

Supplement

S-Table 1: Comorbidities of patients undergoing BAL for suspected pulmonary infection

Characteristics	N (%)	Multiplex PCR	Conventional Culture	p-value
Immunosuppressed	329 (54)	234/417 (56)	95/188 (51)	0.22
Solid organ transplantation	116 (35)	81 (35)	35 (37)	
Lung transplant	92 (79)	64 (79)	28 (80)	
Lung and Liver transplant	3 (3)	1 (1)	2 (6)	
HSCT and other hematological conditions	77 (23)	51 (22)	26 (27)	
Chemotherapy	36 (11)	28 (12)	8 (8)	
GvHD lung	44 (13)	31 (13)	13 (14)	
Interstitial lung diseases	17 (5)	11 (5)	6 (6)	
Leukemia	59 (10)	36 (15)	23 (24)	
HIV/AIDS	15 (5)	12 (5)	3 (3)	
Inflammatory bowel diseases	8 (2)	7 (3)	1 (1)	
Malignant lymphoma	24 (7)	17 (8)	7 (7)	
Other immunosuppressive conditions*	26 (8)	18 (8)	8 (8)	
Comorbidities in non-immunosuppressed cases				
Cardiovascular and peripheral vascular diseases	123 (45)	90/182 (49)	33/90 (37)	0.053
Congestive heart failure	129 (47)	89/182 (49)	40/90 (44)	0.52
Solid tumor	80 (29)	53/182 (29)	27/90 (30)	0.89
COPD	97 (36)	62/182 (34)	35/90 (39)	0.50
Kidney disease	42 (15)	33/182 (18)	9/90 (10)	0.11
Diabetes mellitus	37 (14)	25/182 (14)	12/90 (13)	1.00
Depression	36 (13)	26/182 (14)	10/90 (11)	0.57
Peptic ulcer disease	29 (11)	19/182 (10)	10/90 (11)	0.84
Liver disease	16 (6)	11/182 (6)	5/90 (6)	1.00
Cerebrovascular disease	35 (13)	21/182 (12)	14/90 (16)	0.34
Other**	35 (13)	22/182 (12)	13/90 (14)	

*Other immunosuppressive conditions include immunosuppressive therapy for bronchial asthma, multiple sclerosis, Myasthenia gravis, etc. **Other includes connective tissue disease, bronchiectasis, alcohol abuse, musculoskeletal disease and dementia.

H SCT = Hematopoietic stem cell transplantation; GvHD = graft vs host disease.

S-Table 2: Pathogens not included in Curetis Unyvero - P50 assay identified with culture

Pathogens	N
<i>Bordetella species</i>	1
<i>Citrobacter koseri</i>	3
<i>Enterobacteriaceae</i>	8
<i>Enterococcus</i>	5
<i>Haemophilus parainfluenzae</i>	1
<i>Neisseria meningitidis</i>	1
<i>Streptococcus pyogenes</i>	1

S-Table 3: The difference in non-panel pathogens identified in the 2-week on (PCR and conventional methods) vs the one-week off (conventional methods only) group.

2-week on group	1-week off group
<i>Haemophilus parainfluenzae</i>	
<i>Neisseria meningitidis</i>	
<i>Streptococcus pyogenes</i>	
<i>Citrobacter koseri</i>	

S-Table 4: Samples positive for resistance genes as measured by the Multiplex PCR panel, stratified according to conventional culture in-panel pathogen result and corresponding antibiotic resistance antibiogram.

Antibiotics tested in the conventional culture antibiogram	Resistance genes detected by Curetis	Positive Curetis AB Resistance Gene	Conventional Culture In-panel Positive Pathogen result	Conventional Culture In-panel Pathogen Negative result	Curetis positive cases tested with conventional culture antibiogram	Conventional Culture Cases Positive for AB Resistance in antibiogram
Oxacillin	<i>mecA</i>	3	2	1	2	0
Penicillin	<i>shv</i>	2	1	1	1	1
	<i>tem</i>	30	12	18	16	7
3 rd generation Cephalosporins	<i>ctx-M</i>	3	0	3	1	0
	<i>dha</i>	0				
	<i>tem-shv</i>	0				
Macrolide	<i>ermA</i>	4	2	2	3	2
	<i>ermB</i>	98	23	75	38	3
	<i>ermC</i>	15	4	11	9	2
	<i>msrA</i>	1	0	1	0	0
	<i>mefA</i>	41	11	30	22	2
Carbapenem	<i>kpc</i>	1	0	1	0	0
	<i>Oxa-51</i>	1	0	1	0	0
Sulfanomide	<i>sul1</i>	5	3	2	3	3
Fluoroquinolone	<i>gyrA832_Pseu</i>	10	4	6	5	3
	<i>gyrA833_Pseu</i>	6	2	4	3	0
	<i>gyrA872_Pseu</i>	6	0	6	1	0
	<i>gyrA873_Pseu</i>	5	1	4	2	0
	<i>gyrA83_Ecoli</i>	5	1	4	3	1
	<i>gyrA87_Ecoli</i>	5	1	4	4	1
	<i>parCPseu</i>	8	3	5	4	0
Multi-Drug	<i>Int 1</i>	3	2	1	na	na

