Real-Time PCR Data Analysis Tool Utilizing a Novel Cloud-Based Software for Easy Interpretation of Animal Pathogen Detection

Anne Quijada, Emeline Ripoche, Sandrine Moine – Thermo Fisher Scientific, Lissieu, France Denisse Meza, Rohan Shah, Robert Tebbs, Quoc Hoang, Rick Conrad – Thermo Fisher Scientific, Austin, TX, USA

INTRODUCTION

Current software versions on Real-Time PCR instruments were not specifically designed for the detection of pathogens, making data analysis and interpretation of multiplexed Animal Health assays difficult for users. Typically, qPCR data is analyzed manually which can be labor intensive and time-consuming. A complete package of data analysis software provides a faster and much more convenient alternative. The Animal Health group under the Applied Biosystems[™] brand at Thermo Fisher Scientific now offers VeriVet Software, a user-friendly solution for the analysis of qPCR data for detecting animal pathogens.

MATERIALS AND METHODS

The solution is a new cloud-based software with a user-friendly graphical interface. The Animal Health VeriVet Software can be used to analyze data from runs



performed on either the QuantStudio 5 or 7500 instrument series of Applied Biosystems Real-Time PCR Systems. Additionally, it has the capability to set up and remotely monitor a Real-Time PCR run in the QuantStudio 5 instrument.

1. Select assays for plate set up

The Animal Health VeriVet Software is compatible with all VetMAX[™] kits and with Applied Biosystems 7500/7500 Fast and QuantStudio 5 Real-Time PCR Systems.



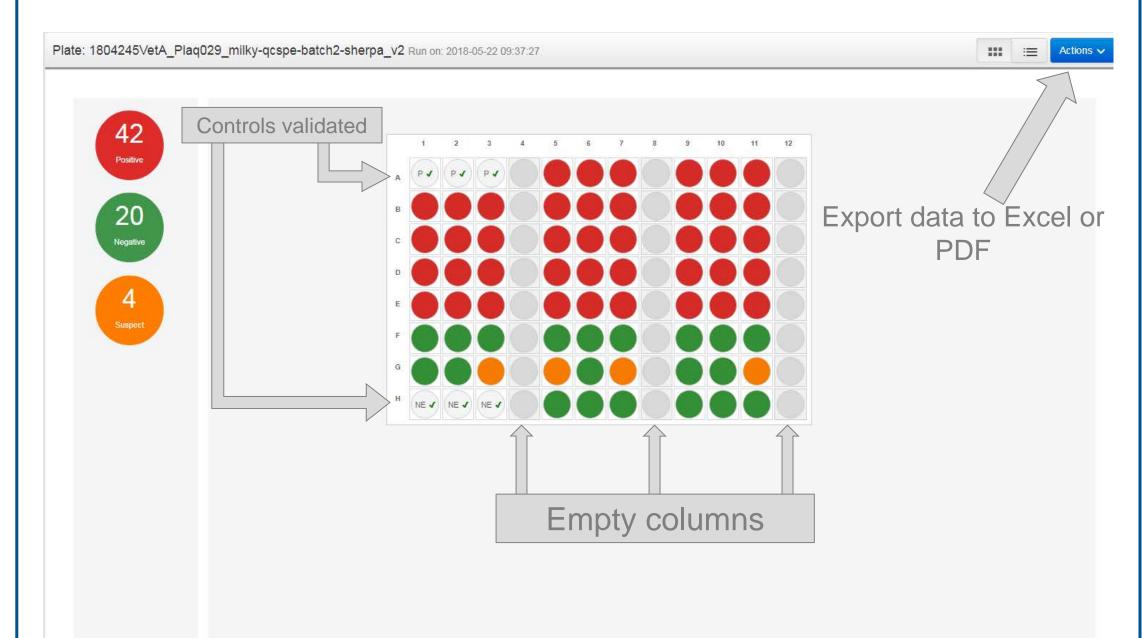


QuantStudio™ 5

2. Set up the plate layout, then run the **Real-Time PCR** Connected Instruments Workflow Offline Instruments Workflov Create a new plate or open an existing plate layout for use with a cloud-connected device such as the QuantStudio5 New Import Results Set Up Plate Layout Recent View/Edit Templates View Results Monitor a run Experiment Name Experiment Name 20180720_WorkflowEval_QS5_Mix4_MN Test.edt 20180730_WorkflowEval_QS5_Mix4_MN 20180720_WorkflowEval_QS5_Mix4_JKL 20180730_WorkflowEval_QS5_Mix4_JK 20180720_WorkflowEval_QS5_Mix4_GI 20180720_WorkflowEval_QS5_Mix4_D8 20180730_WorkflowEval_QS5_Mix4_GF 20180730_WorkflowEval_QS5_Mix4_DE 20170825_WorkflowEval_Mix4_QS5_AB 20180730_WorkflowEval_QS5_Mix4_Nev * 20180720_WorkflowEval_QS5_Mix4_MN Plate: New Plate Actions ~ QUICK SETUP PLATE OVERVIEW Enter Sample name

<u>3. Review Results</u>

Results are automatically analyzed and colorcoded to produce calls on molecular testing determinations.



