
Clinic Test Report

Product name: Automated Blood Culture System and Blood Culture Bottle (colorimetric method).

Reagent package specifications: type I (20 bottles/package); type II (20 bottles/package)

Instrument model: DL-Bt64

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2, Clinic test summary

2.1 Objective: to research and evaluate equivalence of DL-Bt64 Fully Automated Blood Culture System and Blood Culture Bottle (colorimetric method) and marketed BD's BACTEC9240 Fully Automated Blood Culture System and Blood Culture Bottle.

2.2 Material and requirements: collect 175 isolated strains, 10 standard strains and 15 cases of negative specimen. Eliminate isolated strains from same patient and perform comparison strictly abide by user manual.

2.3 Conclusion: coincidence rate of DL-Bt64 Fully Automated Blood Culture System and Blood Culture Bottle (colorimetric method) and marketed BD's BACTEC9240 Fully Automated Blood Culture System and Blood Culture Bottle is 99.5%, which meets the requirements of performance.

3, Test personnel

Name	Title	Responsibility	Institution
Xu Yuanhong	Chief technician	Primary researcher, report writer	The First Affiliated Hospital of AnHui Medical University
Wang Zhongxin	Chief technician	Result statistic and analysis	The First Affiliated Hospital of AnHui Medical University
Huang Ying	Associate chief technician	Operator	The First Affiliated Hospital of AnHui Medical University

4, Abbreviation

4.1 BACTEC9240—BD's BACTEC9240 Fully Automated Blood Culture System and Blood Culture Bottle

4.2 Blood Culture System—Fully Automated Blood Culture System

4.3 DL-Bt64—DL-Bt64 Fully Automated Blood Culture System and Blood Culture Bottle(colorimetric method) manufactured by ZhuHai DL Biotech Co., Ltd.

5, Test report

5.1 Primary coverage

5.1.1 Foreword

5.1.1.1 Intended use

Human blood or microbe in other sterile body fluid is cultured in vitro.

5.1.1.2 Background of clinic indication related to intended use

Blood culture, plays important role in diagnosis of infection of blood circulation system such as bacteremia, hematosepsis and bacterial endocarditis, etc. its method from by manual to automation. Automated culture process include continuous incubation, lightly vibration culture and automated test after put culture bottle in instrument. Currently, main products in

market include BACTEC9000 series and BacT/Alert system, in which BACTEC 9000 series is developed by BD. Growth and metabolism of microbe in culture bottle changes concentration of CO₂, which activate fluorescent material in the bottom of bottle to emit fluorescence, then one can judge if microbe growth in culture bottle. Special CO₂ sensor is installed at the bottom of culture bottle in BacT/Alert system developed by BioMerieux. Sensor's color will be changed when CO₂ released from microbe metabolism. Light-emitting diode projects light on sensor, then reflected light is measured by electro-phonic detector, strength of reflected light is proportionate to the yield of CO₂ so as to monitor growth of microbe. ESP Fully Automated Blood Culture System manufactured by Difco (America company) use gas produced by microbe growth result in pressure changes in culture bottle, then measure pressure in culture bottle to judge microbe growth status.

DL-Bt64 blood culture system, consists of test unit, embedded control system, constant-temperature unit and mechanical motion system, with the functions of automatic constant-temperature incubation, automatic dynamic test, automatic result warning etc. and with the merits of easy to use and stable performance, etc.

5.1.1.3 Relative clinic or laboratory diagnosis method

5.1.1.3.1 Traditional broth culture

Traditional blood culture need one pair of aerobic and anaerobic bottle. Selection of standard culture medium, include basic culture medium such as Columbia broth etc., different culture medium need various additives so as to make fastidious bacteria growth. Volume of traditional blood culture broth must be in proportion to blood volume, the ratio of blood and broth should be 1:5 to 1:10. Range of broth volume of commercial blood culture bottle is 18—100ml.

After blood inoculation, incubate culture bottle at 35°C, then observe bacteria growth by eyes, microbe is growing if below phenomena happened: turbidity of mixer of blood and broth, growth, hemolysis and color changes of microcolony, or gas produce. Initially observe after 12-24 hours of incubation, observe 2 times each day at the first 2 days, and observe once every day on the 3-7 days. To measure bacteria growth at the earliest for traditional blood culture, inoculation culture is performed at the initial examination, at the same time make gram staining to broth culture.

