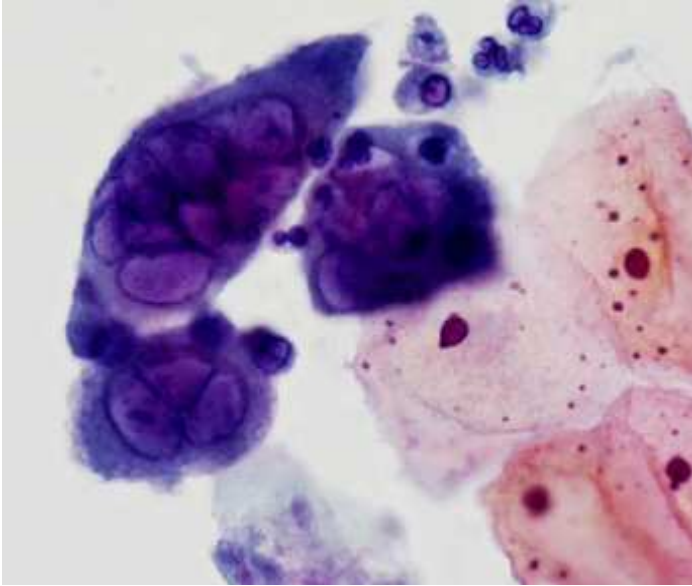


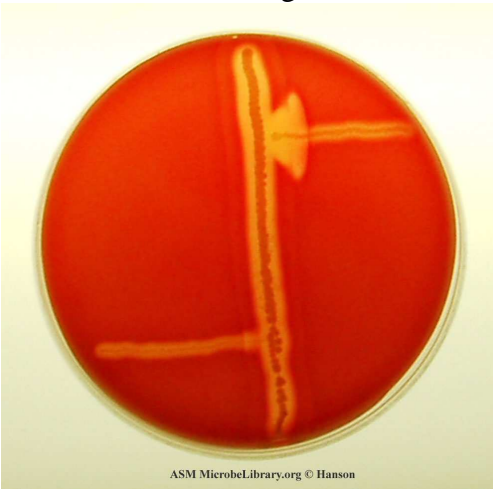
## Microbiology Quiz - Primary Resident Rotation

1. The cellular changes seen below were most likely caused by:



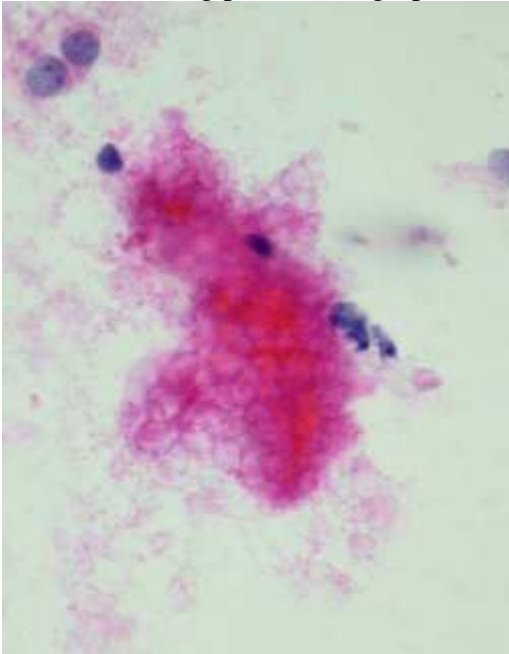
- A. An environmental toxin
- B. A random chromosomal duplication
- C. Radiation effect
- D. Infection with a DNA virus
- E. Drying artifact

2. All of the following are true about the laboratory test pictured below **EXCEPT**:



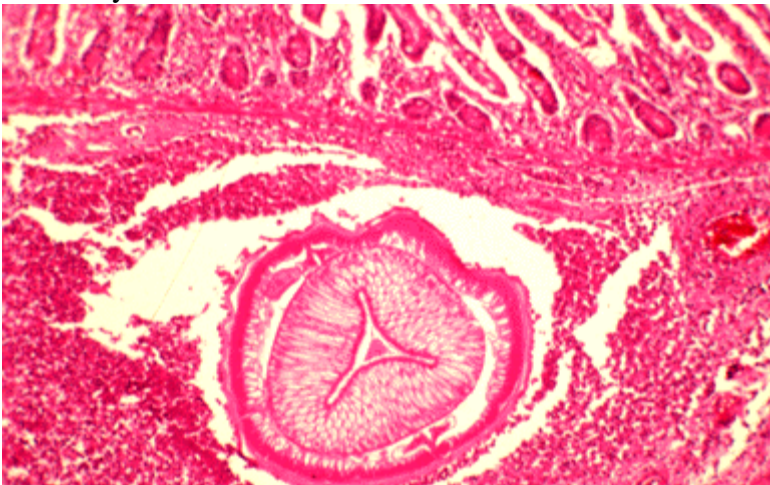
- A. The vertical streak down the center is *S. aureus*
- B. It can be used to identify *Listeria monocytogenes*
- C. The type of hemolysis pictured is beta hemolysis
- D. It is most commonly used to identify Group B streptococci
- E. It tests for the presence of cyclic AMP

