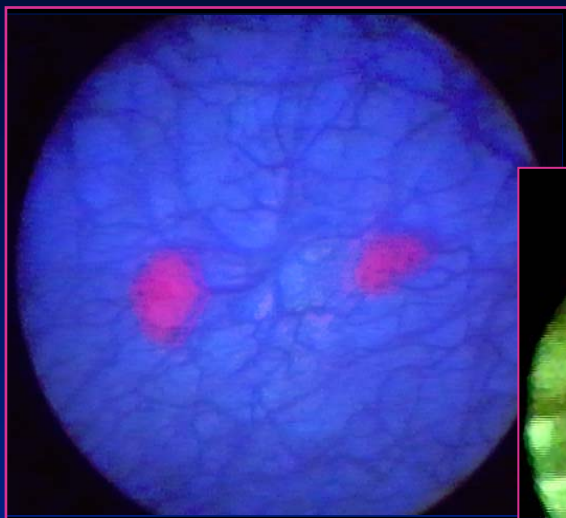
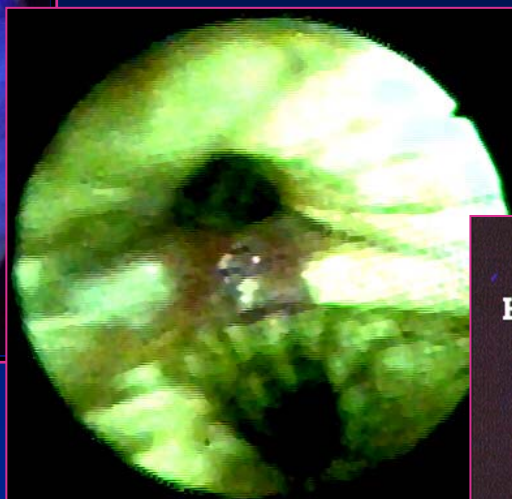


Early Tumor Detection PDD / AF



Urology



Pneumology



Neurosurgery



Early Tumor Detection

- ◆ **Optical Inspection**
- ◆ **Radiology, CT, NMR**
- ◆ **Ultrasound**
- ◆ **Endoscopy**
- ◆ **Tumor Markers**
- ◆ **Cytology**
- ◆ **Palpation**
- ◆ **...**



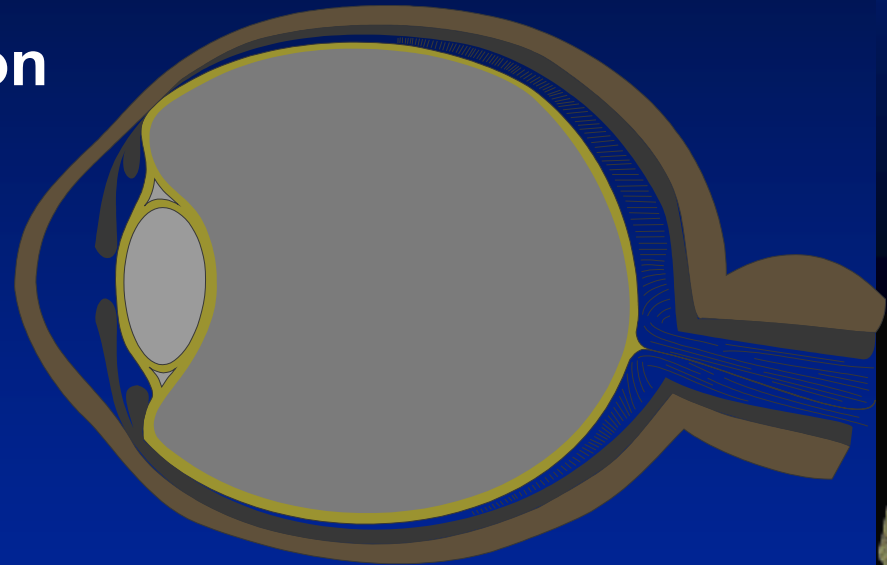
Advantages of Optical Detection

Eye is precise and sensitive detector

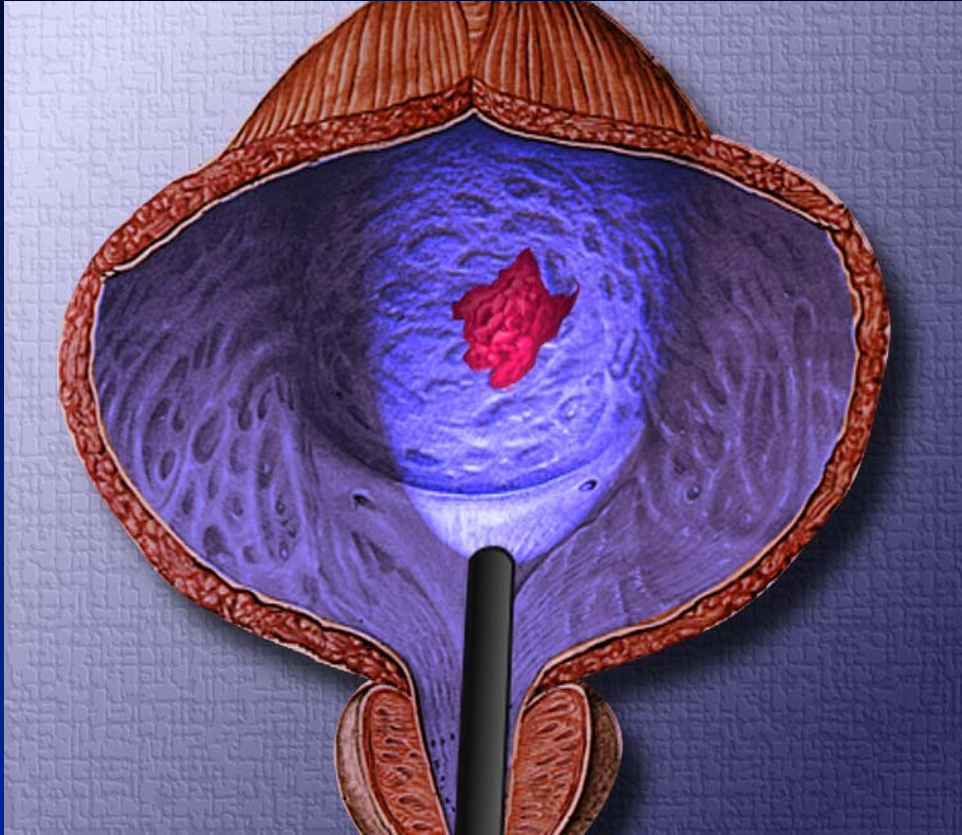
- ◆ superb spatial resolution
- ◆ color vision
- ◆ high dynamical range
- ◆ real time

