
10. REFERENCES

REFERENCE CODE REFERENCE

- [Adams1992] Adams, R. P; Demeke, T; "The Effects Of Plant Polysaccharides And Buffer Additive", *BioTechniques*, 12, 332-334, (1992).
- [Adleman1994] Adleman, L; "Molecular Computation of Solution to Combinatorial Problems", *Science*, 266, 1021-1027, (1994).
- [Albarghouthi2000] Albarghouthi, M. N; Barron, A. E; "Polymeric matrices for DNA sequencing by capillary electrophoresis", *Electrophoresis*, 21, 4096-4111, (2000).
- [Aldhous1993] Aldhous, P; "Managing the genome data deluge", *Science*, 262, 502-503, (1993).
- [Anderson1998] Anderson, R. C; McGall, G; Lipshutz, R. J; "Microsystem Technology in Chemistry and Life Sciences." in Manz, A; Becker, H; (Eds) *Polynucleotide Arrays for Genetic Sequence Analysis*, Springer Verlag, 117-129, (1998).
- [Anderson2000] Anderson, R. C; Su, X; Bodgan, G. J; Fenton, J; "A miniature intetgrated device for automated multistep genetic analysis", *Nucl. Acids Res.*, 28, e60, i-vi, (2000).
- [Andrews1986] Andrews, A. T. *Electrophoresis: Theory, Techniques and Biochemical and Clinical Applications*, Oxford University Press, (1986).
- [Appenzeller1990] Appenzeller, T; "Democratizing the DNA sequence", *Science*, 247, 1030-1032, (1990).
- [Attiya1998] Attiya, S; Qiu, X. C; Ocvirk, G; Chiem, N.; Lee, W. E; Harrison, D. J; "Integrated Microsystem for Sample Introduction, Mixing, Reaction, Separation and Self Calibration" in *Micro Total Analysis Systems '98*, Harrison, D. J; van den Berg, A; (Eds.), Kluwer Academic Publishers, 231-234, (1998).
- [Austin1993] Austin, R. H; Volkmuth, W. D; "Electrophoresis and microlithography", *Analusis*, 21, 235-238, (1993).
- [Ausubel1988] Ausubel, F. M; Brent, R; Kingston, R. E; Moore, D. D; Seidman, J. G; Struhl, K; (Eds). *Current protocols in molecular biology*, John Wiley & Sons, (1988).
- [Avery1944] Avery, O. T; MacLeod C. M; McCarty, L; "Studies on the Chemical Nature of the Substance Inducing Transformation of Pneumococcal Types", *J. Exp. Med.*, 79, 137-157, (1944).
- [Avienzis1997] Avienzis, A; "Towards systematic design of fault-tolerant systems", *IEEE Computer*, 30, 51-58, (1997).
- [Bachmann1990] Bachmann, B; Luke, W; Hunsmann, G; "Improvement of PCR amplified DNA sequencing with the aid of detergents", *Nucl. Acids. Res.*, 18, 1309, (1990).
- [Barth1990] Barth, P. W; "Silicon fusion bonding for fabrication of sensors, actuators, and microstructures", *Sens. Act. A*, 21-23, 919-926, (1990).
- [Bassam1993] Bassam, B. J; Caetano-Anolles, G; "Automated 'hot start' PCR using mineral oil and paraffin wax" *BioTechniques*, 14, 31-34, (1993).
- [Becker1999] Becker, H; Heim, U; "Polymer high aspect ratio structures fabricated with hot embossing." *Sens. Mater.*, 11, 297-304, (1999).

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- [Beißbarth2000] Beißbarth, T; Fellenberg, K; Brors, B; Arribas-Prat, R; Boer, J. M; Hauser, N. C; Scheideler, M; Hoheisel, J. D; Schütz, G; Poustka, A; Vingron, M; "Processing and quality control of DNA array hybridization data", *Bioinformatics*, 16, 1014-1022, (2000).
- [Belgrader2000] Belgrader, P; Okuzumi, M; Pourahmadi, F; Borkholder, D. A; Northrup, M. A; "A microfluidic cartridge to prepare spores for PCR analysis." *Biosens. Bioelec.*, 14, 849-852, (2000).
- [Birch1996] Birch, D. E; Kolmodin, L; Laird, W. J; McKinney, N; Wong, J; Young, K. K. Y; Zangenberg, G. A; Zoccoli, M. A; "Simplified Hot-StartPCR", *Nature*, 381, 445-446, (1996).
- [Blackburn1991] Blackburn, G.F; Shah, H.P; Kenten, J.H; Leland, J; Kamin, R.A; Link, J; Peterman, J; Shah, A; Talley, D.B; Tyagi, S.K; Wilkins, E; Wu, T.G; Massey, R.J; "Electrochemiluminescence detection for development of immunoassays and DNA-probe assays for clinical diagnostics." *Clin. Chem.* 37, 1534-1539, (1991).
- [Blake1992] Blake, E; Mihalovich, J; Higuchi, R; Walsh P. S; Erlich, H; "Polymerase chain reaction (PCR) amplification and human leukocyte antigen (HLA)-DQa oligonucleotide typing on biological evidence samples: casework experience", *J. Forensic Sci.*, 37, 700-726, (1992).
- [Blanchard1993] Blanchard, M. M; Tailor-Miller, P; Nowotny, P; Nowotny, V; "PCR buffer optimization with a uniform temperature regimen to facilitate automation", *PCR Methods Applic.*, 2, 234-240, (1993).
- [Böddinghaus2001] Böddinghaus, B; Wichelhaus, T. A; Brade, V; Bittner, T; "Removal of PCR inhibitors by silica membranes: evaluating the amplicor Mycobacterium tuberculosis kit", *J. Clin. Microbiol.*, 39, 3750-3752, (2001).
- [Boehm1989] Boehm, C. D; "Use of polymerase chain reaction for diagnosis of inherited disorders", *Clin. Chem.*, 35, 1843-1848, (1989).
- [Bonabeau2000] Bonabeau, E; Dorigo, M; Theraulaz, E; "Inspiration for optimization from social insect behaviour", *Nature*, 406, 39 - 42, (2000).
- [Bookstein1990] Bookstein, R; Lai, C. C; To, H; Lee, W. H; "PCR-based detection of a polymorphic BamHI site in intron 1 of the human retinoblastoma (RB) gene", *Nucl. Acids. Res.*, 18, 1666, (1990).
- [Brazma2001] Brazma, A; Vilo, J; "Gene Expression Data Analysis", *Microbes and Infection*, 3, 823-829, (2001).
- [Buchholz2001] Buchholz, B. A; Doherty, E. A. S; Albarghouthi, M. N; Bogdan, F. M; Zahn, J. M; Barron, A. E; "Microchannel DNA sequencing matrices with a thermally controlled 'viscosity switch'". *Anal. Chem.*, 73, 157-164, (2001).
- [Burns1996] Burns, M. A; Mastrangelo, C. H; Sammarco, T. S; Man, F. P; Webster, J. R; Johnson, B. N; Foerster, B; Jones, D; Fields, Y; Kaiser, A. R; Burke, D. T; "Microfabricated structures for integrated DNA analysis" *Proc. Natl. Acad. Sci. USA*, 93, 5556-5561, (1996).
- [Burns1998] Burns, M .A; Johnson, B. N; Brahmasandra, S. N; Handique, K; Webster, J. R; Krishnan, M; Sammarco, T. S; Man, P. F; Jones, D. K; Heldsinger, D; Mastrangelo, C. H; Burke, D. T; "An integrated nanoliter DNA analysis device", *Science*, 282, 484-487, (1998).
- [Carle1986] Carle, G.F; Frank, M; Olson, M.V; "Electrophoretic separation of large DNA molecules by periodic inversion of the electric field." *Science*, 232, 65-68, (1986).

