Sell Sheet | On-chip Sort

Value Proposition: The On-chip Sort provides damage / stress free sorting on a disposable, easy to use microfluidic chip, with high purity and recovery. This provides a unique benefit to those researchers with rare or fragile cells that need precision sorting that won't negatively impact their cell samples.

Flow cytometry *is a technique used to detect and measure physical and chemical characteristics of a population of cells or particles*

Major Features of On-chip Sort:

Damage free sorting

- Low flow pressure (0.3 – 3 psi)
- Gentle air pulses for cell deflection
- No electrostatic charge
- Free to use any sheath fluid (culture media, any kind of buffer, oil, etc.)
  - On-chip does offer a proprietary sheath fluid that is well tested and characterized for those customers that don't require very specialized sheath fluid

High recovery (>90%)

- This is how much of the target cell is being collected from the starting sample.
- Ex: If our starting sample has 100,000 cancer cells, we're interested in how much of that 100,000 is gathered after sorting. In this case, it should ideally be >90,000 cells

High purity (>95%) depending on cell concentration

- This is the percentage of sorted cells that were the target cell of interest and not miscellaneous cells. In other words, how accurate the sort was.
- In the previous example, if we managed to sort 90,000 cells, we should only have an extra 2,000-3,000 non-target cells that were sorted alongside our target of interest.

Lasers:

- Up to three types including Blue (488 nm) as standard and two selected from Violet (405 nm), Green (561 nm), or Red (638 nm) can be used (additional types are also available upon request).

→ Target Market and their needs

- **Flow cytometry core labs**
- **3D cell culture researchers**
  - 3D cell aggregates (e.g. spheroids/ organoids) are traditionally difficult to sort with conventional cell sorters due to their size.
    - It is possible to sort spheroids/ organoids in the 150 µm channel microfluidic chips
- **Microbiologists**
- **Researchers with very rare or very fragile cells**
  - Samples with target cells that are <100:100,000
  - Cells that might differentiate or change gene expression under stress
  - Rare clinical samples
- **Users performing droplet sorting**
  - water-in-oil droplets
  - Gel droplets

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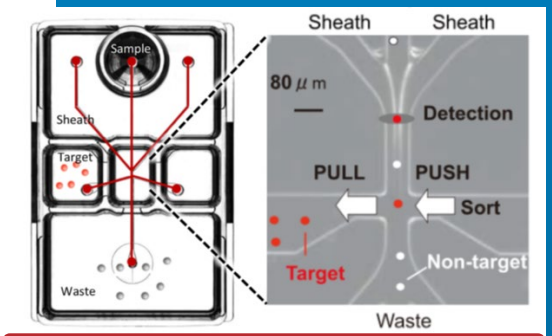
Additional Major Features of On-chip Sort:

Microfluidic chip

- Disposable
- All sorting activity occurs on the chip
  - No clean up
  - No cross contamination
  - Easy to run subsequent sorting runs on the target sample or waste sample
- High clarity plastic for microscopy
- 80µm and 150µm channel sizes for a variety of samples – including large organoids and gel droplets



Microfluidic chip

Ease of use

- Very little maintenance or labor when using the hardware or inserting the microfluidic chip
- Straightforward software
- Because of the easy-to-use hardware and software, multiple users can be quickly taught to use the On-chip sort
- Start-up takes as little as 5 minutes; no calibration is required.

Application - cell sorting and flowcytometry

- Rare or fragile cell isolation (key feature)
- Large cells, organoids/spheroids, tissue samples (key feature)
  - Up to 50µm targets in the 80um chip
  - Up to 120µm targets in the 150um chip
- Bacterial sorting
- Gel and oil encapsulation – cell(s) encapsulated in droplets, usually remaining viable and active within the droplet microenvironment (key feature)
  - Gel droplet, Nano vials
  - Water-in-oil droplets

→ Target Competitors

- **BD Biosciences** – FACSaria:
  These units have higher throughput. A common conventional cell sorter
- **Miltenyi** – MACSQuant:
  These units have higher throughput
- **Sony – FX500, SH800S, MA900:**
  Some units use a different type of microfluidic chip-based sorting technology. Some units are heavily focused on GMP
- **Namocell - Pala**:
  Similar microfluidic chip technology. Less features, but cheaper list price
- **Nanocellect - WOLF:**
  Similar microfluidic chip technology. Less features, but cheaper list price