3. The following photomicrograph from a bronchoalveolar lavage specimen shows:



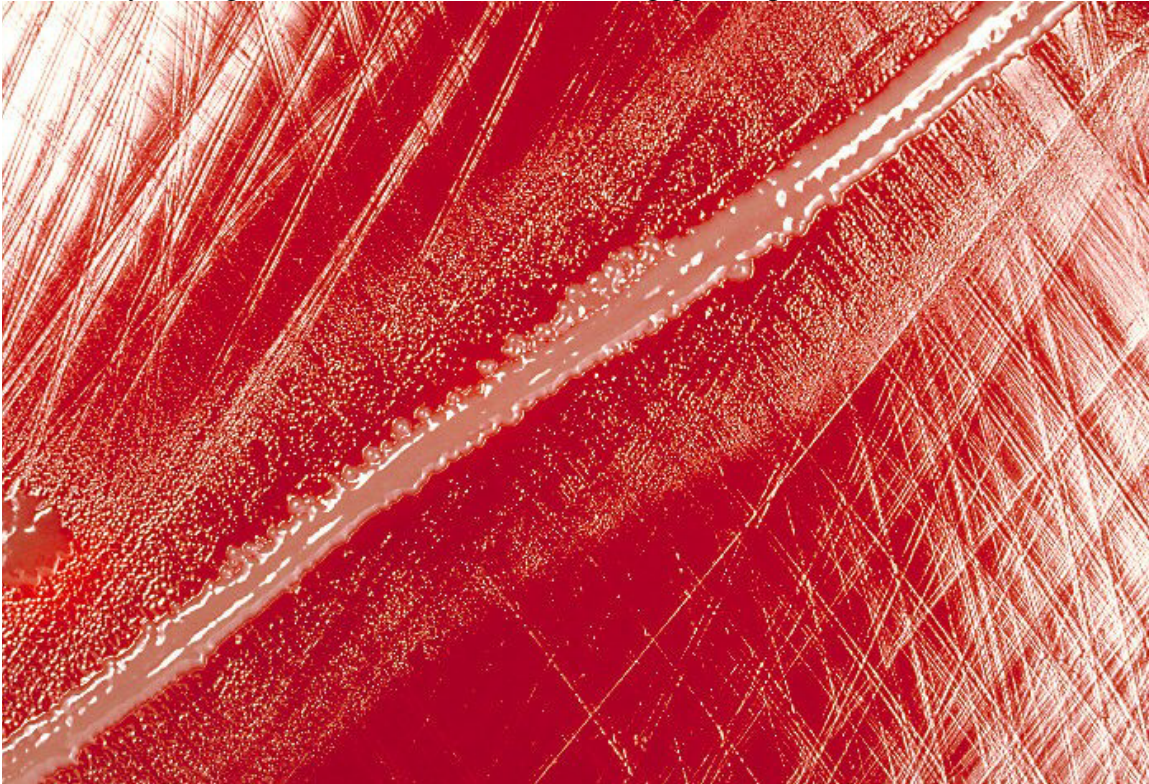
- A. Stain precipitate
- B. Mucus
- C. *Pneumocystis* organisms
- D. Charcot-Leyden crystals
- E. Lipoid pneumonia

4. A patient had the organism seen below in a stomach biopsy. Which of the following is most likely **TRUE**?



- A. She recently consumed undercooked pork
- B. She took a trip to Mexico two years ago
- C. She is an avid hiker and camper
- D. She likes to eat sushi and sashimi
- E. She likes to go barefoot

5. Identify the organism that exhibits the following growth pattern:



- A. *Micrococcus luteus*
- B. *Staphylococcus lugdunensis*
- C. *Abiotrophia defectiva*
- D. *Haemophilus aphrophilus*
- E. *Eikenella corrodens*

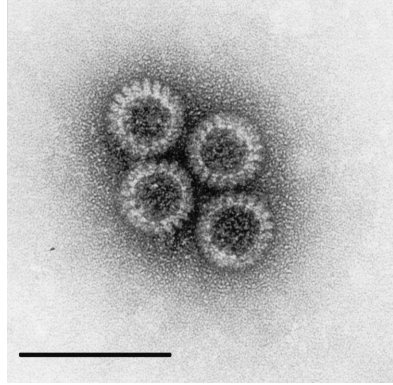
6. What is the most common type of nosocomial infection?

- A. Pneumonia
- B. Post-operative wound infection
- C. Colitis
- D. Urinary tract infection
- E. Catheter-related sepsis

7. The organism most frequently associated with the development of Guillain-Barré Syndrome is:

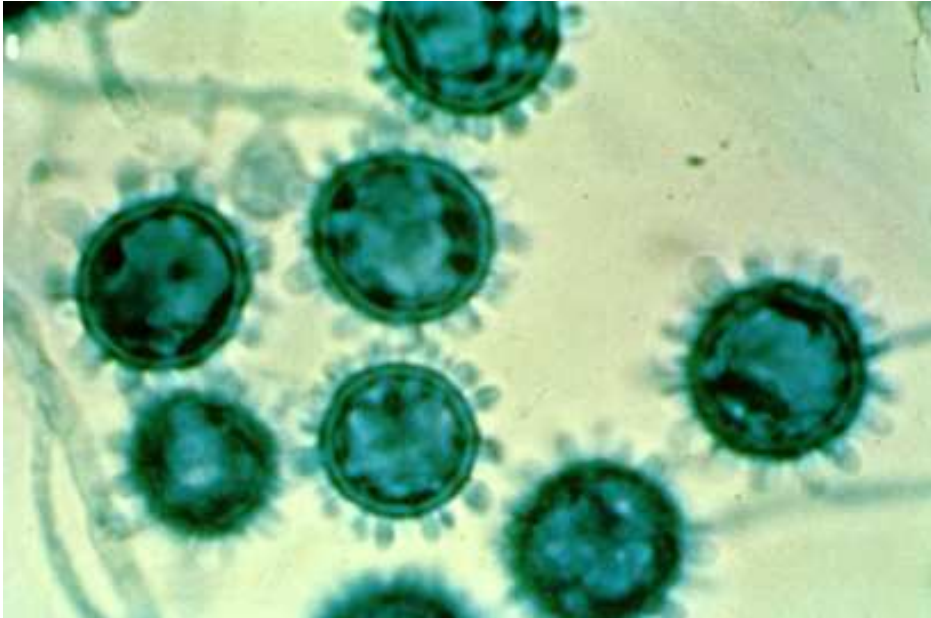
- A. *Campylobacter jejuni*
- B. *Yersinia enterocolitica*
- C. *Shigella sonnei*
- D. *Escherichia coli*
- E. *Salmonella enteritidis*

