Application of the fully automated Evidence MultiSTAT benchtop analyser to the fast (under 19 minutes) easy to record, customised milk screening of up to 130 contaminants simultaneously

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Background

The Infiniplex for Milk (IPM) array, based on biochip array technology, allows the simultaneous screening of approximately 130 contaminants (including antimicrobials, anti-inflammatories, anti-parasitics, corticosteroids, growth promoters and mycotoxins) from a single undivided milk sample as previously reported on the Evidence Investigator analyser. A comprehensive detection of veterinary drugs in milk - including all legislated antibiotics at or below the relevant regulatory requirements – is achieved, which is important for consumer protection. With the aim of reporting test results faster, this study summarises the application of this biochip array to the benchtop Evidence MultiSTAT analyser, which allows the fully automated milk sample multi-contaminant customised screening (under 19 minutes) without sample preparation.

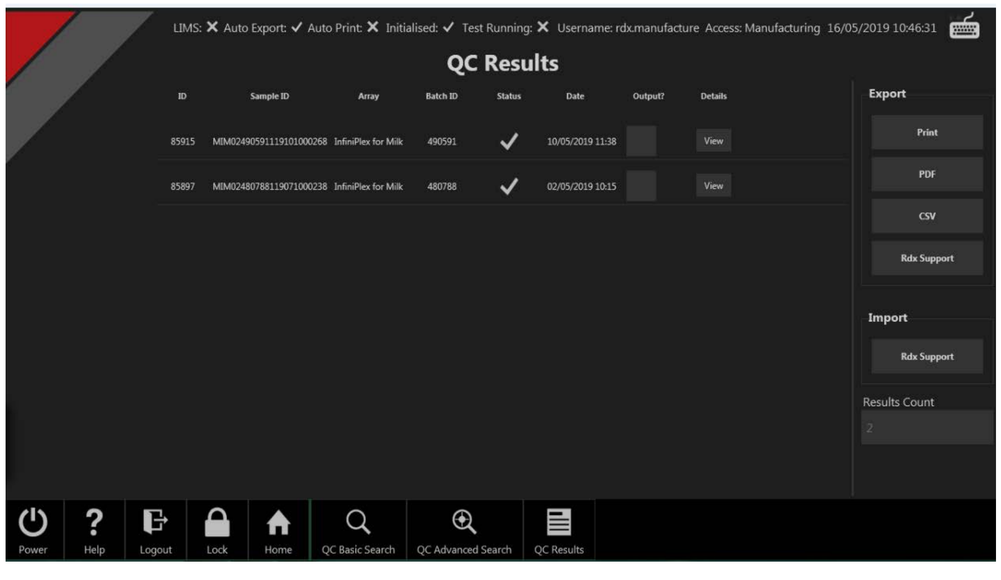
Methods

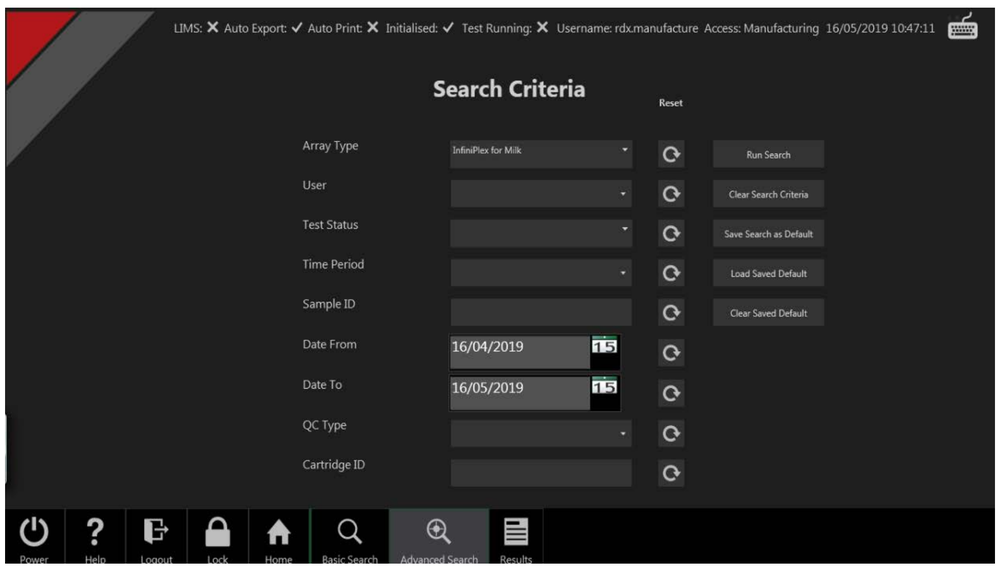
Evidence MultiSTAT automatically performs the immunoassay processes in a self-contained cartridge, which contains all the required components for the simultaneous competitive chemiluminescent immunoassays on the biochip array. The results are determined by the generation of light from chemiluminescent reactions from each discrete test region on the biochip surface. The light output from each region is simultaneously detected using digital imaging technology and compared to that of a reference standard providing qualitative results.

