INNOPSYS
LifeSciences

# InnoScan scanners

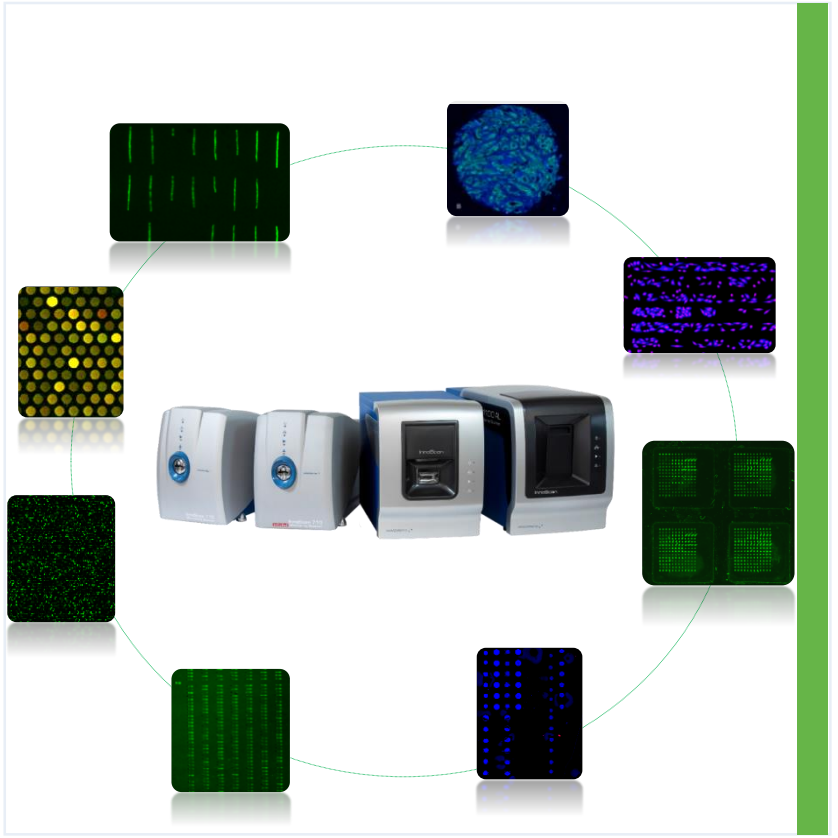
## A complete range of fluorescence scanners

# InnoScan microarray fluorescence scanners

Innopsys 20-year experience in fluorescence detection

## InnoScan key features

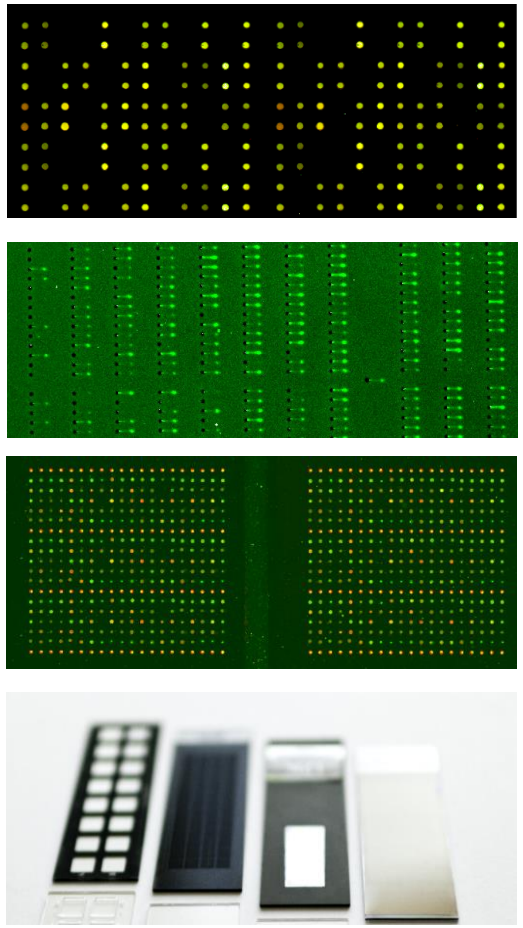
- High performance fluorescence scanners
- Open to all kind of microarray applications
- Easy multiplexed assays
- Adapted focus (automatic, in content…)
- User-friendly software
- Single slide and 24-slide autoloader systems
- Complete range of scanners to adapt to each microarray slide format and application



