8. Literaturverzeichnis

Amann, R. (2000). "Who is out there? Microbial aspects of biodiversity." *Syst Appl Microbiol* 23(1): 1-8.

Amann, R., J. Snaidret al., (1996). "In situ visualization of high genetic diversity in a natural microbial community." *J Bacteriol* 178(12): 3496-500.

Amann, R. I., W. Ludwiget al., (1995). "Phylogenetic identification and in situ detection of individual microbial cells without cultivation." *Microbiol Rev* 59(1): 143-69.

Antal, G. M., S. A. Lukehartet al., (2002). "The endemic treponematoses." *Microbes Infect* 4(1): 83-94.

Armitage, G. C., W. R. Dickinsonet al., (1982). "Relationship between the percentage of subgingival spirochetes and the severity of periodontal disease." *J Periodontol* 53(9): 550-6.

Asai, Y., T. Jinnoet al., (2003). "Oral treponemes and their outer membrane extracts activate human gingival epithelial cells through toll-like receptor 2." *Infect Immun* 71(2): 717-25.

Barcellos, D. E., M. de Uzedaet al., (2000). "Identification of porcine intestinal spirochetes by PCR-restriction fragment length polymorphism analysis of ribosomal DNA encoding 23S rRNA." *Vet Microbiol* 75(2): 189-98.

Bassett, H. F., M. L. Monaghanet al., (1990). "Bovine digital dermatitis." *Vet Rec* 126(7): 164-5.

Bayon, H. (1913). "A new species of Treponema found in the genital sores of rabbits." *Br Med J* 2: 1159.

Berchtold, M. and H. König (1996). "Phylogenetic Analysis and In Situ Identification of Uncultivated Spirochetes from the Hindgut of the Termite *Mastotermes darwiniensis*." *Syst Appl Microbiol* 19: 66-73.

Berchtold, M., W. Ludwiget al., (1994). "16S rDNA sequence and phylogenetic position of an uncultivated spirochete from the hindgut of the termite Mastotermes darwiniensis Froggatt." *FEMS Microbiol Lett* 123(3): 269-73.

Blake, G. C. (1968). "The microbiology of acute ulcerative gingivitis with reference to the culture of oral trichomonads and spirochaetes." *Proc R Soc Med* 61(2): 131-6.

Blowey, R. W., S. H. Doneet al., (1994). "Observations on the pathogenesis of digital dermatitis in cattle." *Vet Rec* 135(5): 115-7.

Blowey, R. W. and M. W. Sharp (1988). "Digital dermatitis in dairy cattle." *Vet Rec* 122(21): 505-8.

Bollinger, O. (1874). "Die Syphilis der Feldhasen." *Virchows Arch A* 59: 349-364.

Bonnet, R., A. Suauet al., (2002). "Differences in rDNA libraries of faecal bacteria derived from 10- and 25-cycle PCRs." *Int J Syst Evol Microbiol* 52(Pt 3): 757-63.

Bowden, G. H. and J. M. Hardie (1971). "Anaerobic organisms from the human mouth, pp. 177-205." *In: Shapton, D. A., Board, R. G. (eds.), Isolation of anaerobes. New York: Academic Press*.

Breznak, J. A. (1984). Hindgut spirochetes of termites and *Cryptocercus punktulatus*. *Bergey´s manual of systematic bacteriology*. N. R. Krieg and J. G. Holt, The Williams & Wilkins Co., Baltimore. vol1: 67-70.

Caimano, M. J., K. W. Bourellet al., (1999). "The Treponema denticola major sheath protein is predominantly periplasmic and has only limited surface exposure." *Infect Immun* 67(8): 4072-83.

Caldwell, D. R. and M. P. Bryant (1966). "Medium without rumen fluid for nonselective enumeration and isolation of rumen bacteria." *Appl Microbiol* 14(5): 794-801.

Cameron, C. E., C. Castroet al., (1999). "Sequence conservation of glycerophosphodiester phosphodiesterase among Treponema pallidum strains." *Infect Immun* 67(6): 3168-70.

Cameron, C. E., S. A. Lukehartet al., (2000). "Opsonic potential, protective capacity, and sequence conservation of the Treponema pallidum subspecies pallidum Tp92." *J Infect Dis* 181(4): 1401-13.

Centurion-Lara, A., C. Castroet al., (1998). "The flanking region sequences of the 15-kDa lipoprotein gene differentiate pathogenic treponemes." *J Infect Dis* 177(4): 1036-40.

Chan, E. C. and R. McLaughlin (2000). "Taxonomy and virulence of oral spirochetes." *Oral Microbiol Immunol* 15(1): 1-9.

Chan, E. C., R. Sibooet al., (1993). "Treponema denticola (ex Brumpt 1925) sp. nov., nom. rev., and identification of new spirochete isolates from periodontal pockets." *Int J Syst Bacteriol* 43(2): 196-203.