5.1.1.3.2 Bi-phase culture

At first to culture Brucella in blood, blood culture bottle contains agar and broth at the same time is designed. It is proved that these "Bi-phase" culture bottle can culture fungi and bacteria in blood as well, however bi-phase bottle is difficult for preparation and lack of commercial source make them unpopular. Currently Bi-phase bottle on market include one broth culture bottle and one cylinder with agar culture medium on two sides. Composition of culture bottle can be changed so as to suitable for child or adult patient, aerobic or anaerobic microbe, or culture mycobacteria. When start to culture, dispense blood in broth bottle, cylinder with agar connects to the top of bottle, put bottle upside down to make blood-broth mixer to wash surface of agar, then straighten bottle for incubation, observe microbe growth on the surface of broth (routine blood culture) or agar.

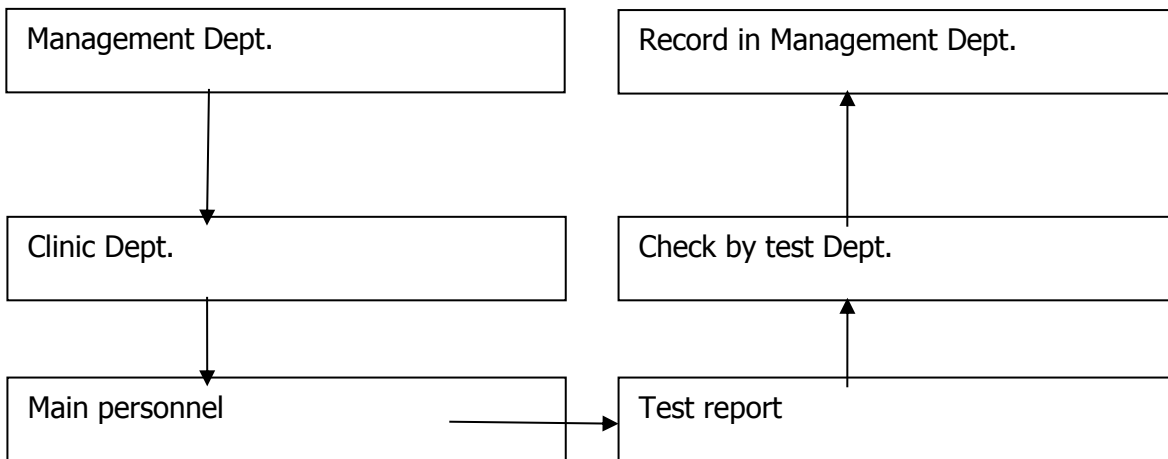
Compare with traditional manual blood culture bottle, bi-phase culture bottle can culture aerobic bacteria, facultative anaerobe and fungi better; bi-phase bottle can shorten measure time and obtain isolated bacterial colonies. However commercial bi-phase system will produce high contamination and can not get anaerobe well. Similar with manual blood culture bottle, bi-phase culture medium should be monitored 7 days by eyes, and incubate bi-phase culture bottle 7 days.

5.1.2 Test objective

Compare DL-Bt64 Fully Automated Blood Culture System and Blood Culture Bottle with marketed BD's BACTEC9240 Fully Automated Blood Culture System and Blood Culture Bottle so as to prove their equivalence.

5.1.3 Test management

5.1.3.1 Test management diagram



5.1.3.2 Management of description

Clinic research should be recorded by management department, sign clinic test contract, makeup clinic plan based on product's technical features, at last complete test by all participants.

Main researcher: take charge of clinic research, design and makeup plan, technical guidance and check test report.

Report writer: when experiment is finished, statistically analyze and manage data, and edit test report.

Operator: in charge of specimen collection, transportation and storage; analysis of result and quality control, solve problem happened during testing.

5.1.4 Design

5.1.4.1 Overall design and plan description

5.1.4.1.1 Selection of institution

Based on the SFDA's requirement of "Clinic research guidance principle of in vitro diagnosis reagent", the research should be performed under provincial medical institution.

5.1.4.1.2 Test method: adopt standard strains and clinic isolated strains to verify Fully Automated Blood Culture System and Blood Culture Bottle. Mix standard strains and isolated strains with fresh blood, then inoculate it in DL Fully Automated Blood Culture System and Blood Culture Bottle. Negative specimen is inoculated only for fresh blood, at the same time inoculate same strains and negative specimen with same method on BD's BACTEC9240 Fully Automated Blood Culture System and Blood Culture Bottle and record results.

