

# Lab.O™

## MICROBIOLOGY NEWS & IDEAS

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## *Plesiomonas shigelloides* – An Underappreciated Pathogen

Amy M. Carnahan, Ph.D., SM(ASCP)

*Plesiomonas shigelloides* (formerly known as C27 or *Aeromonas shigelloides*) is an oxidase-positive, facultatively anaerobic gram-negative bacillus found in both soil and water environments. Like *Aeromonas*, it has wide distribution among warm- and cold-blooded animals, including cats, dogs, pigs, poultry, cattle, vultures, toads, snakes, lizards, newts, freshwater and tropical fish, such as bream, catfish, and crappies, and shellfish, such as shrimp, clams, crabs and oysters.<sup>1,2</sup>

It has emerged as a potential cause of enteric disease in humans, especially following the consumption of raw seafood, but has also been isolated from a number of extraintestinal sites.<sup>3,4</sup> The genus and single species *P. shigelloides* has heretofore resided in the family *Vibrionaceae*, but molecular phylogenetic studies have presented convincing evidence that the ancestry of *Plesiomonas* is actually closer to the family *Enterobacteriaceae*.<sup>5</sup> Therefore, it has been proposed that *Plesiomonas* be moved to the family *Enterobacteriaceae*, either as a member of the genus *Proteus* or retain its status as the genus *Plesiomonas* within that family.<sup>6</sup> The species name “*shigelloides*” is derived from the fact that many strains cross-react antigenically with *Shigella*, particularly *Shigella sonnei*, serogroup D.

### Epidemiology

*P. shigelloides* is primarily a fresh-water aquatic organism, whose overall isolation numbers increase in the warmer months of the year.<sup>7</sup> Its aquatic habitats are somewhat limited by its minimum growth temperature of 8°C and its lack of halophilism.<sup>6</sup> Therefore, it is generally found in fresh or estuarine, rather than marine environments and usually in tropical or subtropical areas. However, it has been isolated from surface waters in Europe, even as far north as

Sweden,<sup>8-10</sup> and poses a hazard for anyone with a water-related occupation or interest in recreational sports, such as fish handlers, aquaculturists, veterinarians, zoo keepers, tropical fish tank owners, and performers in water-related sports, such as skiing and diving. As mentioned previously, there is also a wide distribution of this organism among both warm- and cold-blooded animals and there is evidence of a snake-to-human transmission of disease with this organism.<sup>11</sup>

Past epidemiological studies suggest this is an enteric pathogen, with several well-documented outbreaks of diarrheal disease, mainly in Japan.<sup>12-14</sup> Most of these infections have been linked with travel to the Far East and Mexico, with



# TECHNITOPIC

additional risk factors including the consumption of raw or undercooked shellfish or contaminated water.

It appears that nearly all age groups are affected with a general incubation period of 24-48 hours.<sup>4</sup> A recent study of 111 cases of *P. shigelloides* diagnosed within one year at a northern medical center in Taiwan reported that one third of pediatric patients (23/69) had mixed enteric pathogens and 74% (17/23) of these were younger than 2 years. *Salmonella* species, especially group B, was the most common mixed enteric pathogen.<sup>15</sup>

Associations with HIV patients are also

on the increase<sup>16</sup> with a report out of Thailand showing that *P. shigelloides* was the third most commonly isolated pathogen from cases of AIDS-associated diarrhea after *Salmonella* and *Vibrio parahaemolyticus*.<sup>17</sup>

Reports of extraintestinal infections are appearing with increasing frequency as well. The earliest cases generally involved septicemia and meningitis in neonates,<sup>3,6,18</sup> or were cases involving immunocompromised hosts. Several recent cases even suggest the possibility of serious infection in immunocompetent hosts.

## Clinical Manifestations

Evidence supporting a pathogenic role as a cause of diarrhea in humans includes a lessening in the severity and duration of symptoms following appropriate antimicrobial therapy, a very low asymptomatic carriage rate (<0.1%) among humans, and the documented outbreaks of diarrheal disease associated with contaminated water and oysters previously mentioned. The consensus is that "certain strains of *P. shigelloides* can cause diarrhea in certain host populations," as is the case with *Yersinia* and certain subsets of *Escherichia coli*, where the role of the host's immune status is also fairly important.

There are at least three major clinical types of gastroenteritis associated with *P. shigelloides*: 1) the more common watery or secretory diarrhea; 2) a second subacute or chronic disease that lasts between 14 days and 2-3 months; and 3) a more invasive, dysenteric form that resembles colitis.<sup>3,4</sup> On average, 25-40% of all patients present with fever and/or vomiting and the single most common clinical symptom for all such patients is severe abdominal pain and cramping. Most cases of gastroenteritis are self-limiting and last from 2-14 days and resolve without antimicrobial therapy. However, antimicrobial therapy is indicated in some protracted pediatric cases or in elder or immunocompromised populations. Occasionally, enteric infections have preceded episodes of bacteremia in apparently

healthy hosts and fatal outcomes from severe enteric infections without dissemination have been reported.<sup>4</sup>

Reports of extraintestinal infections in the literature are also increasing and those involved with meningitis have a high fatality rate of 80% and are generally associated with neonates, but can include adults. Adult meningitis is probably related to the immunologic and nutritional state of these patients who often have hepatobiliary disease,<sup>4</sup> cirrhosis,<sup>19</sup> or sickle-cell disease.<sup>20</sup> Recent cases include polyarthritis,<sup>21</sup> bacteremia with leukemia,<sup>22</sup> septicemia with primary hemochromatosis,<sup>23</sup> and epididymitis-orchitis and bacteremia caused by *P. shigelloides* in an HIV-infected patient with chronic hepatitis.<sup>24</sup>

Extraintestinal infections involving seemingly healthy immunocompetent hosts include a serious wound infection with purulent tenosynovitis associated with catfish-related injury,<sup>25</sup> and an unusual case of congenital endophthalmitis following maternal shellfish ingestion.<sup>26</sup> A case recently reported to BD Diagnostic Systems by a BACTEC user involved a previously healthy 34-year-old female who presented with sepsis and cellulitis of the right leg. *P. shigelloides* was isolated from a positive blood culture using a BACTEC PLUS Aerobic/F bottle after 5.41 hours of incubation, and the patient was treated with gentamicin. Notable results from chemistry and hematology included a Sed Rate of 87 and a CRP value of 26.9. It was surmised that she was infected while "tubing" in a river where she sustained an aquatic wound to her right leg (personal communication, Renae Balaltzer/Pat Gerhardt, St. Alexius Medical Center, Bismarck, N.Dak.).



