

P0085 Clinical evaluation of the Panther Fusion respiratory system at a tertiary university hospital in Catalonia (Spain)

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Background

Viral acute respiratory infections (ARI) are the primary cause of high morbidity and mortality in the human population. Panther Fusion[®] Respiratory Panels (Hologic, USA) are able to detect up to 10 different viruses [Influenza A and B viruses, Respiratory Syncytial Virus (RSV), Adenovirus (ADV), Rhinovirus (RV), Human Metapneumovirus (hMPV) and Human Parainfluenza viruses (HPIV) 1-4]. The aim of this study was to compare the Panther Fusion[®] Respiratory Panels to the routine diagnostic assay (Seegene) performed in a tertiary university hospital in Catalonia (Spain).

Materials/methods

Prospectively collected (540 samples, from week 17/2018 to week 37/2018) and retrospectively selected respiratory samples per target (411, from week 42/2017 to week 15/2018) were obtained from patients attending the hospital with suspicion of ARI. Prospective study: during the study period, 30 non-selected samples were tested in parallel by both the Panther Fusion[®] Respiratory Panels (Hologic, USA) and Allplex[™] Respiratory Panel Assays (Seegene, Korea). Retrospective study: a number of selected known-positive and negative specimens from the laboratory collection were tested by Panther Fusion[®] Respiratory Panel. Results were compared to results obtained during earlier routine testing.

Discrepant samples (only those with Ct values < 38) were confirmed by sequencing. Sensitivity, specificity and kappa concordances were statistically determined per target. **Results**

The results obtained in both prospective and retrospective studies are summarised in the following table:

Panther Fusion							
Prospective Study				Retrospective Study			
Target (samples tested)	Sensitivity %	Specificity %	Kappa	Target (samples tested)	Sensitivity %	Specificity %	Kappa
Influenza A virus (3)	100.0	100.0	1.0	Influenza A virus (75)	98.7	99.7	0.984
Influenza B virus (-)	-	-	-	Influenza B virus (39)	100.0	99.7	0.986
RSV (2)	100.0	100.0	1.0	RSV (25)	88.0	99.7	0.912
HPIV-1/2/3/4 (52)	100.0/95.7/100.0	100.0/99.6/100.0	1.0/0.952/1.0	HPIV-1/2/3/4 (34)	100.0 (all)	100.0 (all)	1.0 (all)
ADV (25)	100.0	98.8	0.887	ADV (85)	94.1	97.9	0.912
hMPV (10)	100.0	99.4	0.867	hMPV (45)	100.0	98.6	0.941
RV (153)	100.0	96.4	0.938	RV (114)	99.1	97.0	0.939

Hands on time for the Panther Fusion[®] system was 25 minutes for a run of 30 samples, whereas hands on time for Seegene was 1 hour. Turnaround time (TAT) for the Panther was 2.h 25 minutes *versus* 3h for Seegene.

Conclusions

Panther Fusion[®] system showed good agreement with results of the current assay used in our hospital, with high sensitivities and specificities, almost all over 94%. The implementation of this high-throughput system would

provide an automated and user-friendly laboratory solution for the diagnosis of respiratory viruses. In comparison to the routine diagnostic assay, a significant reduction in hands on time and TAT was achieved. The Hologic system gives rapid diagnostic results for a wide range of respiratory viruses, relevant for the early clinical management of the patients.

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