

- Aarnes, C. M., I. H. Madshus, J. C. Guillemot, K. Sandvig & S. Olsnes (1987) Formation and activity of covalent conjugates of poliovirus and ligands binding to cell surface structures - *Exp. Cell Res.* **170**, 483-490
- Abecassis, J., C. David-Eteve & A. Soun (1985) The separation of 24 OPA-AA of natural origin and quantitative analysis of tyrosine by means of HPLC - *J. Liq. Chromatogr.* **8**, 135-153
- Abola, E., F. C. Bernstein, S. H. Bryant, T. F. Koetzle & J. Weng (1987) Protein Data Bank - In: Crystallographic databases - Information content, software systems, scientific applications, Herausg. Allen, F. H., G. Bergerhoff & R. Sievers, Data Commission of the International Union of Crystallography Bonn/Cambridge/Chester, S. 107-132
- Abraham, R., T. Chonmaitree, J. McCombs, B. Prabhakar, P. T. Lo Verde & P. L. Ogra (1993) Rapid detection of poliovirus by reverse transcription and polymerase chain amplification: application for differentiation between poliovirus and nonpoliovirus enteroviruses - *J. Clin. Microbiol.* **31**, 395-399
- Acharya, R., E. Fry, D. Stuart, G. Fox, D. Rowlands & F. Brown (1989) The three-dimensional structure of foot-and-mouth disease virus at 2.9 Å resolution - *Nature* **337**, 709-716
- Adam, M. A., N. Ramesh, A. D. Miller & W. R. A. Osborne (1991) Internal initiation of translation in retroviral vectors carrying picornavirus-5' nontranslated regions - *J. Virol.* **65**, 4985-4990
- Adenyi-Jones, S. C. A., H. Faden, M. B. Ferdon, M. S. Kwong & P. L. Ogra (1992) Systemic and local immune responses to enhanced-potency inactivated poliovirus vaccine in premature and term infants - *J. Pediat.* **120**, 686-689
- Agol, V. I. (1991) The 5'-untranslated region of picornaviral genomes - In: *Advances in Virus Research*, Vol 40, S. 103-180
- Agol, V. I., S. G. Drozdov, T. A. Ivannikova, M. A. Kolesnikova, M. B. Korolev & E. A. Tolskaya (1989) Restricted growth of attenuated poliovirus strains in cultured cells of a human neuroblastoma - *J. Virol.* **63**, 4034-4038
- Agterberg, M. & J. Tommassen (1991) Outer membrane protein PhoE as a carrier for the exposure of foreign antigenic determinants at the bacterial cell surface - *Anton Leeuwenhoek Int. J. Gen. Mol. Microbiol.* **59**, 249-262
- Agut, H., K. M. Kean, O. Fichot, J. Morasco, J. B. Flanagan & M. Girard (1989) A point mutation in the poliovirus polymerase gene determines a complementable temperature-sensitive defect of RNA replication - *Virology* **168**, 302-311
- Aida, M. (1988) Ab initio molecular orbital study on the sequence-dependency of DNA conformation: an evaluation of intra- and inter-strand stacking interaction energy - *J. theor. Biol.* **130**, 327-335
- Aleksandrov, N. N. (1990) Global immunization for poliomyelitis reaches 67% level - *Bull. WHO* **68**, 115-116
- Almela, M. J., M. E. Gonzalez & L. Carrasco (1991) Inhibitors of poliovirus uncoating efficiently block the early membrane permeabilization induced by virus particles - *J. Virol.* **65**, 2572-2577
- Almond, J. W. (1987) The attenuation of poliovirus neurovirulence - *Annu. Rev. Microbiol.* **41**, 153-180
- Almond, J. W., G. D. Westrop, D. M. A. Evans, G. Dunn, P. D. Minor, D. Magrath & G. C. Schild (1987b) Studies on the attenuation of the Sabin type 3 oral polio vaccine - *J. Virol. Meth.* **17**, 183-189
- Altmeyer, R., A. D. Murdin, J. J. Harber & E. Wimmer (1991) Construction and characterization of a poliovirus/rhinovirus antigenic hybrid - *Virology* **184**, 636-644
- Amit, A. G., R. A. Mariuzza, S. E. V. Phillips & R. J. Poljak (1985) Three-dimensional structure of an antigen-antibody complex at 6 Å resolution - *Nature* **313**, 156-158
- Amit, A. G., R. A. Mariuzza, S. E. V. Phillips & R. J. Poljak (1986) Three-dimensional structure of an antigen-antibody complex at 2.8 Å resolution - *Science* **233**, 747-753
- Anderer, F. A. (1963) Versuche zur Bestimmung der serologischen terminanten Gruppen des Tabakmosaikvirus - *Z. Naturforsch.* **18B**, 1010-1014
- Andino, R., G. E. Rieckhof & D. Baltimore (1990a) A functional ribonucleoprotein complex forms around the 5' end of poliovirus RNA - *Cell* **63**, 369-380
- Andino, R., G. E. Rieckhof, D. Trono & D. Baltimore (1990b) Substitutions in the protease ($3C^{pro}$) gene of poliovirus can suppress a mutation in the 5' noncoding region - *J. Virol.* **64**, 607-612
- Andrews, N. C. & D. Baltimore (1986a) Lack of evidence for VPg priming of poliovirus RNA synthesis in the host factor-dependent in vitro replicase reaction - *J. Virol.* **58**, 212-215
- Andrews, N. C. & D. Baltimore (1986b) Purification of a terminal uridylyltransferase that acts as host factor in the in vitro poliovirus replicase reaction - *Proc. Natl. Acad. Sci. USA* **83**, 221-225
- Ansardi, D. C., D. C. Porter & C. D. Morrow (1991) Coinfection with recombinant vaccinia viruses expressing poliovirus-P1 and poliovirus-P3 proteins results in polyprotein processing and formation of empty capsid structures - *J. Virol.* **65**, 2088-2092
- Ansardi, D. C., D. C. Porter & C. D. Morrow (1992) Myristylation of poliovirus capsid precursor-P1 is required for assembly of subviral particles - *J. Virol.* **66**, 4556-4563
- Ansardi, D. C., D. C. Porter & C. D. Morrow (1993) Complementation of a poliovirus defective genome by a recombinant vaccinia virus which provides poliovirus P1 capsid precursor in trans - *J. Virol.* **67**, 3684-3690
- Argos, P. (1989) A possible homology between immunodeficiency virus p24 core protein and picornaviral VP2 coat protein: prediction of HIV p24 antigenic sites - *EMBO J.* **8**, 779-785
- Armon, C., J. R. Daube, A. J. Windebank & L. T. Kurland (1990) How frequently does classic amyotrophic lateral sclerosis develop in survivors of poliomyelitis? - *Neurology* **40**, 172-174
- Arnold, E., M. Luo, G. Vriend, M. G. Rossmann, A. C. Palmberg, G. Parks, M. J. H. Nicklin & E. Wimmer (1987) Implications of the picornavirus capsid structure for polyprotein processing - *Proc. Natl. Acad. Sci. USA* **84**, 21-25
- Arnold, E. & M. G. Rossmann (1990) Analysis of the structure of a common cold virus, human rhinovirus 14, refi-

- ned at a resolution of 3.0 Å - *J. Mol. Biol.* **211**, 763-801
- Arnold, G. J. & A. Jung (1986) Photometrische Bestimmung von Nucleinsäuren im Mikromaßstab mit programmsteuerter Streulicht-Korrektur - *Beckman Report*, 10-12
- Arya, S. C. (1988) Continuing global poliomyelitis morbidity and lacunae of trivalent poliovirus vaccines - *Vaccine* **6**, 213-214
- Arya, S. C. (1990) Non-immunological facets of poliovirus vaccines - *Vaccine* **8**, 179
- Auvinen, P. (1990) Common and specific sequences in picornaviruses - *Mol. Cell. Probes* **4**, 273-284
- Aycock, W. L. (1992) Tonsillectomy and poliomyelitis. 1. Epidemiologic considerations (Reprinted from Medicine, Vol 21, Pg 65-95, 1942) - *Medicine* **71**, 312-315
- Badger, J., S. Krishnaswamy, M. J. Kremer, M. A. Oliveira, M. G. Rossmann, B. A. Heinz, R. R. Rueckert, F. J. Dutko & M. A. McKinlay (1989) Three-dimensional structures of drug-resistant mutants of human rhinovirus 14 - *J. Mol. Biol.* **207**, 163-174
- Badger, J., I. Minor, M. J. Kremer, M. A. Oliveira, T. J. Smith, J. P. Griffith, D. M. A. Guerin, S. Krishnaswamy, M. Luo, M. G. Rossmann, M. A. McKinlay, G. D. Diana, F. J. Dutko, M. Fancher, R. R. Rueckert & B. A. Heinz (1988) Structural analysis of a series of antiviral agents complexed with human rhinovirus 14 - *Proc. Natl. Acad. Sci. USA* **85**, 3304-3308
- Balanant, J., S. Guillot, A. Candrea, F. Delpeyroux & R. Crainic (1991) The natural genomic variability of poliovirus analyzed by a restriction fragment length polymorphism assay - *Virology* **184**, 645-654
- Ball, J. B., P. R. Andrews, P. F. Alewood & R. A. Hughes (1990) A one-variable topographical descriptor for the beta-turns of peptides and proteins - *FEBS Lett.* **273**, 15-18
- Baltera, R. F. & D. R. Tershak (1989) Guanidine-resistant mutants of poliovirus have distinct mutations in peptide 2C - *J. Virol.* **63**, 4441-4444
- Baltimore, D. (1985) Picornaviruses are no longer black boxes - *Science* **229**, 1366-1367
- Barbi, M., M. Bardare, C. Luraschi, G. Zehender, M. C. Schoeller & G. Ferraris (1992) Antibody response to inactivated polio vaccine (E-IPV) in children born to HIV positive mothers - *Eur. J. Epidemiol.* **8**, 211-216
- Barnert, R. H., H. Zeichhardt & K. O. Habermehl (1991) A rapid and sensitive micro scale assay for quantitative detection of cell protective effects - Application for the isolation of a monoclonal antibody against HeLa cell proteins involved in poliovirus attachment - *J. Virol. Meth.* **35**, 1-14
- Barnert, R. H., H. Zeichhardt & K. O. Habermehl (1992) Identification of 50-kDa and 23-/25-kDa HeLa cell membrane glycoproteins involved in poliovirus infection - Occurrence of poliovirus specific binding sites on susceptible and nonsusceptible cells - *Virology* **186**, 533-542
- Barton, D. J. & J. B. Flanagan (1993) Coupled translation and replication of poliovirus RNA in vitro - Synthesis of functional 3D polymerase and infectious virus - *J. Virol.* **67**, 822-831
- Bass, D. M. & H. B. Greenberg (1992) Strategies for the identification of icosahedral virus receptors - *J. Clin. Invest.* **89**, 3-9
- Baum, E. Z., G. A. Bebernitz, O. Palant, T. Mueller & S. J. Plotch (1991) Purification, properties, and mutagenesis of poliovirus 3C protease - *Virology* **185**, 140-150
- Bauw, G., J. V. Damme, M. Puype, J. Vandekerckhove, B. Gesser, G. P. Ratz, J. B. Lauridsen & J. E. Celis (1989) Protein-electroblotting and -microsequencing strategies in generating protein data bases from two-dimensional gels - *Proc. Natl. Acad. Sci. USA* **86**, 7701-7705
- Bazan, J. F. & R. J. Fletterick (1988) Viral cysteine proteases are homologous to the trypsin-like family of serine proteases: Structural and functional implications - *Proc. Natl. Acad. Sci. USA* **85**, 7872-7876
- Beck, M. A., S. Tracy, B. A. Coller, N. M. Chapman, G. Hufnagel, J. E. Johnson & G. Lomonosoff (1992) Comoviruses and enteroviruses share a T-cell epitope - *Virology* **186**, 238-246
- Bellocq, C., K. M. Kean, O. Fichot, M. Girard & H. Agut (1987) Multiple mutations involved in the phenotype of a temperature-sensitive small-plaque mutant of poliovirus - *Virology* **157**, 75-82
- Benson, J. R. & P. E. Hare (1975) o-Phthalaldehyde: Fluorogenic detection of primary amines in the picomole range. Comparison with fluorescamine and ninhydrin - *Proc. Natl. Acad. Sci. USA* **72**, 619-622
- Bergmann, C. & R. Bergmann (1988) SCATTER: a program to correct UV spectra recorded with an LKB Ultrospec interfaced to an Apple //e for light scattering by particles or aggregates - *Comput. Appl. Biosci.* **4**, 407
- Berkhout, B., B. F. Schmidt, A. van Strien, J. van Boom, J. van Westrenen & J. van Duin (1987) Lysis gene of MS2 is activated by translation termination at the overlapping coat gene - *J. Mol. Biol.* **195**, 517-524
