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**LAL
UPDATE**[®]

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Dear LAL User,

In this issue I present some new additions to the growing list of LAL "Methods". I also take this opportunity to recompile the entire methods bibliography published in various LAL UPDATES beginning 10 years ago with Vol. 1, No. 1, and continuing with Vol. 2, No. 6, and Vol. 4, No. 4. The "Methods" topic has been one of the most requested and has served as a model for "LAL Methodology: The choice is yours" (MD&DI, Jan. 1984 Vol. 6, pp. 49-53) and as Appendix V in "Parenteral Quality Control. Sterility. Pyrogen, Particulate, and Package Integrity Testing" by Michael J. Akers, 1985, Marcel Dekker, Inc. New York.

I would also like to introduce two new employees of Associates of Cape Cod, Inc., Dr. Paul Ketchum and Ms. Laurie Friedrich. Dr. Ketchum will direct our Research Department. He comes to us from Oakland University in Rochester, Michigan. Dr. Ketchum is no stranger to Woods Hole, having lived here as a child. He also worked for ACC last summer completing the final testing on our soon-to-be licensed Pyrochrome[®] chromogenic LAL test. Dr. Ketchum will be involved with several new diagnostic tests in the pipeline.

Ms. Friedrich comes to us from OrganoGenesis, Inc., where she provided customer technical support. At ACC, Ms. Friedrich will fill the newly created position of Senior Technical Services Specialist, where she will provide help to customers in all our product/service areas. Ms. Friedrich's strong technical background and experience as a biochemist will benefit all our clients.

Both Dr. Ketchum and Ms. Friedrich will be at our booth at the upcoming ASM annual meeting. Stop by and say hello.

To celebrate the sale of 500 LAL-5000 systems world-wide, we are pleased to announce a special price for a limited number of instruments. These "Production 500" instruments will sell for \$6000 for master modules and \$5500 for expansion models. The most popular automated endotoxin detection system in the world is always competitively priced; currently it is irresistibly priced. Equally important to bear in mind is the cost of reagent once the capital expenditure has been made. Pyrotell-T is the most cost effective and most sensitive reagent for automated systems - and it can be used in any automated LAL system, particularly those for kinetic assays.

Sincerely,



*Thomas J. Novitsky, Ph.D.
Editor*

Comparison of Various LAL Methods

Method	Reagents Needed	Equipment Needed	Endpoint	Incubation Time	Skill Level	Sensitivity	Total Operator Time
Gel-Clot (1,2)	LAL	37° C Water or Dry Bath	Gel-Clot	60 min	Low	0.03-1.0 EU/ml	60 min
Turbidimetric (3,4) Endpoint	LAL	37° C Water or Dry Bath or Oven & Spectrophotometer	Turbidity	30-60 min	Moderate to High	0.01-1.0 EU/ml	60 min
Chromogenic (5,6) Endpoint	LAL & Acid & Chromogenic Reagent & Buffer	37° C Water or Dry Bath or Oven & Spectrophotometer	Yellow Color	10-20 min	High	0.05-0.5 EU/ml	60 min
Colorimetric (7)	LAL & Lowry Protein Reagent	37° C Water or Dry Bath or Oven & Spectrophotometer Centrifuge	Blue Color	10-20 min	High	0.05-0.5 EU/ml	60 min
Nephelometric (8)	LAL	37° C Water or Dry Bath or Oven & Nephelometer	Turbidity	30-60 min	Moderate to High	0.01-1.0 EU/ml	60 min
Turbidimetric Kinetic (9,10)	LAL	Abbott MS-2	Turbidity	20-90 min	Low to Moderate	0.005-500 EU/ml	20 min
Turbidimetric Kinetic (23)	LAL	Modified Microplate Reader	Turbidity	20-90 min	Moderate to High	0.005-500 EU/ml	30 min
Kinetic (9,10)	LAL	Abbott MS-2	Turbidity	20-90 min	Low	0.005-500 EU/ml	20 min
Kinetic (23)	LAL	Modified Microplate Reader	Turbidity	20-90 min	High	0.005-500 EU/ml	20 min
Slide (Gel-Clot) (11,12)	LAL	37° C Oven & Microscope Slide	Gel-Clot	30-45 min	Moderate	0.02-1.0 EU/ml	60 min
Slide (Dry-Up) (13)	LAL	37° C Oven & Microscope Slide	Dry-Clot	30 min	Moderate	0.5-2.5 EU/ml	60 min
Slide (Wells) (14)	LAL & Dye & Petrolatum	37° C Oven & Microscope Slide	Gel-Clot	30 min	Moderate	0.15-1.0 EU/ml	75 min
Slide (Capillary) (15)	LAL	37° C Oven & Microscope Slide & Capillary Tube	Gel-Clot	30-45 min	Moderate	0.02-1.0 EU/ml	60 min
Slide (Stain) (16)	LAL & Dye	37° C Oven & Microscope Slide	Gel-Clot	30 min	Moderate	5.0 EU/ml	60 min
Slide (Phase Contrast) (16)	LAL	37° C Oven & Microscope Slide & Microscope	Gel-Clot	30-45 min	Moderate	0.02-1.0 EU/ml	75 min
Micromethod (17)	LAL	37° C Oven & Microplate & Capillary Tube	Gel-Clot	60 min	Moderate	0.30-1.0 EU/ml	60 min
Microtechnique (18)	LAL	37° C Oven & Tube of Dye & Capillary Tube	Gel-Clot	45 min	Moderate	0.05-1.0 EU/ml	75 min
Microdilution (19)	LAL & Dye	37° C Oven & Microplate	Gel-Clot	60 min	Moderate	0.30-1.0 EU/ml	60 min
LAL-Bead (20)	LAL	37° C Water or Dry Bath & Beads & Tray & Rocker Platform	Gel-Clot	90 min	Moderate to High	5.0 EU/ml	90 min

