

Optic Solution Presentation



**Total Solution Provider in Bio-Medical Laboratory
Equipment (All Microscopy system)**





Optic Solution introduction & Overview

Currently, I am the main business partner of Nikon Korea.

Based on the optical knowledge and know-how accumulated while working for Olympus Korea (11 years), Zeiss Korea (13 years) and Nikon distributor (6 years) for more than 30 years, Optic Solution is spurring the bio research microscope market.

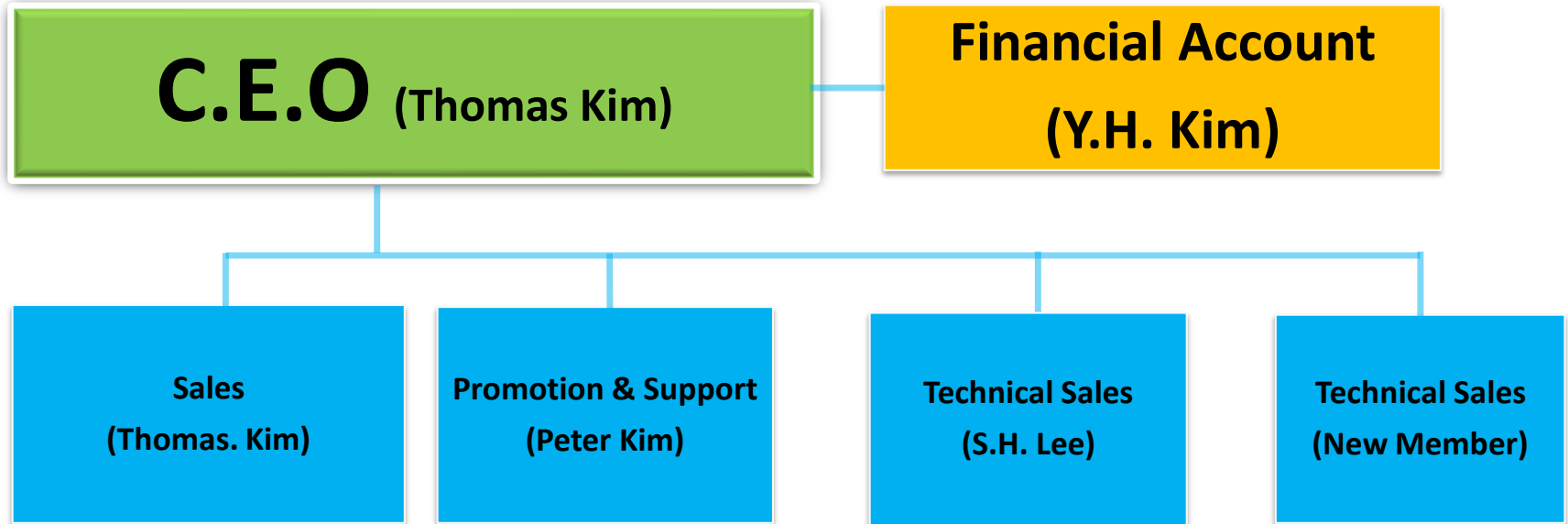
I believe that if customer satisfaction increases in the Bio Research Microscopy market, new stable sales can be made, not price competition.

And, in particular, we believe that we should publicize the advantages of Live Cell Microscopy using microscopes, cameras, and chambers, allow users to easily use our products without any inconvenience, and maintain a strong relationship with users.

Optic Solution's strategy for this belief is as follows.

We will continue to participate in exhibitions, workshops, and demonstrations.

Organization chart



Main Partner of Optic Solution



NIKON CORPORATION
Healthcare Business Unit



TELEDYNE PHOTOMETRICS
Everywhereyoulook™

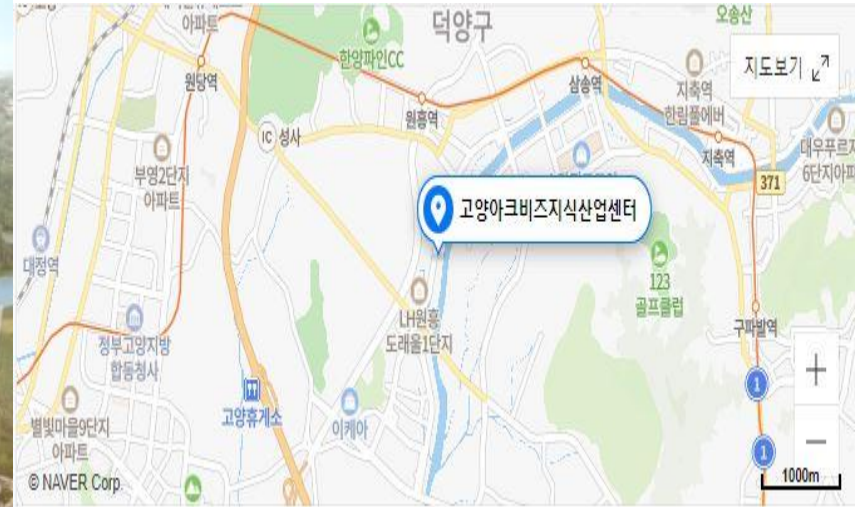
Part of the Teledyne Imaging Group





Optic Solution Location & Address

GoyangArchbiz. Knowledge Industry Complex.



**(10550) 경기도 고양시 덕양구 삼원로 63
고양아크비즈 지식산업센터 1418호**

**1418, 63 SAMWON -RO DEOGYANG-GU GOYANG-SI
GYEONGGI-DO, KOREA, SOUTH (10550)**

**Tel. 031) 968-7330
Fax. 031) 968-7331
www.opticsolution.co.kr**

Exhibition

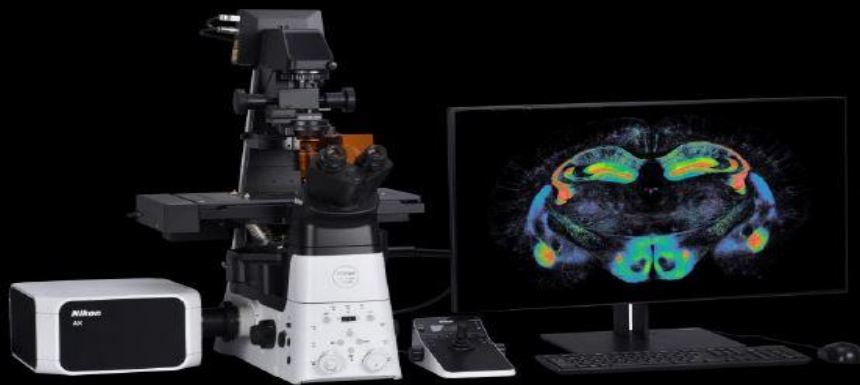


2022 International Conference
Korean Society for Molecular and Cellular Biology
옵틱솔루션이 함께 합니다.
September 28^{Wed} ~ 30^{Fri}, 2022 | ICC Jeju, Jeju, Korea



Nikon AX / AX R

Confocal Microscope System



2022 KSBMB
3층 로비 / 7,8,15,16
Luncheon Symposium:
09.29 12:40 – 13:05 1층 홀B

Tomocube HT-X1

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2022 KSBMB
BOOTH #061

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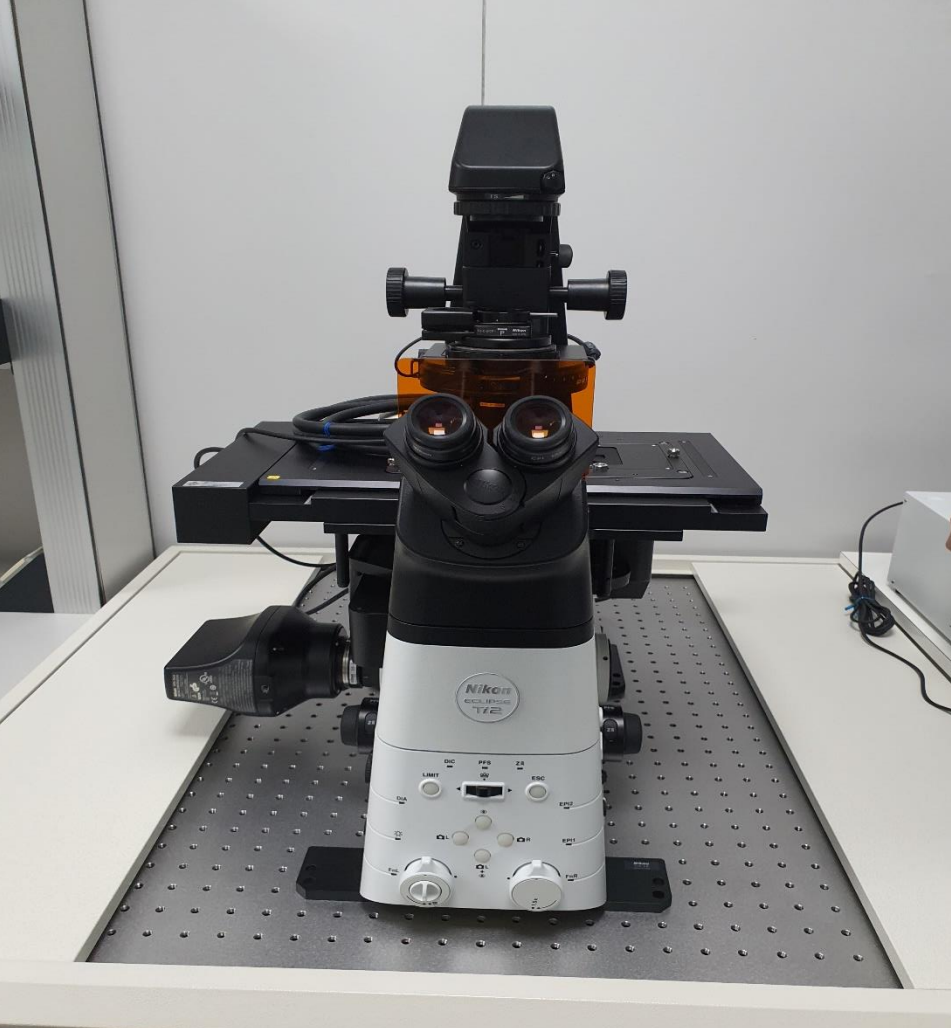


