Autosampler Calibration

The parameters for the bead vials, sample racks, and wash station need to be set properly to avoid a collision of the sipper tube. If the computer being used with the KinExA Instrument and Autosampler is changed, the parameters for the Autosampler will need to be adjusted. When a new computer is used with the Autosampler, all the Autosampler parameters revert to default values. For software versions older than 3.2.6, parameters will need to be adjusted if a new user account is created. To re-calibrate the Autosampler, please refer to the following instructions.

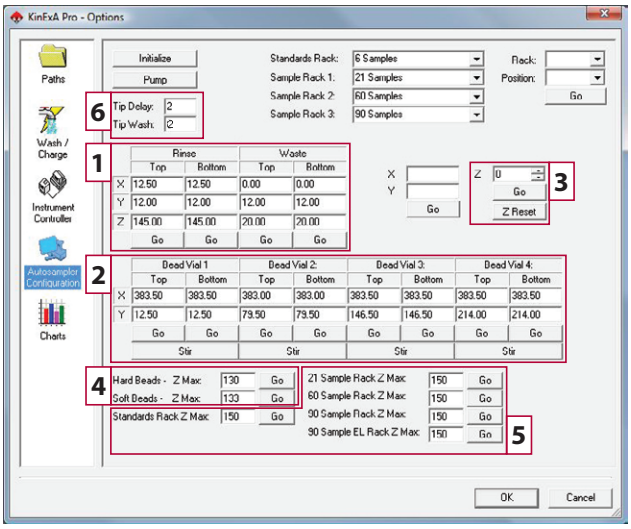

Figure 1. *Autosampler Configuration screen grouped by different calibration sections: 1) Wash Station 2) Particle Reservoir 3) Z: Parameter 4) Vertical Particle Reservoir 5) Sample Rack Calibration 6) Tip Delay and Wash.*

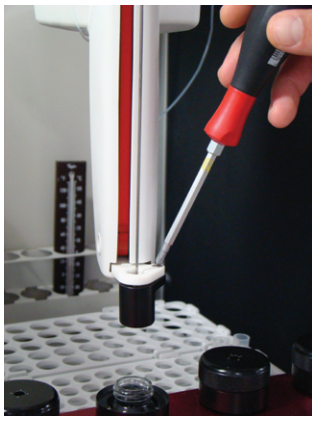

Figure 2. *Removing the stopper dropper.*

Materials Needed

- Phillips #1 Screwdriver
- Empty Bead Vial (Part #: A12116)
- Quad Stirrer Propeller (Part #: 483815)

General Information

- Connect the serial cable from the host plug on the Autosampler to the instrument, if it is not already connected.
- Open the KinExA Pro software. Under the **Tools** menu, select **Options**. The prompt box allows the user to select different options. Select **Autosampler Configuration** (***Figure 1***) to open the calibration screen.
- Move the arm of the Autosampler to access the stopper dropper. (Make sure the **Z-max** is set to **0** to take the stopper dropper off)
- Remove the stopper dropper using a Phillips #1 screwdriver. (***Figure 2***)
- ***Figure 3*** shows the X and Y dimensions of the Autosampler. Refer to this when changing values from their current position. **Z** values are vertical, so Z = 0 is in the up position and Z >0 indicates downward movement of the sipper tube.

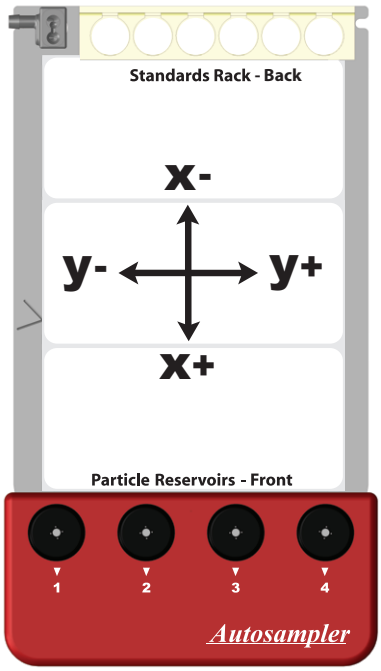

Figure 3. *Autosampler X and Y dimensions.*

1. Wash Station Calibration

- Under the **Autosampler Configuration** screen, adjust only the X and Y parameters under **Rinse** and **Waste** (***Figure 1.1***).
  - » Adjust the X and Y parameters to ensure the sipper tube goes directly down the center of the rinse and waste sections of the wash station (***Figure 4***). Be sure to calibrate the centered sipper tube at both the **Top** and **Bottom** positions.