- Bernstein, F. C., T. F. Koetzle, G. J. B. Williams, E. F. Meyer, M. D. Brice, J. R. Rodgers, O. Kennard, T. Shimanouchi & M. Tasumi (1977) The potein data bank: A computer-based archival file for macromolecular structures - *J. Mol. Biol.* **112**, 535-542
- Bernstein, H. D. & D. Baltimore (1988) Poliovirus mutant that contains a cold-sensitive defect in viral RNA synthesis - *J. Virol.* **62**, 2922
- Bernstein, H. D., P. Sarnow & D. Baltimore (1986) Genetic complementation among poliovirus mutants derived from an infectious cDNA clone - *J. Virol.* **60**, 1040-1049
- Bhimarao, C. & R. R. Joshi (1989) On antigen antibody binding distribution - *J. Theor. Biol.* **141**, 285-302
- Bienkowska-Szewczyk, K. & E. Ehrenfeld (1988) An internal 5'-noncoding region required for translation of poliovirus RNA in vitro - *J. Virol.* **62**, 3068-3072
- Bienz, K., D. Egger & L. Pasamontes (1987) Association of polioviral proteins of the P2 genomic region with the viral replication complex and virus-induced membrane synthesis as visualized by electron microscopic immunocytochemistry and autoradiography - *Virology* **160**, 220-226
- Bienz, K., D. Egger, T. Pfister & M. Troxler (1992) Structural and functional characterization of the poliovirus replication complex - *J. Virol.* **66**, 2740-2747
- Bienz, K., D. Egger, M. Troxler & L. Pasamontes (1990) Structural organization of poliovirus RNA replication is mediated by viral proteins of the P2 genomic region - *J. Virol.* **64**, 1156-1163

- Birk, T. J. (1993) Poliomyelitis and the post-polio syndrome - Exercise capacities and adaptation - Current research, future directions, and widespread applicability - *Medicine and Science in Sports and Exercise* **25**, 466-472
- Black, T. L., G. N. Barber & M. G. Katze (1993) Degradation of the interferon-induced 68,000-Mr protein kinase by poliovirus requires RNA - *J. Virol.* **67**, 791-800
- Blair, W. S., S.-S. Hwang, M. F. Ypma-Wong & B. L. Semler (1990) A mutant poliovirus containing a novel proteolytic cleavage site in VP3 is altered in viral maturation - *J. Virol.* **64**, 1784-1793
- Blair, W. S., X. Y. Li & B. L. Semler (1993) A cellular cofactor facilitates efficient 3CD cleavage of the poliovirus P1 precursor - *J. Virol.* **67**, 2336-2343
- Blondel, B., R. Crainic, O. Fichot, G. Dufraisse, A. Candrea, D. Diamond, M. Girard & F. Horaud (1986) Mutations conferring resistance to neutralization with monoclonal antibodies in type 1 poliovirus can be located outside or inside the antibody-binding site - *J. Virol.* **57**, 81-90
- Blondel, B., R. Crainic, F. Horodniceanu & F. Jacob (1982) Le polypeptide structural VP1 du poliovirus type 1 induit des anticorps neutralisants. - *C. R. Acad. Sc. Paris* **294**, 91-94
- Boeyé, A. & B. Rombaut (1992) The proteins of poliovirus - In: *Progress in medical virology*, Vol 39, S. 139-166
- Bonneau, A.-M. & N. Sonnenberg (1987) Proteolysis of the p220 component of the cap-binding protein complex is not sufficient for complete inhibition of host cell protein synthesis after poliovirus infection - *J. Virol.* **61**, 986-991
- Borg, K., J. Borg, G. K. Dhoot, L. Edström, L. Grimby & L.-E. Thornell (1989) Motoneuron firing and isomyosin type of muscle fibres in prior polio - *J. Neurol. Neurosurg. Psychiat.* **52**, 1141-1148
- Borzakian, S., T. Couderc, Y. Barbier, G. Attal, I. Pelletier & F. Colberegarapin (1992) Persistent poliovirus infection - Establishment and maintenance involve distinct mechanisms - *Virology* **186**, 398-408
- Borzakian, S., I. Pelletier, V. Calvez & F. Colbere-Garapin (1993) Precise missense and silent point mutations are fixed in the genomes of poliovirus mutants from persistently infected cells - *J. Virol.* **67**, 2914-2917
- Böthig, B., L. Danes & S. Dittmann (1990) Immunogenicity of oral poliomyelitis vaccine (OPV) against variants of wild poliovirus type-3 - *Bull. WHO* **68**, 597-600
- Boublik, M. & R. Drzeniek (1977) Structural subunits of poliovirus particles by electron microscopy - *J. Gen. Virol.* **37**, 127-134
- Boublik, M. & R. Drzeniek (1976) Demonstration of a core in poliovirus particles by electron microscopy - *J. Gen. Virol.* **31**, 447-449
- Brack, A. & L. E. Orgel (1975) Beta structures of alternating polypeptides and their possible prebiotic significance - *Nature* **256**, 383-387
- Brandriss, M. W., J. J. Schlesinger, E. E. Walsh & M. Briselli (1986) Lethal 17D Yellow Fever encephalitis in mice. I. Passive protection by monoclonal antibodies to the envelope proteins of 17D Yellow Fever and Dengue 2 viruses - *J. Gen. Virol.* **67**, 229-234
- Bräutigam, S., E. Snezhkov & D. H. L. Bishop (1993) Formation of poliovirus-like particles by recombinant baculo-viruses expressing the individual VP0, VP3 and VP1 proteins by comparison to particles derived from the expressed poliovirus polyprotein - *Virology* **192**, 512-524
- Brioen, P., D. Dekegel & A. Boeyé (1983) Neutralization of poliovirus by antibody-mediated polymerization - *Virology* **127**, 463-468
- Brioen, P., B. Rombaut & A. Boeyé (1985) Hit-and-run neutralization of poliovirus - *J. Gen. Virol.* **66**, 2495-2499
- Brioen, P., R. J. Sijens, R. Vrijsen, B. Rombaut, A. A. M. Thomas, A. Jackers & A. Boeyé (1982) Hybridoma antibodies to poliovirus N and H antigen - *Arch. Virol.* **74**, 325-330
- Brioen, P., A. A. M. Thomas & A. Boeyé (1987) Lack of quantitative correlation between the neutralization of poliovirus and the antibody-mediated pH shift of the virions - *J. Gen. Virol.* **66**, 609-613
- Broekhuijsen, M. P., T. Blom, M. Kottenhagen, P. H. Pouwels, R. H. Meloen, S. J. Barteling & B. E. Enger-Valk (1986a) Synthesis of fusion proteins containing antigenic determinants of foot-and-mouth disease virus - *Vaccine* **4**, 119-124
- Broekhuijsen, M. P., T. Blom, J. van Rijn, P. H. Pouwels, E. A. Klasen, M. J. Fasbender & B. E. Enger-Valk (1986b) Synthesis of fusion proteins with multiple copies of an antigenic determinant of foot-and-mouth disease virus - *Gene* **49**, 189-197
- Brown, F. (1992) Some unanswered questions about vaccination - *FEMS Microbiol. Lett.* **100**, 475-478
- Budowsky, E. I. (1991) Problems and prospects for preparation of killed antiviral vaccines - In: *Advances in Virus Research*, Vol 39, S. 255-290
- Burke, K. L., J. W. Almond & D. J. Evans (1991) Antigen chimaeras of poliovirus - *Prog. Med. Virol.* **38**, 56-68
- Burke, K. L., G. Dunn, M. Ferguson, P. D. Minor & J. W. Almond (1988) Antigen chimaeras of poliovirus as potential new vaccines - *Nature* **332**, 81-82
- Burke, K. L., D. J. Evans, O. Jenkins, J. Meredith, E. D. A. D'Souza & J. W. Almond (1989) A cassette vector for the construction of antigen chimaeras of poliovirus - *J. Gen. Virol.* **70**, 2475-2479
- Burns, C. C., M. A. Lawson, B. L. Semler & E. Ehrenfeld (1989) Effects of mutations in poliovirus 3D^{pol} on RNA polymerase activity and on polyprotein cleavage - *J. Virol.* **63**, 4866-4874
- Burns, C. C., O. C. Richards & E. Ehrenfeld (1992) Temperature-sensitive polioviruses containing mutations in RNA polymerase - *Virology* **189**, 568-582
- Burton, D. R. (1990) The conformation of antibodies - In: *Fc receptors and the action of antibodies*, Herausg. American Society of Microbiology Washington D.C., S. 31-54
- Cammack, N., A. Philipps, G. Dunn, V. Patel & P. D. Minor (1988) Intertypic genomic rearrangements of poliovirus strains in vaccinees - *Virology* **167**, 507-514
- Cantero-Aguilar, L., A. Sanchez-Trujillo & C. Fernandez-Tomas (1987) Poliovirion-derived capsid proteins in subviral ribonucleoprotein complexes - *Virology* **156**, 259-267
- Caspar, D. L. D. & A. Klug (1962) Physical principles in the construction of regular viruses - *Cold Spring Harbor Symp. Quant. Biol.* **27**, 1-24

- Castrillo, J. L. & L. Carrasco (1987) Adenovirus late protein synthesis is resistant to the inhibition of translation induced by poliovirus - *J. Biol. Chem.* **262**, 7328-7334
- Castrillo, J. L., A. Urzainqui & L. Carrasco (1988) The P2 and P3 regions of the poliovirus genome are preferentially translated at alkaline pH in infected HeLa cells - *J. Gen. Virol.* **69**, 583-590
- Cello, J., A. Samuelson, P. Stålhandske, B. Svennerholm, S. Jeansson & M. Forsgren (1993) Identification of group-common linear epitopes in structural and nonstructural proteins of enteroviruses by using synthetic peptides - *J. Clin. Microbiol.* **31**, 911-916
- Chanh, T. C., G. R. Dreesman, P. Kanda, G. P. Linette, J. T. Sparrow, D. D. Ho & R. C. Kennedy (1986) Induction of anti-HIV neutralizing antibodies by synthetic peptides - *EMBO J.* **5**, 3065-3071
- Chapman, M. S., I. Minor, M. G. Rossmann, G. D. Diana & K. Andries (1991) Human rhinovirus-14 complexed with antiviral compound R-61837 - *J. Mol. Biol.* **217**, 455-463
- Charbit, A., J. C. Boulain, A. Ryter & M. Hofnung (1986) Probing the topology of a bacterial membrane protein by genetic insertion of a foreign epitope; expression at the cell surface - *EMBO J.* **5**, 3029-3037
- Charbit, A., J. Ronco, V. Michel, C. Werts & M. Hofnung (1991) Permissive sites and topology of an outer membrane protein with a reporter epitope - *J. Bacteriol.* **173**, 262-275
- Charbit, A., S. Van der Werf, V. Mimic, J. C. Boulain, M. Girard & M. Hofnung (1988) Expression of a poliovirus neutralization epitope at the surface of recombinant bacteria: First immunization results - *Ann. Inst. Pasteur/Microbiol.* **139**, 45-58
- Charini, W. A., C. C. Burns, E. Ehrenfeld & B. L. Semler (1991) trans rescue of a mutant poliovirus RNA polymerase function - *J. Virol.* **65**, 2655-2665
- Chen, Z., C. Stauffacher, Y. Li, T. Schmidt, W. Bomu, G. Kamer, M. Shanks, G. Lomonosoff & J. E. Johnson (1989) Protein-RNA interactions in an icosahedral virus at 3.0 Å resolution - *Science* **245**, 154-159
- Cho, M. W., O. C. Richards, T. M. Dmitrieva, V. Agol & E. Ehrenfeld (1993) RNA duplex unwinding activity of poliovirus RNA-dependent RNA polymerase 3Dpol - *J. Virol.* **67**, 3010-3018
- Choi, W. S., R. Palghosh & C. D. Morrow (1991) Expression of human immunodeficiency virus type-1 (HIV-1) gag, pol, and env proteins from chimeric HIV-1-poliovirus minireplicons - *J. Virol.* **65**, 2875-2883
- Chothia, C. (1976) The nature of the accessible and buried surfaces in proteins - *J. Mol. Biol.* **105**, 1-14
- Chothia, C., J. Novotny, R. Bruccoleri & M. Karplus (1985) Domain association in immunoglobulin molecules - The packing of variable domains - *J. Mol. Biol.* **186**, 651-663
- Chou, P. Y. & G. D. Fasman (1978) Empirical predictions of protein conformation - *Annu. Rev. Biochem.* **47**, 251-276
- Chow, M. & D. Baltimore (1982) Isolated poliovirus capsid protein VP1 induces a neutralizing response in rats - *Proc. Natl. Acad. Sci. USA* **79**, 7518-7521
- Chow, M., J. F. E. Newman, D. Filman, J. M. Hogle, D. J. Rowlands & F. Brown (1987) Myristylation of picornavirus capsid protein VP4 and its structural significance - *Nature* **327**, 482-486
- Chow, M., R. Yabrov, J. Bittle, J. Hogle & D. Baltimore (1985) Synthetic peptides from four separate regions of the poliovirus type 1 capsid protein VP1 induce neutralizing antibodies - *Proc. Natl. Acad. Sci. USA* **82**, 910-914
