

# P/ACE™ LASER-INDUCED FLUORESCENCE DETECTORS

*The High-Sensitivity Capillary Electrophoresis System*

SENSITIVITY

FLEXIBILITY

CONVENIENCE



*Packaging – Processing*

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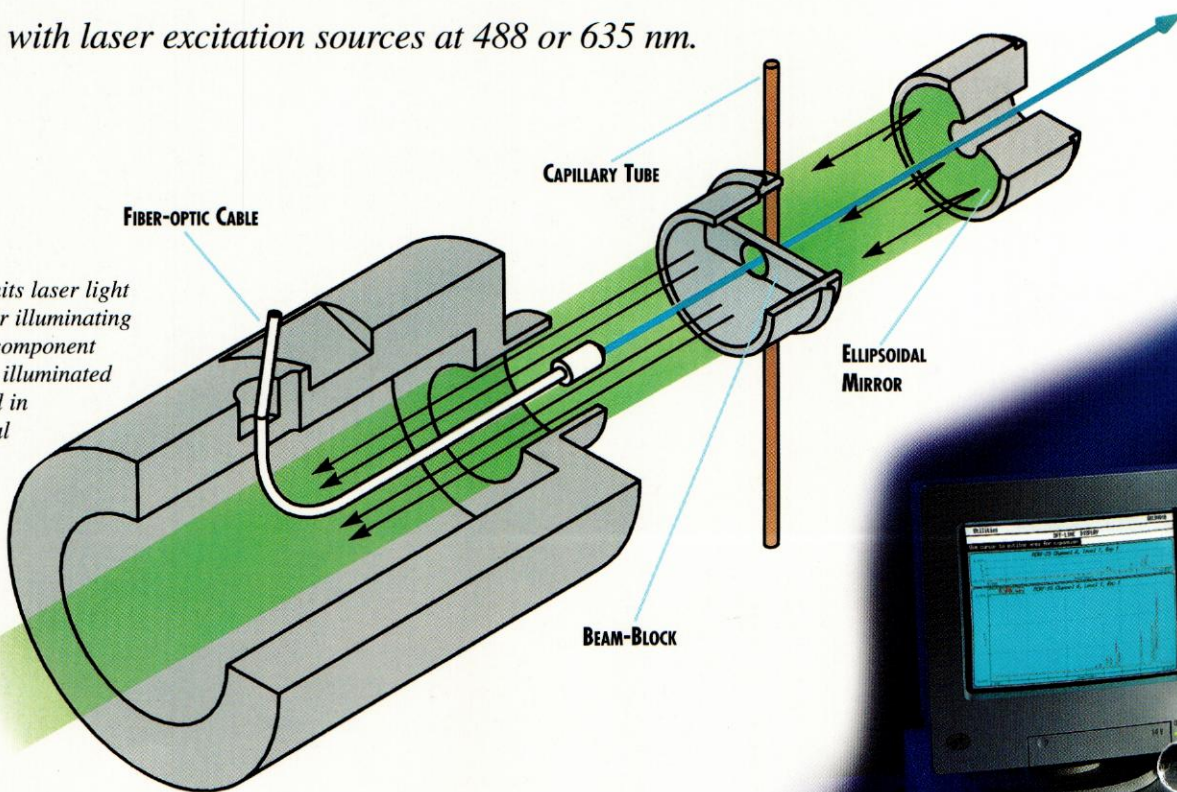
# BECKMAN LASER TECHNOLOGY:



*The advantages of Capillary Electrophoresis (CE) and Laser-Induced Fluorescence (LIF) detection combine to bring you the most*

*powerful separation technique available for ultra-high sensitivity analyses.*

*Beckman's proven and on-going commitment to innovation in chemistries, hardware, software and support, assures your success in CE. Only the world leader in CE provides you with a patented LIF technology that is highly sensitive, flexible, convenient and now available with laser excitation sources at 488 or 635 nm.*

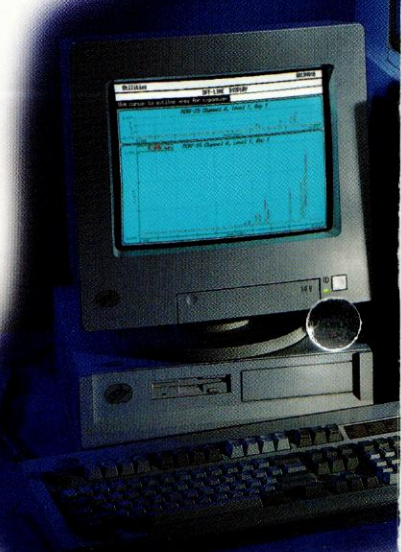


*The fiber-optic cable transmits laser light from the laser to the detector illuminating the capillary window. As a component in the capillary reaches this illuminated area, fluorescence is emitted in all directions. The ellipsoidal mirror collects and focuses the fluorescent light back on the photomultiplier tube. A centered hole in the mirror reduces unwanted laser light while a beam block is used to attenuate any scattered laser light.*

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# Making CE more powerful

The 635 laser module includes a semiconductor laser source for excitation at 635 nm.

## SENSITIVITY

Gain confidence in your qualitative or quantitative analyses even at high sensitivity. The intensity of laser light maximizes sensitivity and eliminates sample preconcentration or amplification steps. Relative to UV detection, LIF technology provides a 500-1000× improvement in sensitivity resulting in detection levels as low as sub-attomole analyte quantities.

For excitation at 488 nm, the LIF detector can use the 488 Laser Module which features an argon ion laser source.

## FLEXIBILITY

Freedom to choose from the widest selection of detector options provides you the information you need about your sample. As a result of the modular design of the P/ACE™ capillary electrophoresis system, switching between LIF, UV or diode array detection can be done in seconds. For the most flexibility in methods development, the LIF detector can also be linked to other, commercially available lasers.

Versatility to perform a variety of separation types will make the P/ACE LIF system a valuable addition to your laboratory. When combined with Beckman's broad range of eCAP™ chemistries, including gel-filled and coated capillaries, separations of small molecules, amino acids, peptides, proteins, oligonucleotides, double stranded DNA, carbohydrates or antibody/antigens are possible.

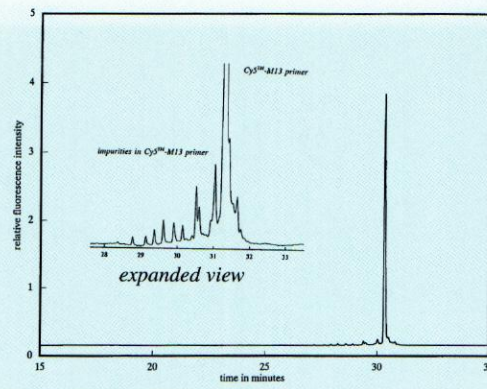
## CONVENIENCE

Each of the laser excitation sources can be used with a number of readily available fluorophores. Labels such as FITC, FSE, CBQCA, NBD-Fluoride and DNA intercalators like Enhance®, Ethidium Bromide, Thiazole Orange, YO-PRO™-1, SYBR™ Green I and SYBR™ Green II have been used with the 488 nm excitation source. The 635 nm excitation source is compatible with Cy5™ cyanine dye and the DNA intercalator TO-PRO™-3.

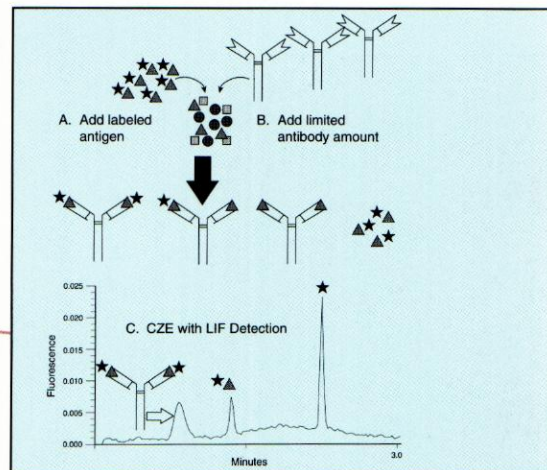
\* Enhance is a product of Beckman Instruments, Inc.

\*\* YO-PRO, SYBR, and TO-PRO are trademarks of Molecular Probes, Inc.

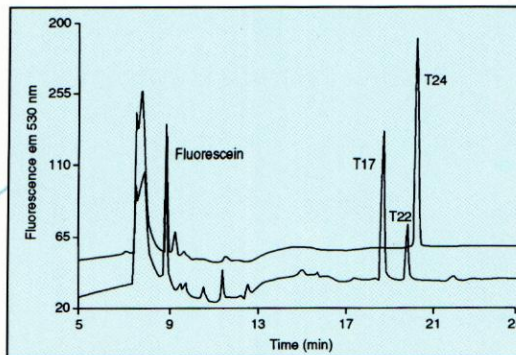
\*\*\* Cy5 is a trademark of Amersham International plc.



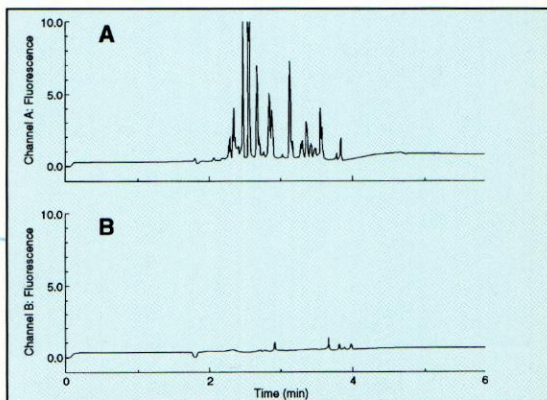
Purity determination of synthesized primer with fluorescent label using the eCAP ssDNA 100 kit. Reprinted with permission from Chen et al., *J. Chromatogr.* 652:339-405 (1993).



Quantitation of bioactive peptides in serum by competitive immunoassay. Reference Beckman publication A-1791A.



VNTR analysis of the amplified DIS80 locus homozygous and heterozygous individuals using the LIFluor dsDNA 1000 kit. Reference Beckman publication BR-7958B.



Separation of CBQCA-derivatized tryptic digest of  $\beta$ -lactoglobulin A (A) and blank run (B). Reference Beckman publication DS-824.

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# Ordering Information

## LASER SYSTEMS FOR P/ACE CAPILLARY ELECTROPHORESIS

|        |   |
|--------|---|
| 477125 | LIF System with 488 Laser Module (120V)<br><i>Includes LIF Detector Module, Argon Ion 488 nm Laser, LIF Cartridge, Test Mix, 520 nm Emission Filter, 488 nm Notch Filter</i>  |
| 477126 | LIF System with 488 Laser Module (220V)   |
| 477142 | LIF System with 488 Laser Module (100V)   |
| 477143 | LIF System with 488 Laser Module (240V)   |
| 267838 | LIF System for P/ACE with 635 Laser Module (all voltages)<br><i>Includes LIF Detector Module, Semiconductor 635 nm Laser, LIF Cartridge, Test Mix, 675 nm Emission Filter</i> |

## LASER MODULES FOR P/ACE-LIF SYSTEM

|        |  |
|--------|--|
| 267840 | 488 Laser Module (120V)<br><i>Includes Argon Ion 488 nm Laser, Test Mix, 520 nm Emission Filter</i>                                  |
| 267841 | 488 Laser Module (220V)  |
| 267842 | 488 Laser Module (100V)  |
| 267843 | 488 Laser Module (240V)  |
| 267839 | 635 Laser Module (all voltages)<br><i>Includes Semiconductor 635 nm Laser, Test Mix, 675 nm Emission Filter, Extra Filter Holder</i> |

## LIF FILTERS

|        |                                      |
|--------|--------------------------------------|
| 960323 | LIF 520 nm Emission Band Pass Filter |
| 890879 | LIF 560 nm Emission Band Pass Filter |
| 890880 | LIF 530 nm Emission Band Pass Filter |
| 725412 | LIF 675 nm Emission Band Pass Filter |

## 488 LASER MODULE DIMENSIONS

|        |                     |
|--------|---------------------|
| Height | 25.00 in. (63.5 cm) |
| Width  | 10.25 in. (26.3 cm) |
| Depth  | 14.25 in. (36.0 cm) |

## 635 LASER MODULE DIMENSIONS

|        |                    |
|--------|--------------------|
| Height | 7.75 in. (19.7 cm) |
| Width  | 5.25 in. (13.3 cm) |
| Depth  | 7.00 in. (17.8 cm) |

## SYSTEM SPECIFICATIONS WITH 488 LASER MODULE

|                   |   |
|-------------------|---|
| Dynamic Range     | $\geq 10^4$ (at a gain setting of one)  |
| Range             | 0-1000 Relative Fluorescence Units (RFU)  |
| Sensitivity       | $5 \times 10^{-11}$ M Fluorescein, Sodium Salt with a Signal-to-Noise Ratio $\geq 10$ |
| Baseline Noise    | 0.005 RFU (with a gain setting of $\geq 10$ )   |
| Laser             | 3mW 488 nm (air-cooled) Argon Ion   |
| Laser Source Life | > 2000 hours  |
| Safety            | Class 1 (USA, CDRH) Certified   |

## SYSTEM SPECIFICATIONS WITH 635 LASER MODULE

|                   |  |
|-------------------|--|
| Dynamic Range     | $\geq 10^4$ (at a gain setting of one)   |
| Range             | 0-1000 Relative Fluorescence Units (RFU)   |
| Sensitivity       | $5 \times 10^{-10}$ M Inactivated Cy5 Dye with a Signal-to-Noise Ratio $\geq 10$ |
| Baseline Noise    | 0.005 RFU (with a gain setting of $\geq 10$ )                                    |
| Laser             | 2.5mW 635 nm Semiconductor   |
| Laser Source Life | > 8000 hours   |
| Safety            | Class 1 (USA, CDRH) Certified  |



# BECKMAN



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