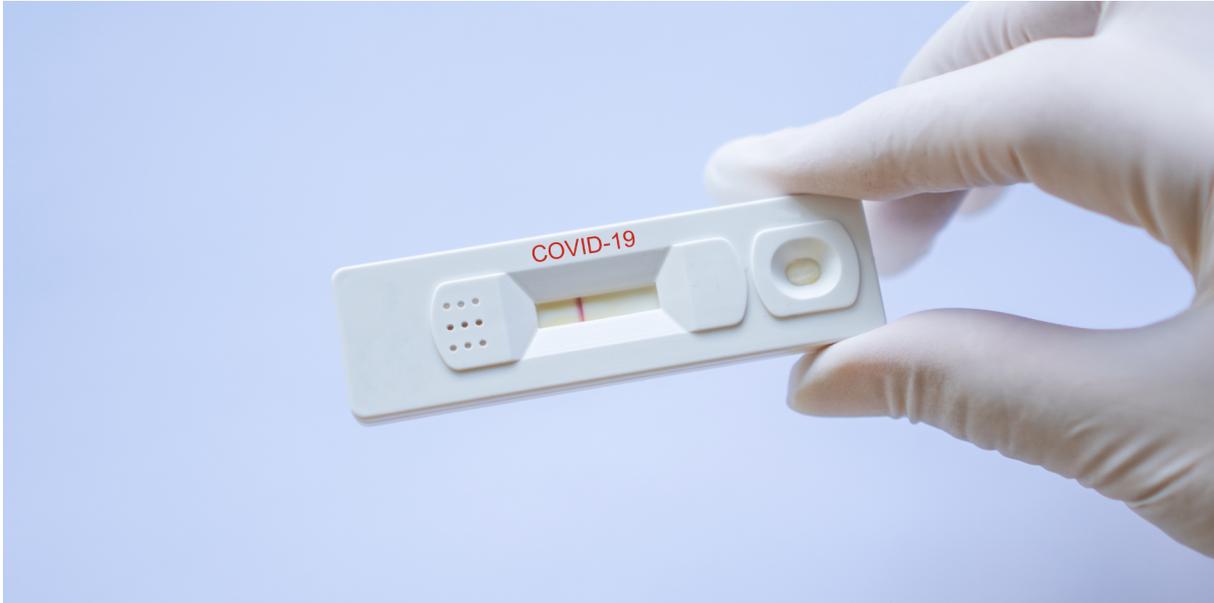


Quality control of lateral flow test strips by scanning densitometry analysis (e.g. COVID-19)

A-133.1



Keywords

Immunoassay, CORONA virus (COVID-19, SARS-CoV-2), IgG, IgM, virus, antibodies

Introduction

Many diseases, caused by viruses or other pathogens, can be detected by lateral flow (immuno-chromatographic) test strips as soon as enough antibodies have been produced by the immune system of the person to be tested.

Scope

This application note shows a densitometric assisted evaluation of lateral flow test strips for the purpose of quality control. The format of these test strips can vary, therefore the methodology can be adjusted to any commercially available lateral flow device.

Recommended devices

TLC Scanner 4, *visionCATS*

Samples

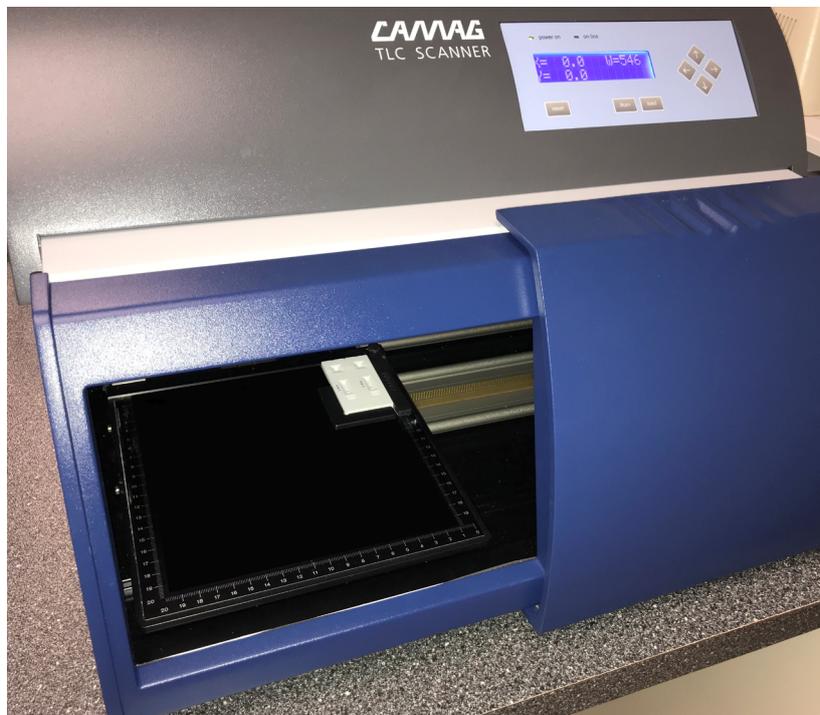
Blood, urine, saliva

NOTE: The presented results are to be regarded as examples only!