- [Caruthers1987] Caruthers, M. H; Barone, A. D; Beaucage, S. L; Dodds, D.R; Isher, E. F. F; McBride, L. J; Matteucci, M; Stabinsky, Z; Tang, J. -Y; "Chemical synthesis of deoxyoligonucleotides by the phosphoramidite method", *Meth. Enzymol.*, 154, 287-313, (1987).
- [Casari1995] Casari, G; Andrade, M; Bork, P; Boyle, J; Daruvar, A; Ouzounis, C; Schneider, R; Tamames, J; Valencia, A; Sander, C; "Challenging times for bioinformatics", *Nature*, 376, 647-648, 1995
- [Chamberlain1988] Chamberlain, J. S; Gibbs, R. A; Ranier, J. E; Nguyen, P. N; Caskey C; "Deletion screening of the Duchenne muscular dystrophy locus via multiplex DNA amplification", *Nucl. Acid Res.*, 16: 11141-11156, (1988).
- [Cheng1994] Cheng, S; Chang, S.-Y; Gravitt, P; Respess, R; "Long PCR", *Nature*, 369, 684-685, (1994).
- [Cheng1996a] Cheng, J; Shoffner, M. A; Hvichia, G. E; Kricka, L. J; Wilding, P; "Chip PCR. II. Investigation of different PCR amplification systems in microfabricated silicon-glass chips", *Nucl. Acids Res.*, 24, 380-385, (1996).
- [Cheng1996b] Cheng, J; Shoffner, M. A; Mitchelson, K. R; Kricka, L. J; Wilding, P; "Analysis of ligase chain reaction products amplified in a silicon-glass chip using capillary electrophoresis", *J. Chromatogr.*, 732, 151-158, (1996).
- [Cheng1998] Cheng, J; Sheldon, E.L; Wu, L; Uribe, A; Gerrue, L.O; Carrino, J; Heller, M; O'Connell, J; "Electric field controlled preparation and hybridization analysis of DNA/RNA from *E. coli* on microfabricated bioelectronic chips." *Nature Biotech.*, 16, 541-546, (1998).
- [Chevet1995] Chevet, E; Lemaitre, G; Katinka, M. D; "Low concentrations of tetramethylammonium chloride increase yield and specificity of PCR", *Nucl. Acids. Res.*, 23, 3343-3344. (1995).
- [Chien1976] Chien, A; Edgar, D. B; Trela, J. M; "Deoxyribonucleic acid DNA polymerase from the extreme thermophile *Thermus aquaticus*", *J. Bact.*, 127, 1550-1557, (1976).
- [Chien2001] Chien, R-L; Parce, J. W; "Multiport flow-control system for lab-on-a-chip microfluidic devices", *Fresenius J. Anal. Chem.*, 371, 106-111, (2001).
- [Chiu1992] Chiu, K; Cohen, S. H; Morris, D. W; and Jordan, G. W; "Intracellular amplification of proviral DNA in tissue sections using the polymerase chain reaction", *J. Histochem. Cytochem.*, 40, 333, (1992).
- [Christel1998] Christel, L. A; Petersen, K; McMillan, W. A; Northrup, M. A; "Rapid, Automated Nucleic Acid Probe Assays Using Silicon Microstructures for Nucleic Acid Concentration." *J. Biomed. Eng.*, 121, 22-25, (1998).
- [Ciureanu1992] Ciureanu, P; Middelhoek, S; *Thin-film resistive sensors*, IOP Publishing, (1992).
- [Coffin1996] Coffin J. M; "HIV population dynamics in vivo: implications for genetic variation, pathogenesis, and therapy." *Science*, 267, 483-489, (1996).
- [Compton1988] Compton, S; Brownlee, R; "Capillary electrophoresis." *Biotechniques*, 6, 432-434, (1988).
- [Compton1990] Compton, T; "Degenerate primers for DNA amplification", in *PCR Protocols - A guide to methods and applications*, Innis, M. A; Gelfand, D. H; Sninsky, J. J; White, T. J. (Eds), Academic Press, (1990).
- [Courcelle2001] Courcelle, J; Khodursky, A; Peter, B; Brown, P. O; Hanawalt, P. C; "Comparative Gene Expression Profiles Following UV Exposure in Wild-Type and SOS-Deficient *Escherichia coli*", *Genetics*, 158, 41-64, (2001).

330 - References

- [Cutler2001] Cutler, DJ; Zwick, ME; Carrasquillo, MM; Yohn, CT; Tobin, KP; Kashuk, C; Mathews, DJ; Shah, NA; Eichler, EE; Warrington, JA; Chakravarti, A; "High-throughput variation detection and genotyping using microarrays", *Gen. Res.*, 11, 1913-1925, (2001).
- [D'Aquila1991] D'Aquila, R. T; Bechtel, L. J; Videler, J. A; Eron, J. J; Gorczycy, P; Kaplan, J. C; "Maximizing sensitivity and specificity of PCR by preamplification heating", *Nucleic Acids Res.*, 19, 3749, (1991).
- [Dabrowski1999] Dabrowski, S; Kur, J; "Cloning, overexpression, and purification of the recombinant His-tagged SSB protein of Escherichia coli and use in polymerase chain reaction amplification", *Protein Expr. Purif.*, 16, 96-102, (1999).
- [Dalton2000] Dalton, R; "DIY microarrayers promise DNA chips with everything", *Nature*403, 234-235, (2000).
- [Darwin1859] Darwin, C; *On the origin of the species by means of natural selection*, Murray, (1859).
- [Davies1998] Davies, P.; *The Fifth Miracle: The Search for the Origin and Meaning of Life*, Penguin Press, (1998).
- [Davis1964] Davis, B. J; "Disc electrophoresis-II: Method and application to human serum proteins." *Ann. N.Y. Acad. Sci.*, 121, 404-427, (1964).
- [Dawkins1989] Dawkins, R; "The Selfish Gene, 2nd Edition", *Oxford University Press*, (1989).
- [De Lomas1992] De Lomas, J. G; Sunzeri, F. J; Busch, M. P; "False-negative results by polymerase chain reaction due to contamination by glove powder", *Transfusion*, 32, 83-85, (1992).
- [De Wildt2000] De Wildt, R. M. T; Mundy, C. R; Gorick, B. D; Tomlinson, I. M; "Antibody arrays for high-throughput screening of antibody-antigen interactions", *Nature Biotech.*, 18, 989-994, (2000).
- [Dennett1996] Dennett, D. C; *Darwin's dangerous idea - Evolution and the meanings of life*, Penguin Books, 1996.
- [Denton1990] Denton, P; Reisner, H; "A low-cost air-driven cycling oven", in *PCR Protocols - A guide to methods and applications*, Innis, M. A; Gelfand, D. H; Sninsky, J. J; White, T. J. (Eds), Academic Press, (1990).
- [Diepold1996] Diepold, T; Obermeier, E; "Smoothing of Ultrasonically Drilled Holes in Borosilicate Glass by Wet Chemical Etching", *J. Micromech. Microeng.*, 6, 29 - 32, (1996).
- [Dohner1995] Dohner, D. E; Dehner, M. S; Gelb, L.D; "Inhibition of PCR by mineral oil exposed to UV irradiation for prolonged periods", *BioTechniques*, 18, 964-967, (1995).
- [Don1991] Don, R. H; Cox, P. T; Wainwright, B. J; Baker, K; Mattick, J. S; "'Touch down' PCR to circumvent spurious priming during gene amplification", *Nucleic Acids Res.*, 19, 4008, (1991).
- [Dower1988] Dower, W. J; Miller, J. F; Ragsdale, C. W; "High efficiency transformation of *E. coli* by high voltage electroporation", *Nucleic Acids Res.*, 16, 6127-6145, (1988).
- [Duch1996] Duch, M; Acero, M. C; "Grabado anisotrópico de Silicio en soluciones de TMAH y TMAH-ISOPROPANOL", *CNM-IMB Technical Notes*, NT89/96, (1996).
- [Dudoit2002] Dudoit, S; *Personal communication*, 2002.

- [Duffy1999] Duffy, D. C; Gillis, H. L; Lin, J; Sheppard, N. F. & Kellogg, G. J; "Microfabricated centrifugal microfluidic systems: Characterization and multiple enzymatic assays." *Anal. Chem.*, 71, 4669-4678, (1999).
- [Duke1998] Duke, T. A. J; Austin, R. H; "Microfabricated sieve for the continuous sorting of macromolecules", *Phys. Rev. Lett.*, 80, 1552-1555, (1998).
- [Dwyer1992] Dwyer, D. E; Saksema, N; "Failure of ultra-violet irradiation and autoclaving to eliminate PCR contamination", *Mol. Cell. Probes*, 6, 87-88, (1992).
- [Edelstein2000] Edelstein, R. L; Tamanaha, C. R; Sheehan, P. E; Miller, M. M; Baselt, D. R; Whitman, L. J; Colton, R. J; "The BARC biosensor applied to the detection of biological warfare agents", *Biosens. Bioelec.*, 14, 805-813, (2000).
- [Edman1998] Edman, C; Raymond, D; Wu, D; Tu, E; Sosnowski, R; Butler, W; Nerenberg, M; Heller, M; "Electric Field Directed Nucleic Acid Hybridization on Microchips", *Nucl. Acids Res.*, 25, 4907-4914, (1998).
- [Eisen1999] Eisen, M. B; Brown, P. O; "DNA arrays for analysis of gene expression", *Methods Enzymol.*, 303, 179-205, (1999).
- [Embleton1992] Embleton, M. J; Gorochov, G; Jones, P. T; Winter, G; "In-cell PCR from mRNA: amplifying and linking the rearranged immunoglobulin heavy and light chain V-genes within single cells", *Nucleic Acids Res.*, 20, 3831, (1992).
- [Erill2000a] Erill, S; "2+2 may (or may not) yield 4," *Lancet*, 356, 2110, 2000.
- [Erill2000b] Erill, I; *Technological process development for DNA-chip applications*, Universitat Autònoma de Barcelona, (2000).
- [Erill2000c] Erill, I; Villa, R; Goudignon, P; Fonseca, L; Plaza, J. A; "Silicon microsystem passivation for high-voltage applications in DNA chips", *Microelec. Rel.*, 40, 787-789, (2000).
- [Erill2002] Erill, I; Campoy, S; Fonseca, L; Ivorra, A; Navarro, Z; Plaza, J. A; Rus, J; Aguiló, J; Barbe, J; "High-speed polymerase chain reactions in a CMOS-compatible chip: systematic analysis and optimization", *in preparation*, (2002).
- [Erlich1991] Erlich, H. A; Gelfand, D; Sninsky, J. J; "Recent advances in the polymerase chain reaction", *Science*, 252, 1643-1651, (1991).
- [Fan1994] Fan, Z. H; Harrison, D. J; "Micromachining of capillary electrophoresis injectors and separators on glass chips and evaluation of flow at capillary intersections." *Anal. Chem.*, 66, 177-184, (1994)
- [Farris1977] Farris, J. S; "Phylogenetic analysis under Dollo's Law" *Systematic Zool.*, 26, 77-88, (1977).
- [Fauquet1989] Fauquet, A; Figueras, E; Navarro, Z; "Estudio de las células Peltier como elementos refrigerantes", *CNM-IMB Technical Notes*, NT25/89, (1989).
- [Favis2000] Favis, R; Day, J. P; Gerry, N. P; Phelan, C; Narod, S; Barany, F; "Universal DNA array detection of small insertions and deletions in BRCA1 and BRCA2." *Nat. Biotechnol.*, 18, 561-564, (2000).
- [Fejzo2001] Fejzo, M; Slamon, D; "Frozen tumor tissue microarray technology for analysis of tumor RNA, DNA, and proteins", *Am. J. Pat.*, 59, 1645-1650, (2001).
- [Field1990] Field, L. A; Muller, R. S.; "Fusing Silicon Wafers with Low-Temperature-Melting Glass", *Sens. Act. A*, 23, 935-938, (1990).