8. The following organism was cultured from the stool of an infant with watery diarrhea. What is it?



- A. Norovirus
- B. Adenovirus
- C. Enterovirus
- D. Coxsackie A virus
- E. Rotavirus

9. Identify the organism.

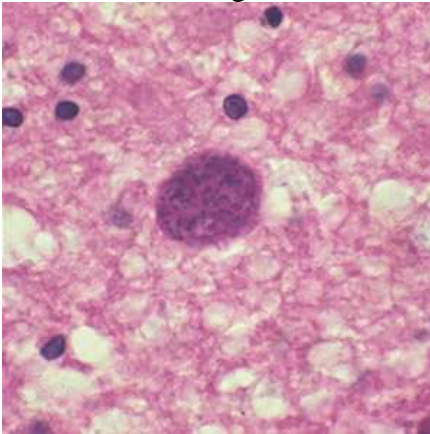


- A. *Blastomyces dermatitis*
- B. *Paracoccidioides brasiliensis*
- C. *Coccidioides immitis*
- D. *Sporothrix schenckii*
- E. *Histoplasma capsulatum*

10. Influenza B belongs to the family

- A. Picornaviridae
- B. Calciviridae
- C. Flaviviridae
- D. Reoviridae
- E. Orthomyxoviridae

11. The following was recovered from a necrotic brain lesion in a 46-year-old male.  
What is the organism?



- A. *Naegleria fowleri*
  - B. *Trypanosoma gambiense*
  - C. *Leishmania donovani*
  - D. *Toxoplasma gondii*
  - E. *Entamoeba histolytica*
12. At what temperature will a dimorphic fungus be in the mold form?
- A. 42 °C
  - B. 37 °C
  - C. 30 °C
  - D. 25 °C
  - E. 22 °C
13. Which mycobacterium causes pulmonary disease similar to *M. tuberculosis*?
- A. *M. avium-intracellulare*
  - B. *M. scrofulaceum*
  - C. *M. fortuitum*
  - D. *M. kansasii*
  - E. *M. simiae*
14. Duffy blood group (a)-(b)- individuals are resistant to infection by which organism?
- A. *Plasmodium falciparum*
  - B. *Plasmodium malariae*
  - C. *Plasmodium ovale*
  - D. *Plasmodium vivax*
  - E. *Babesia microti*
15. Choose the appropriate organism-media pair:
- A. Mueller-Hinton agar – *C. diphtheriae*
  - B. Lowenstein-Jensen agar – *Pseudallescheria boydii*
  - C. Tellurite agar – *Brucella*
  - D. BCYE – *Legionella*

E. CIN agar – *M. chelonae*

16. Identify the organism.



- A. *Epidermophyton floccosum*
- B. *Fusarium spp.*
- C. *Curvularia lunata*
- D. *Alternaria alternata*
- E. *Cladosporium herbarum*

17. This indole negative, Gram-negative rod has the following appearance on blood agar. What is it most likely?



- A. *Proteus mirabilis*
- B. *Proteus vulgaris*
- C. *Pseudomonas aeruginosa*
- D. *Listeria monocytogenes*
- E. *Vibrio parahaemolyticus*

18. The Bacille Calmette-Guérin (BCG) vaccine is prepared from an attenuated strain of:

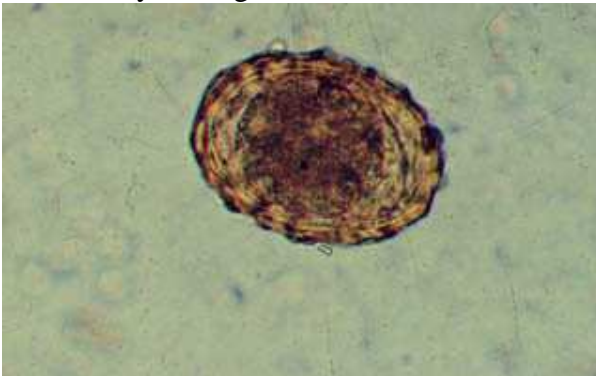
- A. *M. tuberculosis*
- B. *M. szulgai*
- C. *M. gordonae*
- D. *M. asiatica*
- E. *M. bovis*

19. Identify the organism.



- A. *M. avium-intracellulare*
- B. *Nocardia asteroides*
- C. *M. tuberculosis*
- D. *Actinomyces israelii*
- E. *M. abscessus*

20. Identify the organism.



- A. *Trichuris trichiura*
- B. *Ascaris lumbricoides*
- C. *Taenia solium*
- D. *Fasciola hepatica*
- E. *Clonorchis sinensis*

21. This is the gametocyte of:



- A. *P. ovale*
- B. *P. falciparum*
- C. *P. vivax*
- D. *P. malariae*
- E. *Ehrlichia chaffeensis*

