

ALKALINE PHOSPHATASE (Alk P)

REF No. 55921

Contain the chromogenic substrate: 4-nitrophenyl phosphatedi (2-amino-2-ethyl-1,3-propanediol) salt that in the presence of alkaline phosphatase releases free 4-nitrophenol (yellow colour).

Procedure

Prepare a dense bacterial suspension (at least McFarland No. 4) of the strain to be tested in 0.25 ml saline in a tube. Add one Alkaline Phosphatase Diagnostic Tablet and close the tube. Incubate at 35-37°C for a **maximum of 4 hours**.

Reading of the tests

Positive reaction: **Strong yellow**
Negative reaction: Colourless or slight yellow

Incubation longer than 4 hours may give a false positive reaction.

Results

1) Staphylococci

Most strains of *S. aureus* and *S. epidermidis* and *S. schleiferi* show a positive reaction, while most strains of *S. hominis*, *S. haemolyticus*, and *S. warneri* show a negative reaction.

	HCF	Alk P (4h)	PYR (1h)	ODC	URE	DEFRX	Poly
<i>S. aureus</i>	100	+	0	0	95	R (≤14 mm)	R (≤12 mm)
<i>S. epidermidis</i>	0	+	0	0 ⁺	86	S (≥16 mm)	S
<i>S. haemolyticus</i>	0	0	100	0	0	R	S (≥14mm)
<i>S. hominis</i>	0	0	0 ⁺	0	+	S	S
<i>S. lugdunensis</i>	87	0 ⁺	100	+	81	R	S
<i>S. schleiferi</i>	100	+	89	0	0	R	S
<i>S. warneri</i>	0	0	V	0	+	R	S

2) Differentiation of *Gemella* spp, *Rothia mucilaginosa* and *Dolosigranulum pigrum* (PYR +, LAP +)

	Alk P	SUC	SOR	NO ₃	6.5%NaCl	VP	BaciLow	ADH
<i>Gemella bergeriae</i>	0	0	0	0	0	0	R	0
<i>Gemella haemolysans</i>	+	V	0	0	0	V	R	0
<i>Gemella morbillorum</i>	0	+	0 ⁺	.	0	0	R	0
<i>Gemella sanguinis</i>	+	+	+	0	0	V	R	0
<i>Rothia mucilaginosa</i>	0	+	0	+	0	+	S	.
<i>Dolosigranulum pigrum</i>	0	+	0 ⁺	.	+	.	R	+ ⁰

Alk P = Alkaline Phosphatase D.T., PYR (1h) = Pyrrolidonyl Aminopeptidase D.T. (1h incubation), ODC = Ornithine Decarboxylase D.T., DEFrx = Deferoxamine D.T., URE = Urease D.T., Poly = Polymyxins 150 µg Neo-S, MAL = Maltose D.T., SUC = Sucrose D.T., SOR = Sorbitol D.T., HCF = Human clumping factor, NO₃ = Nitrate Reduction D.T., VP = Voges Proskauer D.T., BaciLow = Bacitracin Low D.T. (S ≥ 10 mm, R < 10 mm)

3) Useful also in the differentiation of non-fermenters, viridans streptococci and anaerobes.

Quality Control

DIATABS (Active ingredients)	Positive	Negative
Alkaline Phosphatase (p-Nitrophenyl-Phosphate)	<i>E. coli</i> ATCC 25922	<i>S. haemolyticus</i> ATCC 29970

References

- 1) Devriese L.A. et al: *Streptococcus hyointestinalis* sp. nov. from the gut of swine. Intl. J. Syst. Bacteriol. **38**, 440-1, 1988.
- 2) Lindsay J.A., Riley T.V.: Susceptibility to desferrioxamine: a new test for the identification of *Staphylococcus epidermidis*. J. Med. Microbiol. **35**, 45-48, 1991.
- 3) Collins M.D. et al: Description of *Gemella sanguinis* sp. nov. isolated from human clinical specimens. J. Clin. Microbiol. **36**, 3090-3, 1998.
- 4) Leung M.J.: Case of *Staph. schleiferi* endocarditis and a simple scheme to identify clumping factor positive staphylococci. J. Clin. Microbiol. **37**, 3353-6, 1999.