5.1.4.1.3 Test operation

5.1.4.1.3.1 Re-cultivate standard strains and isolated strains on solid culture medium, it forms bacterial colony after 24 hours growth for bacteria liquid preparation.

5.1.4.1.3.2 Prepare bacteria liquid of 0.5 Maxwell unit, its concentration is about 1×10^8 CFU/ml, then make bacteria liquid of 0.5 Maxwell unit to 1000 CFU/ml bacteria liquid for preparation.

5.1.4.1.3.3 Inoculate 1 ml above bacteria liquid on DL blood culture bottle and BACTEC9240 blood culture bottle separately.

5.1.4.1.3.4 Dispense 10 ml fresh blood in each bottle.

5.1.4.1.3.5 Do not inoculate 1ml above bacteria liquid for negative bottles, only dispense 10ml fresh blood.

5.1.4.1.3.6 Place bottles in DL-Bt64 and BACTEC9240 Fully Automated Blood Culture System, according to user manual record positive result of bacteria growth in positive bottle. Re-cultivate solid culture medium confirm if bacteria is growth and record result.

5.1.4.1.4 Feasibility analysis of success and failure

Fully Automated Blood Culture System is belong to mature clinic technology. Operating method, technical features, performance index and test method of this product is almost same with similar products. The product is registered in Medical device product quality supervision and inspection bureau in Guangdong province, it with high clinic success.

Probable failure risk: 1) improper operation; 2) unexpected changes of performance

Decrease risk: it can decrease risk to minimum level by examination before operation and operation by authorized person.

5.1.4.2 Design and research method

5.1.4.2.1 Sample volume

200 cases of specimen, which meets the basic requirement of statistics.

5.1.4.2.2 Sample selection

Isolated strains and standard strains

5.1.4.2.3 Collection, storage and transportation of specimen

Collection of specimen: isolated strains for purification

Storage and transportation: stored in room-temperature; test on same day

5.1.4.2.4 Comparison product

Adopt BACTEC9240 Fully Automated Blood Culture System and Blood Culture Bottle. Test principle, intended use, performance is almost same with this product.

5.1.4.2.5 Product information

1) Comparison product

Product name: BACTEC9240 Fully Automated Blood Culture System and Blood Culture Bottle

Product makeup: Fully Automated Blood Culture System, aerobic blood culture bottle, anaerobic blood culture bottles.

Test principle: Growth and metabolism of microbe in culture bottle changes concentration of CO₂, which activate fluorescent material in the bottom of bottle to emit fluorescence, then one can judge if microbe growth in culture bottle. Detector in the bottle detects fluctuation of fluorescent signal and calculate with a group of formula, then various parameters of fluctuated fluorescent signal is obtained so as to judge if microbe growth in culture bottle.

Specifications: 40 person/package Lot No.: 0054358

Valid of blood culture bottle: 12 months

Source: BD company

Storage conditions of blood culture bottle: 15°C--30°C, keep it away from sunlight

2) Test product

2.1) Product name: blood culture bottle (colorimetric method)

Product makeup: blood culture bottle (colorimetric method), user manual

Model: type I aerobic blood culture bottle, type II anaerobic blood culture bottles

Specifications: 20 bottles/package Lot No.: 200911002

Period of validity: 12 months

Source: Zhuhai DL Biotech Co., Ltd.

Storage conditions of blood culture bottle: 15°C--30°C, keep it away from sunlight

2.2) Product name: Automated Blood Culture System

Model: DL-Bt64

Source: Zhuhai DL Biotech Co., Ltd.

5.1.4.2.6 Quality control

Quality control: QC strains comes from ATCC. Standard strains from ATCC is used to control precision and repeatability.

