

Literaturverzeichnis

- Adam, A. C., Gonzalez-Blasco, G., Rubio-Teixeira, M., Polaina, J. (1999):**
Transformation of *Escherichia coli* with DNA from *Saccharomyces cerevisiae* cell lysates,
Appl Environ Microbiol **65**, 5303-5306
- Agin, T. S., Wolf, M. K. (1997):** Identification of a family of intimins common to
Escherichia coli causing attaching-effacing lesions in rabbits, humans, and swine
Infect Immun, **65**, 320-6
- Ahrens, F., (1990)**
Zur Wirkung von Toyocerin,
Sonderdruck aus Lohmann Information Febr./März, 1-7
- Akiba, M., Sameshima, T., Nakazawa, M. (2000):**
Clonal turnover of enterohemorrhagic *Escherichia coli* O157:H7 in experimentally infected
cattle.
FEMS Microbiology Letters **184**, 79-83
- Baker, D.R., Billey, L.O., Francis, D.H. (1997):**
Distribution of K88 *Escherichia coli*-adhesive and nonadhesive phenotypes among pigs of
four breeds,
Vet. Microbiol. **54**, 123-132
- Beausoleil, H.-E., Labrie, V., Dubreuil, J. D. (1999):**
Is *Escherichia coli* STb enterotoxin sufficient to cause pig diarrhea?
Letters to the Editor, *Vet. Microbiol.* **70**, 281-285
- Begum, D., Strockbine, N.A., Sowers, E.G., Jackson, M.P. (1993):**
Evaluation of a technique for identification of Shiga-like Toxin-producing *Escherichia coli*
by using Polymerase Chain Reaction and digoxigenin-labeled probes,
J. Clin. Microbiol. **31**, 3153-3156
- Bertschinger, H.U. (1984):**
Grundsätzliche Aspekte der Vakzination gegen neonatale Colidiarrhöe beim Schwein,
Schweiz. Arch. Tierheilkd. **126**, 59-63
- Bertschinger, H.U., Fairbrother, J.M., Nielsen, N.O., Pohlenz, J.F. (1992):**
Escherichia coli Infections.
in: *Diseases of Swine*, 7th edition, Iowa State University Press, 487-497
- Bertschinger, H.U., Pohlenz, J. (1983):**
Bacterial colonization and morphology of the intestine in porcine *Escherichia coli*
enterotoxemia (edema disease),
Vet. Pathol. **20**, 99-110
- Bertschinger, H.U., Stamm, M., Vögeli, P. (1993):**
Inheritance of resistance to oedema disease in the pig: Experiments with an *Escherichia coli*
strain expressing fimbriae 107,
Vet. Microbiol. **35**, 79-89

Bijlsma, I.G.W., de Nijs, A., van der Meer, C., Frik, F.F. (1982):

Different pig phenotypes affect adherence of *Escherichia coli* to jejunal brush borders by K88ab, K88ac, or K88ad antigen.

Infect. Immun. **37**, 891-894

Blanco, M., Blanco, J.E., Gonzales, E.A., Mora, A., Jansen, W., Gomes, T.A.T., Zerbini, L.F., Yano, T., De Castro, A.F.P., Blanco, J. (1997):

Notes: Genes coding for enterotoxins and verotoxins in porcine *Escherichia coli* strains belonging to different O:K:H serotypes: relationship with toxic phenotypes.

J. Clin. Microbiol. **35**, 2958-2963

Blomberg, I., Henriksson, A., Conway, P.L. (1993):

Inhibition of *Escherichia coli* K88 to piglet ileal mucus by *Lactobacillus* spp..

Appl. Environ. Microbiol. **59**, 34-39

Bosworth, B. (1996):

F18 *E.coli* striking at 10 days postweaning.

NOBL Labs Web Side, [http:// 208.135.133.6/ nobl/ justpigs/ articles/ dec97/ decjpf18ecoli.html](http://208.135.133.6/nobl/justpigs/articles/dec97/decjpf18ecoli.html)

Bosworth, B. T., Casey, T. A. (1997):

Identification of toxin and pilus genes in porcine *Escherichia coli* using polymerase chain reaction (PCR) with multiple primer pairs.

