Supplementary Table 2. Major studies evaluating the performance of FDA approved/cleared multiplex respiratory panels

Study	Popowitch et al. (1)					Rand et al. (2)						Pierce et al. (3)		Pabbaraju et al. (4)				Chen et al. (5)					Babady et al. (6)									
		Sensitivity				Samples in study, n = 200		Compared to PCR-confirmed results				Comparison of eSensor XT-8 to laboratory-developed PCRs		Comparison of xTAG RVP Fast to xTAG RVP as Gold standard				Comparison of Luminex NxTAG RPP to reference standards (BioFire FilmArray Respiratory Panel and laboratory-developed singleplex real-time PCRs)					Comparison of Luminex xTAG RVP Fast and FilmArray RP									
	Number of true positives (n=300 samples tested)	FilmArray RP	eSensor RVP	x-TAG RVP	x-TAG RVP fast	Number of samples positive		Sensitivity		Specificity		Positive agreement, samples n= 250: samples positive by both RVP and PCR/ (samples positive by both RVP and PCR + samples positive by PCR only)	Negative agreement, samples n= 250: samples negative by both RVP and PCR/ (samples negative by both RVP and PCR + samples positive by RVP only)	Number of samples tested	Number of co-infected samples	Sensitivity of the xTAG RVP fast	Specificity of the xTAG RVP Fast	Number of samples positive		Sensitivity of NxTAG	Specificity of NxTAG	Agreement between NxTAG and FilmArray (Kappa)	Number of true positives after discordant analysis	Number detected by DFA/ culture	Sensitivity for DFA/ culture	Speci-ficity for DFA/ culture	Number detected by xTAG RVP Fast	Sensi-tivity for xTAG RVP Fast	Speci-ficity for xTAG RVP Fast	Number detected by FilmArray RP	Sensitivity for FilmArray RP	Specificity for FilmArray RP
						FilmArray RP	xTAG RVP	FilmArray RP	xTAG RVP	FilmArray RP	xTAG RVP					NxTAG (n = 284 samples tested)	reference method (n = 284 samples tested)														
Adenovirus	35	57%	100%	74%	83%	9	10	90%	100%	100%	100%	28/31 (90%)	219/219 (100%)	29%	12%	96%	99.7%	48	41	100%	97%	0.91	1	0	0%	NA	1	100%	100%	1	100%	100%
Coronavirus																																
Coronavirus HKU1														14	5	100%	100%	2	3	67%	100%	0.8	3	NA	NA	NA	1	33%	100%	3	100%	100%
Coronavirus NL63														12	2	100%	99.7%	9	8	100%	99.6%	0.94	14	NA	NA	NA	12	86%	100%	19	100%	99%
Coronavirus 229E														17	6	82%	100%	5	3	100%	99%	0.75	0	NA	NA	NA	0	NA	NA	0	NA	NA
Coronavirus OC43														15	5	100%	99%	2	3	67%	99.6%	0.8	14	NA	NA	NA	13	93%	100%	18	100%	99%
Human bocavirus																		34	31	100%	98.8%		6	NA	NA	NA	3	50%	100%	8	100%	99%
Human metapneumovirus	26	96%	100%	100%	100%	7	6	100%	86%	100%	100%	23/25 (92%)	225/225 (100%)	30	11	93%	100%	21	10	100%	96%	0.63	1	0	0	0	1	100%	100%	1	100%	100%
Influenza A	30	86% (one sample tested as equivocal was excluded)	100%	100%	87%	32	33	97%	100%	100%	100%	70/72 (97%)	178/178 (100%)	63%	6%	97%	100%	49	49	100%	100%	1.00	21	17	81%	100%	20	95%	99.6%	21	100%	100%
Subtype H1												24/24 (100%)	226/226 (100%)	21	2	100%	100%	14	15	93%	100%	0.96										
Subtype H3	14	100%	100%	93%	79%							23/24 (96%)	226/226 (100%)	20	0	100%	99%	35	34	100%	99.6%	0.98	19	NA	NA	NA	20	100%	99.6%	19	100%	100%
Subtype 2009 H1N1	16	73%	100%	100%	81%							23/24 (96%)	226/226 (100%)	22	4	100%	100%						2	NA	NA	NA	1	50%	100%	2	100%	100%