5.1.4.2.7 Data statistics and analysis method

Parallel comparison method, calculate coincidence rate

5.1.5 Test result and analysis

5.1.5.1 Test result

Table 1 Comparison of various bacteria culture result

Bacteria type	Qty(strain)	DL-Bt64 (Zhuhai DL) Blood Culture Bottle		BACTEC9240 (BD) Blood Culture Bottle	
		Satisfied Qty (strain)	Coincidence rate(%)	Satisfied Qty (strain)	Coincidence rate(%)
Enterobacteriaceae	67	67	100	67	100
Non - fermentative bacteria	41	40	97.6	41	100
Haemophilus	8	7	87.5	7	87.5
Staphylococcus	36	36	100	36	100
Fungus	8	8	100	8	100
Streptococcus	13	13	100	13	100
Enterococcus	10	10	100	10	100
Xanthomonas	1	1	100	1	100
Neisseria	1	1	100	1	100
Negative specimen	15	15	100	15	100
Total	200	198	99	199	99.5

5.1.5.2 Result analysis

1) Average coincidence rate of Zhuhai DL Fully Automated Blood Culture System and Blood Culture Bottle to 200 cases of specimen is 99%.

2) Average coincidence rate of BACTEC9240 Fully Automated Blood Culture System and Blood Culture Bottle to 200 cases of specimen is 99.5%

3) Comparison coincidence rate between Zhuhai DL Fully Automated Blood Culture System and Blood Culture Bottle and BACTEC9240 Fully Automated Blood Culture System and Blood Culture Bottle is 99.5%.

Above data shows: Average coincidence rate of Zhuhai DL Fully Automated Blood Culture System and Blood Culture Bottle and BACTEC9240 Fully Automated Blood Culture System and Blood Culture Bottle is almost identity. There are two cases of Zhuhai DL is unqualified (haemophilus influenza and non - fermentive bacterial). One case is unqualified for BD company (haemophilus influenza).

There is no system failure and other problem in the process of testing.

5.1.6 Conclusion

Above data shows: from comparative experiment between Zhuhai DL Fully Automated Blood Culture System and Blood Culture Bottle and BACTEC9240 Fully Automated Blood Culture System and Blood Culture Bottle, we can see the they are almost same on culture effect. It reaches to the level of import products on fastidious bacteria culturing. The products with the advantages of automation, standard, easy to use, which meets the requirements of various levels of medical institution.

No adverse event and serious failure happened during testing.

General performance of instrument is stable.

Data records of fully Automated Blood Culture System and Blood Culture Bottle (colorimetric method) If bacteria growth in re-cultivate solid culture medium

No.	Specimen No. (or bacterial No.)	Bacterium	BACTEC9240 (BD)				DL-Bt64 (DL)				If bacteria growth in re-cultivate solid culture medium	Operator
			Blood culture bottle				Blood culture bottle					
			Aerobic bottle	Result	Anaerobic bottle	Result	Aerobic bottle	Result	Anaerobic bottle	Result		
1	1100069	Escherichia coli	√	+			√	+			+	
2	1100042	Bauman / Acinetobacter haemolyticus	√	+			√	+			+	
3	1013810	Escherichia coli	√	+			√	+			+	
4	1025430	Staphylococcus aureus	√	+			√	+			+	
5	1025429	Staphylococcus aureus			√	+			√	+	+	

6	1013 779	Pseudomonas aeruginosa	√	+			√	+			+	
7	1013 720	Enterobacter cloacae	√	+			√	+			+	
8	1100 060	Pseudomonas aeruginosa	√	+			√	+			+	
9	1100 041	Bauman / Acinetobacter haemolyticus	√	+			√	+			+	
10	1013 646	Pseudomonas aeruginosa	√	+			√	+			+	
11	1013 776	Bauman / Acinetobacter haemolyticus	√	+			√	+			+	
12	1013 733	Pseudomonas aeruginosa	√	+			√	+			+	
13	1013 771	Proteus mirabilis	√	+			√	+			+	
14	1025 466	Staphylococcus epidermidis	√	+			√	+			+	
15	1013 804	Staphylococcus haemolyticus	√	+			√	+			+	
16	1025 477	Staphylococcus haemolyticus			√	+			√	+	+	
17	1100 067	Pseudomonas aeruginosa	√	+			√	+	—		+	

		a										
18	1100 044	Bauman / Acinetoba cter haemolyti cus	√	+			√	+			+	
19	1013 751	Candida glabrata	√	+			√	+			+	
20	1009 095	Escherichi a coli	√	+			√	+			+	
21	1004 833	Escherichi a coli	√	+			√	+			+	
22	1007 449	Proteus mirabilis	√	+			√	+			+	
23	1005 694	Escherichi a coli	√	+			√	+			+	
24	1010 772	Escherichi a coli			√	+			√	+	+	
25	1013 812	Escherichi a coliv	√	+							+	
26	1013 812	Staphyloc occus aureus			√	+			√	+	+	
27	1013 809	Staphyloc occus capitis	√	+			√				+	
28	1013 806	Pseudomo nas maltophili a	√	+			√				+	
29	1304 7	Enterobac ter cloacae	√	+			√	+			+	
30	4386 2	Serratia liquefacie ns	√	+			√	+			+	
31	3565 9	Proteus mirabilis	√	+			√	+			+	
32	2785 3	Pseudomo nas aeruginos a	√	+			√	+			+	

