



UNIPICK UNIPICK+ A-PICK

CELL AND TISSUE ACQUISITION SYSTEMS

World's Most Versatile and Cost-Efficient
Single Cell Collection and
Tissue Microdissection Systems



CELL AND TISSUE ACQUISITION



There is a high demand for methods permitting simple and rapid collection of individual cells and tissue regions in the numerous fields of biomedical sciences, from single cell analysis and stem cell research to neuroscience and cancer diagnostics. Existing approaches are costly, sophisticated and often methodologically limited.

To address this demand, NeuroInDx developed a product line of versatile instruments. Rapid collection of single or multiple cells can be performed from cell cultures and various tissues.

Our technology is based on the improved aspiration principle that utilizes carefully controlled vacuum pulse to acquire a desired tissue region or lift attached cell. Instruments range from manually controlled Unipick™ to fully automated A-pick™ and its proprietary software, PIKCELLS™.

Versatility of our instruments ranges from single cell collection to tissue microdissection, including protocols developed for single cell adhesion force measurement and acquisition of regions of interest from fixed tissue specimens such as formalin fixed paraffin embedded (FFPE) tissues. The instruments can reliably transfer from nanoliter to microliter volumes and fit multiple models of inverted microscopes using our proprietary universal microscope straddle.

Summary of advantages

- Cost-efficiency with minimal consumables
- Flexibility, fits most inverted microscopes
- High adaptability for customization
- High viability of collected cells
- Versatility in applications
- Functional adhesion test

NeuroInDx's instruments are installed around the world in numerous academic and industrial locations. We take care of our customers and provide ongoing support from the initial installation and training to protocol optimization and troubleshooting.

Single cells can be collected from any culture dish preserving cell viability. Collection of a single human lung carcinoma A549 cell.



UNIPICK™ (#U010)

versatile set-up for cost-effective tissue microdissection



A versatile tissue microdissection and cell collection instrument used as an add-on to a wide range of inverted microscopes.

The instrument consists of three main parts: collection assembly head, control box and a universal microscope straddle.

For mounting over an inverted microscope, upper microscope illumination must be temporarily removed.

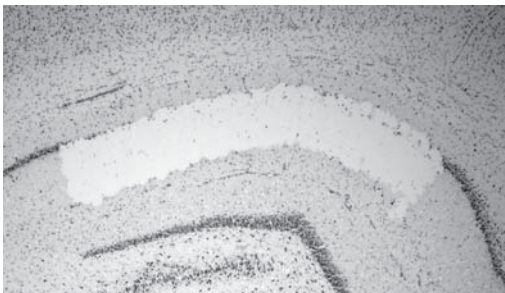
Notable Features

- Simple operation with minimal training
- Flexibility and versatility – fits any inverted microscope
- Compact and easy-to-use instrument requiring minimal training
- Most cost-efficient microdissection system
- Rare cell collection from adherent cultures and 3D cultures
- Efficient tissue microdissection and isolation of individual cells
- High viability of collected cells for clonal expansion
- High quality RNA and protein for downstream studies (RIN >9.0.)

How it works

Unipick™ is a free-standing instrument that can be mounted over a wide range of inverted microscopes. Main use of Unipick™ is microdissection of complex heterogeneous tissues such as the brain for various applications, including -omics studies. Unipick™ can also acquire individual cells from cell cultures and tissues, providing reliable and affordable means of most sophisticated experimentation.

Operation of this instrument is intuitive and requires minimal training. Cells collected from cultures demonstrate high viability suitable for clonal expansion or reculturing.



CA3 hippocampal area
collected from an adult
mouse brain section

SPECIFICATIONS

Interface:	Analog
Max Vacuum:	70.0 kPa
Pulse Duration:	0.1 to 1.0 sec
Sample compatibility:	Cell cultures and tissues
Resolution:	10~20 µm
Viability:	up to 99%
Available DCU sizes:	10 µm to 100 µm
Vertical Travel Step:	1.5 µm
Specimen Holder:	Standard
Acquisition Volume:	10 nl to 5.0 µl
Collection Speed:	up to 25 cells/minute
Microscope compatibility:	Most inverted microscopes

UNIPICK+™ (#UP010)

Digital control for single cell collection



Unipick+™ is a universal digital platform for tissue microdissection, single cell acquisition, and deposition into the single wells for further molecular analysis or clonal expansion. Unipick+™ can isolate cells from a variety of formats, including tissue sections, adherent cultures, cell suspensions, 3D cultures, smears, and microfluidic chips.

It features full digital control and an optional automation. It may be used as an integrated system with Olympus inverted microscopes (CKX31/CKX41, IX51/IX71/IX81, IX53/IX73/IX83) or as an add-on to a wide range of inverted microscopes, allowing researchers to add single cell isolation capabilities to their lab bench.

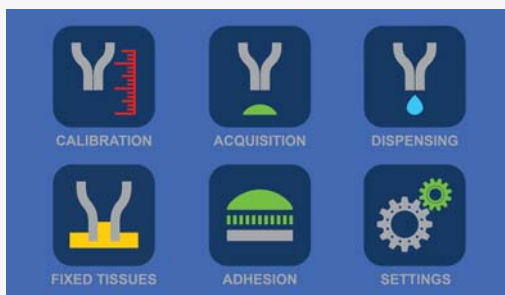
Notable Features

- Single and rare cell collection from adherent and 3D cultures
- Efficient tissue microdissection and isolation of individual cells
- Quantitative single cell adhesion assays
- Isolation of regions of interests from fixed tissue specimen
- High viability of collected cells for clonal expansion
- High quality RNA and protein for downstream studies
- Intuitive touch screen operation
- Fits most inverted microscopes
- Optional automation
- Cost efficiency

How it works

Unipick+™ is a digitally controlled system designed to microdissect tissues, collect and deposit individual cells from any cultures, and measure individual cell adhesion. Like Unipick™, the system may be used with a wide range of inverted microscopes.

The benefits include cost-efficiency, simple operation, digital interface, and a complete workflow from single cell isolation to downstream analysis or clonal expansion.



Digital interface for convenient control and optional automation

SPECIFICATIONS

Interface:	Digital
Max Vacuum:	70.0 kPa
Max Pressure:	34.5 kPa
Pulse Duration:	0.1 to 1.0 sec
Sample compatibility:	Cell cultures and tissues
Resolution:	10~20 µm
Viability:	up to 99%
Available DCU sizes:	10 µm to 100 µm
Vertical Travel Step:	1.5 µm
Specimen Holder:	Standard, Custom
Acquisition Volume:	10 nL to 5.0 µl
Collection Speed:	up to 25 cells/minute
Microscope compatibility:	Most inverted microscopes
Automation:	Optional
Additional assays:	Adhesion measurement

A-PICK™ (#AP010)

Full automation in cell and tissue acquisition



A-pick™ is the latest fully automated member of the NDX family of products for the isolation of individual cells from cultures, single cell adherence test, and tissue microdissection. The instrument can isolate cells from a variety of formats, including tissue sections, adherent cultures, cell suspensions, 3D cultures, smears, and microfluidic chips.

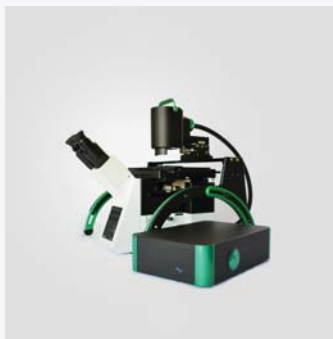
The entire process is automated and may be optimized using our proprietary software PIKCELLS™. A-pick™ is directly integrated with Olympus IX51/IX71/IX81 and IX53/IX73/IX83 inverted microscopes or may be used as an add-on for a range of inverted microscopes.

Notable Features

- Single and rare cell collection from adherent and 3D cultures
- Efficient tissue microdissection and isolation of individual cells
- Quantitative single cell adhesion assays
- Isolation of regions of interests from fixed tissue specimen
- High viability of collected cells for clonal expansion
- High quality RNA and protein for downstream studies
- Intuitive software to control entire process
- Capillary tip autocalibration and measurement
- Data storage and process inspection
- Cost efficiency

How it works

A-pick™ capabilities include automated cell collection and deposition, tissue microdissection and adhesion assay. Collection modes include single cell collection and single cell pooling. It features fully adjustable parameters for pulse duration, vacuum and pressure strengths, speed, and capillary rinsing, instant calculation of applied force for collection or deposition, data storage and retrieval as tab delimited files. Image analysis and collection inspection, DCU calibration sequence and several default presets are available as standard collection protocols. The instrument is fully compatible with single cell analysis protocols.