22. What is the mechanism by which the following organism causes disease?

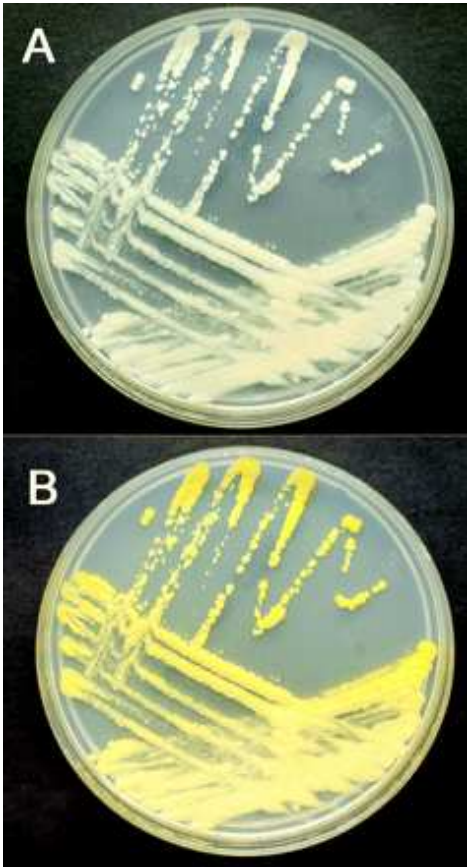


- A. Direct mucosal invasion
- B. Inflammation
- C. Preformed toxin
- D. Elaborated toxin
- E. Malabsorption

23. Which of the following is the most common dermatophyte in the United States?

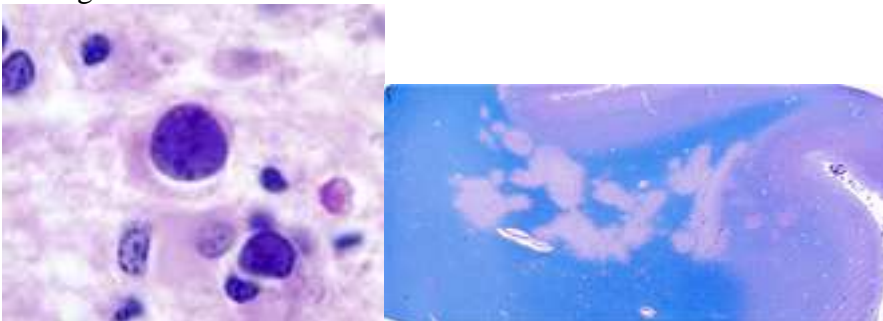
- A. *Epidermophyton floccosum*
- B. *Malassezia furfur*
- C. *Microsporum canis*
- D. *Trichophyton rubrum*
- E. *Trichophyton tonsurans*

24. The same organism was grown on the plates below, except plate B was exposed to light and plate A was grown in the dark. Which of the following is the most likely organism?



- A. *M. avium-intracellulare* complex
- B. *M. simiae*
- C. *M. tuberculosis*
- D. *M. xenopi*
- E. *M. fortuitum*

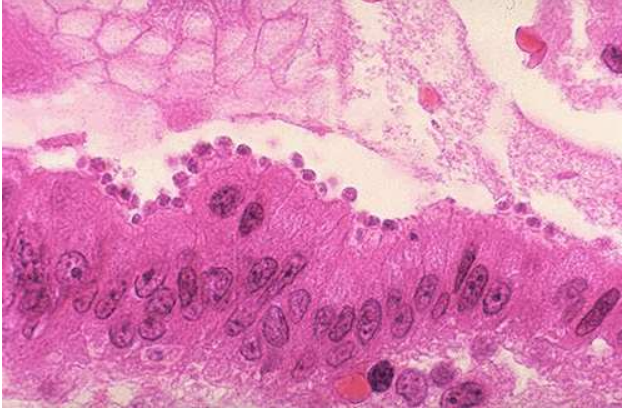
24. A 52-year-old HIV+ man had increasing neurological deficits prior to death. Images from the autopsy are shown. Choose the most likely responsible organism.



- A. BK virus
- B. JC virus
- C. *Toxoplasma gondii*
- D. HIV

*E. Cryptococcus neoformans*

25. A bone marrow transplant patient with intractable diarrhea underwent a endoscopic biopsy looking for graft versus host disease. Interpret the biopsy findings.



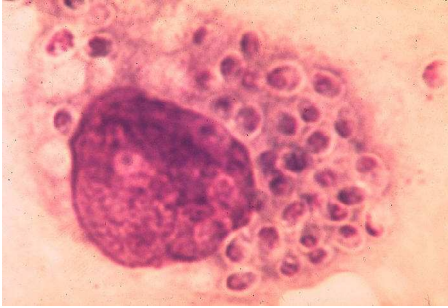
- A. Intestinal spirochetosis
- B. *Giardia lamblia*
- C. *Cryptosporidium parvum*
- D. Microsporidiosis
- E. *Isospora belli*

26. The following organisms were recovered from a crepitant deep soft tissue infection. What is the most likely identification?



