

## Legionella Test Kits



- **Immunochromatographic Assay**
  - Detects *Legionella pneumophila* serogroup 1
  - Early/Rapid indication test
- **25 minute Reaction Time**
- **Easy and Accurate!**
- **It is now possible to:**
  - make decisions quickly and react quickly
  - Reduce risk to staff and public.
  - Maximize equipment uptime.
  - Minimize downtime
  - Reduce economic impacts.

## Legionella Test Kits



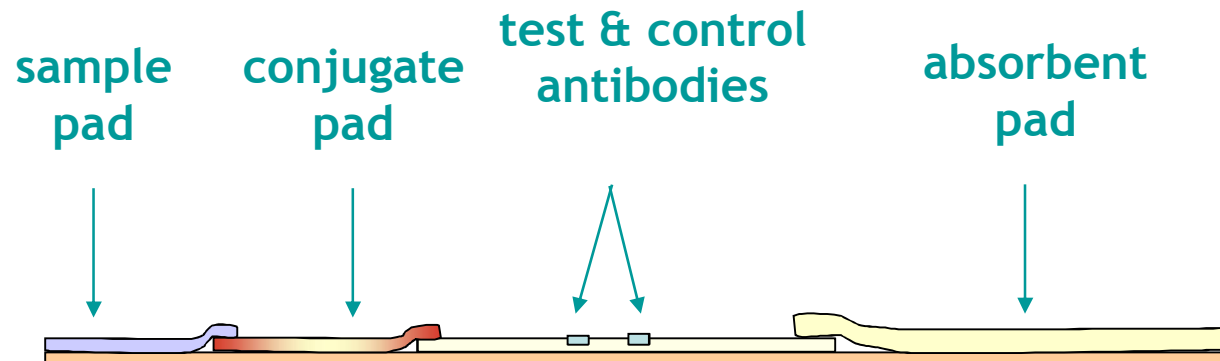
- **Applications**
  - Source Detection
  - Testing effectiveness of remedial actions
- **Does not replace a lab culture test**



## Different from Culture Tests

- Detects *Legionella pneumophila* serogroup 1
  - Lp sg1 is the causative agent in the vast majority of Legionnaires' disease cases; other sg's rarely cause infection outside hospitals – and almost never cause outbreaks. **Positive Lp sg1 results are a significant risk that demands a quick response.**
- Can detect both dead and living cells
  - Traditional methods only detect cells which are still alive at the sample point and survive transportation. Even then, not all viable cells will grow under artificial laboratory conditions (Viable but non culturable cells). **Positive results indicate that is growing somewhere in the system.**
- Field test not a laboratory test.
  - The flexibility of being able to perform the test virtually anywhere avoids transportation costs. Whilst laboratory test enable 3<sup>rd</sup> party accreditation – **the field test enables you to take action now.**
- Culture provides a 'quantitative' result
  - Since there is no agreed “safe” level of *Legionella*, all 'positives' generally result in the same action. **Any positive needs corrective action.**

