

**Detecting:** Multiple antigens

**Issue:** Nitrocellulose (NC) is the globally preferred membrane substrate in diagnostic lateral flow assays. A highly flammable product, NC is also one of three components in a standard lateral flow device that is classed as non-biodegradable. Affordability, convenience and sustainability are key drivers that inspire our work – and we have been testing suitable alternatives for NC.

**Objective:** Find a suitable alternative to NC that is bio-degradable and if possible, widely available and lower cost.

**Sample:** Multiple

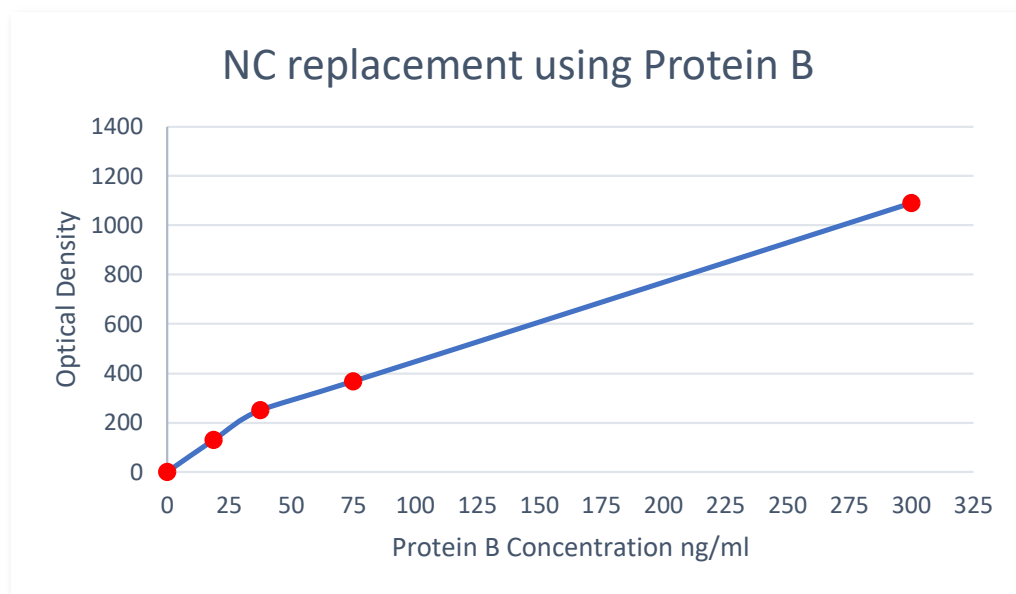
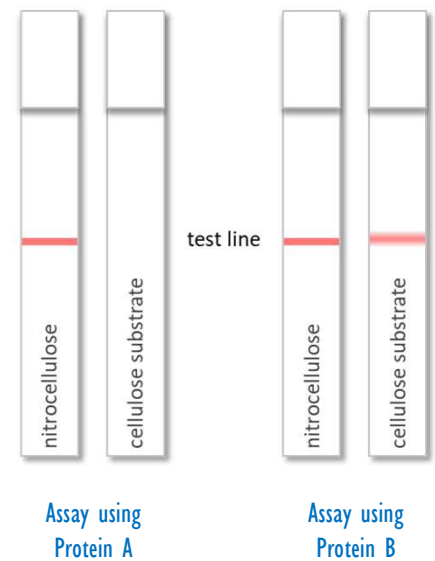
**Result:** We tested cellulose (paper based) substrates that we believed would have the properties required to replace NC.

Our key variable was the choice of protein. Testing proteins that were reliable in detecting of the Covid-19 virus when used with NC substrate.

The first protein tested produced no 'test' line as it did not bind to the cellulose substrate. However, the use of a new protein produced a strong, positive test line, albeit with a diffused edge as opposed to the clean line using NC.

The paper substrate tested is low cost, biodegradable and widely available. Using novel chemistry, it still produces an unmistakable positive read.

Furthermore, it was noted that the paper replacement was a fast sample carrier, moving along the strip at speed and producing complete results in around 2 minutes.



**Applications:** Multiple