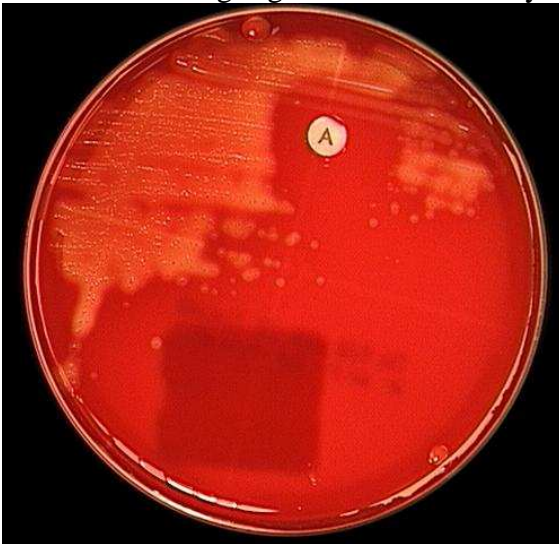
- A. *Bacillus anthracis*
- B. *Clostridium perfringens*
- C. *Corynebacterium jeikeium*
- D. *Clostridium botulinum*
- E. *Actinomyces israelii*

27. This photo is from a Wright's stained bone marrow smear. The organisms pictured are:



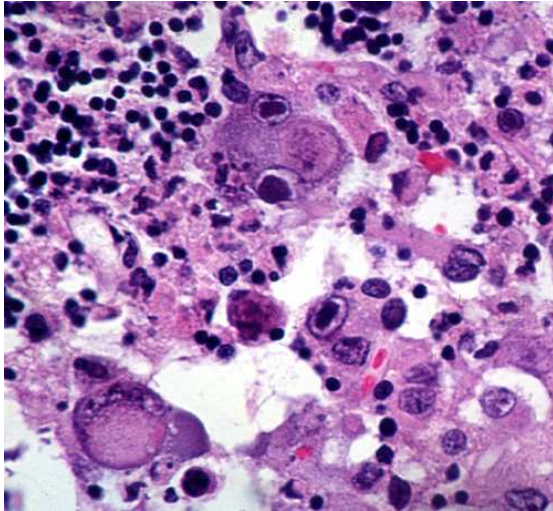
- A. *Leishmania* spp.
- B. *Toxoplasma* tachyzoites
- C. *Cryptococcus neoformans*
- D. *Blastomyces dermatitidis*
- E. Yeasts of *Histoplasma capsulatum*

28. The following organism is most likely:



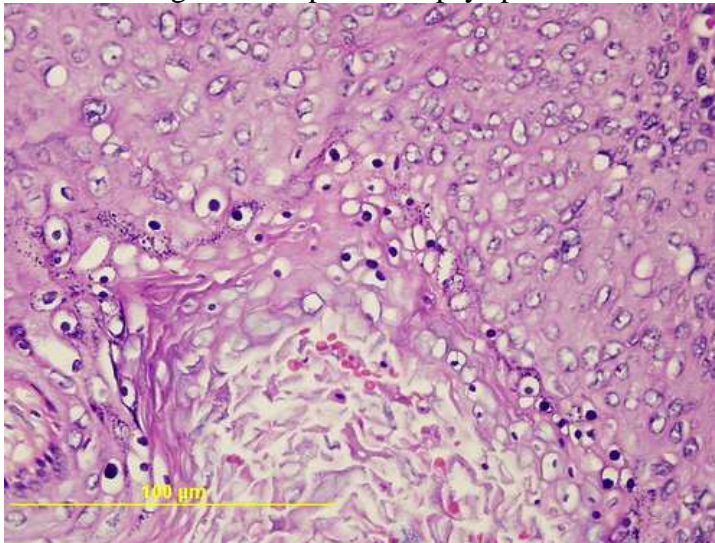
- A. *Streptococcus pyogenes*
- B. *Streptococcus agalactiae*
- C. *Streptococcus pneumoniae*
- D. *Staphylococcus epidermidis*
- E. *Staphylococcus saprophyticus*

29. Identify the virus by the cytopathic changes seen in this brain biopsy specimen:



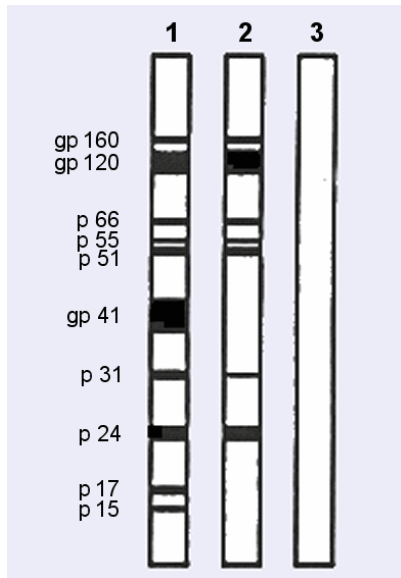
- A. Herpes simplex virus
- B. Adenovirus
- C. Cytomegalovirus
- D. JC virus
- E. Measles virus

30. The changes in this penile biopsy specimen are most likely caused by:



- A. An inflammatory dermatosis
- B. A treponemal infection
- C. A herpes virus
- D. A papillomavirus
- E. Trauma

31. Below are illustrations of three HIV Western blots. The sample in lane #2 should be interpreted as:

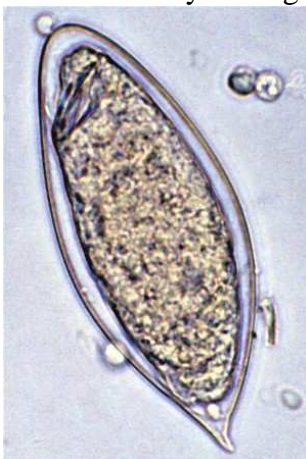


- A. Positive
- B. Negative
- C. False positive
- D. Indeterminate, repeat Western blot
- E. Indeterminate, perform PCR