S-Table 5: Pathogen detection using conventional culture and multiplex PCR stratified according to length of hospital stay before the bronchoscopy.

	Culture		Multiplex PCR	
	≤2 days	≥3days	≤2 days	≥3days
<i>Acinetobacter baumannii</i>	2	0	4	2
<i>Chlamydophila pneumoniae</i>	0	0	1	0
<i>Enterobacter spp</i>	6	5	0	0
<i>Escherichia coli</i>	6	9	2	5
<i>Haemophilus influenzae</i>	7	2	12	2
<i>Klebsiella oxytoca</i>	0	0	0	1
<i>Klebsiella pneumoniae</i>	1	4	2	1
<i>Legionella pneumophila</i>	0	0	1	0
<i>Moraxella catarrhalis</i>	1	0	3	2
<i>Morganella morganii</i>	0	0	0	0
<i>Proteus spp.</i>	0	0	1	0
<i>Pseudomonas aeruginosa</i>	6	7	5	6
<i>Serratia marcescens</i>	0	4	1	4
<i>Staphylococcus aureus</i>	8	6	8	3
<i>Stenotrophomas maltophilia</i>	2	5	3	5
<i>Streptococcus mitis group</i>	6	2	11	4
Total	45	44	54	35

S-Table 6a: The number of times pathogens were detected by conventional methods stratified to immune status.

Culture (all pathogens)	Immunocompromised	Immunocompetent
<i>Citrobacter koseri</i>	1	2
<i>Haemophilus parainfluenzae</i>	0	1
<i>Neisseria meningitidis</i>	0	1
<i>Bordetella spp.</i>	0	1
<i>Streptococcus pyogenes</i>	1	0
<i>Enterobacteriaceae</i>	1	4
<i>Enterococcus</i>	3	2
<i>Streptococcus pneumoniae</i>	3	5
<i>Streptococcus mitis group</i>	3	4
<i>Acinetobacter baumannii</i>	1	1
<i>Chlamydomphila pneumoniae</i>	0	0
<i>Escherichia coli</i>	6	4
<i>Haemophilus influenzae</i>	5	7
<i>Klebsiella oxytoca</i>	0	1
<i>Klebsiella pneumoniae</i>	2	2
<i>Legionella pneumophila</i>	0	0
<i>Moraxella catarrhalis</i>	1	2
<i>Morganella morganii</i>	0	0
<i>Proteus spp.</i>	0	0
<i>Pseudomonas aeruginosa</i>	8	7

<i>Serratia marcescens</i>	2	2
<i>Staphylococcus aureus</i>	11	7
<i>Stenotrophomas maltophilia</i>	3	4
	51	57

S-Table 6b: The number of times pathogens were detected by multiplex PCR stratified to immune status.

Curetis	Immunocompromised	Immunocompetent
<i>Acinetobacter baumannii</i>	4	3
<i>Chlamydophila pneumoniae</i>	1	0
<i>Enterobacter spp</i>	16	11
<i>Escherichia coli</i>	5	3
<i>Haemophilus influenzae</i>	9	19
<i>Klebsiella oxytoca</i>	0	2
<i>Klebsiella pneumoniae</i>	1	2
<i>Legionella pneumophila</i>	1	0
<i>Moraxella catarrhalis</i>	4	4
<i>Morganella morganii</i>	2	0
<i>Proteus spp.</i>	0	1
<i>Pseudomonas aeruginosa</i>	10	8
<i>Serratia marcescens</i>	2	3
<i>Staphylococcus aureus</i>	10	7
<i>Stenotrophomas maltophilia</i>	4	5
<i>Streptococcus mitis group</i>	9	15
	62	72