

Microscopy Specs

Zeiss AxioImager A2

Objectives:

Objective Type (Model number)	Mag	NA Numerical aperture	Immersion Media	n refractive index	Working Distance	Condenser Turret	
						Bright Field	DIC
EC Plan-Neofluar (420320-9901-000000)	2.5x	0.075	AIR	1	9.5 mm	H	no
EC Plan-Neofluar (420330-9901-000000)	5x	0.16	AIR	1	18.5 mm	H	no
Plan-Apochromat (420640-9900-000000)	10x	0.45	AIR	1	2.0 mm	H	II
Plan-Apochromat (420650-9901-000000)	20x	0.80	AIR	1	0.55 mm	H	II
Plan-Apochromat Korr (420660-9970-000)	40x	0.95	AIR	1	0.25 mm	H	III
Plan-Apochromat DIC Oil (420782-9900-000000)	63x	1.40	OIL	1.518	0.19 mm	H	III

Camera: AxioCam 512 Color

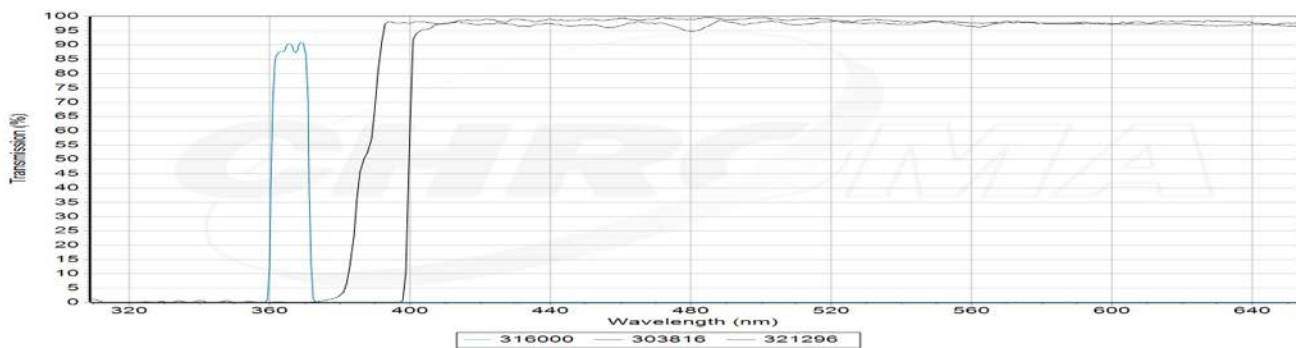
Software: Zen Blue Pro with Multichannel

Fluorescent Light Source: Lumencor SOLA-365-SE light engine

Filters:

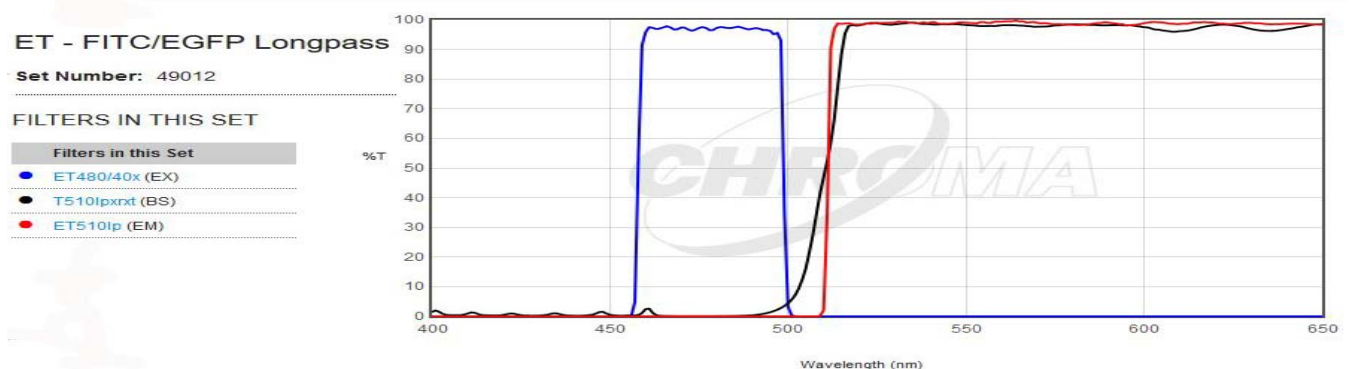
Position 1: DAPI narrow - Chroma Custom Set