32. A CAMP test-positive, catalase-negative, Gram-positive coccus is most likely:

- A. *Listeria monocytogenes*
- B. *Staphylococcus saprophyticus*
- C. *Streptococcus bovis*
- D. *Streptococcus pyogenes*
- E. *Streptococcus agalactiae*

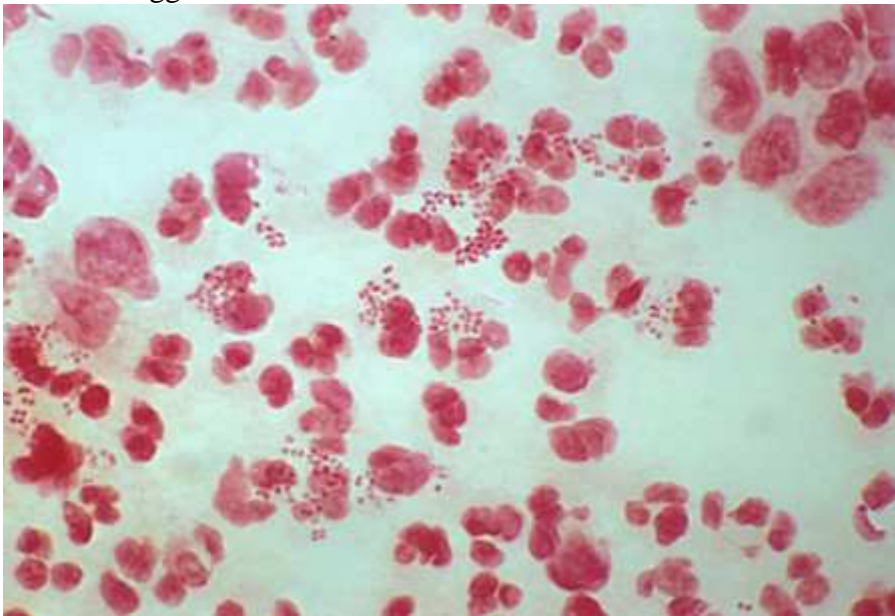
33. Identify the organism.



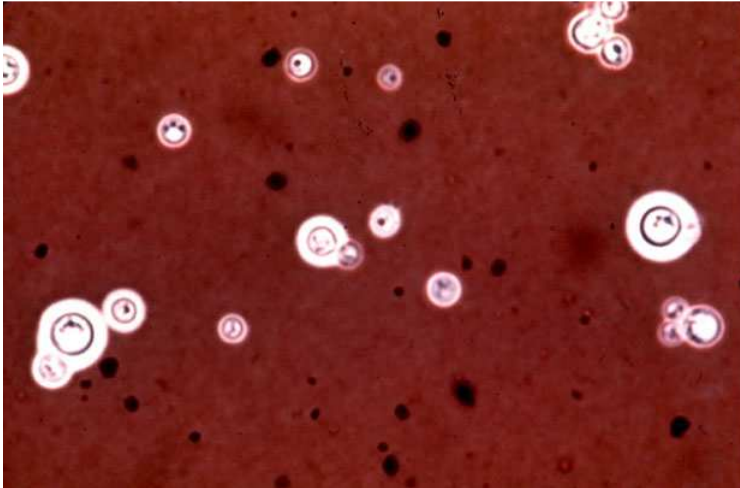
- A. *Schistosoma mansoni*
- B. *Schistosoma japonicum*
- C. *Schistosoma hematobium*
- D. *Hymenolepis nana*

*E. Ancylostoma duodenale*

34. All of the following are features of enterococci EXCEPT:
- A. They are Gram-positive cocci
  - B. They are usually beta-hemolytic on blood agar
  - C. They can grow in the presence of bile and hydrolyze esculin
  - D. They are facultative anaerobes
  - E. They are PYR positive
35. Which of the following is most likely to be a laboratory water contaminant?
- A. *M. genavense*
  - B. *M. ulcerans*
  - C. *M. asiatica*
  - D. *M. haemophilum*
  - E. *M. gordonae*
36. The following Gram stain from a sexually active male with urethral discharge is most suggestive of an infection with:



- A. *Chlamydia trachomatis*
  - B. *Neisseria gonorrhoeae*
  - C. *Haemophilus ducreyi*
  - D. *Treponema pallidum*
  - E. *Ureaplasma urealyticum*
37. Identify the organism.



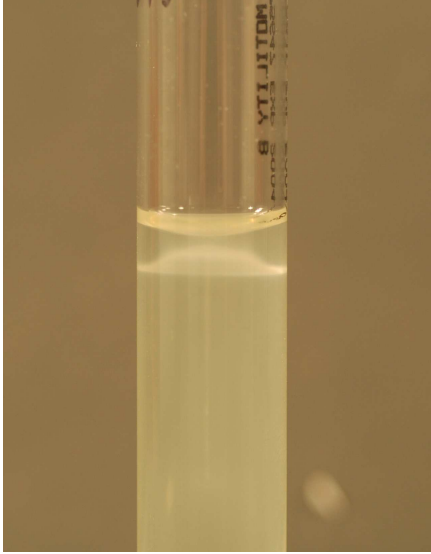
- A. *Pneumocystis jirovecii*
- B. *Cryptosporidium parvum*
- C. *Toxoplasma gondii* oocysts
- D. *Cryptococcus neoformans*
- E. *Streptococcus pneumoniae*