localization possible

minimal invasive application possible



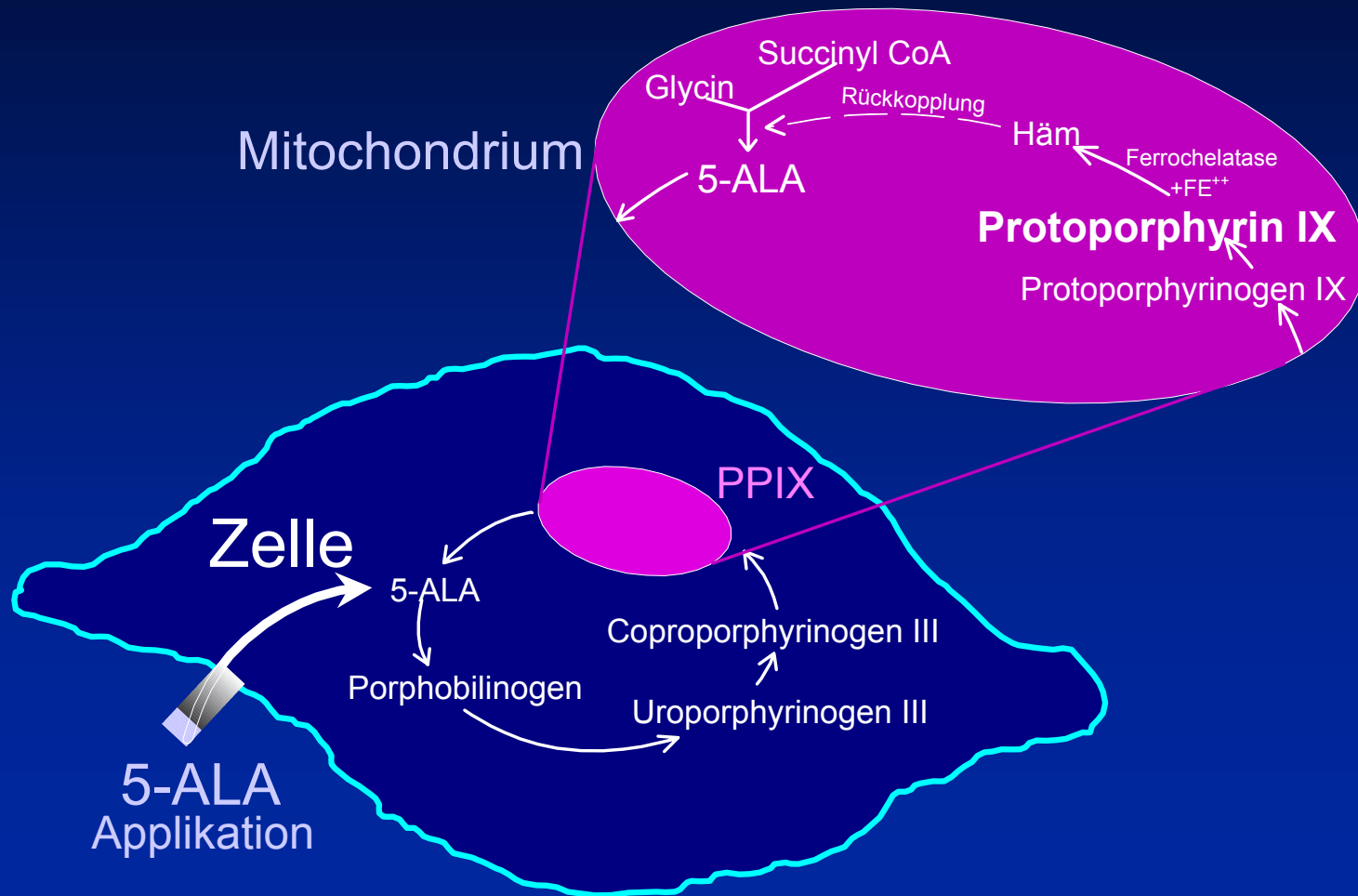
Fluorescence Endoscopy - PDD



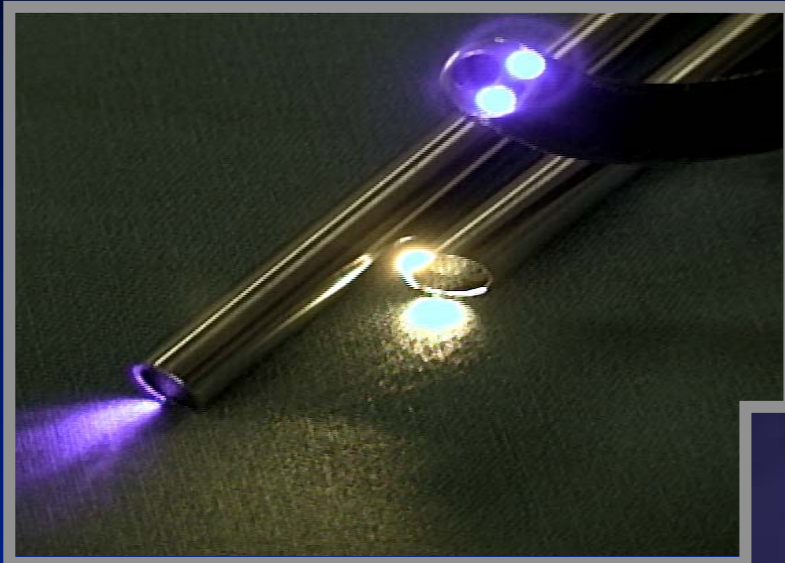
1. Tumor specific Process
(Anatomy, Physiology,
Pharmacology)
2. Visualisation of the
Tumor
(Optics, Medical Instrument
Technology)