Excitation: 365/10x; dichroic mirror: T 387 LP; Emission filter: 400 LP

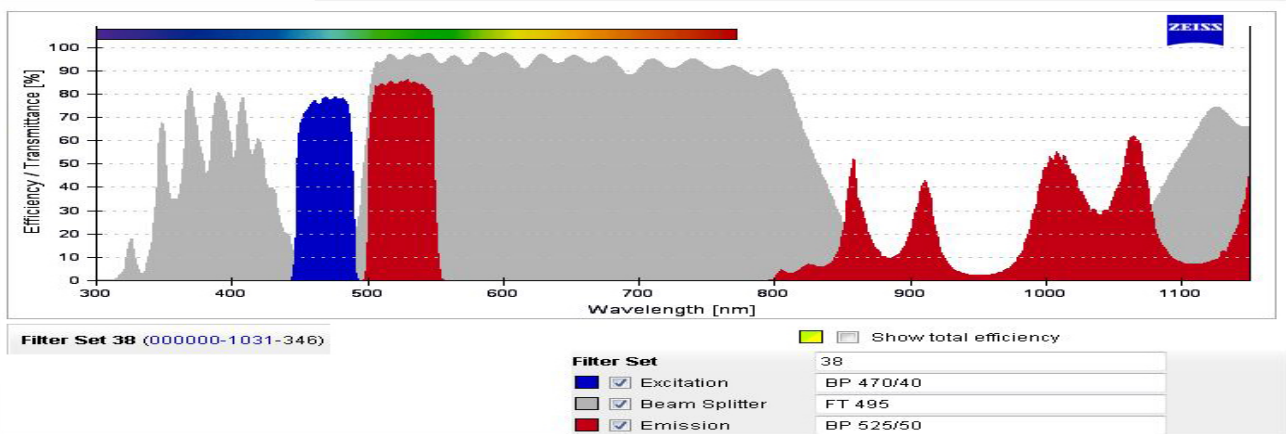


Position 2: FITC – AF488/FITC/EGFP plus chlorophyll auto-fluorescence - Chroma Filter set 49012

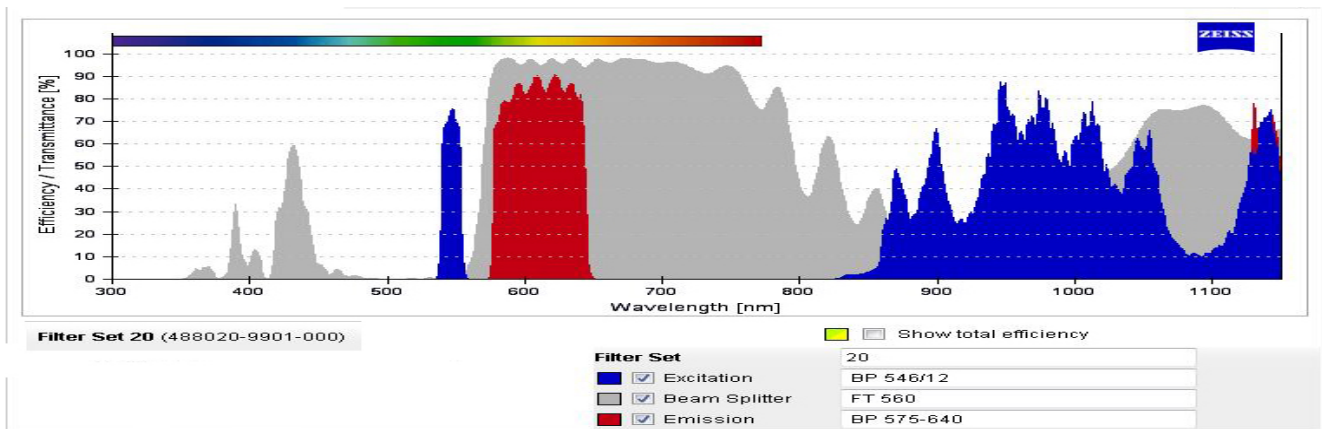
Excitation: BP 480/40; Beamsplitter: FT 510; Emission: 510 LP



Position 3: GFP - AF488/FITC/EGFP minus chlorophyll auto-fluorescence - Zeiss Filter set 38 (1031-346)
Excitation: BP 470/40; Beamsplitter: FT 495; Emission: BP 525/50



Position 4: Rhodamine – Zeiss Filter set 20 (488020-0000)
Excitation: BP 546/12; beamsplitter: FT 560; emission: BP 575-640



Position 5: DIC Analyzer – for DIC imaging with transmitted light

Position 6: Empty – for bright-field and dark-field imaging with transmitted light

Previous specs:

Before March 22, 2018:

Camera: AxioCam HRc

Software: Zen Blue light

Fluorescent Light Source and filters: NONE

Before May 4, 2017:

Software: AxioVision 4

Zeiss Axiophot

Objectives:

Objective Type (Model number)	Mag	NA Numerical aperture	Immersion Media	n refractiv e index	Working Distance	Condenser Turret	
						Bright Field	DIC
Plan-Neofluar (440320)	5x	0.15	AIR	1	13.6 mm	H	no
Plan-Neofluar Pol (440333)	10x	0.30	AIR	1	5.5 mm	H	DIC .3-.4
Plan-Neofluar Pol (440343)	20x	0.50	AIR	1	2.0 mm	H	DIC .5-1.4
Plan-Neofluar Pol (440353)	40x	0.85	AIR	1	0.33 mm	H	DIC .5-1.4
Plan-Apochromat DIC Oil (440762)	63x	1.40	OIL	1.518	0.19 mm	H	DIC .5-1.4

Camera: AxioCam 512 Color

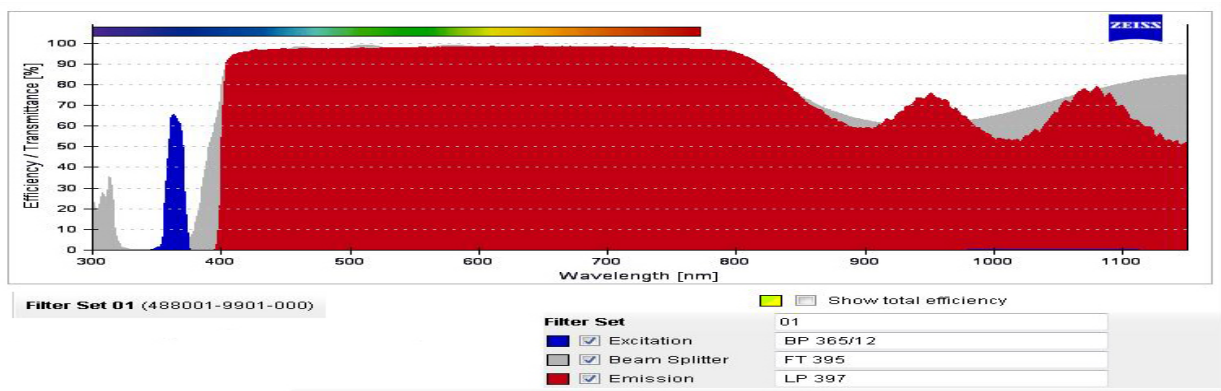
Software: Zen Blue with multichannel module

Fluorescent Light Source: Lumencor SOLA-365-SE light engine

Fluorescent Filters:

Position I: DAPI narrow - Zeiss Filter set 1 (48702)

Excitation: 365/12; dichroic mirror: FT 395; Emission filter: LP397

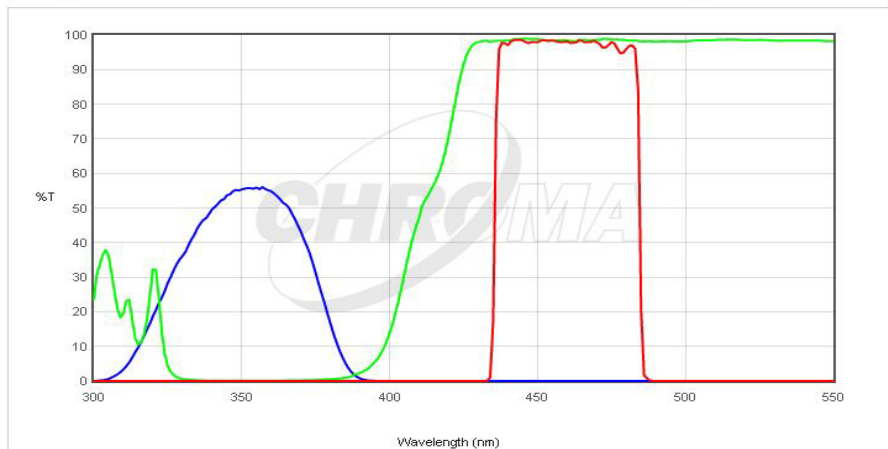


Position II: DAPI wide - Chroma Filter Set 49000

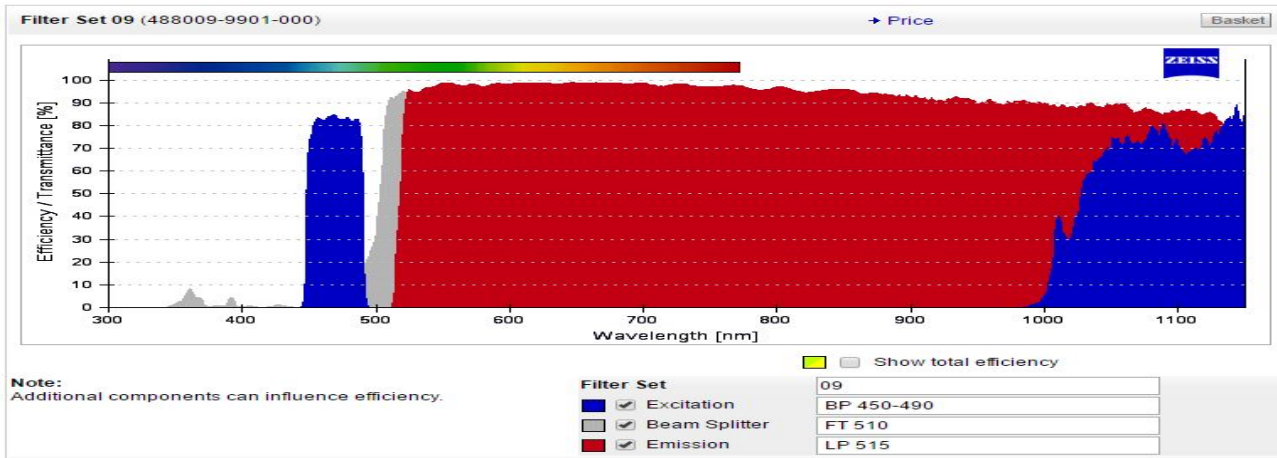
Excitation: 350/50; dichroic mirror: 400; Emission filter: 460/50



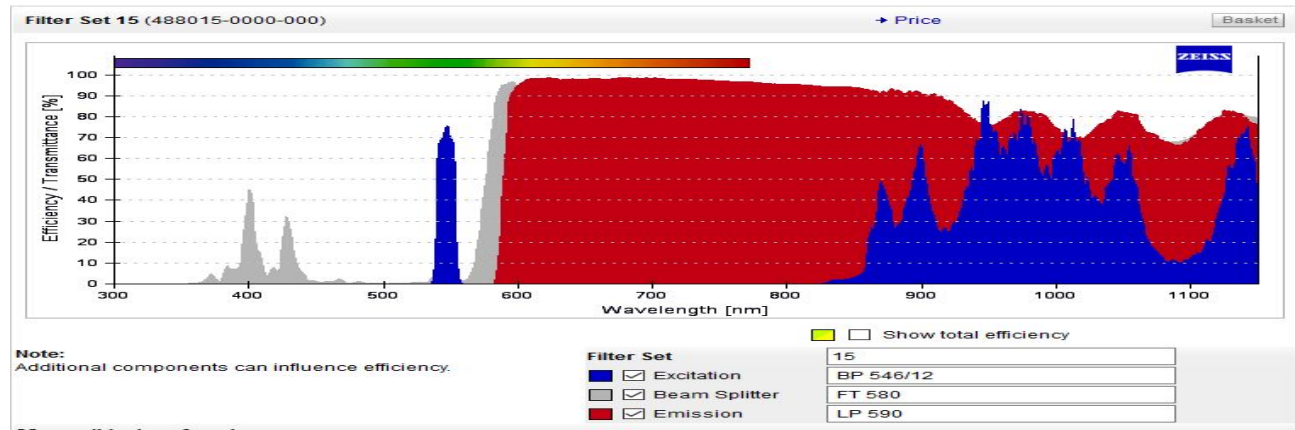
49000 - ET - DAPI



Position III: FITC - AF488/FITC/EGFP plus chlorophyll auto-fluorescence - Zeiss Filter Set 9 (488009)
 Excitation: 450-490; dichroic mirror: 510; Emission filter: LP515



Position IV: Rhodamine - Zeiss Filter Set 15 (488015)
 Excitation: 546/12; FT580; Emission filter: LP590



23 possible dyes found:

Previous specs:

Before May 4, 2017:

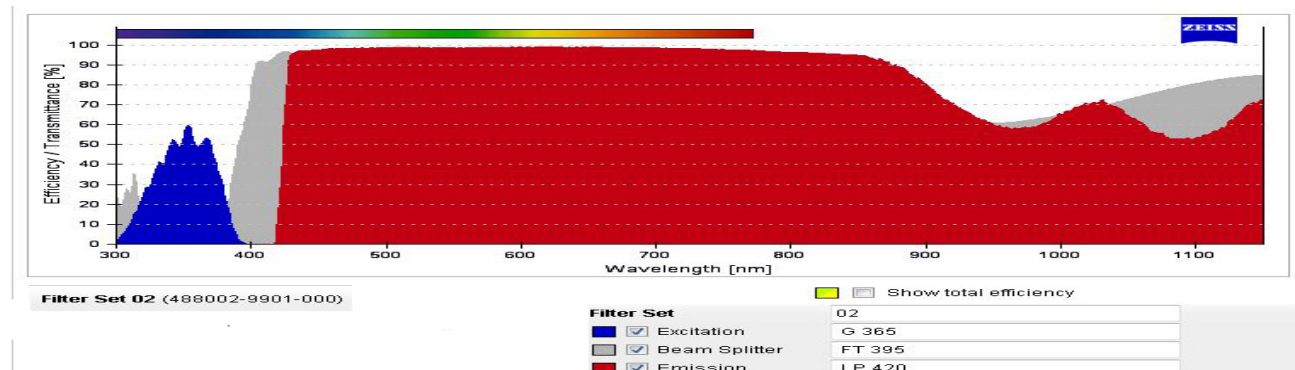
Camera: AxioCam HRc

Software: AxioVision 4

Before March 21, 2015:

Light Source: HBO-100W Fluorescent

Filter Position II: DAPI wide - Zeiss Filter Set 2 (487902) Excitation: 365; dichroic mirror: FT 395; Emission filter: LP420



Zeiss Axioskop

Objectives:

Objective Type (Model number)	Mag	NA Numerical aperture	Immersion Media	n refractive index	Working Distance	Condenser Turret	
						Bright Field	DIC
Plan-Neofluar (440310)	2.5x	0.075	AIR	1	9.3 mm	H/DIC	no
Plan-Neofluar Ph1 (440330)	10x	0.30	AIR	1	5.5 mm	H/DIC	DIC
Plan-Neofluar Ph2 (440341)	20x	0.50	AIR	1	2.0 mm	H/DIC	DIC
Plan-Neofluar Ph2 (440351)	40x	0.75	AIR	1	0.71 mm	H/DIC	DIC

Camera: AxioCam HRc

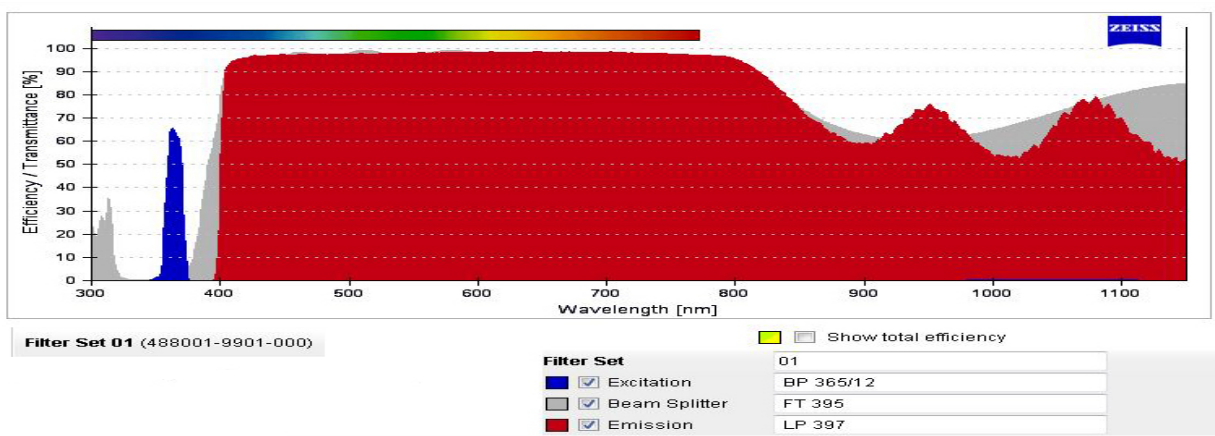
Software: Zen Blue with multichannel module

Fluorescent Light Source: Lumencor SOLA-365-SM light engine

Fluorescent Filters:

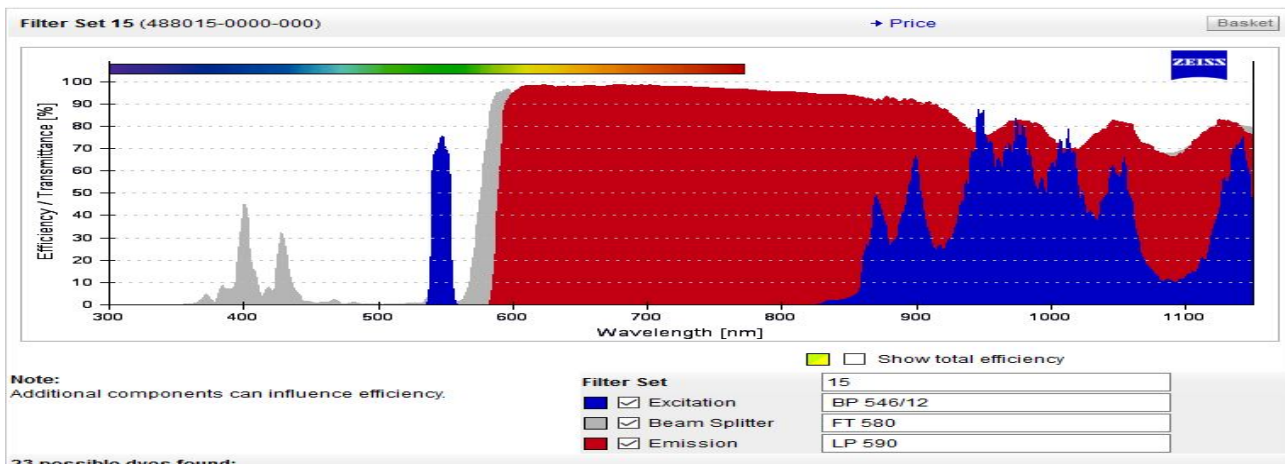
Position I: DAPI narrow - Zeiss Filter set 1 (48702)

Excitation: 365/12; dichroic mirror: FT 395; Emission filter: LP397



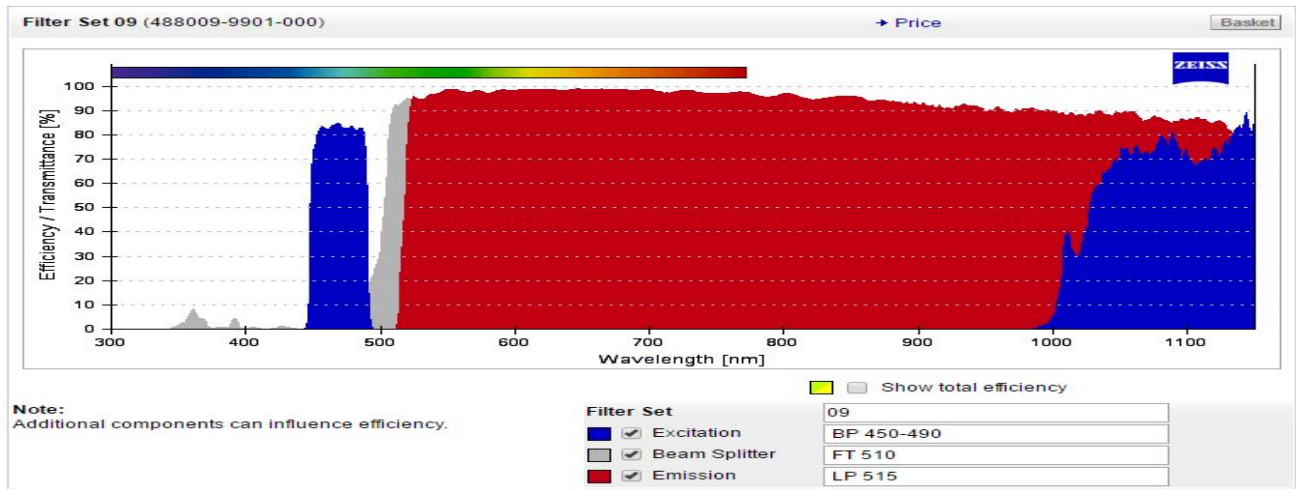
Position II: Rhodamine - Zeiss Filter Set 15 (488015)

Excitation: 546/12; FT580; Emission filter: LP590



Position III: AF488 - AF488/FITC/EGFP plus chlorophyll auto-fluorescence - Zeiss Filter Set 9 (488009)

Excitation: 450-490; dichroic mirror: 510; Emission filter: LP515



Previous specs:

Before March 22, 2018:

Camera: Axiocam MRc

Before May 4, 2017:

Camera: None

Software: None

Before March 21, 2015:

Light source: HBO-50W Fluorescent

Zeiss LSM 700 confocal

Objectives:

Objective Type (Model number)	Mag	NA Numerical aperture	Immersion Media	n refractive index	Working Distance	Condenser Turret	
						Bright Field	DIC
Plan-Apochromat (420640-9900-000)	10x	0.45	AIR	1	2.1 mm	BF	DIC II
Plan-Apochromat (420650-9901-000)	20x	0.80	AIR	1	0.55 mm	BF	DIC II
Plan-Apochromat Korr (420660-9970-000)	40x	0.95	AIR	1	0.16 mm	BF	DIC III
Plan-Apochromat Oil (420762-9800-000)	40x	1.3	OIL	1.518	0.22 mm	BF	DIC III
Plan-Apochromat DIC Oil (420782-9900-000)	63x	1.40	OIL	1.518	0.19 mm	BF	DIC III
Alpha Plan-Apochromat DIC Oil (420792-9800-000)	100x	1.46	OIL	1.518	0.10 mm	BF	DIC III
W N-Achroplan (420957-9900)	20x	0.5	WATER	1.33	2.6 mm	BF	

The 20x/0.5 WD 2.6 M27 W N-Achroplan objective is for dipping directly into the water/medium on the slide or petri dish. It is not generally installed on the microscope. **Please see Faye Rosin if you would like to use this objective.**

Microscope: Upright AxioImager.Z2

Confocal Imaging:

Confocal Software: Zen Black (2.3)

Laser Lines:

1. 405nm (e.g. DAPI)
2. 488nm (e.g. GFP, FITC, CY2)
3. 555nm (e.g. DsRed, CY3, mCherry)
4. 639nm (e.g. CY5)

Wide field imaging (Brightfield/DIC/fluorescence):

Software: Zen Blue (2.3) with Z-stack, time-lapse, multichannel, tiles modules

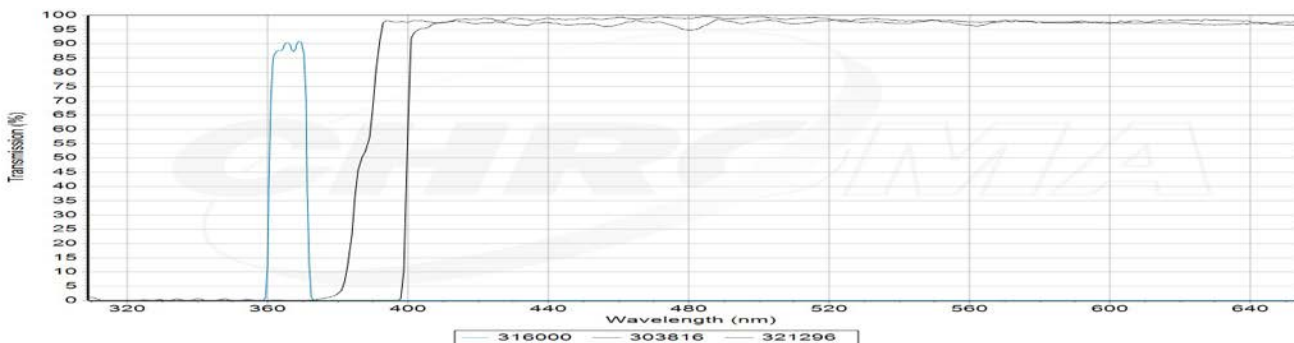
Camera: AxioCam 512 Color

Fluorescent Light Source: Lumencor SOLA-365-SE light engine

Filters:

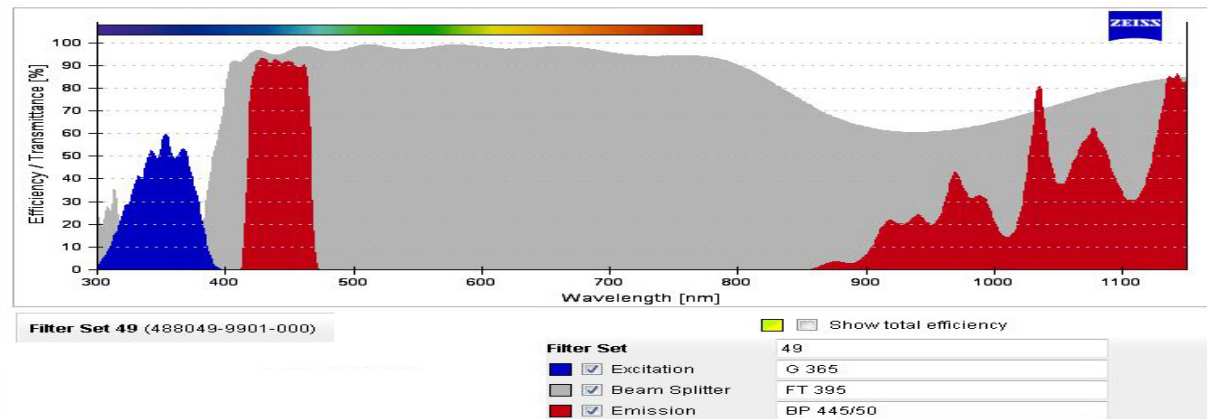
Position 1: DAPI narrow - Chroma Custom Set

Excitation: 365/10x; dichroic mirror: T 387 LP; Emission filter: 400 LP



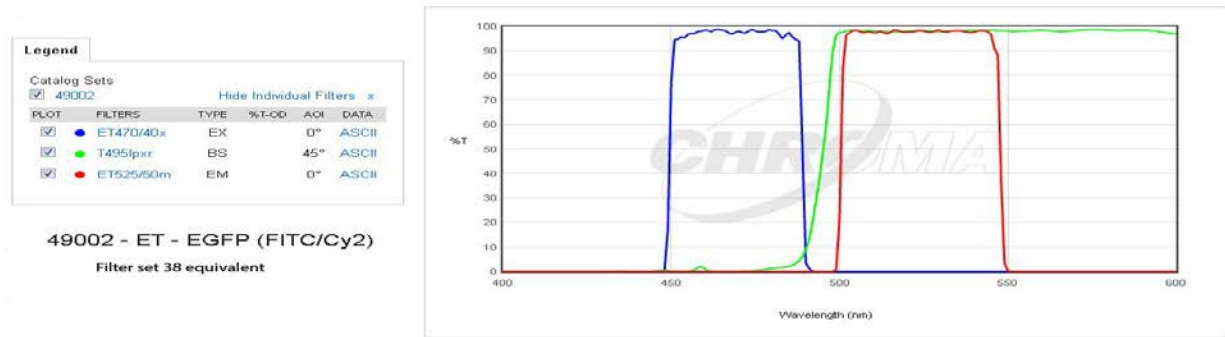
Position 2: DAPI wide - Zeiss Filter set 49 (488049-0000)

Excitation: G 365; Beamsplitter: FT 395; Emission: BP 445/50



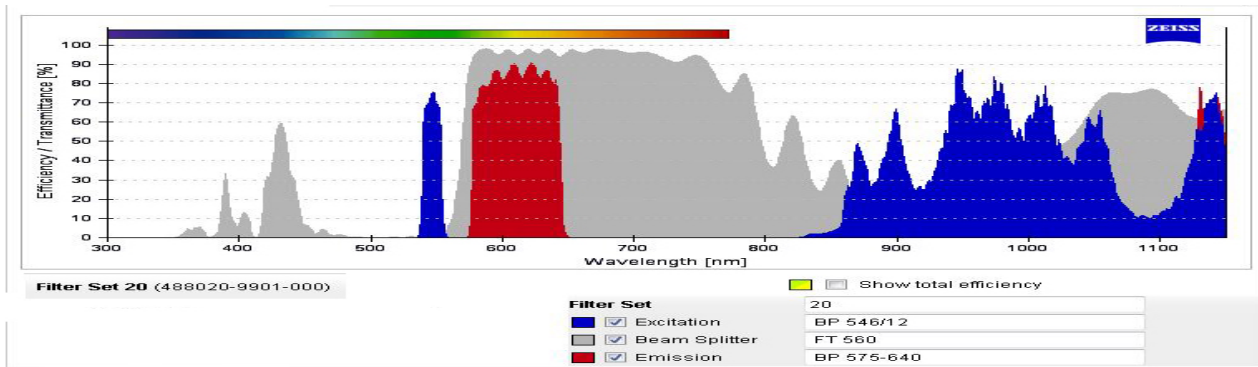
Position 3: GFP - AF488/FITC/EGFP minus chlorophyll auto-fluorescence - Chroma filter set 49002

Excitation: BP 470/40; Beamsplitter: T 495; Emission: BP 525/50



Position 4: Rhodamine - Zeiss Filter set 20 (488020-0000)

Excitation: BP 546/12; beamsplitter: FT 560; emission: BP 575-640



Position 5: DIC Analyzer – for DIC imaging with transmitted light

Position 6: Empty – for bright-field and dark-field imaging with transmitted light

Previous specs:

Before March 1, 2018

Confocal Software: Zen Black 2010

Wide field imaging Software: AxioVision 4 software, mosaIX and Z-Stack modules

Before May 4, 2017:

Camera: AxioCam HRc

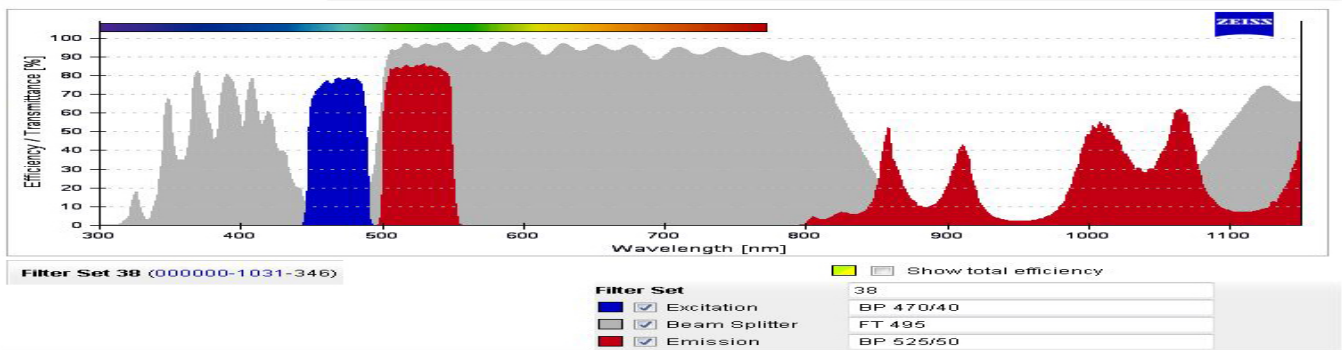
Before March 21, 2015:

Fluorescent light source: HBO 100-W

Before April 1, 2015:

Filters: GFP - Zeiss Filter set 38 (1031-346)

Excitation: BP 470/40; Beamsplitter: FT 495; Emission: BP 525/50



Zeiss Microspectrophotometer

Objectives:

Objective Type (Model number)	Mag	NA Numerical aperture	Immersion Media	n refractive index	Working Distance mm	Condenser Turret	
						Bright Field	DIC
Plan-Neofluar (440330)	10x	0.30	AIR	1	5.5	H	DIC .3-.4
Plan-Neofluar (440340)	20x	0.50	AIR	1	1.3	H	DIC .5-1.4
Plan-Neofluar Pol (44)	40x	0.75	AIR	1	0.41	H	DIC .5-1.4
Plan-Neofluar Oil (440480)	100x	1.30	OIL	1.518	0.20	H	DIC .5-1.4
Plan-Neofluar Oil Iris (440486)	100x	1.30	OIL	1.518	0.2	H	

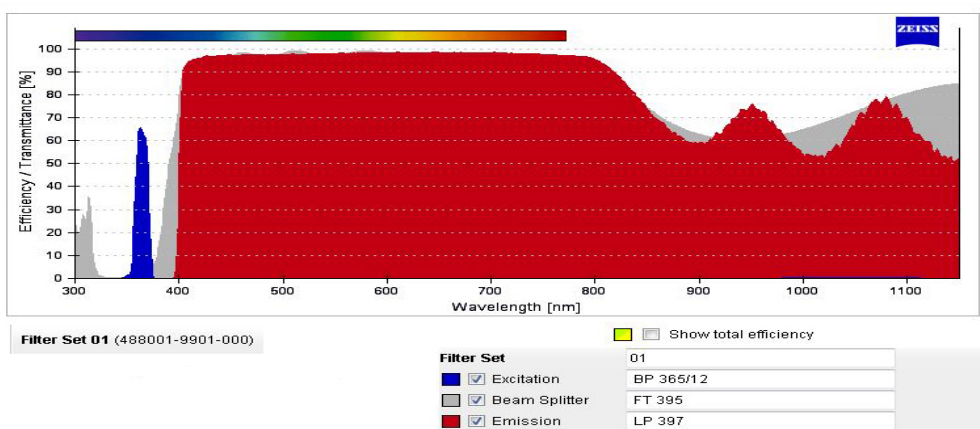
Microspectrophotometer: MSP 20

Fluorescent Light Source: HBO 100-W burner

Fluorescent Filters:

Position I: DAPI narrow - Zeiss Filter set (48702)

Excitation: G 365/12 nm dichroic mirror: FT 395; emission: LP397



Zeiss Discovery v12 Dissecting microscope

Objectives:

Objective Type (Model number)	Mag	Immersion Media	Working Distance
PlanApo S (435202-0000-000)	0.63x	AIR	81 mm
PlanApo S (435226-0000-000)	1.5x	AIR	30 mm
PlanApo S (435224-0000-000)	2.3x	AIR	10 mm

Camera: AxioCam 512 Color

Software: Zen Blue Pro with extended focus and time lapse modules

Previous specs:

Before May 4, 2017:

Camera: AxioCam HRc

Software: AxioVision 4 with extended focus and time lapse modules

Zeiss Stemi SV 11

Objectives:

Objective Type (Model number)	Mag	Immersion Media
Plan Achromat S (455070-0000-000)	1.0x	AIR
Plan S (455071-0000-000)	1.6x	AIR

Camera: AxioCam HRc

Software: Zen Blue

Previous specs:

Before May 4, 2017:

Software: AxioVision 4

NightSea Fluorescence Adapters for dissecting scopes

Filter Set	Excitation	Emission	Fluorophores
Green Only (RB-GO)	440-460nm	500-560nm BP	EGFP, fluorescein...
Ultraviolet (UV)	360-380nm	415nm LP	DAPI, Aniline Blue...

JEOL JSM-6010 LV Scanning Electron Microscope

Resolution: 4.0 nm in HV mode; 5.0 nm in LV mode

Magnification: 80X to 300kX

Accelerating Voltage: 500 V to 20 kV

Detectors:

1. Everhart Thornley
2. Backscatter with COMPO, TOPO, and Shadow
3. Low Vacuum Secondary Electron detector

Operating Pressure: 10⁻⁴ Pa order to 100Pa

Other: motorized 2 axis stage, chamberscope, stage navigation system