# InnoScan 710

## Fast, Small and Reliable

- Ideal tool for routine two-color assays
- Two color simultaneous detection:
  - Green → Ex: 532 nm
    - Compatible dyes: Cy3, AF 555, TRITC
  - Red → Ex: 635 nm
    - Compatible dyes: Cy5, AF 647, DraQ5
- 3 µm/pixel resolution
- Open system to all kind of microarray applications
- The most robust and rapid microarray scanner on the market
- Complete automation: Single- or 24-slide autoloader

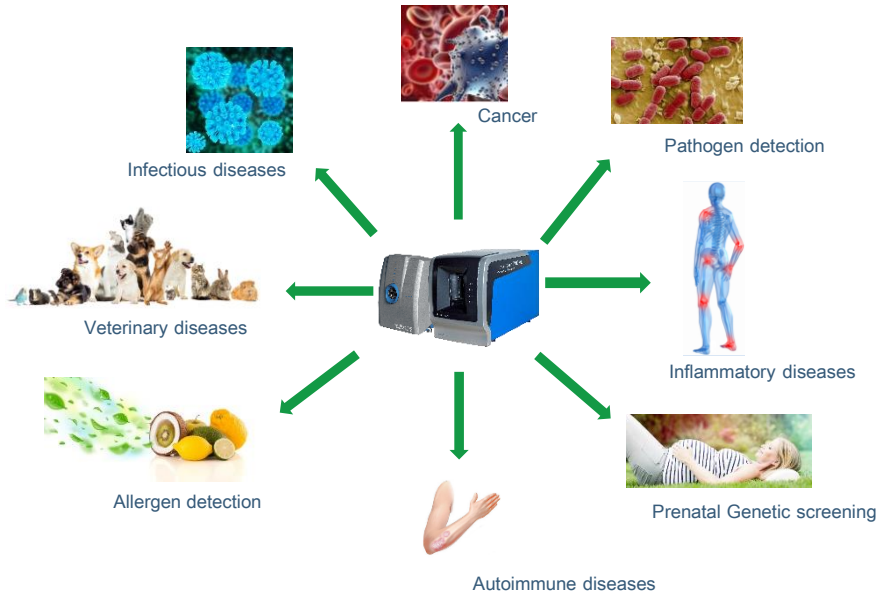



# InnoScan 710

## Applications

## The InnoScan 710 is being used…

- …to screen cancer blood-protein biomarkers using dedicated antibody microarrays
- …to detect genetic abnormalities on pre-natal and post-natal samples using aCGH microarrays
- …to perform pathogen screening through SNP microarrays
- …to follow protein expression and posttranslational protein modifications by using protein microarrays
- …to perform multiplexed single-cell western as complementary tool of the Biotechne's Protein Simple MILO system




## Application Fields

- PGS / PGD
- Cancer research
- Cell signaling
- Immunology

# InnoScan 710-G, 710-R

## Single-color detection

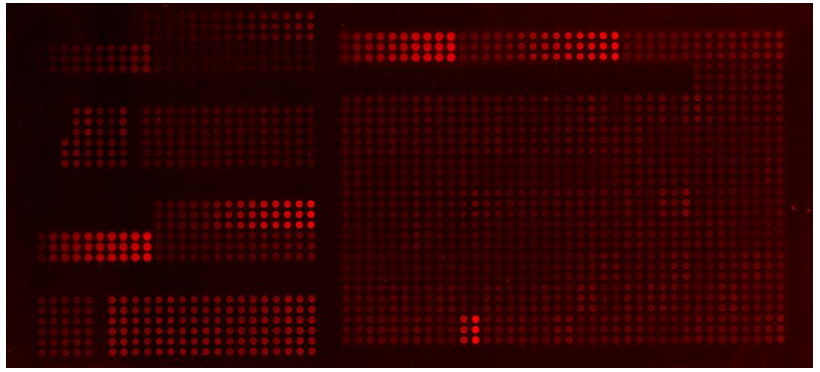
- Ideal for small budgets
- Single-color detection:
  - **InnoScan 710-G** → Ex: 532 nm
    - Compatible dyes: Cy3, AF 555, TRITC
  - **InnoScan 710-R** → Ex: 635 nm
    - Compatible dyes: Cy5, AF 647, DraQ5
- 3 µm/pixel size
- Dedicated to single-color diagnostic microarrays
- Rapid scan: less than 4 minutes for the whole slide scan at 10µm/pixel resolution
- Complete automation: Single- or 24-slide autoloader

