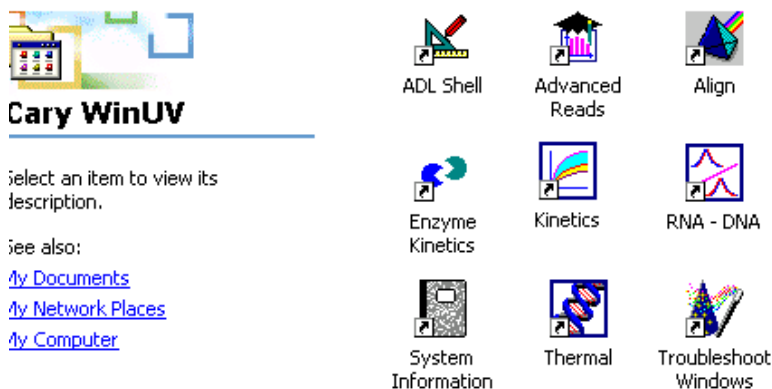
Guidelines for kinetic runs on the Cary 100 Scan UV-Visible Spectrophotometer.

Mircea D. Gheorghiu

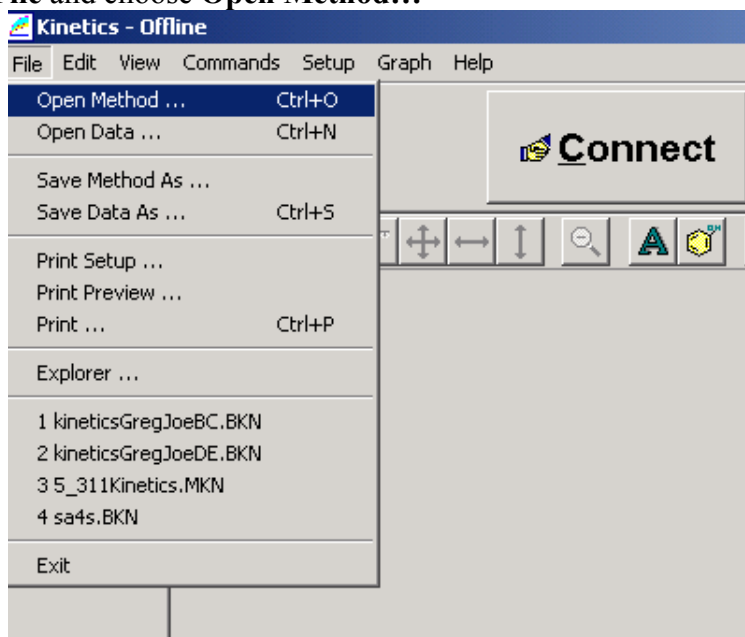
1. On the Dell Optiplex GX 150 Monitor, if **CaryWinUV** is not launched, click on the icon:



then click on **Kinetics** icon.