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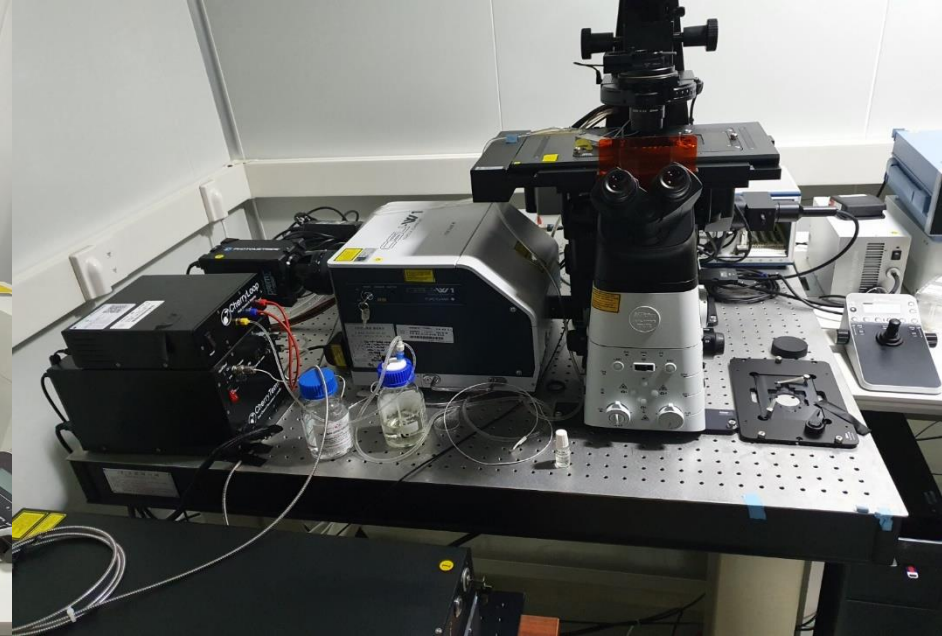
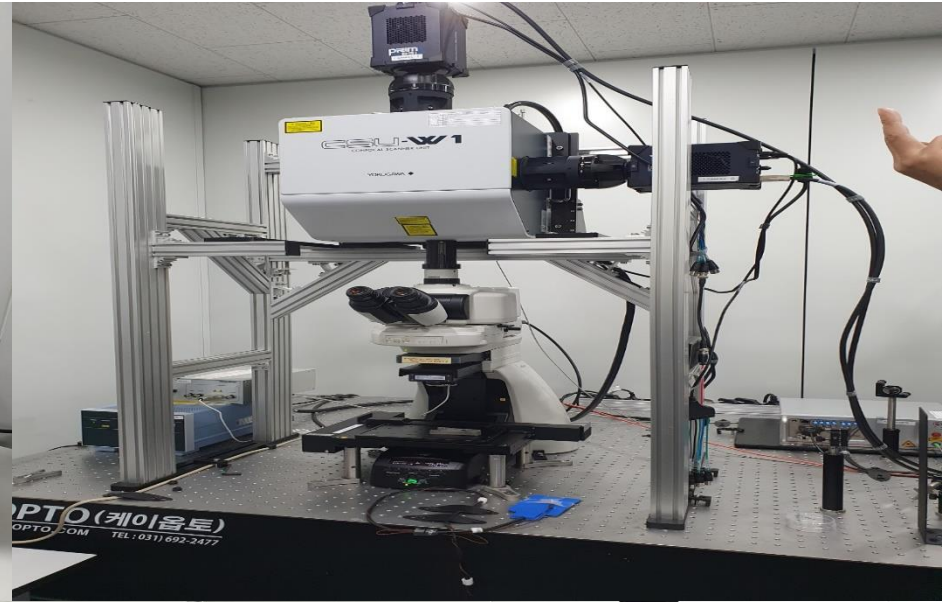
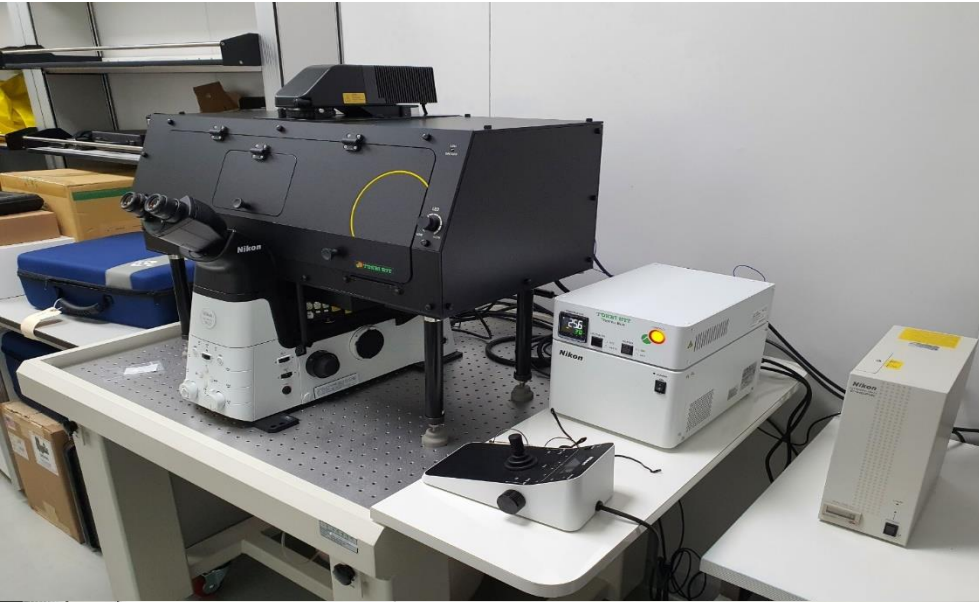
Our Market & Product (Sales Record)



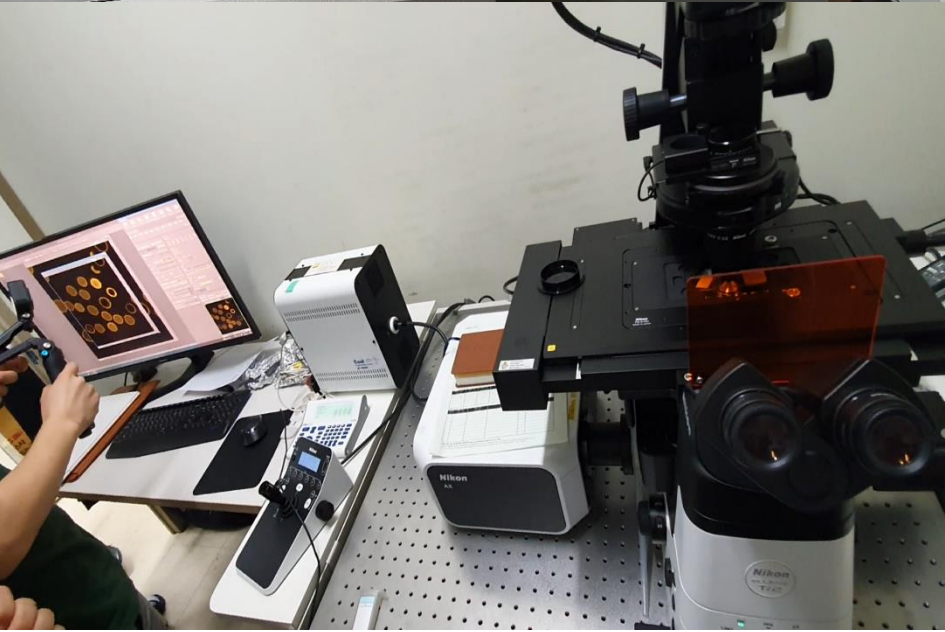
국립 환경과학원 전북대학교 치과대학



Our Market & Product (Sales Record)



