



### Nadia Instrument Technology

1. **Biocompatible oil and emulsion stabiliser** are needed to enable droplet formation.
2. On-chip **filters maximize successful runs** by allowing cells and beads through but filtering out fibres and other particulates.
3. The **oil well U-bend is proprietary technology** that avoids unwanted oil wicking into the microfluidic channel before the run starts, which ensures high quality droplets and minimizes cell doublets. Also, wicking of aqueous fluids is avoided, due to a novel automated oil priming step.
4. In-built **cell stirrers** gently agitate the samples during the run, which maximizes data quality (by minimizing cell doublets and ensuring an even distribution of single cells throughout the run) and maximizes successful runs by avoiding blockages. The stirrers avoid cell damage by rotating gently and away from walls or bottom of the well.
5. Under-chip **guide lights and a wizard-style** touchscreen user interface indicate which wells to fill at each step, minimizing user errors.
6. **Beads are stirred** to ensure singulation and even distribution of beads.
7. Beads are needed with **unique bead barcodes and Unique Molecular Identifiers** to ensure barcoding of cDNA and elimination of the effects of amplification bias.
8. **High throughput droplet junction** as approximately 6000 cells are co-encapsulated with a bead per channel. Live junction visualisation is enabled when using the Nadia Innovate.
9. Up to **8 chips** can be held in one cartridge.
10. The in-built **temperature controller** chills the samples throughout the run to maintain its transcription profile. Also, by eliminating the effect of ambient temperature changes and changes in droplet size, it minimizes cell doublets. And the ultra-smooth **pressure pumps** ensure the most monodisperse droplets possible, which maximizes the number of single cells captured. This is achieved by avoiding doublets in larger droplets and avoiding cells not encapsulated with a bead in smaller droplets.