

6가 Legionella 가

[15].

Legionella (whirlpool spa),

[1-4].

Legionella

[3-4].

Legionella 1-5 μm

[2].

Legionella 가 200 m

1.6-3.2 km

가 가 Legionella

[4,16].

Legionellaceae 1980

가 Legionella 40 60

[1].

가

90% Legionella pneumophila, L. pneumophila serogroup 1 82%, L. micdadei, L. pneumophila serogroup 6, L. dumoffii, L. longbeachae [17]. L. pneumophila serogroup 1

6가 가

CDC 200 가 [17].

1.

Legionella Legionellaceae 42 63

[1]. L. pneumophila 3

L. pneumophila subspecies pneumophila, L. pneumophila subspecies fraseri L. pneumophila subspecies pascullei가 , 14

L. pneumophila serogroup 1, 3, 4, 6

. L. pneumophila 가

80-90% , L. pneumophila serogroup 1 6 가

L. pneumophila L. micdadei가 , L. bozemanii, L. dumoffii, L. longbeachae, L. jordanis, L. gormanii, L. feeleii, L. hackeliae, L. maceachernii, L. wadsworthii, L. birminghamsis, L. cincinnatiensis, L. oakridgensis, L. anisa, L. tucsonensis

Legionella species [3,4].

2.

L. pneumophila 139 가 가 (aerosol) 가

20 m

[18]. Chlorinated phenolic thioether 가 Legionella 가

3.

Legionella 0.3-0.9 μm 가 1.5-30 μm 가

20 μm . pH 2.2
 . safranin acid buffer(3.9 mL 0.2 M HCl 25 mL 0.2 M KCl)
 10 0.05% carbol fuchsin 9 5
 . Legionella [2,19]. Legionella
 touch imprint, Isolator - (lysis-centrifuge tube)
 (bronchial alveolar lavage) BCYE-
 Diff-Quik, Giemsa Gram- Weigert [4].
 Dieterle Legionella BCYE-

hematoxylin & eosin(H&E) , Gram
 Gram , Gomori
 methenamine silver , periodic acid- Schiff(PAS) 50-70%
 [2-4].
 4. 90%
 Legionella L-cysteine 70%(50-80%) 100% [3].

5.
 MacConkey
 chocolate BCYE-
 buffered charcoal yeast extract(BCYE) cysteine
 -ketoglutarate 가 Legionella species [4]. Francisella
 BCYE- [19]. tularensis BCYE- Legionella
 L. pneumophila 1% species . Legionella
 1% IsoVitalax M ller-Hinton
 5% CO₂ L. pneumophila
 Legionella N-(2-
 cetamido)-2-ainoethanesulfonic acid(ACES) buffer charcoal
 yeast extract buffered charcoal yeast extract(BCYE) Legionella
 가 . BCYE glucose , catalase, peroxidase
 pH가 Legionella pH 6.9 , oxidase ,
 CO₂ , L. gormanii urease nitrate
 CO₂ 가 5% [19]. L. bozemanii, L. dumoffii
 Legionella L. gormanii L. micdadei L. wadsworthii
 BCYE -ketoglutarate tyrosine . L.
 가 BCYE- 가 . oakridgensis, L. nautarum L. londinensis
 2-5 1-3 mm , hippurate 가 L. pneumophila L.
 65 가 43 35-37
 [18].
 Legionella , DNA , PCR [2,20].

가 가 BCYE 1
 mL anisomycin 80 μg, polymyxin B 40 unit
 vancomycin 0.5 μg(cefamandole 4 μg) 가
 가 [23].
 가 가 47가 ,

Table 2. Diagnostic tests for Legionella infection

Test method	Sensitivity(%)	Specificity(%)
Culture		
sputum	50-70	100
tracheal aspirate	90	100
blood	20	100
Serologic test	70-90	> 95
Direct immunofluorescent method	25-70	> 95
Urine antigen detection	70-90	70-100
DNA probe	70	> 95

2) Legionella 가 50%

[3,4]. Legionella 가

(1) 가 , ELISA, Legionella 가

가 100% (Table 2). BCYE- Legionella 가 80-90% 가

Legionella L-cysteine [4]. Legionella L

Legionella pneumophila serogroup 1 [3].

. 80-90% IgM IgG Legionella (PCR) DNA probe 가

96-99% B. fragilis, Pseudomonas, Xanthomonas, F. tularensis, Flavobacterium, B. pertussis, Citrobacter, Campylobacter, Mycobacterium pneumoniae, P. vulgaris Legionella mip(macrophage infectivity potentiator, 24 kDa) 5S ribosomal RNA 가

[4]. 3

3-6 가 가

1:128 4 가 [12,25].

[4]. 1-16% 가 1:256 가 2. (Pontiac fever) Legionella Legionella

가 IgM 가 IgM 가 가 [3].