# Legionella Test Kits: How it Works

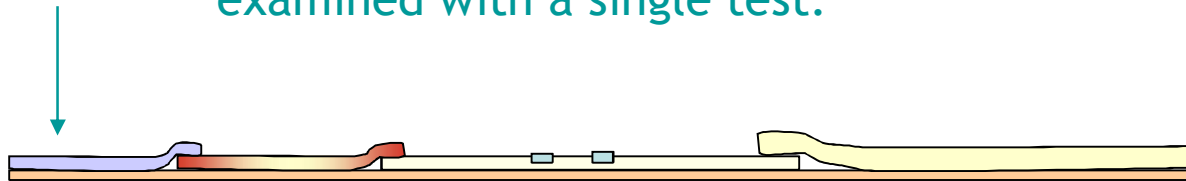


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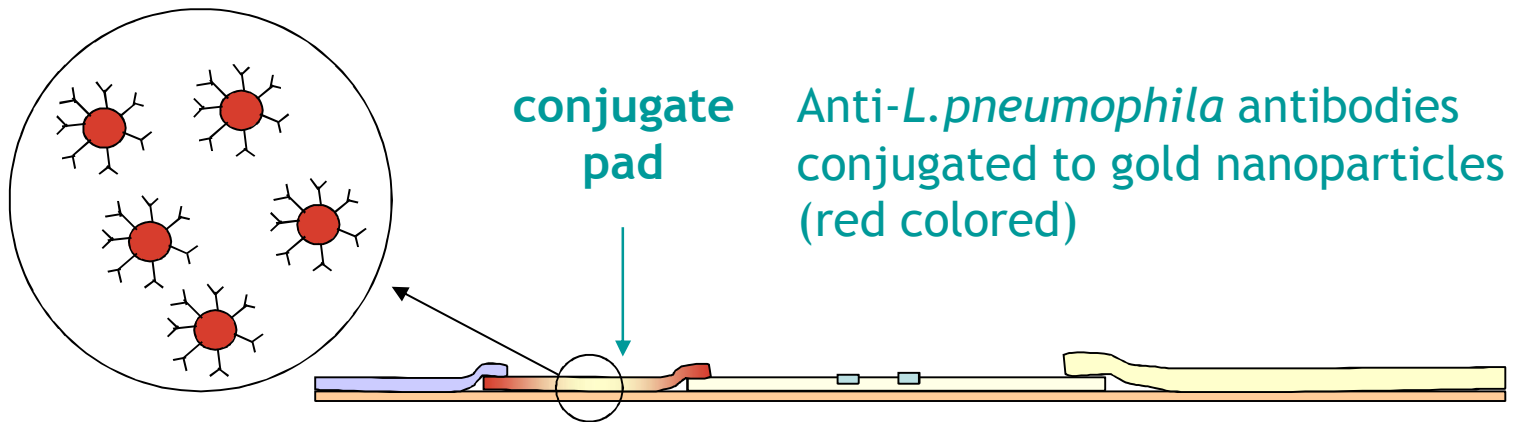


sample  
pad

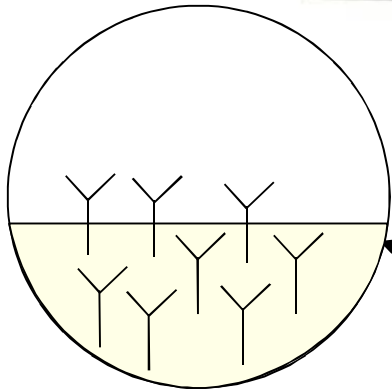
Containing dried 'buffers' and 'conditioning agents' to enable a wide range of samples to be examined with a single test.



## Legionella Test Kits: How it Works

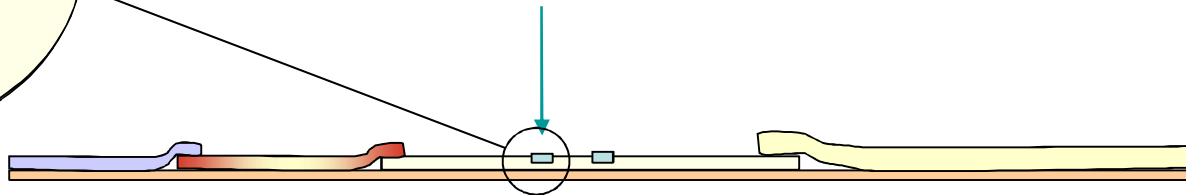


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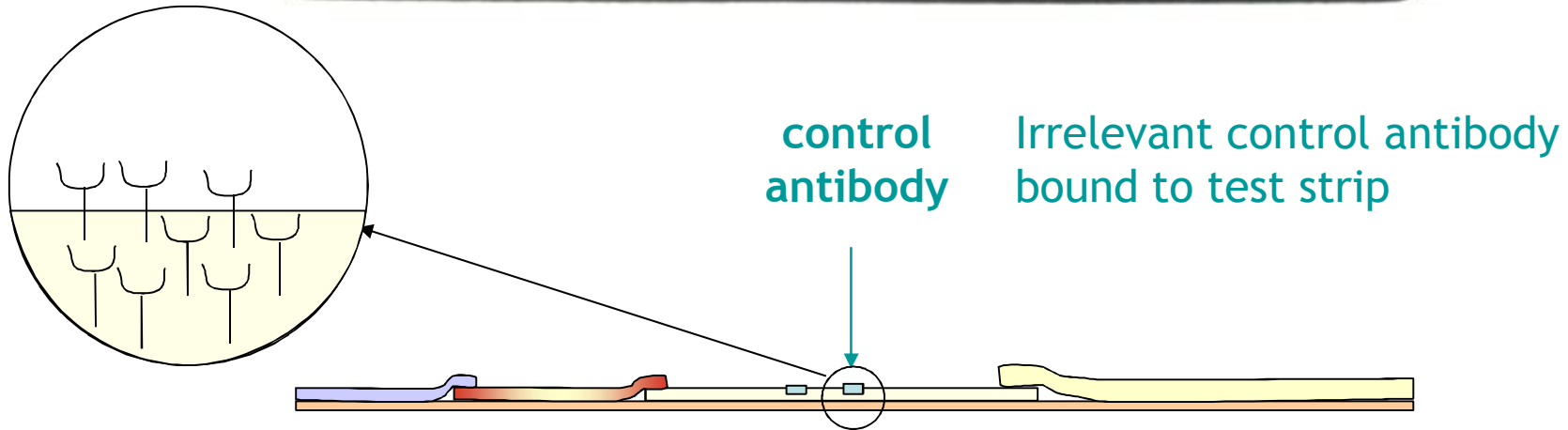