- Christodoulou, C., F. Colbère-Garapin, A. Macadam, L. F. Taffs, S. Marsden, P. Minor & F. Horaud (1990) Mapping of mutations associated with neurovirulence in monkeys infected with Sabin 1 poliovirus revertants selected at high temperature - *J. Virol.* **64**, 4922-4929
- Christodoulou, C., I. Pelletier & F. Colbère-Garapin (1989) Genetic stability of poliovirus insertion mutants with a foreign oligopeptide on the capsid surface - *Res. Virol.* **140**, 501-509
- Chumakov, K. M., L. P. Norwood, M. L. Parker, E. M. Dragunsky, Y. X. Ran & I. S. Levenbook (1992) RNA sequence variants in live poliovirus vaccine and their relation to neurovirulence - *J. Virol.* **66**, 966-970
- Chumakov, K. M., L. B. Powers, K. E. Noonan, I. B. Roninson & I. S. Levenbook (1991) Correlation between amount of virus with altered nucleotide sequence and the monkey test for acceptability of oral poliovirus vaccine - *Proc. Natl. Acad. Sci. USA* **88**, 199-203
- Clark, M. E., T. Häammerle, E. Wimmer & A. Dasgupta (1991) Poliovirus proteinase-3C converts an active form of transcription factor-IIIc to an inactive form - A mechanism for inhibition of host cell polymerase-III transcription by poliovirus - *EMBO J.* **10**, 2941-2947
- Clark, M. E., P. M. Lieberman, A. J. Berk & A. Dasgupta (1993) Direct cleavage of human TATA-binding protein by poliovirus protease 3C in vivo and in vitro - *Mol. Cell. Biol.* **13**, 1232-1237
- Clarke, B. E., A. L. Brown, K. M. Currey, S. E. Newton, D. J. Rowlands & A. R. Carroll (1987) Potential secondary and tertiary structure in the genomic RNA of foot and mouth disease virus - *Nucl. Acids Res.* **15**, 7067-7079
- Cockburn, W. C., B. Hobson, J. W. Lightbody, J. Lyng & D. Magrath (1992) The international contribution to the standardization of biological substances. 3. Biological standardization and the World-Health-Organization 1947-1990 - Specific activities and commentary - *Biologicals* **20**, 1-10
- Cohen, J. S. (1991) Antisense oligodeoxynucleotides as anti-viral agents - *Antivir. Res.* **16**, 121-133
- Colbère-Garapin, F., S. Borzakian, V. Calvez & I. Pelletier (1992) Can poliovirus cause a persistent infection - *Bull. Inst. Pasteur* **90**, 143-163
- Colbère-Garapin, F., C. Christodoulou, R. Crainic, A.-C. Garapin & A. Candrea (1988) Addition of a foreign oligopeptide to the major capsid protein of poliovirus - *Proc. Natl. Acad. Sci. USA* **85**, 8668-8672
- Colbère-Garapin, F., C. Christodoulou, R. Crainic & I. Pelletier (1989) Persistent poliovirus infection of human neuroblastoma cells - *Proc. Natl. Acad. Sci. USA* **86**, 7590-7594
- Compton, S. R., B. Nelsen & K. Kirkegaard (1990) Temperature-sensitive poliovirus mutant fails to cleave VP0 and accumulates provirions - *J. Virol.* **64**, 4067-4075
- Condra, J. H., V. V. Sardana, J. E. Tomassini, A. J. Schlabach, M.-E. Davies, D. W. Lineberger, D. J. Graham, L.

- Gotlib & R. J. Colonna (1990) Bacterial expression of antibody fragments that block human rhinovirus infection of cultured cells - *J. Biol. Chem.* **265**, 2292-2295
- Contag, C. H., J. T. Harty & P. G. W. Plagemann (1989) Dual virus etiology of age-dependent poliomyelitis of mice. A potential model for human motor neuron diseases - *Microb. Pathog.* **6**, 391-401
- Contreras, G. (1989) Effect of the administration of poliovirus vaccine on infantile diarrhoea mortality - *Vaccine* **7**, 211-212
- Contreras, G., K. Dimock, J. Furesz, C. Gardell, D. Hazlett, K. Karpinski, G. Mccorkle & L. Wu (1992) Genetic characterization of Sabin type-1 and type-3 poliovaccine virus following serial passage in the human intestinal tract - *Biologicals* **20**, 15-26
- Cooper, J. D. H., G. Ogden, J. McIntosh & D. C. Turnell (1984) The stability of the o-phthalaldehyd/2- mercaptoethanol derivatives of amino acids: An investigation using high-pressure liquid chromatography with a pre-column derivatization technique - *Anal. Biochem.* **142**, 98-102
- Cooper, P. D. (1962) Studies on the structure and function of the poliovirion: Effect of concentrated urea solutions - *Virology* **16**, 485-495
- Corrias, M. V., O. Flore, E. Broi, M. E. Marongiu, A. Pani, S. Torelli & P. la Colla (1987) Characterization and role in morphogenesis of a new subviral particle (55S) isolated from poliovirus-infected cells - *J. Virol.* **61**, 561-569
- Couderc, T., T. Barzu, F. Horaud & R. Crainic (1990) Poliovirus permissivity and specific receptor expression on human endothelial cells - *Virology* **174**, 95-102
- Couderc, T., C. Christodoulou, H. Kopecka, S. Marsden, L. F. Taffs, R. Crainic & F. Horaud (1989a) Molecular pathogenesis of neural lesions induced by poliovirus type 1 - *J. Gen. Virol.* **70**, 2907-2918
- Couderc, T., B. Guinguene, F. Horaud, A. Aubert-Combescu & R. Crainic (1989b) Molecular pathogenesis of type 2 poliovirus in mice - *Eur. J. Epidemiol.* **5**, 270-274
- Couderc, T., A. Martin, C. Wychowski, M. Girard, F. Horaud & R. Crainic (1991) Analysis of neutralization-escape mutants selected from a mouse virulent type-1/type-2 chimeric poliovirus - Identification of a type-1 poliovirus with antigenic site-1 deleted - *J. Gen. Virol.* **72**, 973-977
- Crabbe, M. J. C., D. J. Evans & J. W. Almond (1990) Modelling of poliovirus - HIV-1 antigen chimaeras - *FEBS Lett.* **271**, 194-198
- Crainic, R. (1983) Natural variation of poliovirus neutralization epitopes - *Infect. Immunity* **41**, 1217
- Cross, A. B. (1989) The 1945 St Helena poliomyelitis epidemic after 40 years - *J. Roy. Soc. Med.* **82**, 339-342
- Crowell, R. L. (1987) Cellular receptors in virus infections - *ASM News* **53**, 422-425
- Cung, M. T., P. Demange, M. Marraud, V. Tsikaris, C. Sakellaros, I. Papadouli, A. Kokla & S. J. Tzartos (1991) Two-dimensional H-1-NMR study of antigen-antibody interactions - Binding of synthetic decapeptides to an anti-acetylcholine receptor monoclonal antibody - *Biopolymers* **31**, 769-776
- Currey, K. M., B. M. Peterlin & J. V. Maizel (1986) Secondary structure of poliovirus RNA: Correlation of computer-predicted with electron microscopically observed structure - *Virology* **148**, 33-46
- Cwirla, S. E., E. A. Peters, R. W. Barrett & W. J. Dower (1990) Peptides on phage: A vast library of peptides for identifying ligands - *Proc. Natl. Acad. Sci. USA* **87**, 6378-6382
- Dalakas, M. & I. Illa (1991) Post-polio syndrome: Concepts in clinical diagnosis, pathogenesis, and etiology - In: *Advances in Neurology*, Vol. 56: Amyotrophic lateral sclerosis and other motor neuron diseases, Herausg. Rowland, L. P., Raven Press, S. 495-511
- Damerval, C., M. le Guilloux, J. Blaisonneau & D. de Vienne (1987) A simplification of Heukeshoven and Dernick's silver staining of protein - *Electrophoresis* **8**, 158-159
- Danscher, G. & J. O. R. Nørgaard (1983) Light microscopic visualization of colloidal gold on resin-embedded tissue - *J. Histochem. Cytochem.* **31**, 1394-1398
- Das, S. & A. Dasgupta (1993) Identification of the cleavage site and determinants required for poliovirus 3Cpro-catalyzed cleavage of human TATA-binding transcription factor TBP - *J. Virol.* **67**, 3326-3331
- da Silva, E. E., M. A. Pallansch, B. P. Holloway, M. J. C. Oliveira, H. G. Schatzmayr & O. M. Kew (1991) Oligonucleotide probes for the specific detection of the wild poliovirus type-1 and type-3 endemic to Brazil - *Intervirology* **32**, 149-159
- Davies, D. R., E. A. Padlan & S. Sheriff (1990) Antibody-antigen complexes - *Annu. Rev. Biochem.* **59**, 439-473
- Davies, D. R., S. Sheriff & E. A. Padlan (1988) Antibody-antigen complexes - *J. Biol. Chem.* **263**, 10541-10544
- Day, W. H. E. & F. R. McMorris (1992) Critical comparison of consensus methods for molecular sequences - *Nucl. Acids Res.* **20**, 1093-1099
- Dean, E., J. Ross, J. D. Road, L. Courtenay & K. J. Madill (1991) Pulmonary function in individuals with a history of poliomyelitis - *Chest* **100**, 118-123
- de Clercq, E. (1990) Selective virus inhibitors - *Microbiology - Engl. Tr.* **13**, 165-178
- Dedieu, J. F., J. Ronco, S. van der Werf, J. M. Hogle, Y. Henin & M. Girard (1992) Poliovirus chimeras expressing sequences from the principal neutralization domain of human immunodeficiency virus type-1 - *J. Virol.* **66**, 3161-3167
- Delaet, I., R. Vrijen & A. Boeyé (1992) Antigenic-N to antigenic-H conversion of poliovirus by a monoclonal antibody at low ionic strength - *Virology* **188**, 93-101
- Delarue, M. & D. Moras (1989) RNA structure - In: *Nucleic acids and molecular biology* 3, Herausg. Eckstein, F. & D. M. J. Lilley, Springer Berlin Heidelberg, S. 182-196
- de la Torre, J. C., C. Giachetti, B. L. Semler & J. J. Holland (1992) High frequency of single-base transitions and extreme frequency of precise multiple-base reversion mutations in poliovirus - *Proc. Natl. Acad. Sci. USA* **89**, 2531-2535
- de la Torre, J., E. Wimmer & J. J. Holland (1990) Very high frequency of reversion to guanidine resistance in clonal pools of guanidine-dependent type 1 poliovirus - *J. Virol.* **64**, 664-671
- Delpyroux, F., E. van Wezel, B. Blondel & R. Crainic (1990) Structural factors modulate the activity of antigen-

- nic poliovirus sequences expressed on hybrid hepatitis-B surface antigen particles - *J. Virol.* **64**, 6090-6100
- Deres, K., H. Schild, K.-H. Wiesmüller, G. Jung & H.-G. Rammensee (1989) In vivo priming of virus-specific cytotoxic T lymphocytes with synthetic lipopeptide vaccine - *Nature* **342**, 561-564
- Dernick, R. (1981) Antigenic structure of poliovirus - International Symposium on Reassessment of Inactivated Poliomyelitis Vaccine, Bilthoven 1980, *Develop. biol. Standard* **47**, 319-333
- Dernick, R. (1989a) Bestimmung von Nukleinsäuresequenzen - In: *Virologische Arbeitsmethoden*, Band III Biochemische und biophysikalische Methoden, Herausg. Mayr, A., P. A. Bachmann, B. Mayr-Bibrack & G. Wittmann, Gustav Fischer Stuttgart, New York, S. 123-163
- Dernick, R. (1989b) Isolierung und Nachweis infektiöser viraler RNS - In: *Virologische Arbeitsmethoden*, Band III Biochemische und biophysikalische Methoden, Herausg. Mayr, A., P. A. Bachmann, B. Mayr-Bibrack & G. Wittmann, Gustav Fischer Stuttgart, New York, S. 169-176
- Dernick, R. & J. Heukeshoven (1986) Polyacrylamideelektrophorese in Gegenwart von Natriumdodecylsulfat (SDS-PAGE) - In: "Electrophoresis Forum '86", Herausg. Radola, B. J., Technische Universität München, S. 107-122
- Dernick, R. & J. Heukeshoven (1989) Proteine und Peptide - In: *Virologische Arbeitsmethoden*, Band III Biochemische und biophysikalische Methoden, Herausg. Mayr, A., P. A. Bachmann, B. Mayr-Bibrack & G. Wittmann, Gustav Fischer Stuttgart, New York, S. 188-347
- Dernick, R., J. Heukeshoven & M. Hilbrig (1983) Induction of neutralizing antibodies by all three structural poliovirus polypeptides - *Virology* **130**, 243-246
- Dernick, R., J. Heukeshoven, U. Kuck & K. J. Wiegers (1987) Die Verwendung von Antikörpern zum spezifischen Nachweis von Proteinen und Peptiden durch SDS-PAGE - In: *Elektrophorese Forum '87*, Herausg. Radola, B. J., Technische Universität München, S.