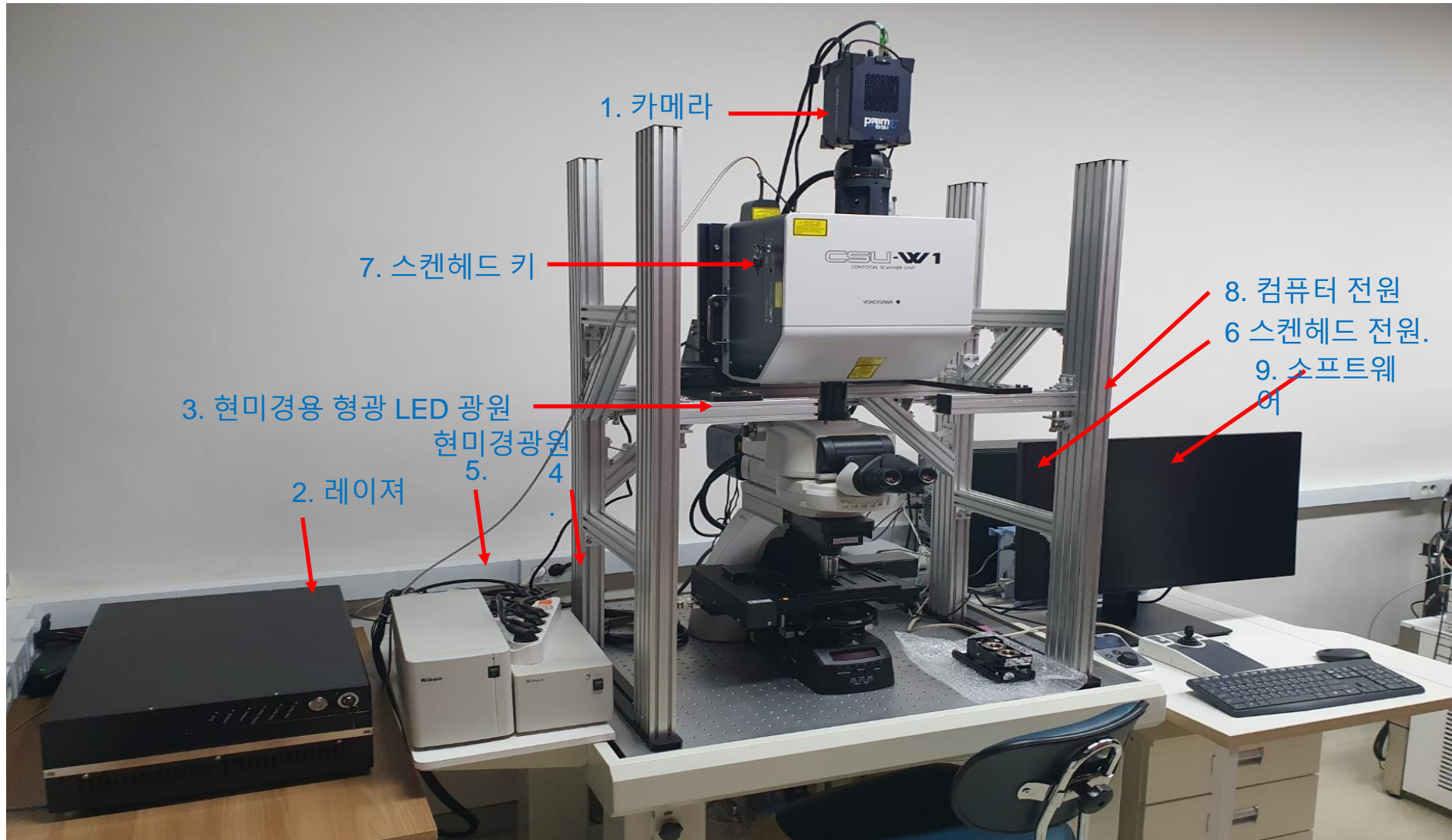
Our Market & Product (Sales Record)



Our Market & Product (Sales Record)

Seoul National Univ. Dental College.

CSU-W1 System





Promotion of Our Market & Product (Exhibition)

KSBMB

분자영상학회



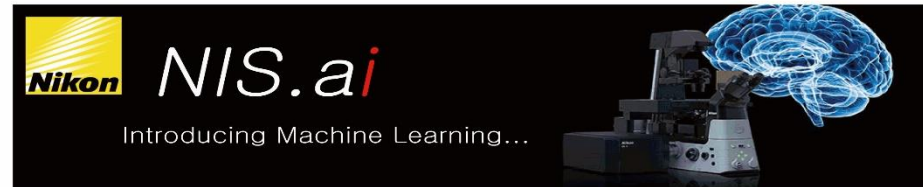
저희 옵틱솔루션은 "Total Solution Provider in Bio-Medical Laboratory Equipment"를 모토로 연구자들이 필요로 하는 옵틱에 관련 모든 솔루션을 제공하고 있습니다.

Olympus, ZEISS 및 Nikon의 근무 경력을 토대로 축적된 광학지식과 Know How를 바탕으로 연구자들이 하고자 하는 새로운, 독창적이며, 고차원적인 연구를 가능하게 하는 솔루션을 제공하고자 합니다.

이러한 솔루션을 바탕으로 국내 생명연구 분야의 발전에 기여하고, 새롭게 시장을 개척해 나가면서 성장하고자 합니다.

앞으로도 고객과 함께 고객의 제품 만족을 위해 최선을 다하며 지속적인 상호협력체제를 이어 나가도록 하겠습니다.

Kim Tae Hoon
CEO
Optic Solution co.ltd



Innovative Active Immunostaining System

C Stain

Innovative active immunostaining system based on AEFI technology that enables ultra-rapid, and uniform staining of thick 3D biological tissues

Incubation System for microscopes

Stage Top Incubator

Offer precision temperature, humidity and CO2 control for cell culture on a microscope. Enables to conduct short and long term (more than 2 weeks) Time-Lapse Imaging.



Image EXFluor AI

All-in-one Imaging System



Crayon Technologies



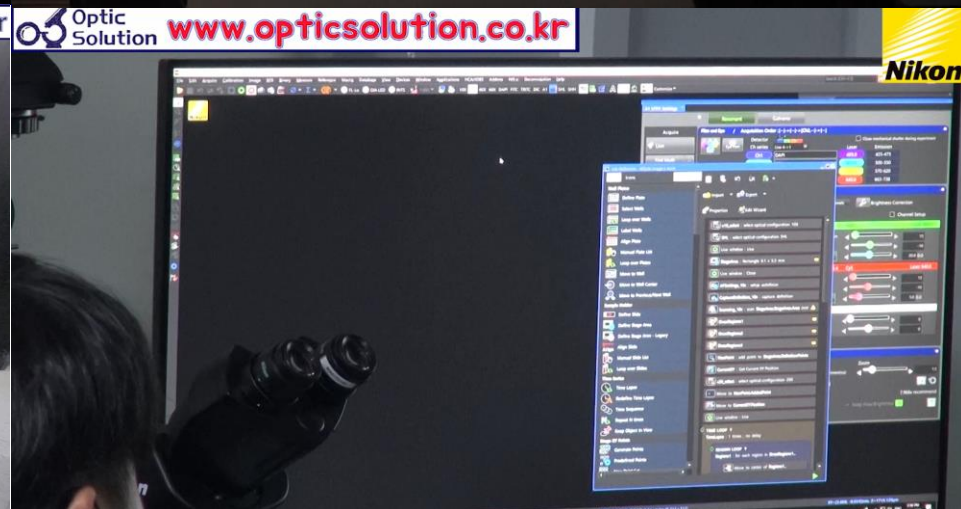
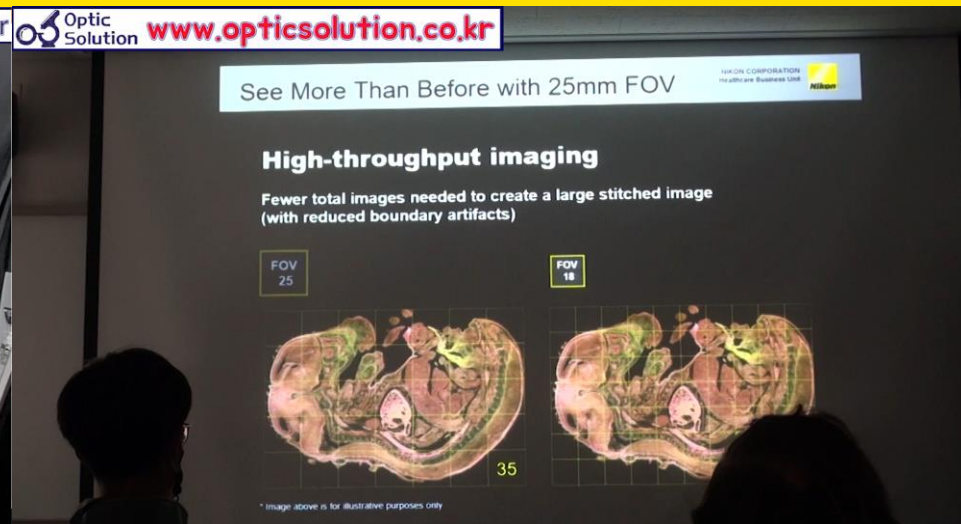
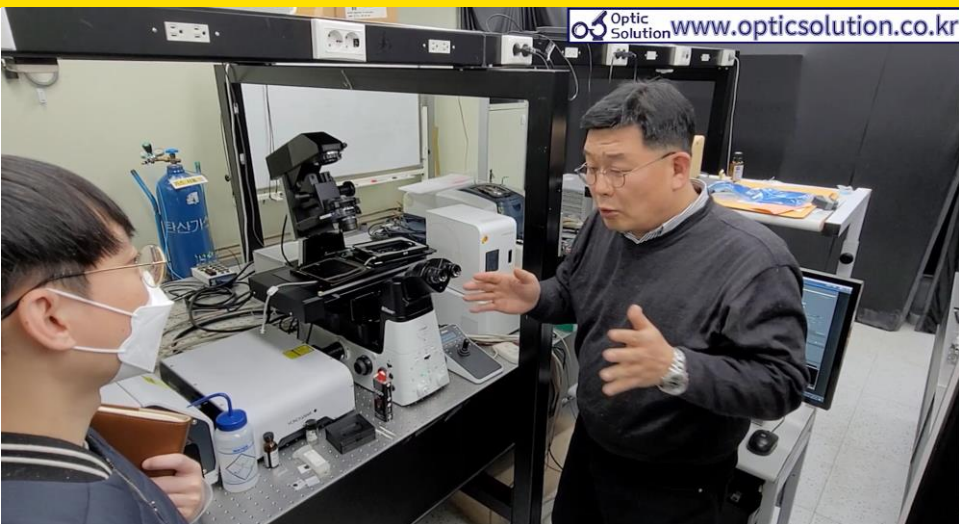
대표 김태훈 Mobile. 010 8701 6218 E-mail. opticsol@naver.com
TEL. 02 389 7330 FAX. 02 389 7331
03306 서울시 은평구 진관2로 57-37 236동 B105