### Amy M. Carnahan, Ph.D., SM(ASCP)

Dr. Carnahan is an Assistant Professor in the Department of Epidemiology and Preventive Medicine at the University of Maryland School of Medicine in



Baltimore, Md. She received her bachelor's degree in biology from Virginia Polytechnic Institute and State University, Blacksburg, Va., and her master's and doctoral degrees from the University of Maryland, College Park, Md. Her Ph.D. is in Marine Estuarine Environmental Science, which reflects her favorite area of research – studying the taxonomy and virulence features of microorganisms from the environment that are pathogenic for humans such as *Aeromonas* and *Vibrio species*. In fact, this is Dr. Carnahan's second contribution to *LabO*. Her first was an article on *Aeromonas* written in 1991 when *LabO* was just one year old. In addition to teaching and research, Dr. Carnahan is Chairperson for the *Aeromonas* Taxonomy Working Group within the International Subcommittee on the Taxonomy of the Family *Vibrionaceae*. She is also the author of numerous publications including the book *Pathogenic and Clinical Microbiology: A Laboratory Manual*.

Continued on page 10

# BACTEC™ SYSTEM NEWS

Now Available ...

## BD BACTEC™ MGIT™ 960 Antimicrobial Susceptibility Test for PZA

We are pleased to announce that the BD BACTEC™ MGIT™ 960 PZA Kit for susceptibility testing of *Mycobacterium tuberculosis* has been FDA-cleared and is now available in the U.S. The availability of pyrazinamide (PZA) susceptibility testing now makes it possible to test for the full range of primary drugs used to treat *M. tuberculosis*.

The BACTEC MGIT 960 PZA Kit is a qualitative test that is completed in 4 to 21 days by monitoring the growth of *M. tuberculosis* in a drug-containing tube compared to a drug-free tube (Growth Control) using the BACTEC MGIT 960 System. The BACTEC MGIT 960 instrument continually monitors tubes for increased fluorescence, indicating the presence of active microorganisms. Susceptible or resistant results are produced when the instrument compares the drug-containing tube to the growth control tube. The BACTEC MGIT 960 PZA Kit has been developed to allow susceptibility testing at a PZA concentration of 100 µg/mL. This concentration correlates with the concentration used in the BACTEC 460TB System. The latter is the method recommended by the National Committee for Clinical Laboratory Standards (NCCLS) for PZA susceptibility testing.<sup>1</sup>

The BACTEC MGIT 960 PZA Medium contains a modified Middlebrook 7H9 Broth that supports the growth and detection of mycobacteria at a reduced pH of 5.9. The MGIT 960 PZA Medium tube contains a fluorescent compound embedded in silicone on the bottom of a 16 x 100 mm round-bottom tube. The fluorescent compound is sensitive to the presence of oxygen dissolved in the broth. The initial concentration of dissolved oxygen quenches the fluorescent emission from the compound and little fluorescence can be detected. Later, actively respiring microorganisms consume the oxygen, which allows the compound to fluoresce.

The BACTEC MGIT 960 PZA susceptibility test augments existing BACTEC MGIT 960 SIRE testing, which provides a susceptible or resistant result for four other drugs commonly used to treat tuberculosis – streptomycin, isoniazid, rifampin and ethambutol. For information on the BD BACTEC™ MGIT™ 960 PZA Kit, the BACTEC™ MGIT™ SIRE Kit and/or the BACTEC™ MGIT™ 960 System, mark the appropriate box(es) on the reader response card.



Cat. No.	Description
245128	BACTEC™ MGIT™ 960 PZA Kit, carton of 2 lyophilized drug vials and 6 PZA supplements (approximately 50 tests)
245115	BACTEC™ MGIT™ 960 PZA Medium, carton of 25 tubes

<sup>1</sup>NCCLS. 2001. Tentative Standard M24-T2. NCCLS, Wayne, Pa.

## BD BACTEC™ MGIT™ 960 PZA Study Published

Pfyffer and colleagues from the Swiss National Center for Mycobacteria in Zurich, Switzerland, and the National Reference Center for Mycobacteria in Borstel,

Germany, compared PZA susceptibility testing on the BACTEC MGIT 960 System to the BACTEC

460TB System. The results of their study were published in the May 2002 issue of the *Journal of Clinical Microbiology*.

In this multi-center study, a total of 58 strains of *M. tuberculosis* isolated from clinical specimens were tested by each of two centers using the two systems. Discrepant results were retested by two independent arbiter sites using the BACTEC 460TB System and following resolution, overall agreement was 96.6% (see table for results).

Furthermore, the mean time-to-result was 6.8 days on the BACTEC MGIT

960 versus 9.4 days on the BACTEC 460TB (4 days to grow-up the subculture to a GI of 200 and 5.4 days for the PZA test).

No. of Tests	960=S 460=S	960=R 460=S	960=S 460=R	960=R 460=R	Overall Agreement
116	89	3	1	23	96.6%

S=Susceptible R=Resistant

Compared to the BACTEC 460TB System, the authors concluded that the BACTEC MGIT 960 PZA test is:

- easy to perform
- produces very good agreement
- produces results faster
- safer – BACTEC MGIT 960 does not require needles for inoculation and does not generate radioactive waste

For a copy of the article, mark the appropriate box on the reader response card.

## BDProbeTec™ ET SYSTEM NEWS

# Launching the BD Viper™ Sample Processor - The Next Generation in Automated Sample Processing for the BDProbeTec™ ET System

Today there's an important advancement in workflow for the BDProbeTec™ ET System. The BD Viper™ Sample Processor automates high volume sample handling with an industrial grade robot arm that performs pipetting transfers without the use of syringe pumps and tubing. Achieve real efficiency where it counts by automating the most labor-intensive steps for amplified tests – sample handling and amplification/detection.

The BD Viper Sample Processor has been designed to be robust and durable, or in other words, to be a workhorse. This capability is the result of an industrial-grade robotic arm – the foundation of the processor and the *only* moving part. The robotic arm has been designed to provide a precision of 10 µm (0.0004 inches) and for reliability, a 20,000-hour MTBF (mean time between failure) or the equivalent of 10 years of 8-hour shifts. After prepared samples (already lysed), priming/ amplification microwell plates and pipettes are loaded into the BD Viper processor, the robotic arm will take it from there, pipetting and transferring samples to the appropriate wells at the appropriate times. Technicians benefit with the reduction of repetitive motions. And at the same time, the accuracy of pipetting is enhanced compared to manual pipetting where fatigue and distraction can cause errors.