test antibody

Anti-*L. pneumophila* sg1 antibody bound to test strip



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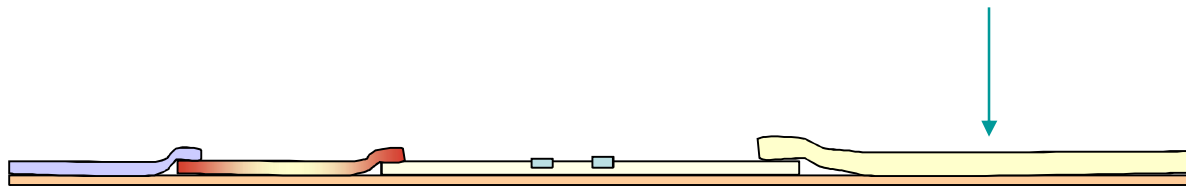


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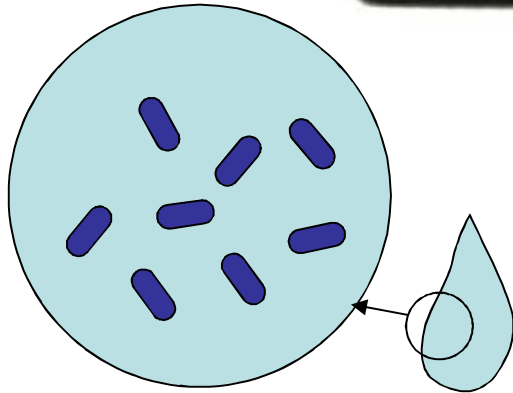


Flow by capillary action driven by:

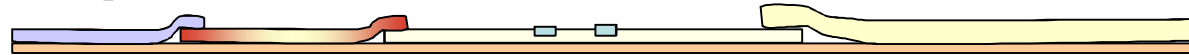
absorbent  
pad



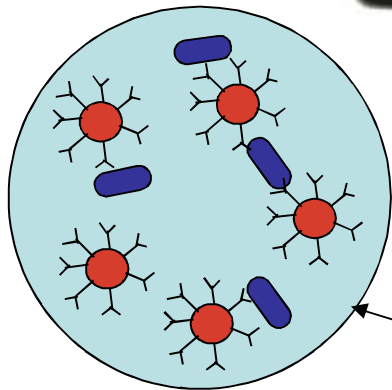
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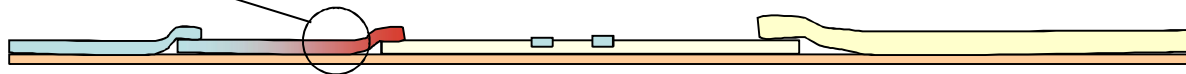
100  $\mu$ L sample added using 'exact' volume pipette provided



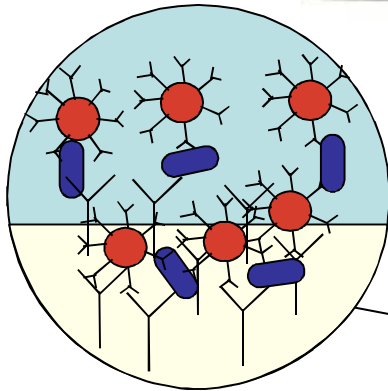
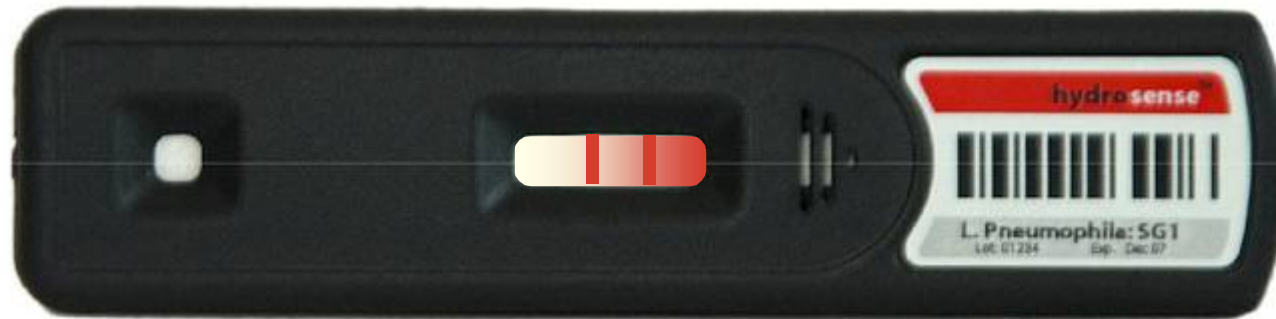
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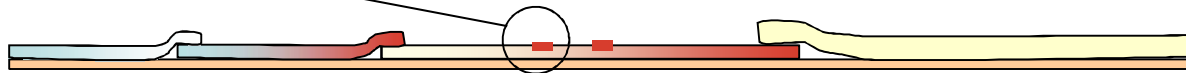
Sample starts to flow along test. Colored antibody conjugate binds to Legionella antigen in sample.