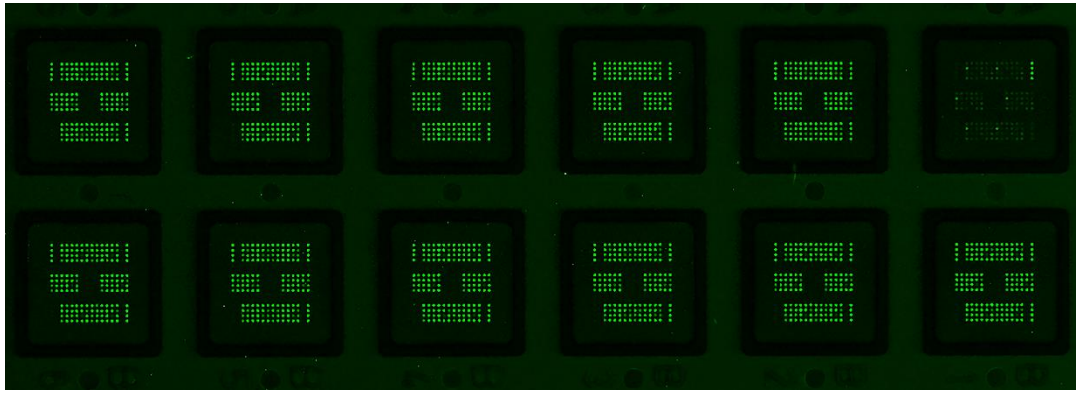
# InnoScan 710-G, 710-R

## Applications

### The InnoScan 710-G 710-R are being used…

- … to detect pathogens in water through SNP microarrays
- … to follow inflammation markers on different samples (sera, cell culture media, etc) by using cytokine arrays





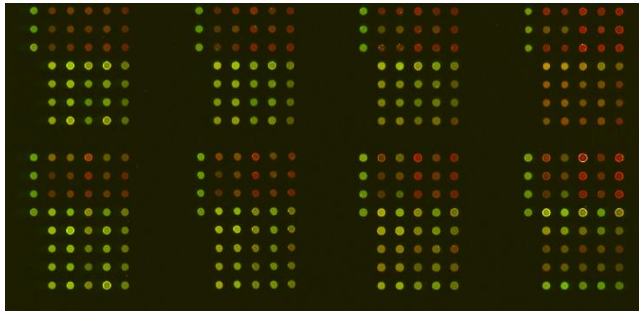
## Application Fields

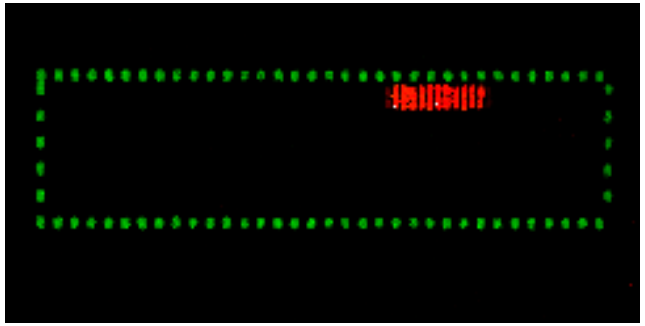
- Cytokine screening
- Pathogen detection

# InnoScan 710-IR

## Near Infrared detection

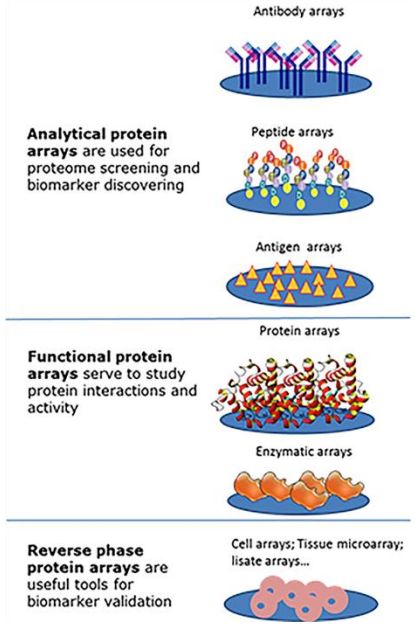
- Infrared detection to avoid support background
- Two color simultaneous detection:
  - → Ex: 670 nm
    - Compatible dyes: AF670, IRdye700, Dylight680
  - → Ex: 785 nm
    - Compatible dyes: AF790, IRdye800, Dylight800
- 3 µm/pixel resolution
- Dedicated to nitrocellulose- or PDVF-coated slides
- Slide configurations to adapt focus to coated-slides
- Extended dynamic range: > 6 logs



