



How to use the API system (analytical profile index) to identify bacteria.

Part 1 Video available on YouTube at: <http://www.youtube.com/watch?v=umD3QFwNAKU>

This video provides an entire overview of how to use and inoculate the strip in the laboratory.

Part 2 Video and transcript. Video available on YouTube at:

<http://www.youtube.com/watch?v=qfs2bByiYXU>

This video by Malgorzata and narrated by Amrat provides more detail of how to use the strip. The following document is a transcript of the narration.

Part 3 Video and transcript. Video available on YouTube at:

<http://www.youtube.com/watch?v=1wuGuOIFZlo>

This video by Malgorzata and narrated by Amrat shows you how to read the strip results.

Reading an API 20E[®] strip

The strip results are read by referring to the Reading Table provided by the manufacturer.

The results in the form of positive (+) or negative (-) for each separate reaction are recorded on the result sheet provided by the manufacturer. On the result sheet there is a place for the oxidase test to be recorded.

The tests are grouped into sets of three.

Each of those tests has an assign value (1, 2 or 4). The values 1, 2, or 4 corresponds only to positive reactions, while negative reactions score 0.

All the numbers for the positive reactions are scored for each triad of tests and the seven-digit profile number should be obtain (2216042).

Interpreting the results on the API 20E strip

ONPG

Negative: colourless

Positive: yellow

ADH

Negative: yellow

Positive: red/orange

LDC

Negative: yellow

Positive: red/orange

ODC

Negative: yellow

Positive: red/orange

CIT

Negative: pale green/yellow

Positive: blue-green/ blue

H₂S

Negative: colourless/greyish

Positive: black deposition/ thin line

URE

Negative: yellow

Positive: red/orange

TDA

Negative: yellow
Positive: reddish brown

IND
Negative: colourless/pale green/yellow
Positive: pink

VP
Negative: colourless/pale pink
Positive: pink/red

GEL
Negative: no diffusion
Positive: diffusion of black pigments

CARBOHYDRATES
(GLU MAN INO SOR RHA SAC MEL AMY ARA)
Negative: blue/blue-green
Positive: yellow

The final seven-digit profile number may be used to identify the unknown microorganism.

API website

Online database

This may be performed by using the online database available on the API website.

1. On the website the electronic version of the result sheet is visible.
2. The seven- digit profile number 2216042 is typed in the appropriate circles.
3. The confirm button is pressed to search the database.
4. Possible identification results appear on the website.

The profile number 2216042 identified the unknown bacteria as *P. aeruginosa* with 98.2% discrimination.

Examples

Salmonella spp

To find out which serotype of *Salmonella spp.* is present, further identification tests are required (slide agglutination tests).

K. pneumoniae

E.coli

Refer to the Identification Table provided by the manufacturer for the range of expected results. Generally those bacterial identifications, which are described as excellent “or” very good identification via API20E, are acceptable for identification purposes in a clinical laboratory setting.

The purity plate should indicate only one bacterium. If purity plate has mixed growth, the API test may need to be repeated.