- Dernick, R., U. Kuck & K.-J. Wiegers (1989) Electrophoretic peptide mapping as key step for the characterization of proteins - In: *Electrophoresis Forum '89*, Proceedings of the International Meeting on Electrophoresis, Herausg. Radola, B. J., Institut für Lebensmitteltechnologie und Analytische Chemie, Technische Universität München Freising-Weihenstephan, S. 217-228
- Dernick, R. & H.-J. Rziha (1989) Nukleinsäuren - In: *Virologische Arbeitsmethoden*, Band III Biochemische und biophysikalische Methoden, Herausg. Mayr, A., P. A. Bachmann, B. Mayr-Bibrack & G. Wittmann, Gustav Fischer Stuttgart, New York, S. 17-163
- Deshpande, J. M. & K. H.-Dave (1991) Intratypic characterization of poliovirus type-1 isolates - *Indian J. Med. Res. A* **93**, 202-207
- Deshpande, J. M. & K. H.-Dave (1992) Antibody response of children immunized with poliovaccines - An evaluation using 2 strains of poliovirus type-1 - *Indian J. Med. Res. A* **95**, 216-220
- Devanathan, S., T. A. Dahl, W. R. Midden & D. C. Neckers (1990) Readily available fluorescein isothiocyanate-conjugated antibodies can be easily converted into targeted pho-toxic agents for antibacterial, antiviral, and anticancer therapy. - *Proc. Natl. Acad. Sci. USA* **87**, 2980-2984
- Dewalt, P. G., W. S. Blair & B. L. Semler (1990) A genetic locus in mutant poliovirus genomes involved in overproduction of RNA polymerase and 3C proteinase - *Virology* **174**, 504-514
- Dewalt, P. G. & B. L. Semler (1987) Site-directed mutagenesis of proteinase 3C results in a poliovirus deficient in synthesis of viral RNA polymerase - *J. Virol.* **61**, 2162-2170
- Diamond, D. C., B. A. Jameson, J. Bonin, M. Kohara, S. Abe, H. Itoh, T. Komatsu, M. Arita, S. Kuge, A. Nomoto, A. D. M. E. Osterhaus, R. Crainic & E. Wimmer (1985) Antigenic variation and resistance to neutralization in poliovirus type 1 - *Science* **229**, 1090-1093
- Dildine, S. L. & B. L. Semler (1989) The deletion of 41 proximal nucleotides reverts a poliovirus mutant containing a temperature-sensitive lesion in the 5' noncoding region of genomic RNA - *J. Virol.* **63**, 847-862
- Dildine, S. L. & B. L. Semler (1992) Conservation of RNA-protein interactions among picornaviruses - *J. Virol.* **66**, 4364-4376
- Dildine, S. L., K. R. Stark, A. A. Haller & B. L. Semler (1991) Poliovirus translation initiation - Differential effects of directed and selected mutations in the 5' noncoding region of viral RNAs - *Virology* **182**, 742-752
- DiMarchi, R., G. Brooke, C. Gale, C. Cracknell, T. Doel & N. Mowat (1986) Protection of cattle against foot-and-mouth disease by a synthetic peptide - *Science* **232**, 639
- Dimmock, N. J. (1987) Multiple mechanisms of neutralization of animal viruses - *Trends Biochem. Sci.* **12**, 70-75
- Doerr, H. W. & G. Maass (1991) Polio vaccinations - *Deut. Med. Wochenschr.* **116**, 875
- Dolmage, T. E., M. A. Avendano & R. S. Goldstein (1992) Respiratory function during wakefulness and sleep among survivors of respiratory and nonrespiratory poliomyelitis - *Eur. Resp. J.* **5**, 864-870
- Dorval, B., M. Chow & A. M. Klibanov (1990) Lysine and other diamines dramatically stabilize poliovirus against thermonactivation - *Biotechnol. Bioeng.* **35**, 1051-1054
- Dorval, B. L., M. Chow & A. M. Klibanov (1989) Stabilization of poliovirus against heat inactivation - *Biochem. Biophys. Res. Commun.* **159**, 1177-1183
- Doty, P. & R. F. Steiner (1950) Light scattering and spectrophotometry of colloidal solutions - *J. Chem. Phys.* **18**, 1211-1220
- Drescher-Lincoln, O., J. R. Putnak & B. A. Phillips (1983) Use of temperature-sensitive mutants to study the morphogenesis of poliovirus - *Virology* **126**, 301-316
- Drzeniek, R. (1975) Dissociation and reassociation of poliovirus - I. Effect of urea on the virion - *Z. Naturforsch. 30c*, 523-531
- Drzeniek, R. & P. Bilello (1972) Dissociation and reassociation of infectious poliovirus particles - *Nature New Biol.* **240**, 118-122
- Drzeniek, R. & P. Bilello (1974) Absence of glycoproteins in poliovirus particles. - *J. Gen. Virol.* **25**, 125-132
- Drzeniek, R., C. Reichel, K. J. Wiegers, A. Hamann & M. Hilbrig (1980) Isoelectric focusing and two-dimensional

- electrophoresis of viral proteins and virus-infected cells - In: Electrophoresis '79, Advanced methods, biochemical and clinical applications, Herausg. Radola, B. J., Walter de Gruyter Berlin, S. 475-489
- Dubs, M. C., D. Alschuh & M. H. V. van Regenmortel (1992) Mapping of viral epitopes with conformationally specific monoclonal antibodies using biosensor technology - *J. Chromatogr.* **597**, 391-396
- Eagles, J. M. (1992) Are polioviruses a cause of schizophrenia - *Br. J. Psychiatry* **160**, 598-600
- Emini, E. A., B. A. Jameson, A. J. Lewis, G. R. Larsen & E. Wimmer (1982) Poliovirus neutralization epitopes: Analysis and localization with neutralizing monoclonal antibodies - *J. Virol.* **43**, 997-1005
- Emini, E. A., B. A. Jameson & E. Wimmer (1983a) Priming for and induction of anti-poliovirus neutralizing antibodies by synthetic peptides - *Nature* **304**, 699-703
- Emini, E. A., B. A. Jameson & E. Wimmer (1984a) Identification of multiple neutralization antigenic sites on poliovirus type 1 and the priming of the immune response with synthetic peptides - In: Modern approaches to vaccines, Herausg. Channock, R. M. & R. A. Lerner, Cold Spring Harbor Laboratory Cold Spring Harbor, N.Y., S. 65-76
- Emini, E. A., B. A. Jameson & E. Wimmer (1984b) Identification of a new neutralizing antigenic site on poliovirus coat protein VP2 - *J. Virol.* **52**, 719-721
- Emini, E. A., S.-Y. Kao, A. J. Lewis, R. Crainic & E. Wimmer (1983b) Functional basis of poliovirus neutralization determined with monospecific neutralizing antibodies - *J. Virol.* **46**, 466-474
- Emini, E. A., P. Ostapchuk & E. Wimmer (1983c) Bivalent attachment of antibody onto poliovirus leads to conformational alteration and neutralization - *J. Virol.* **48**, 547-550
- Englander, S. W. & H. T. Epstein (1957) Optical methods for measuring nucleoprotein and nucleic acid concentrations - *Arch. Biochem. Biophys.* **68**, 144-149
- Equestre, M., D. Genovese, F. Cavalieri, L. Fiore, R. Santoro & R. P. Bercoff (1991) Identification of a consistent pattern of mutations in neurovirulent variants derived from the Sabin vaccine strain of poliovirus type 2 - *J. Virol.* **65**, 2707-2710
- Erickson, K. L. (1986) Dietary fat modulation of immune response - *Int. J. Immunopharmacol.* **8**, 529-543
- Etchison, D. & J. R. Etchison (1987) Monoclonal antibody-aided characterization of cellular p220 in uninfected and poliovirus-infected HeLa cells: Subcellular distribution and identification of conformers - *J. Virol.* **61**, 2702-2710
- Evans, D. J., J. McKeating, J. M. Meredith, K. L. Burke, K. Katrak, A. John, M. Ferguson, P. D. Minor, R. A. Weiss & J. W. Almond (1989) An engineered poliovirus chimera elicits broadly reactive HIV-1 neutralizing antibodies - *Nature* **339**, 385-388
- Evans, D. M. A., P. D. Minor, G. S. Schild & J. W. Almond (1983) Critical role of an eight-amino acid sequence of VP1 in neutralization of poliovirus type 3 - *Nature* **304**, 459-462
- Everaert, L., R. Vrijen & A. Boeyé (1989) Eclipse products of poliovirus after cold-synchronized infection of HeLa cells - *Virology* **171**, 76-82
- Faden, H., J. F. Modlin, M. L. Thoms, A. M. McBean, M. B. Ferdon & P. L. Ogra (1990) Comparative evaluation of immunization with live attenuated and enhanced-potency inactivated trivalent poliovirus vaccines in childhood - Systemic and local immune responses - *J. Infect. Dis.* **162**, 1291-1297
- Feinstein, A., N. Richardson & M. J. Taussig (1986) Immunoglobulin flexibility in complement activation - *Immunol. Today* **7**, 169-174
- Feller, D. C. & M. S. Collett (1992) Dipeptide backbone conformation and antibody recognition of a viral octapeptide epitope - *Biopolymers* **32**, 1407-1415
- Ferguson, M., D. M. A. Evans, D. I. Magrath, P. D. Minor, J. W. Almond & G. C. Schild (1985) Induction by synthetic peptides of broadly reactive, type-specific neutralizing antibody to poliovirus type 3 - *Virology* **143**, 505-515
- Ferguson, M. & P. D. Minor (1990) Differences in conformation of type 3 poliovirus antigenic sites on non-infectious empty particles and infectious virus - *J. Gen. Virol.* **71**, 1271-1274
- Ferguson, M., D. J. Wood & P. D. Minor (1993) Antigenic structure of poliovirus in inactivated vaccines - *J. Gen. Virol.* **74**, 685-690
- Filman, D. J., R. Syed, M. Chow, A. J. Macadam, P. D. Minor & J. M. Hogle (1989) Structural factors that control conformational transitions and serotype specificity in type 3 poliovirus - *EMBO J.* **8**, 1567-1579
- Floyd, R. & D. G. Sharp (1978a) Viral aggregation: Effects of salts on the aggregation of poliovirus and reovirus at low pH - *Appl. Environ. Microbiol.* **35**, 1084-1094
- Floyd, R. & D. G. Sharp (1978b) Viral aggregation: Quantitation and kinetics of the aggregation of poliovirus and reovirus - *Appl. Environ. Microbiol.* **35**, 1079-1083
- Foriers, A., B. Rombaut & A. Boeyé (1990) Use of high-performance size-exclusion chromatography for the separation of poliovirus and subviral particles - *J. Chromatogr.* **498**, 105-111
- Freier, S. M., R. Kierzek, J. A. Jaeger, N. Sugimoto, M. H. Caruthers, T. Neilson & D. H. Turner (1986) Improved free-energy parameters for predictions of RNA duplex stability - *Proc. Natl. Acad. Sci. USA* **83**, 9373-9377
- Freistadt, M., G. Kaplan & V. R. Racaniello (1990) Heterogeneous expression of poliovirus receptor - Related proteins in human cells and tissues - *Mol. Cell. Biol.* **10**, 5700-5706