The BD Viper Sample Processor is now available for use with the BDProbeTec ET Amplified DNA System – the *first* real-time DNA amplification/detection system for the detection of *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC). Together, these two systems provide significant enhancements to laboratory efficiency through reduced labor, rapid time to results, high throughput and minimal maintenance. Specifically, results from up to 552 patient specimens per 8-hour shift for combination CT/GC screening may be reported.

For more information on the BD Viper™ Sample Processor or the BDProbeTec™ ET System, mark the appropriate box(es) on the reader response card or call your local BD sales consultant today!



Load processed samples.



Initiate run parameters.



Transfer amplification plate to the BDProbeTec ET System.



## New Tubes and Caps for the BDProbeTec™ ET System

In our ongoing commitment to provide our customers with the most convenient and easy-to-use products, we are implementing a new tube and cap design for the BDProbeTec™ ET *Chlamydia trachomatis* and *Neisseria gonorrhoeae* Amplified DNA Assays. The newly designed tube and cap provide these significant benefits:

- Cap is slightly larger to ease handling during removal and re-capping
- Less likelihood of leakage during transport and processing

It is important to note that the new cap is not compatible with the original tube design so it will be necessary to check

your inventory to ensure a smooth conversion to the new design.

We hope you'll agree that this change is beneficial to your workflow. If you have any questions regarding the new tubes and caps, please contact BD Technical Services at 800.638.8663.

# PRODUCT HI-LIGHTS

## Announcing – The New BD BBL™ Sensi-Disc™ Wall Chart

To assist our customers in staying current with the ever-increasing number of antibiotics and other antimicrobial agents, we have updated the BD BBL™

Sensi-Disc™ Antimicrobial Susceptibility Test Disc Wall Chart.

The wall chart is an alphabetical list of antimicrobial agents by their generic names *and* their trade names. The antimicrobial agents are listed in the first column and the corresponding synonyms for identical compounds are in the adjacent column. Thus, by looking up the generic name of a

particular agent, one can ascertain the corresponding trade name(s) and vice versa. In addition, manufacturer information is provided, as well as the antibiotic class, subclass or microbial derivation. In the last two columns, the BBL Sensi-Disc catalog numbers and antibiotic codes are provided and appear in bold type if they are designated for use in the Standardized Susceptibility Disk-Plate Method (Bauer-Kirby).

Taking the example of ampicillin, the entry in the wall chart appears as follows:



Agent Generic Name or Trade Name	Synonym Generic Name or Trade Name	Manufacturer	Class/Subclass or Microbial Derivation	BBL™ Discs Catalog Number Package/Carton	Code
<i>Ampicillin</i>	Amcill™ *Ampicin™ Omnipen™ *Pentrexyl Polycillin™ Principen™	Pfizer Bristol-Myers Squibb Wyeth Bristol-Myers Squibb Bristol-Myers Squibb Bristol-Myers Squibb	Penicillin/ Aminopenicillin	- / 231263 <b>230705 / 231264</b>	AM-2 <b>AM-10</b>

\*Trade name not used in the United States

To receive your copy of the new BD BBL™ Sensi-Disc™ Antimicrobial Susceptibility Test Disc Wall Chart, contact your local BD sales consultant today!

## BD Phoenix™ Automated Microbiology System Receives FDA Clearance

We are pleased to announce that the BD Phoenix™ Automated Microbiology System has received FDA 510(k) clearance for sale in the United States. The Phoenix System applies world-renowned BACTEC™ System efficiency to automated identification and susceptibility testing.

The BD Phoenix System is a fully automated system which provides rapid identification (ID) and antimicrobial susceptibility test (AST) results for clinically relevant bacteria. Designed for both small volume and large volume laboratories, the Phoenix System incorporates an

easy-to-use workflow, sophisticated instrumentation and advanced software to provide rapid and reliable results. The hallmark of the Phoenix System is flexibility. The system can simultaneously perform from 1 to 100 ID/AST determinations in three formats: ID only, AST only, or ID/AST combined. Additional features are random on-demand loading, single or batch inoculation and continuous monitoring. Furthermore, there are no reagent additions or awkward data entry. And the Phoenix instrument's efficient design reduces maintenance, saves tech hours and minimizes downtime.



FDA clearance includes the Phoenix instrument, software and an initial menu of antimicrobial agents for *in vitro* diagnostic testing. For more information on the BD Phoenix™ Automated Microbiology System, contact your local BD sales consultant.

# PRODUCT HI-LIGHTS

## BBL™ GC-Lect™ and BBL™ ssA™ Media – Premium Media Available Exclusively from BD

With over 170 years of combined experience in developing and manufacturing BBL™- and Difco™- brand culture media, BD has endeavored to develop the highest quality media with performance unequalled by any other manufacturer. As a result, we have developed several proprietary media formulations which outperform traditional formulations.

Two examples of **GC-Lect™ JEMBEC™ Plate**

such media are BD BBL™ GC-Lect™ Agar and BD BBL™ ssA™ Agar.



ssA™ Plate

*Streptococcus* on the ssA plate; this was 17 more organisms than were isolated on SXT Blood Agar and 33 more than were isolated on non-selective blood agar.<sup>2</sup>

Take advantage of BD's expertise in culture media development and manufacturing. Contact your local BD sales consultant or BD Technical Services at 800.638.8663 (selection 2) for more information, or order using the information below and see the difference for yourself.

BD BBL GC-Lect Agar is a selective medium that provides enhanced growth and recovery of *Neisseria gonorrhoeae*. It was developed to provide the additional inhibition required to prevent overgrowth of pathogenic *Neisseria* spp. in specimens containing *Capnocytophaga* spp. The improved inhibition and selectivity of BBL GC-Lect Agar comes from its combination of five antimicrobial agents that inhibit gram-positive bacteria, including vancomycin-resistant *Staphylococcus epidermidis*, gram-negative organisms like *Proteus* spp. and *Capnocytophaga* spp., as well as fungi including *Candida albicans*. Because GC-Lect Agar actually contains a decreased concentration of vancomycin, it permits the growth of some vancomycin-sensitive gonococcal strains that are inhibited on standard Modified Thayer Martin (MTM) Agar. In a clinical evaluation of 500 samples, visible growth of *N. gonorrhoeae* occurred within 24 hours in 72% of the positive cultures on GC-Lect Agar compared with only 52% in the reference medium, MTM Agar.<sup>1</sup>

BD offers what is felt by many to be the ideal selective strep medium – BBL Group A Selective Strep Agar with 5% Sheep Blood (ssA). ssA agar is a primary plating medium for the isolation of group A streptococci from throat cultures and other specimens in which the presence of *Streptococcus pyogenes* is suspected. The medium is designed for use in conjunction with Taxo™ A (bacitracin, 0.04 unit) discs for presumptive identification of *S. pyogenes*. During a clinical evaluation of 460 throat cultures, there were a total of 117 positive cultures for group A

Cat. No.	Description
297715	BBL™ GC-Lect™ Agar, 100 mm, 20/pack
297928	BBL™ GC-Lect™ Agar, 100 mm, 100/ctn
298243	BBL™ GC-Lect™ Agar, 100 mm (pill pocket), 100/ctn
221995	BBL™ GC-Lect™ Agar, JEMBEC™ CO <sub>2</sub> generating plates, 10/pack
221779	BBL™ Group A Selective Strep Agar w/5% Sheep Blood (ssA™), 100 mm, 20/pack
221780	BBL™ Group A Selective Strep Agar w/5% Sheep Blood (ssA™), 100 mm, 100/ctn

<sup>1</sup>GC-Lect Agar package insert, BD Diagnostic Systems.