Chandler, D. P., J. K. Fredricksonet al., (1997). "Effect of PCR template concentration on the composition and distribution of total community 16S rDNA clone libraries." *Mol Ecol* 6(5): 475-82.

Cheli, R. and C. M. Mortellaro (1974). La dermatite digitale del bovino. Int. Conf. Diseases of Cattle, *Milan, Italy*.

Choi, B. K., H. Nattermannet al., (1997). "Spirochetes from digital dermatitis lesions in cattle are closely related to treponemes associated with human periodontitis." *Int J Syst Bacteriol* 47(1): 175-81.

Choi, B. K., B. J. Pasteret al., (1994). "Diversity of cultivable and uncultivable oral spirochetes from a patient with severe destructive periodontitis." *Infect Immun* 62(5): 1889-95.

Choi, B. K., C. Wysset al., (1996). "Phylogenetic analysis of pathogen-related oral spirochetes." *J Clin Microbiol* 34(8): 1922-5.

Chu, L., J. L. Ebersoleet al., (1999). "Hemoxidation and binding of the 46-kDa cystalysin of Treponema denticola leads to a cysteine-dependent hemolysis of human erythrocytes." *Oral Microbiol Immunol* 14(5): 293-303.

Cleveland, L. R. and A. V. Grimstone (1964). "The fins structure of the flagellate Mixotricha paradoxa and its associated miroorganisms." *Proc R Soc Lond B Biol SCI* 159: 668-686.

Collighan, R. J., R. D. Nayloret al., (2000). "A spirochete isolated from a case of severe virulent ovine foot disease is closely related to a Treponeme isolated from human periodontitis and bovine digital dermatitis." *Vet Microbiol* 74(3): 249-57.

Collighan, R. J. and M. J. Woodward (1997). "Spirochaetes and other bacterial species associated with bovine digital dermatitis." *FEMS Microbiol Lett* 156(1): 37-41.

Colwell, R. R. and D. J. Grimes (2000). Semantic and strategies. *Nonculturable Microorganisms in the environment*. R. R. Colwell and D. J. Grimes. Washington, DC, ASM Press: 1-6.

Cunliffe-Beamer, T. L. and R. R. Fox (1981). "Venereal spirochetosis of rabbits: description and diagnosis." *Lab Anim Sci* 31(4): 366-71.

Cwyk, W. M. and E. Canale-Parola (1979). "*Treponema succinifaciens* sp. nov., an anaerobic spirochete from the swine intestine." *Arch Microbiol* 122(3): 231-9.

De Ciccio, A., R. McLaughlinet al., (1999). "Factors affecting the formation of spherical bodies in the spirochete Treponema denticola." *Oral Microbiol Immunol* 14(6): 384-6.

DeLong, E. F. and N.R. Pace (2001). "Environmental diversity of bacteria and archaea." Syst Biol 50(4): 470-8.

Demirkan, I., S. D. Carteret al., (1999). "Isolation and cultivation of a spirochaete from bovine digital dermatitis." *Vet Rec* 145(17): 497-8.

Demirkan, I., S. D. Carteret al., (1998). "The frequent detection of a treponeme in bovine digital dermatitis by immunocytochemistry and polymerase chain reaction." *Vet Microbiol* 60(2-4): 285-92.

Demirkan, I., S. D. Carteret al., (2001). "Isolation and characterisation of a novel spirochaete from severe virulent ovine foot rot." *J Med Microbiol* 50(12): 1061-8.

Dewhirst, F. E., M. A. Tameret al., (2000). "The diversity of periodontal spirochetes by 16S rRNA analysis." *Oral Microbiol Immunol* 15(3): 196-202.

Dobell, C. (1932). "Antony van Leeuwenhoek and his " little animals"." *Harcourt Brace & Co. New York.*

Döpfer, D. (1994). Epidemiological investigations of digital dermatitis on two dairy farms.

Döpfer, D., A. Koopmanset al., (1997). "Histological and bacteriological evaluation of digital dermatitis in cattle, with special reference to spirochaetes and Campylobacter faecalis." *Vet Rec* 140(24): 620-3.

Dryden, S. C. and S. Kaplan (1990). "Localization and structural analysis of the ribosomal RNA operons of Rhodobacter sphaeroides." *Nucleic Acids Res* 18(24): 7267-77.

Eckert, K. A. and T. A. Kunkel (1991). "DNA polymerase fidelity and the polymerase chain reaction." *PCR Methods Appl* 1(1): 17-24.

Edwards, A. M., D. Dymocket al., (2003). "From tooth to hoof: treponemes in tissue-destructive diseases." *J Appl Microbiol* 94(5): 767-80.

