Immunofluorescence Bacterial Detection

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Note that if you want to need some back ground on fluorescence microscopy, here is learning material on the topic.

Screening for bacteria

Sexually transmitted diseases are widely prevalent in society and infections such as that caused by *Neisseria gonorrhoeae* (*N. gonorrhoeae*) can affect the reproductive organs, rectum and throat. The infection can also be asymptomatic – meaning it does not present any symptoms – so an individual may be unaware they have the infection. But problems can manifest in later life for example causing infertility, ectopic pregnancy and other complications (1).

So, accurate and rapid screening of patient samples is necessary. In the past, *N. gonorrhoeae* would have been identified using a Gram stain, but now a simple **immunofluorescence** procedure is widely used to detect *N. gonorrhoeae* as it is much more specific and sensitive. (Note that other high-throughput automated detection methods are also being developed.)

In essence in this technique:

1. A bacterial colony is grown on an agar plate, and a small sample placed on a mono-spot slide.
2. A small volume of immunofluorescence reagent is placed on the sample.
3. Essentially the reagent is a fluorescent dye (e.g. FITC fluorescein isothiocyanate) bound to an antibody.
4. The antibody binds to bacterial antigen on the *N. gonorrhoeae*, so the presence of fluorescence (a green colour) under the microscope indicates the presence of bacteria.

The simple technique takes around 20 minutes and the slide is viewed with a fluorescent microscope to complete the test..

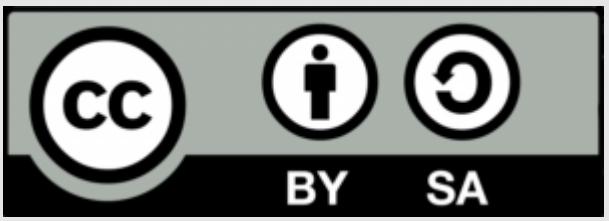
(1). Centres for Disease Control and Prevention, US (2002). Screening Tests to Detect Chlamydia trachomatis and Neisseria gonorrhoeae Infections. Morbidity and Mortality Weekly Report , October 18, 2002 / Vol. 51 / No. RR-15. Available: http://www.cdc.gov/mmwr/pdf/rr/rr5115.pdf

https://www.youtube.com/watch?v=pftlio12im0

Here is the transcript of the video, for your later use:

Download (PDF, 364KB)

And here is a link to a website which very nicely lays out the advantages and disadvantages of Immunohistochemistry



The content of this module was originally generated by Malgorzata Rekas and Marilena Ioannou.