(3) 가

[13]

241, 144 Legionella 가

1984 6 9 50% 83% 가 가 1 L 10⁵ CFU 가 Legionella

[5] 가 가 6-12]. L. pneumophila serogroup 1 77-84% L. pneumophila serogroup 6 18% [13,25]. 가 가 가 Legionella

가 가 8 9 가 가 1984 가 [24] 1984 가 Legionella

[5] 48 1987 1 Legionella

2 7 19 7 20 26 23 13가 2가 1:32 가 가 9.8% , L. pneumophila 0.3-2.1%, L. domoffii L. gormanii 4.8-18.2%, 11.9-14.6% 가 L. pneumophila가

Legionella

gormanii 가

1990 7 1 가 [6-12] 4 L. pneumophila가 가

L. pneumophila L. longbeachae 8 : 3:5 10 1 , 30 2 , 40 (Table 3). L. pneumophila가 7 1 L. longbeachae (serogroup 2) . L. pneumophila serogroup 1 2 , serogroup 2가 1 , 4 serogroup 1-6

3 , 2 , 1 , 1 cyclophosphamide prednisolone , 1 prednisolone , 1 prednisolone [26] 23 Legionella 20 가 8 2 가 25% Legionella

() 가 가

30 66 가 가

. 60 *L. pneumophila* 가

가 *Legionella* 가

가 *Legionella* 가

가 *Legionella* 가

가 glycine 가 BCYE-

Legionella 가

가 6 9 가 가 30% *Legionella*가

[21]. 15-34 가 가 가

가 *Legionella* 가

가 *Legionella* 10 CFU/100 mL 가 *Legionella* (BCYE-) 가

[22]. *Legionella*가 10 가

가 *Legionella* 가

1987 가

2×10^5 CFU/100 mL 1×10^5

CFU/100 mL , 1×10^3 1×10^5 CFU/100 mL *Legionella*

[22]. , 1984 가

가 *Legionella*

Legionella [28].

1. Mulazimoglu L, Yu VL. *Legionella infection*. In: Fauci AS, Braunwald E, Isselbacher KJ, Wilson JD, Martin JB, Kasper DL, et al. eds. *Harrison's Principles of Internal Medicine*. 14th ed. New York: Mc Craw-Hill, 1998:928-33.
2. Inn WE Jr. *Legionella*. In: Murray PR, Baron ED, Pfaller MA, Tenover FC, Tenover FC, eds. *Manual of Clinical Microbiology*. 6th ed. Washington DC: ASM press, 1995:533-44.
3. Koneman EW, Allen SD, Janda WM, Schreckenberger PC, Winn WC Jr. *Color atlas and textbook of diagnostic microbiology*. 5th ed. Philadelphia: Lippincott, 1997: 473-89.
4. Forbes BA, Sahm DF, Weissfeld AS. *Bailey & Scott's Diagnostic Microbiology*, 10th ed. St. Louis: Mosby, 1998:577-81.
5. . 1984 7 K
Legionellosis(Pontiac fever)
1985;7:44-58.
6. .
Legionnaires' disease 1 . 1990;22:93-6.
7. Jun Hee Woo, Shin Ae Kim, Choon Sik Park, Tae Youn Choi, Ik Chin Chang, In Soo Lee. *Nosocomial Legionnaires's disease: a case report and review of the literature*. *Korean J Intern Med* 1992;7:68-72.
8. . 3 . 1993;13:467-72.
9. . *Legionella pneumophila* 2 . 1997;17:491-8.
10. . 2 . 1998;17: 157-61.
11. . *Legionella pneumophila Serogroup 1* 1 . 1998;30:106-10.
12. . 1998;30:218-26.
13. . *Legionella* 1988;25:319-29.
14. Winn WR Jr. *Legionnaires' disease: Historical perspective*. *Clin Microbiol Rev* 1988;1:60-81.
15. Barbaree J, Breiman DF, Dufour AP, eds. *Legionella: current status and emerging perspectives*. Washington DC: American Society for Microbiology. 1993:30-5.
16. Dowling JN, Saha AK, Glew RH. *Virulence factors of the Family Legionelloceae*. *Microbiol Rev* 1992;56:32-60.
17. England AC, Fraser DW, Plikaytis BD, Tsai TF, Storch G, Broome CV. *Sporadic legionellosis in the United States: the first thousand cases*. *Ann Intern Med* 1981;94:164-70.
18. . : 1991: 603-7.
19. . *Legionella* . 1984;16:13-8.
20. Rodgers FG, Pasculle AM. *Legionella*. In: Balows A, ed. *Manual of clinical microbiology*. 5th ed. Washington DC: ASM express, 1991:442-53.
21. . 1994;26:401-7.
22. . 1998;9: 77-81.
23. . *Legionella pneumophila* . 1984;17:590-606.
24. . 137† *Legionella*

25. 1987;19:15-21.
- 1998;30:207-17.
26. Skoberg K, Ruutu P, Koivula I, Jousimies-Somer H, Valtonen. *Effect of immunosuppressive therapy on the clinical presentation of legionellosis. Eur J Clin Microbiol Infect Dis* 1994;13:535-41.
27. *Legionella* 1986;21:107-11.
28. Winn WC Jr. *Legionella and the clinical microbiologist. In: Laboratory diagnosis of infectious disease. Inf Dis Clin Nor Am* 1993;7:377-92.