97th general meeting of the American Society for Microbiology, May 4-8 1997, Miami Beach, Florida, Abstract B-509,116

Bosworth, B.T., Samuel, J.E., Moon, H.W., O'Brien, A.D., Gordon, V.M., Whipp, S.C. (1996):

Vaccination with genetically modified shiga-like toxin IIe prevents edema disease in swine, Infect. Immun. **64**, 55-60

Boyd, E. F., Hartl, D. L. (1997):

Recent Horizontal Transmission of Plasmids between Natural Populations of *Escherichia coli* and *Salmonella enterica*

J Bacteriol. **179**, 1622-1627

Breves, G., Schröder, B., Winckler, C. (1997):

Einfluß von Probiotika auf die intestinale Barriere beim Schwein, Vitamine und Zusatzstoffe in der Ernährung von Mensch und Tier, 6. Symposium, 24./25.09.97, Jena, 70-74

Breves, G., Walter, C., Burmester, M., Schröder, B. (2000):

In vitro studies on the effect of *Saccharomyces boulardii* and *Bacillus cereus* var. *toyoi* on nutrient transport in pig jejunum,

J. Anim. Physiol. Anim. Nutr. **84**, 9-20

Brock, T. D., Madigan, M. T., Martinko, J. M., Parker, J. (1994):
Biology of microorganisms,
7. ed. - Englewood Cliffs, NJ : Prentice Hall, 1994

Casey, T. A. (1999):
Reply to Letter to the Editor.
Vet. Microbiol. **70**, 281-285

Casey, T.A., Herring, C.J., Schneider, R.A., Bosworth, B.T., Whipp, S.C. (1998):
Expression of heat-stable enterotoxin Stb by adherent *Escherichia coli* is not sufficient to cause severe diarrhea in neonatal pigs,
Infect. Immun. **66**, 1270-1272

Casey, T.A., Moon, H.W. (1990):
Genetic characterization and virulence of enterotoxigenic *Escherichia coli* mutants which have lost virulence genes in vivo,
Infect. Immun. **58**, 4156-4158

Celemin, C., Rubio, P., Echeverria, P., Suarez, S. (1995):
Gene toxin patterns of *Escherichia coli* isolated from diseased and healthy piglets,
Vet. Microbiol. **45**, 121-127

Clements, J.D., Hertzog, N.M., Lyon, F.L. (1988):
Adjuvant activity of *Escherichia coli* heat-labile enterotoxin and effect on the induction of oral tolerance in mice to unrelated protein antigens,
Vaccine **6**, 269-277

Danbara, H., Arita, H., Baba, H., Yoshikawa, M. (1986) :
Conjugal acquisition and stable maintenance of Ent plasmids in nontoxigenic wild-type strains of *Escherichia coli*
Microbiol Immunol **30**, 1095-1104

De Cupere, F., Deprez, P., Demeulenaere, D., Muylle, E. (1992):
Evaluation of the effect of 3 probiotics on experimental *Escherichia coli* enterotoxaemia in weaned piglets,
Zentralbl Veterinarmed B. **39**, 277-84.

Dean, E.A. (1990),
Comparison of receptors for 987P pili of enterotoxigenic *Escherichia coli* in the small intestines of neonatal and older pigs.
Infect. Immun. **58**, 4030-4035

Dean, E.A., Whipp, S.C., Monn, H.W. (1989):
Age-specific colonization of porcine intestinal epithelium, by 987P-piliated enterotoxigenic *Escherichia coli*,
Infect. Immun. **57**, 82-87

Donnenberg, M. S., Tzipori, S., McKee, M. L., O'Brien, A. D., Alroy, J., Kaper, J. B. (1993): The role of the *eae* gene of enterohemorrhagic *Escherichia coli* in intimate attachment in vitro and in a porcine model
Clin Invest, **92**, 1418-24.

Elder, R.O., Duhamel, G.E., Mathiesen, M.R., Erickson, E.D., Gebhart, C.J., Oberst, R.D. (1997):
Multiplex polymerase chain reaction for simultaneous detection of *Lawsonia intracellularis*, *Serpulina hyodysenteriae*, and salmonellae in porcine intestinal specimens,
J. Vet. Diagn. Invest. **9**, 281-286

Flores-Abuxapqui, J. J., Suarez-Hoil, G. J., Puc-Franco, M. A., Heredia-Navarrete, M. R., Vivas-Rosel, M. L., Oberhelman, R. A. (1997):
Frequency of adhesive factors and enterotoxins in strains of *Escherichia coli* isolated from piglets with diarrhea,
Rev Latinoam Microbiol **39**, 145-151

Franck, S.M., Bosworth, B.T., Moon, H.W. (1998):
Multiplex PCR for enterotoxigenic, attaching and effacing, and Shiga toxin-producing *Escherichia coli* strains from calves,
J. Clin. Microbiol. **36**, 1795-1797