R	uantStudio™ 5 eal-Time PCR System	7500 Fast & 7500 Real-Time PCR System						
ministrat -	or Settings	Assay List	Create New Assay					
- BOVINE Add to Plate Setup	ASSAYS Assay Description	Assay Abbreviation	No of Targets	Assay Settings (Targets Cutoffs Thermal Protocol)	Assay Trends			
	VetMAX MastiType Multi 4	Multi-4	5	View/Edit	View Trends			
	VetMAX MastiType Micro4	Micro4	5	∖iew/Edit	View Trends			
	VetMAX Mastitype Micro4 7500	Micro4 7500	5	View/Edit	View Trends			
	VetMAX MastiType Multi 1	Multi-1	5	∖iew/Edit	View Trends			
	VetMAX MastiType Multi 1 7500	Multi-1 7500	5	View/Edit	View Trends			
	VetMAX MastiType Multi 2	Multi-2	5	View/Edit	View Trends			
	VetMAX MastiType Multi 2 7500	Multi-2 7500	5	∖view/Edit	View Trends			
	VetMAX MastiType Multi 3	Multi-3	5	View/Edit	View Trends			
	VetMAX MastiType Multi 3 7500	Multi-3 7500	5	View/Edit	View Trends			
	VetMAX MastiTupe Multi / 7500	A	-	View/Edit	View Trends			

Most VetMAX assays are pre-populated in the Assay List and new assays can be created easily.

Unknown				-	-				
Ginnown		D	U	U	U		U	U	U
		Е	U	U	U	\bigcirc	U	U	U
		F	U	U	U	\bigcirc	U	U	U
		G	U	U		\bigcirc	U		
Multi-1	•	н	N	N	N	\bigcirc	U	U	U

__Mixed__

Protoco

Block Ty

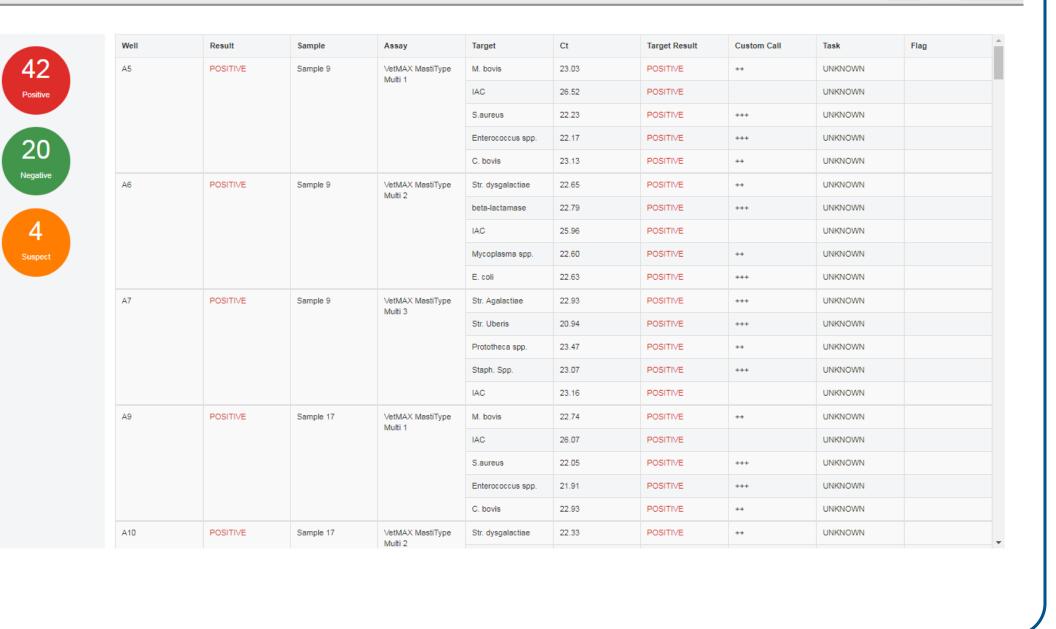
The plate layout is saved as a template file (EDT) in the Thermo Fisher Cloud.

- If using a cloud-connected instrument, the instrument run can be monitored from the app.
- If using an offline instrument, transfer the EDT file to the instrument, and then Import Results.