33	2592 2	Escherichia coli	√	+			√	+			+	
34	1961 5	Streptococcus pyogenes	√	+			√	+			+	
35	1024 409	Viridans Streptococci	√	+			√	+			+	
36	3503 4	Streptococcus bovis	√	+			√	+			+	
37	1011 275	Hydrophilum aeruginosa	√	+			√	+			+	
38	1388 3	Klebsiella pneumoniae			√	+			√	+	+	
39	2997 1	Staphylococcus xylosus			√	+			√	+	+	
40	2592 3	Staphylococcus aureus	√	+			√	+			+	
41	9002 9	Candida albicans	√	+			√	+			+	
42	4961 9	Streptococcus pneumoniae			√	+			√	+	+	
43	Sp-2	Streptococcus pneumoniae			√	+			√	+	+	
44	1008 399	Haemophilus influenzae			√	+			√	+	+	
45	1013 073	Haemophilus influenzae			√	+			√	+	+	
46	1012 362	Candida albicans	√	+			√	+			+	
47	1100	Candida	√	+			√	+			+	

	024	albicans										
48	1100 038	Candida albicans	√	+			√	+			+	
49	1013 727	Enterococ cus faecalis			√	+			√	+	+	
50	1013 722	Staphyloc occus aureus	√	+			√	+			+	
51	1013 777	Klebsiella pneumoni ae			√	+			√	+	+	
52	1100 069	Escherichi a coli	√	+			√	+			+	
53	1013 777	Klebsiella pneumoni ae	√	+			√	+			+	
54	2000 001	Negative specimen	√	—			√	—			—	
55	2000 002	Negative specimen	√	—			√	—			—	
56	2000 003	Negative specimen	√	—			√	—			—	
57	2000 004	Negative specimen	√	—			√	—			—	
58	2000 005	Negative specimen	√	—			√	—			—	
59	2000 006	Negative specimen	√	—			√	—			—	
60	2000 007	Negative specimen	√	—			√	—			—	
61	2000 008	Negative specimen	√	—			√	—			—	
62	2000 009	Negative specimen	√	—			√	—			—	
63	2000 010	Negative specimen	√	—			√	—			—	
64	2000 011	Negative specimen			√	—			√	—	—	
65	2000 012	Negative specimen			√	—			√	—	—	

66	2000 013	Negative specimen			√	—			√	—	—	
67	2000 014	Negative specimen			√	—			√	—	—	
68	2000 015	Negative specimen			√	—			√	—	—	
69	9079 66	Enterobac ter aerogenes	√	+			√	+			+	
70	9088 70	Pseudomo nas maltophili a	√	+			√	+			+	
71	9022 711	Human Staphyloc occus	√	+			√	+			+	
72	9022 847	Human Staphyloc occus			√	+			√	+	+	
73	9098 25	Citrobacte r freundii	√	+			√	+				
74	9073 60	Citrobacte r freundii	√	+			√	+				
75	1025 287	Staphyloc occus haemolyti cus	√	+			√	+				
76	1100 101	Staphyloc occus epidermid is			√	+			√	+	+	
77	1025 411	β hematolys is group B streptococ cus	√	+			√	+			+	
78	1025 465	Human Staphyloc occus	√	+			√	+			+	
79	1100 065	Escherichi a coli	√	+			√	+			+	
80	1013 738	Staphyloc occus aureus			√	+			√	+	+	