Egli, C., W. K. Leunget al., (1993). "Pore-forming properties of the major 53-kilodalton surface antigen from the outer sheath of Treponema denticola." *Infect Immun* 61(5): 1694-9.

Farrelly, V., F. A. Raineyet al., (1995). "Effect of genome size and rrn gene copy number on PCR amplification of 16S rRNA genes from a mixture of bacterial species." *Appl Environ Microbiol* 61(7): 2798-801.

Fenno, J. and B. McBride (1998). "Virulence Factors of Oral Treponemes." *Anaerobe*(4): 1-17.

Fenno, J. C., P. M. Hannamet al., (1998). "Cytopathic effects of the major surface protein and the chymotrypsinlike protease of Treponema denticola." *Infect Immun* 66(5): 1869-77.

Fenno, J. C., G. W. Wonget al., (1997). "Conservation of msp, the gene encoding the major outer membrane protein of oral Treponema spp." *J Bacteriol* 179(4): 1082-9.

Forster, R. J., J. Gonget al., (1997). "Group-specific 16S rRNA hybridization probes for determinative and community structure studies of Butyrivibrio fibrisolvens in the rumen." *Appl Environ Microbiol* 63(4): 1256-60.

Garcia-Martinez, J., S. G. Acinaset al., (1999). "Use of the 16S--23S ribosomal genes spacer region in studies of prokaryotic diversity." *J Microbiol Methods* 36(1-2): 55-64.

Giovannoni, S. J., T. B. Britschgiet al., (1990). "Genetic diversity in Sargasso Sea bacterioplankton." *Nature* 345(6270): 60-3.

Gourreau, J. M., D. W. Scottet al., (1992). "La dermatite digitée des bovins." *Le Point Veterinaire* 24: 49-57.

Grund, S., H. Nattermannet al., (1995). "[Electron microscopic detection of spirochetes in dermatitis digitalis of cattle]." *Zentralbl Veterinarmed [B]* 42(9): 533-42.

Gupta, R. S. (2001). "The branching order and phylogenetic placement of species from completed bacterial genomes, based on conserved indels found in various proteins." *Int Microbiol* 4(4): 187-202.

Gupta, R. S. and E. Griffiths (2002). "Critical issues in bacterial phylogeny." *Theor Popul Biol* 61(4): 423-34.

Gürtler, V. and V. A. Stanisich (1996). "New approaches to typing and identification of bacteria using the 16S-23S rDNA spacer region." *Microbiol* 142: 3-16.

Hampp, E. G. (1957). "Isolation and identification of spirochetes obtained from unexposed canals of pulp-involved teeth." *Oral Surg Oral Med Oral Pathol* 10: 1100-1104.

Hampp, E. G., Scott, D., Wykoff, R. W. G. (1948). "Morphologic characteristics of certain cultured strains of oral spirochetes and Treponema pallidum as revealed by electron microscope." *J. Bacteriol.* 56: 755-769.

Hanson, A. W. (1970). "Isolation of spirochaetes from primates and other mammalian species." *Br J Vener Dis* 46(4): 303-6.

Hanson, A. W. and G. R. Cannefax (1964). "Isolation of Borrelia refringens in pure culture from patients with condylomata acuminata." *J. Bacteriol* 88: 111-113.

Hardy, P. H., Jr., Y. C. Leeet al., (1964). "Use of bacterial culture filtrate as an aid to the isolation and growth anaerobic spirochetes." *J Bacteriol* 87: 1512-1525.

Hennet, P. R. and C. E. Harvey (1991). "Spirochetes in periodontal disease in the dog: a review." *J Vet Dent* 8(3): 16-7.

Heuner, K., B. K. Choiet al., (1999). "Cloning and characterization of a gene (mspA) encoding the major sheath protein of Treponema maltophilum ATCC 51939(T)." *J Bacteriol* 181(3): 1025-9.

Holt, S. C. (1978). "Anatomy and chemistry of spirochetes." *Microbiol Rev* 42(1): 114-60.

Horvath, I., F. Kemeneset al., (1980). "Experimental syphilis and serological examination for treponematosis in hares." *Infect Immun* 27(1): 231-4.

Hugenholtz, P., B. M. Goebelet al., (1998). "Impact of culture-independent studies on the emerging phylogenetic view of bacterial diversity." *J Bacteriol* 180(18): 4765-74.

Hugenholtz, P. and N. R. Pace (1996). "Identifying microbial diversity in the natural environment: a molecular phylogenetic approach." *Trends Biotechnol* 14(6): 190-7.

Hunter, D. and A. Ross (1972). "The isolation of spirochaetes from pigs affected with swine dysentery." *Med Lab Technol* 29(2): 201-2.

Hurtado, M. A., S. Pirizet al., (1998). "Aetiology of ovine footrot in Spain." *Vet Rec* 142(3): 60-3.