332 - References

- [Filichkin1992] Filichkin, S. A; Gelvin, S. B; "Effect of dimethylsulfoxide concentration on specificity of primer matching in the polymerase chain reaction", *BioTechniques*, 12, 828-830, (1992).
- [Findlay1993] Findlay, J. B; Atwood, S. M; Bermeyer, L; Chemelli, J; Christy, K; Cummins, T; Donish, W; Ekeze, T; Falvo, J; Patterson, D; Puskas, J; Quenin, J; Shah, J; Sharkey, D; Sutherland, J. W. H; Sutton, R; Warren, H; Wellman, J; "Automated closed-vessel system for in vitro diagnostics based on polymerase chain reaction", *Clin. Chem.*, 39, 1927-1933, (1993).
- [Fire1995] Fire, A; Xu, S-Q; "Rolling replication of short DNA circles." *Proc. Natl. Acad. Sci. USA*, 92, 4641-4645, (1995).
- [Fleming2000] Fleming, K. M; Reger, B. D; Sanguineti, V; Alford, S; Mussa-Ivaldi, F.A; "Connecting Brains to Robots: an Artificial Animal for the Study of Learning in Vertebrate Nervous Systems", in Meyer, J.A., Berthoz, A; Floreano, D; Roitblat, H.L; Wilson, S.W; (Eds). *From Animals to Animats*, MIT Press, 6, 61-70, (2000).
- [Fodor1991] Fodor, S. P. A; Read, J. L; Pirrung, M. C; Stryer, L; Tsai Lu, A. Solas, D; "Light-Directed, Spatially Addressable Parallel Chemical Synthesis", *Science*, 251, 767-773, (1991).
- [Fodor1993] Fodor, S. P. A; Rava, R. P; Huang, X. C; Pease, A. C; Holmes, C. P; Adams, C. L; "Multiplexed biochemical assays with biological chips", *Nature*, 364, 555-556, (1993).
- [Forbes1996] Forbes, B. A; Hicks, K. E; "Substances interfering with direct detection of Mycobacterium tuberculosis in clinical specimens by PCR: effects of bovine serum albumin", *J. Clin. Microbiol.*, 34, 2125-2128, (1996).
- [Frackman1998] Frackman, S; Kobs, S; Simpson, D; Storts, D; "Betaine and DMSO: Enhancing Agents for PCR", *Promega Notes*, 65, 27-30, (1998).
- [Friedman1998] Friedman, N. A; Meldrum, D. R; "Capillary tube resistive thermal cycling", *Anal. Chem.*, 70, 2997-3002, (1998).
- [Frost1997] "Strategic assessment of the developing DNA microchip market", *Frost and Sullivan*, (1997).
- [Fuqua1990] Fuqua, S. A. W; Fitzgerald, S. D; McGuire, W. L; "A simple polymerase chain reaction method for detection and cloning of low-abundance transcripts", *BioTechniques*, 9, 206-211, (1990).
- [Gelfand1989] Gelfand, D. H; "Taq DNA polymerase", in *PCR Technology - Principles and applications for DNA amplification*, Erlich H. A. (Ed.), Stockton Press, 2, 17-22, (1989).
- [Giambernardi1998] Giambernardi, T. A; Rodeck, U; Klebe, R. J; "Bovine Serum Albumin Reverses Inhibition of RT-PCR by Melanin", *BioTechniques*, 25, 564-566, (1998).
- [Gibbs1990] Gibbs, R. A; "DNA amplification by the polymerase chain reaction", *Anal. Chem.* 62, 1202-1214, (1990).
- [Goodyear1994] Goodyear, P. D; MacLaughlin-Black, S; Mason, I. J; "A reliable method for the removal of co-purifying PCR inhibitors from ancient DNA." *BioTechniques*, 16, 232-235, (1994).
- [Gosden1994] Gosden, J; Hanratty, D; "PCR in situ: a rapid alternative to in situ hybridization for mapping short low copy number sequences without isotopes", *BioTechniques*, 15, 78-80, (1994).
- [Götz1996] Götz, A; Gràcia, I; Cané, C; Lora-Tamayo, E; "Thermal and μ-mechanical aspects for designing machined low-power gas sensors", *J. Micromech. Microeng.*, 7, 247-249, (1997).

- [Guyer1989] Guyer R. L; Koshland D. E. Jr; "The Molecule of the Year", *Science*, 246, 1543-1546, (1989).
- [Haab2001] Haab B. B; Dunham M. J; Brown P. O; "Protein microarrays for highly parallel detection and quantitation of specific proteins and antibodies in complex solutions", *Genome Biol.*, 2, research0004.1-0004.13, (2001).
- [Haff1991] Haff, L; Atwood, J. G; DiCesare, J; Katz, E; Picozza, E; Williams, J. F; Woudenberg, T; "A high performance system for automation of the polymerase chain reaction", *BioTechniques*, 10, 102-112, (1991).
- [Han2000] Han, J; Craighead, H. G; "Separation of long DNA molecules in a microfabricated entropic trap array", *Science*, 288, 1026-1029, (2000).
- [Harris1989] Harris, M; *Cows, Pigs, Wars & Witches: The Riddles of Culture*, Vintage Books, (1989).
- [He1998] He, B; Tait, N; Regnier, F; "Fabrication of nanocolumns for liquid chromatography." *Anal. Chem.*, 70, 3790-3797, (1998).
- [Hecker1996] Hecker, H; Roux, K. H; "High and low annealing temperatures increase both specificity and yield in touchdown and stepdown PCR" *BioTechniques*, 20, 478-485, (1996).
- [Henegariu1997] Henegariu, O; Heerema, N. A; Dlouhy, S. R; Vance, G. H; Vogt, P. H; "Multiplex PCR: critical parameters and step-by-step protocol", *BioTechniques*, 23, 504-511, (1997).
- [Hengen1995] Hengen, P. N; "Methods and reagents - Fidelity of DNA polymerases for PCR", *Trends Biochem. Sci.*, 20, 324-325, (1995).
- [Higuchi1988] Higuchi, R; Krummel, B; Saiki, R. K; "A general method of in vitro preparation and specific mutagenesis of DNA fragments: study of protein and DNA interactions", *Nucleic Acids Res.*, 16, 7351-7367, (1988).
- [Hilmi2000] Hilmi, A; Luong, J. H. T; "Electrochemical detectors prepared by electroless deposition for microfabricated electrophoresis chips." *Anal. Chem.*, 72, 4677-4688, (2000).
- [Hirsch2000] Hirsch, M. S; Conway, B; D'Aquila, R. T; Johnson, V.A; Brun-Vézinet, F; Clotet, B; Demeter, L. M; Hammer, S. M; Jacobsen, D. M; Kuritzkes, D. R; Loveday, C; Mellors, J. W; Vella, S; Richman, D. D; "Antiretroviral Drug Resistance Testing in Adult HIV-1 Infection." *JAMA*, 283, 2417-2426, (2000).
- [Hjerten1967] Hjerten, S; *Chromatography Review*, 122-219, (1967).
- [Hoffman1988] Hoffman, L. M; Hundt, H; "Use of a gas chromatograph oven for DNA amplification by the polymerase chain reaction", *BioTechniques*, 6, 932-936, (1988).
- [Hsu2001] Hsu, T-R; "Scaling Laws in Miniaturization" in *MEMS and Microsystems: design and manufacture*, McGraw-Hill, 215-234, (2001).
- [Hsueh1995] Hsueh, Y. -T; Smith, R. L; Northrup, M. A; "A microfabricated, electrochemiluminescence cell for the detection of amplified DNA", in Digest of technical papers: *Transducers 1995 (Proc. 8th International Conference on Solid-State Sensors and Actuators - Eurosensors IX)*, 768-771, (1995).
- [Hung1990] Hung, T; Mak, K; Fong, K; "A specificity enhancer for polymerase chain reaction", *Nucl. Acids. Res.*, 18, 4953- 4959, (1990).