- Freistadt, M. S. & V. R. Racaniello (1991) Mutational analysis of the cellular receptor for poliovirus - *J. Virol.* **65**, 3873-3876
- Fricks, C. E. & J. M. Hogle (1990) Cell-induced conformational change in poliovirus: Externalization of the amino terminus of VP1 is responsible for liposome binding - *J. Virol.* **64**, 1934-1945
- Frisby, D. P., R. I. Cotter & B. M. Richards (1977) Structural studies of encephalomyocarditis virus RNA both in situ and in free solution - *J. Gen. Virol.* **37**, 311-322
- Froehlich, P. (1989) Understanding the sensitivity specification for a fluorescence spectrophotometer - *Internat. Lab.* **42**-45
- Galasso, G. J. & D. G. Sharp (1962) Virus particle aggregation and the plaque-forming unit - *J. Immunol.* **88**, 339-347

- Gallyas, F., T. Gorcs & I. Merchenthaler (1982) High grade intensification of the end-product of diaminobenzidine reaction for peroxidase histochemistry - *J. Histochem. Cytochem.* **30**, 183-185
- Gallyas, F. & I. Merchenthaler (1988) Copper-H₂O₂ oxidation strikingly improves silver intensification of the nickel-diaminobenzidine (Ni-DAB) end-product of the peroxidase reaction - *J. Histochem. Cytochem.* **36**, 807-810
- Gandler, S., J. Taylor-Papadimitriou, T. Duhig, J. Rothbard & J. Burchell (1988) A highly immunogenic region of a human polymorphic epithelial mucin expressed by carcinomas is made up of tandem repeats - *J. Biol. Chem.* **263**, 12820-12823
- Getzoff, E. D., H. M. Geysen, S. J. Rodda, H. Alexander, J. A. Tainer & R. A. Lerner (1987) Mechanisms of antibody binding to a protein - *Science* **235**, 1191-1196
- Getzoff, E. D., J. A. Tainer, R. A. Lerner & H. M. Geysen (1988) The chemistry and mechanism of antibody binding to protein antigens - *Adv. Immunol.* **43**, 1-99
- Geysen, H. M., S. J. Rodda, T. J. Mason, G. Tribbick & P. G. Schoofs (1987) Strategies for epitope analysis using peptide synthesis - *J. Immunol. Method.* **102**, 259-274
- Geysen, H. M., R. H. Meloen & S. J. Barteling (1984) Use of peptide synthesis to probe viral antigens for epitopes to a resolution of a single amino acid - *Proc. Natl. Acad. Sci. USA* **81**, 3998-4002
- Giachetti, C., S. S. Hwang & B. L. Semler (1992) cis-acting lesions targeted to the hydrophobic domain of a poliovirus membrane protein involved in RNA replication - *J. Virol.* **66**, 6045-6057
- Giachetti, C. & B. L. Semler (1991) Role of a viral membrane polypeptide in strand-specific initiation of poliovirus RNA synthesis - *J. Virol.* **65**, 2647-2654
- Giammanco, G., V. de Grandi, L. Lupo, A. Mistretta, S. Pignato, D. Teuwen, H. Bogaerts & F. E. Andre (1988) Interference of oral poliovirus vaccine on RIT 4237 oral rotavirus vaccine - *Eur. J. Epidemiol.* **4**, 121-123
- Gilligan, C. A. & A. Li Wan Po (1991) Oral vaccines: Design and delivery - *Int. J. Pharm.* **75**, 1-24
- Giranda, V. L., B. A. Heinz, M. A. Oliveira, I. Minor, K. H. Kim, P. R. Kolatkar, M. G. Rossmann & R. R. Rueckert (1992) Acid-induced structural changes in human rhinovirus-14 - Possible role in uncoating - *Proc. Natl. Acad. Sci. USA* **89**, 10213-10217
- Godel, H., T. Graser, P. Foldi, P. Pfaender & P. Fürst (1984) Measurement of free amino acids in human biological fluids by high-performance liquid chromatography - *J. Chromatogr.* **297**, 49-61
- Goldbach, R. & J. Wellink (1988) Evolution of plus-strand RNA viruses - *Intervirology* **29**, 260-267
- Goldstein, J. L., R. G. W. Anderson & M. S. Brown (1979) Coated pits, coated vesicles, and receptor-mediated endocytosis - *Nature* **279**, 679-685
- Good, N. E., G. D. Winget, W. Winter & T. N. Conolly (1966) Hydrogen ion buffers for biological research - *Biochemistry* **5**, 467-476
- Gooding, L. R. (1992) Virus proteins that counteract host immune defenses - *Cell* **71**, 5-7
- Gorbalya, A. E., V. M. Blinov & A. P. Donchenko (1986) Poliovirus-encoded proteinase 3C: A possible evolutionary link between cellular serine and cysteine proteinase families - *FEBS Lett.* **194**, 253-257
- Gorbalya, A. E., A. P. Donchenko, V. M. Blinov & E. V. Koonin (1989) Cysteine proteases of positive strand RNA viruses and chymotrypsin-like serine proteases - A distinct protein superfamily with a common structural fold - *FEBS Lett.* **243**, 103-114
- Gorbalya, A. E. & E. V. Koonin (1989) Viral proteins containing the purine NTP-binding sequence pattern - *Nucl. Acids Res.* **17**, 8413-8440
- Gorbalya, A. E., E. V. Koonin & Y. I. Wolf (1990) A new superfamily of putative NTP - binding domains encoded by genomes of small DNA and RNA viruses - *FEBS Lett.* **262**, 145-148
- Gotoh, O. (1990) Optimal sequence alignment allowing for long gaps - *Bull. Math. Biol.* **52**, 359-373
- Gould, E. A., A. Buckley, A. D. T. Barrett & N. Cammack (1986) Neutralizing (54K) and non-neutralizing (54K and 48K) monoclonal antibodies against structural and non-structural Yellow Fever virus proteins confer immunity in mice - *J. Gen. Virol.* **67**, 591-595
- Grady, L. J. & W. Kinch (1985) Two monoclonal antibodies against La Crosse virus show host-dependent neutralizing activity - *J. Gen. Virol.* **66**, 2773-2776
- Graham, S., E. C. Y. Wang, O. Jenkins & L. K. Borysiewicz (1993) Analysis of the human T-cell response to picornaviruses - Identification of T-cell epitopes close to B-cell epitopes in poliovirus - *J. Virol.* **67**, 1627-1637
- Green, M. S., R. Handsher, D. Cohen, J. L. Melnick, R. Slepnev, E. Mendelsohn & Y. L. Danon (1993) Age differences in immunity against wild and vaccine strains of poliovirus prior to the 1988 outbreak in Israel and response to booster immunization - *Vaccine* **11**, 75-81
- Green, N. M. (1969) Electron microscopy of the immunoglobulins - *Adv. Immunol.* **11**, 1-30
- Grobe, D. R. & O. C. Uhlenbeck (1988) Characterization of RNA hairpin loop stability - *Nucl. Acids Res.* **16**, 11725-11735
- Gromeier, M. & K. Wetz (1990) Kinetics of poliovirus uncoating in HeLa cells in a nonacidic environment - *J. Virol.* **64**, 3590-3597
- Guinea, R. & L. Carrasco (1991) Effects of fatty acids on lipid synthesis and viral RNA replication in poliovirus-infected cells - *Virology* **185**, 473-476
- Guinea, R., A. Lopez-Rivas & L. Carrasco (1989) Modification of phospholipase C and phospholipase A2 activities during poliovirus infection - *J. Biol. Chem.* **264**, 21923-21927
- Hacker, G. W., L. Grmelius, G. Danscher, G. Bernatzky, W. Muss, H. Adam & J. Thurner (1988) Silver acetate auto-metallography: An alternative enhancement technique for immunogold-silver staining (IGSS) and silver amplification of gold, silver, mercury and zinc in tissues - *J. Histotechnol.* **11**, 213-221 + Anhang
- Hafler, D. A., D. A. Fox, D. Benjamin, M.-L. Blue & H. L. Weiner (1987) Secondary immune amplification following live poliovirus immunization in humans - *Clin. Immunol. Immunopathol.* **44**, 321-328
- Hagino-Yamagishi, K. & A. Nomoto (1989) In vitro construction of poliovirus defective interfering particles - *J. Virol.*

- 63, 5386-5392
- Hahn-Zoric, M., F. Fulconis, I. Minoli, G. Moro, B. Carlsson, M. Böttiger, N. Räihä & L. A. Hanson (1990) Antibody responses to parenteral and oral vaccines are impaired by conventional and low protein formulas as compared to breast-feeding - *Acta Paediatr. Scand.* **79**, 1137-1142
- Hajdu, J. & L. N. Johnson (1990) Progress with Laue diffraction studies on protein and virus crystals - *Biochemistry* **29**, 1669-1678
- Haller, A. A. & B. L. Semler (1992) Linker scanning mutagenesis of the internal ribosome entry site of poliovirus RNA - *J. Virol.* **66**, 5075-5086
- Halstead, S. B. (1988) "Pathogenesis of Dengue: Challenges to molecular biology." - *Science* **239**, 476
- Hamann, A. & R. Drzeniek (1978) Isoelectric focusing of viral polypeptides in urea - A methodological study on poliovirus - *J. Chromatogr.* **147**, 243-262
- Hamann, A., C. Reichel, K. J. Wieggers & R. Drzeniek (1978) Isoelectric points of polypeptides of standard poliovirus particles of different serological types and of empty capsids and dense particles of poliovirus type 1 - *J. Gen. Virol.* **38**, 567-570
- Hamann, A., K. J. Wieggers & R. Drzeniek (1977) Isoelectric focusing and 2D-analysis of poliovirus proteins - *Virology* **78**, 359-362
- Hambidge, S. J. & P. Sarnow (1992) Translational enhancement of the poliovirus 5' noncoding region mediated by virus-encoded polypeptide-2A - *Proc. Natl. Acad. Sci. USA* **89**, 10272-10276
- Hammarback, J. A. & R. B. Vallee (1990) Antibody exchange immunochemistry - *J. Biol. Chem.* **265**, 12763-12766
- Hämmerle, T., C. U. T. Hellen & E. Wimmer (1991) Site-directed mutagenesis of the putative catalytic triad of poliovirus 3C proteinase - *J. Biol. Chem.* **266**, 5412-5416
- Hancock, W. S., C. A. Bishop, R. L. Prestidge & M. T. W. Hearn (1978) The use of high pressure liquid chromatography (hplc) for peptide mapping of proteins - *Anal. Biochem.* **89**, 203-212
- Hara, M., M. Arita, Z. Yamazaki, A. Hagiwara & Y. Saito (1987) Antigenic and biochemical characterization of poliovirus type 1 isolates - *Microbiol. Immunol.* **31**, 327-336
- Harber, J. J., J. Bradley, C. W. Anderson & E. Wimmer (1991) Catalysis of poliovirus VP0 maturation cleavage is not mediated by serine-10 of VP2 - *J. Virol.* **65**, 326-334
- Harms, J. (1988) Versuche zur Bestimmung antigener Determinanten von Peptiden des Polioviruspartikels. Diplomarbeit Universität Hamburg, FB Biologie
- Harris, K. S., S. R. Reddigari, M. J. H. Nicklin, T. Hämmerle & E. Wimmer (1992) Purification and characterization of poliovirus polypeptide 3CD, a proteinase and a precursor for RNA polymerase - *J. Virol.* **66**, 7481-7489
