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| **Modified Fite Stain** |
| **Purpose** | To detect the presence of *Mycobacterium leprae,* other atypical mycobacterial species, and Nocardia organisms. |
| **Policy Statements** | This procedure applies to Histology Technical staff performing special stains. |
| **Principle** | Carbol-fuchsin acid fast is used to demonstrate *Mycobacterium tuberculosis* in tissue sections, touch preparations and smears. Acid-fast bacteria belong to the genus Mycobacterium, of which several species are pathogenic for man including *Mycobacterium tuberculosis* (causative agent for tuberculosis). *Mycobacterium leprae* (causative agent for leprosy) and various other species that cause atypical mycobacteriosis, certain other species with acid-fast characteristics (Nocardia), should be stained with Fite's modification for acid-fast organisms. |
| **Materials** | **Supplies** | **Reagents** |
|  | • Coplin jars with lids • PPE• Graduated cylinder | Xylene/Peanut oil 2:1Carbol FuchsinAcid Alcohol 1%Light Green SF Yellowish Stain.0.1% |
| **Sample** | FFPE tissueSmears: air dry and fix in formalin fumes……………….10 minutesCryostat sections: fix in 95% alcohol................………….20 secondsTouch preps: air dry and fix in formalin fumes………….10 minutes |
| **Quality Control** | Tissue section with known *Mycobacterium* organisms |
| **Stock Solutions** | **Carbol-Fuchsin (Ziehl Neelsen)** **Xylene/Peanut Oil Storage: All stored at room temp** **Light Green SF Yellowish Stain ,0.1%**  |
| **Working Solutions** | **Working Acid Alcohol, 1%** make fresh each use: Solution C**:** Acid Alcohol,1%..........................20mL Distilled Water.................................................20mL |
| **Procedure** | **Step** | **Action** |
|  | 1 | Place slides in two changes of **Solution A:** Xylene/Peanut Oil..............................**10** minutes each |
|  | 2 | Drain/Blot slides with paper towel |
|  | 3 | Stain in filtered Carbol-Fuschin……...**15** minutes, covered. (May be left in for up to 1 hour) |
|  | 4 | Rinse in Distilled water |
|  | 5 | Differentiate in working **Solution C:** Acid Alcohol until color no longer runs off the slide and sections are pale pink..............................**10-20** dips |
|  | 6 | Rinse in Distilled water |
|  | 7 | Counterstain in **Solution D:** Light Green SF Yellowish Stain,0.1%..........**5-10** dips  |
|  | 8 | Rinse one quick dip in Distilled water and air dry |
|  | 9 | Coverslip with synthetic mounting media |
| **Interpretation/****Results/Alert Values** | *Mycobacterium*……… redNocardia……………... redBackground…………..green  |
| **Result Reporting** | **By Pathologist** |
| **References** | Freida Carson:*Histotechnology A Self-Instructional Text*, *1990 ASCP Press.*Sheehan & Hrapchak:*Theory and Practice of Histotechnology,* 2nd edition 1980 Battelle Press |

**Historical Record**

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| Version | Revised by | Effective Date | Summary of Revisions |
| 1 |  |  | Initial version. |
| 2 | A. Dubbelde | 6/27/19 | Update format, add version, and update to match current staining procedure used. |
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