TK CULTURE SYSTEM®: KEY FEATURES

*** What is the TK CULTURE SYSTEM®?**

It is a rapid culture system used in the diagnosis of tuberculosis. It detects the growth of mycobacteria early in the culture. The culture medium line is called ***TK MEDIA®*** and the automated incubator-reader, ***MYCOLOR TK®***.

*** What is the principle of early growth detection in TK CULTURE SYSTEM®?**

The original red color of ***TK MEDIA®*** is turned yellow by the dye indicators that are altered by the metabolic activity of mycobacteria. If other microorganisms like fungi or Gram-negative bacteria grow, they change the color of the medium to green.

*** How fast can TK CULTURE SYSTEM® detect the presence of mycobacterial growth compared to other culture systems?**

It usually differs between 5 and 18 days depending on the amount of mycobacteria in the inoculated sample. The average is 12 days. Classical culture media require 3 to 8 weeks and other rapid culture systems require about the same amount of time as ***TK CULTURE SYSTEM®***.

*** Does *TK MEDIA®* contain radioactivity?**

No.

*** Does *TK MEDIA®* require UV light or any other fluorometric measurement for reading?**

No.

*** Can the color change in *TK MEDIA®* be followed visually as well as by automated instrument?**

Yes.

*** Does *TK MEDIA®* require any preparation before inoculation, like adding OADC, selective antibacterial agents or antituberculosis drugs?**

No. Each type of ***TK MEDIA®*** contains everything necessary for its intended use. They are ready to use.

*** Can *TK MEDIA®* differentiate real mycobacterial growth from the growth of contaminant organisms?**

Yes. ***TK MEDIA®*** is turned from **red** to **yellow** by the mycobacterial growth and from **red** to **green** by other contaminant organisms like fungi and Gram-negative bacteria.

*** What happens to the color of *TK MEDIA®* if contaminants grow together with mycobacteria?**

The color of the medium is first turned to **green** (by the metabolic activity of rapidly growing contaminants) then to **yellow** (by the slow growing mycobacteria).

*** Is there a selective type of *TK MEDIA®* that can inhibit the growth of contaminant organisms?**

Yes. ***TK SLC®*** contains polymixin B, piperacillin, amphotericin B, nalidixic acid and trimethoprim and inhibits most of the possible contaminant bacteria and fungi.

*** Is it possible to differentiate tuberculosis and mycobacteria other than tuberculosis (MOTT) by *TK MEDIA®*?**

Yes. ***TK PNB KIT®*** contains para-nitro benzoic acid (PNB), which inhibits the growth of *Mycobacterium tuberculosis* complex. MOTT are usually resistant to PNB. BACTEC has an equivalent test called NAP test but MGIT is not able to make this differentiation.

*** Is it possible to do rapid susceptibility testing using *TK MEDIA®*?**

Yes. There is a ready to use kit called ***TK ANTI TB KIT®*** that allows susceptibility testing to four major anti-tuberculosis drugs, INH, rifampin, streptomycin and ethambutol.

*** After decontamination and concentration, can typing and susceptibility testing be done directly from primary samples or must you wait for colony growth in the primary isolation?**

Typing and susceptibility can be done directly! There is no need to wait! From decontaminated and concentrated samples, inoculate directly to ***TK PNB KIT®*** and to antituberculosis drug containing ***TK ANTI TB KIT®*** to perform direct typing and susceptibility testing. However, since a certain amount of acid fast bacilli is required for typing and susceptibility testing, direct inoculation is not advised for acid fast bacilli negative samples (this will increase the costs unnecessarily).

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* **Is there a ready to use *TK MEDIA*® Kit that allows susceptibility testing to minor (second line) anti-tuberculosis drugs?**

Yes. ***TK ANTI TB KIT MINOR***® containing ***TK MEDIA***® with rifabutin, amikacin, kanamycin, thiacetozone, cycloserine, PAS, ethionamide, ofloxacin are also available to perform rapid susceptibility testing to these second line anti-tuberculosis drugs.

* **What is the shelf life of each type of *TK MEDIA*®?**

The shelf-life of ***TK MEDIUM***® is 4 months, ***TK SLC***® and ***TK PNB KIT***® 3 months and ***TK ANTI TB KIT***® 2 months. Stability studies are currently ongoing to extend the shelf lives.

* **What type of clinical samples can be inoculated to *TK MEDIA*®?**

All types of clinical samples can be inoculated.

* **Is it possible to inoculate blood or blood containing samples to *TK MEDIA*®?**

Yes. ***TK MEDIA***® works perfectly in the presence of blood. This is an important advantage over some other rapid mycobacteria detection systems that are not reliable for the detection of mycobacterial growth in blood containing samples.

* **What is the maximum recommended incubation time with *TK MEDIA*® to report a negative result?**

TK MEDIUM® tubes should be incubated for 30 days. The average is between 10 and 18 days depending on the samples. So it is safe to report samples as negative at the end of 30 days at the latest. Laboratories can also give preliminary reports such as "continuing as negative at 30th day". This means the growth chance is very low after this date but there may infrequently be growth later and the tubes are kept longer to be able to detect these samples. More than 95% of the positive samples were reported before day 30 of incubation.

* **The *TK MEDIA*® tubes are smaller than the traditional LJ or Coletsos media tubes. Given that the Mycobacteria need good oxygenation for better culture, how is a satisfactory "ventilation "or "airiness" of the culture guaranteed with *TK MEDIA*®?**

The chemistry of the medium is adjusted so that mycobacteria do not require as much oxygen as the other classical media. The tubes need to be airtight for the color change of the media and kept tightly closed.

* **Is it possible to confirm the presence of acid-fast bacilli by microscopy as soon as the growth is indicated by color change in *TK MEDIA*®?**

Yes. A smear can be prepared from the fluid that collects at the lower end of the slant, stained by acidoresistant staining (such as Ziehl-Neelsen) and bacilli can be visualized under the microscope.

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or
visit www.salubrisinc.com
for further information

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