Franklin, A., Soderlind, Mollby, R. (1981):
Plasmids coding for enterotoxins, K88 antigen and colicins in porcine *Escherichia coli* strains of O-group 149,
Med Microbiol Immunol (Berl) **170**, 63-72

Franklin, A., Mollby, R. (1983):
Concurrent transfer and recombination between plasmids encoding for heat-stable enterotoxin and drug resistance in porcine enterotoxigenic *Escherichia coli*,
Med Microbiol Immunol (Berl) **172**, 137-147

Fratamico, P. M., Bagi, L.K., Pepe, T. (2000):
A multiplex polymerase chain reaction assay for rapid detection and identification of *Escherichia coli* O157:H7 in foods and bovine faeces,
J. Food Prot. **63**, 1032-1037

Fukushima, M., Nakano, M. (1995):
The effect of a probiotic on faecal and liver lipid classes in rats.
Br. J. Nutr. **73**, 701-710

Fukushima, Y., Kawata, Y., Hara, H., Terada, A., Mitsouka, T. (1998):
Effect of a probiotic formula on intestinal immunoglobulin A production in healthy children,
Int. J. Food Microbiol. **42**, 39-44

Fuller, R. (1999):
Probiotics for farm animals, In: G.W. Tannock (Editor), Probiotics: A general review, 17, Horizon. Scientific Press, Wymondham (UK), 15-22

Garabal, J.I., Vazquez, F., Blanco, M., Gonzalez, E.A. (1997):

Colonization antigens of enterotoxigenic *Escherichia coli* strains isolated from piglets in Spain,
Vet. Microbiol. **54**, 321-328

Gedek, B., Kirchgessner, M., Wiehler, S., Bott, A., Eidelsburger, U., Roth, F.X. (1993):

Zur nutritiven Wirksamkeit von *Bacillus cereus* als Probiotikum in der Ferkelaufzucht, 2.Mitteilung- Einfluß auf Keimzahlen, Zusammensetzung und Resistenzeigenschaften der gastrointestinalen und faecalen Mikroflora,
Arch. Anim. Nutr. **44**, 215-226

Gibbons, R.A., Sellwood, R., Burrows, M., Hunter, P.A. (1977):

Inheritance of resistance to neonatal *Escherichia coli* diarrhoea in the pig: Examination of the genetic system.
Theor. Appl. Genet. **51**, 65-70

Gollnisch, K., Vahjen, W., Simon, O., Schulz, E. (1999):

Einfluß eines antimikrobiellen Futterzusatzstoffes (Avilamycin), eines NSP-hydrolysierenden Enzyms (Xylanase) und deren Kombination auf pathogene Keime im Darmtrakt des Schweines
Proc Soc Nutr Physiol **8**, 125

Handl, C.E., Olsson, E., Flock, J.I. (1992):

Evaluation of three different STb assays and comparison of enterotoxin pattern over a five-year period in Swedish porcine *Escherichia coli*,
Diagn. Microbiol. Infect. Dis. **15**, 505-510

Harnett, N. M., Gyles, C. L. (1985):

Enterotoxin plasmids in bovine and porcine enterotoxigenic *Escherichia coli* of O groups 9, 20, 64 and 101,
Can J Comp Med **49**, 79-87

Harnett, N. M., Gyles, C. L. (1985):

Linkage of genes for heat-stable enterotoxin, drug-resistance, K99 antigen, and colicin in bovine and porcine strains of enterotoxigenic *Escherichia coli*,
Am J Vet Res **46**, 428-433

Hattori, Y., Watanabe, N. (1981):

Effect of administration of *Bacillus toyoi* on the intestinal bacteria flora in piglets
Toyocerin Dossier Teil I-IV-VII

Hide, E.J., Connaughton, I.D., Driesen, S.J., Hasse, D., Monckton, R.P., Sammons, N.G. (1995):

The prevalence of F107 fimbriae and their association with Shiga-like toxin II in *Escherichia coli* strains from weaned Australian pigs,
Vet. Microbiol. **47**, 235-243

Hofmann, J., Klein, U., Behrens, G. (1997):

Einfluß des Bioregulators Paciflor auf das Darmassoziierte Immunsystem beim Schwein, Herausgeber: Schubert, R., Flachowsky, G., Bitsch, R., Jahreis, G., 6. Symposium "Vitamine und Zusatzstoffe in der Ernährung von Mensch und Tier". 24./25.09.1997, Jena/Thüringen. Buch- und Kunstdruckerei Keßler GmbH Weimar 1997, ISBN 3-00-002381-X , 494-498

Holt, J.G., Krieg, N.R., Sneath, P.H.A., Staley, J.T., Williams, S.T. (editors) (1994):

Bergey's Manual of Determinative Bacteriology, ninth edition, Williams and Wilkins, USA, ISBN 0-683-00603-7

Holzapfel, W.H., Habere, P., Du Toit, M., Warlies, E., Ahrens, F. (1997):

Physiological features of probiotic strains with special reference to intestinal restoration and cholesterol lowering effects.