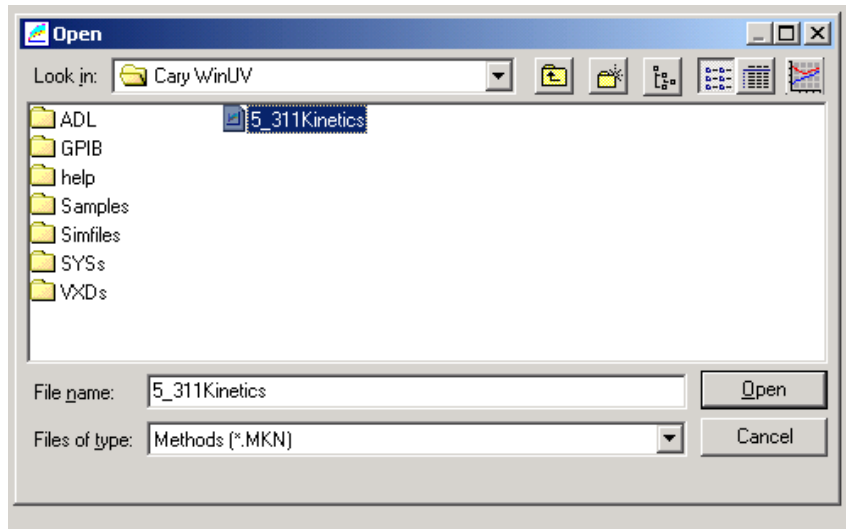


Then click on **File** and choose **Open Method...**

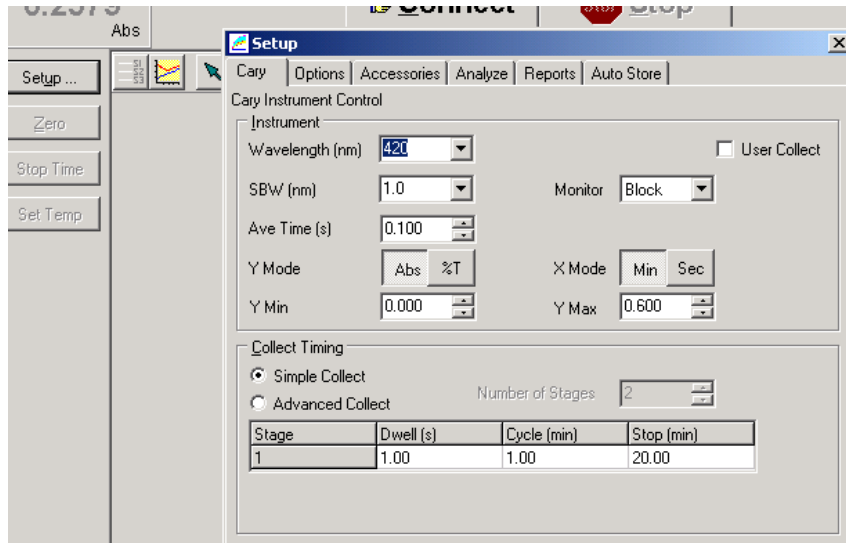


¹ If you have any questions please contact Dr. Mircea Gheorghiu (mircea@mit.edu).

Select and open **5_311Kinetics** method:

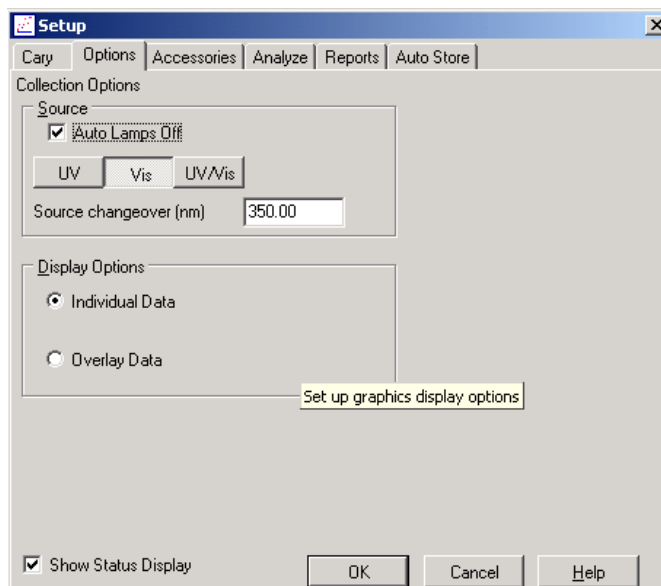


In the **Cary Instrument Control** windows, type **420 nm** for the wavelength at which the instruments collects absorbance data related to the concentration of $K_3[Fe(CN)_6]$. **Ymode** must be **Abs** (Absorbance), **Xmode** must be in **Min** (minutes). Make **Ymin**=0.000 and **Ymax**=0.600. In the **Collect Timing** window, choose **Cycle** = 1.00 minute, and **Stop** time 20.00 minutes.



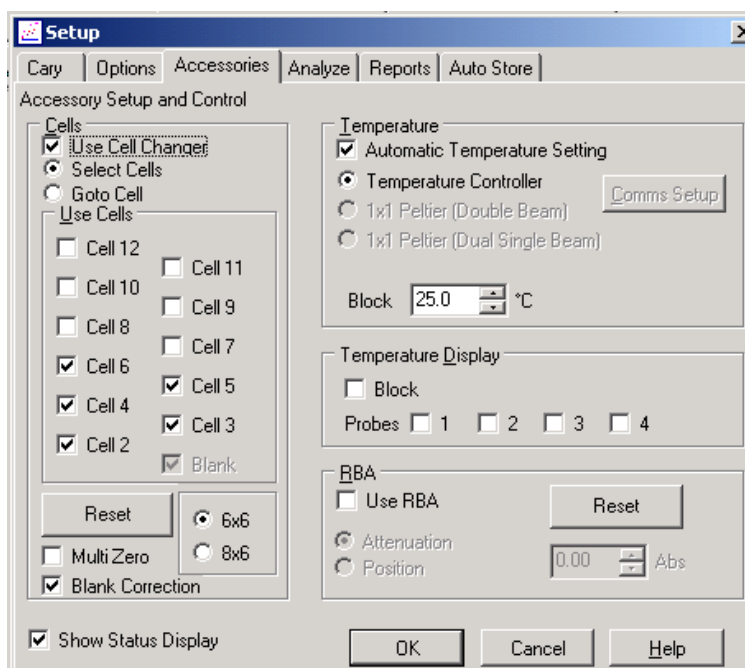
Go to **Options** tab.