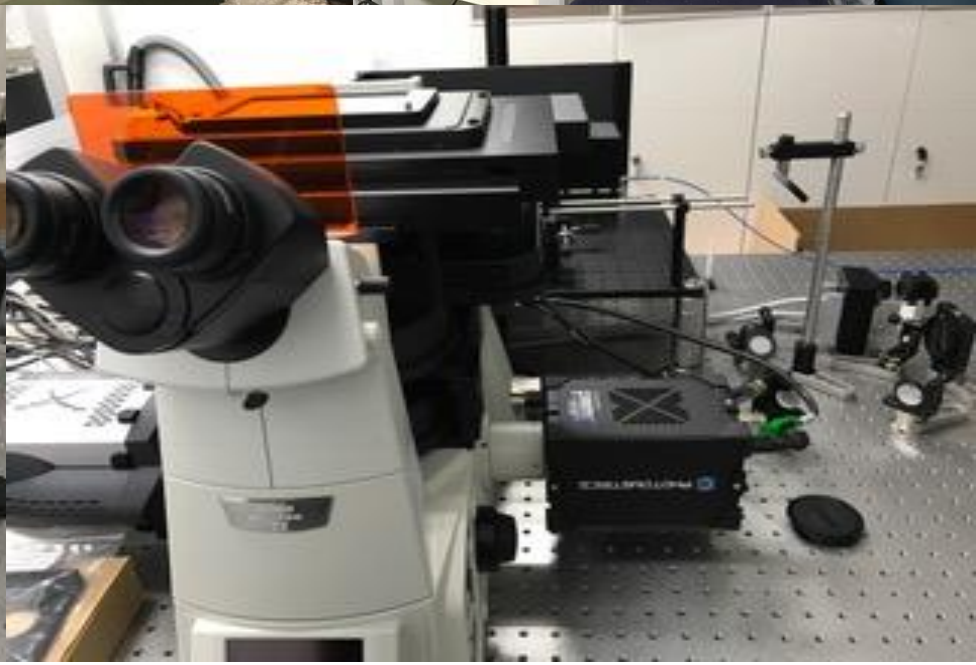
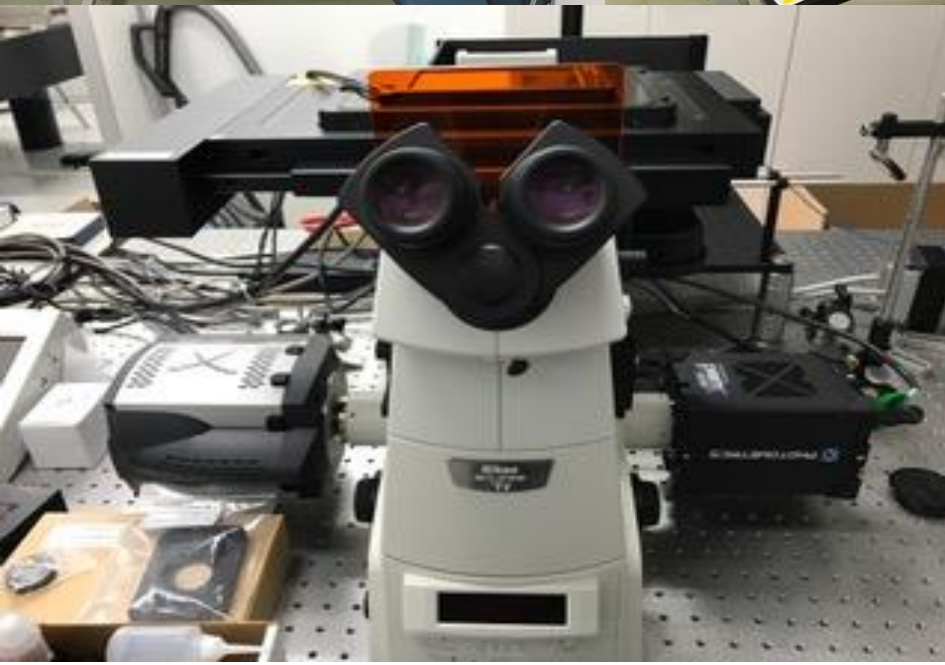
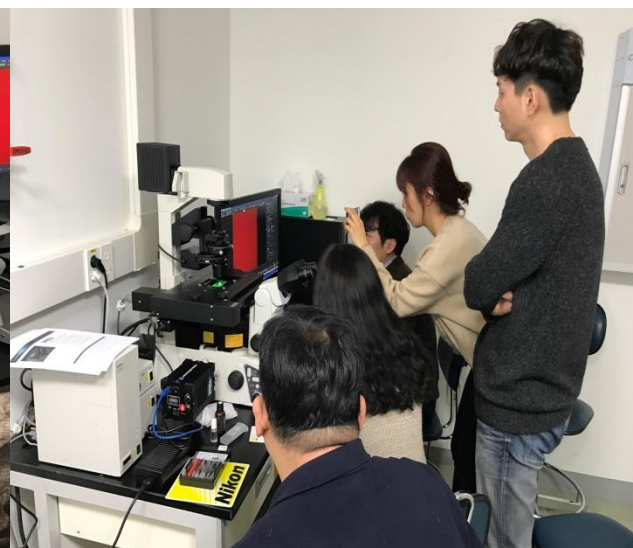
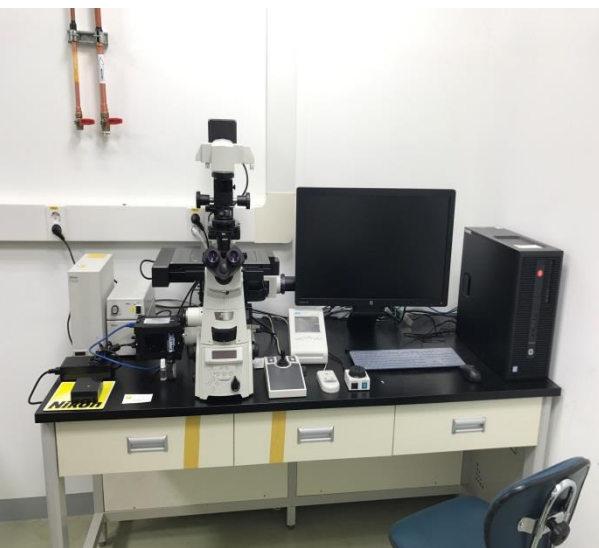
Promotion of Our Market & Product (Workshop)

KBSI

UNIST



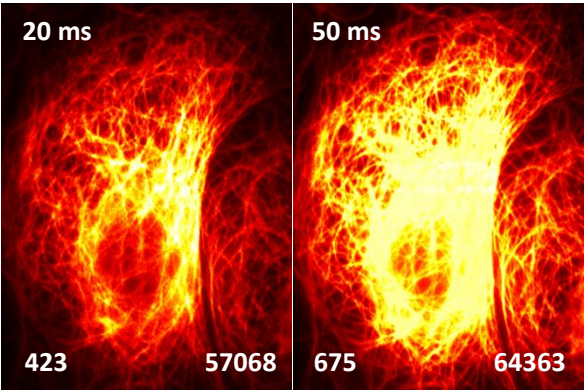
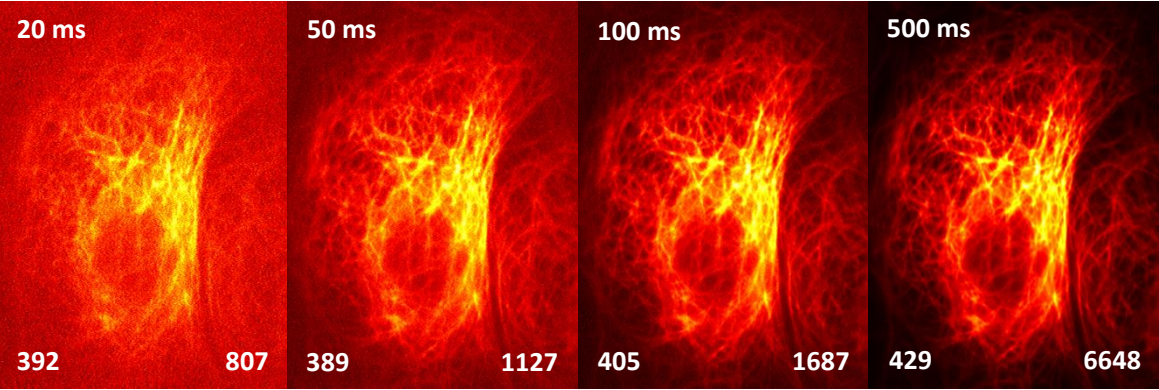
Prime 95B Demonstration for Super Resolution Microscopy (Korea Univ. & UNIST)



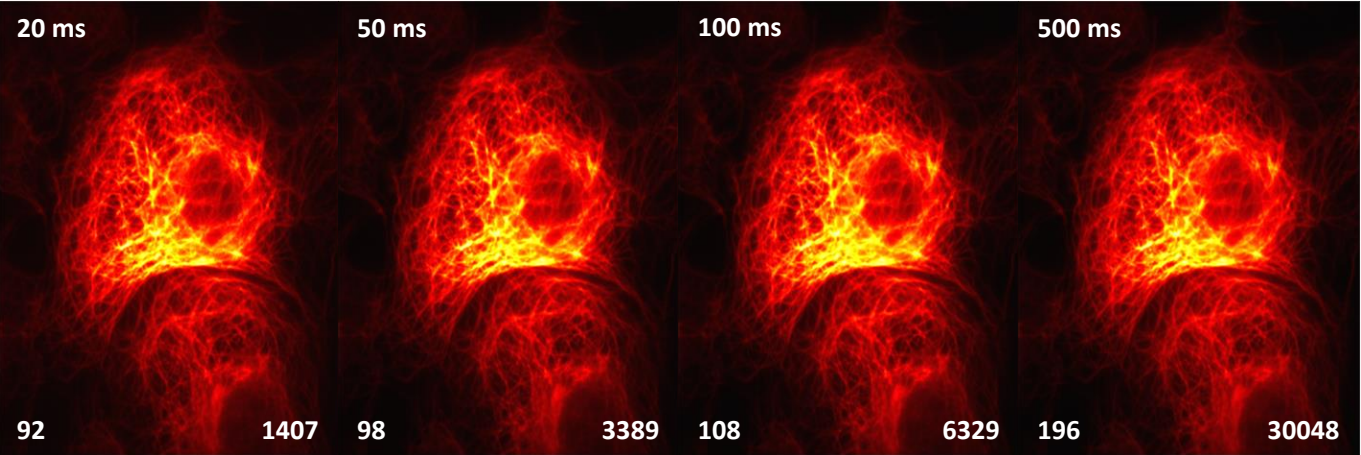
Andor Ixon Ultra 888 – pixel size 130 nm
Photometrics Prime95B – pixel size 157 nm

