4 MU DISCS

PRINCIPLE / DISCUSSION:
When a substrate is bound to 4-MU, the degradation by the enzyme releases a blue fluorescent end product (4-methylumbelliferone). This blue fluorescence can be observed under a hand-held long wave length UV lamp (i.e. Wood's Lamp). The 4 MU tests have been used for many years in clinical and industrial labs as screens for various organisms. Key manufactures several 4mu bound substrates for rapid screening.

MATERIAL SAFETY DATA:

KEY 4mu discs contain the respective 4-methylumbelliferyl bound substrates in an inert base. The unused discs are non-hazardous. Uninoculated waste may be discarded in normal trash. Inoculated product should be discarded according to normal methods for biohazardous waste.

STORAGE:
Discs are light sensitive. Store in dark and tightly covered in the freezer.

MATERIALS REQUIRED:
Discs are provided 50 per container. Usage requires a pure 24-48 hour culture of the organism on a non-fluorescing media such as blood agar or TSA. A loop or stick for harvesting the organisms, a slide, distilled water, pH 7.0 to 7.2 and a Wood's lamp (K1698 or equivalent) are needed but not provided.

PROCEDURE:
1) Place a disc onto a slide and moisten slightly.

(2) Smear a paste of the test organism onto the moistened paper.

(3) Incubate in the dark for 2-5 minutes. Observe fluorescence under a long wave UV light (360nm or greater).

INTERPRETATION:
The appearance of an intense blue/white fluorescence where the organism was smeared is a positive result. Negative tests have no fluorescence or may fluoresce a different color. Look only for the blue/white fluorescence.

QUALITY CONTROL:
Each lot of discs should be checked with organisms of known reactivity. The chart shows some recommendations.

LIMITATIONS:

MacConkey, EMB, or similiar media contain substances which can flouresce and make reading the test difficult. Use only a non-fluorescing type medium.

REFERENCES:

1) Journal of Clinical Microbiology, Sept.,1986, p.368-371, "Comparison of ß-Glucuronidase-Based Substrate Systems for Identification of *Escherichia coli*.", Stephen C. Edberg, and Christine M. Kontnick.

2) Manual of Clinical Microbiology, Fifth Edition, Chapter 28, "*Staphylococcus*".

3) Bailey and Scott's Diagnostic Microbiology, Seventh Edition, Chapter 27 "Enterobacteriaceae".

4) Journal of Clinical Microbiology, June 1992, p.1402-1406, "Fluorogenic Substrates for Differentiation of Gram-Negative Non fermentative and Oxidase-Positive Fermentative Bacteria", Peter Kampfer, Isolde Kulies, and Wolfgang Dott.

5) Standard Methods for the Examination of Water and Wastewater 17th Edition, APHA . AWWA . WPCF. Denver, CO.

Cat#	Name	Substrate	QC. POS	QC NEG
K9275	MBGL	4mu ß glucosidase	*Strep anginosus ATCC 33397*	*Strep constellatus ATCC 27823*
K9280	MUG	4mu ß glucuronidase	*Escherichia coli ATCC 25922*	*Enterobacter aerogenes ATCC 13048*
K9230	MBFU	4mu ß fucosidase	*Strep intermedius ATCC 27335*	*Strep constellatus ATCC 27823*
K9270	MAGL	4mu alpha glucosidase	*Strep constellatus ATCC 27823*	*Strep anginosus ATCC 33397*

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