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Check in **Auto Lamps Off** box and choose the **Vis** button. As **Display Options** click in the radio button **Individual Data**.

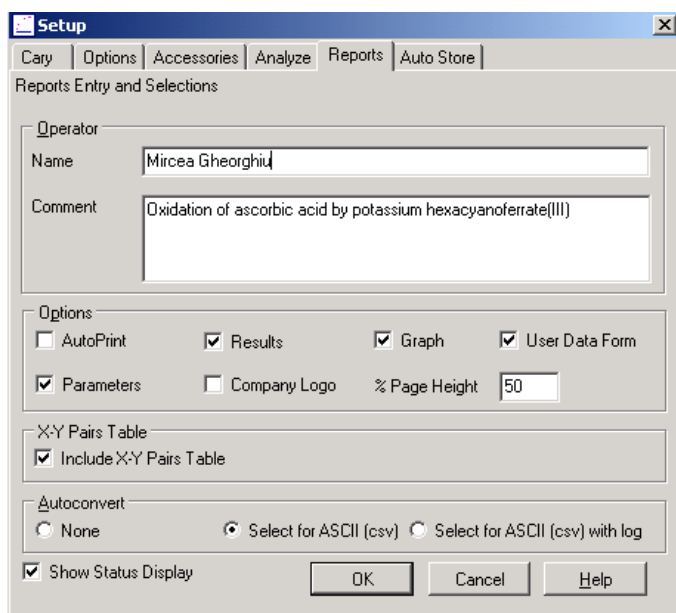
Move to **Accessories** tab. Check the **Use Cell Changer** and the radio button **Select Cells**. Because you will run kinetics in four Ionic Strength environments (0.02 M; 0.05M, 0.1M and 0.2M, respectively) you have to check **Cell2** through **Cell5**. Also, I would like to suggest (is not in the 5.310 Lab Manual) to run a sample without NaNO_3 (What information will provide this particular sample?), and thus to click on **Cell6**. Check the **Blank Correction**, and the radio button **6x6**.



Click on **Automatic Temperature Setting** check box and on the radio button **Temperature Controller**. Set the temperature according to what your TA will suggest (for example any of the following temperatures 15, 20, 25, 30, 35 °C).

Note: kinetics data collection will not start until the cell holder reaches the set temperature.

Go to **Reports** tab. Type your **Name** and the appropriate **Comment**. Check the **Include X-Y Pairs Table**, also **Select for ASCII (csv)** radio button.

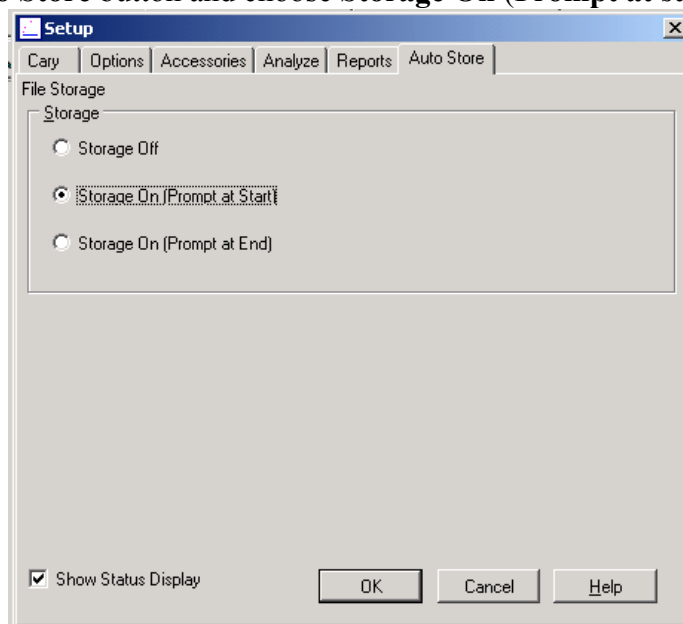


The screenshot shows the 'Setup' dialog box with the 'Reports' tab selected. The 'Reports Entry and Selections' section contains the following fields and options:

- Operator:**
 - Name: Mircea Gheorghiu
 - Comment: Oxidation of ascorbic acid by potassium hexacyanoferrate(III)
- Options:**
 - AutoPrint
 - Results
 - Graph
 - User Data Form
 - Parameters
 - Company Logo
 - Page Height: 50
- X-Y Pairs Table:**
 - Include X-Y Pairs Table
- Autoconvert:**
 - None
 - Select for ASCII (csv)
 - Select for ASCII (csv) with log
- Show Status Display

Buttons: OK, Cancel, Help

Click on the **Auto Store** button and choose **Storage On (Prompt at start)**.

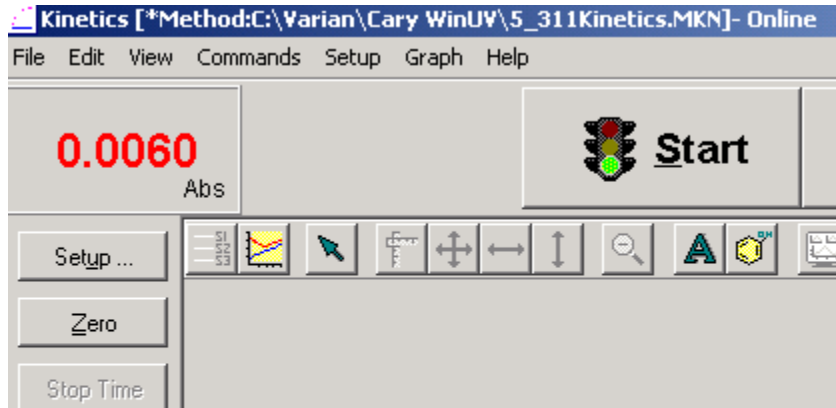


The screenshot shows the 'Setup' dialog box with the 'Auto Store' tab selected. The 'File Storage' section contains the following options:

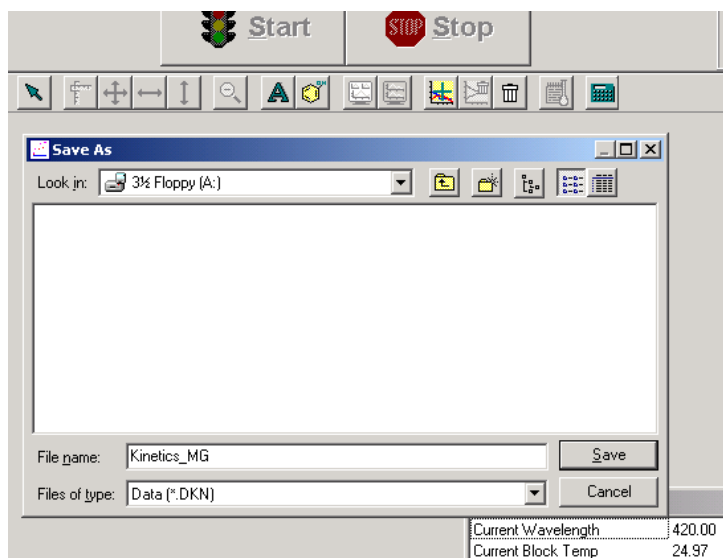
- Storage:**
 - Storage Off
 - Storage On (Prompt at Start)
 - Storage On (Prompt at End)
- Show Status Display

