

## P0556 Evaluation of the FilmArray Respiratory Panel 2 plus - a new generation of multiplex PCR panel

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**Background:** The FilmArray Respiratory Panel 2 plus (RP2plus), 3rd generation of FilmArray Respiratory Panel, is available in France since September 2017 and provides shorter time-to-results (45 minutes compared to 65), detection of additional respiratory pathogens (B.parapertussis and MERS-CoV) and improved global sensitivity including a better detection of adenoviruses.

**Materials/methods:** A total of 77 frozen nasopharyngeal or bronchoalveolar lavage samples previously tested with FilmArray RP version 1.7 (bioMérieux) (n=33) or Allplex (Seegene) (n=44) were analysed with RP2plus. Moreover, MERS-CoV detection was evaluated on the European QCMD control panel MERS 2016 (8 samples). All samples were stored in Virocult transport media at -20°C.

**Results:** Out of 77 clinical samples, 8 samples were found negative and 14 were co-infections with RP2plus. RP2plus concordantly identified 29/30 influenza, 24/24 RSV, 10/10 coronavirus, 8/8 ADV, 7/8 picornavirus, 2/2 metapneumovirus, 2/2 parainfluenza, 4/5 M.pneumoniae, 2/2 B.pertussis, 1/1 B.parapertussis, 1/1 C.pneumoniae previously identified by either FilmArray RP 1.7 or Allplex methods. RP2plus panel also identified several pathogens not detected by the comparator methods: 5 adenoviruses, 2 influenza, 1 RSV, 1 metapneumovirus and 1 M.pneumoniae. The single influenza sample missed by RP2plus was found positive on Allplex (Ct=39,19) and the two additional influenza viruses identified with RP2plus were negative on Allplex. All the other discordances were in samples with co-infections. The 5 adenoviruses identified by RP2plus but missed by RP 1.7 (n=2) or Allplex (n=3) were confirmed by independent specific PCR and sequencing and presented high Ct values (>35). Regarding MERS-CoV, all QCMD samples were correctly identified (5 MERS-CoV, 1 OC43, 1 NL63, 1 negative).

**Conclusions:** The new RP2plus provides 25% reduction in time to result. Overall positive percent agreement between FilmArray RP2plus and comparator methods (FilmArray RP1.7® or Allplex) was at 96.7% (90/93). RP2plus allowed the detection of 10 additional pathogens, most of them in co-infections. Adenoviruses were correctly identified even in specimens with high Ct values, indicating improved performance of the assay.