- Hashida, S. & E. Ishikawa (1990) Detection of one milliatto-mole of ferritin by novel and ultrasensitive enzyme immunoassay - *J. Biochem.* **108**, 960-964
- Heinz, F. X. (1986) Epitope mapping of Flavivirus glycoproteins - *Adv. Virus Res.* **31**, 103-168
- Heinz, F. Z., C. Mandl, R. Berger, W. Tuma & C. Kunz (1984) Antibody-induced conformational changes result in enhanced avidity of antibodies to different antigenic sites on the tick-born encephalitis virus glycoprotein - *Virology* **133**, 25-34
- Heitmann, D. & J. M. Lopez-Pila (1993) Frequency and conditions of spontaneous plasmid transfer from *E. coli* to cultured mammalian cells - *Biosystems* **29**, 37-48
- Held, J. P., O. Dizien & C. Diard (1991) Late post-polioencephalitis syndrome - *Presse Medicale* **20**, 1305-1306
- Hellen, C. U. T., H.-G. Kräusslich & E. Wimmer (1989) Proteolytic processing of polyproteins in the replication of RNA viruses - *Biochemistry* **28**, 9881-9890
- Hellen, C. U. T., C. K. Lee & E. Wimmer (1992) Determinants of substrate recognition by poliovirus-2A proteinase - *J. Virol.* **66**, 3330-3338
- Hellen, C. U. T. & E. Wimmer (1992a) Maturation of poliovirus capsid proteins - *Virology* **187**, 391-397
- Hellen, C. U. T. & E. Wimmer (1992b) The role of proteolytic processing in the morphogenesis of virus particles - *Experientia* **48**, 201-215
- Heukeshoven, J. & R. Dernick (1981) Chemische Analyse und Struktur des Poliovirus. - I. Cystein/Cystin-Gehalt, vollständige Aminosäureanalyse und Hydrophobizität von Poliovirus und seinen natürlichen leeren Kapsiden. - *Z. Naturforsch.* **36c**, 164-172
- Heukeshoven, J. & R. Dernick (1982) Reversed-phase high-performance liquid chromatography of virus proteins and other large hydrophobic proteins in formic acid containing solvents - *J. Chromatogr.* **252**, 241-254
- Heukeshoven, J. & R. Dernick (1983) Rapid analytical and preparative separation of structural polypeptides of poliovirus by reverse-phase high-performance liquid chromatography - *J. Virol. Meth.* **6**, 283-293
- Heukeshoven, J. & R. Dernick (1985) Characterization of a solvent system for separation of water-insoluble poliovirus proteins by reversed-phase high-performance liquid chromatography - *J. Chromatogr.* **326**, 91-101
- Heukeshoven, J. & R. Dernick (1988) The use of a photo-diode array detector for detection and characterization of RP-HPLC-separated tryptic peptides - 1.-3. Würzburger Chromatographie-Gespräche 1986-1988. Pharmacia
- Heukeshoven, J. & R. Dernick (1988) Trennung hydrophober Virusproteine - *Chromatographia* **25**, 230-236
- Heukeshoven, J. & R. Dernick (1989) Analytische und präparative Auf trennung von Peptidmischungen: Kriterien zur Auswahl des Trennsystems - 4. Würzburger Chromatographie-Gespräche 4.-6. September 1989. Pharmacia LKB GmbH Freiburg 1990, S. 100-111
- Hey, T. D., O. C. Richards & E. Ehrenfeld (1986) Synthesis of plus- and minus-strand RNA from poliovirion RNA template in vitro - *J. Virol.* **58**, 790-796
- Hey, T. D., O. C. Richards & E. Ehrenfeld (1987) Host factor-induced template modification during synthesis of poliovirus RNA in vitro - *J. Virol.* **61**, 802-811
- Hinman, A. R., W. H. Foege, C. A. de Quadros, P. A. Patriarca, W. A. Orenstein & E. W. Brink (1987) The case for global eradication of poliomyelitis - *Bull. WHO* **65**, 835-840
- Hoatlin, M. E., O. M. Kew & M. E. Renz (1987) Regions of poliovirus protein VP1 produced in *E. coli* induce neutralizing antibodies - *J. Virol.* **61**, 1442-1447

- Hobom, B. (1. 7. 1992) Eleganter Knockout für Gene - Frankfurter Allgemeine Zeitung
- Hogle, J. M. (1988) Antigenic hybrids of poliovirus - Nature **332**, 13-14
- Hogle, J. M., M. Chow & D. J. Filman (1985) Three-dimensional structure of poliovirus at 2.9 Å resolution - Science **239**, 1358-1365
- Hogle, J. M., M. Chow & D. J. Filman (1986) The structure of poliovirus at 2.9 Å resolution - Crystallographic methods and biological implications - In: Crystallography in molecular biology, Herausg. Moras, D., J. Drenth, B. Strandberg, D. Suck & K. Wilson, Plenum Publishing Corp. New York, S. 281
- Hogle, J. M., M. Chow & D. J. Filman (1987a) Feinbau des Poliovirus - Spektrum der Wissenschaft, 96-104
- Hogle, J. M., M. Chow & D. J. Filman (1987b) The structure of poliovirus - Scient. Am. **256**, 42-49
- Hogle, J. M. & D. J. Filman (1989) The antigenic structure of poliovirus - Phil. Trans. Roy. Soc. London B **323**, 467-478
- Hogle, J. M., D. J. Filman, R. Syed, M. Chow & P. D. Minor (1989) Structural basis for serotypic differences and thermostability in poliovirus - In: Molecular aspects of picornavirus infection and detection, Herausg. Semler, B. L. & E. Ehrenfeld, American Society for Microbiology Washington, DC, S. 125
- Hogle, J. M., R. Syed, T. O. Yeates, D. Jacobson, T. Critchlow & D. J. Filman (1988) Structural determinants of serotype specificity and host range in poliovirus - In: Concepts in viral pathogenesis /III, Herausg. Notkins, A. L. & M. B. A. Oldstone, Springer New York, S.
- Holgate, C. S., P. Jackson, Cowen P N & Bird C C (1983) Immunogold-silver staining: New method of immunostaining with enhanced sensitivity - J. Histochem. Cytochem. **31**, 938-944
- Holland, J. J., E. Domingo, J. C. de la Torre & D. A. Steinbauer (1990) Mutation frequencies at defined single codon sites in vesicular stomatitis virus and poliovirus can be increased only slightly by chemical mutagenesis - J. Virol. **64**, 3960-3962
- Homsy, J., M. Meyer, M. Tateno, S. Clarkson & J. A. Levy (1989) The Fc and not CD4 receptor mediates antibody enhancement of HIV infection in human cells - Science **244**, 1357-1360
- Hoover-Litty, H. & J. M. Greve (1993) Formation of rhinovirus-soluble ICAM-1 complexes and conformational changes in the virion - J. Virol. **67**, 390-397
- Hopkins, G. R. & R. L. Sinsheimer (1955) Visible and ultraviolet light scattering by tobacco mosaic virus nucleic acid - Biochim. Biophys. Acta **17**, 476-484
- Hopp, T. P. & K. R. Woods (1981) Prediction of protein antigenic determinants from amino acid sequences - Proc. Natl. Acad. Sci. USA **78**, 3824-3828
- Hovi, T. (1986) Immunization against poliomyelitis: Still problems to solve in both developed and developing countries - Ann. Clin. Res. **18**, 119-120
- Hovi, T. (1989) The outbreak of poliomyelitis in Finland in 1984-1985: Significance of antigenic variation of type 3 polioviruses and site specificity of antibody responses in antipolio immunizations - Adv. Virus Res. **37**, 243-275
- Hovi, T. (1991) Remaining problems before eradication of poliomyelitis can be accomplished - Prog. Med. Virol. **38**, 69-95
- Hovi, T. & M. Roivainen (1989) Radiometric cytolysis inhibition assay, a new rapid test for neutralizing antibodies to intact and trypsin-cleaved poliovirus - J. Clin. Microbiol. **27**, 709-715
- Howard, R. S., C. M. Wiles & G. T. Spencer (1988) The late sequelae of poliomyelitis - Quart. J. Med., New Ser. **66**, 219-232
- Hsu, Y.-H. (1984) Immunogold for detection of antigen on nitrocellulose paper - Anal. Biochem. **142**, 221-225
- Hughes, P. J., D. M. A. Evans, P. D. Minor, G. C. Schild, J. W. Almond & G. Stanway (1986) The nucleotide sequence of type 3 poliovirus isolated during a recent outbreak of poliomyelitis in Finland - J. Gen. Virol. **67**, 2093-2102
- Hyatt, A. D., D. A. McPhee & J. R. White (1988) Antibody competition studies with gold-labelling immunoelectron microscopy - J. Virol. Meth. **19**, 23-32
- Icenogle, J., H. Shiwen, G. Duke, S. Gilbert, R. Rueckert & J. Anderegg (1983) Neutralization of poliovirus by a monoclonal antibody: Kinetics and stoichiometry - Virology **127**, 412-425
- Iizuka, N., M. Kohara, K. Hagino-Yamagishi, S. Abe, T. Komatsu, K. Tago, M. Arita & A. Nomoto (1989) Construction of less neurovirulent polioviruses by introducing deletions into the 5' noncoding sequence of the genome - J. Virol. **63**, 5354-5363
- Ishida, Y., T. Fujita & K. Asai (1981) New detection and separation method for amino acids by high-performance liquid chromatography - J. Chromatogr. **204**, 143-148
- Ishihama, A. & K. Nagata (1988) Viral RNA polymerases - CRC Crit. Rev. Biochem. **23**, 27-76
- Itoh, H., N. Nimura, T. Kinoshita, N. Nagae & M. Nomura (1991) Fast protein separation by reversed-phase high-performance liquid chromatography on octadecylsilyl-bonded nonporous silica gel - II. Improvement in recovery of hydrophobic proteins - Anal. Biochem. **199**, 7-10
- Jablonski, S. A., M. Luo & C. D. Morrow (1991) Enzymatic activity of poliovirus RNA polymerase mutants with single amino acid changes in the conserved YGDD_n amino acid motif - J. Virol. **65**, 4565-4572
- Jackson, R. J., M. T. Howell & A. Kaminski (1990) The novel mechanism of initiation of picornavirus RNA translation - Trends Biochem. Sci. **15**, 477-483
- Jacobson, S. J., D. A. M. Konings & P. Sarnow (1993) Biochemical and genetic evidence for a pseudoknot structure at the 3' terminus of the poliovirus RNA genome and its role in viral RNA amplification - J. Virol. **67**, 2961-2971
- Jaeger, J. A., D. H. Turner & M. Zuker (1989) Improved predictions of secondary structures for RNA - Proc. Natl. Acad. Sci. USA **86**, 7706-7710
- Jamal, G. A. & R. G. Miller (1991) Neurophysiology of post-viral fatigue syndrome - Br. Med. Bull. **47**, 815-825
- Jang, S. K., T. V. Pestova, C. U. T. Hellen, G. W. Witherell & E. Wimmer (1990) Cap-independent translation of picornavirus RNAs - Structure and function of the internal ribosomal entry site - Enzyme **44**, 292-309
- Jarvis, T. C. & K. Kirkegaard (1992) Poliovirus RNA recom-

- bination - Mechanistic studies in the absence of selection - *EMBO J.* **11**, 3135-3145