<sup>2</sup>Group A Selective Strep Agar with 5% Sheep Blood (ssA™) package insert, BD Diagnostic Systems.

LabO™ is published three times per year by Becton Dickinson, 7 Loveton Circle, Sparks, MD 21152, 410-316-4701.

Editor: Mary Jo Zimbro, B.S., MT(ASCP).

Send address changes and mailing list additions to the attention of Marketing Communications, Mail Code 634.

For technical information, call Technical Services, toll free, at 800-638-8663.

Visit our web site at <http://www.bd.com/clinical>.

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Printed in USA

## PRODUCT HI-LIGHTS

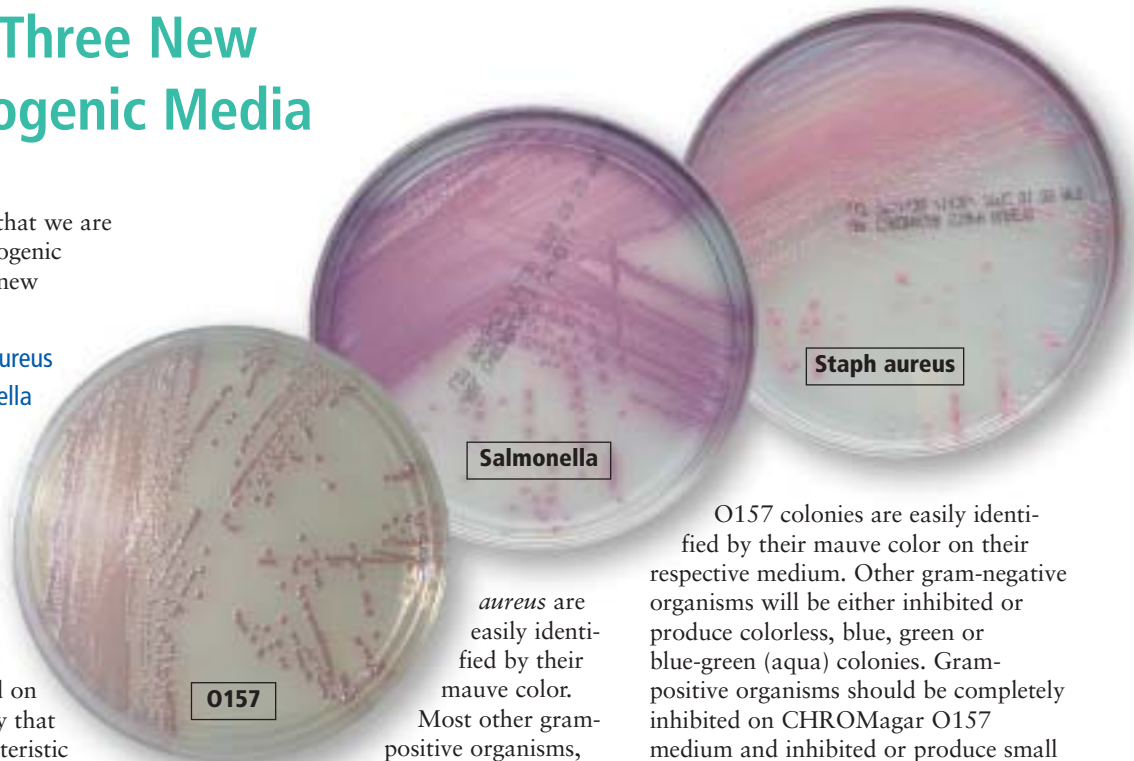
### Introducing – Three New BBL™ Chromogenic Media

We are pleased to announce that we are expanding our line of chromogenic media to include these three new formulations:

- BBL™ CHROMagar™ Staph aureus
- BBL™ CHROMagar™ Salmonella
- BBL™ CHROMagar™ O157

These new chromogenic media contain artificial substrates (chromogens) that release differently-colored compounds upon degradation by specific microbial enzymes. The respective organisms cultured on the media react in such a way that the colonies take on a characteristic color and colonial morphology. This enables the direct differentiation of certain species or the detection of certain groups of organisms with a minimum of confirmatory tests.

Using BBL CHROMagar Staph aureus medium, colonies of *Staphylococcus*



*aureus* are easily identified by their mauve color. Most other gram-positive organisms, if not inhibited, will produce white, blue, green or blue-green (aqua) colonies. Gram-negative organisms and yeast are inhibited.

For BBL CHROMagar Salmonella and BBL CHROMagar O157 media, *Salmonella* spp. and *Escherichia coli*

O157 colonies are easily identified by their mauve color on their respective medium. Other gram-negative organisms will be either inhibited or produce colorless, blue, green or blue-green (aqua) colonies. Gram-positive organisms should be completely inhibited on CHROMagar O157 medium and inhibited or produce small blue-green colonies on CHROMagar Salmonella medium.

For more information on any of these innovative, new media, please contact your local BD sales consultant or BD Technical Services at 800.638.8663, selection 2.

## Win Prizes – New Contest for Laboratories Using BBL™ and Difco™ Products



While BD has been building a Tradition of Excellence in providing the highest quality prepared culture media and diagnostic products to the microbiology laboratory, our customers have been using our products in a variety of ways; most notably to improve patient

diagnostics, but also for new discoveries and healthcare innovations. In order to recognize those scientific discoveries and innovations made involving BBL™ or Difco™ products, we are sponsoring a contest.

To enter the contest, send us your experiences and knowledge of BBL and Difco products. Did you isolate a new organism on BBL media? Do you have a research paper, which references BBL media used in the study? How about a publication which involved the use of BBL or Difco serology or laboratory reagents? To participate, the research or

discovery does not need to be your own. You may simply cite a paper in which BBL and/or Difco products were documented and involved. All contributors will receive a surprise gift and the top five will receive an American Express Giftcheck for \$50.00.