Microecology and Therapy **26**, 143-156

Hopkins, K.L., Hilton, A.C. (2000):

Simultaneous molecular subtyping and shiga toxin gene detection in *Escherichia coli* using multiplex polymerase chain reaction,

Letters in Appl. Microbiol. **30**, 122-125

Iben, Ch., Leibetseder, J. (1989):

Untersuchung der leistungsfördernden Wirkung von Toyocerin in der Ferkelaufzucht, Tierärztl. Mschr. **76**, Verlag Ostag Wien, 363-366

Imberechts, H., De Greve, H., Lintermans, P. (1992):

The pathogenesis of edema disease in pigs. A review.

Vet. Microbiol. **31**, 221-233

Isaacson, R.E., Dean, E.A., Morgan, R.L., Moon, H.W. (1980):

Immunization of suckling pigs against enterotoxigenic *Escherichia coli*-induced diarrheal disease by vaccinating dams with purified K99 or 987P pili: Antibody production in response to vaccination,

Infect. Immun. **29**, 824-826

Jadamus, A., Vahjen, W., Simon, O. (2000):

Influence of the probiotic strain, *Bacillus cereus* var. *Toyoi*, on the development of selected microbial groups adhering to intestinal mucosal tissues of piglets,

J. Animal Feed Sci. **9**, 347-362

Jeyasingham, M. D., Butty, P., King, T. P., Begbie, R., Kelly, D. (1999):

Escherichia coli K88 receptor expression in intestine of disease-susceptible weaned pigs.

Vet. Microbiol. **68**, 219-234

Kanakaraj, R., Harris, D.L., Songer, J.G., Bosworth, B. (1998):

Multiplex PCR assay for detection of *Clostridium perfringens* in feces and intestinal contents of pigs and swine feed,

Vet. Microbiol. **63**, 29-38

Kandov, P. (1979):

Transmissible drug resistance in strains of *E. coli* isolated from birds,
Vet Med Nauki **16**, 72-76

Karch, H., Meyer, T., Russmann, H., Heesemann, J. (1992):

Frequent loss of Shiga-like toxin genes in clinical isolates of *Escherichia coli* upon subcultivation
Infect Immun **60**, 3464-7

Kausche, F.M., Dean, E.A., Arp, L.H., Samuel, J.E., Moon, H.W. (1992):

An experimental model for subclinical edema disease (*Escherichia coli* enterotoxemia) manifest as vascular necrosis in pigs,
Am. J. Vet. Res. **53**, 281-287

Kenny, B., Finlay, B. B., Donnenberg, M. S. (1996):

EspA, a protein secreted by enteropathogenic *Escherichia coli*, is required to induce signals in epithelial cells,
Mol. Microbiol., **20**, 313-23

Kirchgesner, M., Roth, F.X., Eidelsburger, U., Gedek, B. (1993):

Zur nutritiven Wirksamkeit von *Bacillus cereus* als Probiotikum in der Ferkelaufzucht, 1.Mitteilung- Einfluß auf Wachstumsparameter und gastrointestinales Milieu.
Arch. Anim. Nutr. **44**, 111-121

Klein, U., Schmidt, H.L. (1997):

Zum Einfluß des Bioregulators Paciflor auf die Morphologie der Dünndarmmukosa beim Schwein.
Proc. Soc. Nutr. Physiol. **6**, 41

Klimuszko, D., Szykiewicz, Z. M., Piekarowicz, A., Binek, M., Wojcik, U. (1989) :

Transfer of plasmid Hly in in vivo pigs intestine,
Comp Immunol Microbiol Infect Dis **12**, 29-38

Kosaka, T., Maeda, T., Nakada, Y., Yukawa, M., Tanaka, S. (1998):

Effect of *Bacillus subtilis* spore administration on activation of macrophages and natural killer cells in mice,
Vet. Microbiol. **60**, 215-225

Kuhnert, P., Heyberger-Meyer, B., Burnens, A.P, Nicolet, J., Frey, J. (1997):

Detection of RTX toxin genes in gram-negative bacteria with a set of specific probes,
Appl. Environ. Microbiol. **63**, 2258-2265

Kwon, D., Kim, O., Chae, C. (1999):

Prevalence of genotypes for fimbriae and enterotoxins and of O serogroups in *Escherichia coli* isolated from diarrheic piglets Korea,
J. Vet. Diagn. Invest. **11**, 146-151

Kyriakis, S. C., Tsiolyiannis, V.K., Vlemmas, J., Sarris, K., Tsinas, A. C., Alexopoulos, C., Jansegers, L. (1999):

The effect of probiotic LSP 122 on the control of post-weaning diarrhoea syndrome of piglets, *Res. Vet. Sci.* **67**, 223-228

Lang, A.L., Tsai, Yu-Li, Mayer, C.L., Patton, K.C., Palmer, C.J. (1994):

Multiplex PCR for detection of the heat-labile toxin gene and shiga-like toxin I and II genes in *Escherichia coli* isolated from natural waters, *Appl. Environ. Microbiol.* **60**, 3145-3149

Mainil, J.G., Daube, G., Jacquemin, E., Pohl, P., Kaeckenbeeck, A. (1998):

Virulence plasmids of enterotoxigenic *Escherichia coli* isolates from piglets, *Vet. Microbiol.* **62**, 291-301

Maynard Smith, J. (1992) :

Evolutionary Genetics,
Thieme Verlag Stuttgart, ISBN 3137813018

Maynard Smith, J. (1993) :

The Theory of Evolution,
Cambridge University Press, ISBN 0521451280, Reissue

Maynard Smith, J., Smith, N. H. (1998) :

Detecting recombination from gene trees,
Mol Biol Evol **15**, 590-599

McCracken, V.J., Gaskinsm, H.R. (1999):

Probiotics and the immune system, Probiotics a critical review.
ISBN 1-898486-15-8, Horizon. Scientific Press, Wymondham, U.K.

McOrist, S., Gebhart, C.J., Lawson, G.H.K. (1994):

Polymerase chain reaction for diagnosis of porcine proliferative enteropathy,
Vet. Microbiol. **41**, 205-212

Meer, R.R., Songer, J.G. (1997):

Multiplex polymerase chain reaction assay for genotyping *Clostridium perfringens*,
Am. J. Vet. Res. **58**, 702-705

Meng, J., Zhao, S., Doyle, M.P., Mitchell, S.E., Kresovich, S. (1997):

A multiplex PCR for identifying Shiga-like toxin-producing *Escherichia coli* O157:H7,
Lett. Appl. Microbiol. **24**, 172-176

Mergeay, M., Lejeune, P., Sadouk, A., Gerits, J., Fabry, L. (1987):

Shuttle transfer (or retrotransfer) of chromosomal markers mediated by plasmid pULB113
Mol Gen Genet **209**, 61-70

Methiyapun, S., Pohlenz, J.F.L., Bertschinger, H.U. (1984):

Ultrastructure of the intestinal mucosa in pigs experimentally inoculated with an edema disease-producing strain of *Escherichia coli* (O139:K12:H1),
Vet. Pathol. **21**, 516-520

Mikosch, T. (1999):

Blottingverfahren und Hybridisierungen,
In H.G Gassen, G. Schrimpf (Herausgeber), Gentechnische Methoden, 2 Auflage, Heidelberg
Berlin, Spektrum, Akademischer Verlag Gustav Fischer, 225-242

Miller, R. V. (1998):

Bacterial Gene Swapping in Nature,
Sci Am **278**, 66-71

Moon, H.W. (1981):

Protection against enteric colibacillosis in pigs suckling orally vaccinated dams: Evidence for pili as protective antigens,
Am. J. Vet. Res. **42**, 173-177

Moon, H.W., Schneider, R.A., Moseley, S.L. (1986):

Comparative prevalence of four enterotoxin genes among *Escherichia coli* isolated from swine,
Am. J. Vet. Res. **47**, 210-212

Morgenthum, R., Bolduan, G., Voß, S. (1991):

Helfen Probiotika in der Schweinezucht?,
Tierzucht **45**, 372

Mülhardt, C. (1999):

Der Experimentator: Molekularbiologie,
1 Auflage, Stuttgart, Jena, Lübeck, Ulm, Gustav Fischer

Naclerio, G., Ricca, E., Sacco, M., De Felice, M. (1993):

Antimicrobial activity of a newly identified bacteriocin of *Bacillus cereus*.
Appl. Environ. Microbiol. **59**, 4313-4316

Nagy, B., Casey, T.A., Moon, H. W. (1990):

Phenotype and genotype of *Escherichia coli* isolated from pigs with postweaning diarrhea in Hungary,
J. Clin. Microbiol. **28**, 651-653

Nagy, B., Fekete, P. Zs. (1999 a):

Enterotoxigenic *Escherichia coli* (ETEC) in farm animals.
Vet. Res. **30**, 259-284

Nagy, B., Wilson, R. A., Whittam, T. S. (1999 b):

Genetic diversity among *Escherichia coli* isolates carrying *fl8* genes from pigs with porcine postweaning diarrhea and edema disease.
J. Clin. Microbiol. **37**, 1642-1645

Nataro, J. P., Kaper, J. B. (1998):

Diarrheagenic *Escherichia coli*
 Clin. Microbiol. Rev., **11**, 142-201

Ojeniyi, B., Ahrens, P., Meyling, A. (1994):

Detection of fimbrial and toxin genes in *Escherichia coli* and their prevalence in piglets with diarrhoea. The application of colony hybridization assay, polymerase chain reaction and phenotypic assays,
 J. Vet. Med. B **41**, 49-59

Osek, J. (1999 a):

Prevalence of virulence factors of *Escherichia coli* strains isolated from diarrheic and healthy piglets after weaning,
 Vet. Microbiol. **68**, 209-217

Osek, J. (2000):

Virulence factors and genetic relatedness of *Escherichia coli* strains isolated from pigs with post-weaning diarrhea,
 Vet. Microbiol. **71**, 211-222

Osek, J., Gallien, P., Trusczyński, M., Protz, P. (1999 b):

The use of polymerase chain reaction for determination of virulence factors of *Escherichia coli* strains isolated from pigs in Poland,
 Comp. Immun. Microbiol. Infect. Dis. **22**, 163-174

Osek, J., Svennerholm, A.M. (1991):

Determination of K88 antigens and enterotoxins of *Escherichia coli* isolated from Polish piglets with diarrhea by the use of enzyme-linked immunosorbent assays,
 Vet. Microbiol. **29**, 299-307

Osek, J., Trusczyński, M. (1992):

Occurrence of fimbriae and enterotoxins in *Escherichia coli* strains isolated from piglets in Poland,
 Comp. Immunol. Microbiol. Infect. Dis. **15**, 285-292

Parker, R.B. (1974):

Probiotics, the other half of the antibiotics story.
 Anim. Nutr. Health **29**, 4-8

Pass, M.A., Odedra, R., Batt, R.M. (2000):

Multiplex PCRs for identification of *Escherichia coli* virulence genes,
 J. Clin. Microbiol. **38**, 2001-2004

Paton, A. W., Paton, J.C. (1999):

Direct detection of shiga toxigenic *Escherichia coli* strains belonging to serogroups O111, O157, and O113 by multiplex PCR,
 J. Clin. Microbiol. **37**, 3362-3365

Rippinger, P., Bertschinger, H.U., Imberechts, H., Nagy, B., Sorg, I., Stamm, M., Wild, P., Wittig, W. (1995):

Designations F18ab and F18ac for the related fimbrial types F107, 2134P and 8813 of *Escherichia coli* isolated from porcine postweaning diarrhoea and from oedema disease, Vet. Microbiol. **45**, 281-295

Ronco, J., Guy, B. (2000):

Adjuvants for mucosal vaccines, In Fuller R., Perdingon G. (herausgeber), Probiotics 3, Immunomodulation by the gut microflora and probiotics, Kluwer Academic Publishers, Dordrecht, Netherlands, 29-68

Rossen, L., Norskov, P., Holmstrom, K., Radmussen, O.F. (1992):

Inhibition of PCR by components of food samples, microbial diagnostic assays and DNA-extraction solutions, Int. J. Food Microbiol. **17**, 37-45

Rousset, E., Harel, J., Dubreuil, D.J. (1998):

Binding characteristics of *Escherichia coli* enterotoxin b (STb) to the pig jejunum and partial characterization of the molecule involved, Microbiol. Pathol. **24**, 277-288

Sanger, J. M., Chang, R., Ashton, F., Kaper, J.B., Sanger, J. W. (1996) :

Novel form of actin-based motility transports bacteria on the surfaces of infected cells Cell Motil Cytoskeleton, **34**, 279-87

Sarmiento, J.I., Dean, E.A., Moon, H.W. (1988):

Effects of weaning on diarrhea caused by enterotoxigenic *Escherichia coli* in three-week-old pigs, Am. J. Vet. Res. **49**, 2030-2033

Sarrazin, E., Bertschinger, H.U. (1997):

Role of fimbriae F18 for actively acquired immunity against porcine enterotoxigenic *Escherichia coli*, Vet. Microbiol. **54**, 133-144

Scheinert, P. (1997):

PCR-Die Polymerasekettenreaktion (Teil 1)-Primerdesign und Wahl stringenter Reaktionsbedingungen (Teil2), Bio Tec., März 1997 S.50-51/April 1997 S.52-54

Scheuermann, S.E. (1993):

Effect of the probiotic Paciflor (CIP 5832) on energy and protein metabolism in growing pigs Animal Feed Science and Technology **41**, 181-189

Schröder, M. (1999):

Isolierung von RNA,

In H.G Gassen, G. Schrimpf (Herausgeber), Gentechnische Methoden, 2 Auflage, Heidelberg Berlin, Spektrum, Akademischer Verlag Gustav Fischer, 225-242

Schulz, K., Setzke, E., Grieß, E., Meckelein, B. (1999):

Isolierung von DNA,

In H.G Gassen, G. Schrimpf (Herausgeber), Gentechnische Methoden, 2 Auflage, Heidelberg Berlin, Spektrum, Akademischer Verlag Gustav Fischer, 105-135

Scotland, S. M., Day, N. P., Rowe, B. (1983):

Acquisition and maintenance of enterotoxin plasmids in wild-type strains of *Escherichia coli*, J Gen Microbiol **129**, 3111-3120

Sekizaki, T., Terakado, N., Hashimoto, K. (1984):

Cloning and comparison of heat-stable enterotoxin genes from *Escherichia coli* strains of bovine, porcine and avian origins,

Am J Vet Res **45**, 314-318

Singer, P., Berg, M. (1992):

Gene und Genome,

Spektrum Akademischer Verlag, Heidelberg

Smith, H. W., Green, P., Parsell, Z. (1983):

Vero cell toxins in *Escherichia coli* and related bacteria: transfer by phage and conjugation and toxic action in laboratory animals, chickens and pigs,

J Gen Microbiol **129**, 3121-3137

Söderlind, O., Möllby, R. (1979):

Enterotoxins, O-groups, and K88 antigen in *Escherichia coli* from neonatal piglets with and without diarrhea,

Infect. Immun. **24**, 611-616

Spriet, S.M., Decupere, J.A., Henderickx, H.K. (1987):

Effect of *Bacillus toyoi* (Toyocerin) on the gastro intestinal microflora, concentration of some bacterial metabolites, digestibility of the nutrients and the small intestinal mean retention time in pigs,

Med. Fac. Landbouww. Rijksuniv.Gent **52**, 1673-1683

Stacy-Phipps, S., Mecca, J.J., Weiss, J.B. (1995):

Multiplex PCR assay and simple preparation method for stool specimens detect enterotoxigenic *Escherichia coli* DNA during course of infection,

J. Clin. Microbiol. **33**, 1054-1059

Stamm, M., Sorg, I. (1993):

Intestinale Rezeptoren für adhäsive Fimbrien von *Escherichia coli* beim Schwein- eine Literaturübersicht.

Schweiz .Arch. Tierheilkd. **135**, 89-95

Steward, C.S., Hillmann, K., Maxwell, F., Kelly, D., King, T.P. (1995):

Die neuesten Fortschritte in der Probiose beim Schwein: Beobachtungen zur Mikrobiologie des Schweinedarms.

Übers. Tierernährg. **23**, 1-26

Stryer, L. (1994):

Biochemie,

2. korrigierter Nachdruck 1994 der völlig neubearbeiteten Auflage 1990-Heidelberg, Berlin, Oxford, Spektrum Akad. Verlag, ISBN 3-86025-005-1, 128-131

Supar, Hirst, R.G., Patten, B.E. (1991):

The importance of enterotoxigenic *Escherichia coli* containing the 987P antigen in causing neonatal colibacillosis in piglets in Indonesia,

Vet. Microbiol. **26**, 393-400

Thelen, U. (1997):

Einfluß zweier Varianten von *Bacillus cereus* als Probiotika unter Einbeziehung ernährungsphysiologischer, mikrobiologischer, histologischer und hämatologischer Aspekte, Wissenschaftl. Fachverlag Gießen