Andor Ixon Ultra 888
30uW, -EM

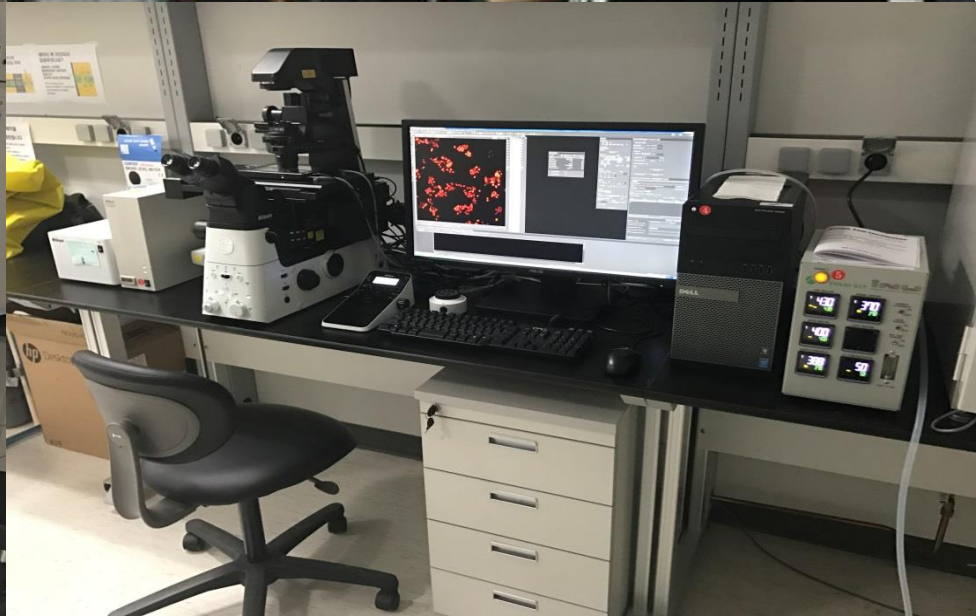
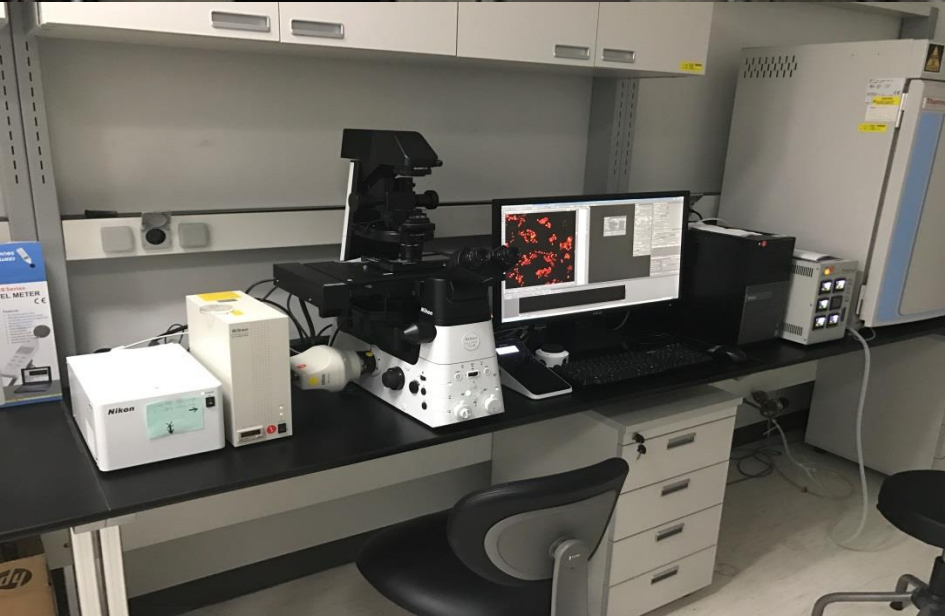
30uW, EM300



Photometrics Prime 95B
30uW, 100MHz, 16bit, -en, -loc



Live Cell Imaging Microscope Lecture & Demonstration (Yonsei Medical Univ. & Yonsei Univ.)



Examples of Farming – NEWS letter & Customized Manual

NEWS letter

Customized Manual

Optic Solution
Nikon Authorized Distributor

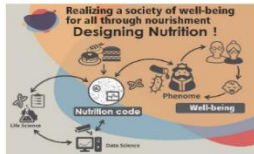
APPLICATION NOTE NIS.ai/AI module for microscopes (Clarify.ai)

AI를 사용한 시간 경과에 따른 미토콘드리아 형태의 정량 분석

미토콘드리아는 세포의 외부 환경에 반응하여 기능하는 일종의 세포 기관입니다. 이 application note에서는 NIS-Elements 이미징 소프트웨어의 새로운 AI 모듈인 Clarify.ai를 사용하여 기능 억제에 따른 미토콘드리아의 형태학적 변화를 정량적으로 분석한 예를 소개합니다. 츠쿠바 대학 의학부 내분비학과 미야모토 다카후미(Mihamocrinology and Metabolism)

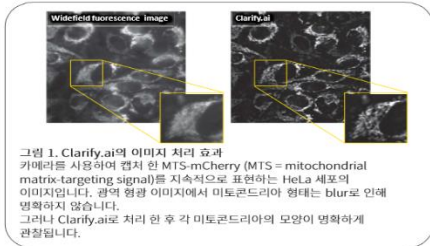
연구 내용

음식은 인간을 포함한 모든 생명체의 건강에 매우 중요한 역할을 합니다. 미야모토 박사는 영양학, 합성 생물학, 전산 과학 등 학제 간 연구로 식품을 통해 모든 유기체의 웰빙을 실현하고 영양분으로 세포와 개체를 제어하는 "Designing Nutrition"라는 정밀 제어 방법을 만들고자 합니다.



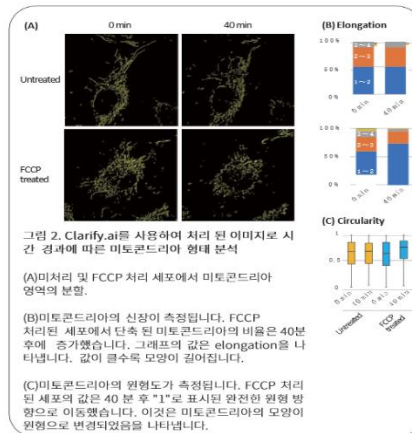
사전 훈련된 AI를 사용하여 High-contrast 이미지를 쉽게 캡처

Clarify.ai는 광대역 형광 이미지에서 blur를 제거할 수 있기 때문에 한 번의 클릭으로 High-contrast 이미지를 쉽게 캡처할 수 있습니다. 기존 현미경 이미지 (그림 1).



시간 경과에 따른 미토콘드리아 형태 패턴의 정량 분석

미토콘드리아 기능 억제제 (FCCP: uncoupling agent)가 첨가된 HeLa 세포의 시간 경과 관찰을 수행하고 시간 경과에 따른 elongation 및 모양의 변화를 분석했습니다. (그림 2). Clarify.ai는 deconvolution보다 빠른 속도로 처리할 수 있으며 이미지 처리 필터로 형태학적 분석에 적용할 수 있습니다.



Product information

현미경용 Clarify.ai AI 모듈

이 기능은 초점이 맞지 않는 평면에서 발생하는 형광 신호의 특징에 대해 사전 학습된 AI를 사용하여 광시야 형광 이미지에서 blur를 자동으로 제거합니다. 높은 신호 대 잡음비로 선명한 이미지를 생성할 수 있습니다.

General Analysis 이미지 분석 도구

이것은 세포 개수 및 면적 측정과 같은 정량적 이미지 분석을 제공할 수 있습니다. 이 도구는 AI 기능과 함께 사용할 수 있습니다.

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전북대학교 치과대학

Nikon 컨포칼 기초 설명(2021.02.04)

음석술루선

대표: 김태훈

주소: 서울시 은평구 진관2로 57-37, 236동 B105 (03306)

