

8 Abkürzungen

Ap	Ampicillin
AS	Aminosäure
bp	Basenpaar
BSA	Rinderserumalbumin
Cm	Chloramphenicol
C-Terminus	Carboxy-terminales Ende eines Proteins
dNTP	Deoxynukleosid 5' triphosphat
DTT	Dithioerythritol
EDTA	Ethylendiamintetraessigsäure
IPTG	Isopropyl β -D-thiogalactopyranosid
kb	Kilobase
Km	Kanamycin
MOPS	3-(N-morpholino)propansulfonsäure
N-Terminus	Amino-terminales Ende eines Proteins
PAGE	Polyacrylamid-Gelelektrophorese
PCR	Polymerase-Kettenreaktion
RU	Resonanzeinheit
SDS	Natrium-dodecylsulphat
Tc	Tetracyclin
TEMED	N,N,N',N'-Tetramethylethylendiamin
Tris	Tris(hydroxymethyl)aminomethan
U	Einheit

9 Literatur

Arai, K., Arai, N., Shlomai, J., and Kornberg, A. (1980). Replication of duplex DNA of phage ϕ X174 reconstituted with purified enzymes. *Proc. Natl. Acad. Sci. U. S. A.* 77, 3322-3326.

Argos, P. (1988). A sequence motif in many polymerases. *Nucleic Acids Res.* 16, 9909-9916.

Bachmann, B. J. (1990). Linkage map of *Escherichia coli* K-12, edition 8 [published erratum appears in *Microbiol Rev* 1991 Mar; 55, 191]. *Microbiol. Rev.* 54, 130-197.

Balzer, D., Ziegelin, G., Pansegrau, W., Kruft, V., and Lanka, E. (1992). KorB protein of promiscuous plasmid RP4 recognizes inverted sequence repetitions in regions essential for conjugative plasmid transfer. *Nucleic Acids Res.* 20, 1851-1858.

Barbour, A. and Garon, C. (1987). Linear plasmids of the bacterium *Borrelia burgdorferi* have covalently closed ends. *Science.* 237, 409-411.

Baroudy, B. M., Venkatesan, S., and Moss, B. (1982). Incompletely base-paired flip-flop terminal loops link the two DNA strands of the vaccinia virus genome into one uninterrupted polynucleotide chain. *Cell.* 28, 315-324.

Bernstein, J. A. and Richardson, C. C. (1989). Characterization of the helicase and primase activities of the 63-kDa component of the bacteriophage T7 gene 4 protein. *J. Biol. Chem.* 264, 13066-13073.

BIACore Handbook (1994) *BIAtchnology Handbook*, 1st Ed., Pharmacia Biosensor AB, Uppsala, Sweden

Blasco, M. A., Esteban, J. A., Mendez, J., Blanco, L., and Salas, M. (1992). Structural and functional-studies on ϕ 29 DNA-polymerase. *Chromosoma.* 102, 32-38.

Briani, F., Dehò, G., Forti, F., and Ghisotti, D. (2001). The plasmid status of satellite bacteriophage P4. *Plasmid*. *45*, 1-17.

Bullock, W. O., Fernandez, J. M., and Short, J. M. (1987). XL1-Blue: a high efficiency plasmid transforming *recA Escherichia coli* strain with beta-galactosidase selection. *Biotechniques*. *5*, 376-378.

Casjens, S, Murphy, M, DeLange, M, Sampson, L, van Vugt, R, and Huang, W. M. (1997). Telomeres of the linear chromosomes of Lyme disease spirochaetes: nucleotide sequence and possible exchange with linear plasmid telomeres. *Mol. Microbiol.* *26*, 581-596.

Casjens, S. (1999). Evolution of the linear DNA replicons of the *Borrelia spirochetes*. *Curr. Opin. Microbiol.* *2*, 529-534.

Chaconas, G., Stewart, P. E., Tilly, K., Bono, J. L., and Rosa, P. (2001). Telomere resolution in the Lyme disease spirochete. *EMBO J.* *20*, 3229-3237.

Cotmore, S. F. and Tattersall, P. (1987). The autonomously replicating parvoviruses of vertebrates. *Adv. Virus Res.* *33*, 91-174.

Covarrubias, L and Bolivar, F (1982). Construction and characterization of new cloning vehicles. VI. Plasmid pBR329, a new derivative of pBR328 lacking the 482-base-pair inverted duplication. *Gene*. *17*, 79-89.