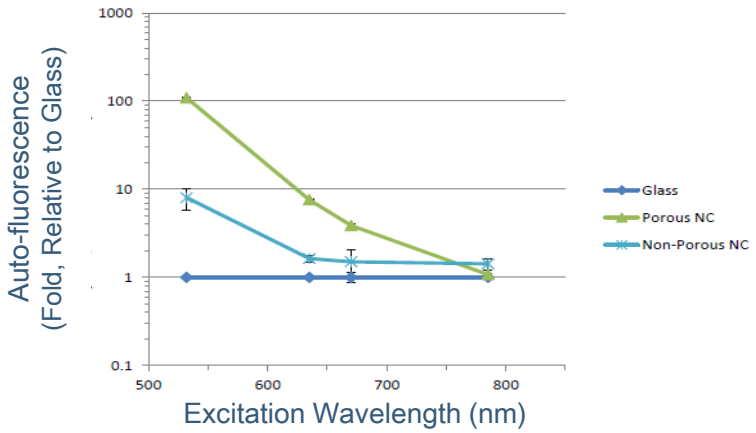
# InnoScan 710-IR

## Applications

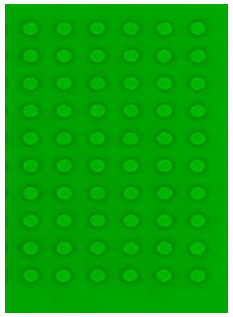



## The InnoScan 710-IR is being used…

- …to screen antibody-epitope binding on peptide arrays
- …to screen immune response (IgG, IgM, IgA) against viral infection
- …to screen protein biomarkers on large patient cohorts on a single experiment through reverse-phase protein arrays (RPPA)
- …to follow protein differential expression on cell cultures exposed to different drug treatments using lysate microarrays

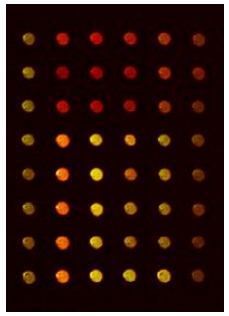



Visible



532 nm

NIR



670 nm & 785 nm

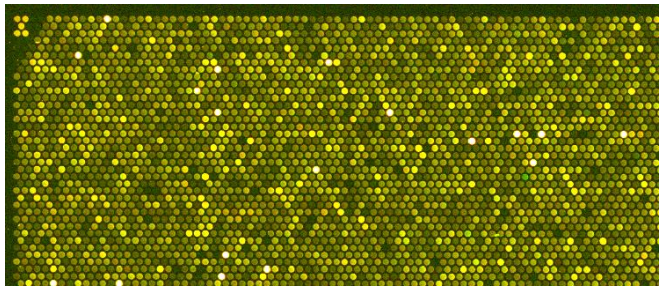
## Application Fields

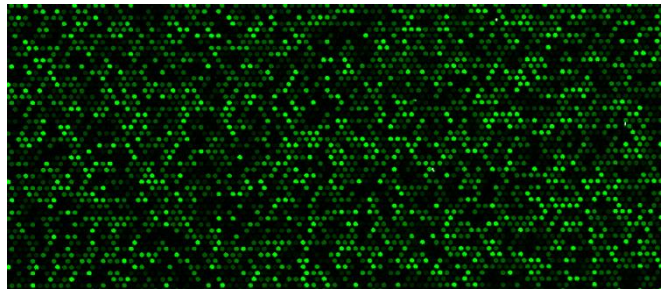
- Cancer research
- Vaccine validation
- Drug discovery

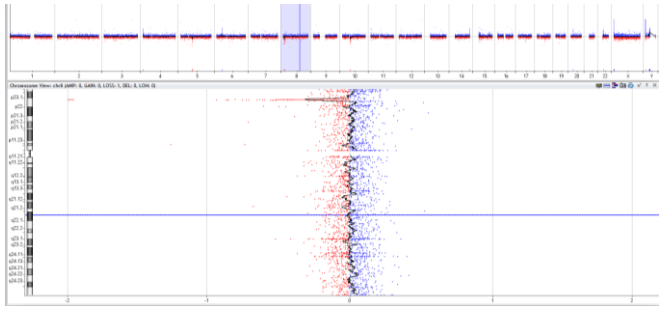
# InnoScan 910

## Two-color detection for HD microarrays

- Ideal tool for high density arrays
- Two-color simultaneous detection:
  - Green → Ex: 532 nm
    - Compatible dyes: Cy3, AF 555, TRITC
  - Red → Ex: 635 nm
    - Compatible dyes: Cy5, AF 647, DraQ5
- Pixel size: 1µm
- Increased sensitivity: high performance PMT detectors
- Seven position emission filter wheel