- Jenkins, O., J. Cason, K. L. Burke, D. Lunney, A. Gillen, D. Patel, D. J. McCance & J. W. Almond (1990) An antigen chimera of poliovirus induces antibodies against human papillomavirus type 16 - *J. Virol.* **64**, 1201-1206
- Jerne, N. K. (1985) Die generative Grammatik des Immunsystems (Nobel-Vortrag) - *Angew. Chem.* **97**, 813-818
- Jewell, J. E., L. A. Ball & R. Rueckert (1990) Limited expression of poliovirus by vaccinia virus recombinants due to inhibition of the vector by proteinase 2A - *J. Virol.* **64**, 1388-1393
- Joachims, M. & D. Etchison (1992) Poliovirus infection results in structural alteration of a microtubule-associated protein - *J. Virol.* **66**, 5797-5804
- Johnson, K. L. & P. Sarnow (1991) Three poliovirus 2B mutants exhibit noncomplementable defects in viral RNA amplification and display dosage-dependent dominance over wild-type poliovirus - *J. Virol.* **65**, 4341-4349
- Jones, A. E., A. Johns, D. I. Magrath, M. Melville-Smith & F. Sheffield (1989) Durability of immunity to diphtheria, tetanus and poliomyelitis after a three dose immunization schedule completed in the first eight months of life - *Vaccine* **7**, 300-302
- Jones, B. N., S. Pääbo & S. Stein (1981) Amino acid analysis and enzymatic sequence determination of peptides by an improved o-phthalidialdehyde precolumn labeling procedure - *J. Liq. Chromatogr.* **4**, 565-586
- Jones, R. F. (1991) Post polio syndrome - What can we do - *Med. J. Australia* **155**, 360-361
- Jore, J., B. de Geus, R. J. Jackson, P. H. Pouwels & B. E. Enger-Valk (1988) Poliovirus protein 3CD is the active protease for processing of the precursor protein P1 in vitro - *J. Gen. Virol.* **69**, 1627-1636
- Jore, J. P. M., G. Veldhuisen, P. H. Pouwels, A. Boeyé, R. Vrijen & B. Rombaut (1991) Formation of subviral particles by in vitro translation of subgenomic poliovirus RNAs - *J. Gen. Virol.* **72**, 2721-2726
- Jubelt, B. & H. Lipton (1987) Lansing poliovirus infection in mice: Antibody demonstrable by enzyme-linked immunosorbent assay (ELISA) and immunoprecipitation but not by neutralization - *J. Neuroimmunol.* **14**, 109-121
- Jubelt, B., S. L. Ropka, S. J. Goldfarb & J. L. Janavs (1989) Anti-thymocyte serum delays clearance of poliovirus from the mouse central nervous system - *J. Neuroimmunol.* **22**, 223-232
- Jubelt, B., S. L. Ropka, S. Goldfarb, C. Waltenbaugh & R. P. Oates (1991) Susceptibility and resistance to poliovirus-induced paralysis of inbred mouse strains - *J. Virol.* **65**, 1035-1040
- Kaplan, G. & V. R. Racaniello (1988) Construction and characterization of poliovirus subgenomic replicons - *J. Virol.* **62**, 1687-1689
- Kaplan, G., M. Freistadt & V. R. Racaniello (1990b) Neutralization of poliovirus by cell receptors expressed in insect cells - *J. Virol.* **64**, 4697-4702
- Kaplan, G., A. Levy & V. R. Racaniello (1989) Isolation and characterization of HeLa cell lines blocked at different steps in the poliovirus life cycle - *J. Virol.* **63**, 43-51
- Kaplan, G., D. Peters & V. R. Racaniello (1990a) Poliovirus mutants resistant to neutralization with soluble cell receptors - *Science* **250**, 1596-1599
- Kaplan, G. & V. R. Racaniello (1991) Down regulation of poliovirus receptor RNA in HeLa cells resistant to poliovirus infection - *J. Virol.* **65**, 1829-1835
- Karplus, P. A. & G. E. Schulz (1985) Prediction of chain flexibility in proteins - A tool for the selection of peptide antigens - *Naturwissenschaften* **72**, 212-213
- Katrak, K., B. P. Mahon, P. D. Minor & K. H. G. Mills (1991) Cellular and humoral immune responses to poliovirus in mice - A role for helper T-cells in heterotypic immunity to poliovirus - *J. Gen. Virol.* **72**, 1093-1098
- Kawamura, N., M. Kohara, S. Abe, T. Komatsu, K. Tago, M. Arita & A. Nomoto (1989) Determinants in the 5' noncoding region of poliovirus Sabin 1 RNA that influence the attenuation phenotype - *J. Virol.* **63**, 1302-1309
- Kay, J. & B. M. Dunn (1990) Viral proteinases: Weakness in strength - *Biochim. Biophys. Acta* **1048**, 1-18
- Kean, K. M., M. T. Howell, S. Grünert, M. Girard & R. J. Jackson (1993) Substitution mutations at the putative catalytic triad of the poliovirus 3C protease have differential effects on cleavage at different sites - *Virology* **194**, 360-364
- Kean, K. M., N. Teterina & M. Girard (1990) Cleavage specificity of the poliovirus 3C protease is not restricted to Gln-Gly at the 3C/3D junction - *J. Gen. Virol.* **71**, 2553-2563
- Kean, K. M., C. Wychowski, H. Kopecka & M. Girard (1986) Highly infectious plasmids carrying poliovirus cDNA are capable of replication in transfected simian cells - *J. Virol.* **59**, 490-493
- Kellenberger, E. (1990) Form determination of heads of bacteriophages - *Eur. J. Biochem.* **190**, 233-248
- Kerr, M. A. (1990) The structure and function of human IgA - *Biochem. J.* **271**, 285-296
- Ketterlinus, R., K. Wiegers & R. Dernick (1993) Revertants of poliovirus escape mutants - New insights into antigenic structures - *Virology* **192**, 525-533
- Kew, O. M. & B. K. Nottay (1984) Molecular epidemiology of polioviruses - *Rev. Infec. Dis.* **6**, S499-S504
- Kilian, M., J. Mestecky & M. W. Russell (1988) Defense mechanisms involving Fc-dependent functions of immunoglobulin A and their subversion by bacterial immunoglobulin A proteases - *Microbiol. Rev.* **52**, 296-303
- Kimura-Kuroda, J. & K. Yasui (1983) Topographical analysis of antigenic determinants on envelope glycoprotein V3 (E) of Japanese Encephalitis virus, using monoclonal antibodies - *J. Virol.* **45**, 124-132
- Kinet, J.-P. (1989) Antibody-cell interactions: Fc receptors - *Cell* **57**, 351-354
- King, A. M. Q. (1988) Preferred sites of recombination in poliovirus RNA: An analysis of 40 intertypic cross-over sequences - *Nucl. Acids Res.* **16**, 11705-11723
- Kinnunen, E., M. Färkkilä, T. Hovi, J. Juntunen & P. Weckström (1989) Incidence of Guillain-Barre syndrome during a nationwide oral poliovirus vaccine campaign - *Neurology* **39**, 1034-1036
- Kinnunen, L. & T. Hovi (1989) Partial RNA sequencing of eight supposed derivatives of type 3 poliovirus/USA/Saukett/50 reveals remarkable differences

- between three apparent substrains - *Virology* **170**, 316-320
- Kinnunen, L., A. Huovilainen, T. Pöyry & T. Hovi (1990) Rapid molecular evolution of wild type 3 poliovirus during infection in individual hosts - *J. Gen. Virol.* **71**, 317-324
- Kinnunen, L., T. Pöyry & T. Hovi (1991) Generation of virus genetic lineages during an outbreak of poliomyelitis - *J. Gen. Virol.* **72**, 2483-2489
- Kirkegaard, K. (1990) Mutations in VP1 of poliovirus specifically affect both encapsidation and release of viral RNA - *J. Virol.* **64**, 195-206
- Kirkegaard, K. & B. Nelsen (1990) Conditional poliovirus mutants made by random deletion mutagenesis of infectious cDNA - *J. Virol.* **64**, 185-194
- Kitamura, N., B. L. Semler, P. G. Rothberg, G. R. Larsen, C. J. Adler, A. J. Dorner, E. A. Emini, R. Hanecak, J. J. Lee, S. van der Werf, C. W. Anderson & E. Wimmer (1981) Primary structure, gene organization and polypeptide expression of poliovirus RNA - *Nature* **291**, 547-553
- Kitson, J. D. A., K. L. Burke, L. A. Pullen, G. J. Belsham & J. W. Almond (1991) Chimeric polioviruses that include sequences derived from two independent antigenic sites of foot-and-mouth disease virus (FMDV) induce neutralizing antibodies against FMDV in guinea pigs - *J. Virol.* **65**, 3068-3075
- Kliber, J. S., G. Hui Bon Hoa, P. Douzou, M. Graffe & M. Grunberg-Manago (1976) Implication of electrostatic potentials on ribosomal proteins - *Nucl. Acids Res.* **3**, 3423-3438
- Kobayashi, R. & Y. Tashima (1989) Visualization of antigen on nitrocellulose membrane by the oxidative coupling reaction of N,N'-dimethyl-p-phenylenediamine and 4-chloro-1-naphthol - *Anal. Biochem.* **183**, 9-12
- Kobayashi, T., A. Ametani, K. Yamauchi & S. Kaminogawa (1991) Differences in defining residues relevant to antibody binding by ELISA and proteolysis protection at the level of peptide antigenic determinants - *Biochim. Biophys. Acta* **1077**, 11-18
- Koch, A. L. (1984) Turbidity measurements in microbiology - *ASM News* **50**, 473-477
- Koch, F. & G. Koch (1985) The molecular biology of poliovirus. Springer-Verlag Wien New York
- Kohara, M., S. Abe, T. Komatsu, K. Tago, M. Arita & A. Nomoto (1988) A recombinant virus between the Sabin 1 and Sabin 3 vaccine strains of poliovirus as a possible candidate for a new type 3 poliovirus live vaccine strain - *J. Virol.* **62**, 2828-2835
- Kohara, M., S. Abe, S. Kuge, B. L. Semler, T. Komatsu, M. Arita, H. Itoh & A. Nomoto (1986) An infectious cDNA clone of the poliovirus Sabin strain could be used as a stable repository and inoculum for the oral polio live vaccine - *Virology* **151**, 21-30
- Köhler, G. (1986) Derivation and diversification of monoclonal antibodies - *Science* **233**, 1281-1286
- Koike, S., H. Horie, I. Ise, A. Okitsu, M. Yoshida, N. Iizuka, K. Takeuchi, T. Takegami & A. Nomoto (1990) The poliovirus receptor protein is produced both as membrane-bound and secreted forms - *EMBO J.* **9**, 3217-3224
- Koike, S., I. Ise & A. Nomoto (1991a) Functional domains of the poliovirus receptor - *Proc. Natl. Acad. Sci. USA* **88**, 4104-4108
- Koike, S., I. Ise, Y. Sato, H. Yonekawa, O. Gotoh & A. Nomoto (1992) A 2nd gene for the African Green Monkey poliovirus receptor that has no putative N-glycosylation site in the functional N-terminal immunoglobulin-like domain - *J. Virol.* **66**, 7059-7066
- Koike, S., C. Taya, T. Kurata, S. Abe, I. Ise, H. Yonekawa & A. Nomoto (1991b) Transgenic mice susceptible to poliovirus - *Proc. Natl. Acad. Sci. USA* **88**, 951-955
