REFERENCE

PATsmart™ ZipChip®

Essential Procedures

SW version 1.5.1.7 and above

Initialize ZipChip

1. Before starting, ensure that your mass spectrometer is calibrated, and that ion transfer tube/capillary were recently cleaned/changed.
2. Remove current mass spec source and disconnect any contact closure cables. Remove sweep cone if used. Attach the ZipChip Interface and its contact closure cable(s) to the mass spec. *(for more details see 908devices.com/support)*
3. Connect USB cable, contact closure/autosampler cable, power cable, waste tubing, and BGE & sample transfer lines to the ZipChip interface.
   a. Tighten transfer lines until resistance is felt, then add another quarter turn.
4. Open the ZipChip software.
5. From the Setup Tab:
   a. Perform an ***Autosampler Prime*** using appropriate BGE.
   b. Perform a ***Chip Prime*** using appropriate chip type.

Resuming After Long Batches & Idling

1. Replace chip with Manifold Dryer Chip.
2. Perform *Dry Manifold* from the ZipChip software.
3. Replace the chip. Open the ZipChip software and perform:
   a. *BGE Refresh*.
   b. *Sample Well Rinse*.
   c. *Infusion* (0 V/cm) for 4 minutes.

Shutdown Procedures

1. Perform a ***BGE Refresh*** from the Setup Tab.
2. From the Singles Tab, Perform a ***Sample Well Rinse***, then ***Empty Sample Well***.
3. Remove the chip and empty all wells using a pipette.
4. Place chip into Dry Dock loosely, and then:
   a. Turn on the gas but do not press down on the chip. Dry for 3 minutes before turning off gas.
   b. Inspect chip wells for any microdroplets.
   c. If droplet-free, reinsert the chip into Dry Dock, and this time, push down firmly and lock the hatch. Turn on gas. If droplets are visible, repeat steps 4a-b.
   d. Dry for a minimum of 30 minutes.
5. Perform a ***Dry Manifold*** from the Setup Tab
6. Replace the Manifold Dryer Chip with a blank chip.
7. Close the ZipChip Software.
8. If changing to another MS source, disconnect the ZipChip interface. If possible, leave Sample & BGE transfer line connections intact. Place ZipChip on top of Autosampler.

Recommended Consumables & Settings

Charge Variant Analysis (CVA)

CVA Kit • HRN Chip

Sample Conc: 0.1–1 mg/mL diluted in CVA Diluent
Injection Volume: 1 nL • Analysis Time: 10–15 mins
BGE Refresh Rate: Every 1 line

Intact Denatured Analysis

Peptides Kit • HS or HR Chip

Sample Conc: 0.1–1 mg/mL diluted in Peptides BGE
Injection Volume: 1 nL • Analysis Time: 1–5 mins BGE
Refresh Rate: Every 1 line

Subunit Analysis

Peptides Kit • HR Chip

Sample Conc: 0.1–1 mg/mL diluted in Peptides BGE
Injection Volume: 1 nL • Analysis Time: 4–10 mins
BGE Refresh Rate: Every 1 line

Peptide Mapping

Peptides Kit • HR Chip

Sample Conc: 0.5 mg/mL diluted in Peptides Diluent
Injection Volume: 5.5 nL • Analysis Time: 7–15 mins
BGE Refresh Rate: Every 2–3 lines

Small Molecules, AAA, and Metabolomics

Peptides Kit • HR Chip

Sample Conc: 10 µM diluted in Peptides Diluent
Injection Volume: 5.5 nL • Analysis Time: 5–10 mins
BGE Refresh Rate: Every 2–3 lines

Oligonucleotide Analysis

Oligos Kit/Oligos Starter Kit • HSB or HRB Chip

Sample Conc: 1–10 µM diluted into Oligos Diluent
Injection Volume: 1 nL • Analysis Time: 2–10 mins
BGE Refresh Rate: Every 1 line

Changing BGE

If changing from low-pH BGE (Peptides) to high-pH BGE (CVA or Oligos) follow the Neutral Quenching Protocol as outlined in each corresponding protocol.

Consumables Handling & Storage

- Always wear gloves when handling chips. Never touch the exposed glass corner. Store all chips in an enclosed container. Minimize lab-air exposure of BGE.
- BGE, diluent, and chips can be stored at room temperature.
- Reagents have a 90-day working life after first use.

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