334 - References

- [Innis1988] Innis, M. A; Myambo, K. B; Gelfand, D. H; Brow, M. A. D; "DNA sequencing with *Thermus aquaticus* DNA polymerase and direct sequencing of polymerase chain reaction-amplified DNA", *Proc. Natl. Acad. Sci. USA*, 85, 9436-9440, (1988).
- [Innis1990] Innis, M. A; Gelfand, D. H; "Optimization of PCRs", in *PCR Protocols - A guide to methods and applications*, Innis, M. A; Gelfand, D. H; Sninsky, J. J; White, T. J. (Eds), Academic Press, (1990).
- [Jacobson1994] Jacobson, S. C; Hergenröder, R; Koutny, L. B; Warmack, R. J; Ramsey, J. M; "Effects of Column Geometry on the Performance of Microchip Electrophoresis Devices", *Anal. Chem.*, 66, 1107-1113, (1994).
- [Jacobson1996] Jacobson, S. C; Ramsey, J. M; "Integrated Microdevice for DNA Restriction Fragment Analysis", *Anal. Chem.*, 68, 720-723, (1996).
- [Jönsson1982] Jönsson, U; Ivarsson, B; Lundström, I; Berghem, L; "Adsorption behavior of fibronectin on well-characterized silica surfaces", *J. Colloid Interface Sci.*, 90, 148-163, (1982).
- [Jun1998] Jun, T. K; Kim, C.-J; "Valveless Pumping using Traversing Vapor Bubbles in Microchannels" *J. Appl. Phys.*, 83, 5658-5664, (1998).
- [Kanda1990] Kanda, Y; Kazunori, M; Murayama, C; Sugaya, J; "The mechanism of field-assisted silicon-glass bonding", *Sens. Act. A*, 21, 939-943, (1990).
- [Kar1994] Kar, S; Dasgupta, P. K; Liu, H; Hwang, H; "Computer-interfaced bipolar pulse conductivity detector for capillary systems." *Anal. Chem.*, 66, 2537-2543, (1994).
- [Keohavong1989] Keohavong, P; Thilly, W.G; "Fidelity of DNA polymerases in DNA amplification", *Proc. Natl. Acad. Sci. USA*, 86, 9253-9257, (1989).
- [Khandurina2000] Khandurina, J; McKnight, T. E; Jacobson, S. C; Waters, L. C; Foote, R. S; Ramsey, J. M; "Integrated system for rapid PCR-based DNA analysis in microfluidic devices", *Anal. Chem.*, 72, 2995-3000, (2000).
- [Kheterpal1996] Kheterpal, I; Scherer, J. R; Clark, S. M; Radhakrishnan, A; Ju, J; Ginther, C; Sensabaugh, G. F; Mathies, R. A; "DNA sequencing using a four-color confocal fluorescence capillary array scanner", *Electrophoresis*, 17, 1852-1859, (1996).
- [Kim1988] Kim, H. -S; Smithies, O; "Recombinant fragment assay for gene targeting based on the polymerase chain reaction", *Nucl. Acid Res.* 16, 8887-8903, (1988).
- [Klampfl1998] Klampfl, C. W; Katzmair, M. U; Buchberger, W; "Separation of inorganic and organic anions by capillary electrophoresis with simultaneous indirect UV and conductivity detection." *Electrophoresis*, 19, 2459-2464, (1998).
- [Klose1975] Klose, J. "Protein mapping by combined isoelectric focusing and electrophoresis of mouse tissues. A novel approach to testing for induced point mutation in mammals.", *Humangenetik*, 26, 231-243, (1975).
- [Knight1998] Knight, J. B; Vishwanath, A; Brody, J. P; Austin, R. H; "Hydrodynamic focusing on a silicon chip: mixing nanoliters in microseconds", *Phys. Rev. Lett.*, 80, 3863-3866, (1998).
- [Kopp1998] Kopp, M. U; de Mello, A. J; Manz, A; "Chemical amplification: continuous-flow PCR on a chip", *Science*, 280, 1046-1048, (1998).
- [Koutny2000] Koutny, L; Schmalzing, D; Salas-Solano, O; El-Difrawy, S; Adourian, A; Buonocore, S; Abbey, K; McEwan, P; Matsudaira, P; Ehrlich, D; "Eight hundred base sequencing in a microfabricated electrophoretic device." *Anal. Chem.*, 72, 3388-3391, (2000).

- [Kreader1996] Kreader, C. A; "Relief of amplification inhibition in PCR with bovine serum albumin or T4 gene 32 protein", *Appl. Env. Microbiol.*, 62, 1102-1106, (1996).
- [Kricka1993] Kricka, L. J; Nozaki, O; Heyner, S; Garside, W; Wilding, P; "Applications of a microfabricated device for evaluating sperm function." *Clin. Chem.*, 39, 1944-1947, (1993).
- [Krishnan2001] Krishnan, M; Namasivayam, V; Lin, R; Pal, R; Burns, M. A; "Microfabricated reaction and separation systems", *Curr. Opin. Biotechnol.*, 12, 92-98, (2001).
- [Kuritzkes2000] Kuritzkes, D. R., Shugarts, D., Bakhtiari, M., Poticha, D., Johnson, J., Rubin, M., Gingeras, T. R., Kennedy, M., Eron, J. J., "Emergence of dual resistance to zidovudine and lamivudine in HIV-1-infected patients treated with zidovudine plus lamivudine as initial therapy", *J. Acq. Imm. Def. Synd. Hum. Retrovirol.* 23, 26-34, (2000).
- [Lagally2001] Lagally, E. T; Medintz, I; Mathies, R. A; "Single-molecule DNA amplification and analysis in an integrated microfluidic device." *Anal. Chem.*, 73, 565-570, (2001).
- [Landegren1988] Landegren, U; Kaiser, R; Caskey, C. T; Hood, L; "A ligase-mediated gene detection technique." *Science*, 242, 229, (1988).
- [Lawyer1989] Lawyer F. C; Stoffel S; Saiki R. K; Myambbo K; Drummond R; Gelfand D. H; "Isolation, characterization, and expression in Escherichia coli of the DNA polymerase gene from *Thermus aquaticus*", *J. Biol. Chem.*, 264, 6427-6437, (1989).
- [Lee1988] Lee, C. C; Wu, X; Gibbs, R. A; Cook, R. G; Muzny, D. M; Caskey, C. T; "Generation of cDNA probes directed by aminoacid sequence: cloning of urate oxidase", *Science*, 239, 1288-1291, (1988).
- [Legtenberg1994] Legtenberg, R; Bouwstra, S; Elwenspoek, M. C; "Low temperature glass bonding for sensor applications using boron oxide thin films", *J. Micromech. Microeng.*, 1, 157-160, (1994).
- [Levene1909] Levene, P. A; "Über die Hefenucleinsaure", *Biochem. Ziet.*, 17, 120-131, (1909).
- [Levene1929] Levene, P. A; London, E. S; "The structure of thymus nucleic acid", *J. Biol. Chem.*, 83, 793-802, (1929).
- [Li1988] Li, H; Gyllensten, U; Cui, X; Saiki, R; Erlich, H; Arnheim, N; "Amplification and Analysis of DNA Sequences in Single Human Sperm", *Nature*, 335, 414- 417, (1988).
- [Li1992] Li, S. F. Y; "Capillary Electrophoresis : principles, practice, and applications." *J. Chromatogr. Libr.*, 52, Elsevier Science Publishers B.V., (1992).
- [Lin2000a] Lin, Y. -C; Huang, M. -Y; Young, K. -C; Chang, T. -T; Wu, C. -Y; "A rapid micro-polymerase chain reaction system for hepatitis C virus amplification", *Sens. Act. B*, 71, 2-8, (2000).
- [Lin2000b] Lin, Y. -C; Yang, C. -C; Huang, M. -Y; "Simulation and experimental validation of micro polymerase chain reaction chips", *Sens. Act. B*, 71, 127-133, (2000).
- [Linquist1998] Linquist, V; McCune, J.M; "UV Irradiation of Polystyrene Pipets Releases PCR Inhibitors", *BioTechniques*, 24, 50-52, (1998)

336 - References

- [Liu2000] Liu, S; Ren, H; Gao, Q; Roach, D. J; Loder, R. T; Armstrong, T. M; Mao, Q; Blaga, I; Barker, D. L; Jovanovich, S. B; "Automated parallel DNA sequencing on multiple channel microchips", *Proc. Natl. Acad. Sci. USA*, 97, 5397-5374, (2000).
- [Livak1995] Livak, K. J; Flood, S. J; Marmaro, J; Giusti, W; Deetz, K; "Oligonucleotides with fluo-rescent dyes at opposite ends provide a quenched probe system useful for detecting PCR product and nucleic-acid hybridization", *PCR Methods Appl.*, 4, 357-362, (1995).
- [Lizardi1998] Lizardi, P.M; Huang, X; Zhu, Z; Bray-Ward, P; Thomas, D.C; Ward, D.C; "Mutation detection and single molecule counting using isothermal rolling circle amplification." *Nat. Genetics*, 19, 225-232, (1998).
- [Lohmann2000] Lohman, S; Lehmann, L; Tabiti, K; "Fast and flexible single nucleotide polymorphism (SNP) detection with the LightCycler system", *BioChemica*, 23-28, (2000).
- [Luginbuhl2000] Luginbuhl, Ph; Indermuhle, P. -F; Grétillat, M. -A; Willemin, F; de Rooij, N. F; Gerber, D; Gervasio, G; Vuilleumier, J. -L; Twerenbold, D; Düggelin, M; Mathys, D; Guggenheim, R; " Femtoliter injector for DNA mass spectrometry", *Sens. Act. B*, 63, 167-177, (2000).
- [Lundberg1991] Lundberg, K. S; Shoemaker, D. D; Adams, M. W; Short, J. M; Sorge, J. A; Mathur, E. J; "High-fidelity amplification using a thermostable DNA polymerase isolated from Pyrococcus furiosus", *Gene*, 108, 1-6, (1991).
- [Lyamichev1999] Lyamichev, V; Mast, A. L; Hall, J. G; Prudent, J.R; Kaiser, M.W; Takova, T; Kwiatkowski, R.W; Sander, T.J; de Arruda, M; Acro, D.A; Neri, B.P; Brow, M.A.D; "Polymorphism identification and quantitative detection of genomic DNA by invasive cleavage of oligonucleotide probes." *Nat. Biotechnol.*, 17, 292-296, (1999).
- [Lyons1992] Lyons, J; "The polymerase chain reaction and cancer diagnostics", *Cancer*, 69, 1527-1531, (1992).
- [Mack1988] Mack, D; Sninsky, J. J; "A sensitive method for the identification of uncharacterized viruses related to known virus groups: hepadnavirus model system", *Proc. Natl. Acad. Sci. USA*, 85, 6977-6981, (1988).
- [Mai1998] Mai, M.; Grabs, R; Barnes, R.D; Vafiadis, P; Polychronakos, C; "Shortened PCR cycles in a conventional thermal cycler", *Biotechniques*, 25, 208-210, (1998).
- [Maniatis1982] Maniatis, T; Fritsch, E. F; Sambrook, J; *Molecular cloning: a laboratory manual.* (1st Ed.), Cold Spring Harbor Laboratory Press, (1982).
- [Manz1990] Manz, A; Gruber, N; Widmer, H. M; " Miniaturized total chemical analysis system: a novel concept for chemical sensing." *Sens. Actuators*, B1, 244-248, (1990).
- [Manz1992] Manz, A; Harrison, D. J; Verpoorte, E. M. J; Fettinger, J. C; Paulus, A; Lüdi, H; Widmer, H. M; "Planar chips technology for miniaturization and integration of separation techniques into monitoring systems. Capillary electrophoresis on a chip." *J. Chrom.*, 593, 253-258, (1992).
- [Mathies1992] Mathies, R. A; Huang, X. C; "Capillary Array Electrophoresis: An Approach to High-speed, High-throughput DNA Sequencing", *Nature*, 359, 167-169, (1992).
- [Mei2000] Mei, R; Galipeau, P. C; Prass, C; Berno, A; Ghandour, G; Patil, N; Wolff, R. K; Chee, M; Reid, B; Lockhart, D. J; "Genome-wide detection of allelic imbalance using human SNPs and High-density DNA arrays", *Gen. Res.*, 10, 1126-1137, (2000).