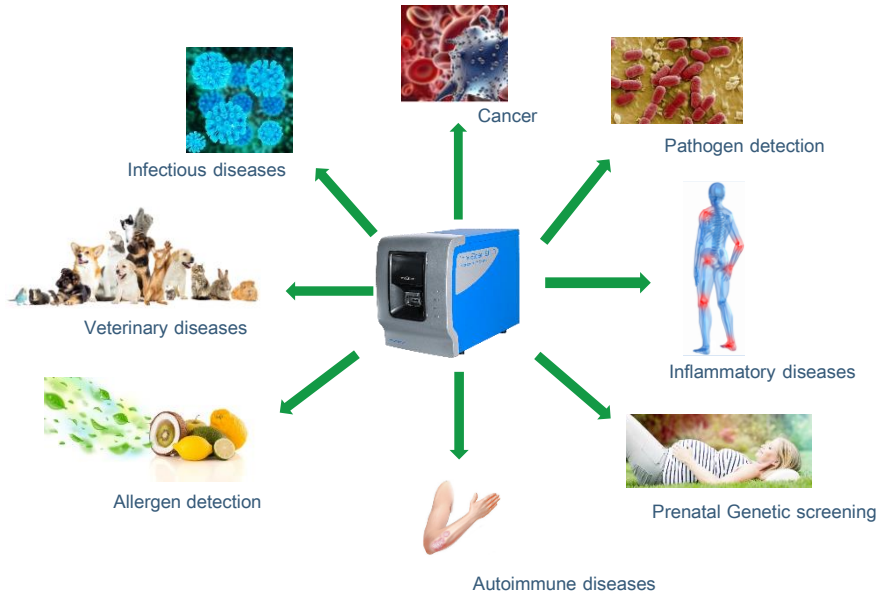


# InnoScan 910

## Applications

### The InnoScan 910 is being used…

- …to discover disease-specific gene expression patterns
- …to screen pre-natal and post-natal genetic perturbations
- …to define protein cancer biomarkers
- …to follow cell signaling cascade activation following a drug treatment
- …to screen antibody-epitope binding sites on very-high-density peptide arrays



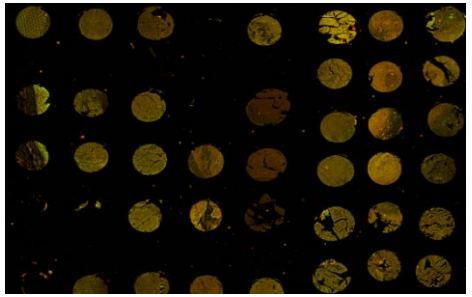

## Application Fields

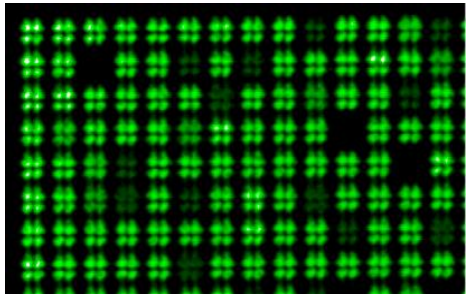
- Cancer research
- Cytogenomics
- Transcriptomics
- Drug discovery

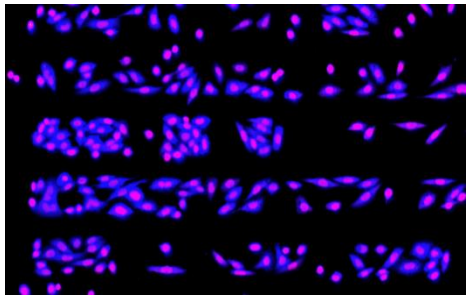
# InnoScan 1100

## Three-color scanner for Ultra-HD arrays

- Ultra-high resolution microarray scanner
  - pixel size = 0.5 µm
- Three color simultaneous detection:
  - Blue → Ex: 488 nm
    - Compatible dyes: Dylight 488, AF 488, FITC
  - Green → Ex: 532 nm
    - Compatible dyes: Cy3, AF 555, TRITC
  - Red → Ex: 635 nm
    - Compatible dyes: Cy5, AF 647, DraQ5
- Open system to all kind of microarray applications
- Adapted focus methods (Real-time, in content, fixed)
- Complete automation: Single- or 24-slide autoloader