38. This indole-positive organism is most likely:

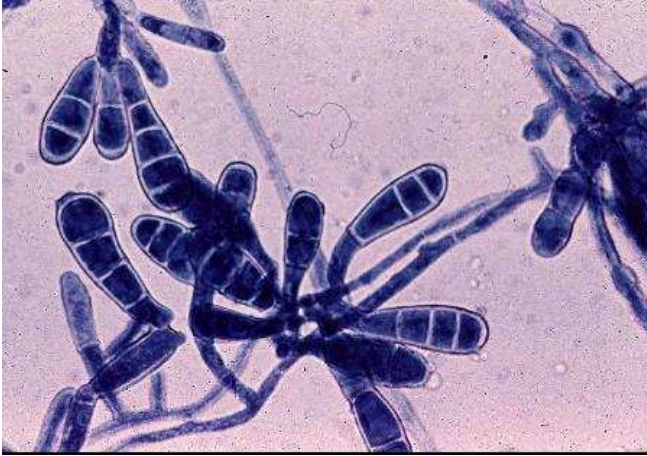


- A. *Escherichia coli*
- B. *Enterobacter aerogenes*
- C. *Klebsiella pneumoniae*
- D. *Proteus vulgaris*
- E. *Salmonella typhimurium*

39. Identify the organism in the motility agar below.



- A. *Salmonella typhi*
  - B. *Leptospira interrogans*
  - C. *Pseudomonas aeruginosa*
  - D. *Listeria monocytogenes*
  - E. *Proteus vulgaris*
40. Which of the following could be seen in an iodine prep of a human stool sample?
- A. *Taenia saginata* eggs
  - B. *Echinococcus granulosus* eggs
  - C. *Strongyloides stercoralis* larva
  - D. *Trichinella trichiura* eggs
  - E. *Wuchereria bancrofti* microfilariae
41. An avid aquarium enthusiast presents with multiple skin lesions on bilateral arms. Which of the following organisms is the most likely culprit?
- A. *M. scrofulaceum*
  - B. *M. abscessus*
  - C. *M. marinum*
  - D. *M. leprae*
  - E. *M. ulcerans*
42. The organism pictured below was most likely isolated from:



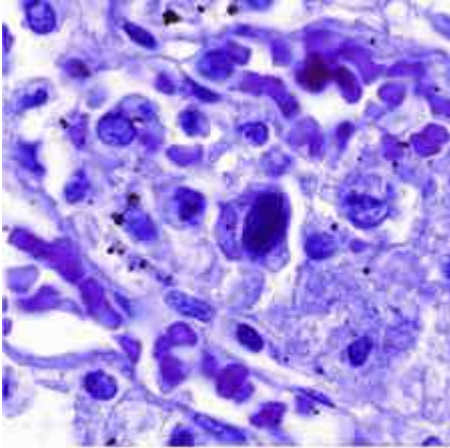
- A. Sputum
- B. Blood
- C. Skin
- D. Urine
- E. Cerebrospinal fluid

43. A patient taking broad-spectrum antibiotics for bronchitis developed intractable diarrhea and sepsis necessitating a total colectomy. A stool enzyme immunoassay for *Clostridium difficile* toxin A was negative. The surgical specimen is shown below. What is the most likely causative organism?



- A. *Yersinia enterocolitica*
- B. *Clostridium difficile*
- C. *Salmonella enteritidis*
- D. *Escherichia coli* O157:H7
- E. *Shigella sonnei*

44. The following image is from the bowel of an infant with intussusception that required operative reduction and appendectomy. What organism is implicated?



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- A. Parvovirus
- B. Coxsackie virus
- C. *Yersinia enterocolitica*
- D. Adenovirus
- E. *Campylobacter jejuni*

45. Which of the following enteric organisms is most likely to cause bacteremia?

- A. *Escherichia coli*
- B. *Bacteroides fragilis*
- C. *Enterococcus faecium*
- D. *Clostridium colicanis*
- E. *Salmonella typhi*

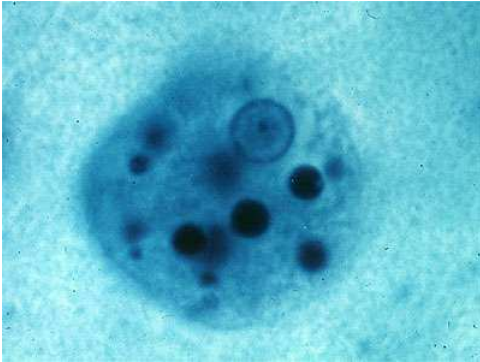
46. Which sugars are being fermented in the TSI slant in the center of the photograph?



- A. No sugars are being fermented
- B. Glucose, lactose and sucrose are being fermented
- C. Glucose only is being fermented
- D. Glucose and lactose are being fermented

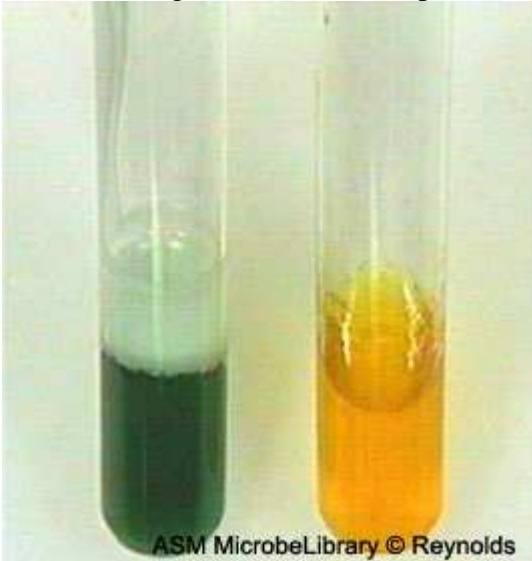
E. Lactose and sucrose are being fermented