Metabolic Accumulation



Combined Diagnosis System



- ◆ Rigid Telescopes
- ◆ Fiberscopes
- ◆ OP - Microscopes

- ◆ White Light
- ◆ ALA-Mode
- ◆ Autofluorescence-Mode



Diagnostic Light System

D-Light

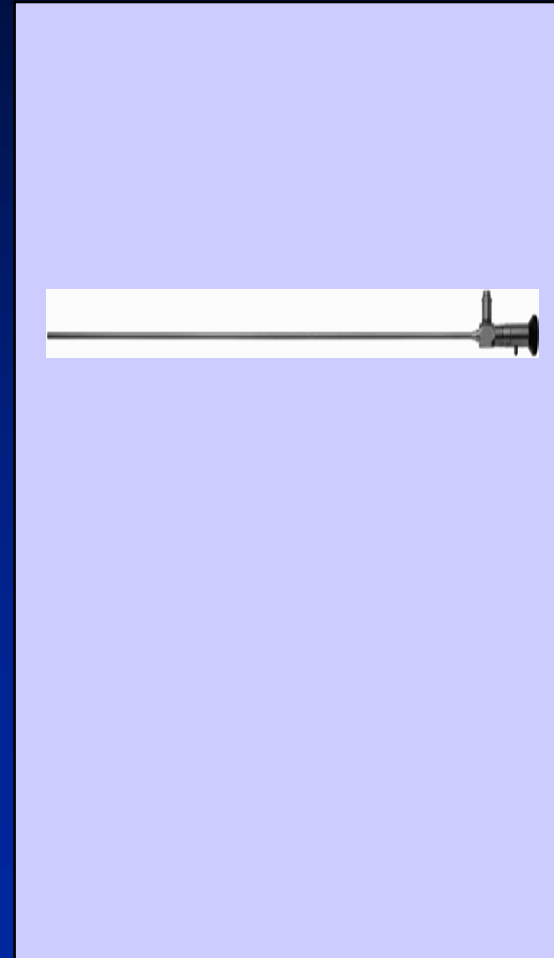
- ◆ 201 332 01 - 1
D-Light SCB
- ◆ 380 - 440 nm (Blue-Violett)
- ◆ Special Excitation Filter
- ◆ Xenon Short Arc
- ◆ No Laser
- ◆ Fluid Light Cable
495 FP / FS



PDD Telescopes

- ◆ 27005 AIA 0°
- ◆ 27005 FIA 12°
- ◆ 27005 BIA 30°
- ◆ 27005 CIA 70°

- ◆ **Special Observation Filter**
- ◆ **Decreasing Luminous Intensity with increasing viewing angle**
- ◆ **Telescopes autoclavable**



Other PDD - Endoscopes

- ◆ 27020 FIA 12° PDD Telescope for Slender Resectoscope 19/22 Charr)
- ◆ 27005 ARI 0°PDD Telescope for Mauermayer
- ◆ 11272 CI PDD Cysto-Uretro-Fiberscope
- ◆ 27023 SAI PDD Ureteroscope
- ◆ 27023 SBI PDD Uretero-Renoscope