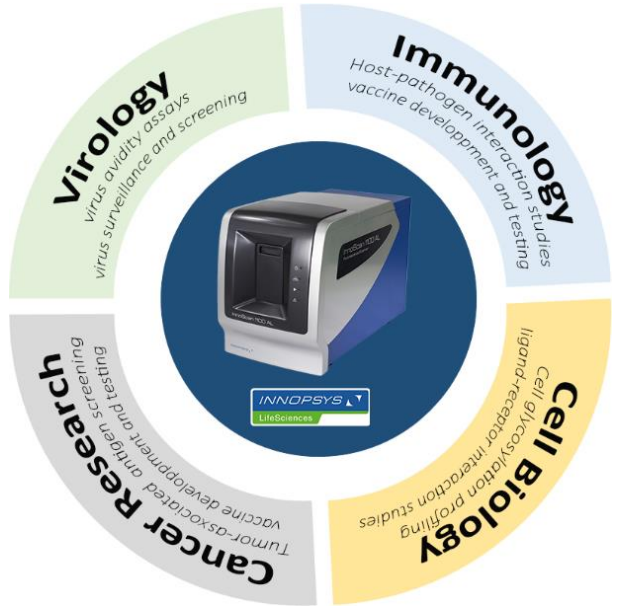


# InnoScan 1100

## Applications

## The InnoScan 1100 is being used…

- …to follow the immunological evolution of antibodies to mammalian glycans
- …to screen antibody-epitope binding sites on very-HD peptide arrays
- …to compare the glycocalyx glycosylation status on cells using lectin-arrays
- …to analyze cell-cell interactions or extracellular receptor-ligand interactions using reverse-transfected cell microarrays
- …to study the interaction and the behavior of cells faced to different microenvironments using MEArrays
- …to perform multiplexed single-cell western as complementary tool of the Biotechne's Protein Simple MILO system




## Application Fields

- Cancer Research
- Virology
- Cell biology
- Immunology

# Autoloader

## Full automated process, hihg-thougput

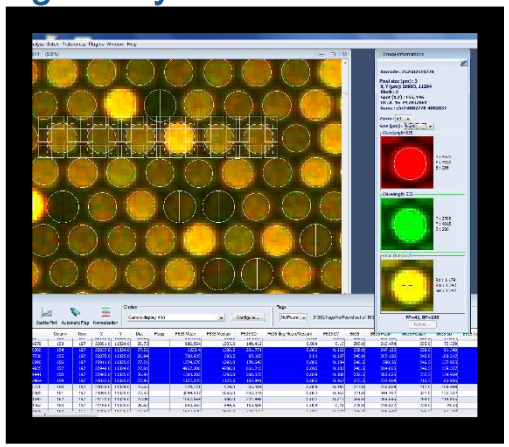
- 24-slide loader
- Fast: 100 minutes for 24-whole-slide scanning at 10 µm/pixel resolution
- Full automated processes: Batched scans and image analysis through Mapix software
- Upgradable: A single slide scanner model can be upgraded into a 24-slide autoloader

# Microarray image acquisition and image analysis software

## Scanner management

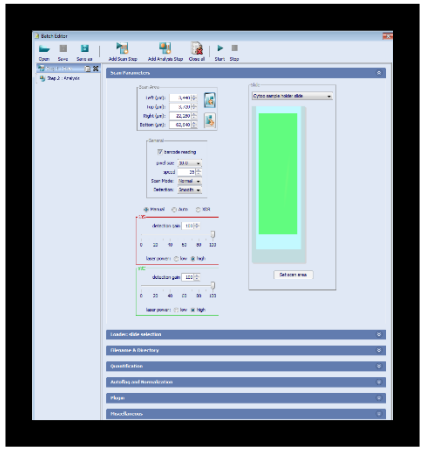
- Highly interactive commands
- Image visualisation in real-time
- Dynamic range extension (XDR) function

## Image analysis



- Highly efficient algorithm for automatic grid alignment and spot localization
- Automatic spot segmentation
- Automatic flagging tools

## Automation



- Batched scans for high-throughput applications
- Auto-setting scan parameters
- Plug-in integration for customized data analysis

