

## NEW Y-STRUCTURE HIS CAPTURE KIT

for capture strategy on either the red or green arm of the new **Y-structure** design

Dynamic Biosensors GmbH  
HK-NYS-NTA v1.0



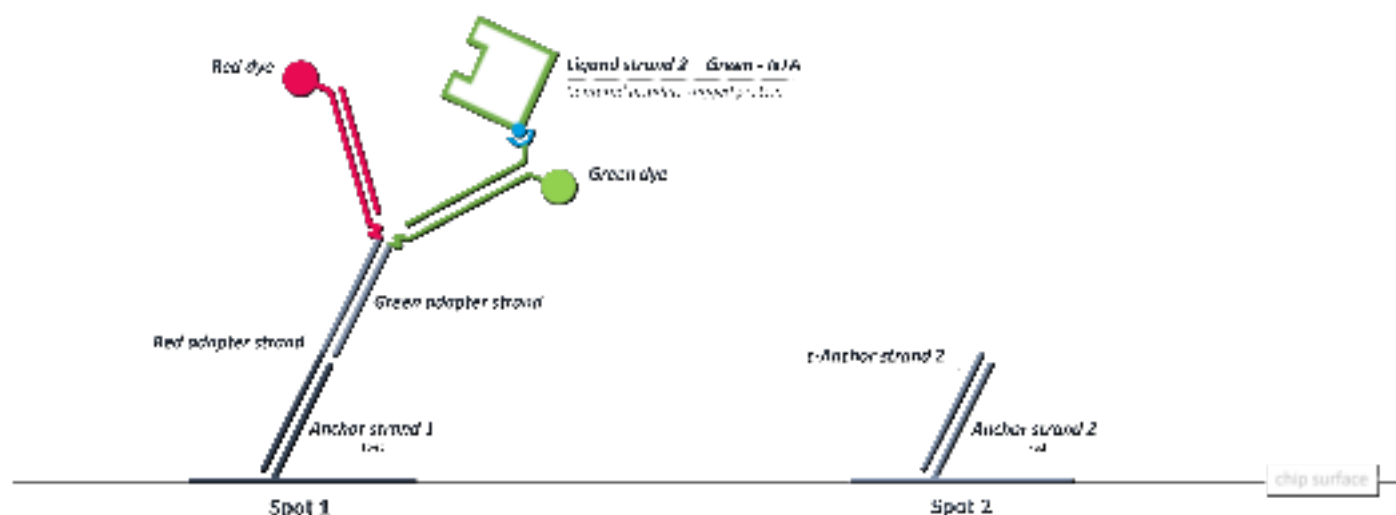
# Key Features

- This kit is designed for capture of **histidine-tagged proteins** (His6 or His10) using **Tris-NTA**.
- Includes **Ligand strand 1 - Red** and **Ligand strand 2 - Green** with Tris-NTA for **20 regenerations** each.
- For the new **Y-structure** kit only.
- It is a possibility for dimerization projects.
- Homo-/hetero-proteins can be coupled easily to the arms via his-tag capture.
- Compatible with **heliX<sup>®</sup> Adapter Chip**, both **Spot 1** and **Spot 2**

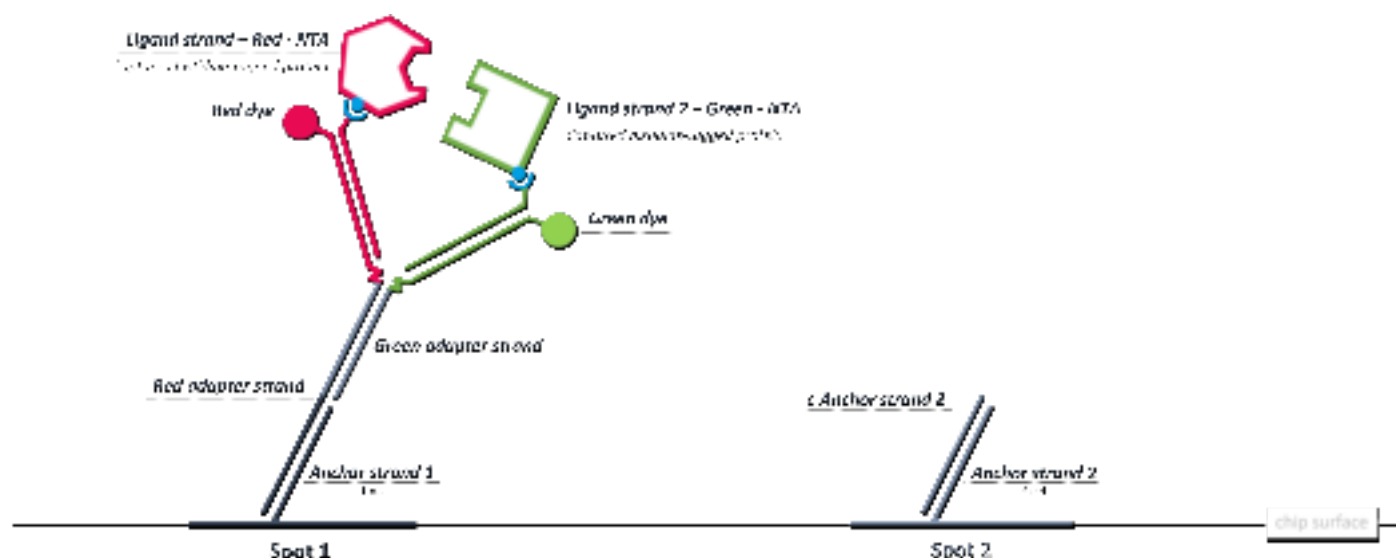
## heliX<sup>®</sup> Adapter Chip Overview

2 spots with 2 different anchor sequences for DNA-encoded addressing. Spot 1 is functionalized with the capture molecule while Spot 2 is used as real-time reference.

