Newsletter

Best Practices in Blood Culture Collection

February 2013
02/2013

BD BACTEC™ PLUS Resin Media

With more focus on sepsis and increasing challenges due to antimicrobial resistance, it is more important than ever for hospitals to accurately diagnose and treat septic patients. Choosing the most sensitive blood culturing system and media type helps clinicians make quick, precise diagnoses and initiate appropriate treatment options, resulting in better patient outcomes and hence reduced length of stay.

According to the "Surviving Sepsis Campaign", it is recommended to obtain appropriate cultures before starting antibiotics provided this does not significantly delay antimicrobial administration [1].

However, one of the greatest challenges in blood culture is the fact that among patients from whom blood cultures have been obtained, 28-63% are on antibiotic therapy at the time of blood draw. This can negatively affect the recovery of the etiologic agent [2].

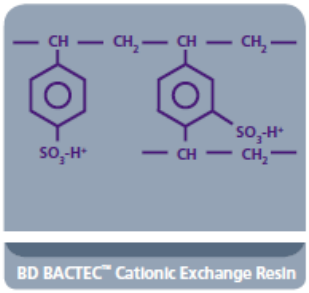
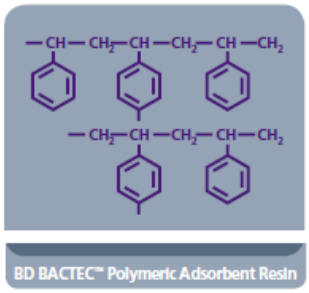
It's what's inside
that counts!

Read on to know more about the goodness of RESINS in BD BACTEC™ BLOOD CULTURE MEDIA.

The Importance of Resins in BD BACTEC™ PLUS Media

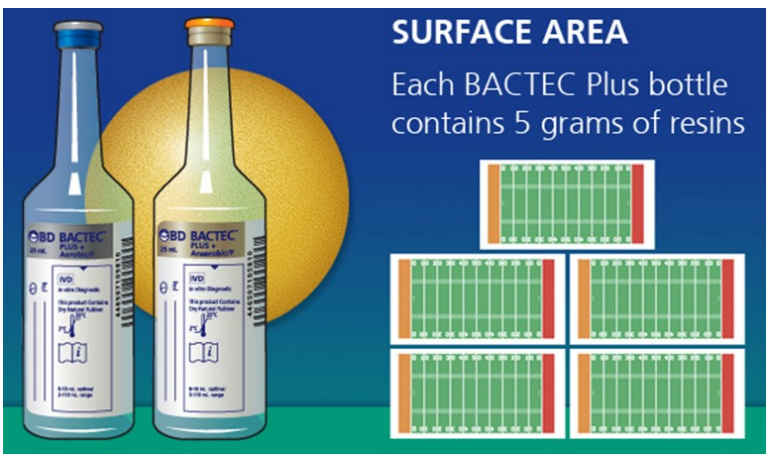
i) Experience the resin power.

- A highly porous, polyvinyl, benzene & spherical bead.
- There are 2 types of resins:

Cationic Exchange Resins	Polymeric Adsorbent Resins
Bind ionically to positively charged antimicrobials like aminoglycosides[3]: amikacin, arbekacin, gentamicin, kanamycin, neomycin, netilmicin, paromomycin, rhodostreptomycin, streptomycin, tobramycin, and apramycin. 	Bind to the hydrophobic regions of virtually any antimicrobial agents[3]. 

- The combination of these two resins is believed to perform a number of functions including:
  a) Mechanical action to break up white and red blood cells
  b) Binding of blood components which target bacterial cells
  c) Binding of toxic substances from cellular growth
  d) Binding of antibiotics and anticancer drugs present in blood

- Provide the organisms with growth-centres to enhance speed and recovery rate (up to 40% more). The useful surface of the resins in 1 BACTEC Plus bottle equals to the surface of 5 football fields.



The Importance of Resins in BD BACTEC™ PLUS Media

ii) The most effective in neutralizing the widest range of antibiotics compare to charcoal & dilution method.

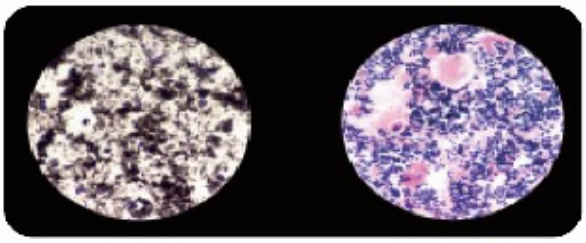
- Vigano EF *et al.* (2004) - BD Bactec resins neutralize β-lactam and Vancomycin more effectively than BacT/Alert[4].
- Flayhart D *et al.* (2005) - BD Bactec Plus system is more superior than BacT/ Alert in presence of Vancomycin[5].
- Mach *et al.* (2006) indicated that the resin in Bactec system effectively removes new Fluoroquinolones[6].
- Flayhart D *et al.* (2007) - BD Bactec resins neutralize piperacillin/ tazobactam, cefoxitin, cefepime, gentamycin, vancomycin, ampicillin, oxacillin, ceftriaxone & gentamycin/penicillin more effectively than BacT/ Alert[2].

iii) Effective recovery of a wide variety of microorganisms and shorter time to detection.

- Vigano EF *et al.* (2002) - BD Bactec system recovers nearly all microorganisms (aerobes, anaerobes, facultative anaerobes, fungi) evaluated significantly faster than the BacT/Alert system[7].
- Flayhart D *et al.* (2005) - BD Plus Resin Media is more superior to the BacT/ ALERT FAN system in recovering Gram-positive pathogens in the presence of Vancomycin[5].
- Flayhart D *et al.* (2007) - BD Plus Resin Media improved recovery in presence of Vancomycin and β-lactam drugs at therapeutic serum level concentrations, compared to BacT/Alert FAN media[2].

iv) No interference with gram stains

- Improves workflow and reporting time [8,9].



Charcoal based **BACTEC Plus**

Don't compromise on quality

Go for PLUS
Go for Resins!

Product Spotlight:

BD BACTEC™ PLUS PRIME Media

NEW

BD BACTEC™ PLUS PRIME Media

It's Red because of the Third Resin

This next generation of blood culture medium contains **three resins instead of two.** The third, new resin has a unique dark red hue that can easily be seen throughout the BD BACTEC blood culture bottles.

BD BACTEC Plus PRIME media offer a **TRIPLEX** cationic adsorption and hydrophobic attraction resins.

- Brown Resin: binds positively charged antimicrobics
- White Resin: binds hydrophobic antimicrobics
- Red Resin: binds hydrophobic antimicrobics (Brand New Technology)

References:

1. Dellinger *et al.* Crit. Care Med. 2008;36:296-327.
2. Flayhart D *et al.* J. Clin. Microbiol. 2007:816-821.
3. Spaargaren J *et al.* J. Clin. Microbiol. 1998;36:3731-3733.
4. Vigano EF *et al.* The New Microbiologica 2004;27:235-248.
5. Flayhart D *et al.* As presented at the 105th General Meeting of the American Society for Microbiology, 2005.
6. Mach CR *et al.* Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC), 2006.
7. Vigano EF *et al.* Diagn. Microbiol. Infect. Dis. 44, 2002.
8. Adler *et al.* J. Clin. Microbiol. 2003;41:5238–5239.
9. Pfeltz *et al.* Abstract C-026, Poster Board #0247, American Society for Microbiology Meeting 2008.

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