- [Meinkoth1984] Meinkoth, J; Wahl, G; "Hybridization of nucleic acids immobilized on solid supports", *Anal. Biochem.*, 138, 267-284, (1984).
- [Meller2000] Meller, A; Nivon, L; Brandin, E; Golovchenko, J; Branton, D; "Rapid nanopore discrimination between single polynucleotide molecules." *Proc. Natl. Acad. Sci. USA*, 97, 1079-1084, (2000).
- [Mendel1866] Mendel, G; "Versuche über Pflanzenhybriden", *Verhand-lungen des naturforschenden Vereines in Brünn, Bd. IV für das Jahr 1865, Abhandlungen*, 3-47, (1866).
- [Merlos1993] Merlos, A; Acero, M.C; Bao, M.H; Bausells, J; Esteve, J; "TMAH/IPA Anisotropic etching characteristics", *Sens. Act. A*, 37-38, 737-743, (1993).
- [Miescher1871] Miescher JF; "Über die chemische Zusammensetzung der Eiterzellen", *Med-chem. Untersuchungen*, 4, 441-460, (1871).
- [Mullis1986] Mullis, K; Falloona, F; Scharf, S; Saiki, R; Horn, G. Erlich, H; "Specific enzymatic amplification of DNA in vitro: the polymerase chain reaction", *Cold Spring Harbor Symposium in Quantitative Biology*, 51, 263-273, (1986).
- [Mullis1987] Mullis, K. B; Falloona, F. A; "Specific synthesis of DNA in vitro via polymerase-catalyzed chain reaction", *Methods Enzymol.*, 155, 335-350, (1987).
- [Mullis1990] Mullis, K.B; "The unusual origin of the polymerase chain reaction", *Scientific American*, 262, 36-43, (1990).
- [Murakami2000] Murakami, Y; Nagai, H; Kikuchi, T; Yamamura, A; Idegami, K; Yanase, M; Choi, Y. -S; Morita, Y; Tamiya, E; "Random distribution of biomaterials as a handling method on microarray applied to PCR, biosensors and high-throughput screening", *Proc. 1st Annual International IEEE-EMBS Special Topic Conference on Microtechnologies in Medicine & Biology*, 29-33, (2000).
- [Mytelka1996] Mytelka, D. S; Chamberlin, M. J; "Analysis and suppression of DNA polymerase pauses associated with a trinucleotide consensus", *Nucl. Acids. Res.*, 24, 2774-2781, (1996).
- [Nakano1994] Nakano, H; Matsuda, K; Yohda, M; Nagamune, T; Endo, I; Yamane, T; "High speed polymerase chain reaction in constant flow", *Biosci. Biotech. Biochem.*, 58, 349-352, (1994).
- [Nallur2001] Nallur, G; Luo, C; Fang, L; Cooley, S; Dave, V; Lambert, J; Kukanskis, K; Kingsmore, S; Lasken, R; Schweitzer, B; "Signal amplification by rolling circle amplification on DNA microarrays", *Nuc. Acids Res.*, 29, e118, i-ix, (2001).
- [Navarro1993] Navarro, Z; "Posició a les màscares dels "Xips transparantes" i dels motius d'alignament", *CNM-IMB Technical Notes*, NT66/93, (1993).
- [Noble1995] Noble, D; "DNA sequencing on a chip." *Anal. Chem.*, 67, 201-204A, (1995).
- [Northrup1993] Northrup, M. A; Ching, M. T; White, R. M; Watson, R. T; "DNA amplification in a microfabricated reaction chamber", in Digest of technical papers: *Transducers 1993 (Proc. 7th International Conference on Solid-State Sensors and Actuators)*, 924-926, (1993).
- [Northrup1995] Northrup, M. A; Gonzalez, C; Hadley, D; Hills, R. F; Landre, P; Lehew, S; Saiki, R; Sninsky, J. J; Watson, R; Watson, R. Jr; "A MEMs-based miniature DNA analysis system", in Digest of technical papers: *Transducers 1995 (Proc. 8th International Conference on Solid-State Sensors and Actuators - Eurosensors IX)*, 764-767, (1995).

338 - References

- [Northup1997] Northrup, M. A; Beeman, B; Bennet, B; Hadley, D; Landre, P; Lehew, S; "A miniature integrated nucleic acid analysis system", in *Automation Technologies for Genome Characterization*, Beugelsdijk, T. J. (Ed.), John Wiley & Sons, (1997).
- [Northup1998] Northup, M. A; Bennet, B; Landre, P; Lehew, S; Richards, J; Stratton, P; "A miniature analytical instrument for nucleic acids based on micromachined silicon reaction chambers", *Anal. Chem.*, 70, 918-922, (1998).
- [O'Connell1977] O'Connell, P. B. H; Brady, C. J; "Polyacrylamide gel with modified cross-linkages." *Anal. Biochem.*, 76, 633-673, (1977).
- [Ocvirk1995] Ocvirk, G; Verpoorte, E. M. J; Manz, A; Widmer, H. M; "Integration of a micro liquid chromatograph onto a silicon chip." *Proc. Transd.* 95, 191-192, (1995).
- [O'Farrell1975] O'Farrell, P.H; "High resolution two-dimensional electrophoresis of proteins", *J. Biol. Chem.*, 250, 4007-4021, (1975).
- [Ohji2000] Ohji, H; Izuo, S; French, P.J. Tsutsumi, K; "Macroporous based micromachining on full wafers", *Eurosensors XIV*, 14th European Conference on Solid-State Transducers, Copenhagen, 415-418, (2000).
- [Old1994] Old, R. W; Primrose, S. B; *Principles of Gene Manipulation - An Introduction to genetic engineering*, Blackwell Science, (1994).
- [Ornstein1964] Ornstein, L; "Disc Electrophoresis-I. Background and Theory." *Ann. N. Y. Acad. Sci.*, 121, 321-349, (1964).
- [Oshima1992] Oshima, R. G; "Single-stranded DNA binding protein facilitates amplification of genomic sequences by PCR", *BioTechniques*, 13, 188-190, (1992).
- [Ou1991] Ou, C. -Y; Moore, J. L; Schochetman, G; "Use of UV irradiation to reduce false positivity in polymerase chain reaction", *BioTechniques*, 10, 442-445, (1991).
- [Pääbo1988] Pääbo, S; Gifford, J. A; and Wilson, A. C; "Mitochondrial DNA sequences from a 7000-year-old brain", *Nucl. Acids Res.*, 16, 9775-9787, (1988).
- [Pääbo1990] Pääbo, S., Irwin, DM, and Wilson, AC; "DNA damage promotes jumping between templates during enzymatic amplification", *J. Biol. Chem.*, 265, 4718-4721, (1990).
- [Paegel2002] Paegel, B. M; Emrich, C. A; Wedemayer, G. J; Scherer, J. R; Mathies, R. A; "High throughput DNA sequencing with a 96-lane capillary array electrophoresis bioprocessor", *Proc. Natl. Acad. Sci. USA*, 99, 574-579, (2002).
- [Pagán2002] Pagán, S; "Take a thousand eggs..." *New Scientist Mag.*, 173, 4-5, (2002).
- [Pauchard2000] Pauchard, A; Besse, P.A; Bartek, M; Wolffenbuttel, R.F; Popovic, R.S; "Ultraviolet-selective avalanche photodiode", *Sens. Act. A*, 82, 128-134, (2000).
- [Pease1994] Pease, A. C; Solas, D; Sullivan, E. J; Cronin, M. T; Holmes, C. P; Fodor, S. P. A; "Light-Generated Oligonucleotide Arrays for Rapid DNA Sequence Analysis", *Proc. Natl. Acad. Sci. USA*, 91, 5022-5026, (1994).
- [Pevzner2001] Pevzner, P. A; Tang, H; Waterman, M. S; "An Eulerian path approach to DNA fragment assembly", *Proc. Natl. Acad. Sci. USA*, 98, 9748-9753, (2001).
- [Pomp1991] Pomp, D; Medrano, J. F; "Organic solvents as facilitators of polymerase chain reaction", *BioTechniques*, 10, 58-59, (1991).