Cummings, D. J. (1992). Mitochondrial genomes of the ciliates. *Int. Rev. Cytol.* *141*, 1-64.

Deneke, J., Ziegelin, G., Lurz, R., and Lanka, E. (2000). The protelomerase of temperate *Escherichia coli* phage N15 has cleaving-joining activity. *Proc. Natl. Acad. Sci. USA.* *97*, 7721-7726.

Deneke, J., Ziegelin, G., Lurz, R., and Lanka, E. (2002). Phage N15 telomere resolution. Target requirements for recognition and processing by the protelomerase. *J. Biol. Chem.* *277*, 10410-10419.

Di Jeso, F. (1968). Ammonium sulfate concentration conversion nomograph for 0 degrees. *J. Biol. Chem.* *243*, 2022-2023.

Dinouel, N., Drissi, R., Miyakawa, I., Sor, F., Rousset, S., and Fukuhara, H. (1993). Linear mitochondrial DNAs of yeasts: closed-loop structure of the termini and possible linear-circular conversion mechanisms. *Mol. Cell Biol.* *13*, 2315-2323.

Eichman, B. F., Vargason, J. M., Mooers, B. H., and Ho, P. S. (2000). The Holliday junction in an inverted repeat DNA sequence: sequence effects on the structure of four-way junctions. *Proc. Natl. Acad. Sci. U. S. A.* *97*, 3971-3976.

Esposito, D. and Scocca, J. J. (1997). The integrase family of tyrosine recombinases: evolution of a conserved active site domain. *Nucleic Acids Res.* *25*, 3605-3614.

Fisher, R. J. and Fivash, M. (1994). Surface plasmon resonance based methods for measuring the kinetics and binding affinities of biomolecular interactions. *Curr. Opin. Biotechnol.* *5*, 389-395.

Fivash, M., Towler, E. M., and Fisher, R. J. (1998). BIAcore for macromolecular interaction. *Curr. Opin. Biotechnol.* *9*, 97-101.

Galas, D. J. and Schmitz, A. (1978). DNase footprinting: a simple method for the detection of protein-DNA binding specificity. *Nucleic Acids Res.* *5*, 3157-3170.

Garoff, H. and Ansorge, W. (1981). Improvements of DNA sequencing gels. *Anal. Biochem.* *115*, 450-457.

Gevaert, K. and Vandekerckhove, J. (2000). Protein identification methods in proteomics. *Electrophoresis.* *21*, 1145-1154.

Golub, E. I. and Ravin, V. K. (1967). A new system of phage conversion. *Dokl. Akad. Nauk SSSR.* *174*, 465-467.

Gonzalez, A., Talavera, A., Almendral, J. M., and Vinuela, E. (1986). Hairpin loop structure of African swine fever virus DNA. *Nucleic Acids Res.* *14*, 6835-6844.

Goodner, B., Hinkle, G., Gattung, S., Miller, N., Blanchard, M., Quorollo, B., Goldman, B. S., Cao, Y., Askenazi, M., Halling, C., Mullin, L., Houmiel, K., Gordon, J., Vaudin, M., Iartchouk, O., Epp, A., Liu, F., Wollam, C., Allinger, M., Doughty, D., Scott, C., Lappas, C., Markelz, B., Flanagan, C., Crowell, C., Gurson, J., Lomo, C., Sear, C., Strub, G., Cielo, C.,

and Slater, S. (2001). Genome sequence of the plant pathogen and biotechnology agent *Agrobacterium tumefaciens* C58. *Science*. 294, 2323-2328.

Goodsell, D. S. and Dickerson, R. E. (1994). Bending and curvature calculations in B-DNA. *Nucleic Acids Res.* 22, 5497-5503.

Gorbalenya, A. E., Koonin, E. V., and Wolf, Y. I. (1990). A new superfamily of putative NTP-binding domains encoded by genomes of small DNA and RNA viruses. *FEBS Lett.* 262, 145-148.

Greener, A. (1990). *E. coli* SURE™ strain: clone "unclonable" DNA. *Stratagene Newsletter*. 3, 5-6.

Greider, C. W. and Blackburn, E. H. (1989). A telomeric sequence in the RNA of Tetrahymena telomerase required for telomere repeat synthesis. *Nature*. 337, 331-337.