INNOPSYS
LifeSciences

| InnoScan model | 710-G | 710-R | 710 | 710-IR | 910 | InnoScan 1100 |
|---|---|---|---|---|---|---|
| Minimum Pixel size (µm) | 3 | 3 | 3 | 3 | 1 | 0.5 |
| Detection mode | Confocal digital PMT detection (1 PMT) | | Confocal digital PMT detection (2-independent PMTs) | | Confocal analog PMT detection (2-independent PMTs) | Confocal analog PMT detection (3-independent PMTs) |
| Laser diodes (nm) | 532 | 635 | 532; 635 | 680; 785 | 532; 635 | 488, 532, 635 |
| Emission Filter Wheel | -- | -- | -- | -- | 7 position filter wheel<br>1 standard fluorescence and 1 neutral density filter per channel; 5 additional filters on request | |
| Maximal Emission bandwidth | | | | | Emission filters can be chosen in the following ranges:<br>532 nm channel: 554 – 613 nm<br>635 nm channel: 663 – 742 nm | Emission filters can be chosen in the following ranges:<br>488 nm channel: 502.5 – 518.5 nm<br>532 nm channel: 554 – 613 nm<br>635 nm channel: 663 – 742 nm |
| Dynamic range | 4 logs and 6 logs | | | | | |
| Digital resolution | TIFF (16-bit and 20-bit) | | | | | |
| Scanning mode | -- | -- | One single channel, simultaneous, sequential | | | |
| Scanning speed (at 10 µm/pixel) | 3.5 min | | | | | |
| Autoloader | Single or 24-slide loader | | | | | |
| Dimension (L x D x H) $cm^3$ | Single: 31.6 x 54.9 x 43.2<br>Autoloader: 32.2 x 65.6 x 43.9 | | | Single: 31.6 x 54.9 x 43.2<br>Autoloader: 32.2 x 65.6 x 43.9 | Single: 31.6 x 54.9 x 43.2<br>Autoloader: 32.2 x 65.6 x 43.9 | Single: 31.6 x 54.9 x 43.2<br>Autoloader: 32.2 x 65.6 x 43.9 |
| Weight | Single: 31.6 x 54.9 x 43.2<br>Autoloader: 32.2 x 65.6 x 43.9 | | | Single: 31.6 x 54.9 x 43.2<br>Autoloader: 32.2 x 65.6 x 43.9 | Single: 31.6 x 54.9 x 43.2<br>Autoloader: 32.2 x 65.6 x 43.9 | Single: 30 kg<br>Autoloader: 35 kg |
| Software | Mapix software | | | | | |

INNOPSYS LifeSciences

# InnoScan

## Scientific community

## More than 300 peer-reviewed scientific publications…

SCIENTIFIC REPORTS
nature research

**HIV-1 Vaccine Sequences Impact V1V2 Antibody Responses: A Comparison of Two Poxvirus Prime gp120 Boost Vaccine Regimens**

Xiaoying Shen[1*], Fatima Laher[1], Zoe Moodie[1], Arthur S. McMillan[1], Rachel L. Spreng[1], Peter B. Gilbert[2], Ying Huang[3], Nicole L. Yates[1], Nicole Grunenberg[3], M. Juliana McElrath[1], Mary Allen[1], Michael Pensiero[4], Vijay L. Mehra[4], Olivier Van Der Meeren[5], Susan W. Barnett[6,13], Sanjay Phogat[7], Glenda E. Gray[2,3,8], Linda-Gail Bekker[9], Lawrence Corey[1] & Georgia D. Tomaras[1,10,11,12*]

Brief Report | Published: 20 March 2018

**Genetic diversity of avian avulavirus 1 (Newcastle disease virus genotypes VIg and VIIb) circulating in wild birds in Kazakhstan**

Mukhit B. Orynbayev, Sasan Fereidouni, Abylay R. Sansyzbai, Bakhytkul A. Seidakhmetova, Vitaliy M. Strochkov, Askar M. Nametov, Sandugash O. Sadikaliyeva, Asel Nurgazieva, Kaissar K. Tabynov, Nurkuysa M. Rametov & Kulyaisan T. Sultankulova

*Archives of Virology* **163**, 1949–1954(2018) | Cite this article

frontiers in Cell and Developmental Biology | Molecular Medicine

ORIGINAL RESEARCH ARTICLE
Front. Cell Dev. Biol., 17 April 2018 | https://doi.org/10.3389/fcell.2018.00041

**Microenvironment-Induced Non-sporadic Expression of the AXL and cKIT Receptors Are Related to Epithelial Plasticity and Drug Resistance**

