

NanoCollect Microfluidic Cartridges

Overview

This document gives a thorough description of the NanoCollect microfluidic cartridges, including background, uses, technical specifications, and reagent and instrument requirements.

The use of the NanoCollect microfluidic cartridges is also outlined, including before set-up steps, protocol steps, and warranty.

Description

This product is for research use only. Not for use in diagnostic procedures.

Components

NanoCollect Microfluidic Cartridges

Catalog Number

150110, 150111, 150410, 150411

Capacity

Single-use

Product Format

NanoCollect Microfluidic Cartridges are supplied individually wrapped in sterile packaging packed in a large protective plastic bag with desiccant.

Storage

Store protected from light at ambient temperature in provided plastic bag. Take care to open the plastic bag and take out one individually packaged sterile cartridge at a time per use. Carefully reseal the plastic bag for the remaining cartridges. The expiration date is indicated on the outside of the box. Do not use after this date.

Background

These sterile and single-use disposable cartridges are designed to be used only with the WOLF Cell Sorter systems and N1 Single-Cell Dispenser. Their proprietary design allows cells to be aseptically run on the instrument and removed when complete. The liquids from the sample and sheath only interact and touch the cartridge and associated tubing. Once the cartridge is loaded onto the WOLF Cell Sorter instrument, the cellular and sheath samples are drawn up through the sample and sheath containers by peristaltic pumps, interrogated by passing through the laser path, and then sorted using piezo-actuated triggered movement. After sorting, the target and non-target cells can be removed from the collection container holder for any downstream applications.

Uses

These sterile and single-use disposable cartridges are designed to be used only with the WOLF Cell Sorter systems and N1 Single-Cell Dispenser. The microfluidic cartridges are intended for either Bulk Sorting applications or Single-Cell deposition applications on the WOLF Cell Sorter and WOLF G2 Cell Sorter systems. The Single-Cell cartridges come with an additional needle housing attached to A/B/C outlets for single-cell deposition into 96 or 384 well plates using the N1 Single-Cell Dispenser.

Technical Specifications

- For single use only, within 6 hours of priming
- Sorting Chip Dimensions:
 - Depth: 70 μm
 - Main channel width: 200 μm
 - Sorting Channel A/C width: 50 μm (Cat. No. 150110 / 150111), 75 μm (Cat. No. 150410 / 150411)
 - Sorting Channel B width: 60 μm (Cat. No. 150110 / 150111), 75 μm (Cat. No. 150410 / 150411)
- Sample volume: 100 μL (with chase) – 5mL (ability to continually add)
- Cell concentration not recommended above:
 - 1×10^6 cells/mL for bulk-sorting
 - >100,00 cells/mL for single-cell sorting
 - $>5 \times 10^6$ cells / mL for analysis only

Reagent and Instrument Requirements

- WOLF Cell Sorter or WOLF G2 Cell Sorter
- N1 Single-Cell Dispenser for 96- or 384-well plate deposition
- WOLFViewer software (version 2.4 and above)
- Sterile-filtered sheath buffer (0.22 μm filtered)
- Lint-free optical grade wipes (Nikon pre-moistened Lens cleaning wipes)
- For single-cell sorting: 37-40 μm strained sample (Cat. No. 150110/150111)
- For bulk-cell sorting: 50-60 μm strained sample (Cat. No. 150410/150411)

Use of NanoCelect Cartridges

The WOLF Cell Sorter systems can be operated with two types of cartridges depending on experimental design:

- Bulk-Sorting cartridges (150110 and 150410) for bulk-sort applications can be used for 1-way or 2-way sorting into collection tubes.
- Single-Cell cartridges (150111 and 150411) are used for 1-way sorting into 96- or 384-well plates. The cartridge sorting outlets are connected to an extra length of tubing that attaches to the N1 Single-Cell Dispenser module for single-cell dispensing into 96- or 382-well plates.