81	1012 673	Staphylococcus epidermidis	√	+			√	+			+	
82	9084 38	Klebsiella pneumoniae	√	+			√	+			+	
83	1022 638	Escherichia coli	√	+			√	+			+	
84	9081 91	Streptococcus agalactiae	√	+			√	+			+	
85	9068 39	Pseudomonas maltophilia	√	+			√	+			+	
86	9081 38	Pseudomonas maltophilia	√	+			√	+			+	
87	9063 72	Pseudomonas maltophilia	√	+			√	+			+	
88	9063 91	Staphylococcus aureus			√	+			√	+	+	
89	9073 06	Staphylococcus aureus			√	+			√	+	+	
90	9084 10	Escherichia coli	√	+			√	+			+	
91	9084 461	Escherichia coli	√	+			√	+			+	
92	9092 58	Escherichia coli	√	+			√	+			+	
93	9080 26	Escherichia coli	√	+			√	+			+	
94	9095 31	Pseudomonas aeruginosa	√	+			√	+			+	
95	9089 81	Klebsiella pneumoniae	√	+			√	+			+	

		ae										
96	9023 535	Klebsiella oxytoca	√	+			√	+			+	
97	9093 36	Enterococ cus gallinarum	√	+			√	+			+	
98	1100 057	Escherichi a coli	√	+			√	+			+	
99	1100 068	Pseudomo nas aeruginos a	√	+			√	+			+	
10 0	1120 031	Enterobac ter aerogenes	√	+			√	+			+	
10 1	1100 072	Bauman / Acinetoba cter haemolyti cus	√	+			√	+			+	
10 2	1100 085	Bauman / Acinetoba cter haemolyti cus	√	+			√	+			+	
10 3	1100 108	Bauman / Acinetoba cter haemolyti cus	√	+			√	+			+	
10 4	1025 463	Human Staphyloc occus			√	+			√	+	+	
10 5	1100 154	Escherichi a coli	√	+			√	+			+	
10 6	1100 165	Escherichi a coli	√	+			√	+			+	
10 7	1100 169	Pseudomo nas aeruginos a	√	+			√	+			+	
10 8	1012 767	Serratia liquefacie ns			√	+			√	+	+	

109	1100126	Pseudomonas aeruginosa	√	+			√	+			+	
110	1100150	Enterobacter aerogenes	√	+			√	+			+	
111	1100127	Bauman / Acinetobacter haemolyticus	√	+			√	+			+	
112	1100171	Pseudomonas aeruginosa	√	+			√	+			+	
113	1110082	Pseudomonas aeruginosa	√	+			√	+			+	
114	1100158	Escherichia coli			√	+			√	+	+	
115	1100169	Escherichia coli	√	+			√	+			+	
116	1100148	Pseudomonas aeruginosa	√	+			√	+			+	
117	1100100	Pseudomonas aeruginosa	√	+			√	+			+	
118	1100160	Escherichia coli	√	+			√	+			+	
119	1100170	Pseudomonas aeruginosa	√	+			√	+			+	
120	1100127	Bauman / Acinetobacter haemolyticus	√	+			√	+			+	
121	1013776	Bauman / Acinetobacter	√	+			√	+			+	

		haemolyticus										
122	1012798	C.tropical	√	+			√	+			+	
123	1025425	C.albicans	√	+			√	+			+	
124	1110041	Bauman / Acinetobacter haemolyticus	√	+			√	+			+	
125	1100050	Staphylococcus aureus			√	+			√	+	+	
126	902365	Haemophilus influenzae			√	+			√	+	+	
127	10	Haemophilus influenzae	√	—			√	—			—	
128	2	Haemophilus influenzae			√	+			√	+	+	
129	1025466	Staphylococcus epidermidis			√	+			√	+	+	
130	1100067	Pseudomonas aeruginosa			√	+			√	+	+	
131	1013809	Staphylococcus capitis			√	+			√	+	+	
132	13047	Enterobacter cloacae			√	+			√	+	+	
133	43862	Serratia liquefaciens			√	+			√	+	+	
134	35659	Proteus mirabilis			√	+			√	+	+	
135	25922	Escherichia coli			√	+			√	+	+	

136	13883	Klebsiella pneumoniae			√	+			√	+	+	
137	25923	Staphylococcus aureus			√	+			√	+	+	
138	1025219	Acinetobacter lwoffii			√	+			√	+	+	
139	1013482	Candida parapsilosis	√	+			√	+			+	
140	1025239	Enterobacter cloacae	√	+			√	+			+	
141	1013482	Meningeal flavobacterium	√	+			√	+			+	
142	1025262	Staphylococcus sciuri	√	+			√	+			+	
143	1025271	Serratia marcescens	√	+			√	+			+	
144	1013694	Enterococcus faecium	√	+			√	+			+	
145	1100069	Morganella	√	+			√	+			+	
146	1100078	Enterococcus faecalis	√	+			√	+			+	
147	1120041	Enterococcus faecalis	√	+			√	+			+	
148	1100124	Enterococcus faecium	√	+			√	+			+	
149	1000125	Enterococcus faecalis	√	+			√	+			+	
150	1013640	Enterococcus faecalis	√	+			√	+			+	

15 1	1100 152	Staphylococcus aureus	√	+			√	+			+	
15 2	1025 419	Staphylococcus aureus	√	+			√	+			+	
15 3	1011 240	β hemolytic group B streptococcus	√	+			√	+			+	
15 4	1011 248	Hemophilus parainfluenzae	√	+			√	+			+	
15 5	1004 267	Streptococcus pneumoniae	√	+			√	+			+	
15 6	1021 707	Haemophilus influenzae			√	+			√	+	+	
15 7	1110 0161	Haemophilus influenzae			√	+			√	+	+	
15 8	9045 67	Proteus vulgaris	√	+			√	+			+	
15 9	1100 203	Escherichia coli	√	+			√	+			+	
16 0	1100 143	Klebsiella pneumoniae	√	+			√	+			+	
16 1	1100 178	Bauman / Acinetobacter haemolyticus	√	+			√	+			+	
16 2	1100 162	Escherichia coli			√	+			√	+	+	
16 3	1100 208	Pseudomonas aeruginosa	√	+			√	+			+	
16 4	1100 190	Klebsiella pneumoniae	√	+			√	+			+	

		ae										
16 5	1100 193	Pani proteus	√	+			√	+			+	
16 6	1100 207	Enterobac ter aerogenes	√	+			√	+			+	
16 7	1100 109	Staphyloc occus aureus	√	+			√	+			+	
16 8	1100 211	Klebsiella pneumoni ae	√	+			√	+			+	
16 9	1100 157	Staphyloc occus epidermid is	√	+			√	+			+	
17 0	1100 171	Klebsiella pneumoni ae	√	+			√	+			+	
17 1	1100 188	Klebsiella pneumoni ae	√	+			√	+			+	
17 2	1100 200	Enterobac ter aerogenes	√	+			√	+			+	
17 3	1100 189	Enterobac ter aerogenes	√	+			√	+			+	
17 4	1100 181	Enterococ cus faecium	√	+			√	+			+	
17 5	1100 185	Staphyloc occus aureus	√	+			√	+			+	
17 6	1100 166	Klebsiella pneumoni ae	√	+			√	+			+	
17 7	1100 177	Acinetoba cter baumannii	√	+			√	+			+	
17 8	1100 159	Staphyloc occus epidermid is	√	+			√	+			+	

179	1120069	Staphylococcus aureus	√	+			√	+			+	
180	1004267	Streptococcus pneumonia			√	+			√	+	+	
181	1009095	Escherichia coli			√	+			√	+	+	
182	1004833	Escherichia coli			√	+			√	+	+	
183	1007449	Proteus mirabilis			√	+			√	+	+	
184	1005694	Escherichia coli			√	+			√	+	+	
185	1010772	Escherichia coli			√	+			√	+	+	
186	1013812	Escherichia coli			√	+			√	+	+	
187	1100162	Escherichia coli	√	+			√	+			+	
188	1024967	Viridans Streptococci	√	+			√	+			+	
189	1013589	Viridans Streptococci	√	+			√	+			+	
190	1013457	Burkholderia cepacia	√	+			√	+			+	
191	1013198	Burkholderia cepacia	√	+			√	+			+	
192	1013092	Alcaligenes xylooxidans	√	+			√	+			+	
193	1013491	Alcaligenes xylooxidans	√	+			√	+			+	
194	1025106	Staphylococcus warneri	√	+			√	+			+	

19 5	1025 161	Staphylococcus caprae	√	+			√	+			+	
19 6	1025 218	Polysaccharide Neisseria	√	+			√	+			+	
19 7	1025 219	Acinetobacter lwoffii	√	+			√	+			+	
19 8	1013 466	Streptococcus agalactiae			√	+			√	+	+	
19 9	1100 181	Enterococcus faecium	√	+			√	+			+	
20 0	1100 185	Staphylococcus aureus	√	+			√	+			+	