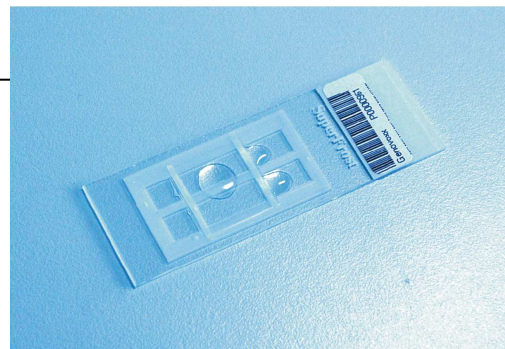


## ***AnyDot.chips***

*for the analysis of molecules  
and intermolecular interactions  
at the **single molecule level**  
with high S/N-ratio*

### ***<Flow cells with surfaces for binding of target material>***

- *Very high S/N-ratio*
- *Up to 200 reactions per one chip*
- *A wide selection of immobilization chemistries*
- *Suitable for creation of single molecule arrays*
- *Targets, e.g.*
  - *proteins*
  - *nucleic acids*
  - *lipids*
  - *carbohydrates*
  - *cells*
  - *viruses*
  - *low weight molecules*
  - *nanocrystals*
  - *organic polymers*
- *Simple handling:*
  - *compatible with standard fluorescent equipment (e.g. microscope)*
  - *only a pipette required for liquid exchange*
  - *ready to use*



## Overview

### What is AnyDot.chip?

- AnyDot.chip is a device designed for monitoring of molecular chemical, physical or biological processes down to single molecule level by the means of fluorescence detection.
- It comprises two fluid chambers with flat glass surfaces suitable for binding the target material. The surfaces are cleaned and treated with appropriate coating agent to prevent unspecific binding of labelled molecules, e.g. nucleic acids, dyes, to ensure a high S/N ratio.
- For binding of material to the surface different surface chemistries can be selected, e.g. streptavidin, anchor-oligonucleotide, epoxy-, carboxy-, acryl-, mercapto-, amino-groups.
- Major benefits of AnyDot.chips:
  - Ready to use chips for analysis down to single molecule level
  - Very high S/N-ratio
  - Simple handling
  - Up to 200 reactions per chip

### What materials can be bound to the surface of AnyDot.chips?

AnyDot.chips are versatile and can be used in analysis of different materials:

- |                    |   |
|--------------------|---|
| • proteins         | • cells                                       |
| • nucleic acids    | • viruses                                     |
| • carbohydrates    | • low weight molecules,<br>e.g. dyes, ligands |
| • organic polymers | • nanocrystals                                |
| • lipids           |   |

# AnyDot.chip

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## How to bind materials?

General procedure for the binding of material to the AnyDot.surface is the simple reaction of material dissolved in solution with the specific surface chemistry. AnyDot.chips are supplied in **ready to use** condition.

1. Dissolve or suspend your material in a buffer solution or organic solvent
2. Fill the flow cell of AnyDot.chip with the solution
3. Incubate for the appropriate time
4. Wash with your wash-buffer

The availability of a range of immobilization chemistries allows customers to choose from various methods to couple material to the surface so that e.g. target molecule interaction with other molecules can be studied in the most appropriate manner. Detailed information for coupling of customer materials to the AnyDot.chip is provided with the products.

## Applications for AnyDot.chips:

- Physics, chemistry and biology of individual molecules or groups of molecules and their interactions can be analyzed, e.g.
  - *Single molecules:*
    - *Conformation*
    - *Kinetics*
  - *Molecular interactions:*
    - *Hybridization studies of nucleic acids*
    - *Enzymatic studies, e.g. nucleotide incorporation*
    - *Ligand-receptor interactions*
    - *Antibody-Antigen-Reactions*
    - *Micro-environment response of individual molecules*
    - *Protein-Protein interactions*
- AnyDot.chips are now applied for the development of highly parallel single molecule sequencing for \$ 1000 genome analysis ([www.genovox.com](http://www.genovox.com)).