Self-contained cartridge

Evidence MultiSTAT

The system is operated with a touchscreen Graphical User Interface (GUI) and the test results can be searched and viewed in a table format. The viewed results may then be exported as a hard copy print, a portable digital file (PDF) or a Comma Separated Values (CSV) file. The multiple processed results generated are stored in the analyser, which allows the user to access previous results on demand. The intuitive software enables the search for all archived results of the same sample if the code/barcode entered at sample entry remains the same.

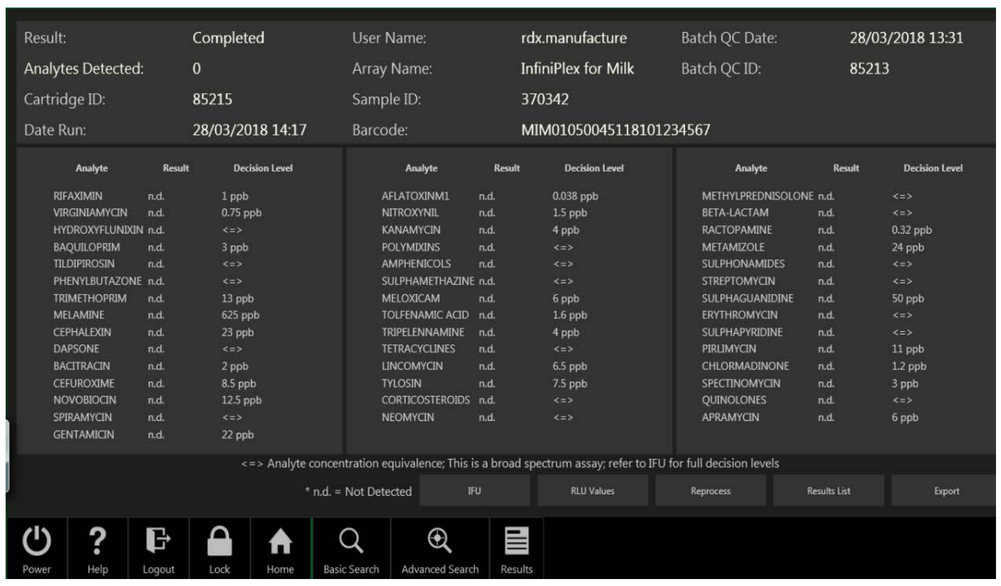




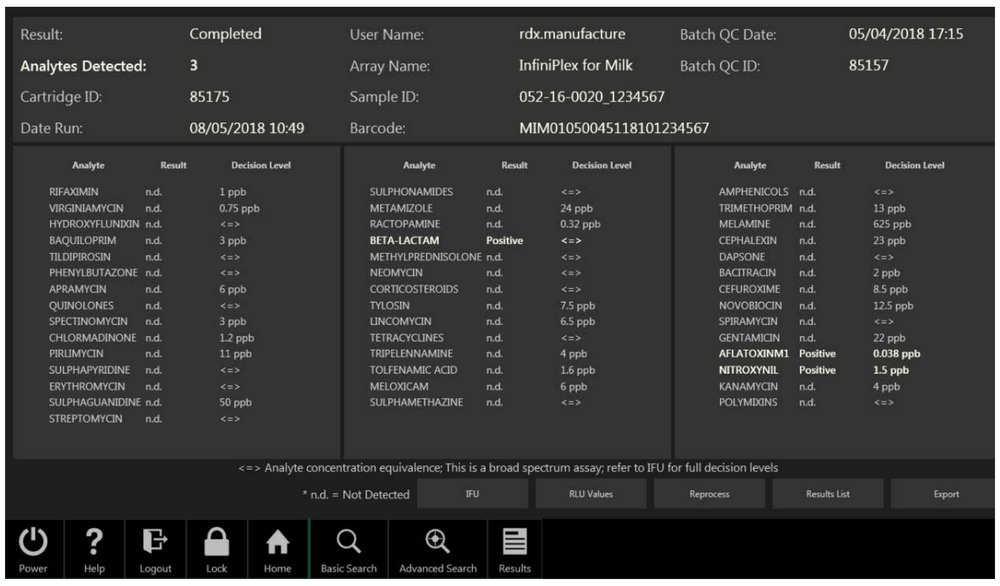
The analyser has the capacity to assess two biochips in under 19 minutes. Bovine raw milk samples (250 µl) were added to the cartridge.

Example of result display

Negative Sample



Positive Sample



Conclusion

The application of the fully automated Evidence MultiSTAT allows the fast (under 19 minutes) customised screening of up to 130 contaminants from a single sample by using IPM biochip Array. The multiple results generated are displayed in an easy to visualise tabulated format and the system has the capacity to store and archive the results, which assists with milk recording.