- [Poser1997] Poser, S; Schulz, T; Dillner, U; Baier, V; Köhler, J. M; Schimkat, D; Mayer, G; Siebert, A; "Chip elements for fast thermocycling", *Sens. Act. A*, 62, 672-675, (1997).
- [Powledge1996] Powledge, T; Rose, M; "The great DNA hunt", *Archaeology*, 49, 36-44, (1996).
- [Pusch1998] Pusch, C. M.; Giddings, I; Scholz, M; "Repair of degraded duplex DNA from prehistoric samples using Escherichia coli DNA polymerase I and T4 DNA ligase", *Nucleic Acids Res.*, 26, 857-859., (1998).
- [Quenzer1992] Quenzer, H. J; Beneke, W; "Low temperature silicon wafer bonding" *Sens. Act. A*, 32, 340-344, (1992).
- [Quesada1991] Quesada, M. A; Rye, H. S; Gingrich, J. C; Glazer, A. N; Mathies, R. A; "High-Sensitivity DNA Detection with a Laser- Excited Confocal Fluorescence Gel Scanner", *BioTechniques*, 10, 616-625, (1991).
- [Radtkey2000] Radtkey R, Feng L, Muralhider M, Duhon M, Canter D, DiPietro D, Fallon S, Tu E, McElfresh K, Nerenberg M, Sosnowski R. Rapid high fidelity analysis of simple sequence repeats on an electronically active DNA microchip. *Nuc. Acids Res.*, 28, e17, i-vi, (2000).
- [Rasmussen1994a] Rasmussen, H. N; Rasmussen, O. F; Andersen, J. K; Olsen, J. E; "Specific detection of pathogenic Yersinia enterocolitica by two-step PCR using hot-start and DMSO", *Mol. Cell Probe*, 8, 99-108, (1994).
- [Rasmussen1994b] Rasmussen, S., Rasmussen, H., Larsen, M., Hoff-Jørgensen, R., Cano, R. J; "Combined Polymerase Chain Reaction-Hybridization Microplate Assay Used to Detect Bovine Leukemia Virus and Salmonella", *Clin. Chem.*, 40, 200-205, (1994).
- [Raymond1994] Raymond, D. E; Manz, A; Widmer, H. M; "Continuous sample pretreatment using a free-flow electrophoresis device integrated onto a silicon chip." *Anal. Chem.*, 66, 2858-2865, (1994).
- [Ristic1994] Ristic, Lj; Hughes, H; Shemansky, F; "Bulk micromachining technology", in *Sensor Technology and Devices*, Ristic, Lj; (Ed.), Artech House, (1994).
- [Rolfs1992] Rolfs, A; Schuller, I; Finckh, U; Weber-Rolfs, I; "Substances affecting PCR: Inhibition and enhancement", *PCR: Clinical diagnostics and research*, 51-58, Springer, (1992).
- [Rossen1992] Rossen, L; Nørskov, P; Holmstrøm, K; Rasmussen, O.F; "Inhibition of PCR by components of food samples, microbial diagnostic assays and DNA-extraction solutions", *Int. J. Food Microbiol.*, 17, 37-45, (1992).
- [Rowe-Taitt2000] Rowe-Taitt, C. A; Golden, J. P; Feldstein, M. J; Cras, J. J; Hoffman, K. E; Ligler, F. S; "Array biosensor for detection of biohazards", *Biosens. Bioelec.*, 14, 785-794, (2000).
- [Ruano1992] Ruano, G; Pagliaro, E. M; Schwartz, T. R; Lamy, K; Messina, D; Gaensslen, R. E; Lee, H. C; "Heat-soaked PCR: an efficient method for DNA amplification with applications to forensic analysis", *BioTechniques*, 13, 266-274, (1992).
- [Rychlik1990] Rychlik, W; Spencer, W. J; Rhoads, R. E; "Optimization of the annealing temperature for DNA amplification in vitro", *Nucleic Acids Res.*, 18, 6409-6412, (1990).
- [Saiki1985] Saiki, R; Scharf, S; Falloona, F; Mullis, K; Horn, G; and Erlich, H; "Enzymatic amplification of beta-globin genomic sequences and restriction site analysis for diagnosis of sickle cell anemia", *Science*, 230, 1350-1354, (1985).

340 - References

- [Saiki1988] Saiki, R. K; Gelfand, D. H; Stoffel, S; Scharf, S. J; Higuchi, R; Horn, G. T; Mullis, K. B; Erlich, H. A; "Primed-directed enzymatic amplification of DNA with a thermostable DNA polymerase", *Science*, 239, 487-494, (1988).
- [Saiki1989] Saiki R. K; "The design and optimization of the PCR", in *PCR Technology - Principles and applications for DNA amplification*, Erlich H. A. (Ed.), Stockton Press, 1, 7-16, (1989).
- [Sambrook1989] Sambrook, J; Fristch, E. F; Maniatis, T; *Molecular cloning. A laboratory manual.* (2nd Ed.), Cold Spring Harbor Laboratory Press, (1989).
- [Sarkar1990a] Sarkar, G; Sommer. S.S; Shedding light on PCR contamination. *Nature*, 343, 27, (1990).
- [Sarkar1990b] Sarkar, G; Sommer, S. S; "More light on PCR contamination" [letter], *Nature*, 347, 340-341, (1990).
- [Sarkar1990c] Sarkar, G; Kapelner, S; Sommer, S. S; "Formamide can dramatically improve the specificity of PCR", *Nucleic Acids Res.*, 18, 7465, (1990).
- [Sarkar1993] Sarkar, G; Sommer, S.S; "Removal of DNA contamination in polymerase chain reaction reagents by ultraviolet irradiation", *Methods Enzymol.*, 218, 381-388, (1993).
- [Scharf1986] Scharf, S. J; Horn, G. T; Erlich, H. A; "Direct cloning and sequence analysis of enzymatically amplified genomic sequences", *Science*, 233, 1076-1078, (1986).
- [Schmidt1995] Schmidt, T; Hummel, S; Herrmann, B; "Evidence of Contamination in PCR Laboratory Disposals." *Naturwissenschaften*, 82, 423-431, (1995).
- [Schnell1997] Schnell, S; Mendoza, C; "Theoretical Description of the Polymerase Chain Reaction", *J. Theor. Biol.*, 188, 313-318, (1997).
- [Schrödinger1967] Schrödinger, E; *What is life?* Cambridge Univ. Press, 1967
- [Seiler1993] Seiler, K; Harrison, D. J; Manz, A; "Planar glass chips for capillary electrophoresis: repetitive sample injection, quantitation and separation efficiency", *Anal. Chem.*, 65, 1481-1488, (1993).
- [Seller1994] Seller, K; Fan, Z. H; Flurl, K; Harrison, D. J; "Electroosmotic pumping and valveless control of fluid flow within a manifold of capillaries on a glass chip." *Anal. Chem.*, 66, 3845-3891, (1994).
- [Shannon1948] Shannon, C. E; "A mathematical theory of communication", *Bell System Technical Journal*, 27, 379-423 & 623-656, (1948).
- [Shaw1999] Shaw, W. K; McLandsborough, L. A; "Shortened PCR reaction for rapid detection and increased sensitivity in a conventional thermal cycler", *Proc. IFT Annual Meeting*, (1999).
- [Shoffner1996] Shoffner, M. A; Cheng, J; Hvichia, G. E; Kricka, L. J; Wilding, P; "Chip PCR. I. Surface passivation of microfabricated silicon-glass chips for PCR", *Nucl. Acids Res.*, 24, 375-379, (1996).
- [Shoji1994] Shoji, S; Esashi, M; "Microflow devices and systems." *J. Micromech. Microeng.*, 4157-171, (1994).
- [Smith1990] Smith, K. T; Long, C. M; Bowman, B; Manos, M. M; "Using cosolvents to enhance PCR amplification", *Amplifications*, 9/90, 16-17, (1990).
- [Smith1996] Smith, R; Miller, K; Storts, D. R; *Promega Notes*, 56, 24-29, (1996).