Telecam /Urocam SL PDD



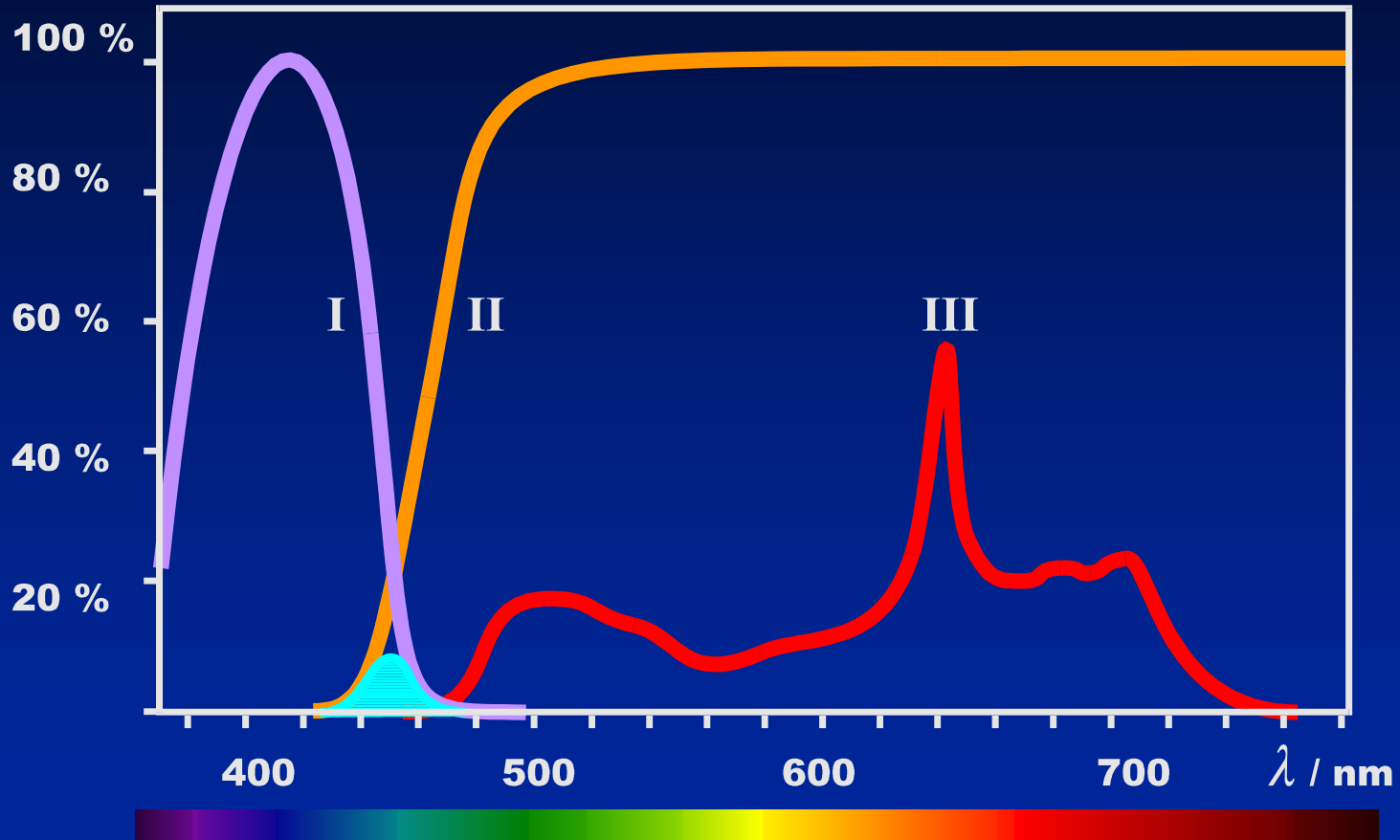
◆ Regular CCD



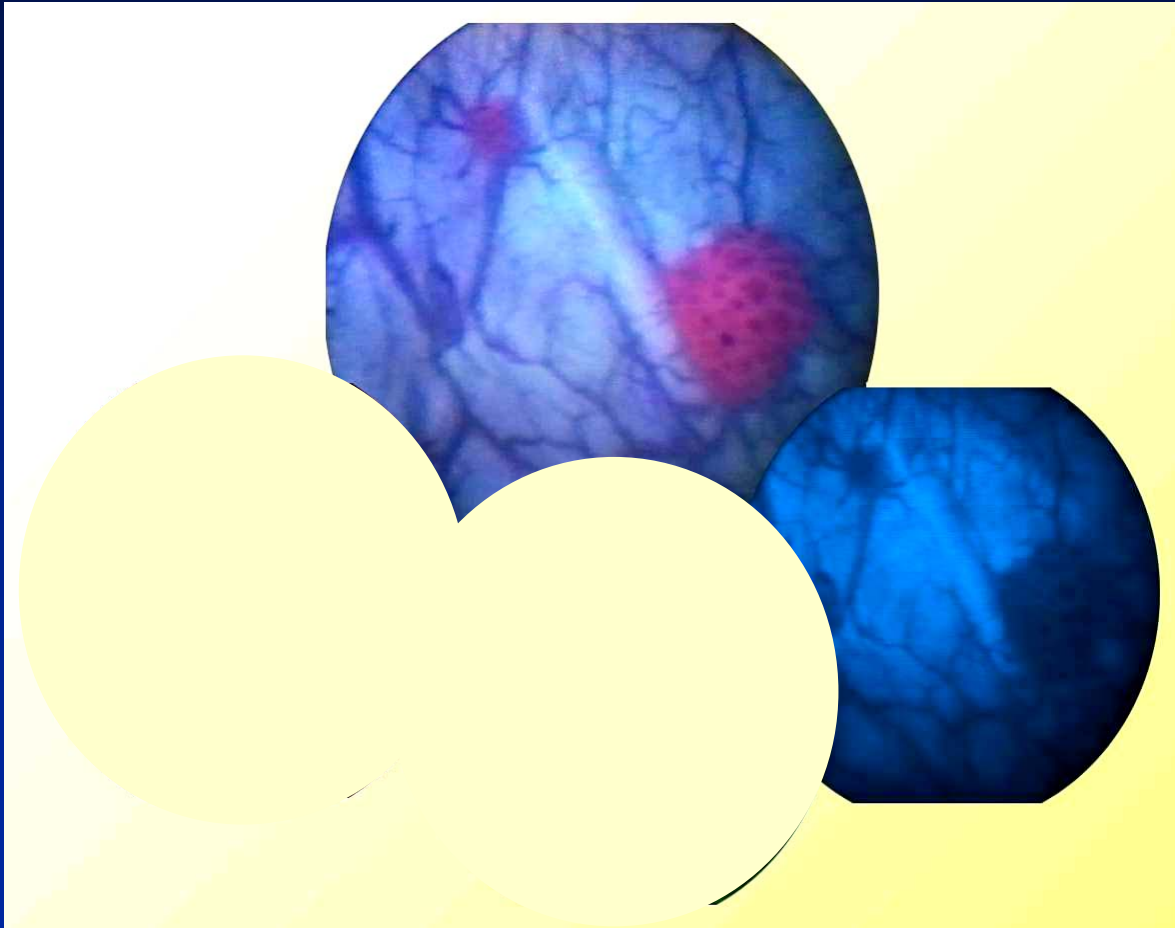
◆ Telecam SL PDD 1/8 s
◆ Storz D-Light



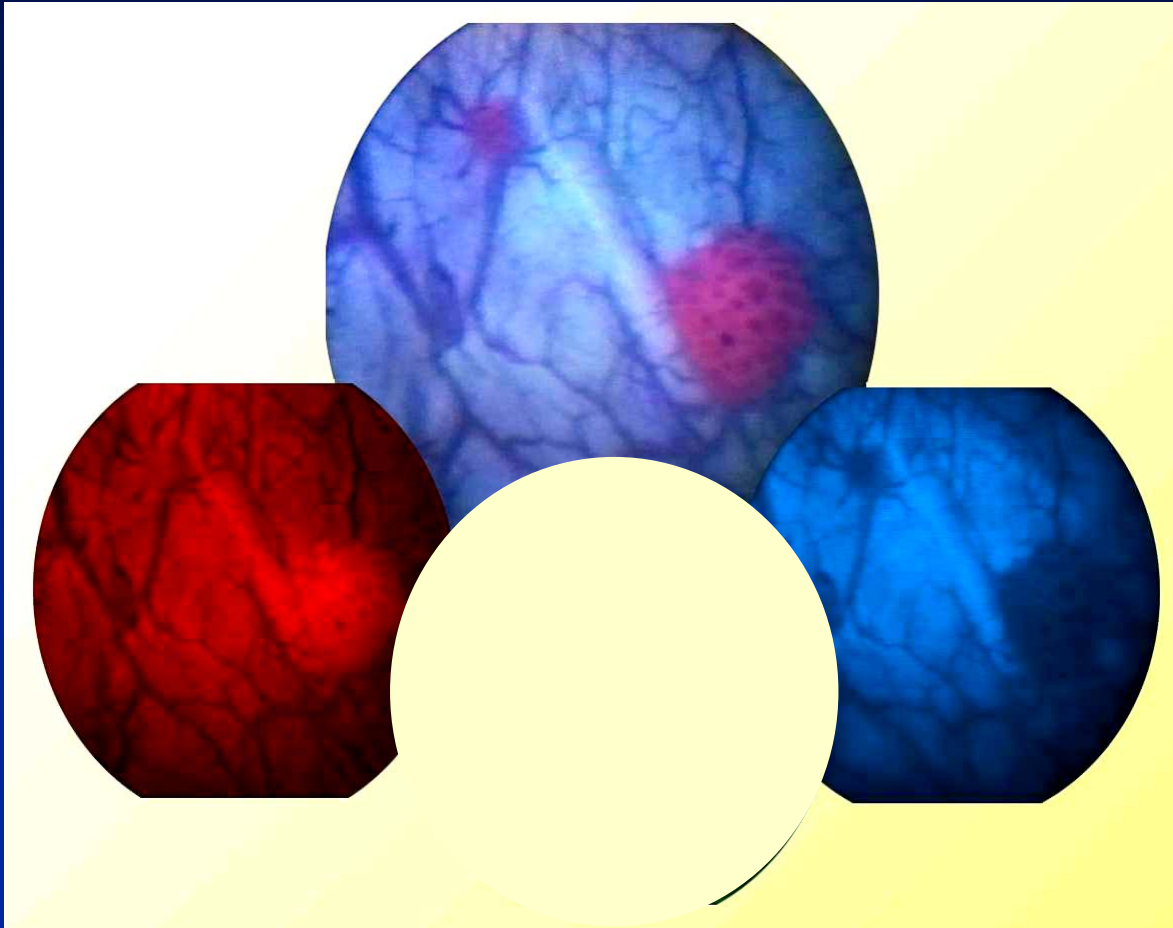
Fluorescence Observation (PPIX)