So submit your entry today to: BD Diagnostic Systems, Attn: Prepared Media Product Manager MC 654, 7 Loveton Circle, Sparks, MD 21152. The deadline for submission is February 1, 2003. We look forward to hearing from you!

## PRODUCT HI-LIGHTS

# got bugs?

## Detect them Faster, Easier and More

## Dependably with BD Directigen™ Respiratory Tests



This respiratory season, take advantage of the benefits of BD's rapid diagnostic tests for respiratory pathogens. Your laboratory will appreciate all the benefits of *truly STAT testing* with:

### The BD Directigen RSV Test:

- Clear-cut results in minutes
- Dependable accuracy
- Reduced technologist time

### The BD Directigen Flu A+B Rapid Test Kit:

- The first and *only* rapid assay on the market that differentiates influenza A viral antigens from those of influenza B
- High accuracy and easy workflow
- A wide range of respiratory specimen types

### The BD Directigen 1-2-3 Group A Strep Test:

- Fast, easy and dependable results
- Room temperature storage of all kit components means no waiting for reagents to warm-up

Appreciate the benefits of truly STAT testing *and* qualify for free T-shirts and candy. Collect the bar codes from two Directigen RSV and/or Directigen 1-2-3 Group A Strep test kits and receive a T-shirt. Add a bar code from a Directigen Flu A+B test kit and you will also get a



box of candy. There is no limit to the number of T-shirts or boxes of candy you can win, and you can keep playing right up to the final deadline of March 31, 2003!

For more information on the BD Directigen™ RSV, Directigen™ Flu A+B or Directigen™ Group A Strep test kits, mark the appropriate box(es) on the reader response card or contact your local distributor or BD sales consultant.

## Coming Soon – BD Directigen™ EZ RSV\* A Chromatographic Immunoassay for RSV Detection

Be on the look-out for the newest addition to the Directigen™ family of products – the BD Directigen™ EZ RSV test. Our newest test for Respiratory Syncytial Virus (RSV) is a rapid chromatographic immunoassay for the direct and qualitative detection of RSV antigen in respiratory specimens.

The new BD Directigen EZ RSV test is a snap to perform with fewer steps and results in less than 20 minutes. Whereas the current Directigen RSV kit contains six liquid reagents, the new kit contains just one – extraction reagent. No more color development or wash reagents! And once a specimen is extracted and added to the test device, the device does all the work! RSV antigens bind to the antibody-colloidal gold conjugate in the test strip forming an antigen-antibody complex. This complex migrates across the test strip to the reaction area and is captured by the line of RSV antibody on the membrane forming a reddish-purple line – a positive test. A built-in control forms a second reddish-purple line providing



assurance that the test was performed correctly.

The speed and improved workflow of the Directigen EZ RSV test make it applicable as a “STAT” RSV antigen detection test in any size laboratory, providing rapid, relevant information to assist with antiviral intervention and other clinical or support decisions.

So stayed tuned – the BD Directigen™ EZ RSV test is coming your way soon!

\*Pending FDA clearance.

# MICRO HAPPENINGS

## Dr. Thomas F. Smith Named Recipient of Microbiology Award

Thomas F. Smith, Ph.D., Emeritus Chair, Division of Clinical Microbiology; Professor, Microbiology and Laboratory Medicine; Director, Virus Laboratory; and Co-Director, Serology Laboratory, Mayo Clinic, Rochester, Minn., was selected to receive the 2002 BD Award for Research in Clinical Microbiology at the 102nd General Meeting of the American Society for Microbiology in Salt Lake City on May 21. The award, affiliated with ASM Division C, honors a distinguished clinical microbiologist for outstanding research accomplishments leading to or forming the foundation for important applications in clinical microbiology.



Dr. Smith's research contributions in the pathogenesis, clinical correlation and laboratory diagnosis of viral infections have spanned more than 30 years and profoundly influenced laboratory practice and patient care. Dr. Smith introduced one of the first cell culture assays for the routine diagnostic testing for *Chlamydia trachomatis* involved in sexually transmitted infection and the detection of the organism in

infections in neonates. His development of the shell vial technique for culturing viruses became a global standard for the rapid culturing of viral pathogens and was applied in developing a test for the early detection of antigens induced by cytomegalovirus (CMV) in the early 80s, a particularly timely discovery given the recognition of CMV infections

as a major problem for HIV and other immunocompromised patients. Dr. Smith subsequently became a leader in the use of conventional PCR for the detection of herpes simplex virus (HSV) DNA in cerebrospinal fluid (CSF) for the diagnosis of central nervous system (CSN) disease, and his laboratory later introduced PCR assays for detection of varicella-zoster virus (VZV), Epstein-Barr virus and CMV DNA in CSF specimens. Most recently he has, with Mark Espy, developed, implemented and optimized LightCycler PCR for detection of HSV, VZV and CMV DNA as replacements for shell vial assays.

Dr. Smith's award lecture was "Light at the End of the Tunnel: From Cell Cultures to Real-Time PCR," a talk relating his perspectives on the technical innovations in diagnostic virology that have led from cell cultures to routine PCR and beyond. Dr. Smith was nominated for this award by his colleague at the Mayo Clinic, Franklin Cockerill, III, M.D.

## Dr. David G. Fowler Receives Gavel at ASCLS Annual Meeting



Extending a tradition begun in 1963, BD Diagnostic Systems presented the Past President's Gavel award to Dr. David G. Fowler at this year's 70th annual American Society for Clinical Laboratory Science (ASCLS) meeting in Orlando, Fla., held July 30-August 3. The award is given in recognition of the work, efforts and dedication of the presidents of the society.

The award consists of a scale model of the official ASCLS gavel, adorned with a silver nameplate with the president's name and year of service. Dean Calderone, BD Sales Consultant, presented the award at an awards ceremony on July 31.

David G. Fowler, Ph.D., CLS(NCA) is Chair, Clinical Laboratory Sciences at the University of Mississippi Medical Center. During the past year, through the Society's publications, Dr. Fowler provided clinical laboratory scientists with a series of essays on the current state and future of the clinical laboratory profession. Congratulations Dr. Fowler and thank you for your service!