Hutter, G., U. Schlagenhaufet al., (2003). "Molecular analysis of bacteria in periodontitis: evaluation of clone libraries, novel phylotypes and putative pathogens." *Microbiology* 149(Pt 1): 67-75.

Iida, T., M. Ohkumaet al., (2000). "Symbiotic spirochetes in the termite hindgut: phylogenetic identification of ectosymbiotic spirochetes of oxymonad protists." *FEMS Microbiol Ecol* 34(1): 17-26.

Ishihara, K., H. K. Kuramitsuet al., (1998). "Dentilisin activity affects the organization of the outer sheath of Treponema denticola." *J Bacteriol* 180(15): 3837-44.

Johnson, R. C. (1986). Introduction to the spirochetes. *The Prokaryotes*. M. P. Starr, Stolp, H., Trüper, H. G., Balows, A., Schlegel, H. G. Berlin, Heidelberg, New York, Tokyo, Springer Verlag. Bd. 1: 533-537.

Kaisho, T. and S. Akira (2002). "Toll-like receptors as adjuvant receptors." *Biochim Biophys Acta* 1589(1): 1-13.

Keulers, R. A., J. C. Malthaet al., (1993). "Attachment of Treponema denticola strains to monolayers of epithelial cells of different origin." *Oral Microbiol Immunol* 8(2): 84-8.

Kimura, Y., M. Takahashuet al., (1993). "Verrucose dermatitis and digital paillomatosis in dairy cows." *J Vet Med, Jpn* 46: 899-906.

Krasse, B. and N. Brill (1960). "Effect of consistency of diet on bacteria in gingival pockets in dogs." *Odontol Rev* 11: 152-165.

Kreader, C. A. (1996). "Relief of amplification inhibition in PCR with bovine serum albumin or T4 gene 32 protein." *Appl Environ Microbiol* 62(3): 1102-6.

Kudo, H., K. J. Chenget al., (1987). "Interactions between Treponema bryantii and cellulolytic bacteria in the in vitro degradation of straw cellulose." *Can J Microbiol* 33(3): 244-8.

Kühn, T. (1996). "Bestandsbetrachtungen im Zusammenhang mit der Immunisierung gegen die Dermatits digitalis." *Der Praktische Tierarzt* 77: 1011-1014.

Larsen, N., G. J. Olsenet al., (1993). "The ribosomal database project." *Nucleic Acids Res* 21(13): 3021-3.

Leadbetter, J. R., T. M. Schmidtet al., (1999). "Acetogenesis from H2 plus CO2 by spirochetes from termite guts." *Science* 283(5402): 686-9.

Leser, T. D., K. Molleret al., (1997). "Specific detection of Serpulina hyodysenteriae and potentially pathogenic weakly beta-haemolytic porcine intestinal spirochetes by polymerase chain reaction targeting 23S rDNA." *Mol Cell Probes* 11(5): 363-72.

Lilburn, T. G., K. S. Kimet al., (2001). "Nitrogen fixation by symbiotic and free-living spirochetes." *Science* 292(5526): 2495-8.

Lilburn, T. G., T. M. Schmidtet al., (1999). "Phylogenetic diversity of termite gut spirochaetes." *Environ Microbiol* 1(4): 331-45.

Loesche, W. J. and S. S. Socransky (1962). "Defect in small millipore filters disclosed by new technique for isolating oral treponemes." *Science* 138: 138-140.

Lou, Q., S. K. Chonget al., (1997). "Rapid and effective method for preparation of fecal specimens for PCR assays." *J Clin Microbiol* 35(1): 281-3.

Ludwig, W., J. Neumaieret al., (1993). "Phylogenetic relationships of Bacteria based on comparative sequence analysis of elongation factor Tu and ATP-synthase beta-subunit genes." *Antonie Van Leeuwenhoek* 64(3-4): 285-305.

Ludwig, W., O. Strunket al., (1998). "Bacterial phylogeny based on comparative sequence analysis." *Electrophoresis* 19(4): 554-68.

Lumeij, J. T., J. de Koninget al., (1994). "Treponemal infections in hares in The Netherlands." *J Clin Microbiol* 32(2): 543-6.

MacDougall, J. and I. Saint Girons (1995). "Physical map of the *Treponema denticola* circular chromosome." *J Bacteriol* 177(7): 1805-11.

Maidak, B. L., J. R. Coleet al., (2000). "The RDP (Ribosomal Database Project) continues." *Nucleic Acids Res* 28(1): 173-4.

Maidak, B. L., G. J. Olsenet al., (1997). "The RDP (Ribosomal Database Project)." *Nucleic Acids Res* 25(1): 109-11.

Makinen, K. K. and P. L. Makinen (1996). "The peptidolytic capacity of the spirochete system." *Med Microbiol Immunol (Berl)* 185(1): 1-10.

Marchesi, J. R., T. Satoet al., (1998). "Design and evaluation of useful bacterium-specific PCR primers that amplify genes coding for bacterial 16S rRNA." *Appl Environ Microbiol* 64(2): 795-9.

Mathers, D. A., W. K. Leunget al., (1996). "The major surface protein complex of Treponema denticola depolarizes and induces ion channels in HeLa cell membranes." *Infect Immun* 64(8): 2904-10.

Metzner, M. (2001). "Update zur Dermatitis digitalis des Rindes." *Grosstierpraxis*(6): 47-51.

Metzner, M., D. Döpferet al., (1995). "Dermatitis digitalis des Rindes : klinisches Bild, Epidemiologie und Maßnahmen." *Der Praktische Tierarzt, 76 (collegium veterinarium XXV)* 76: 46-50.

Mikx, F. H. and G. J. van Campen (1982). "Microscopical evaluation of the microflora in relation to necrotizing ulcerative gingivitis in the beagle dog." *J Periodontal Res* 17(6): 576-84.

Monteiro, L., D. Bonnemaisonet al., (1997). "Complex polysaccharides as PCR inhibitors in feces: Helicobacter pylori model." *J Clin Microbiol* 35(4): 995-8.

Monteiro, L., N. Graset al., (2001). "Magnetic immuno-PCR assay with inhibitor removal for direct detection of Helicobacter pylori in human feces." *J Clin Microbiol* 39(10): 3778-80.

Moter, A. and U. B. Gobel (2000). "Fluorescence in situ hybridization (FISH) for direct visualization of microorganisms." *J Microbiol Methods* 41(2): 85-112.

Moter, A., C. Hoeniget al., (1998). "Molecular epidemiology of oral treponemes associated with periodontal disease." *J Clin Microbiol* 36(5): 1399-403.

Moter, A., G. Leistet al., (1998). "Fluorescence in situ hybridization shows spatial distribution of as yet uncultured treponemes in biopsies from digital dermatitis lesions." *Microbiology* 144(Pt 9): 2459-67.

Mylvaganam, S. and P. P. Dennis (1992). "Sequence heterogeneity between the two genes encoding 16S rRNA from the halophilic archaebacterium Haloarcula marismortui." *Genetics* 130(3): 399-410.

Nattermann, H., S. Grundet al., (1998). Zur Ätiologie und Immunprophylaxe der Dermatitis digitalis des Rindes. Proc. 10th Middle-European Buiatrics Congress, *Siófok*.

Naylor, R. D., P. K. Martinet al., (1998). "Isolation of spirochaetes from an incident of severe virulent ovine footrot." *Vet Rec* 143(25): 690-1.

Noguchi, H. (1922). "Venereal spirochaetosis in American Rabbits." *J Exp Med* 35: 391-408.

Noordhoek, G. T., P. W. Hermanset al., (1989). "Treponema pallidum subspecies pallidum (Nichols) and Treponema pallidum subspecies pertenue (CDC 2575) differ in at least one nucleotide: comparison of two homologous antigens." *Microb Pathog* 6(1): 29-42.

Nuter, W. T. and J. A. Moffit (1990). "Digital dermatitis control." *Vet Rec* 126: 200-201.

Ohkuma, M., T. Iidaet al., (1999). "Phylogenetic relationships of symbiotic spirochetes in the gut of diverse termites." *FEMS Microbiol Lett* 181(1): 123-9.

Ohkuma, M. and T. Kudo (1996). "Phylogenetic diversity of the intestinal bacterial community in the termite Reticulitermes speratus." *Appl Environ Microbiol* 62(2): 461-8.

Ohkuma, M. and T. Kudo (1998). "Phylogenetic analysis of the symbiotic intestinal microflora of the termite *Cryptotermes domesticus*." *FEMS Microbiol Lett* 164: 389-395.

Olsen, G. J. (1990). "Microbial ecology. Variation among the masses." *Nature* 345(6270): 20.

Olsen, G. J. and C. R. Woese (1993). "Ribosomal RNA: a key to phylogeny." *Faseb J* 7(1): 113-23.

Opitz, B., N. W. Schroderet al., (2001). "Toll-like receptor-2 mediates Treponema glycolipid and lipoteichoic acid-induced NF-kappaB translocation." *J Biol Chem* 276(25): 22041-7.

Paster, B. J. and E. Canale-Parola (1982). "Physiological diversity of rumen spirochetes." *Appl Environ Microbiol* 43(3): 686-93.

Paster, B. J. and E. Canale-Parola (1985). "Treponema saccharophilum sp. nov., a large pectinolytic spirochete from the bovine rumen." *Appl Environ Microbiol* 50(2): 212-9.

Paster, B. J. and F. E. Dewhirst (2000). "Phylogenetic foundation of spirochetes." *J Mol Microbiol Biotechnol* 2(4): 341-4.

Paster, B. J., F. E. Dewhirstet al., (1998). "Phylogenetic analysis of cultivable oral treponemes from the Smibert collection." *Int J Syst Bacteriol* 48 Pt 3: 713-22.

Paster, B. J., F. E. Dewhirstet al., (1996). "Phylogeny of not-yet-cultured spirochetes from termite guts." *Appl Environ Microbiol* 62(2): 347-52.

Paster, B. J., F. E. Dewhirstet al., (1991). "Phylogenetic analysis of the spirochetes." *J Bacteriol* 173(19): 6101-9.

Peters, S. R., M. Valdezet al., (1999). "Adherence to and penetration through endothelial cells by oral treponemes." *Oral Microbiol Immunol* 14(6): 379-83.

Pietrantonio, F., P. B. Nobleet al., (1988). "Locomotory characteristics of Treponema denticola." *Can J Microbiol* 34(6): 748-52.

Pitcher, D. G. and N. K. Fry (2000). "Molecular techniques for the detection and identification of new bacterial pathogens." *J Infect* 40(2): 116-20.

Read, D. H., R. L. Walkeret al., (1992). "An invasive spirochete associated with interdigital papillomatosis of dairy cattle." *Vet Rec* 130: 59-60.

Rebhuhn, W. C., R. M. Payneet al., (1980). "Intergital papillomatosis in dairy cattle." *J Am Vet Med Assoc* 177: 437-440.

Reilly, K. and G. T. Attwood (1998). "Detection of Clostridium proteoclasticum and closely related strains in the rumen by competitive PCR." *Appl Environ Microbiol* 64(3): 907-13.

Relman, D. A. (1993). "The identification of uncultured microbial pathogens." *J Infect Dis* 168(1): 1-8.

Reysenbach, A. L., L. J. Giveret al., (1992). "Differential amplification of rRNA genes by polymerase chain reaction." *Appl Environ Microbiol* 58(10): 3417-8.

Rijpkema, S. G., G. P. Davidet al., (1997). "Partial identification of spirochaetes from two dairy cows with digital dermatitis by polymerase chain reaction analysis of the 16S ribosomal RNA gene." *Vet Rec* 140(10): 257-9.

Riviere, G. R., K. H. Rivierеet al., (2002). "Molecular and immunological evidence of oral Treponema in the human brain and their association with Alzheimer's disease." *Oral Microbiol Immunol* 17(2): 113-8.

Riviere, G. R., A. J. Thompsonet al., (1996). "Detection of pathogen-related oral spirochetes, Treponema denticola, and Treponema socranskii in dental plaque from dogs." *J Vet Dent* 13(4): 135-8.

Riviere, G. R., M. A. Wagoneret al., (1991). "Identification of spirochetes related to Treponema pallidum in necrotizing ulcerative gingivitis and chronic periodontitis." *N Engl J Med* 325(8): 539-43.

Riviere, G. R., K. S. Weiszet al., (1991). "Pathogen-related oral spirochetes from dental plaque are invasive." *Infect Immun* 59(10): 3377-80.

Rohde, J., A. Rothkampet al., (2002). "Differentiation of porcine Brachyspira species by a novel nox PCR-based restriction fragment length polymorphism analysis." *J Clin Microbiol* 40(7): 2598-600.

Rosebury, T. and G. Foley (1942). "Isolation and pure cultivation of the smaller mouth spirochetes by an improved

method." *Proc. Soc. Experimental Biol. Med* 47: 368-374.

Rosebury, T., J. B. McDonaldet al., (1951). "Media and methods for separation and cultivation of oral spirochetes." *Oral Surg Oral Med Oral Pathol* 4: 68-85.

Sakamoto, M., Y. Takeuchiet al., (1999). "Detection of *Treponema socranskii* associated with human periodontitis by PCR." *Microbiol Immunol* 43(5): 485-90.

Satake, S., N. Clarket al., (1997). "Detection of vancomycin-resistant enterococci in fecal samples by PCR." *J Clin Microbiol* 35(9): 2325-30.

Schmalenberger, A., F. Schwiegeret al., (2001). "Effect of primers hybridizing to different evolutionarily conserved regions of the small-subunit rRNA gene in PCR-based microbial community analyses and genetic profiling." *Appl Environ Microbiol* 67(8): 3557-63.

Schmidt, T. M. and D. A. Relman (1994). "Phylogenetic identification of uncultured pathogens using ribosomal RNA sequences." *Methods Enzymol* 235: 205-22.

Schrank, K. (2000). Diversity of treponemes from Dermatitis digitalis of cattle- description of novel species Treponema brennaborense. Fachbereich Veterinärmeizin. Berlin, Freie Universität.