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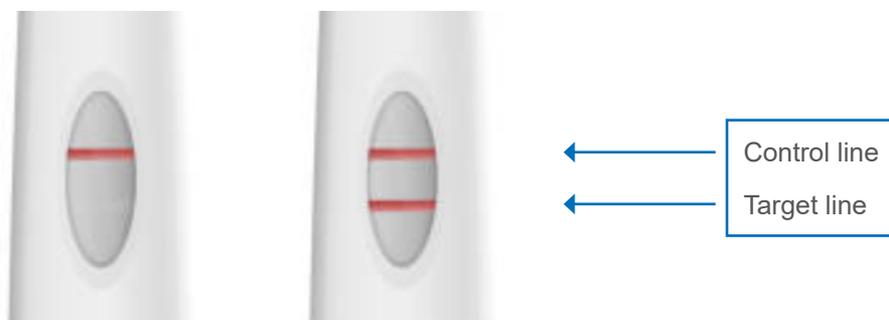
Immuno-chromatographic test and scanning densitometry

The test is performed as described in the suppliers' instruction manual. After the incubation time, the test strip is placed in the TLC Scanner 4 (Note: several test strips up to 20 cm total width can be measured in one analysis).



TLC Scanner 4

During method development, a multi-wavelength scan in absorbance mode from 400 – 800 nm (50 nm increments, partial scan of region of interest) is performed. The wavelength with the highest signal response is used for a single-wavelength scan in the routine test. In the method template, the acceptance criteria (position, intensity, and ranges) for each target/control line are set for evaluation with the *visionCATS* software. The software automatically checks the presence and intensity of all lines on a pass/fail basis. Relevant peak data can be exported for use with other software packages if necessary.

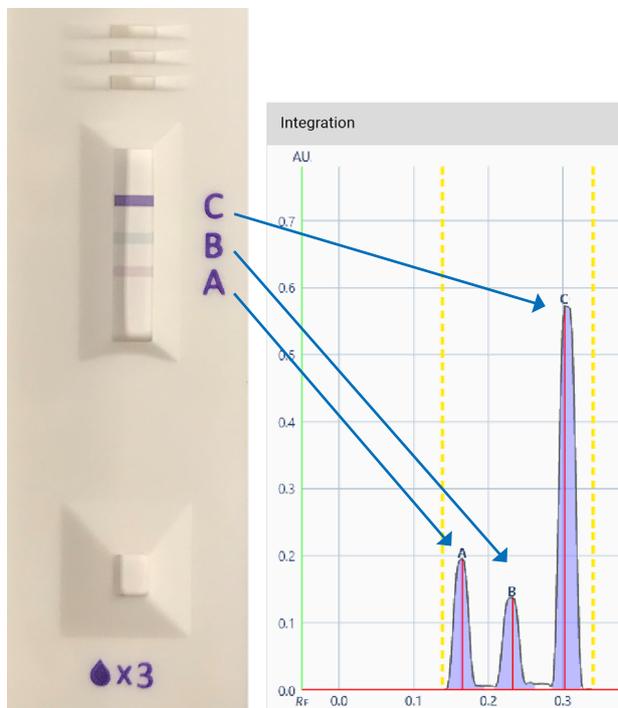


NOTE: The presented results are to be regarded as examples only!