# AnyDot.chip

## What techniques and equipment can be applied?

***Fluorescence detection equipment with different settings can be used for signal detection on the surface***

- easy use of AnyDot.chips with many microscope systems, e.g. Zeiss / Nikon/ Olympus
- epifluorescence / TIRF
- upright / inverse illumination
- laser / lamp-excitation
- visible and near UV excitation
- confocal imaging
- life-time / polarization measurements



***AnyDot.chips can be used manually as a disposable flow cell***



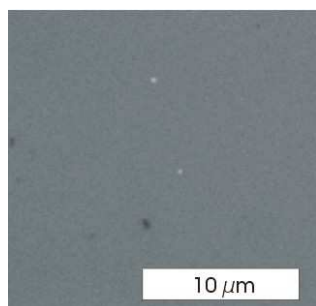
- *up to 100 chemical or enzymatic reactions on the same surface*
- *no need for expensive microfluidic equipment*
- *volume approx. 10  $\mu$ l per flow-cell*
- *resistant to acids and bases as well as many organic solvents*
- *easy work with highly viscose solutions*
- *simple manual flow rate control*
- *X,Y,Z-Readjustment +/- 100 nm (with adjustment system g.analyzer, Genovoxx)*
- *thermostable ( 4°C - 70°C)*

# AnyDot.chip

## AnyDot.chip specifications

<b>Cartridge</b>	microscope slide (ISO 8037/1) and coverslip 18x18 mm
<b>Flow-cell</b>	2 flow-cells 10 $\mu$ l flow-cell manual liquid exchange up to 100 reactions within each flow-cell
<b>Temperature</b>	4°C - 70°C
<b>Solutions</b>	Aqueous: Buffers: Tris, phosphate, borate, acetate Organic: DMF, DMAA, ethanol, acetone
<b>Detection</b>	Excitation: 360 - 700 nm Emission: 360 - 700 nm
<b>Working area</b>	20 mm <sup>2</sup> in each flow-cell
<b>Binding chemistry</b>	Oligonucleotide-anchor Streptavidin Customer specified functional groups Customer specified adhesion material
<b>Storage</b>	4°C to 20°C in a humid chamber use within 3 weeks

***The surface of AnyDot.chips has a unique protection against the unspecific binding of a variety of labelled compounds, resulting in a high signal-to-noise ratio.***



*Working concentration with standard labelled nucleotides, e.g. dCTP-Cy3, up to **10  $\mu$ M** without significant increase in unspecific binding to the surface. Image was acquired with single molecule detection sensitivity.*

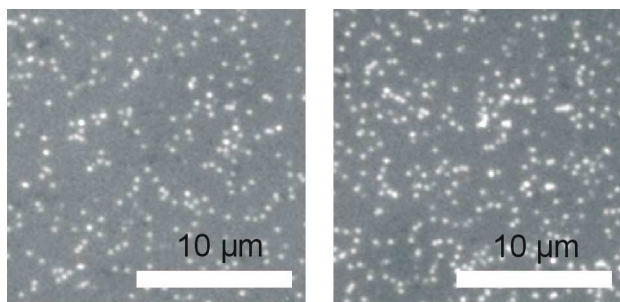
# AnyDot.chip

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***The AnyDot.chip is suitable for generation of single molecule arrays and highly parallel single molecule analysis.***

- adjustable signal density 5-300 signals per  $100 \mu\text{m}^2$
- up to 10.000.000 individual signals from the surface (at 100 signals per  $100 \mu\text{m}^2$ )
- multiple scans of the same positions on the surface (up to 100 scans)
- readjustment of signals  $\pm 100 \text{ nm}$  (with Genovoxx software for surface-scanning)
- tracking of individual signals on the same chip-position over multiple scans

*Density of immobilized molecules can be adjusted for single molecule detection.*



85,24 /  $100\mu\text{m}^2$

121,76 /  $100\mu\text{m}^2$

## **Legal:**

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