Schrank, K., B. K. Choiet al., (1999). "*Treponema brennaborense* sp. nov., a novel spirochaete isolated from a dairy cow suffering from digital dermatitis." *Int J Syst Bacteriol* 49 Pt 1: 43-50.

Schroder, N. W., B. Opitzet al., (2000). "Involvement of lipopolysaccharide binding protein, CD14, and Toll-like receptors in the initiation of innate immune responses by Treponema glycolipids." *J Immunol* 165(5): 2683-93.

Schwiertz, A., G. Le Blayet al., (2000). "Quantification of different Eubacterium spp. in human fecal samples with species-specific 16S rRNA-targeted oligonucleotide probes." *Appl Environ Microbiol* 66(1): 375-82.

Sellwood, R., Bland, A. P. (1997). Ultrastructure of intestinal spirochetes. *Intestinal spirochetes in domestic animals and humans*. D. J. Hampson, Stanton, T. B. Oxon, New York, CAB INTERNATIONAL: 109-149.

Siboo, R., W. al-Joburiet al., (1989). "Synthesis and secretion of phospholipase C by oral spirochetes." *J Clin Microbiol* 27(3): 568-70.

Smibert, R. M. (1984). Genus III. Treponema Schaudinn 1905, 1728 ^{AL}. *Bergey´s manual of systematic bacteriology*. N. R. Krieg and J. G. Holt. Baltimore, Williams & Wilkins. 1: 49-57.

Smibert, R. M. (1986). The Genus Treponema. *The Prokaryotes*. M. P. Starr, Stolp, H., Trüper, H. G., Balows, A., Schlegel, H. G. Berlin, Heidelberg, New York, Tokyo,, Springer Verlag. Bd. 1: 565-577.

Smibert, R. M. and J. A. Burmeister (1983). "*Treponema pectinovorum* sp. nov. isolated from humans with periodontitis." *Int J Syst Bacteriol* 33: 852-856.

Smibert, R. M. and R. L. Claterbaugh, Jr. (1972). "A chemically defined medium for Treponema strain PR-7 isolated from the intestine of a pig with swine dysentery." *Can J Microbiol* 18(7): 1073-8.

Smibert, R. M., J. L. Johnsonet al., (1984). "*Treponema socranskii* sp. nov., *Treponema socranskii* subsp. *socranskii*, subsp. nov., *Treponema socranskii* subsp. *buccale* subsp. nov., *Treponema socranskii* subsp. *paredis* subsp. nov. isolated from the human periodontia." *Int J Syst Bacteriol* 34: 457-462.

Soames, J. V. and R. M. Davies (1974). "The distribution of spirochaetes in the gingival crevice of a Beagle dog." *J Small Anim Pract* 15(8): 529-33.

Sobernheim, G. and W. Loewenthal (1930). Allgemeines über Spirochäten. *Handbuch der pathogenen Mikroorganismen*. W. Kolle, R. Kraus and P. Uhlenhuth. Berlin und Wen, Gustav Fischer und Urban & Schwarzenberg: 1-30.

Socransky, S. S., M. Listgartenet al., (1969). "Morphological and biochemical differentiation of three types of small oral spirochetes." *J Bacteriol* 98(3): 878-82.

Stanton, T. B. (1997). "Physiology of ruminal and intestinal spirochetes." *In:Hampson, D. J., Stanton, T. B. (ed.): Intestinal spirochetes in domestic animals and humans. CAB International, pp. 7-45*.

Stanton, T. B. and E. Canale-Parola (1979). "Enumeration and selective isolation of rumen spirochetes." *Appl Environ Microbiol* 38(5): 965-73.

Stanton, T. B. and E. Canale-Parola (1980). "*Treponema bryantii* sp. nov., a rumen spirochete that interacts with cellulolytic bacteria." *Arch Microbiol* 127(2): 145-56.

Suzuki, M. T. and S. J. Giovannoni (1996). "Bias caused by template annealing in the amplification of mixtures of 16S rRNA genes by PCR." *Appl Environ Microbiol* 62(2): 625-30.

Svanberg, G. K., S. A. Syedet al., (1982). "Differences between gingivitis and periodontitis associated microbial flora in the beagle dog. Relationship of plaque parameters to histological parameters of periodontal disease." *J Periodontal Res* 17(1): 1-11.

Tajima, K., R. Aminovet al., (1999). "Rumen bacterial diversity as determined by sequence analysis of 16S rDNA libraries." *FEMS Microbiology Ecology* 29: 159-169.

Takeuchi, Y., M. Umedaet al., (2001). "Treponema socranskii, Treponema denticola, and Porphyromonas gingivalis are associated with severity of periodontal tissue destruction." *J Periodontol* 72(10): 1354-63.