### Single Capture



### Double Capture



## Product Description

Order Number: **HK-NYS-NTA**

Table 1. Contents and Storage Information

Material	Cap	Concentration	Amount	Buffer	Storage
New <b>Y-structure Red Adapter strand - NTA</b>	Purple	500 nM	2 x 100 µL	TE40 <sup>[1]</sup>	-20°C
New <b>Y-structure Green Adapter strand - NTA</b>	Purple	500 nM	2 x 100 µL	TE40 <sup>[1]</sup>	-20°C
<b>Loading Solution (NiCl<sub>2</sub>)</b>	Transparent	10 mM	10 x 1500 µL	TE40 <sup>[1]</sup>	-20°C
<b>Imidazole Solution</b>	Transparent	250 mM	10 x 2000 µL	TE140 <sup>[2]</sup>	-20°C

For research use only.

This product has a limited shelf life, please see expiry date on label.  
After preparation of ready to use solution the expiry date is **6 months**.

## Preparation

### Step 1

For surface functionalization, the **Y-structure Red Adapter strand** harboring the red dye **Ra** and the **Y-structure Green Adapter strand** harboring the green dye **Ga** need to be pre-hybridized with either the new **Y-structure Red Adapter strand - NTA** or new **Y-structure Green Adapter strand - NTA** and a conjugated **Ligand strand**.

*Example.* In-solution hybridization of **Y-structure** strands with a combination of covalent coupling protein in green & his-tag capture strategy in red:

i. Mix the following components:

1. New **Y-structure Red Adapter strand** with Ra (400 nM)
2. New **Y-structure Green Adapter strand** with Ga (400 nM)
3. New **Y-structure Red Adapter strand - NTA** (500 nM)
4. Covalently conjugated protein to **Y-structure Ligand strand 2** - Green (500 nM)

Combine at a 1:1 ratio (v/v).

ii. Incubate the solution of step i) at RT for at least **2 hours** to ensure complete hybridization. Overnight incubation at 4°C is also possible.

### Step 2

Mix solution of step ii) and **cAnchor strand 2** (100 nM) at 1:1 ratio (v/v).

### Step 3

Solution is ready to use for **heliX® Adapter Chip** functionalization.

## Example

Required volume for one functionalization for a combination of amine coupling and capture on the new **Y-structure**: **35 µL** with a final concentration of **50 nM**.

Vial 1				Vial 2
New <b>Y-structure</b> Red Adapter strand with Ra (400 nM)	New <b>Y-structure</b> Green Adapter strand with Ga (400 nM)	<b>Y-structure</b> Red Adapter strand - NTA (500 nM)	Conjugated protein to <b>Y-structure Ligand strand 2</b> (500 nM)	<b>cAnchor strand 2</b> (100 nM)
4.5 µL	4.5 µL	4.5 µL	4.5 µL	18 µL

## Assay Setup in heliOS

This specific kit requires a customized method consisting in **His-tag capture** plus **Y-Structure FRET Kinetics**, which is currently not provided among the verified assay. It can be easily created by an advanced **heliOS** user by applying the default parameters already existing in the two different and separate workflows (please refer to the **heliX**<sup>+</sup> guide available at this [link](#)); however, for any help on creating the new method, please contact the support team at [support@dynamic-biosensors.com](mailto:support@dynamic-biosensors.com).

### TIP

*As the stability of his capture is affected by the protein, in case of long dissociations, consider using the classic conjugation approach.*

## Useful Order Numbers

Table 2. Order Numbers

Product Name	Comment	Order No
<b>heliX</b> <sup>®</sup> Adapter Chip	Chip with 2 detection spots	ADP-48-2-0
<b>Y-structure</b> Amine coupling kit 1 - <b>Red</b>	3 conjugations	HK-NYS-NHS-1
<b>Y-structure</b> Amine coupling kit 2 - <b>Green</b>	3 conjugations	HK-NYS-NHS-2
<b>New Y-structure Kit 1:</b> for proximity binding assay <b>Spot 1</b>	400 nM x 250 µL	HK-NYS-1
<b>New Y-structure Kit 2:</b> for proximity binding assay <b>Spot 2</b>	400 nM x 250 µL	HK-NYS-2

## Contact

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Instruments and chips are engineered and manufactured in Germany.

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[1] TE40: 10 mM Tris, 40 mM NaCl, 0.05 % Tween20, 50 µM EDTA, 50 µM EGTA

[2] TE140: 10 mM Tris, 40 mM NaCl, 0.05 % Tween20, 50 µM EDTA, 50 µM EGTA