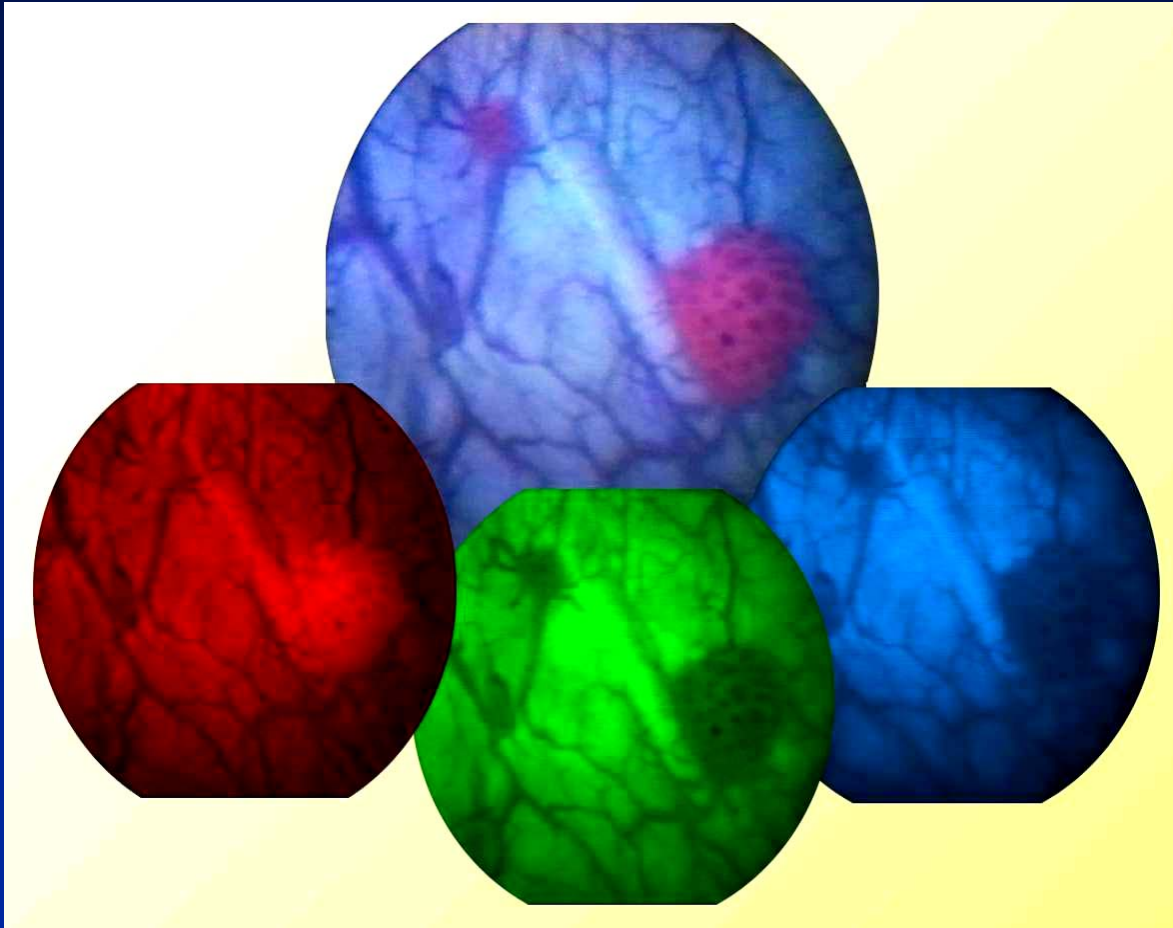
How to get a Color Contrast with Blue Light?



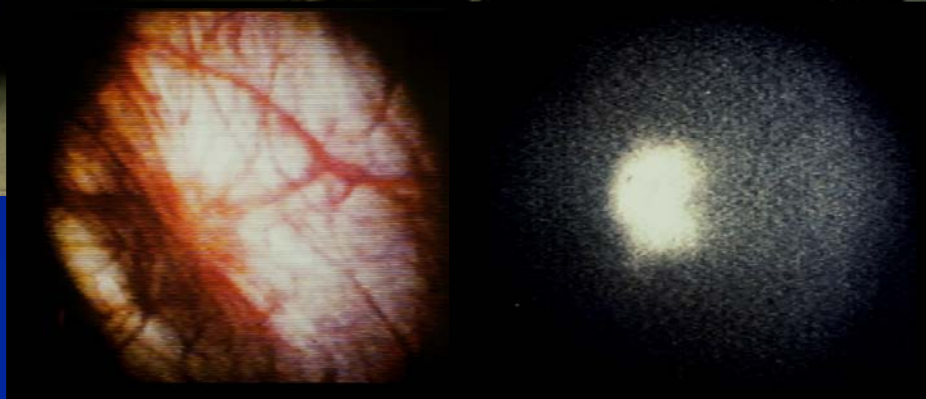
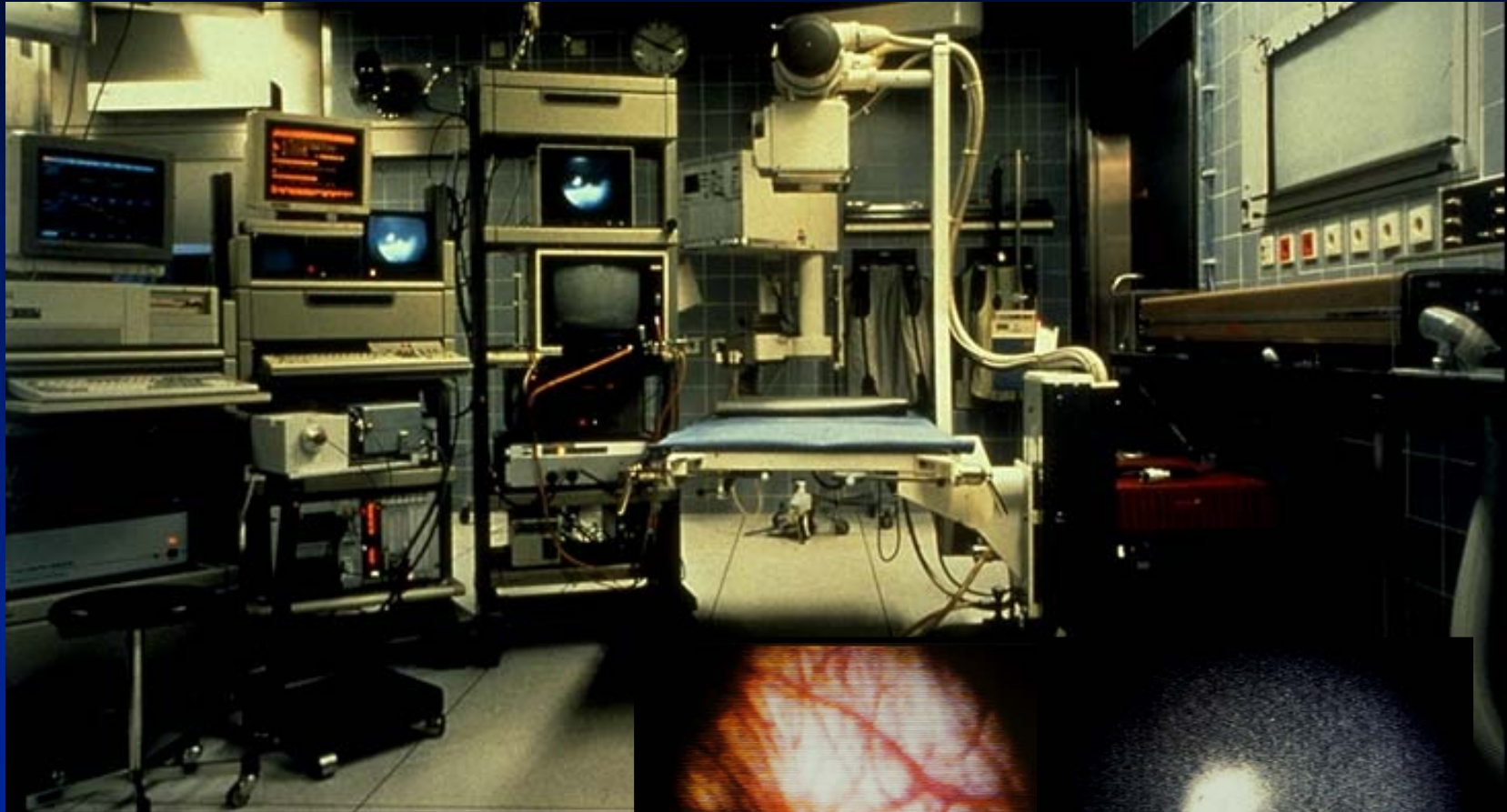
How to get a Color Contrast with Blue Light?



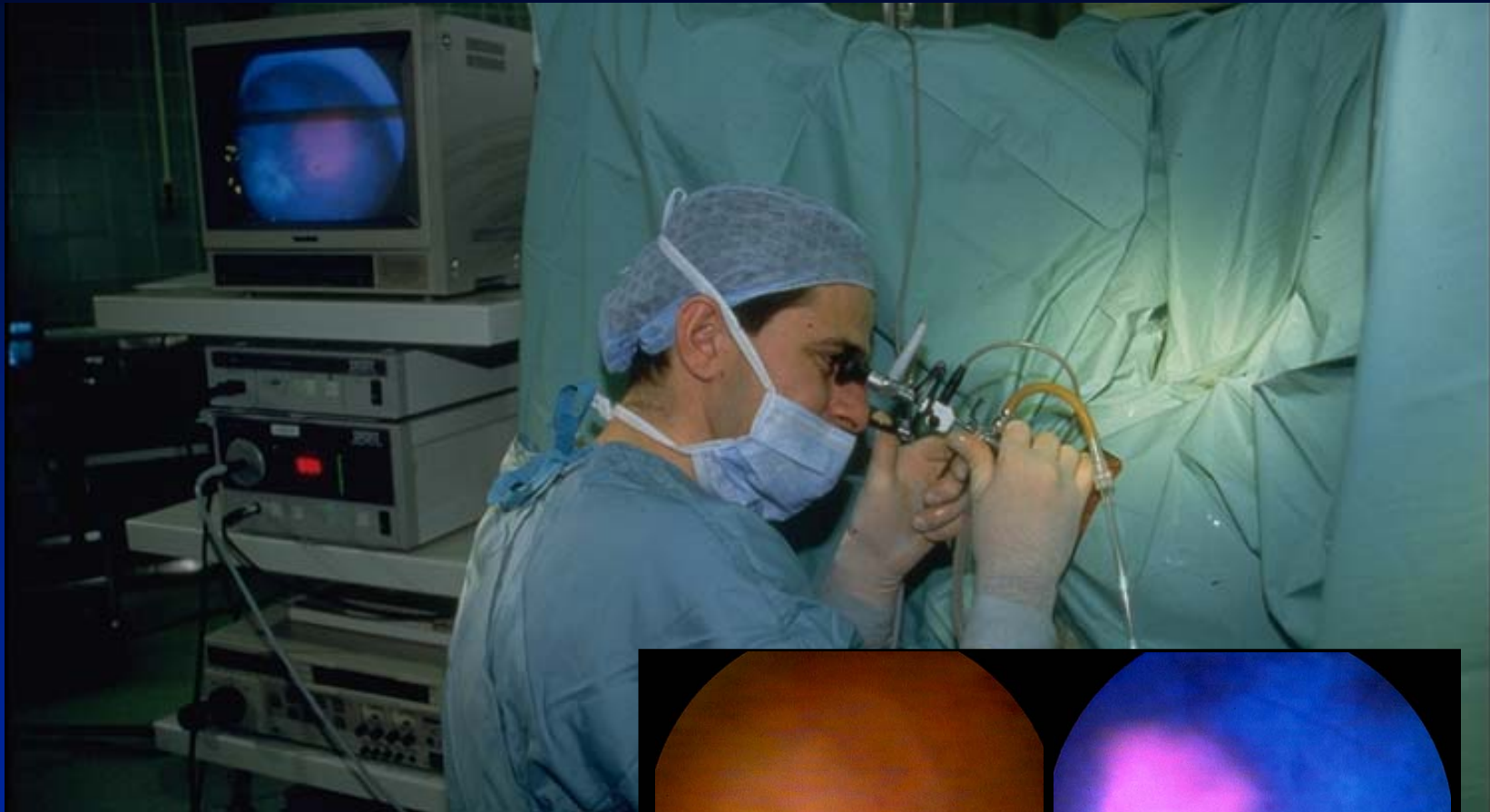
How to get a Color Contrast with Blue Light?



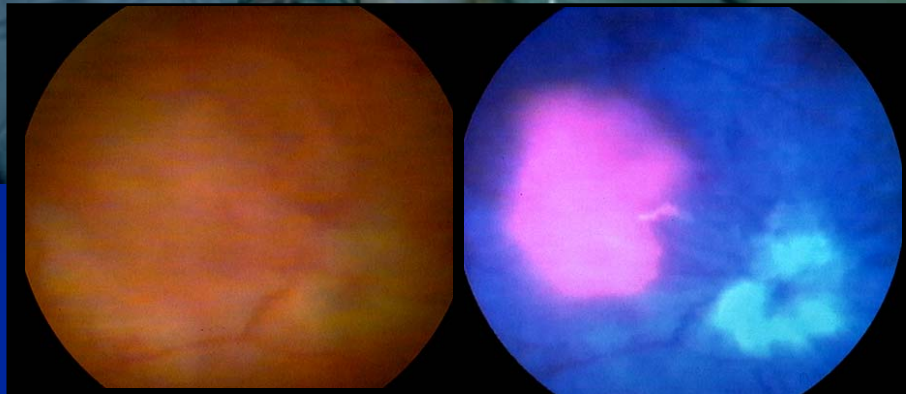
PDD History



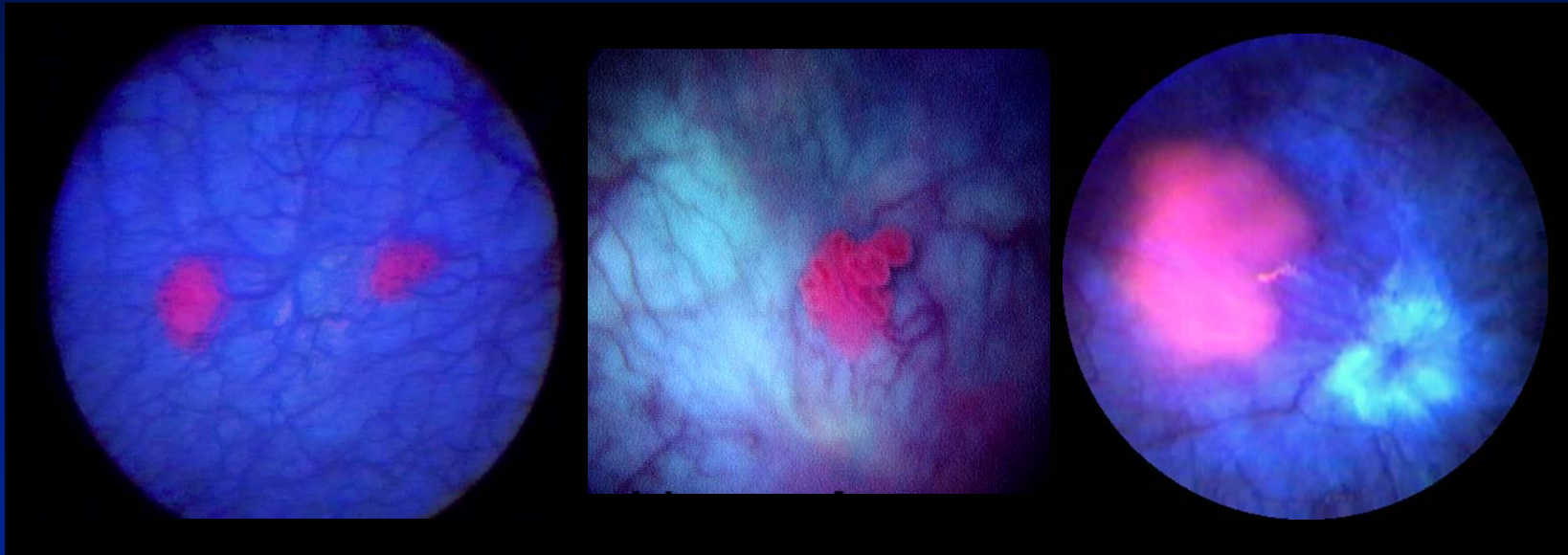
PDD Today



M. Kriegmair,
Ludwig Maximilians-University Munich



Clinical Data



M. Kriegmair,
Ludwig Maximilians-University Munich



Tumor Sensitivity

Author	Publication	Sensitivity / %
Kriegmair (D)	1996	97
Jichlinski (CH)	1997	89
D´Hallewin (USA, B)	1997	94
König (USA, D)	1998	87
Filbeck (D)	1998	96