## Congratulations David Morse!

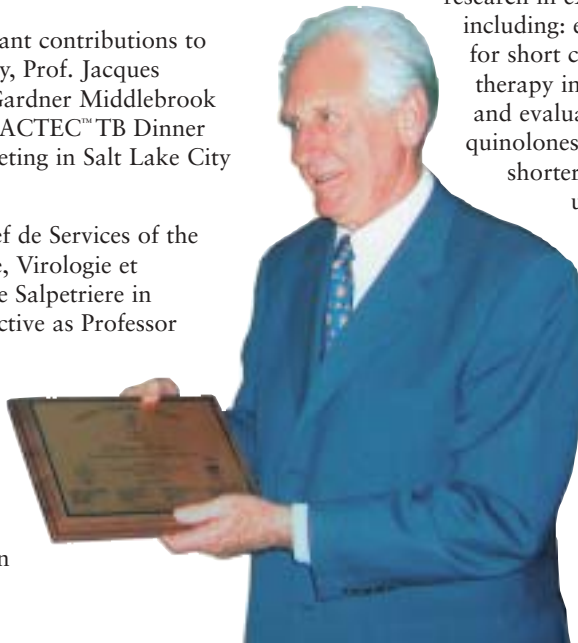
David Morse of PS 169 Elementary School in Bayside, N.Y., was the grand prize winner of the Con Edison Science Fair. David's project was titled "Anti-bacterial Products: Useful or Not?" With the technical assistance of BD Diagnostic Systems Technical Services department, David used BBL™ Trypticase™ Soy Agar with 5% Sheep Blood Agar plates to evaluate the effectiveness of three commercial anti-bacterial hand-washing products. He concluded that these products are not very useful as they remove some, but not all of the bacteria on your skin. Congratulations David on your award and keep up the good work!

# MICRO HAPPENINGS

## Prof. Jacques Grosset Honored with the Gardner Middlebrook Award

In recognition of his significant contributions to the field of mycobacteriology, Prof. Jacques Grosset was presented the Gardner Middlebrook Award at the 23rd annual BACTEC™ TB Dinner held at the ASM general meeting in Salt Lake City earlier this year.

Prof. Grosset retired as Chief de Services of the Laboratoire de Bacteriologie, Virologie et Hygiene at the Hospital Pitie Salpetriere in Paris, France, but remains active as Professor Emeritus of Faculty of Medicine at the same institution and is presently a consultant at the Johns Hopkins School of Medicine in Baltimore. Prof. Grosset specialized in mycobacteriology early on in his 40-year career and has



extensively studied tuberculosis, leprosy and *M. avium*/*M. ulcerans* infections. Especially noteworthy is Prof. Grosset's research in experimental and clinical chemotherapy including: experimental studies on the bacteriological basis for short course chemotherapy; the study of combination therapy in animals; and work with preventive therapy and evaluation of the newer drugs, rifapentine and the quinolones. These studies have led to less expensive, shorter duration therapies in humans, and a better understanding of drug interaction and better control of TB worldwide. As his colleague and well-known mycobacteriologist Dr. George Kubica wrote, "Jacques is a glowing example of the type of investigator for whom the Middlebrook Award was intended."

The award committee consists of Dr. Kathy Esenach, Dr. Jack Crawford, Dr. Gaby Pfyffer and Dr. Salman Siddiqi. Drs. Pfyffer and Siddiqi presented the award.

Congratulations Prof. Grosset from BD Diagnostic Systems!

*continued from page 2*

## *Plesiomonas shigelloides* – An Underappreciated Pathogen

### Diagnosis and Identification

*P. shigelloides* grows quite readily on selective and non-selective media. However, the actual number of cases of infection with *P. shigelloides*, particularly in cases of gastroenteritis, is probably underreported. It generally appears as a lactose nonfermenter on MacConkey agar and might be missed in most stool cultures unless an oxidase test is performed on all colony types growing on a sheep blood agar plate. All enterics are oxidase-negative, but *P. shigelloides* is oxidase positive and neglecting to do this critical test and going straight to serotyping can lead to incorrect identification as a *Shigella* species. However, accurate biochemical testing by conventional and rapid identification systems can usually easily distinguish *P. shigelloides* from nearly all other enteric pathogens because of its trio of positive reactions for arginine dihydrolase, lysine decarboxylase, and ornithine decarboxylase linked with the somewhat unusual fermentation of myoinositol.<sup>6</sup>

### Therapy

Most strains of *P. shigelloides* are resistant to ampicillin and susceptible to the cephalosporins, quinolones, trimethoprim-sulfamethoxazole, chloramphenicol and antibiotic- $\beta$ -lactamase inhibitor combinations.<sup>27,28</sup> However, unlike *Aeromonas*, only 68% of *Plesiomonas* isolates tested by Kain and Kelly were susceptible to tetracycline.<sup>27</sup> An earlier retrospective study by the same researchers made the suggestion that treatment with the appropriate antimicrobial agent shortens the course of diarrhea when compared to untreated infections or treatment with antibiotics to which the organism was not susceptible.<sup>29</sup>

### Prevention

As relates to the natural aquatic habitat of this organism, risk of infection can be reduced by avoiding consumption of raw or undercooked shellfish, particularly during warmer summer months. For water-related injuries, prompt medical attention should be sought and a complete medical history taken. These

steps, along with an alert to the microbiology laboratory of the possibility of *P. shigelloides* as a causative agent, should increase the rapid and accurate identification of this pathogen and result in prompt and successful treatment of the patient involved.