Tiina A. Jokela[1,2], Agnete S. T. Engelsen[1,3], Agata Rybicka[1], Fanny A. Pelissier Vatter[1], James C. Garbe[4], Masaru Miyano[2], Crina Tiron[5], Dan Ferariu[5], Lars A. Akslen[3], Martha R. Stampfer[4], James B. Lorens[1,3*] and Mark A. LaBarge[2,3,4*]

Journal of Cellular and Molecular Medicine
Open Access

SHORT COMMUNICATION | Open Access

**Phosphoprotein expression profiles in rat kidney injury: Source for potential mechanistic biomarkers**

Vitalina Gryshkova, Mabel Cotter, Portia McGhan, Jana Obajdin, Renaud Fleurance, Andre Nogueira da Costa

First published:12 January 2019 | https://doi.org/10.1111/jcmm.14103

nature COMMUNICATIONS

ARTICLE
https://doi.org/10.1038/s41467-019-08739-4 OPEN

**HIV-1 vaccination by needle-free oral injection induces strong mucosal immunity and protects against SHIV challenge**

Andrew T. Jones[1,2], Xiaoying Shen[3], Korey L. Walter[4], Celia C. LaBranche[5], Linda S. Wyatt[6], Georgia D. Tomaras[3], David C. Montefiori[5], Bernard Moss[6], Dan H. Barouch[7], John D. Clements[8], Pamela A. Kozlowski[4], Raghavan Varadarajan[9] & Rama Rao Amara[1,2]

Cell Host & Microbe
Article

**Preventing an Antigenically Disruptive Mutation in Egg-Based H3N2 Seasonal Influenza Vaccines by Mutational Incompatibility**

Nicholas C. Wu,[1] Huibin Lv,[2,3] Andrew J. Thompson,[4] Douglas C. Wu,[5,6] Wilson W.S. Ng,[2,3] Rameshwar U. Kadam,[1]

Fertility and Sterility
asrm American Society for Reproductive Medicine

Articles & Issues | Collections | Multimedia | For Authors | For Patients | Journal Info | Subscribe

All Content | Search | Advanced Search

< Previous Article | February 2019 Volume 111, Issue 2, Pages 397–407 | Next Article >

**Inhibition of tumor cell proliferation in human uterine leiomyomas by vitamin D via Wnt/β-catenin pathway**

Ana Corachán, M.Sc.[a,d], Hortensia Ferrero, Ph.D.[a,b,*], Alejandra Aguilar, M.D.[c], Nuria Garcia, M.D.[c], Javier Monleon, M.D.[c], Amparo Faus, B.Sc.[a], Irene Cervelló, Ph.D.[a], Antonio Pellicer, MD[a,c]

Cell Reports
Article

**Therapeutic Antibodies to Ganglioside GD2 Evolved from Highly Selective Germline Antibodies**

Eric Sterner,[1] Megan L. Peach,[2] Marc C. Nicklaus,[1] and Jeffrey C. Gildersleeve[1,3,*]
[1]Chemical Biology Laboratory, Center for Cancer Research, National Cancer Institute, Frederick, MD 21702, USA
[2]Basic Science Program, Chemical Biology Laboratory, Leidos Biomedical Inc., Frederick National Laboratory for Cancer Research, Frederick, MD 21702, USA

Published: 18 December 2018

**Changes Due to Ageing in the Glycan Structure of Alpha-2-Macroglobulin and Its Reactivity with Ligands**

Miloš Šunderić, Martina Križáková, Vesna Malenković, Danica Ćujić, Jaroslav Katrlík & Olgica Nedić

*The Protein Journal* **38**, 23–29(2019) | Cite this article

# About Innopsys

- Founded in 1999
- Headquarters in Carbonne, France
- Innopsys Inc subsidiary in Chicago, IL
- Mission: To design, manufacture and commercialize instruments and software for biology applications
- Since 2006 Innopsys offers a complete range of microarray fluorescence scanners and image analysis software
- Worldwide distribution network
- Partnership with diagnostic companies
- ISO 13485 since 2008

## Innopsys' team

- PhD and high qualified engineers with skills in physics, optics, electronics, mechanics, informatics and biology

## Support commitments

- Fast and efficient client support team
- Email and phone support, replay to customers within 48 hours
- Scanners and software have been designed to collect data remotely to facilitate and speed-up issue diagnostic

To learn more about the InnoScan scanners please our local distributor:

LUCERNA-CHEM

Luzern – Switzerland
+41 41 420 96 36
info@lucerna-chem.ch