- Kolaskar, A. S. & P. C. Tongaonkar (1990) A semi-empirical method for prediction of antigenic determinants on protein antigens - *FEBS Lett.* **276**, 172-174
- Komaroff, A. L. (1988) Chronic fatigue syndromes: Relationship to chronic viral infections - *J. Virol. Meth.* **21**, 3-10
- König, H. & B. Rosenwirth (1988) Purification and partial characterization of poliovirus protease 2A by means of a functional assay - *J. Virol.* **62**, 1243
- Koonin, E. V. & A. E. Gorbatenko (1992) An insect picornavirus may have genome organization similar to that of caliciviruses - *FEBS Lett.* **297**, 81-86
- Koszinowski, U. H., M. J. Reddehase & S. Jonjic (1991) The role of CD4 and CD8 T-cells in viral infections - *Curr. Opin. Immunol.* **3**, 471-475
- Kozak, M. (1987) An analysis of 5'-noncoding sequences from 699 vertebrate messenger RNAs - *Nucl. Acids Res.* **15**, 8125-8132
- Kozak, M. (1992) A consideration of alternative models for the initiation of translation in eukaryotes - *Crit. Rev. Biochem. Molec. Biol.* **27**, 385-402
- Kraulis, P. J. (1991) MOLSCRIPT: A program to produce both detailed and schematic plots of protein structures - *J. Appl. Crystallogr.* **24**, 946-950
- Kräusslich, H.-G. & E. Wimmer (1988) Viral proteinases - *Annu. Rev. Biochem.* **57**, 701-754
- Kräusslich, H. G., M. J. H. Nicklin, H. Toyoda, D. Etchison & E. Wimmer (1987) Poliovirus proteinase 2A induces cleavage of eucaryotic initiation factor 4F polypeptide p220 - *J. Virol.* **61**, 2711-2718
- Krishnaswamy, S. & M. G. Rossmann (1990) Structural refinement and analysis of Mengo virus - *J. Mol. Biol.* **211**, 803-844
- Kronenberger, P., R. Vrijen, A. Geerts & A. Boeyé (1992) Internalization of intact poliovirus by HeLa cells as shown by subcellular fractionation in isoosmotic Nycodenz gradients - *J. Gen. Virol.* **73**, 597-605
- Kuge, S., N. Kawamura & A. Nomoto (1989a) Strong inclination toward transition mutation in nucleotide substitutions by poliovirus replicase - *J. Mol. Biol.* **207**, 175-182
- Kuge, S., N. Kawamura & A. Nomoto (1989b) Genetic variation occurring on the genome of an in vitro insertion mutant of poliovirus type 1 - *J. Virol.* **63**, 1069-1075
- Kuge, S. & A. Nomoto (1987) Construction of viable deletion and insertion mutants of the Sabin strain of type 1 poliovirus: Function of the 5' noncoding sequence in viral replication - *J. Virol.* **61**, 1478-1487
- Kuge, S., I. Saito & A. Nomoto (1986) Primary structure of poliovirus defective-interfering particle genomes and

- possible generation mechanisms of the particles - *J. Mol. Biol.* **192**, 473-487
- Kuhn, R. J., H. Tada, M. F. Ypma-Wong, J. J. Dunn, B. L. Semler & E. Wimmer (1988b) Construction of a "mutagenesis cartridge" for poliovirus genome-linked viral protein: Isolation and characterization of viable and nonviable mutants - *Proc. Natl. Acad. Sci. USA* **85**, 519-523
- Kuhn, R. J., H. Tada, M. F. Ypma-Wong, B. L. Semler & E. Wimmer (1988a) Mutational analysis of the genome-linked protein VPg of poliovirus - *J. Virol.* **62**, 4207-4215
- Kutubuddin, M., J. Simons & M. Chow (1992a) Identification of T-helper epitopes in the VP1 capsid protein of poliovirus - *J. Virol.* **66**, 3042-3047
- Kutubuddin, M., J. Simons & M. Chow (1992b) Poliovirus-specific major histocompatibility complex class-I - Restricted cytolytic T-cell epitopes in mice localize to neutralizing antigenic regions - *J. Virol.* **66**, 5967-5974
- Kyle, W. S. (1992) Simian retroviruses, poliovaccine, and origin of AIDS - *Lancet* **339**, 600-601
- Lahrech, M. T. & P. Caudrelier (1990) Immunological response of Moroccan children and newborns to oral poliovirus vaccine prepared on Vero cells - *Vaccine* **8**, 306-307
- Lai, M. M. C. (1992) RNA recombination in animal and plant viruses - *Microbiol. Rev.* **56**, 61-79
- Lain, S., J. L. Riechmann & J. A. Garcia (1990) RNA helicase - A novel activity associated with a protein encoded by a positive strand RNA virus - *Nucl. Acids Res.* **18**, 7003-7006
- Lama, J. & L. Carrasco (1992a) Expression of poliovirus non-structural proteins in *E. coli* cells - Modification of membrane permeability induced by 2B and 3A - *J. Biol. Chem.* **267**, 15932-15937
- Lama, J. & L. Carrasco (1992b) Inducible expression of a toxic poliovirus membrane protein in *E. coli*: Comparative studies using different expression systems based on T7 promoters - *Biochem. Biophys. Res. Commun.* **188**, 972-981
- Lama, J., R. Guinea, F. Martinez-Abarca & L. Carrasco (1992) Cloning and inducible synthesis of poliovirus non-structural proteins - *Gene* **117**, 185-192
- La Monica, N., J. W. Almond & V. R. Racaniello (1987b) A mouse model for poliovirus neurovirulence identifies mutations that attenuate the virus for humans - *J. Virol.* **61**, 2917-2920
- La Monica, N., W. J. Kupsky & V. R. Racaniello (1987a) Reduced neurovirulence of poliovirus type 2 Lansing antigenic variants selected with monoclonal antibodies - *Virology* **161**, 429-437
- La Monica, N., C. Meriam & V. R. Racaniello (1986) Mapping of sequences required for mouse neurovirulence of poliovirus type 2 Lansing - *J. Virol.* **57**, 515-525
- Langford, M. P., R. Crainic, R. Vrijenhoek & E. Wimmer (1991) Antibodies may act synergistically or additively with interferon to inhibit poliovirus - *Microb. Pathog.* **10**, 419-427
- Larsen, G. R., B. L. Semler & E. Wimmer (1981) Stable hairpin structure within the 5'-terminal 85 nucleotides of poliovirus RNA - *J. Virol.* **37**, 328-335
- Laver, W. G., G. M. Air, R. G. Webster & S. J. Smithgill (1990) Epitopes on protein antigens - Misconceptions and realities - *Cell* **61**, 553-556
- Le, S. Y., J. H. Chen, N. Sonenberg & J. V. Maizel (1992) Conserved tertiary structure elements in the 5' untranslated region of human enteroviruses and rhinoviruses - *Virology* **191**, 858-866
- Le, S. Y. & M. Zuker (1990) Common structures of the 5' non-coding RNA in enteroviruses and rhinoviruses - Thermodynamical stability and statistical significance - *J. Mol. Biol.* **216**, 729-741
- Le, S. Y. & M. Zuker (1991) Predicting common foldings of homologous RNAs - *J. Biomol. Struct. Dyn.* **8**, 1027-1044
- Leclerc, C., E. Deriaud, V. Mimic & S. van der Werf (1991) Identification of a T-Cell epitope adjacent to neutralization antigenic site 1 of poliovirus type 1 - *J. Virol.* **65**, 711-718
- Leclerc, C., P. Martineau, S. van der Werf, E. Deriaud, P. Duplay & M. Hofnung (1990) Induction of virus-neutralizing antibodies by bacteria expressing the C3 poliovirus epitope in the periplasm - The route of immunization influences the isotypic distribution and the biologic activity of the antipoliovirus antibodies - *J. Immunol.* **144**, 3174-3182
- Lee, C.-K. & E. Wimmer (1988) Proteolytic processing of poliovirus polyprotein: Elimination of 2A pro-mediated, alternative cleavage of polypeptide 3CD by in vitro mutagenesis - *Virology* **166**, 405-414
- Lee, T., M. Crowell, M. H. Shearer, G. M. Aron & J. D. Irvin (1990) Poliovirus-mediated entry of Pokeweed antiviral protein - *Antimicrob. Agents Chemother.* **34**, 2034-2037
- Lee, W. M., S. S. Monroe & R. R. Rueckert (1993) Role of maturation cleavage in infectivity of picornaviruses - Activation of an infectosome - *J. Virol.* **67**, 2110-2122
- Lee, Y. M. H. & M. Chow (1992) Myristate modification does not function as a membrane association signal during poliovirus capsid assembly - *Virology* **187**, 814-820
- Lemon, S. M., W. Barclay, M. Ferguson, P. Murphy, L. Jing, K. Burke, D. Wood, K. Katrak, D. Sangar, P. D. Minor & J. W. Almond (1992) Immunogenicity and antigenicity of chimeric picornaviruses which express hepatitis-A virus (HAV) peptide sequences - Evidence for a neutralization domain near the amino terminus of VP1 of HAV - *Virology* **188**, 285-295
- Lemon, S. M. & S. E. Robertson (1991) Global eradication of poliomyelitis - Recent progress, future prospects, and new research priorities - *Prog. Med. Virol.* **38**, 42-55
- Lenstra, J. A., J. G. Kusters & B. A. M. van der Zeijst (1990) Mapping of viral epitopes with prokaryotic expression products - *Arch. Virol.* **110**, 1-24
- Lesk, A. M. (1985) Protein structure and evolution: Similar amino acid sequences sometimes produce strikingly different three-dimensional structures - *BioEssays* **2**, 213-214
- Levine, B., J. M. Hardwick, B. D. Trapp, T. O. Crawford, R. C. Bollinger & D. E. Griffin (1991) Antibody-mediated clearance of Alphavirus infection from neurons - *Science* **254**, 856-860
- Lewis, G. K. & C.-P. Feng (1992) Intrinsic immunogenicity of an internal VP1 T-B epitope pair of type-1 poliovirus - *Mol. Immunol.* **29**, 1477-1485
- Li, J.-P. & D. Baltimore (1988) Isolation of poliovirus 2C mutants defective in viral RNA synthesis - *J. Virol.* **62**, 4016-4021

- Li, T. S., Z. G. Chen, J. E. Johnson & G. J. Thomas (1992) Studies of virus structure by laser Raman spectroscopy. 35. Conformations, interactions, and thermostabilities of RNA and proteins in Bean Pod Mottle Virus - Investigation of solution and crystal structures by laser Raman spectroscopy - *Biochemistry* **31**, 6673-6682
- Liang, C.-M., S. Henry, S.-M. Liang & J. S. Epstein (1990) An anti-p24 monoclonal antibody shows cross-reactivity with multiple HIV-1 proteins - *J. Immunol. Method.* **132**, 57-62
- Liljas, L. (1986) The structure of spherical viruses - *Prog. Biophys. Mol. Biol.* **48**, 1-36
- Liljas, L. (1991) Structure of spherical viruses - *Int. J. Biol. Macromol.* **13**, 273-280
- Lipskaya, G. Y., A. R. Muzychko, O. K. Kutitova, S. V. Maslova, M. Equestre, S. G. Drozdov, R. P. Bercoff & V. I. