



ZEISS Primo Star iLED

Selected Fluorescence Applications in Laboratories
and Education



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Date: January 2015

Primo Star iLED is your flexible solution with LED fluorescence excitation and transmitted light brightfield illumination. Analyze tuberculosis with Ziehl-Neelsen staining in brightfield or use fluorescence excitation with Auramine O dye. In combination with new iLED fluorescence attachments: even greater versatility can now be achieved with Primo Star iLED for many fluorescent labels. Primo Star iLED allows you to switch easily between the two modes.

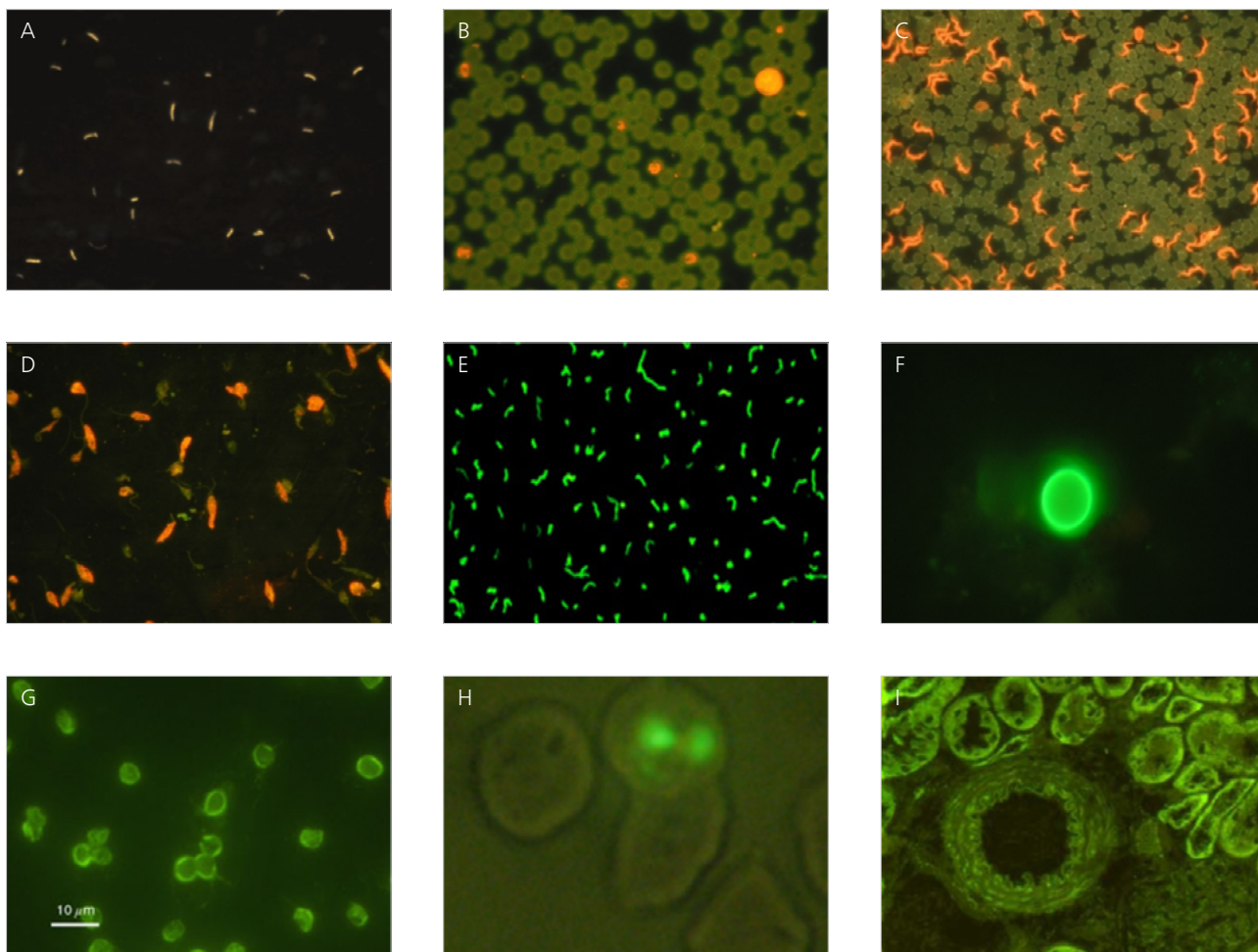
Applications**	Brightfield (BF) ***	LED fluorescence (FL)		Examples [detection of]
		Dye	Filter set (FS) & LED	
Tuberculosis diagnosis	Ziehl-Neelsen stain	Auramine O*	FS 67, LED 455 nm	Mycobacteria (BF, FL ¹⁻¹⁰)
Malaria diagnosis	Giemsa's stain	Acridine orange*	FS 67, LED 455 nm	Protozoa (BF, FL ¹¹⁻¹³)
Sleeping Sickness diagnosis	Giemsa's stain	Acridine orange	FS 67, LED 455 nm	<i>Trypanosoma brucei</i> (BF, FL ¹³⁻¹⁵)
Leishmaniasis diagnosis	Leishman's or Giemsa's stain	Acridine orange	FS 67, LED 455 nm	Leishmania parasites (BF, FL ¹³)
With optional accessories (Filter sets & LEDs):				
Gastritis diagnosis	H & E stain	FITC	FS 09, LED 470 nm	Tissue morphology (BF), <i>Helicobacter pylori</i> (FL)
Giardiasis diagnosis		FITC or SYBR-Green / SYBR-Gold	FS 09, LED 470 nm	<i>Giardia lamblia</i> (FL) ¹⁶
Cryptosporidiosis diagnosis	H & E stain	FITC or SYBR-Green / SYBR-Gold	FS 09, LED 470 nm	Tissue morphology (BF), Cryptosporidia (FL) ¹⁷
Malaria diagnosis	Giemsa's stain	SYBR-Green	FS 09, LED 470 nm	Protozoa (BF, FL)
Histology / Immunohistology	H & E stain	FITC	FS 09, LED 470 nm	Tissue morphology (BF, FL)

* No coverslip needed, observed at 400 X magnification.

** For the best use of Primo Star iLED that comes with FS 67 and LED 455: equipped with a 40x objective D=0 and a 100x objective D=0.17.

*** Please take note that the references are for fluorescence application only (iLED part).

Application examples:

**Short notes:**

- A. *Tubercle bacilli*
- B. *Plasmodium knowlesi*
- C. *Trypanosomes*
- D. *Leishmania donovani* promastigotes
- E. *Helicobacter pylori*
- F. *Giardia*
- G. *Cryptosporidia*
- H. *Plasmodium falciparum*
- I. *Mouse capillary*

Legend:

(A) *Tubercle bacilli* stained with auramine O (courtesy of CDC). (B) Malaria parasites (small orange structures) inside red blood cells (green) of a baboon experimentally infected with *Plasmodium knowlesi* and stained with acridine orange. White blood cells also stain orange (blood smear courtesy of Dr. Maina Ngotho, Institute of Primate Research, Nairobi). (C) A thin blood smear stained with acridine orange showing trypanosomes (orange) alongside red blood cells (green). (D) Cultured *Leishmania donovani* promastigotes (orange with flagella) stained with acridine orange (slide courtesy of Dr. Maina Ngotho).¹³ (E) *Helicobacter pylori* immuno-labeled with FITC. (F) *Giardia* from contaminated water immuno-labeled with FITC (courtesy of Dr. H.P. Fuechslin, Bachema AG). (G) *Cryptosporidia* from contaminated drinking water immuno-labeled with FITC (courtesy of Mr. Brian Oram, Wilkes University).¹⁷ (H) *Plasmodium falciparum* stained with SYBR Green I (courtesy of Dr. West Suhanic¹¹). (I) Mouse capillary immuno-labeled with FITC.

Highlights

- Use ZEISS Primo Star in combination with iLED fluorescence attachments for many fluorescent labels and profit from.
- fast and efficient testing
 - reflected-light fluorescence (FL) together with transmitted-light brightfield (BF)
 - easy switching between FL excitation and BF illumination
 - economical LED concept: long-lasting, retrofittable with any Primo Star
 - versatility with options for fluorescence attachments
 - battery pack for operation without a main power supply
 - special eyecups eliminate the need for a dark room during a test for tuberculosis, malaria, sleeping sickness, or leishmaniasis
 - easy to operate
 - durable and robust
 - tried-and-tested ZEISS optics made from high-quality glass
 - high-quality materials
 - worldwide support from ZEISS

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