<sup>1</sup>Arai et al. 1980. *J. Hyg. Camb.* 84:203. • <sup>2</sup>Jagger. 2000. *Infect. Dis. Rev.* 2:199. • <sup>3</sup>Brenden et al. 1988. *Rev. Infect. Dis.* 10:303. • <sup>4</sup>Janda. 1998. *Vibrio, Aeromonas, and Plesiomonas*. In Collier et al. (ed) Topley and Wilson's microbiology and microbial infections. Systematic Bacteriology, Arnold, 2:1065. • <sup>5</sup>MacDonell and Colwell. 1985. *Syst. Appl. Microbiol.* 6:171. • <sup>6</sup>Altwegg. 1999. *Plesiomonas*. In Murray et al. (ed), *Manual of clinical microbiology*, 7<sup>th</sup> ed., ASM Press, Washington, D.C. pp. 507. • <sup>7</sup>Miller and Koburger. 1985. *J. Food Protect.* 48:449. • <sup>8</sup>Jonsson et al. 1997. *Scand. J. Infect. Dis.* 29:631. • <sup>9</sup>Medema and Schets. 1993. *Zentralblatt. Hyg und Umwelt.* 194:398. • <sup>10</sup>Islam et al. 1991. *Microbiol. and Immun.* 35:927. • <sup>11</sup>Davis et al. 1978. *South Med. J.* 71:474. • <sup>12</sup>Hori et al. 1966. *J. Jpn. Assoc. Infect. Dis.* 39:433. • <sup>13</sup>Tsukamoto et al. 1978. *J. Hyg. Camb.* 80:275. • <sup>14</sup>Rutala et al. 1982. *Lancet.* 1:739. • <sup>15</sup>Tseng et al. 2002. *J. Microbiol. Immunol. Infect.* 35:47. • <sup>16</sup>Ahmad et al. 1998. *Clin. Infect. Dis.* 27:657. • <sup>17</sup>Suthienkul et al. 2001. *Southeast Asian J. Trop. Med. Public Health.* 32:158. • <sup>18</sup>Lee et al. 1996. *Ped. Hemat. and Oncol.* 13:265. • <sup>19</sup>Brann. 2001. *Curr. Gastroenterol. Rep.* 3:285. • <sup>20</sup>Ampofo et al. 2001. *Pediatr. Infect. Dis. J.* 20:1178. • <sup>21</sup>Gupka. 1995. *Scan. J. Rheum.* 24:323. • <sup>22</sup>Sexton and Abramson. 1996. *Clin. Infect. Dis.* 23:206. • <sup>23</sup>Delforge et al. 1995. *Clin. Infect. Dis.* 21:692. • <sup>24</sup>Young et al. 2001. *AIDS Read.* 11:617. • <sup>25</sup>Abolnik and Gelfand. 1994. *Infect. Dis. in Clin. Prac.* 3:292. • <sup>26</sup>Marshman and Lyons. 1998. *Aust. and New Zealand J. Ophthalm.* 26:161. • <sup>27</sup>Kain and Kelly. 1990. *J. Clin. Micro.* 27:998. • <sup>28</sup>Clark et al. 1990. *Antimicrob. Agents. Chemother.* 34:159. • <sup>29</sup>Kain and Kelly. 1989. *Antimicrob. Agents. Chemother.* 33:1609.

## BD Diagnostic Systems Service Organization Announces the Formation of the Industrial and Clinical Media Attack Team (ICMAT)

### Raising the Level of Service & Support on Media Formularies

The BD Diagnostic Systems Service Organization is pleased to announce the formation of the Industrial and Clinical Media Attack Team (ICMAT). This team of seven microbiologists, housed in Technical and Informatics Services, is focused on supporting the 500+ media products manufactured by BD Diagnostic Systems and providing you, the customer, with the highest quality technical and application support. These individuals have a combination of over 100 years of microbiology experience. The team has skills in clinical, food, water and biopharmaceutical microbiology. The ICMAT is raising the level of technical and application support for media formularies to a high standard of service.

The ICMAT is a part of the Technical and Informatics Services Department, which includes 24 dedicated scientists ready to help customers with BD instruments and products. Our Service Organization includes:

- Technical and Informatics Services Specialists – available 24/7 to answer questions about any of our products or procedures.

- Instrument Support Engineers – available 24/7 to specifically troubleshoot and resolve any issues or problems associated with our instruments.
- Field Service Engineers – available 24/7 to provide instrument installation and repair.
- Application Specialists – available to provide on-site training and troubleshooting.
- Technology Training Center – available to deliver in-house training, symposia, workshops and customer technical bulletins.

### BD SERVICES & SUPPORT (Microbiology & Point of Care)

#### TECHNICAL SERVICES:

##### Web Sites

E Catalog/MSDS: [www.bd.com](http://www.bd.com)  
(under heading: "Products")  
C of A/C of O: [www.bdregdocs.com](http://www.bdregdocs.com)

##### Clinical and Industrial

Tel: 800.638.8663, Selection 2  
E mail: [technical\\_services@bd.com](mailto:technical_services@bd.com)

##### Point of Care (Physician Offices)

Tel: 800.638.8663, Selection 2

##### Instrument Repair

Tel: 800.544.7434, Selection 2

##### Technology Training Center

Tel: 800.638.8663, selection 8, ext. 4405  
E mail: [technology\\_training\\_center@bd.com](mailto:technology_training_center@bd.com)

## Part V

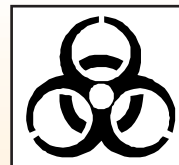
### International Symbols and Their Meaning

In our fifth installment on international symbols used in product labeling, we are introducing the following symbols:



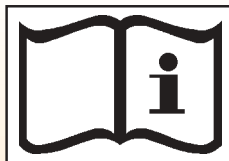
This symbol represents **Caution, Consult Accompanying Documents**. You may find this symbol mostly on the outer

carton or container label of a device. This symbol is used by the manufacturer of a device to make the user aware of a specific warning or issue associated with the device. This information may be found in the accompanying package insert or other documents associated with the device. When you see this symbol, it is recommended that you review the device documents prior to using the device.



This symbol represents **Biological Risk**. You may find this symbol on the outer carton or container label as

well as on the label of the specific device component that may exhibit a biological risk. This symbol is used to make the user aware of a potential biological risk or hazard associated with the use of the device. It is recommended that if you see this symbol on device labeling, that you consult the instructions for use to determine the origin and level of the risk associated with the use of the device.



This symbol represents **Consult Instructions for Use**. You may find this symbol most-

ly on the outer carton or container label of a device. This symbol is used by the manufacturer of a device to recommend that the user consult the operating instructions for the device prior to use. When you see this symbol, it is recommended that you review the device instructions to ensure that you understand the procedure and associated information before using the device.

We currently provide a connection in our Internet web site: [www.bd.com/diagnostics/microservices/regulatory/SymbolGlossary.asp](http://www.bd.com/diagnostics/microservices/regulatory/SymbolGlossary.asp) that will display and print a glossary of the symbols used on product labeling. Alternatively, to receive a copy of the symbol glossary, mark the appropriate box on the reader response card.

# FYI

## BD Diagnostic Systems Service Organization Expands its Technology Center for Customer Training



Above:  
Dr. Ali Najafabadi, Dr. Michael Towns, John Meduri, Tom Isett, Greg Meehan and Cathy Evans cutting ribbon at entrance to training center.



BDProbeTec™ ET System training lab.

August 21, 2002, marked a milestone for BD Diagnostic Systems Service Organization with the *grand opening* of its newly expanded customer training facility known as the Technology Training Center (TTC). The TTC, located at BD Diagnostic Systems headquarters in Sparks, Md., is the primary site for in-house customer training at both application and technology levels. The newly expanded center consists of spacious laboratories and classrooms providing a comfortable and dynamic environment for learning and hands-on experience. In addition, the center is fully equipped with advanced BD instrumentation and is staffed with highly skilled and certified trainers. The TTC has established training accreditation through the American Society for Clinical Laboratory Science (ASCLS) P.A.C.E.™ Program, the State of Florida and the State of California for in-house training programs. The current courses offered through the TTC are:



Nancy Kroupa, Christine Clements, Lois Miller and John Jenkins celebrate with cake.

