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ATS-100 Evaluation Report
[redacted]
& [redacted]

Objective: Evaluate the ability of the ATS-100 to transfer precisely and accurately different volume of DMSO. Determine the IC50 of known inhibitors for different target by performing their respective biological assay.

Experiment A: Determine the IC50 for known GPCR inhibitors when using the ATS-100 to perform a functional FLIPR assay.
Experiment B: Determine and compare the IC50 of known GPCR inhibitors by performing a functional FLIPR assay.

Experiment A

Description: Following the calibration of the instrument with 80% DMSO/water, 100nL of 80% DMSO/water/dye mixture was transferred from 3x COC plates (supplied by EDC) to 3x 384 well black PS plates from Corning [redacted]. Precision and accuracy were determined with [redacted] as suggested by the supplier protocol. Table 1 summarize our findings for the ATS-100.

	100nL transfer using ATS100 with 384 Greiner COC plate		
Trial	1	2	3
Average	0.115	0.115	0.115
Accuracy (%)	14.8%	14.6%	14.8%
Precision (CV%)	1.83%	2.09%	1.83%
Close Outliers >5% (#)	0	6	0
Far Outliers >50% (#)	0	0	0
Maximum	0.1195	0.1222	0.1195
Min	0.1119	0.1018	0.1119

Conclusion A: The ATS-100 had excellent repeatability, however the accuracy suffered slightly.

EDC Bio Note: Drop volumes were calibrated using different standard solutions in a different laboratory before this test and a recalibration of the ATS-100 was not performed in the current laboratory prior to this study which could very well account for the higher inaccuracy observed.

Experiment B

Description: A volume of 250nl for compounds in ATS-100 COC qualified-plates was transferred to Corning [redacted] 384 black PS plates pre-filled with 35ul of cells and culture media. The FLIPR SOP was performed and IC50 were compared to historical data. Fig.1 gives an example of compound titration and Fig.2 is a correlation plot for IC50 obtained using the ATS-100 and historical data.

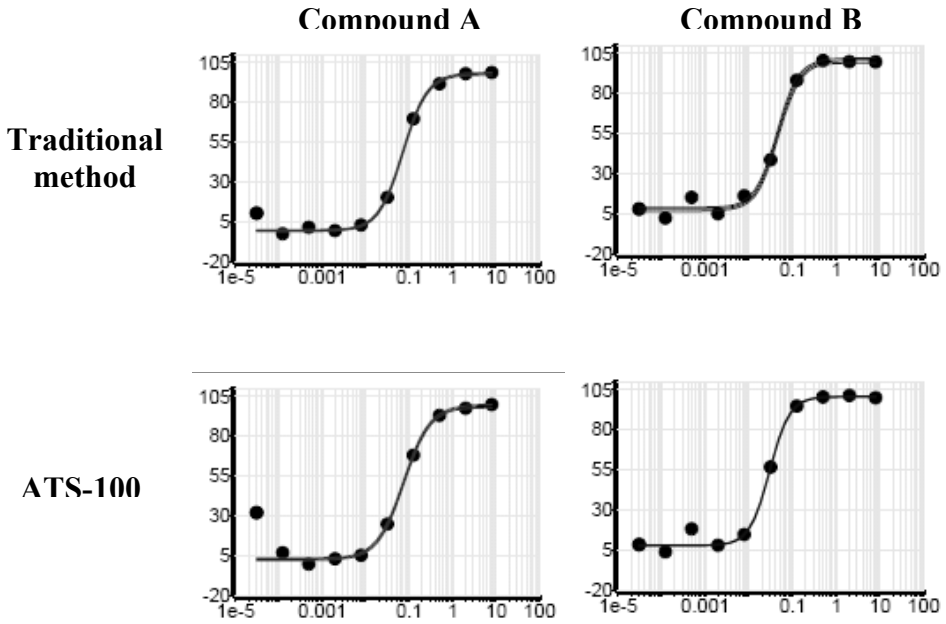

Fig.1 Compound titration obtained using the ATS-100.

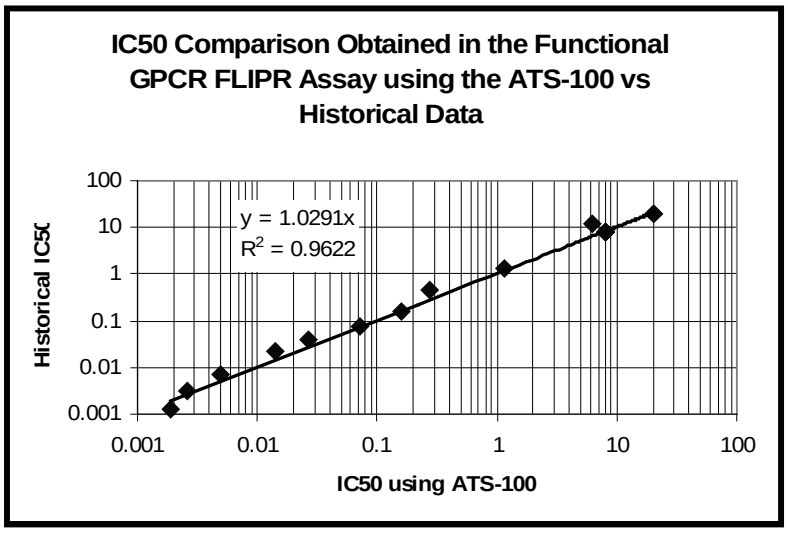

Fig.2 Correlation plot for IC50 obtained using the ATS100 vs historical data.

Conclusion B: The IC50 obtained when transferring compounds with the ATS-100 were similar to historical data.

Summary of our findings

Our experience with the ATS-100 instrument was overall positive. Some of the positive aspects we noticed were:

- Less need to refill the transducer bottle compared to competitor
- The instrument stability is higher due to its lower height
- No need for recirculating water bath
- More open source - User can define different source plates, User can set up his/her own custom liquid.
- User friendly cherry picking software: graphical based where user selects source and destination wells using mouse.
- Less expensive compared to competitor

On the flip side, there were some downsides to the instrument:

- The instrument cannot dispense from polypropylene plates.

  EDC Bio Note: We recommend using COC source plates only in order to get the best possible dispense results.
- It is unable to survey plates to measure DMSO content. Though the ATS-100 can be fine tuned for different DMSO concentrations.

  EDC Bio Note: The ATS-100 does not require prior knowledge of the DMSO concentration in order to dispense with high precision. We also encourage users to abide by the shelf-life of their source plates rather than constant surveying in order to maintain quality.
- The instrument is relatively new on the market and to our knowledge, this unit as not been integrated onto any robotics system.

  EDC Bio Note: As of 12/07 there were three integration projects underway with more coming down the pipeline. We are also working with just about all the integrators currently on the market and all have indicated that the ATS-100 is compatible with their systems.
- Need to adjust manually the destination plate holder to accommodate for various destination plate heights.

  EDC Bio Note: Post July 2007, the ATS-100 has been upgraded to include a quick-release type of destination gripper to accommodate any source/destination height combination without the need to turn any screws or remember any settings. This new gripper assembly also has built-in safety features to prevent improper seating of the gripper and incompatible plate combinations.