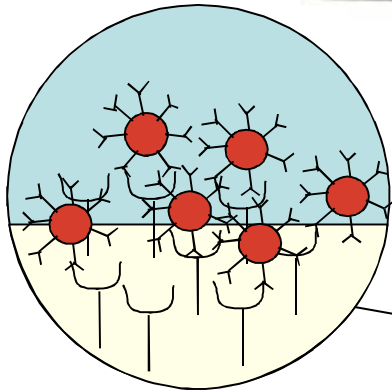
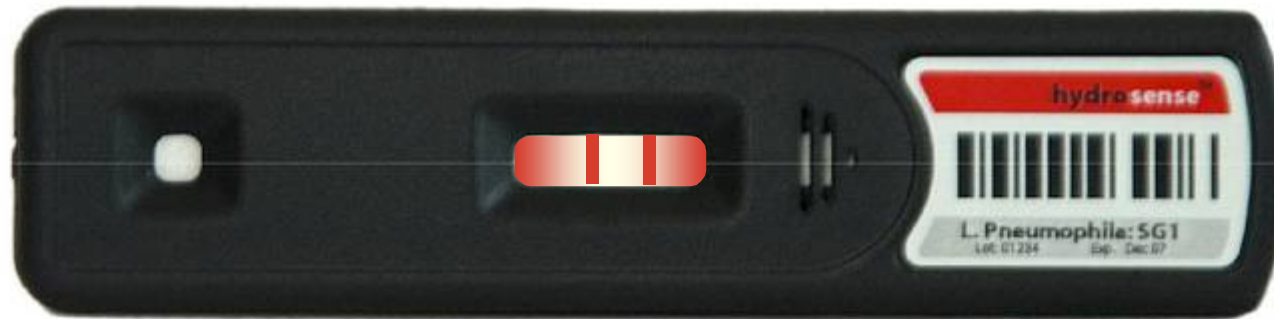
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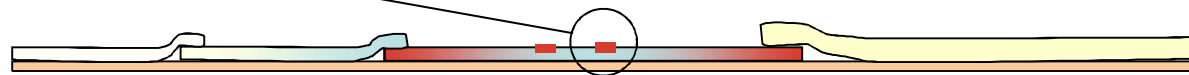
On encountering the test antibody any Legionella (sg1) antigen becomes 'captured' forming a red line.



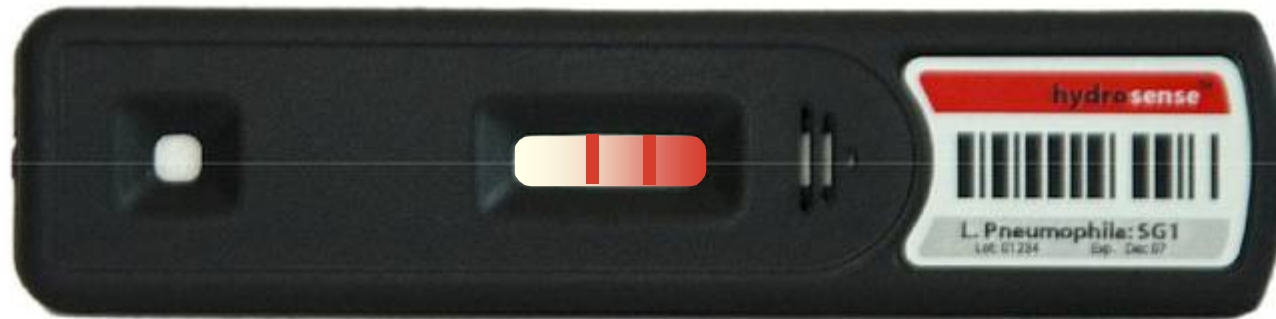
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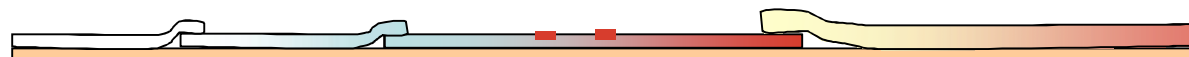
On encountering the control antibody 'free' gold particles becomes 'captured' forming a red line.



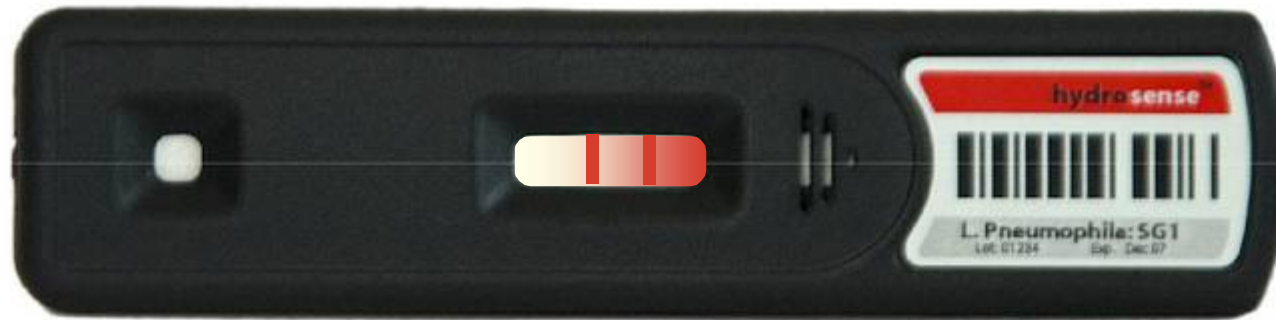
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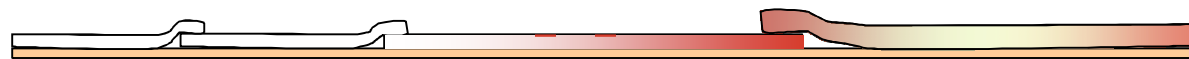
...and the test and control lines 'develop'...



## Legionella Test Kits: How it Works



...the background clears and...



## Legionella Test Kits: How it Works



...after 25 minutes the test reveals either:  
2 - red lines - A POSITIVE RESULT OR





## Legionella Test Kits: How it Works



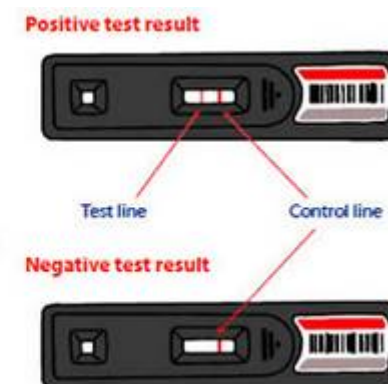
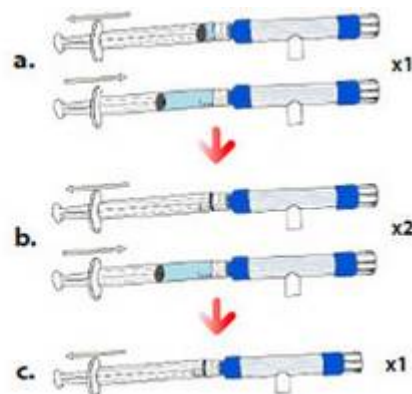
1 - red line - A NEGATIVE RESULT



## Systems Test Kits



- **Most Sensitive of all tests**
- **Sample Type:** water sample obtained by connection to pipe fitting
  - Plumbing Systems
  - Cooling Systems
- **Sample Volume:** 250 ml
- **Sensitivity:** 100 CFU/L
- **Pack Size:** 5 Tests



## Validation



AJ Cooper, T Lindley, N Polwart, R Grant, H Barnes, E Holmes; “A field test for detection of Legionella pneumophila serogroup 1 in water samples” *Proceedings of the 69<sup>th</sup> International Water Conference*, (2008) Chicago.



F Oesterholt, D van der Linde, B Wullings, H Veenendaal; “A new method of screening cooling and process water for Legionella pneumophila” *KWR 2009.004* (May 2009)

### Key Findings:

- Diagnostic sensitivity 80% - similar to other legionella tests in water / human samples
- Detects all 10 subtypes of Legionella pneumophilla serogroup 1
- No cross reactivity with other common water borne bacteria (at typical concentrations)
- Robust – to typical chemical, pH, biocide and temperatures found in water systems

# Comparison Data