2. Bead Vial X & Y Axis Calibration

- Place a quad stirrer propeller into particle reservoir 1.
- Under **Bead Vial 1:** select the **Go** button under the **Top** column to position the sipper tube over particle reservoir 1.
- Align the sipper tube with the center of the hole before continuing to the bottom of the reservoir. If the sipper tube looks like it is not aligned, alter settings by 0.5 in the X or Y direction until the sipper tube is aligned in the center of the hole on the quad stirrer propeller (***Figure 1.2***).
  - » Continue using **Bead Vial 1**, and select **Go** under the **Bottom** column.
  - » After the sipper tube drops down, select the **Stir** button. As the stir mechanism spins, gently touch the sipper tube to check if the propeller inside the reservoir collides with the sipper tube. If it does, replace the propeller. If not, gently push the sipper tube left, right, back, and forward to ensure equal distance from the propeller to the sipper tube. If the propeller collides with the sipper tube with very slight movement in all directions, then the propeller may be bent or misaligned and needs to be replaced.
  - » Repeat this process of checking the sipper tube against the propeller for **Bead Vials 2-4**.

3. & 4. Bead Vial Z Axis Calibration

- Remove the quad stirrer propeller from particle reservoir 1 and place an empty bead vial into it. Under **Bead Vial 1:** select the **Go** button under the **Top** column to position the sipper tube over particle reservoir 1. Set the **Z:** parameter to 130 (***Figure 1.3***) and click **Go**. Gently lift the bead vial to test the distance between the bottom of the bead vial and the sipper tube (***Figure 5***). Increase the **Z:** parameter by increments of 1 until the sipper tube is directly on the bottom of the bead vial, but does not crash into the vial. Repeat this for particle reservoir 4. Use the lesser **Z:** parameter value as your "**Z-Max**" (***Figure 1.4***).
  - » Set the soft bead parameter to "Z-Max"-1 increment.
  - » Set the hard bead parameter to "Z-Max" - 3 increments.

5. Sample Rack Calibration

- If using a Microtiter Plate Sample Rack (Part #: 414106), see HG240 - Microtiter Calibration to set the correct parameters.
- Make sure the Z-Max is set for each type of rack in ***Figure 1.5***.
- Place a sample tube in the first, middle, and last positions for each sample rack (including the standards rack).
- Select the rack and position to be checked, then select **Go**.
- Set the Z-max to 150 and select **Go**. Make sure that the sipper tube is almost touching the bottom of the tube. Check the remaining positions and racks. If the tube comes into contact with the bottom of the tube adjust the parameter. Use the lesser **Z:** parameter value as your "**Z-Max**" for the appropriate rack.

6. Tip Delay and Wash Settings

- Make sure the tip delay setting is at **2** and the tip wash setting is also at **2** (***Figure 1.6***).

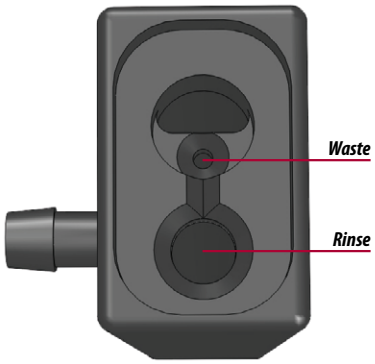

Figure 4. *Align the Rinse and Waste sections so that the sipper tube goes directly down the center of each.*

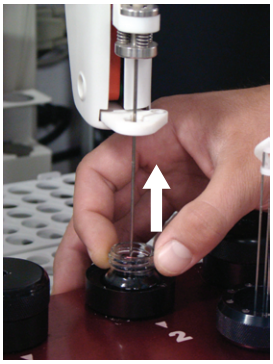

Figure 5. *Check the distance between the bead vial bottom and sipper tube.*