Tsai, Y., Palmer, C.J., Sangermano, L.R. (1993):

Detection of *Escherichia coli* in sewage and sludge by Polymerase Chain Reaction, Appl. Environ. Microbiol. **59**, 353-357

Tsen, H.Y., Jian, L.Z. (1998):

Development and use of a multiplex PCR system for the rapid screening of heat labile toxin I, heat stable toxin II, and shiga-like toxin I and II genes of *Escherichia coli* in water,

J. Appl. Microbiol. **84**, 585-592

Urbina, G., Cavazza, M. E., Perez-Schael, I. (1989):

Heterogeneous plasmid population from enterotoxigenic *Escherichia coli* strains isolated in Venezuelan children with acute diarrhea,

GEN **43**, 194-201

Vahjen, W., Gollnisch, K., Simon, O., Schulz, E. (2000):

Development of a semiquantitative PCR assay for the detection of the *Clostridium perfringens* type C beta toxin gene in purified nucleic acid extracts from the intestinal tract of pigs.

J Agric Sci **134**, 77-87

Vahjen, W., Gollnisch, K., Simon, O. (2000):

Selektiver Einfluß eines Leistungsförderers sowie einer Xylanase bzw. deren Kombination auf die Aktivität verschiedener Bakteriengruppen und -arten im Mastschwein.

Proc Soc Nutr Physiol **9**, 61

Van Briel, C., (2002):

Veränderung der Anzahl und Verteilung von Plasmazellen und Lymphozytenpopulationen in der Darmschleimhaut des Schweines nach Applikation von Probiotika

Online Dissertation, http://elib.tiho-hannover.de/dissertations/brielc_2002.html

- Van den Broeck, W., Cox, E., Goddeeris, B.M. (1999):**
Seroprevalence of F4⁺ enterotoxigenic *Escherichia coli* in regions with different pig farm densities,
Vet. Microbiol. **69**, 207-216
- Vögeli, P., Meijerink, E., Fries, R., Neuenschwander, S., Vorländer, N., Stranzi, G., Bertschinger, H.U. (1997):**
Ein molekularer Test für den Nachweis des *E. coli*-F18-Rezeptors: ein Durchbruch im Kampf gegen Ödemkrankheit und Absetzdurchfall beim Schwein,
Schweiz. Arch. Tierheilkd. **139**, 479-484
- Wagner, R.D., Pierson, C., Warner, T., Dohnalek, M., Farmer, J., Roberts, L., Ihlty, M., Balish, E. (1997):**
Biotherapeutic effects of probiotic bacteria in immunodeficient mice,
Infect. Immun. **65**, 4165-4172
- Weber, A., Klie, H., Richter, H., Gallien, P., Timm, M., Perlberg, K. W. (1997):**
Über die derzeitigen Probleme zum Auffinden von Infektionsquellen und Infektionsketten bei enterohämorrhagischen *E. coli* (EHEC)
Berl Münch Tierärztl Wschr **110**, 211-213
- Wieler, L.H., Schwanitz, A., Vieler, E., Busse, B., Steinrück, H., Kaper, J.B, Baljer, G. (1998):**
Virulence properties of shiga toxin-producing *Escherichia coli* (STEC) strains of serogroup O118, a major group of STEC pathogens in calves,
J. Clin. Microbiol. **36**, 1604-1607
- Wieler, L. H., Ilieff, A., Herbst, W., Bauer, C., Vieler, E., Bauerfeind, R., Failing, K., Klös, H., Wengert, D., Baljer, G., Zahner, H. (2001):**
Prevalence of Enteropathogens in Suckling and Weaned Piglets with Diarrhoea in Southern Germany,
J Vet Med B **48**, 151-159
- Yan, J. J., Chiu, C. H., Chuang, C. L., Wu, L. L. (2002):**
Ceftriaxone-resistant *Salmonella enterica* serovar Hadar: evidence for interspecies transfer of blaCMY-2 in a Taiwanese university hospital,
J Formos Med Assoc **101**, 665-668
- Zani, J.L., Weykamp da Cruz, F., Freitas dos Santos, A., Gil-Turnes, C. (1998):**
Effect of probiotic CenBiot on the control of diarrhoea and feed efficiency in pigs,
J. Appl. Micr. **84**, 68-71
- Zimmermann, K., Rusch, V., Zielinski, T., Koch, S. (1997):**
The immunomodulatory efficacy of Lactic acid bacteria
Microecology and Therapy **26**, 199-209