Can toggle to table format

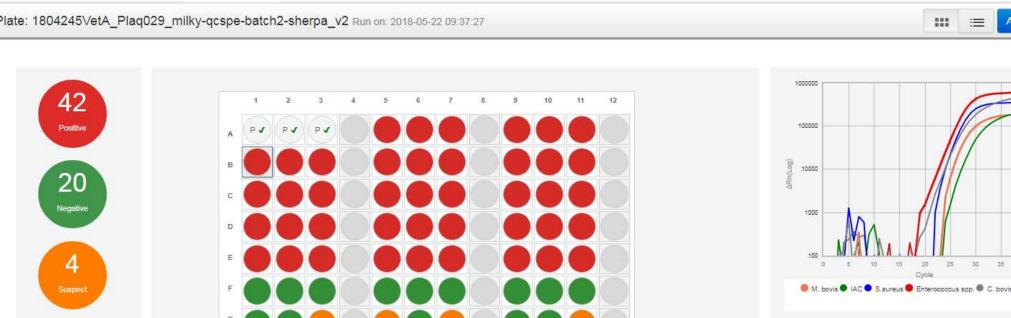
Plate: 1804245VetA_Plaq029_milky-qcspe-batch2-sherpa_v2 Run on: 2018-05-22 09:37:2

🗰 😑 Actio



RESULTS

The Animal Health VeriVet Software has been verified on a broad range of single and multiplexed assays containing 4 to 16 targets per run and provides equivalent results as manual analysis. The data analysis takes less than 5 minutes to set up, applies the recommended instrument settings, and provides a report with qualitative and quantitative results for each target.

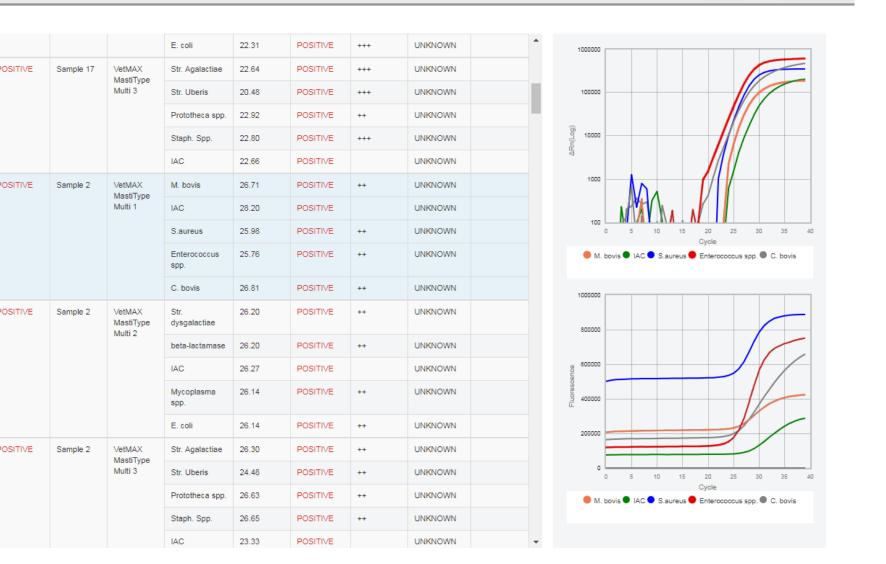


tions 🗸

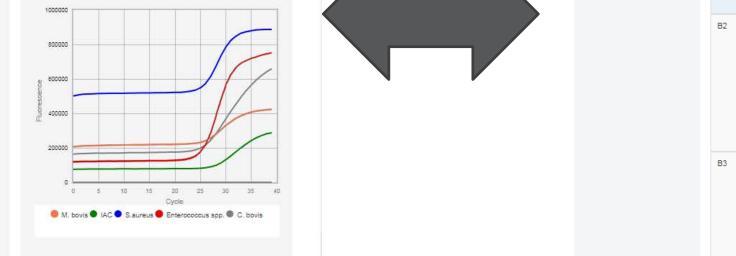
000

000

late: 1804245VetA_Plaq029_milky-qcspe-batch2-sherpa_v2 Run on: 2018-05-22 09:37:27







Individual cells can be selected in either format to provide amplification curves.

CONCLUSIONS

Multiplexed Real-Time PCR assays yield a vast amount of data that can be cumbersome to analyze and interpret.

The Thermo Fisher Animal Health VeriVet Software is designed to analyze these data rapidly with minimum user direction.

ACKNOWLEDGEMENTS

- Venkat Reddy
- Kalyana Rao Dulu
- Rohit Chaturvedi
- Somashree Patra
- Sarath Budam
- Shaohua Ma
- Deepali Gosain

ThermoFisher SCIENTIFIC

Thermo Fisher Scientific • Parc Tertiaire Bois-Dieu, 6 Allée des Ecureuils• 69380 Lissieu, FRANCE • thermofisher.com

©2019 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries. For Veterinary Use Only. For *In Vitro* Use Only. Regulatory requirements vary by country; products may not be available in your geographic area