대표전화: 02-389-7330

Mail: confocallsm@naver.com

건국대학교 의료생명대학 Nikon Ti2 메뉴얼

음석술루선

대표: 김태훈

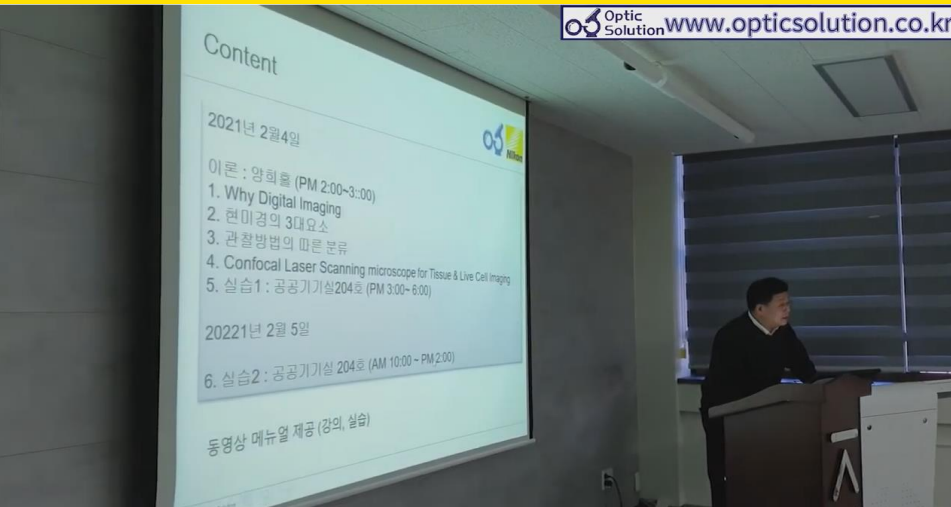
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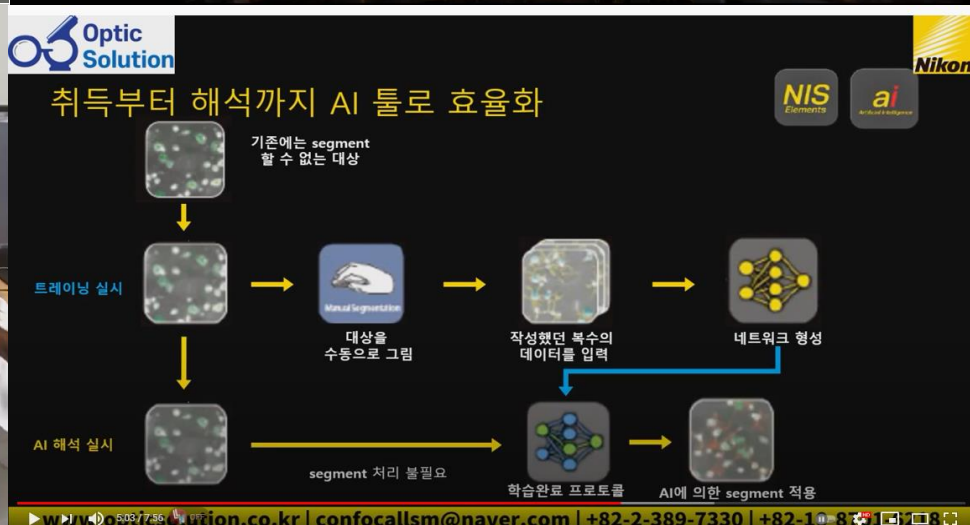
Mail: confocallsm@naver.com

Promotion of Our Market & Product (Lecture & YouTube))

Lecture



YouTube



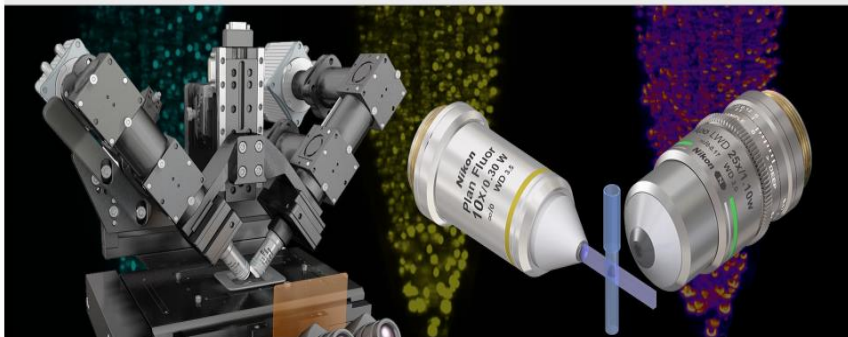
Knowledge is Share!

Nikon Online/ Offline Support
<https://www.microscopyu.com/>



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NEW Light Sheet Fluorescence Microscopy >

What's New on MicroscopyU

We're happy to announce that we've updated our article on Single-Molecule Super-Resolution Imaging. This article now contains an in-depth discussion of sample preparation, including near-comprehensive tables listing known fluorescent probes and buffer systems for single molecule localization microscopies.

[LEARN MORE](#)

Most Viewed Review Articles

Resolution

The resolving power of a microscope is the most important feature

2018 Nikon Small World Wall Calendar



The Nikon Small World 2018 Calendar is printed in full color on 8.5 x 11 semi-gloss paper and spiral bound for mounting on the wall. Included in the calendar are all of the winning images from the 2017 Photomicrography Competition.

[Purchase a 2018 Nikon Small World Calendar](#)

[View 2017 Small World Photomicrography Competition Winners](#)

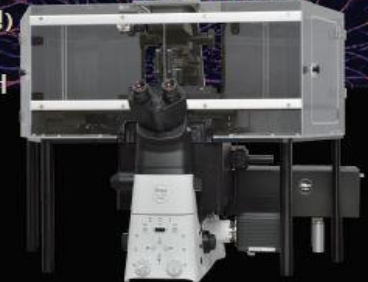
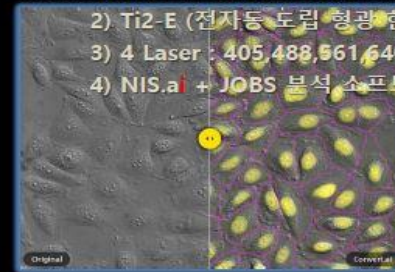
[View 2017 Small World in Motion Winners](#)

Nikon Advanced Imaging Seminar & Demo Event "See more than before"

이번 Nikon에서는 기존 광학 해상력의 한계를 뛰어넘는 Nikon 초고해상도 현미경 및 공초점 현미경에 머신러닝 기반의 인공지능 영상 분석 소프트웨어인 NIS.ai 결합한 시스템을 활용한 application을 접할 수 있는 기회를 마련했습니다. 초고해상 3D 이미징 관련 연구자들의 연구에 도움이 될 수 있도록 준비 하였습니다, 관심 있는 분들의 많은 참여 부탁드립니다.

- 날짜 : ◆ 세미나 : 2020년 2월 19일(수) 오후 2시~3시
◆ 장비 데모 : 2020년 2월 19일 3시 ~ 3월 26일 (약 5주간 데모 시연)
- 장소 : 연세대학교(서울) 에비슨관 2층 212호
- 세미나 신청 : 별도의 신청 없이 자유롭게 참석 가능
- 데모 신청 : 전화 또는 이메일 접수 (아래 연락처 참조)
- 사양 : 1) N-SIM-S+A1R HD25 Dual system with Live Cell Chamber

- 2) Ti2-E (전자동 도립 형광 현미경)
- 3) 4 Laser : 405, 488, 561, 640nm.
- 4) NIS.ai + JOBS 분석 소프트웨어



연락처

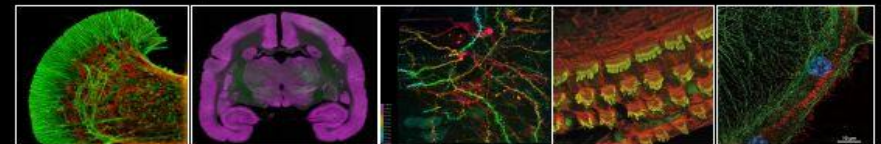
이메일 : wangi.hong@nikon.com (홍완기 주임)
전화 : 02-2186-8418, 010-7374-2415

데모 신청서 필요 사항

소속, 이름, 전화번호, 이메일, 샘플정보

주최

넬리온 인스트루먼트 코리아



Spatial Resolution of a Light Microscope



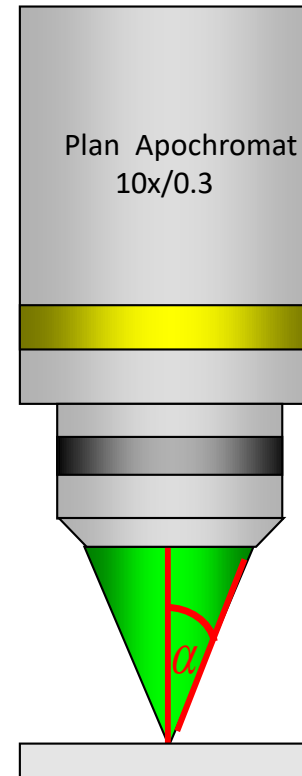
Prof. Ernst Abbe
(1840 - 1905)

$$d = \frac{\lambda}{2n \sin \alpha}$$

Definition

The resolution limit is reached, when two point-like objects can not be imaged as two distinct structures anymore.

The distance between the objects is called the resolution limit.