- BD EpiCenter™ Application and Data Management
- BDProbeTec™ ET and BD Viper™ Systems
- BD Phoenix™ Automated Microbiology System (Industrial Only)

The TTC is also actively engaged in the development of training workshops across multiple product and application segments, including Understanding *The United States Pharmacopeia* (USP) Regulatory Guidelines; Industrial Fermentation and Bio-processing Scale-up; and Mechanisms of Resistance in Bacterial Pathogenesis.

For further information regarding BD TTC training programs, please call 800.638.8663, selection 8, ext. 4405 or contact us by e-mail: [technology\\_training\\_center@bd.com](mailto:technology_training_center@bd.com).



**BD Diagnostic Systems**  
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# The BACTEC™ 9000 Culture Club Has New Members!

In our last issue of *LabO*, we reintroduced the BACTEC™ 9000 Culture Club and asked BACTEC customers to “join” the club by reporting on unusual organisms isolated from their BACTEC 9000 series instruments (9240, 9120, 9050 and 9000MB). We are pleased to report that the response has been resounding and we now have ten new members (organisms) of the club:



Laboratory Site	Underlying Disease/ Diagnosis	BACTEC Instrument	BACTEC Media*	Time to Detection	Organism Detected
A2 Sint Lucas Gent, Belgium	Endocarditis	9240	PLUS Aerobic/F	72 hours	<i>Streptobacillus moniliformis</i>
Barnes-Jewish Hospital St. Louis, MO	HIV positive	9240	Standard Aerobic/F	5 days	<i>Helicobacter rappini</i>
Jacobi Medical Center Bronx, NY	HIV positive	9240	Standard Aerobic/F	48 hours	<i>Aureobacterium</i> sp.
Kaweah Delta Healthcare District Hospital Visalia, CA	Chronic ambulatory peritoneal dialysis	9240	PLUS Aerobic/F	72 hours	<i>Alternaria</i> sp.
Mercy Hospital Wilkes-Barre, PA	Hypovolemia	9240	PLUS Aerobic/F	13 hours	<i>Providencia alcalifaciens</i>
Oseola Regional Medical Center Kissimmee, FL	Difficulty breathing, dehydration	9240	Péds Plus Aerobic	9.4 hours	<i>Chromobacterium violaceum</i>
St. Alexius Medical Center Bismarck, ND	Unknown	9240	PLUS Aerobic/F	45 hours	<i>Moraxella nonliquefaciens</i>
Trinity Health Minot, ND	Peri-appendicitis	9240	PLUS Aerobic/F LYTIC/10 Anaerobic/F	10 hours	<i>Salmonella</i> Group G ( <i>S. diguel</i> )
Tyler Memorial Hospital Tunkhannock, PA	Acute sepsis	9120	PLUS Aerobic/F	11.1 hours	<i>Kluyvera ascorbata</i>
	Fever of unknown origin	9120	Standard Aerobic/F	9.4 hours	<i>Eubacterium lentum</i>

If you have an unusual organism isolated from any of the BACTEC instruments, see if it is listed on the BACTEC 9000 Culture Club form included in the June 2002 *LabO*. If it's not listed, complete the form and send it in to receive your free BD Travel Mug!

For more information on the BACTEC 9000 Culture Club or to obtain additional forms, call BD Technical Services at 800.638.8663, selection 2.

\*BD Diagnostic Systems does not claim recovery of the isolates listed in the table with the associated media. See package inserts for the expected organism recovery.

# ASM 2002 Posters Available

We are pleased to make available reprints of the following posters presented at the 102nd General Meeting of the American Society for Microbiology in Salt Lake City, Utah, May 19-23. Seven of these posters highlight the BD Phoenix™ Automated Microbiology System which was recently cleared by the FDA.

- C-15** Side by Side by Side Evaluation of Dade MicroScan™ WalkAway™-96 (Dade MicroScan Inc.), BD Phoenix™ and bioMerieux VITEK™ 2 (bioMerieux) for Identification Testing of a Challenge and Routine Set of Non-Fermentative and Miscellaneous Gram Negative Clinical Isolates. Turnbull et al. University of Alberta Hospitals, Edmonton, AB, Canada.
- C-20** Comparison of BBL™ CHROMagar™ Staph aureus to other Commonly Used Media for the Presumptive Identification of *Staphylococcus aureus*. Kircher et al. BD Diagnostic Systems, Sparks, MD.
- C-96** Correlation Between Phenotypic and Genotypic Traits of Glycopeptide Susceptible and Resistant *Enterococcus faecium* Strains. Butterworth et al. BD Diagnostic Systems, Sparks, MD.
- C-116** Evaluation of the Phoenix™ Automated Microbiology System for Fluoroquinolone Susceptibility Testing of Gram Negative Bacilli. Munson et al. University of Iowa, Iowa City, IA.
- C-118** Detection of Vancomycin Resistance in Enterococci with the BD Phoenix™ Automated Microbiology System. Hamel et al. Clarian Health Partners, Inc., Methodist Hospital, Indianapolis, IN.
- C-119** Detection of Glycopeptide Intermediate or Resistant *Staphylococcus aureus* Strains Using BD Phoenix™ Automated Microbiology System. Deal et al. BD Diagnostic Systems, Sparks, MD.
- C-131** A Side by Side by Side Evaluation of the BD Phoenix™, bioMerieux VITEK™ 2 (bioMerieux) and Dade MicroScan™ WalkAway™-96 (Dade MicroScan Inc.) for the Antimicrobial Testing of a Challenge Set of Clinical Strains. Brosnikoff et al. University of Alberta Hospitals, Edmonton, AB, Canada.



- C-132** Evaluation of the Phoenix™ and VITEK™ 2 (bioMerieux) Systems for the Susceptibility Testing of Staphylococci. Silver et al. Sunnybrook and Women's College Health Sciences Centre, Toronto, ON, Canada.
- C-158** Evaluation of BDProbeTec™ ET CT/GC Amplified DNA Assay Wet Swab Transport for use with Endocervical and Urethral Swabs. Lizzi et al. BD Diagnostic Systems, Sparks, MD.
- C-161** Evaluation of the BD Viper™ Sample Processor for use with the BDProbeTec™ ET CT/GC Amplified DNA Assays. Schlitzer et al. BD Diagnostic Systems, Sparks, MD.