Griep, M. A. and McHenry, C. S. (1989). Glutamate overcomes the salt inhibition of DNA polymerase III holoenzyme. *J. Biol. Chem.* 264, 11294-11301.

Hanahan, D. (1983). Studies on transformation of *Escherichia coli* with plasmids. *J. Mol. Biol.* 166, 557-580.

Hendrix, R. W., Ravin, V. K., Casjens, S, Ford, M. E., Ravin, N. V., and Smirnov, I. K. (1998). Bacteriophage N15 complete sequence. GenBank accession no. AF064539. GenBank accession no. AF064539.

Hendrix, R. W., Roberts, J. W., Stahl, F. W., and Weisberg, A. (1982) *Lambda II*, Cold Spring Harbor Laboratory, New York

Holmes, D. S. and Quigley, M. (1981). A rapid boiling method for the preparation of bacterial plasmids. *Anal. Biochem.* 114, 193-197.

Hsieh, J. C., Yoo, S. K., and Ito, J. (1990). An essential arginine residue for initiation of protein-primed DNA replication. *Proc. Natl. Acad. Sci. U. S. A.* 87, 8665-8669.

Innis, M. A., Myambo, K. B., Gelfand, D. H., and Brow, M. A. (1988). DNA sequencing with *Thermus aquaticus* DNA polymerase and direct sequencing of polymerase chain reaction-amplified DNA. *Proc. Natl. Acad. Sci. U. S. A.* 85, 9436-9440.

Johnson, A. D., Meyer, B. J., and Ptashne, M. (1979). Interactions between DNA-bound repressors govern regulation by the lambda phage repressor. *Proc. Natl. Acad. Sci. U. S. A.* *76*, 5061-5065.

Johnston, R. F., Pickett, S. C., and Barker, D. L. (1990). Autoradiography using storage phosphor technology. *Electrophoresis*. *11*, 355-360.

Jumas-Bilak, E., Michaux-Charachon, S., Bourg, G., Ramuz, M., and Allardet-Servent, A. (1998). Unconventional genomic organization in the alpha subgroup of the Proteobacteria. *J. Bacteriol.* *180*, 2749-2755.

Jung, G. H., Leavitt, M. C., Hsieh, J. C., and Ito, J. (1987). Bacteriophage PRD1 DNA polymerase: evolution of DNA polymerases. *Proc. Natl. Acad. Sci. U. S. A.* *84*, 8287-8291.

Kim, Y. G., Kim, P. S., Herbert, A., and Rich, A. (1997). Construction of a Z-DNA-specific restriction endonuclease. *Proc. Natl. Acad. Sci. U. S. A.* *94*, 12875-12879.

Kobryn, K. and Chaconas, G. (2001). The circle is broken: telomere resolution in linear replicons. *Curr. Opin. Microbiol.* *4*, 558-564.

Kobryn, K. and Chaconas, G. (2002). ResT, a telomere resolvase encoded by the Lyme disease spirochete. *Mol. Cell.* *9*, 195-201.

Koo, H. S., Wu, H. M., and Crothers, D. M. (1986). DNA bending at adenine / thymine tracts. *Nature.* *320*, 501-506.

Kornberg, A. and Baker, T. A. (1992) *DNA Replication*, Second Edition Ed., Freeman and Company, New York

Kretsinger, R. H. (1987). Calcium coordination and the calmodulin fold: divergent versus convergent evolution. *Cold Spring Harbor Symp. Quant. Biol.* *52*, 499-510.

Laemmli, U. K. (1970). Cleavage of structural proteins during the assembly of the head of bacteriophage T4. *Nature.* *227*, 680-685.

Lobocka, M. B., Svarchevsky, A. N., Rybchin, V. N., and Yarmolinsky, M. B. (1996). Characterization of the primary immunity region of the *Escherichia coli* linear plasmid prophage N15. *J. Bacteriol.* *178*, 2902-2910.

Lurz, R., Heisig, A., Velleman, M., Dobrinski, B., and Schuster, H. (1987). The *ban* operon of bacteriophage P1: localization of the promoter controlled by P1 repressor. *J. Biol. Chem.* *262*, 16575-16579.

Mandel, M. and Higa, A. (1970). Calcium-dependent bacteriophage DNA infection. *J. Mol. Biol.* *53*, 159-162.