$$d = \frac{\lambda}{2NA}$$

$$NA = n \cdot \sin \alpha$$

d - resolution

λ - wavelength

NA - numerical aperture

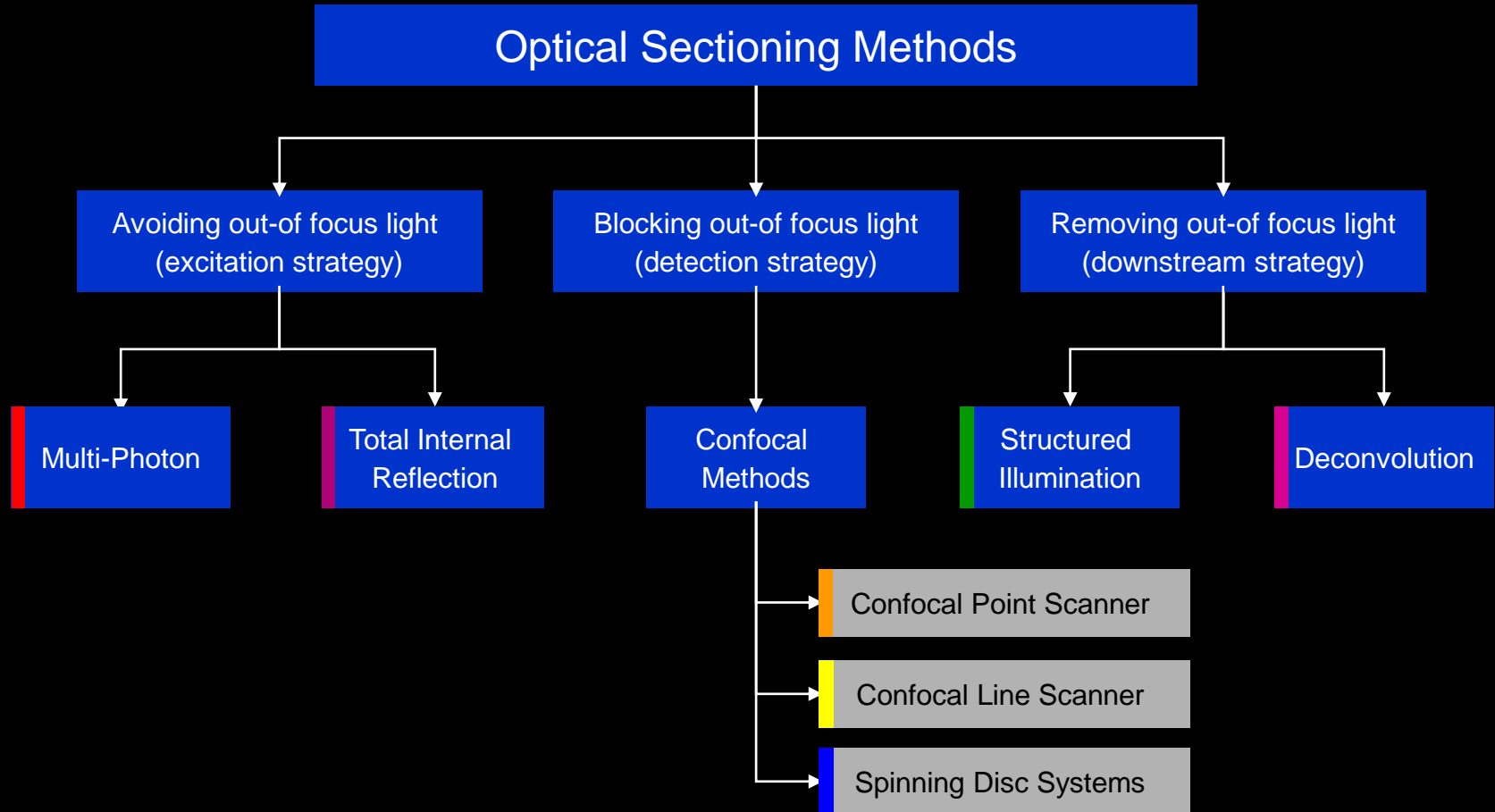
α - opening angle

n - refractive index

Knowledge Base Sales

General Optical Sectioning Methods

General Overview



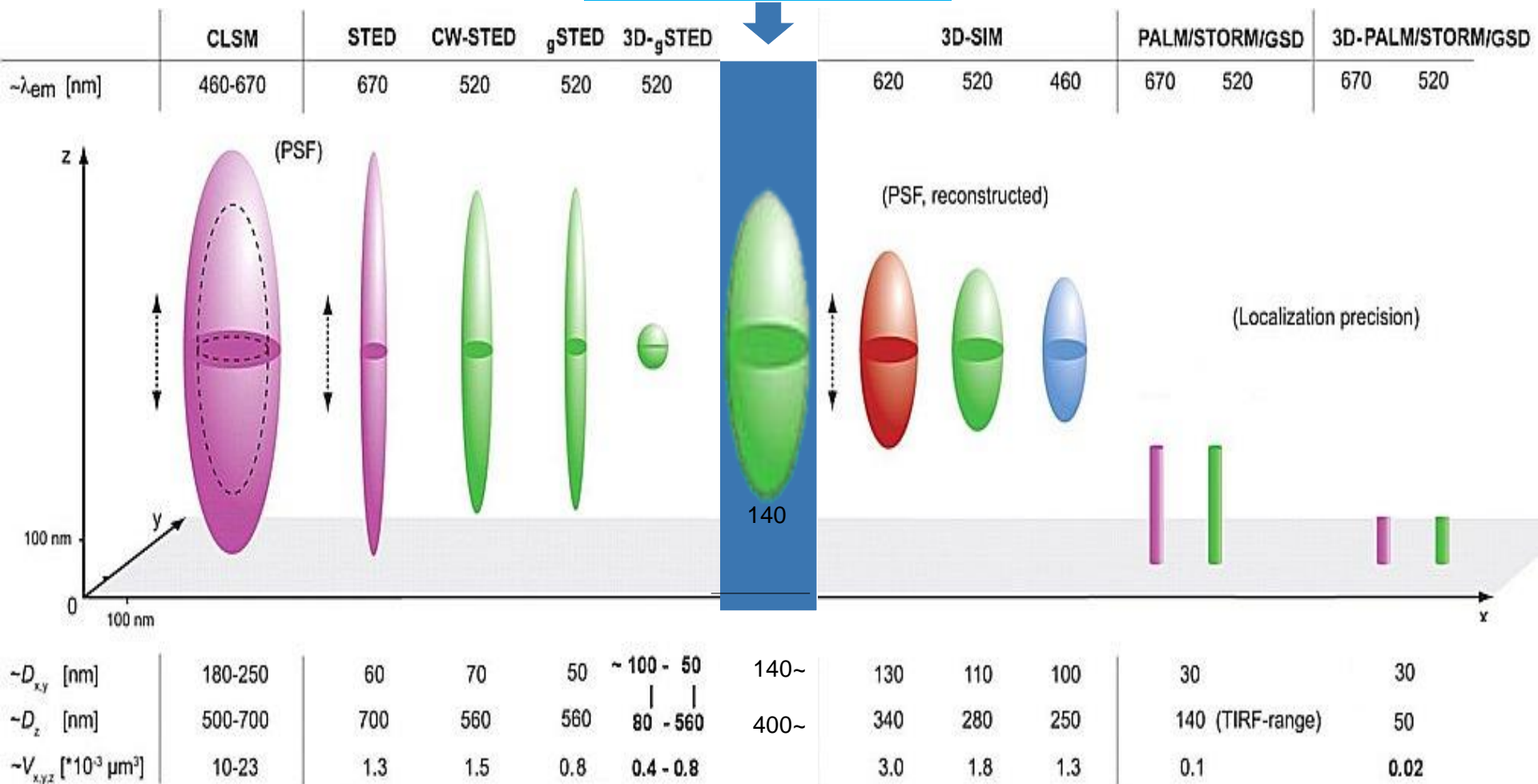
Knowledge Base Sales

An Overview of the Resolution obtained with The Different Systems based on Hardware