Taylor, D. J. and T. J. L. Alexander (1971). "The production of swine dysentery by feeding cultures containing a spirochaete." *Brit. Vet. J.* 127: 58-61.

Tebbe, C. C. and W. Vahjen (1993). "Interference of humic acids and DNA extracted directly from soil in detection and transformation of recombinant DNA from bacteria and a yeast." *Appl Environ Microbiol* 59(8): 2657-65.

Trkov, M., T. Accettoet al., (2001). "Preliminary characterization of a tentatively novel rumen bacterial species from the genus Treponema." *Folia Microbiol* 46(1): 91-3.

Uitto, V. J., Y. M. Panet al., (1995). "Cytopathic effects of Treponema denticola chymotrypsin-like proteinase on migrating and stratified epithelial cells." *Infect Immun* 63(9): 3401-10.

Valdez, M., R. Haineset al., (2000). "Isolation of oral spirochetes from dogs and cats and provisional identification using polymerase chain reaction (PCR) analysis specific for human plaque Treponema spp." *J Vet Dent* 17(1): 23-6.

Vasselon, T. and P. A. Detmers (2002). "Toll receptors: a central element in innate immune responses." *Infect Immun* 70(3): 1033-41.

von Wintzingerode, F., U. B. Gobelet al., (1997). "Determination of microbial diversity in environmental samples: pitfalls of PCR-based rRNA analysis." *FEMS Microbiol Rev* 21(3): 213-29.

Wagner, M., M. Hornet al., (2003). "Fluorescence in situ hybridisation for the identification and characterisation of prokaryotes." *Curr Opin Microbiol* 6(3): 302-9.

Walker, R. L., D. H. Readet al., (1995). "Spirochetes isolated from dairy cattle with papillomatous digital dermatitis and interdigital dermatitis." *Vet Microbiol* 47(3-4): 343-55.

Wang, G. C. and Y. Wang (1996). "The frequency of chimeric molecules as a consequence of PCR co- amplification of 16S rRNA genes from different bacterial species." *Microbiology* 142(Pt 5): 1107-14.

Wang, G. C. and Y. Wang (1997). "Frequency of formation of chimeric molecules as a consequence of PCR coamplification of 16S rRNA genes from mixed bacterial genomes." *Appl Environ Microbiol* 63(12): 4645-50.

Whitford, M. F., R. J. Forsteret al., (1998). "Phylogenetic Analysis of Rumen Bacteria by Comparative Sequence Analysis of Cloned 16S rRNA Genes." *Anaerobe* 4: 153-163.

Woese, C. R. (1987). "Bacterial evolution." *Microbiol Rev* 51(2): 221-71.

Woese, C. R., O. Kandleret al., (1990). "Towards a natural system of organisms: proposal for the domains Archaea, Bacteria, and Eucarya." *Proc Natl Acad Sci U S A* 87(12): 4576-9.

Wolf, V., R. Langeet al., (1993). "Development of quasi-multicellular bodies of Treponema denticola." *Arch Microbiol* 160(3): 206-13.

Wyss, C. (1992). "Growth of Porphyromonas gingivalis, Treponema denticola, T. pectinovorum, T. socranskii, and T. vincentii in a chemically defined medium." *J Clin Microbiol* 30(9): 2225-9.

Wyss, C., B. K. Choiet al., (1996). "*Treponema maltophilum* sp. nov., a small oral spirochete isolated from human periodontal lesions." *Int J Syst Bacteriol* 46(3): 745-52.

Wyss, C., B. K. Choiet al., (1997). "*Treponema amylovorum* sp. nov., a saccharolytic spirochete of medium size isolated from an advanced human periodontal lesion." *Int J Syst Bacteriol* 47(3): 842-5.

Wyss, C., B. K. Choiet al., (1999). "*Treponema lecithinolyticum* sp. nov., a small saccharolytic spirochaete with phospholipase A and C activities associated with periodontal diseases." *Int J Syst Bacteriol* 49 Pt 4: 1329-39.

Wyss, C., F. E. Dewhirstet al., (2001). "*Treponema parvum* sp. nov., a small, glucoronic or galacturonic acid- dependent oral spirochaete from lesions of human periodontitis and acute necrotizing ulcerative gingivitis." *Int J Syst Evol Microbiol* 51(Pt 3): 955-62.

Zheng, D., E. W. Almet al., (1996). "Characterization of universal small-subunit rRNA hybridization probes for quantitative molecular microbial ecology studies." *Appl Environ Microbiol* 62(12): 4504-13.

Ziolecki, A. (1979). "Isolation and characterization of large treponemes from the bovine rumen." *Appl Environ Microbiol* 37(1): 131-5.

Ziolecki, A. and M. Wojciechowicz (1980). "Small pectinolytic spirochetes from the rumen." *Appl Environ Microbiol* 39(4): 919-22.