Messer, W. and Weigel, C. (1996) Initiation of the chromosome replication. In Neidhardt, F. C., editor. *Escherichia coli and Salmonella*, ASM Press, Washington, D. C.

Messing, J. (1983). New M13 vectors for cloning. *Methods Enzymol.* *101*, 20-78.

Meyer, R. R., Shlomai, J., Kobori, J., Bates, D. L., Rowen, L., McMacken, R., Ueda, K., and Kornberg, A. (1979). Enzymatic conversion of single-stranded ϕ X174 and G4 circles to duplex forms: discontinuous replication. *Cold Spring Harb. Symp. Quant. Biol.* *43 Pt 1*, 289-293.

Morin, G. B. and Cech, T. R. (1986). The telomeres of the linear mitochondrial DNA of *Tetrahymena thermophila* consist of 53 bp tandem repeats. *Cell.* *46*, 873-883.

Mullis, K. B. and Faloona, F. A. (1987). Specific synthesis of DNA in vitro via a polymerase-catalyzed chain reaction. *Methods Enzymol.* *155*, 335-350.

Munteanu, M. G., Vlahovicek, K., Parthasarathy, S., Simon, I., and Pongor, S. (1998). Rod models of DNA: sequence-dependent anisotropic elastic modelling of local bending phenomena. *Trends Biochem. Sci.* *23*, 341-347.

Novick, R. P., Clowes, R. C., Cohen, S. N., Curtiss, R., III, Datta, N., and Falkow, S. (1976). Uniform nomenclature for bacterial plasmids: a proposal. *Bacteriol. Rev.* *40*, 168-189.

Nunes-Duby, S. E., Kwon, H. J., Tirumalai, R. S., Ellenberger, T., and Landy, A. (1998). Similarities and differences among 105 members of the Int family of site-specific recombinases. *Nucleic Acids Res.* *26*, 391-406.

Pansegrau, W. and Lanka, E. (1992). A common sequence motif among prokaryotic DNA primases. *Nucleic Acids Res.* *20*, 4931-4931.

Popp, A., Hertwig, S., Lurz, R., and Appel, B. (2000). Comparative study of temperate bacteriophages isolated from *Yersinia*. *Syst. Appl. Microbiol.* *23*, 469-478.

Ravin, N. and Lane, D. (1999). Partition of the linear plasmid N15: interactions of N15 partition functions with the *sop* locus of the F plasmid. *J. Bacteriol.* *181*, 6898-6906.

Ravin, N., Strakhova, T., and Kuprianov, V (2001). The protelomerase of the phage-plasmid N15 is responsible for its maintenance in linear form. *J. Mol. Biol.* *312*, 899-906.

Ravin, N. V. and Ravin, V. K. (1998). Cloning of large imperfect palindromes in circular and linear vectors. *Genetika.* *34*, 38-44.

Ravin, V., Ravin, N., Casjens, S., Ford, M. E., Hatfull, G. F., and Hendrix, R. W. (2000). Genomic sequence and analysis of the atypical temperate bacteriophage N15. *J. Mol. Biol.* *299*, 53-73.

Rohwer, F. and Edwards, R. (2002). The phage proteomic tree: a genome-based taxonomy for phage. *J. Bacteriol.* *184*, 4529-4535.

Rybchin, V. N. and Svarchevsky, A. N. (1999). The plasmid prophage N15: a linear DNA with covalently ends. *Mol. Microbiol.* *33*, 895-903.

Sambrook, J., Fritsch, E. T., and Maniatis, T. (1989) *Molecular Cloning: A Laboratory Manual*, 2nd Ed., Cold Spring Harbor Lab. Press, Plainview, New York

Sanger, F., Nicklen, S., and Coulson, A. R. (1977). DNA sequencing with chain-terminating inhibitors. *Proc. Natl. Acad. Sci. USA.* *74*, 5463-5467.

Schekman, R., Wickner, W., Westergaard, O., Brutlag, D., Geider, K., Bertsch, L. L., and Kornberg, A. (1972). Initiation of DNA synthesis: synthesis of ϕ X174 replicative form requires RNA synthesis resistant to rifampicin. *Proc. Natl. Acad. Sci. U. S. A.* *69*, 2691-2695.

Sears, L. E., Moran, L. S., Kissinger, C., Creasey, T., Perry-O'Keefe, H., Roskey, M., Sutherland, E., and Slatko, B. E. (1992). *CircumVent* thermal cycle sequencing and alternative manual and automated DNA sequencing protocols using the highly thermostable VentR (exo⁻) DNA polymerase. *Biotechniques.* *13*, 626-633.

Sechaud, J., Streisinger, G., Emrich, J., Newton, J., Lanford, H., Reinhold, H., and Stahl, M. M. (1965). Chromosome structure in phage T4, II. Terminal redundancy and heterozygosis. *Proc. Natl. Acad. Sci. U. S. A.* *54*, 1333-1339.

Speck, C., Weigel, C., and Messer, W. (1999). ATP- and ADP-DnaA protein, a molecular switch in gene regulation. *EMBO J.* *18*, 6169-6176.

Spiess, E. and Lurz, R. (1988). Electron microscopic analysis of nucleic acids and nucleic acid-protein complexes. *Methods Microbiol.* *20*, 293-323.

Strack, B., Lessl, M., Calendar, R., and Lanka, E. (1992). A common sequence motif, -E-G-Y-A-T-A-, identified within the primase domains of plasmid-encoded I- and P-type DNA primases and the alpha protein of the *Escherichia coli* satellite phage P4. *J. Biol. Chem.* *267*, 13062-13072.

Svarchevsky, A. N. (1986). Plasmid N15: the particularities of genetics and DNA structure. PhD Thesis, The Leningrad State University, Leningrad USSR.

Svarchevsky, A. N. and Rybchin, V. N. (1984). Physical mapping of plasmid N15 DNA (in Russian). *Mol. Genet. (Moscow)*. *N10*, 16-22.

Towbin, H., Staehelin, T., and Gordon, J. (1979). Electrophoretic transfer of proteins from polyacrylamide gels to nitrocellulose sheets: procedure and some applications. *Proc. Natl. Acad. Sci. U. S. A.* *76*, 4350-4354.

Vostrov, A. A., Malinin, A. Y., Rybchin, V. N., and Svarchevsky, A. N. (1992). Construction of linear plasmid vectors for cloning in *Escherichia coli* cells. (in Russian). *Genetika*. *28*, 186-188.

Walker, J. E., Saraste, M., Runswick, M. J., and Gay, N. J. (1982). Distantly related sequences in the α - and β -subunits of ATP synthase, myosin, kinases, and other ATP-requiring enzymes and a common nucleotide binding fold. *EMBO J.* *1*, 945-951.

Watson, J. D. (1972). Origin of concatemeric T7 DNA. *Nat. New Biol.* *239*, 197-201.

Weiner, M. P., Costa, G. L., Schoettlin, W., Cline, J., Mathur, E., and Bauer, J. C. (1994). Site-directed mutagenesis of double-stranded DNA by the polymerase chain reaction. *Gene*. *151*, 119-123.

White, J. H. and Richardson, C. C. (1987a). Gene 18 protein of bacteriophage T7. Overproduction, purification, and characterization. *J. Biol. Chem.* *262*, 8845-8850.

White, J. H. and Richardson, C. C. (1987b). Processing of concatemers of bacteriophage T7 DNA in vitro. *J. Biol. Chem.* *262*, 8851-8860.

Yeo, H. J., Ziegelin, G., Korolev, S., Calendar, R., Lanka, E., and Waksman, G. (2002). Phage P4 origin-binding domain structure reveals a mechanism for regulation of DNA-binding activity by homo- and heterodimerization of winged helix proteins. *Mol. Microbiol.* *43*, 855-867.

Ziegelin, G., Calendar, R., Lurz, R., and Lanka, E. (1997). The helicase domain of phage P4 α protein overlaps the specific DNA binding domain. *J. Bacteriol.* *179*, 4087-4095.

Ziegelin, G., Fürste, J. P., and Lanka, E. (1989). TraJ protein of plasmid RP4 binds to a 19-base pair invert sequence repetition within the transfer origin. *J. Biol. Chem.* *264*, 11989-11994.

Ziegelin, G., Scherzinger, E., Lurz, R., and Lanka, E. (1993). Phage P4 α protein is multifunctional with origin recognition, helicase and primase activities. *EMBO J.* *12*, 3703-3708.