Influenza B	22	77%	100%	96%	46%	7	7	100%	100%	100%	100%	22/24 (92%)	226/226 (100%)	46%	2%	41%	100%	20	20	100%	100%	1.00	2	2	100%	100%	1	50%	100%	2	100%	100%
Parainfluenza																																
Parainfluenza 1	14	100%	100%	100%	NA							23/24 (96%)	226/226 (100%)	15	5	93%	100%	7	7	100%	100%	1.00	3	3	100%	100%	1	33%	100%	3	100%	100%
Parainfluenza 2	13	92%	100%	100%	NA							24/24 (100%)	226/226 (100%)	11	2	64%	100%	6	4	100%	99%	0.8	11	7	63%	100%	4	36%	100%	13	100%	99%
Parainfluenza 3	13	100%	100%	100%	NA							22/24 (92%)	226/226 (100%)	13	3	100%	100%	14	8	100%	98%	0.72	22	17	77%	100%	16	72%	100%	22	100%	100%
Parainfluenza 4														12	2	100%	100%	9	5	100%	99%	0.71	6	0	0%	NA	7	100%	99.6%	2	33%	100%
Respiratory syncytial virus						45	37	100%	82%	100%	100%							46	40	100%	98%	0.92	20	16	80%	100%	12	60%	100%	24	100%	99%
Respiratory syncytial virus A	22	86%	100%	86%	86%							24/24 (100%)	226/226 (100%)	16	5	100%	99.7%															
Respiratory syncytial virus B	14	100%	100%	93%	86%							23/24 (96%)	226/226 (100%)	22	12	95%	100%															
Rhinovirus/ enterovirus	43	84%	91%	93%	93%	43	41	96%	91%	100%	100%	34/35 (97%)	206/215 (96%)	40	30	100%	98%	77	72	99%	97%	0.94	84	16	19%	100%	87	98%	98%	81	92%	98%
Chlamydophila pneumoniae																																
Mycoplasma pneumoniae																		5	5	100%	100%	1.00										
Bordetella parapertussis/ Bordetella bronchiseptica																																
Bordetella holmesii																																
Comparison methods	Laboratory-developed tests (adenovirus, enterovirus, influenza A&B, and RSV A&B), viral culture, xTAG RVPv1, Xpert Flu. (Nasopharyngeal swabs.)					Conventional testing performed by viral culture including shell vials or direct antigen testing by the BinaxNow. Sensitivity and specificity were reported after resolving for discrepant results using PCR with TaqMan probes or sequencing. (Nasopharyngeal swabs, n = 101; bronchoalveolar lavage fluid, n = 45; throat, n = 25; miscellaneous, n =15; endotracheal aspirates, n = 11; bronchial brushings, n = 2; autopsy lung n = 1.)							Laboratory-developed PCRs used as the comparator method. [Archived (frozen) pediatric samples: nasopharyngeal aspirates, n = 239; nasopharyngeal swabs, n = 4; tracheal aspirates, n = 5; bronchoalveolar lavage, n = 2.]		xTAG RVP used as the comparator method. (Nasopharyngeal swabs, n = 243; nasal swabs, n = 13; throat swabs, n = 36; bronchoalveolar lavage, n = 18; sputum, n = 7; fluid/swabs of unknown respiratory origin, n =17.)				BioFire FilmArray Respiratory Panel and laboratory-developed singleplex real-time PCRs for human bocavirus used as the Gold standard methods. (Fresh nasopharyngeal swabs in viral transport medium.)					True positives were defined as a sample being positive by at least two methods. Discordant results were resolved using DFA/culture, review of medical records, or were tested by the Resplex II assay. (Nasopharyngeal swabs, n = 280; bronchial washings and lavages, n = 8; throat swabs, n=13; sputum, n = 2; nasopharyngeal known positive swabs, n = 55.)									

NA = Not applicable

References:

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