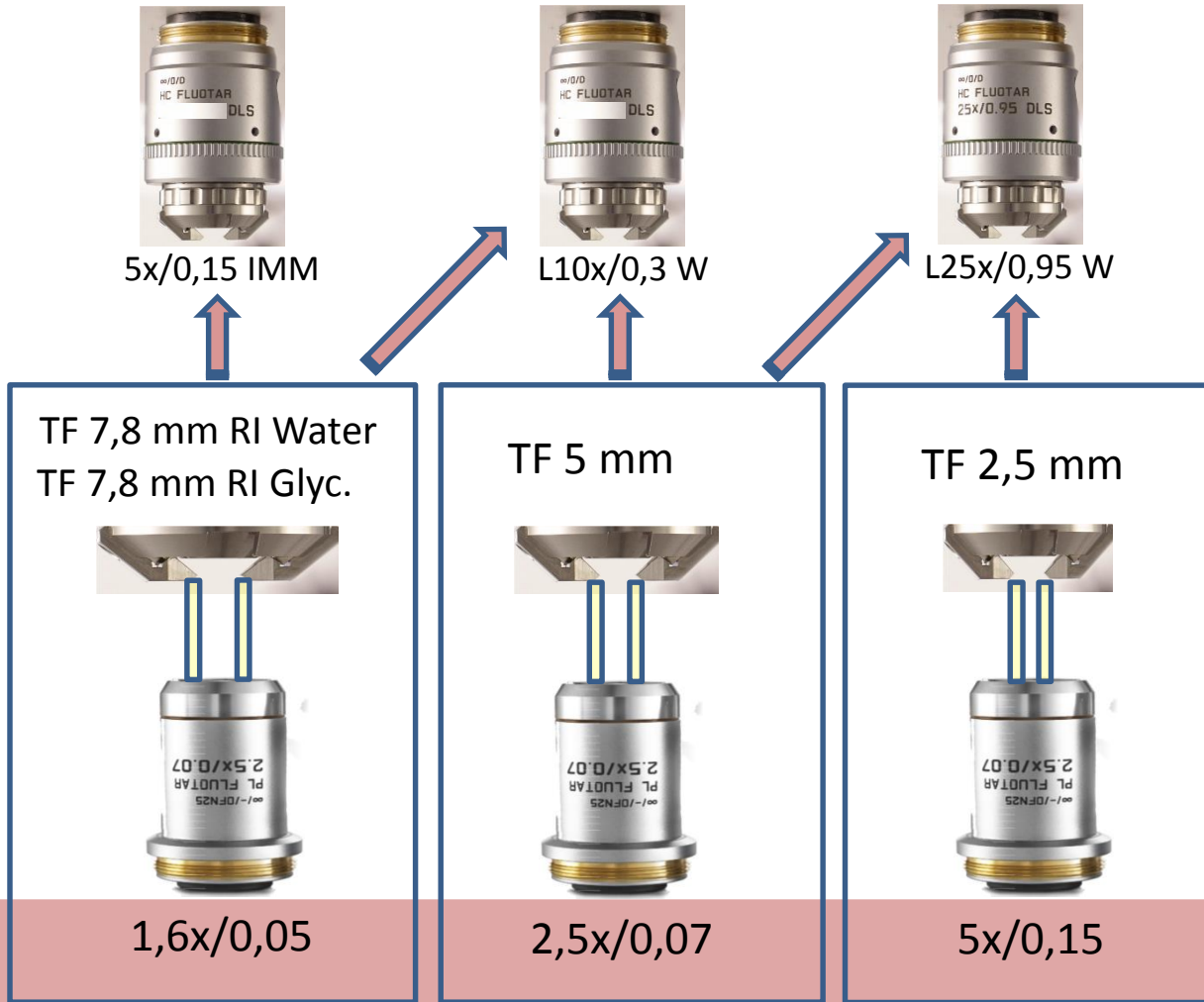


# Axial/Lateral Resolutions & Lightsheet (LS) properties

Axial Resolution:	1.6x / 0.05	2.5x / 0.07	5x / 0.15	Widefield (in comparison)	Lateral Resolution @ 530nm	FOV (full chip)
Illumination: Detection:						
5x / 0.15	5.1µm	3.6µm	1.7µm	38µm	2.0µm	1470x1470µm
10x / 0.3	4.5µm	3.4µm	1.7µm	10µm	1.1µm	735x735µm
25x / 0.95	0.98µm	0.96µm	0.86µm	1.0µm	340 nm	295x295µm
Lightsheet Properties:	1.6x / 0.05	2.5x / 0.07	5x / 0.15			
LS Thickness @ 488nm with / wo BE*	6.0µm / 15µm	3,7µm / 9.4µm	1,7µm / 4.7µm			
LS Length @ 488nm with / wo BE*	468µm / 2925µm	239µm / 1197µm	50µm / 276µm			
TwinFlect:	7.8mm / 5mm / 2.5mm	5mm / 2.5mm	2.5mm			

\*BE = beam expander

# DLS Optics combinations



Detection Obj.

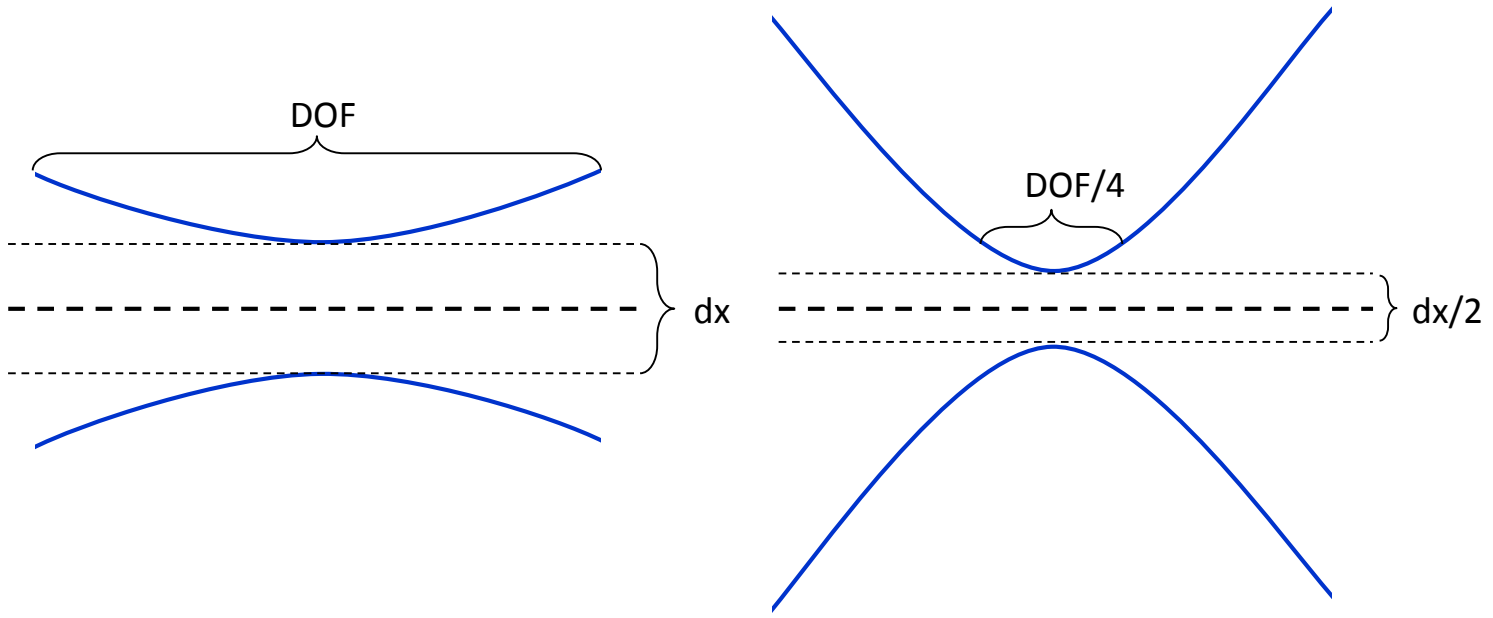
Illumination Obj.

# Light sheet facts. Optical Sectioning

Ideal sheet thickness follows sample size

The NA of the illumination objective determines:

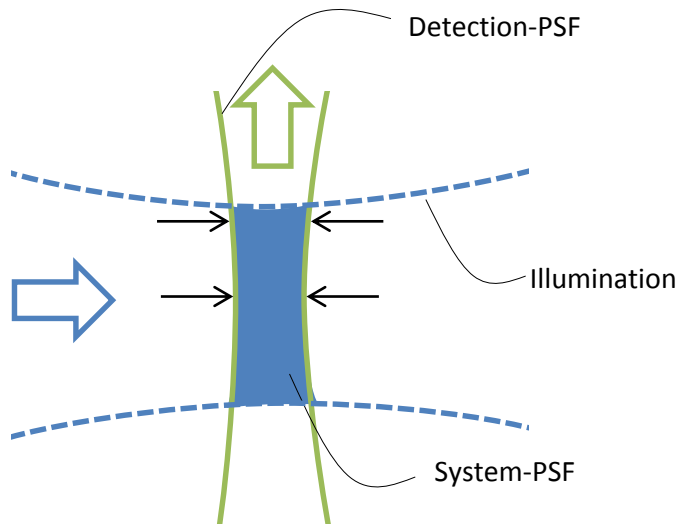
- the light sheet thickness
- the depth of focus (DOF) of the light sheet.



# Light sheet facts. Detection NA

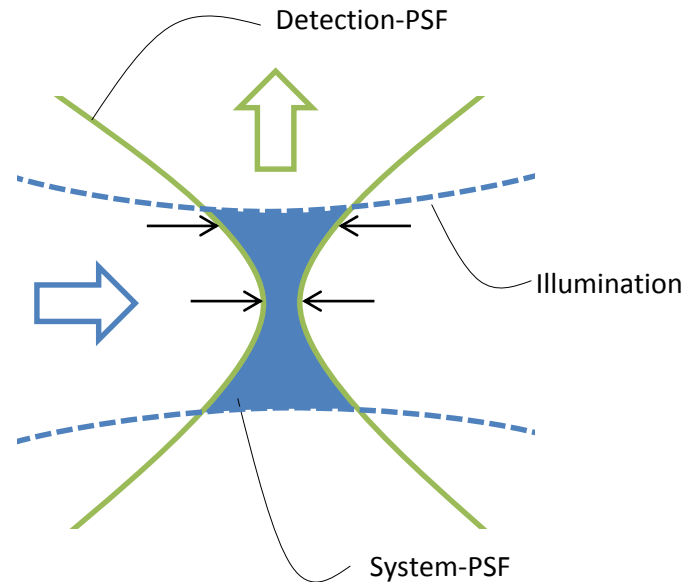
„Detection with lower NA Objective may give better image impression“

Low NA Objective



crisp images  
moderate resolution

High NA Objective



good resolution, poor contrast

 need deconvolution

# DLS TwinFlect 2.5mm

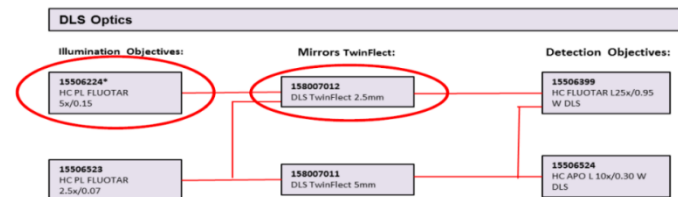
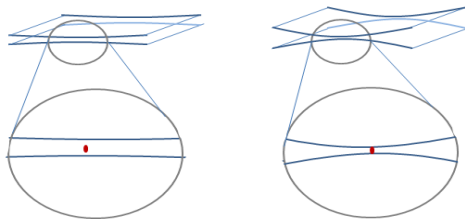
With the availability of the **new DLS TwinFlect 2.5mm** (158007012), it is now possible to use the **5x/0,15 objective** (15506224) for the generation of a light sheet.

Your advantage:

- Combine 25x/0.95W DLS detection objective with 5x/0.15 illumination objective for a better contrast and signal-to-noise:
- The higher NA of the 5x/0.15 illumination objective compared to the 2.5x/0.07 illumination objective makes it possible to generate a shorter, but also thinner light sheet. At its thinnest area, such a light sheet matches the focal depth of the 25x/0.95 detection objective. Hence, out-of-focus illumination can be avoided which leads to a better contrast.

### Please note:

- Using the 5x/0.15 illumination objective during light sheet imaging requires the new DLS TwinFlect 2.5mm
- If the 5x/0.15 objective is used during light sheet imaging, the 2.5x/0.07 objective is required during calibration



\*15506523 HC PL FLUOTAR 2.5x/0.07 required for calibration

# TCS SP8 DLS

## DLS Optics

### Illumination Objectives:

**15506224\***  
HC PL FLUOTAR  
5x/0.15

\*15506523 required (for calibration)

**15506523**  
HC PL FLUOTAR  
2.5x/0.07

**15506409**  
L 1.6x/0.05 DLS

### Mirrors TwinFlect:

**158007012**  
DLS TwinFlect 2.5mm

**158007011**  
DLS TwinFlect 5mm

**158007013**  
DLS TwinFlect 7.8mm

**158007014**  
DLS TwinFlect 7.8mm Gly

### Detection Objectives:

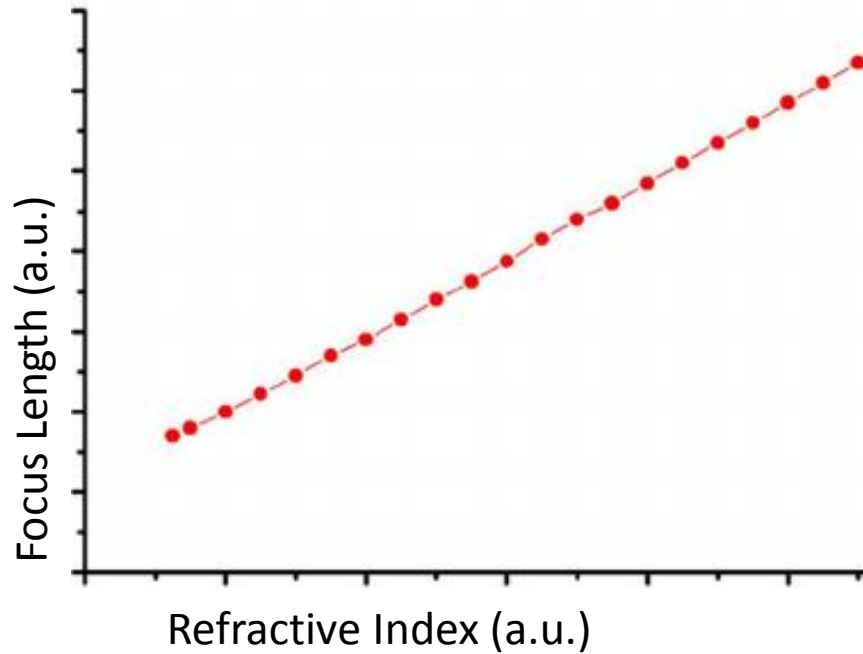
**15506399**  
HC FLUOTAR L25x/0.95  
W DLS

**15506524**  
HC APO L 10x/0.30 W  
DLS

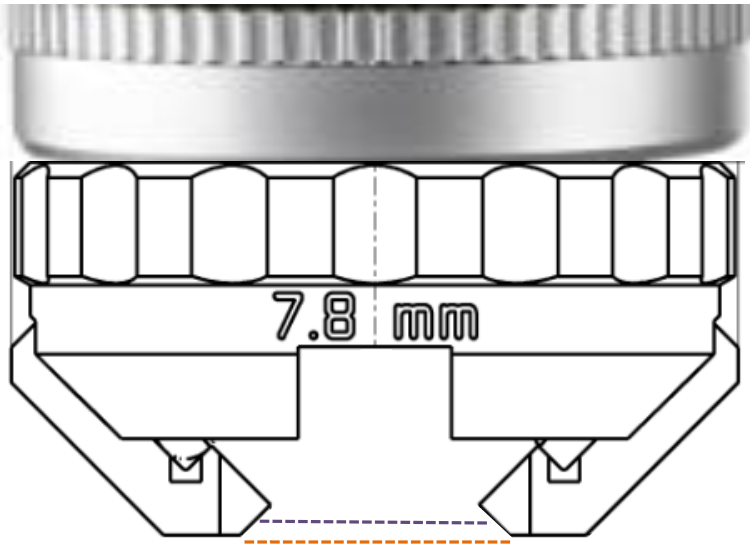
**15506532**  
5x/0.15 IMM DLS



# Effect of refractive index on focal length

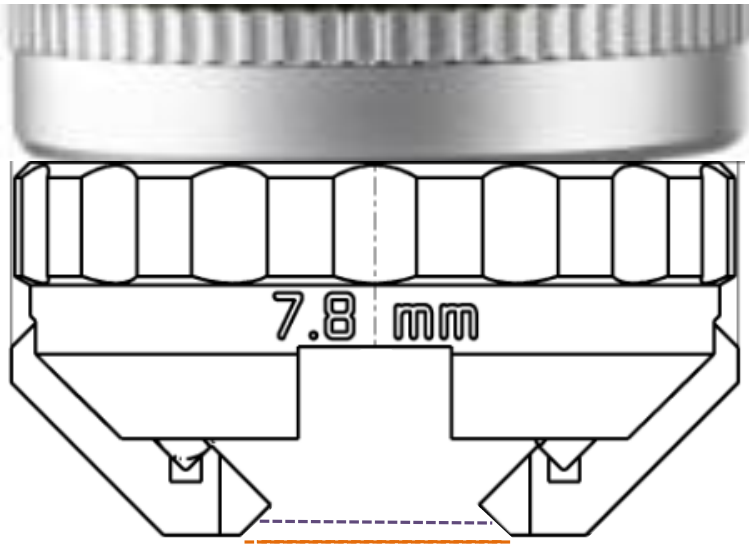


# Effect of refractive index on focal length

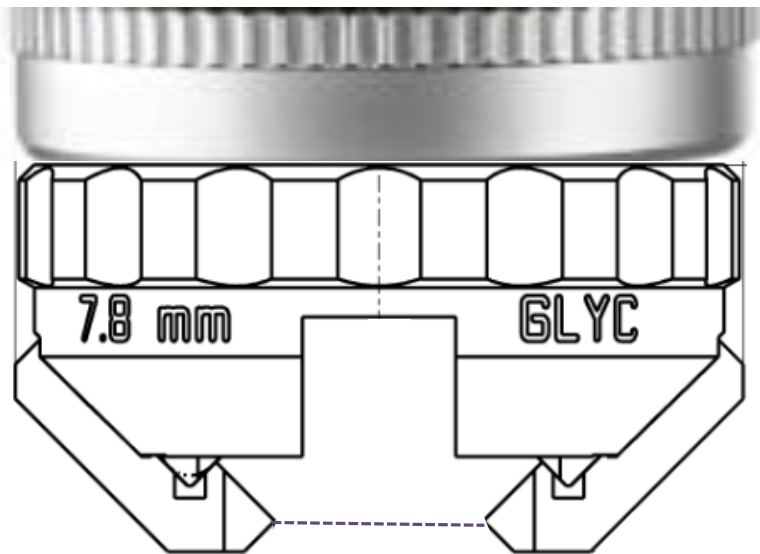




# Effect of refractive index on focal length

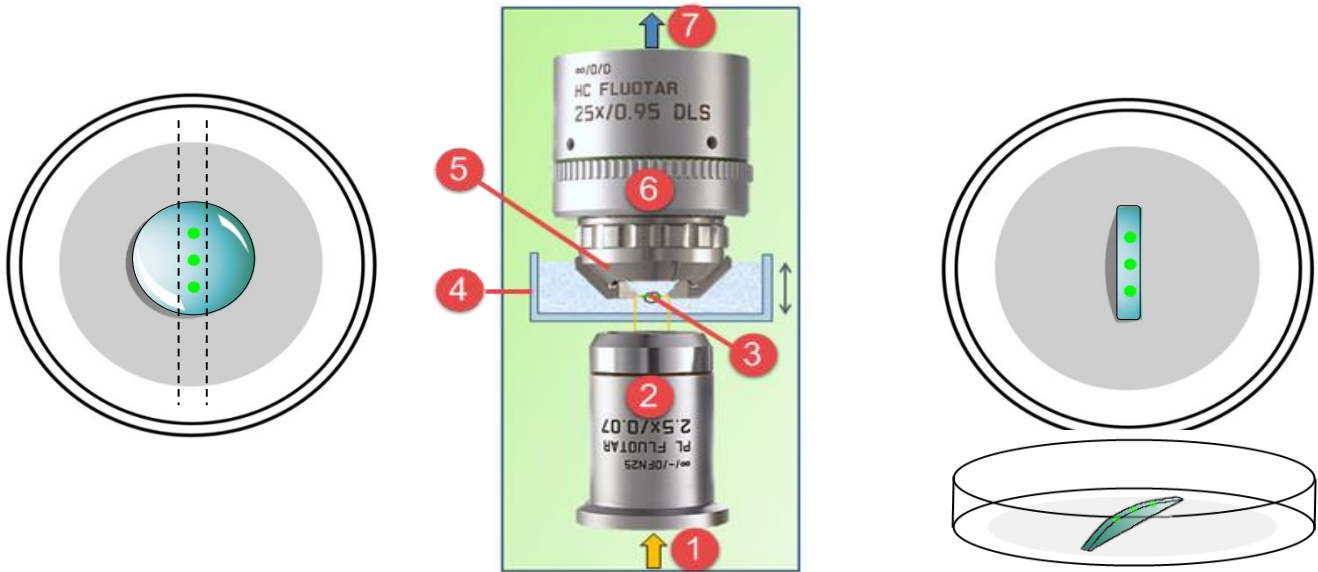


TwinFlect 7.8mm Water



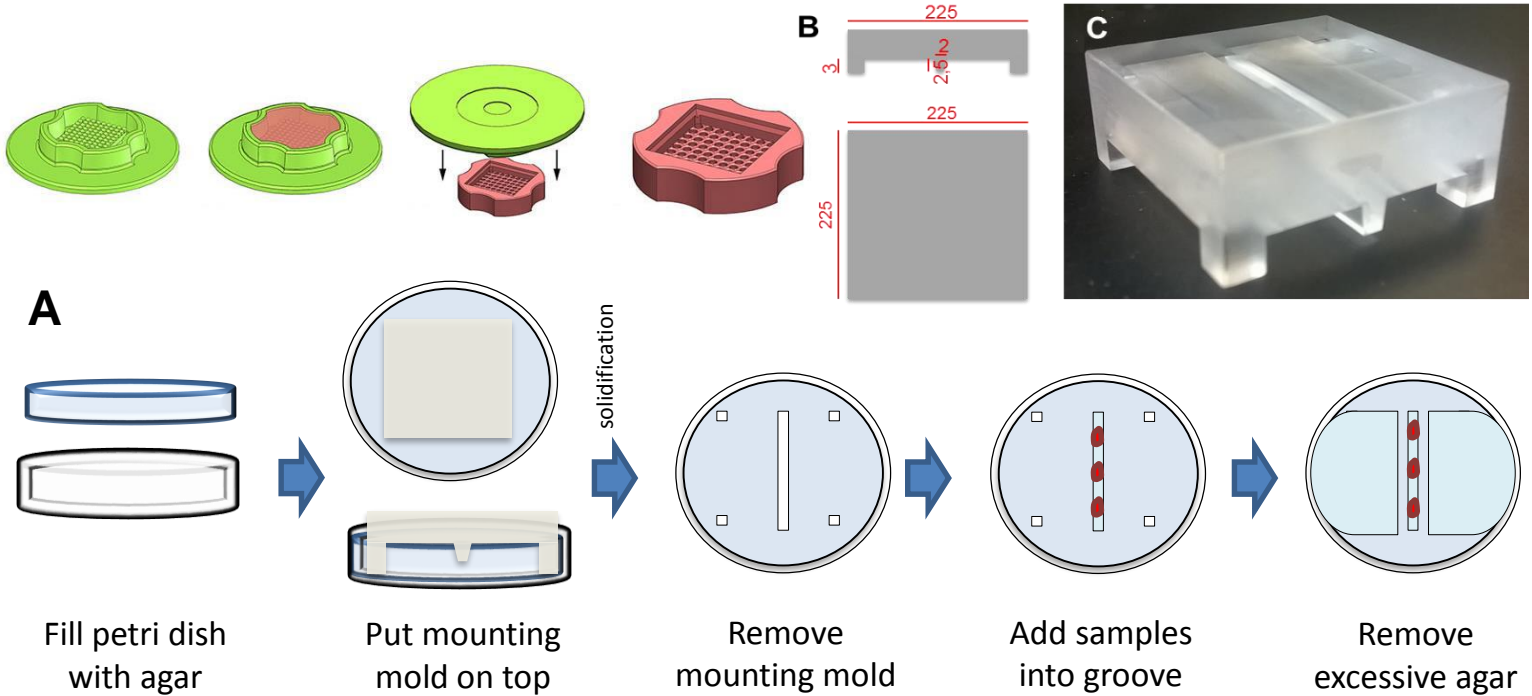
TwinFlect 7.8mm Glycerol

# Familiar Sample Handling with Minimum Adaptations



- Mounting in Glass Bottom Petri Dishes
- Direct Access to Samples

# Mounting Alternatives



# Familiar Sample Handling