- [Sohn2000] Sohn, L. L; Saleh, O. A; Facer, G. R; Beavis, A. J; Allan, R. S; Notterman, D. A; "Capacitance cytometry: Measuring biological cells one by one." *Proc. Natl. Acad. Sci. USA*, 97, 10687-1069, (2000).
- [Soper1998] Soper, S. A; Williams, D. C; Xu, Y; Lassiter, S. J; Zhang, Y; Ford, S. M; Bruch, R. C; "Sanger DNA-sequencing reactions performed in a solid-phase nanoreactor directly coupled to capillary gel electrophoresis", *Anal. Chem.*, 70, 4036-4043, (1998).
- [Soper1999] Soper, S. A; Ford, S. M; Xu, Y; Qi, S; McWhorter, S; Lassiter, S; Patterson, D; Bruch, R. C; "Nanoliter-scale sample preparation methods directly coupled to polymethylmethacrylate-based microchips and gel-filled capillaries for the analysis of oligonucleotides", *J. Chromatogr.*, 853, 107-120, (1999).
- [Southern1975] Southern, E; "Detection of specific sequences among DNA fragments separated by gel electrophoresis", *J. Mol. Biol.*, 98, 503-517, (1975).
- [St. Pierre1994] St. Pierre, B. S; Neustock, P; Schramm, U; Wilhelm, D; Kirchner, H; Bein, G; "Seasonal breakdown of polymerase chain reaction", *Lancet*, 343, 673-676, (1994).
- [Steinfath2001] Steinfath, M; Wruck, W; Seidel, H; Lehrach, H; Radelof, U; O'Brien, J; "Automated image analysis for array hybridization experiments", *Bioinformatics*, 17, 634-641, (2001).
- [Stipp1997] Stipp, D; "Gene Chip Breakthrough", *Fortune*, March 31, 56-73, (1997).
- [Swanson1999] Swanson, D; "PCR optimization: building the perfect beast", *The Scientist*, 13, 26-28, (1999).
- [Swerdlow1993] Swerdlow, H; Dew-Jager, K; Gesteland, R. F; "Rapid cycle sequencing in an air thermal cycler", *BioTechniques*, 15, 512-519, (1993).
- [Tartof1987] Tartof, K. D; Hobbs C. A; "Improved media for growing plasmid and cosmid clones", *Bethesda Res. Lab. Focus.*, 9, 12, (1987).
- [Taylor1997] Taylor, T. B; Winn-Deen, E. S; Picozza, E; Woudenberg, T. M; Albin, M; "Optimization of the performance of the polymerase chain reaction in silicon-based structures", *Nucl. Acids Res.*, 25, 3164-3168, (1997).
- [Terry1979] Terry, S. C; Jerman, J. H; Angell, J. B; "A gas chromatographic air analyzer fabricated on a silicone wafer." *IEEE Trans. Electron. Dev.*, 26, 1880-1883, (1979).
- [Tindall1988] Tindall, K.R; Kunkel, T.A; "Fidelity of DNA synthesis by the *Thermus aquaticus* DNA polymerase", *Biochemistry*, 27, 6008-6013, (1988).
- [Tsongalis1994] Tsongalis, G. J; PcPhael, A. M; Lodgerical, R. D; Chapman, J. F; Silverman, L. M; "Localized in situ amplification (LISA): a novel approach to in situ PCR", *Clin. Chem.*, 40, 381-384, (1994).
- [Tswett1906] Tswett, M; "Adsorptionsanalyse und Chromatographische Methode. Anwendung auf die Chemie des Chlorophylls", *Ber Deutsch Botan. Ges.*, 24, 384- 393, (1906).
- [Tyagi1998] Tyagi, S; Bratu, D. P; Kramer, F. R; "Multicolor molecular beacons for allele discrimination", *Nature Biotech.*, 16, 49-53, (1998).
- [Umek2001] Umek, R. M; Lin, S. W; Vielmetter, J; Terbrueggen, R. H; Yu, C. J; Kayyem, J. F; Yowanto, H; Blackburn, G. F; Farkas, D. H; Chen, Y-P; "Electronic Detection of Nucleic Acids: A Versatile Platform for Molecular Diagnostics." *J. Mol. Diag.*, 3, 74-84, (2001).
- [van den Berg1995] van den Berg, A; Bergveld, P; *Micro Total Analysis Systems*, Kluwer academic publishers, (1995).

- [van der Moolen1997] van der Moolen, J. N; Poppe, H; Smit, H. C; "A micromachined injection device for CZE: application to correlation CZE." *Anal. Chem.* 69, 4220-4225, (1997).
- [Veres1987] Veres, G; Gibbs, R. A; Scherer, S. E; Caskey, C. T; "The molecular basis of the sparse fur mouse mutation", *Science*, 237, 415-417, (1987).
- [Verpoorte2002] Verpoorte, E; "Microfluidic chips for clinical and forensic analysis", *Electrophoresis*, 23, 677-712, (2002).
- [Volkmuth1992] Volkmut, W. D; Austin, R. H; "DNA electrophoresis in microlithographic arrays", *Nature*, 358, 600-602, (1992).
- [von Ahsen2001] von Ahsen, N., Wittwer, C. T., Schutz, E. "Oligonucleotide melting temperatures under pcr conditions: nearest-neighbor corrections for Mg²⁺, deoxynucleotide triphosphate, and dimethyl sulfoxide concentrations with comparison to alternative empirical formulas", *Clin. Chem.*, 47, 1956-1961, (2001).
- [Walker1993] Walker, G. T; Empirical aspects of strand displacement amplification." *PCR Methods and Applications*, 3, 1-6, (1993).
- [Wallace1979] Wallace, R. B; Shaffer, J; Murphy, R. F; Bonner, J; Hirose, T; Itakura, K; "Hybridization of synthetic oligodeoxyribonucleotides to phi chi 174 DNA: the effect of single base pair mismatch", *Nuc. Acids Res.*, 6, 6353-6357, (1979).
- [Wallis1969] Wallis, G; Pomerantz, D.I; "Field assisted glass-metal sealing", *J. Appl. Phys.*, 40, 3946-3949, (1969).
- [Wang1997a] Wang, X-B; Huang, Y; Gascoyne, P. R. C; Becker, F. F; "Dielectrophoretic manipulation of particles", *IEEE Trans. Ind. Appl.*, 33, 660-669, (1997).
- [Wang1997b] Wang, X-B; Huang, Y; Wang, X; Becker, F. F; Gascoyne, P. R. C; "Dielectrophoretic manipulation of cells with spiral electrodes", *Biophys. J.*, 72, 1887-1889, (1997).
- [Washizu1990] Washizu, M; Kurosawa, O; "Electrostatic manipulation of DNA in microfabricated structures." *IEEE Trans. Ind. Appl.*, 26, 1165-1172, (1990).
- [Waters1998a] Waters, L. C; Jacobson, S. C; Kroutchinina, N; Khandurina, J; Foote, R. S; Ramsey, J. M; "Multiple sample PCR amplification and electrophoretic analysis on a microchip", 70, 5172-5176, (1998).
- [Waters1998b] Waters, L. C; Jacobson, S. C; Kroutchinina, N; Khandurina, J; Foote, R. S; Ramsey, J. M; "Microchip device for cell lysis, multiplex PCR amplification, and electrophoretic sizing." *Anal. Chem.*, 70, 158-162, (1998).
- [Watson1953] Watson, J. D; Crick, F. H.C; "Molecular structure of nucleic acids. A structure for deoxyribose nucleic acid", *Nature*, 171, 737-738, (1953).
- [Webb1970] Webb, R. N; *James Watt: Inventor of a Steam Engine*, Franklin Watts, Inc., (1970).
- [Weiner1995] Weiner, M. P; Gackstetter, T; Costa, G. L; Bauer, J. C; Kretz, K. A; "Site-directed Mutagenesis using PCR" in *Molecular Biology: Current Innovations and Future Trends*, Griffin, A. M; Griffin, H. G. (Eds.), Horizon Scientific Press, (1995).
- [Weissensteiner1996] Weissensteiner, T; Lanchbury, J. S; "Strategy for Controlling Preferential Amplification Avoiding False Negatives in PCR Typing", *BioTechniques*, 21, 1102-1108, (1996).
- [Welsh1990] Welsh, J; McClelland, M; "Fingerprinting genomes using PCR with arbitrary primers," *Nucl. Acids Res.*, 18, 7213-7218, (1990).

- [Westin2000] Westin, L; Xu, X; Miller, C; Wang, L; Edman, C.F; Nerenberg, M; "Anchored multiplex amplification on a microelectronic chip array." *Nat. Biotechnol.*, 18, 199-204, (2000) .
- [Wetmur1968] Wetmur, J. G; Davidson, N; "Kinetics of renaturation of DNA", *J. Mol. Biol.*, 31, 349-370, (1968).
- [Wikman2000] Wikman, F. P; Lu, M-L; Thykjaer, T; Olesen, S. H; Andersen, L. D; Cordon-Cardo, C; Ørntoft, T. F; "Evaluation of the performance of a p53 sequencing microarray chip using 140 previously sequenced bladder tumor samples", *Clin. Chem.*, 46, 1555-1561, (2000).
- [Wilding1994] Wilding, P; Shoffner, M. A; Kricka, L. J; "PCR in silicon microstructure", *Clin. Chem.* 40, 1815-1818, (1994).
- [Wilding1998] Wilding, P; Kricka, L. J; Cheng, J; Hvichia, G; Shoffner, M. A; Fortina, P; "Integrated cell isolation and polymerase chain reaction analysis using silicon microfilter chambers", *Anal. Biochem.*, 257, 95-100, (1998).
- [Williams1996] Williams, K. R; Muller, R. S; "Etch rates for micromachining processing", *J. Microelectromech. Sys.*, 5, 256-268, (1996).
- [Wilson1997] Wilson, I. G; "Inhibition and facilitation of nucleic acid amplification", *Appl. Env. Microbiol.*, 63, 3741-3751, (1997).
- [Winston1984] P.H. Winston; *Artificial Intelligence*, Addison Wesley, (1984).
- [Wittmer1989] Wittmer, C. T; Fillmore, G. C; Hillyard, D. R; "Automated polymerase chain reaction in capillary tubes with hot air", *Nucl. Acids Res.*, 17, 4353-4357, (1989).
- [Wittmer1990] Wittmer, C. T; Fillmore, G. C; Garling, D. J; "Minimizing the time required for DNA amplification by efficient heat transfer to small samples", *Anal. Biochem.*, 186, 328-331, (1990).
- [Wittmer1991] Wittmer, C. T; Garling, D. J; "Rapid cycle DNA amplification: time and temperature optimization", *BioTechniques*, 10, 76-83, (1991).
- [Wittmer1993] Wittmer, C. T; Marshall, B. C; Reed, G. H; Cherry, J. L; "Rapid cycle allele-specific amplification: studies of the cystic fibrosis AF508 locus", *Clin. Chem.*, 39, 804-809, (1993).
- [Wittwer1997a] Wittwer, C. T; Herrmann, M. G; Moss, A. A; Rasmussen, R. P; "Continuous fluorescence monitoring of rapid cycle DNA amplification", *BioTechniques*, 22, 130-138, (1997).
- [Wittwer1997b] Wittwer, C. T; Ririe, K. M; Andrew, R. V; David, D. A; Gundry, R. A; Balis, U. J; "The LightCycler™: a microvolume, multisample fluorimeter with rapid temperature control", *BioTechniques*, 22, 176-181, (1997).
- [Wolffenbuttel1987] Wolffenbuttel, R. F; "Color filters integrated with the detector in silicon." *IEEE Elec. Dev. Let.* 8, 13-15, (1987).
- [Woolley1994] Woolley, A. T; Mathies, R. A; "Ultra-High-Speed DNA Fragment Separations Using Microfabricated Capillary Array Electrophoresis Chips", *Proc. Natl. Acad. Sci. USA*, 91, 11348-11352, (1994).
- [Woolley1995] Woolley, A. T; Mathies, R; "Ultra-high-speed DNA sequencing using capillary electrophoresis chips", *Anal. Chem.*, 67, 3676-3680, (1995).
- [Woolley1996] Woolley, A. T; Hadley, D; Landre, P; deMello, A. J; Mathies, R. A; Northrup, M. A; "Functional integration of PCR amplification and capillary electrophoresis in a microfabricated DNA analysis device", *Anal. Chem.*, 68, 4081-4086, (1996).