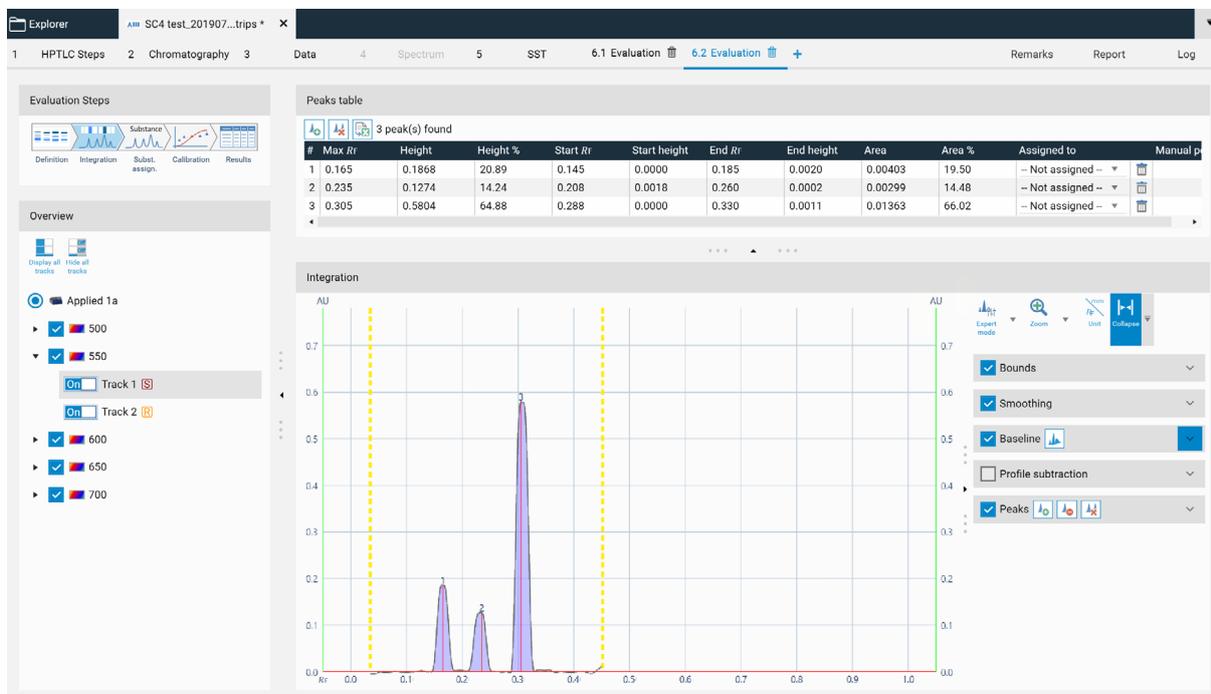
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Results

Test result of a typical lateral flow test strip



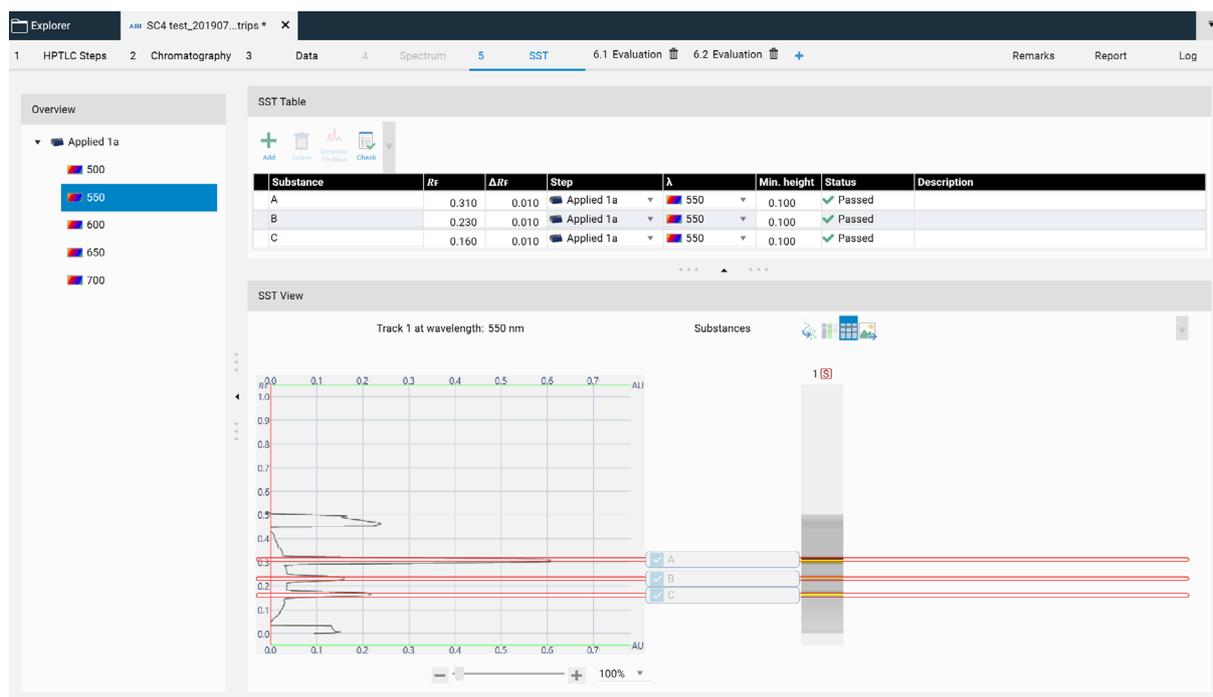
Test strip and densitogramm at 550 nm



Peak integration window with the (exportable) peak table

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Track assignment with the selected wavelength of 550 nm in the SST window (minimum signal response is set in the example to 0.1 AU; status is displayed as passed if the peak height is above the set signal response). A customized limit test can be set up as well.

Current and potential users

The approach explained here can be used for quality control testing by companies who produce lateral flow test strips or by laboratories who perform large scale testing using such test strips.

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