SPECIFICATIONS

Interface:	Digital
Max Vacuum:	70.0 kPa
Max Pressure:	34.5 kPa
Pulse Duration:	0.1 to 1.0 sec
Sample compatibility:	Cell cultures and tissues
Resolution:	10~20 µm
Viability:	up to 99%
Available DCU sizes:	10 µm to 100 µm
Vertical Travel Step:	1.5 µm
Specimen Holder:	Standard, Custom
Deposition capacity:	Up to 48 samples per run
Collection mode:	Single Cell/Pooled Cells
Acquisition Volume:	10 nL to 5.0 µL
Collection Speed:	up to 25 cells/minute
Microscope compatibility:	Olympus IX73 and IX83
Automation:	Operated by PIKCELLS
Additional assays:	Adhesion measurement

ACCESSORIES



Disposable Capillary Units (DCUs) (DCUXXX)

Ready-to-use sterile DCUs with various tip diameters ensure precise collection and minimize contamination. DCUs are made from filamented borosilicate glass and available with internal diameters (IDs) 10 μ m (DCU010) to 100 μ m (DCU100).

Custom IDs are available on request. DCUs are sold in packages of six.

Universal Microscope Stage Adapter (U050)

The adapter allows for collection and deposition of samples in multiple configurations – from slide to slide, plate to plate, slide to plate, slide or plate to PCR tubes, 8-tube strips or a 48-well plate.

The universal sample holder must be used with automated Unipick+™ and A-pick™ instruments to ensure compatibility with the software.



Universal Mounting Assembly (U020)

Universal straddle permits pairing both Unipick and Unipick+ systems with nearly any inverted microscope from cell culture microscopes to more advanced systems for unmatched flexibility in laboratory work.

Bridges accommodate microscope width up to 537 mm and stage height of 183 mm to 356 mm. Dim: H280-410 mm X W437-637 mm X D460-480 mm.



Microscope Slide Heating System (HSC01)

Slide heating system ensures precise and stable thermal control from room temperature to 120 °C (248 °F) with 0.1 °C accuracy. Heated glass slide provides uniformly heated surface.

Preheating to 120 °C takes approximately 30 seconds. It comes with its own Universal Sample Holder but may also be used directly on any standard microscope stage.

SPECIFICATIONS

Power input:	110V-240V, ~ 50-60HZ
Power output:	24V, 1.5A
Temperature range:	37 °C to 120 °C
Controller dimensions (mm):	H100 X W110 X L135
Stage dimensions (mm):	H5 X W60 X L85
Net Weight:	1.0 kg



APPLICATIONS

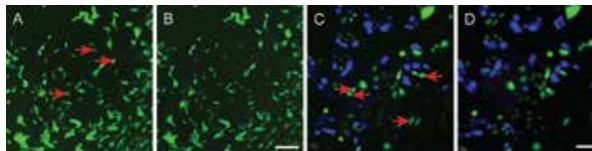
There are numerous applications in the fields of cancer and stem cell research, neuroscience, developmental biology, spatial genomics and proteomics, pharmaceutical science, lab-on-a-chip technologies, and basic biology.

Any research that requires isolation of single cells or acquisition of subanatomical regions can take advantage of our products. Below are some of the most representative applications.

- Collection in bright field and dark field
- Isolation of single cells from cultures
- Collection of rare cells
- Isolation of cell clusters from 3D cultures
- Clonal expansion of single cells
- Isolation of CTCs
- Collection of single cells from biochips
- Isolation of single cells from brain sections
- Adhesion measurement of single cells
- Microdissection of various tissues
- Microdissection of organoids
- Isolation of ROIs from fixed tissues

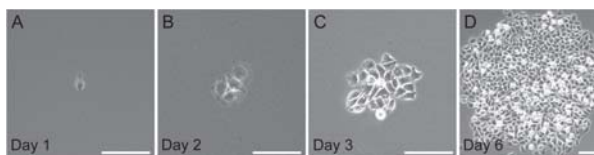
The instruments are highly adaptable to any protocols, offering customizable acquisition, dispensing, detachment, and washing parameters.

