

P0108 Comparative study of the new respiratory syndromic panel “Respiratory Flow Chip Kit” (Master Diagnostica) against Luminex and FastTrack kits

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Background: New syndromic molecular panels need to be compared with techniques previously implemented in the laboratory. These comparisons are often difficult to interpret given the intrinsic differences of the diverse diagnostic methods. The aim of this work is to compare a new syndromic diagnostic system for respiratory infections (Master Diagnóstica) against two multiplex diagnostic panels from Luminex and FastTrack.

Materials/methods: A prospective study was designed including 195 respiratory samples that were analyzed by three different molecular techniques: Respiratory Flow chip Kit (RFC)(Master Diagnóstica); NxTAG-RPP(Luminex) and FTD Respiratory Pathogens-21(FastTrack Diagnostics). Operational characteristics (sensitivity, specificity and Kappa-index) of the RFC were evaluated with respect to the other two methods against the common targets included in the three diagnostic panels: Adenovirus, Bocavirus, Coronavirus HKU1, NL63, OC43 and 229E, Metapneumovirus, Rhinovirus/Enterovirus, Influenza A, A(H1N1)pdm09, A(H3N2), Influenza B, Parainfluenza 1, 2, 3 and 4, RSV (A&B) and *M.pneumoniae*.

Results: Operational characteristics are showed in the following table. Parainfluenza 1, 2, 4 and Coronavirus-229E could not be evaluated due to an insufficient number of samples.

Target	RFC-vs-Luminex			RFC-vs-FastTrack		
	Sensitivity(IC95%)	Specificity(IC95%)	Kappa-index	Sensitivity(IC95%)	Specificity(IC95%)	Kappa-index
FluA-MP/NP	80.0(51.9-95.7)	98.3(95.2-99.7)	0.783	100.0(79.4-100.0)	100.0(97.9-100.0)	1.000
FluA-H1N1	66.7(9.4-99.2)	99.5(97.1-99.9)	0.661	100.0(29.2-100.0)	100.0(98.1-100.0)	1.000
FluA-H3	61.5(34.6-86.1)	98.9(96.1-99.9)	0.677	83.3(51.6-97.9)	100.0(97.9-100.0)	0.904
FluB	66.7(22.3-95.7)	98.9(96.2-99.9)	0.656	100.0(39.8-100.0)	100.0(98.1-100.0)	1.000
Rhino/Enterovirus	75.0(59.7-86.7)	97.4(96.4-99.3)	0.767	78.1(62.4-89.4)	98.7(95.4-99.8)	0.819
Metapneumovirus	33.3(15.6-50.9)	98.7(95.5-99.9)	0.420	70.0(45.7-88.1)	100.0(97.9-100.0)	0.807
RSVA	37.5(15.2-64.8)	100.0(97.9-100.0)	0.582	85.7(42.1-99.6)	100.0(95.1-100.0)	0.920
RSVB	100.0(83.2-100.0)	99.4(96.8-99.9)	0.973	100.0(83.9-100.0)	100.0(97.9-100.0)	0.925
Parainfluenza3	54.6(23.4-83.3)	100.0(98.0-100.0)	0.694	77.8(39.9-97.2)	100.0(98.0-100.0)	0.870
Adenovirus	44.4(25.5-64.8)	100.0(97.8-100.0)	0.540	95.8(78.9-99.9)	100.0(97.9-100.0)	0.976
Bocavirus	31.8(13.9-54.9)	100.0(97.9-100.0)	0.453	100.0(63.1-100.0)	100.0(98.0-100.0)	1.000
Coronavirus-HKU1	0.0(0.0-58.2)	100.0(98.1-100.0)	0.000	100.0(39.8-100.0)	100.0(98.1-100.0)	1.000
Coronavirus-NL63	63.2(38.4-83.7)	100.0(97.9-100.0)	0.756	86.7(59.5-98.3)	100.0(97.9-100.0)	0.923
Coronavirus-OC43	62.5(35.4-84.8)	98.9(96.0-99.9)	0.693	92.9(66.1-99.8)	100.0(97.9-100.0)	0.960
<i>M.pneumoniae</i>	73.3(44.9-92.2)	98.9(96.0-99.9)	0.769	92.9(66.1-99.8)	100.0(97.9-100.0)	0.960

Conclusions: Our study shows that there are differences in the performance of the RFC method depending on the multiplex method used as reference. RFC showed an excellent concordance when compared with FastTrack, whereas comparison with Luminex showed moderately concordant results. It is necessary to expand the study with a greater number of samples to check these values against the targets that have not yet been evaluated.

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