344 - References

- [Wu1991] Wu, D. Y; Uguzzoli, L; Pal, B. K; Qian, J; Wallace, R. B; "The effect of temperature and oligonucleotide primer length on the specificity and efficiency of amplification by the polymerase chain reaction", *DNA & Cell Biol.*, 10, 233-238, (1991).
- [Yang1999] Yang, J; Huang, Y; Wang, X. B; Becker, F. F; Gascoyne, P. R. C; "Cell separation on microfabricated electrodes using dielectrophoretic/gravitational field flow fractionation." *Anal. Chem.*, 71, 911-918, (1999).
- [Yap1991] Yap, E. P; McGee, J. O; "Short PCR product yields improved by lower denaturation temperatures", *Nucl. Acids. Res.*, 19, 1713-1716, (1991).
- [Yu2000] Yu, H; Sethu, P; Chan, T; Kroutchinina, N; Blackwell, J; Mastrangelo, C. H; Grodzinski, P; "A Miniaturized and Integrated Plastic Chemical Reactor for Genetic Analysis," *Micro Total Analysis Systems 2000 Conference*, Netherlands, 545-548, (2000).
- [Yu2001] Yu, C. J; Yowanto, H; Terbrueggen, B; Tao, C; Blackburn, G. F; "Electrochemical detection of nucleic acids on SAMs-constructed arrays." *J. Am. Chem. Soc.*, 123, 11155-11161, (2001).
- [Zemann1998] Zemann, A. J; Schnell, E; Volgger, D; Bonn, G; "Contactless conductivity detection for capillary electrophoresis." *Anal. Chem.*, 70, 563-567, (1998).
- [Zhan2000] Zhan, Z; Dafu, C; Zhongyao, Y; Li, W; "Biochip for PCR amplification in silicon", *Proc. 1st Annual International IEEE-EMBS Special Topic Conference on Microtechnologies in Medicine & Biology*, 25-28, (2000).

11. REFERENCE BOOKS

GENETICS AND MICROBIOLOGY

Lewin, B;
Genes VII (6th Edition)
Oxford University Press, 1997.

Dale, J. W;
Molecular Genetics of Bacteria (3rd Edition)
Wiley Publishers, 1998.

Volk, W. A;
Basic Microbiology
Wiley Publishers, 1992.

PCR METHODOLOGY AND HISTORY

Rabinow, P;
Making PCR: A Story of Biotechnology
The University of Chicago Press, 1996.

Newton, C. R; (Editor)
PCR: Essential Data
Wiley Publishers (Essential Data Series), 1995.

McPherson, M. J; Taylor, G; Hames, B. D; (Editors)
PCR 2: A Practical Approach
Oxford University Press, (Practical Approach Series, Vol. 2), 1995.

Innis, M. A; Gelfand, D. H; Sninsky, J. J; White, T. J; (Editors)
PCR Protocols - A guide to methods and applications
Academic Press, 1990.

SILICON PROCESSING AND MICRO-MACHINING

Ristic, Lj; (Editor),
Sensor Technology and Devices
Artech House, 1994.

Madou, M;
Fundamentals of Microfabrication
CRC Press, 1997.

Kovacs, G;
Micromachined Transducers Sourcebook
WCB McGraw-Hill, Boston, 1998.

ELECTRONICS

Horovitz, P; Hill, W;
The Art of Electronics
Cambridge University Press, 1989.

Malvino, P;
Electronic principles, McGraw-Hill, 4th Edition, 1989.

Malik, N. R;
Electronic circuits, analysis, simulation and design
Prentice Hall, 1995.

Schilling D. L; Belove, Ch;
Electronic circuits, discrete & integrated
McGraw Hill, 3rd Edition, 1989.

THERMOCOUPLES AND PELTIER CELLS

Quinn, T. J;
Temperature
Academic Press, 1983.

Bridgman, P. W;
Thermodynamics of electrical phenomena in metals
Dover, 1960.

Pollock, D. D;
The theory and properties of thermocouple elements
ASTM, 1971.

12. ACRONYMS, FORMULAE AND ABBREVIATIONS

Abbreviation	Meaning
Alumel	Ni/Al-Si-Mn
BHI	Brain heart infusion
bp	Base pairs
BSA	Bovine serum albumin
C ₂ H ₄ O	Ethylene oxide
C ₂ H ₅ OH	Ethanol
CH ₃ COOH	Acetic acid glacial
CHCl ₃	Chloroform
Chromel	Ni/Cr
CMOS	Complementary metal-oxide semiconductor
CNM-IMB	Centro Nacional de Microelectrónica - Instituto de Microelectrónica de Barcelona
CO ₂	Carbon dioxide
Cr	Chrome
Cr _x O _y	Chrome oxide
CVD	Chemical vapor deposition
DAC	Data acquisition card
DIFF	Differential (data acquisition mode)
DMSO	Di-methyl sulfoxide
DNA	Deoxyribonucleic acid
dNTP	Deoxy-nucleotide tri-phosphate
dpi	Dots per inch
dsDNA	Double-stranded DNA
e.g.	Exempli gratia (<i>Latin</i>); for [the sake of an] example
et al.	Et alii (<i>Latin</i>); and others
EtOH	Absolute ethanol
HCFC	Freon
HF	Hydrofluoric acid
HNO ₃	Nitric acid
HPLC	High-performance liquid-chromatography
i.e.	Id est (<i>Latin</i>); that is
IPA	Invader probe amplification
ITO	Indium tin oxide
KC ₂ H ₃ O ₂	Potassium acetate
KOH	Potassium hydroxide
LCR	Ligase chain reaction
LIF	Laser-induced fluorescence
LPCVD	Low-pressure chemical vapor deposition
LUT	Look-up table
NaOH	Sodium hydroxide
NBR	Butadiene-acrylonitrile copolymer rubber
NH ₄ F	Ammonium fluoride
NIST	National Institute of Standards and Technology
NRSE	Non-referenced single-ended (data acquisition mode)
NTP	Nucleotide tri-phosphate
Ø _i	Internal diameter
ONA	Oligo-nucleotide array
Ø _o	External diameter
PCB	Printed circuit board
PCR	Polymerase chain reaction
PEG	Polyethylene glycol
Pfu	Pyrococcus furiosus (polymerase)
PID	Proportional-integrative-derivative (control)
PSG	Phospho silicate glass
Pt	Platinum

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Pt100	Platinum (100 Ω at 0 °C)RTD
PVC	Polyvinyl chloride
Pwo	Pyrococcys woessei (polymerase)
RAM	Ramification amplifying method
RAPD	Random amplified polymorphic DNA
RCA	Rolling circle amplification
RIE	Reactive ion etching
RNA	Ribonucleic acid
RTD	Resistive thermal device
s. c.	Scire licet (<i>Latin</i>); that is to say
SDA	Strand-displacement amplification
SDS	Sodium-dodecyl-sulfate
Si ₃ N ₄	Silicon nitride
SiO ₂	Silicon dioxide
Slm	Standard liter per minute
SNP	Single-nucleotide polymorphism
ssDNA	Single-stranded DNA
T _a	Annealing temperature
Taq	Thermus aquaticus (polymerase)
Tbr	Thermus brockianus (polymerase)
TCR	Thermal Coefficient of Resistivity
TEC	Thermal electric cooler
TF	Terrific broth
Tfl	Thermus flavis (polymerase)
Tfu	Thermococcus fumicolans (polymerase)
Tli	Thermococcus litoralis (polymerase)
T _m	Melting temperature
TMAH	Tetra-methyl ammonium hydroxide
Tth	Thermus thermophilus (polymerase)
UAB	Universitat Autònoma de Barcelona
Ult	Thermotoga maritime (polymerase)
vs.	Versus (<i>Latin</i>); as opposed to