Buttons: OK, Cancel, Help

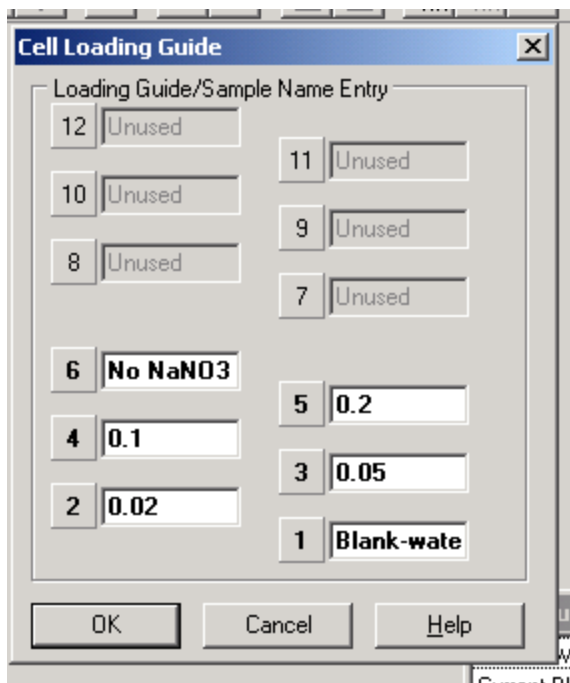
When click on the **Start** button,



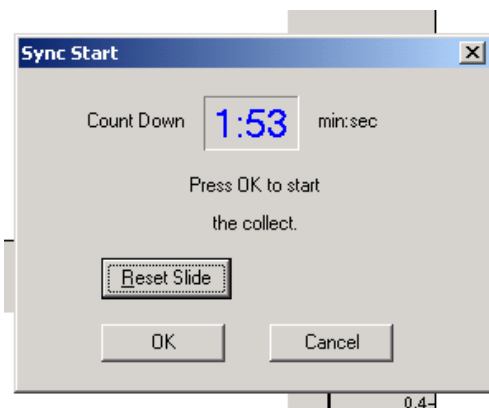
the **Save As** window pops-up:



Give a name to your file (on 3 1/2 floppy), and click **OK**. The **Cell Loading Guide** comes on the screen. Give a name to the blank (for example water) and to cells 2 through 6 (for example 0.02; 0.05; 0.1; 0.2 and No NaNO_3).

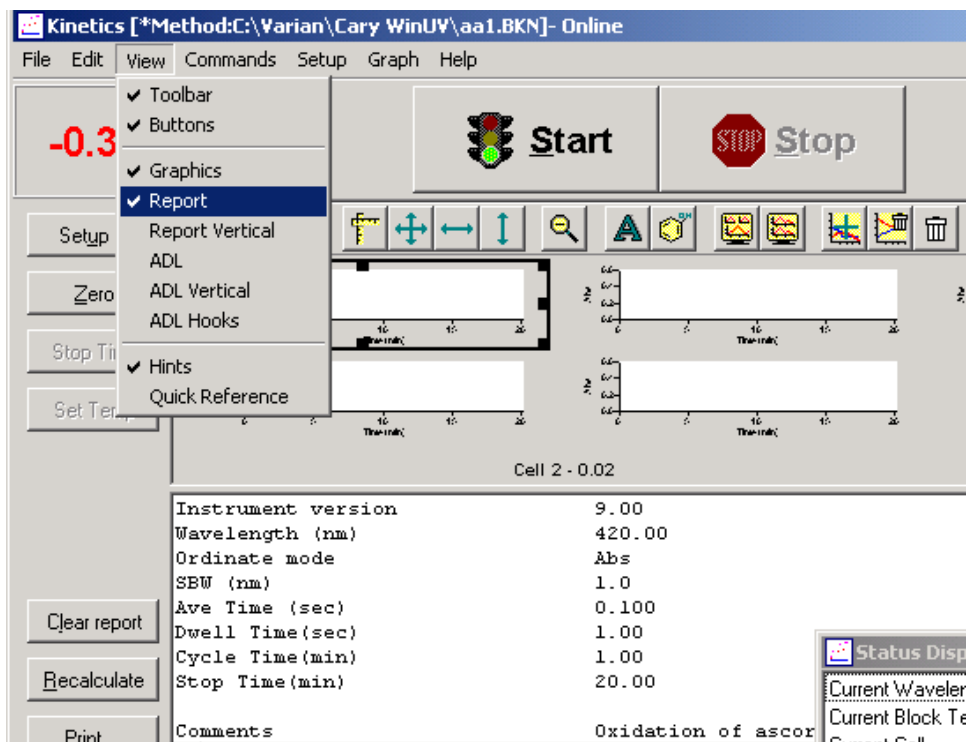


Click **OK**. Automatically the **SyncStart** window comes on the screen. Click **OK**.



On the screen will appear the five kinetics windows. To view the kinetics report, click on **View** then on **Report**.

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When the runs are completed, save the data as Excel files.

Go to Appendix #3.