Collection of single cells from cultures

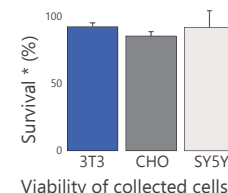


Collection of individual SH-SY5Y (A,B) and CHO (C,D) cells

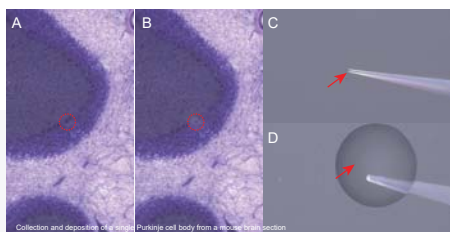
Single cell clonal expansion



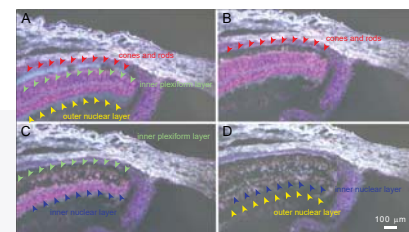
Clonal expansion of single CHO cell



Tissue microdissection and cell isolation

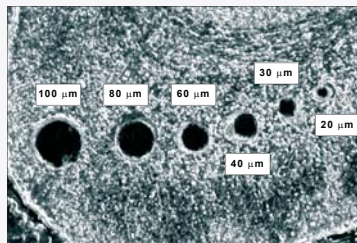


Collection of a single motor neuron from adult mouse spinal cord. Tissue thickness = 20 μm

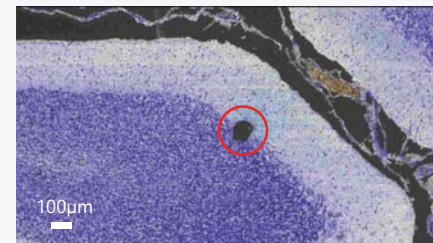


Representative microdissection of fresh frozen adult mouse retina. Tissue thickness = 12 μm

Collection of ROIs from fixed tissues

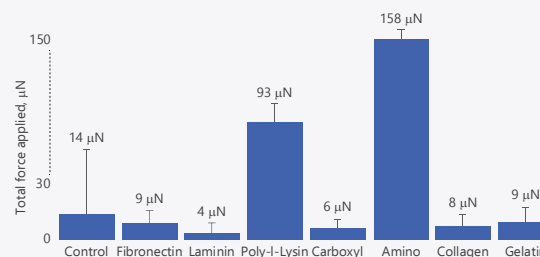


Collection of regions of interest (ROIs) from PFA fixed mouse tissue



Collection of a representative ROI from human archived FFPE brain tissue

Single cell adhesion assay

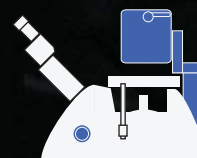
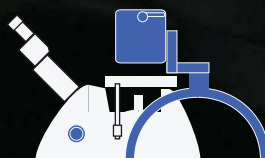


Ramp-Assisted Measurement Protocol (RAMP) identifies adhesion strength of human lung carcinoma A549 cells to various substrates (from Ma et al, 2021, SLAS Technology)

Catalog #	Product Description
U010	Unipick™, Universal cell and tissue acquisition system * - Collection Head and Controller
UP010	Unipick+™, Universal cell and tissue acquisition and deposition system * - Collection Head and Controller. **
UPA01	Unipick+ software upgrade package for automation using Märzhäuser Wetzlar GmbH & Co. KG motorized stages.
AP010	A-pick™: Automated cell and tissue acquisition and deposition system * - Collection Head, Controller, USB 3.0 CMOS camera, and PIKCELL™ software. **
U020	Universal Mounting Assembly for inverted microscopes * - Bridge with adapter for the collection head, Legs & Calibration Unit.
HSC01	Heating Stage and Controller for standard 20 mm microscope glass slides (75 mm x 25 mm). Min. temp 37 C, Max. temp 120 C. Includes Heating Stage Holder.
DCUXXX	DCUs size 10, 20, up to 100 µm (6pk)
U030	Direct microscope mount adapter for Olympus CKX41/CKX31 inverted microscopes
U035	Direct microscope mount adapter for Olympus IX51/IX71/IX81 inverted microscopes
U040	Direct microscope mount adapter for Olympus IX73/IX83 inverted microscopes
DCU-ST	DCU Sterilization Tray (holds 12 DCUs)

* Microscope and/or motorized stage NOT included

** Includes one set of universal microscope stage adapter for Petri dishes, slides, and 48-tube holder



Microscope Compatibility	Free standing	Directly integrated
Unipick Unipick+	A wide range of microscopes (contact us to ensure compatibility)	Olympus CKX31/CKX41/ IX51/ IX71/IX81/IX53/IX73/IX83
A-pick	Olympus IX51 / IX71 / IX81 / IX53 / IX73 / IX83 / Nikon Eclipse MA100 (contact us to ensure compatibility with other microscopes)	Olympus CKX31/CKX41/ IX51/ IX71/IX81/IX53/IX73/ IX83

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SAFETY INFORMATION

Please read the instruction manual carefully in order to safely operate or handle any NeuroInDx product

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