(cont.)

Method	Reagents Needed	Equipment Needed	Endpoint	Incubation Time	Skill Level	Sensitivity	Total Operator Time
Radioisotope (21)	LAL & 125I-Labeled Coagulogen	37° C Water or Dry Bath & Centrifuge & Gamma Counter	Gel-Clot	40-50 min	High	0.05-0.6 EU/ml	120 min
Rocket (22)	LAL & Anti-Coagulogen Antibody	37° C Water or Dry Bath & Gel Electrophoresis	Gel-Clot	60 min	High	0.05 EU/ml	3 hr
Microassay Chromogenic "Pseudo-kinetic" (24)	LAL & Chromogenic Substrate & MgCl ₂ Solution	Microplate Microplate 37° C Incubator	Yellow Color	61-80 min	High	0.005-0.2 ng/ml	70-90 min
Chromogenic HPLC (25)	LAL & Chromogenic substrate, Tris Buffer & Acid	HPLC or Spectrophotometer, 37° C Water Bath, Ice Bath & Membrane Filter	Yellow Color	40-60 min	High	0.5-1.5 ng/ml	80-120 min
Turbidimetric Endpoint (26)	LAL	Spectrophotometer & 37° C Water Bath or Dry Bath	Turbidity	60 min	High	0.001-1 ng/ml	80 min
Micromethod (27)	LAL	Capillary Tubes & Hydrostatic Pressure Device & 30-40° Incubator	Gel-Clot	10-60 min	Moderate	1 ng/ml	70 min
Chromogenic Automated Micro-titer Endpoint(28)	LAL & Chromogenic substrate, Tris Buffer & Acid	Cetus Pro/Pette System, Microplate Reader & 37° C Incubator Block	Yellow Color	22 min	Low	0.01-0.12 EU/ml	30-45 min
Chromogenic Robot Endpoint (37)	LAL & Chromogenic substrate, Tris Buffer & Acid	37° C Water Bath or Day Bath or Oven & Spectrophotometer & Zymark Robot	Yellow Color	10-20 min	Low	0.05-0.5 EU/ml	Substantial set-up
Turbidimetric "Kinetic" Automatic Gel-Clot (29)	LAL	Toxinometer	Turbidity or Gel-Clot	10-100 min	Low	0.0005-500 EU/ml	20-110 min
Turbidimetric Kinetic (30)	LAL	Spectrophotometer with kinetic analyzer & temp. controller	Turbidity	20 min	Moderate	0.01-100 ng/ml	40 min
Turbidimetric Kinetic (31,32)	LAL	LAL-4000	Turbidity	10-90 min	Low	0.001-100 EU/ml	20-100 min
Chromogenic Kinetic (33)	Kinetic-QCL Reagent Kit	Incubating Microplate Reader & QCL-1000 software	Yellow Color	15-45 min	Moderate	0.005-50 EU/ml	40 min
Turbidimetric Kinetic (34)	Pyrotell-T or equivalent	LAL-5000 or LAL-5000 Series II	Turbidity	15-90 min	Low	0.001-10 EU/ml	20-100 min
Turbidimetric Kinetic (35)	Pyrotell-T or equivalent	Incubating Microplate Reader	Turbidity	30-90 min	Moderate	0.001-10 EU/ml	20-100 min
Chromogenic Kinetic/Endpoint * (36)	Pyrochrome Kit	Incubator or Regular Microplate Reader	Yellow or Magenta color	15-45 min	Moderate	0.005-100 EU/ml	40 min

* Available from Associates of Cape Cod, Inc., June 1993

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