47. Identify the organism.



- A. *Entamoeba coli*
- B. *Entamoeba histolytica*
- C. *Balantidium coli*
- D. *Acanthamoeba castellanii*
- E. *Naegleria fowleri*

48. Which organism could have produced the following results in these OF tubes?



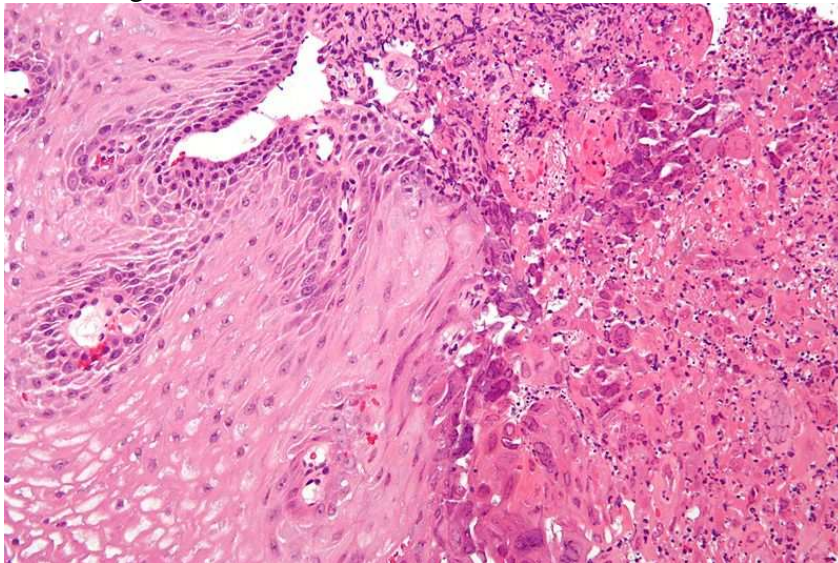
- A. *Pseudomonas aeruginosa*
- B. *Klebsiella oxytoca*
- C. *Alcaligenes faecalis*
- D. *Campylobacter fetus*
- E. *Escherichia coli*

49. The organism that caused these skin lesions in an oyster farmer forms green colonies on TCBS agar. Which bacterium is it?



- A. *M. marinum*
- B. *V. vulnificus*
- C. *V. parahaemolyticus*
- D. *V. alginolyticus*
- E. *S. aureus*

50. An elderly gentleman being treated for chronic rheumatoid arthritis developed dysphagia. His esophageal biopsy is pictured below. How do you explain the findings?



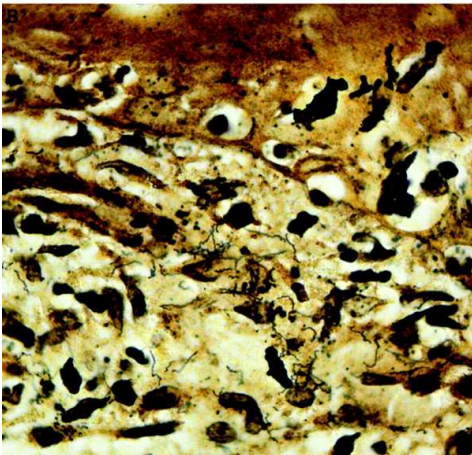
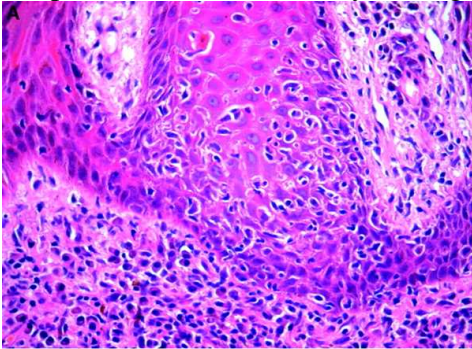
- A. *Candida* infection
- B. Reflux disease
- C. Connective tissue disorder
- D. Cigarette smoking
- E. Herpes virus infection

**Bonus questions:**

51. In which species of mycobacteria is the iron uptake test positive?

- A. *M. fortuitum*
- B. *M. abscessus*
- C. *M. chelonae*
- D. *M. avium* complex
- E. *M. szulgai*

52. An HIV+ patient developed a rash on the palms and soles. Skin biopsy is pictured below. Identify the organism.



- A. *Leptospira interrogans*
- B. *Borrelia recurrentis*
- C. *Borrelia burgdorferi*
- D. *Treponema pallidum*
- E. *Bartonella henselae*

53. A 16-year-old girl with hereditary spherocytosis developed aplastic anemia. Which of the following is the most likely etiologic agent?

- A. Coxsackie A virus
- B. Parvovirus B19
- C. Adenovirus
- D. Cytomegalovirus
- E. BK virus

54. Identify the organism.



- A. *Aspergillus niger*
- B. *Aspergillus fumigatus*
- C. *Aspergillus flavus*
- D. *Penicillium marneffei*
- E. *Pseudallescheria boydii*

55. Choose the serologic profile of the individual that has been vaccinated for Hepatitis B.

	HBsAg	Anti-HBs	HBeAg	Anti-HBe	Anti-HBc
<b>A</b>	+	+	+	-	-
<b>B</b>	+	-	+	-	-
<b>C</b>	-	+	-	+	+
<b>D</b>	+	+	+	+	-
<b>E</b>	-	+	-	-	-