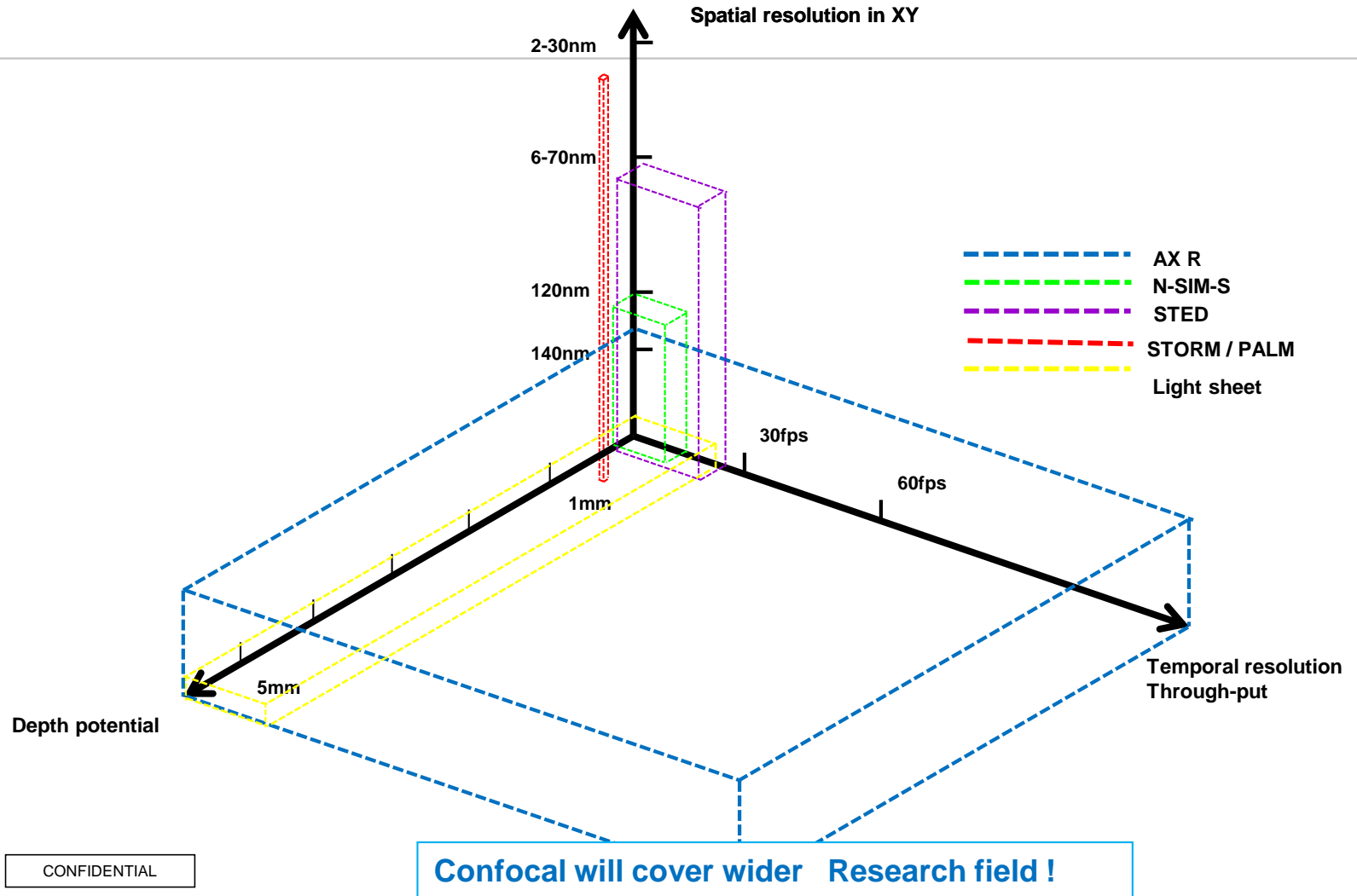
Nikon : C ER, SoRa

Advanced Confocal



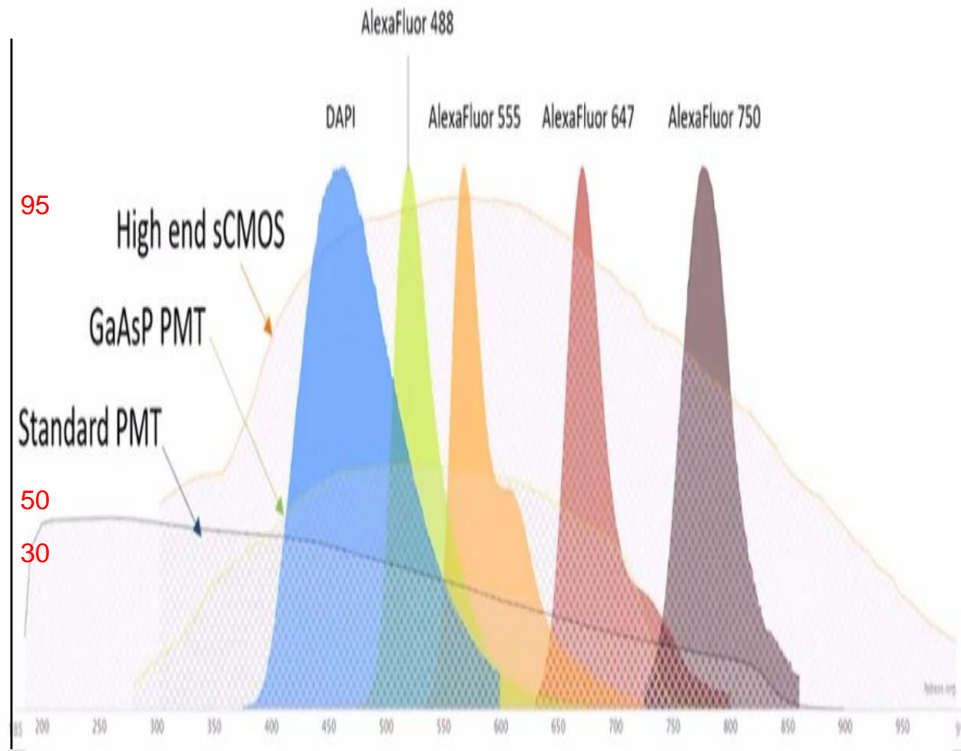
Knowledge Base Sales

Current system...

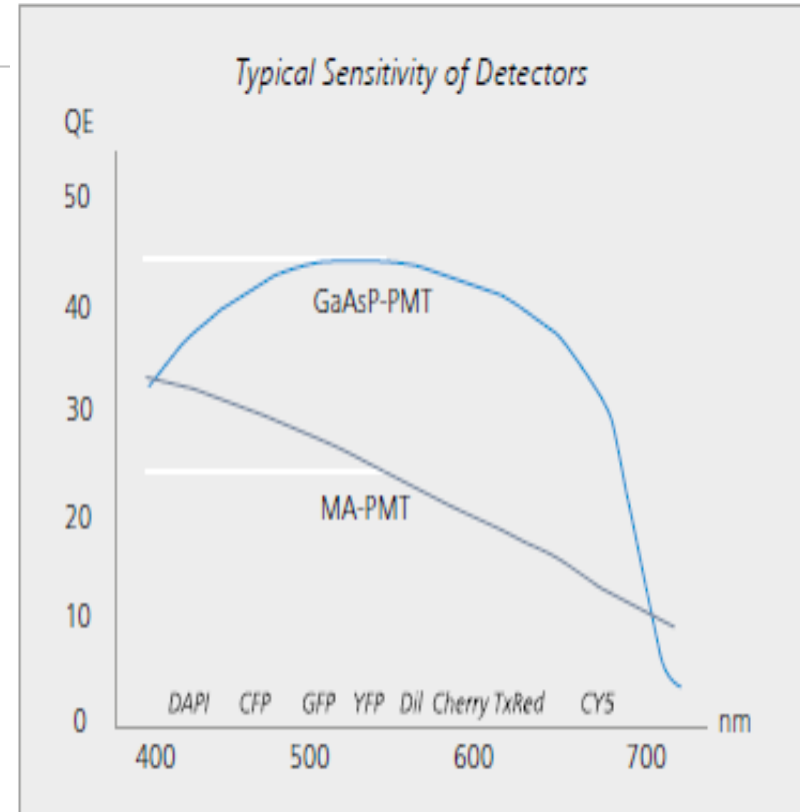


CONFIDENTIAL

Camera vs PMT (GaAsP) (Sensitivity)



On average, 2 times higher sensitivity with camera compared to PMT (even GaAsP)
Possibility to image in NIR region (impossible with PMTs)

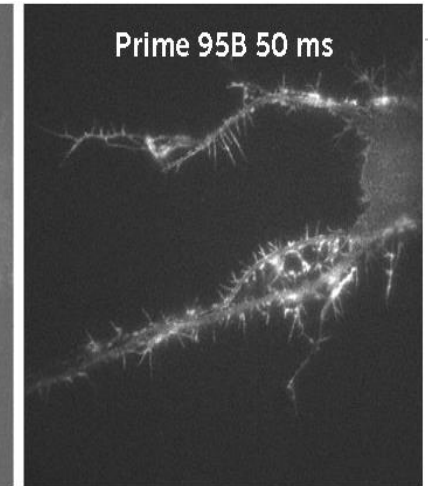
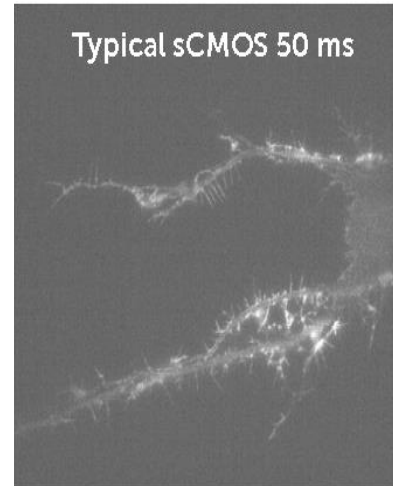
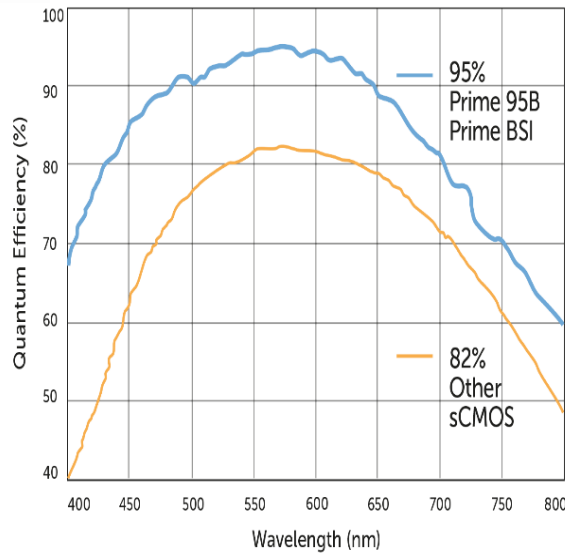


Typical spectral quantum efficiency (QE) of multi-alkali (MA-PMT) and GaAsP-PMT detectors.



Knowledge Base Sales Scientific Camera

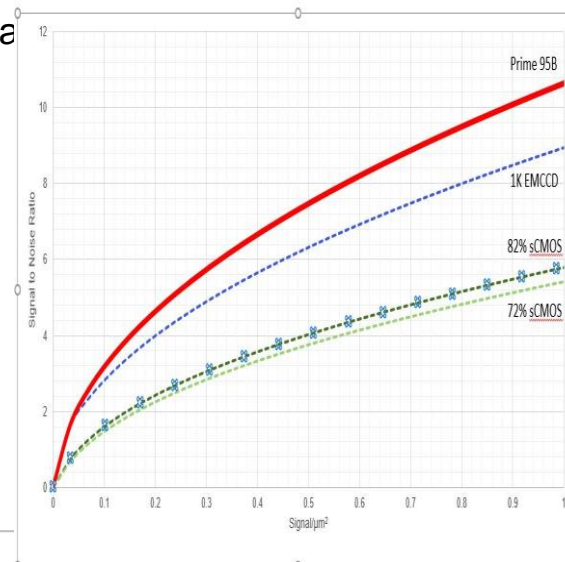
• Sensitivity



Prime 95B 25mm

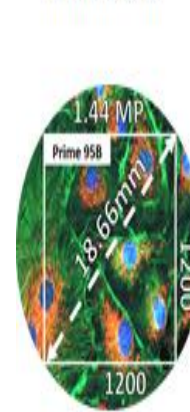
- 95% Quantum Efficiency
- 11 μm x 11 μm Pixel Area
- Sensor Area 17.69 x 17.69mm
- 25mm diagonal
- 1608 X 1608 30 fps
- 1608 X 512 96 fps
- 1608 X 128 384 fps

Prime 95B Signal to Noise Ratio

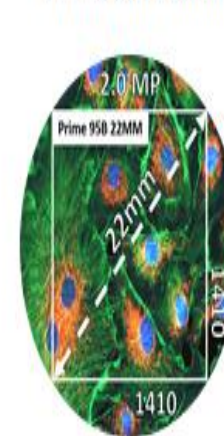


Multiple Fields of View

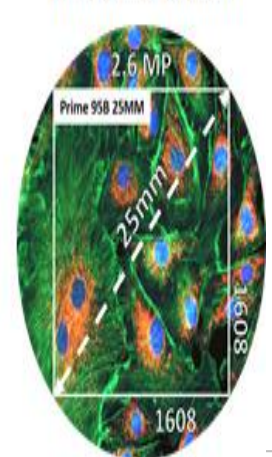
Prime 95B



Prime 95B 22MM



Prime 95B 25MM



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