Before Set-Up

- Prepare sheath fluid ahead of time and 0.22 μm sterile filter. Prepare sample ahead of time using recommended filters and strainers.
- Prepare NanoCelect Calibration Beads (Cat. No. 17011) per Technical Data Sheet instructions.
- Carefully wipe down instrument(s) with optical-grade wipes to maintain a clean and dust-free sorting area.
- Take caution with cartridges when opening sterile packaging.
- Do not touch the glass portion of the cartridge/chip, as fingerprints can harm the optical signal. If touched, gently wipe clean with an optical-grade alcohol wipe.

Protocol

For detailed instructions on how to use the NanoCelect Microfluidic Cartridges, please refer to the WOLF or WOLF G2 Cell Sorter User Guide.

For WOLF Cell Sorter:

- Carefully follow the WOLF User Guide instructions section 2.2, "Powering on and Cartridge Selection".
- Follow sections 2.3, "Cartridge Insertion," and 2.4, "Tubing Connection," on how to carefully insert a cartridge and attach the single-cell housing on the N1 Single-Cell Dispenser if performing sing-cell deposition. Take caution to not smudge the delicate optical sorting chip area.
- Follow section 2.5, "Cartridge Priming and Chip Alignment," to correctly complete priming and chip alignment.
- Finish the set-up process by completing sections 2.6, "Chip Offsets Calculation," and 2.7, "Chip Calibration," before sorting.
- When you are finished with a cartridge, take care to properly remove it from the WOLF, following section 7.2, "Removing a Cartridge" instructions.
- Throw away the used cartridge and all attached tubing into a biohazard waste bin and turn off the instrument(s).

For WOLF G2 Cell Sorter:

- Carefully follow the WOLF G2 User Guide instructions section 2.2, "Powering on and Cartridge Selection".
- Follow sections 2.3, "Cartridge Insertion," and 2.4, "Tubing Connection," on how to carefully insert a cartridge and attach the single-cell housing on the N1 Single-Cell Dispenser if performing sing-cell deposition. Take caution to not smudge the delicate optical sorting chip area.
- Follow section 2.5, "Cartridge Priming and Chip Alignment," to correctly complete priming and chip alignment.
- Finish the set-up process by completing section 2.6, "Chip Calibration," before sorting.
- Follow section 9.3, "Removing a Cartridge" instructions.
- Throw away the used cartridge and all attached tubing into a biohazard waste bin and turn off the instrument(s).

Warranty

The products sold hereunder are warranted only to be free from defects in workmanship and material at the time of delivery to the customer. NanoCollect Biomedical makes no warranty or representation, either expressed or implied, with respect to the fitness of a product for a particular purpose. There are no warranties, expressed or implied, which extend beyond the technical specifications of the products.

NanoCollect Biomedical reserves the right to not replace cartridge due to any piece of cartridge tubing falling off or coming apart. In that case, NanoCollect Technical Support will guide the user on how to reassemble tubing for proper use.

NanoCollect Biomedical reserves the right to not replace cartridge due to user-induced dust fibers or other clogs impeding use.

NanoCollect Biomedical reserves the right to not replace cartridge if user-induced finger smudge on optical chip impedes use. In that case, NanoCollect Technical Support will guide the user on how to wipe away marking.

The warranty is void if the user runs a cartridge with sheath or sample buffer that contains organic solvents, high salt content, bleach, alcohols, oils of any kind, and any other non-aqueous buffer. The warranty is void if the user runs a cartridge after priming for more than 6 hours.

The warranty is void if the user does not store cartridges within indicated storage conditions. The warranty is void if the user runs a cartridge on the WOLF after expiration date indicated on box. In addition, this may invalidate their WOLF system warranty or service contract.

The end-user must be running cartridges with latest software version NanoCollect Biomedical deems appropriate.

NanoCollect Biomedical's liability is limited to either replacement of the products or refund of the purchase price. NanoCollect Biomedical is not liable for any property damage, personal injury or economic loss caused by the product.

For more information, visit nanocellect.com or email info@nanocellect.com