Bladder tumor, Diagnosis w/ ALA and KARL STORZ D-Light



Neuroendoskopie

Plastische Chirurgie

Ophthalmologie

HNO

Odontologie

Anästhesie

Media-
stinoskopie

Thorakoskopie

Cardio-
vaskular

Bronchoskopie

Urologie

Laparoskopie

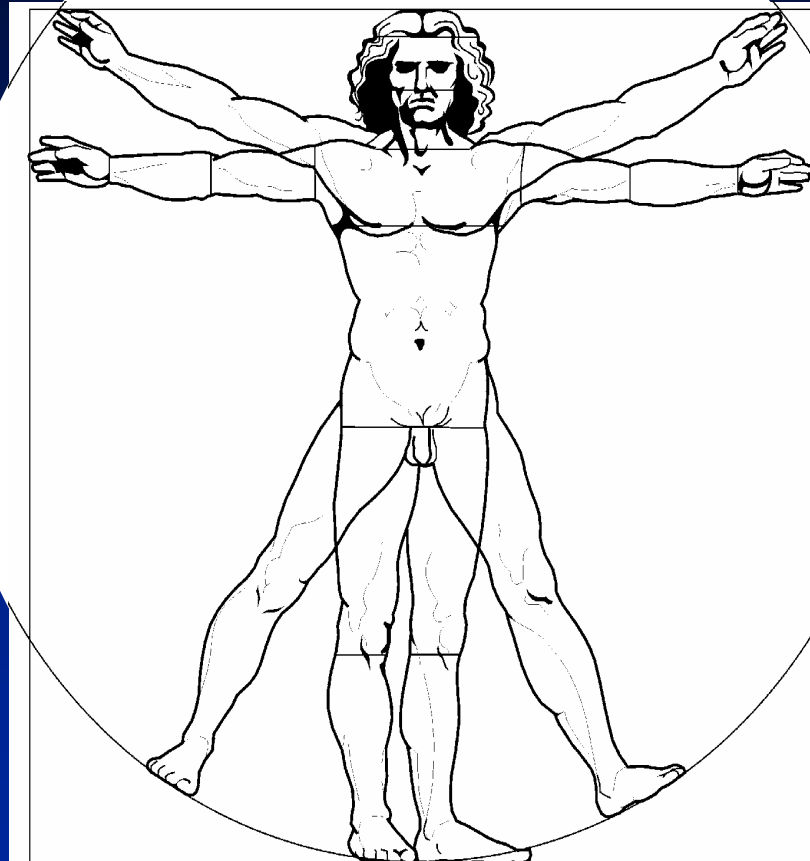
Gastro-
enterologie

Gynäkologie

Proktologie

Pädiatrische
Endoskopie

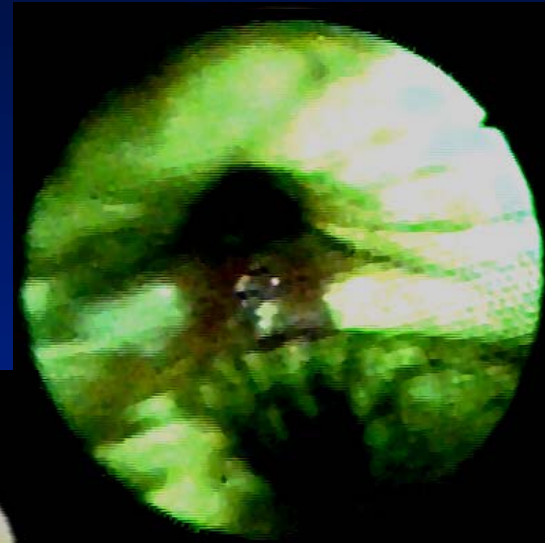
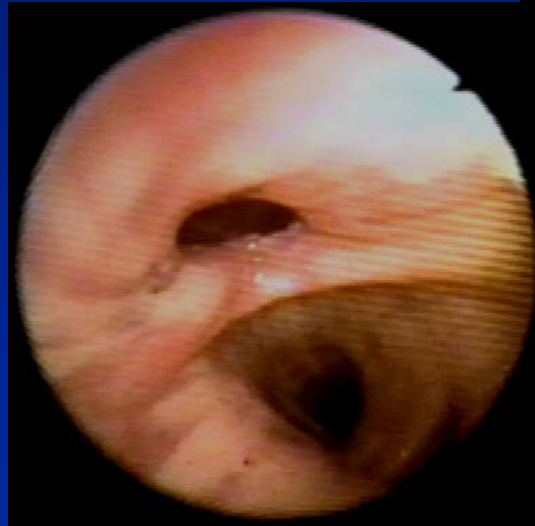
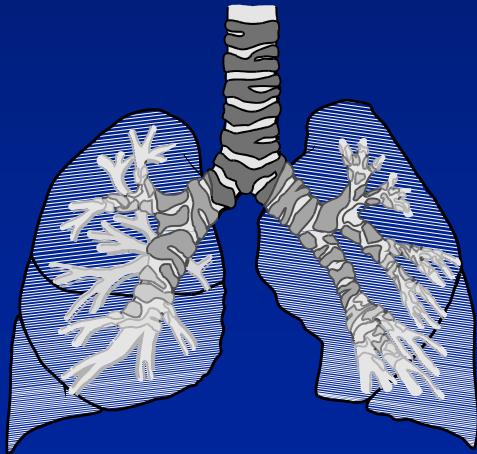
Wirbelsäulen-
endoskopie



Orthopädie



Detection of Early Stage Bronchial Carcinomas (AF)



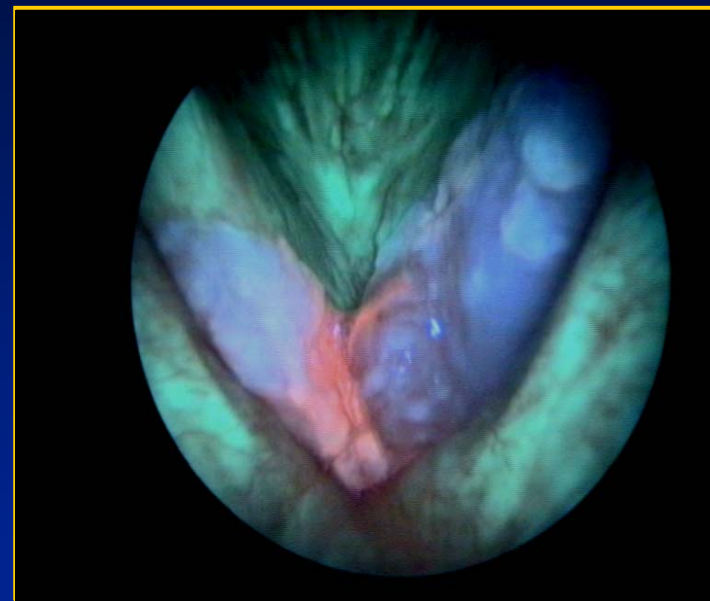
K. Häußinger, F. Stanzel
Asklepios Munich- Gauting



Autofluorescence (ENT)

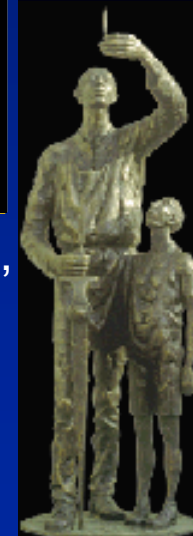


Early Tumor Detection
without Marker Substance



Carcinoma of the left vocal cord,
precancerous lesion right vocal
cord
(bacterial growth)

K. Malzahn, C. Arens, H. Glanz
Justus-Liebig-University Giessen



Neurosurgery

Special Fluorescence
Microscope
Cooperation w/ Carl Zeiss

Early Tumor Detection
with Marker Substance



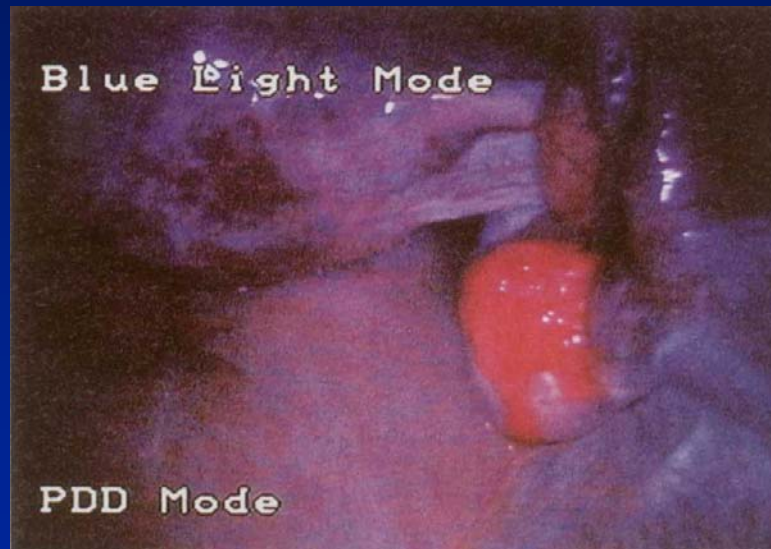
High grade Glioma

Stummer, Reulen
Munich-Großhadern



PDD in gynaecology

- ◆ Laparoscopic view of ectopic endometrial tissue after oral ALA-application



E. Malik

Lübeck University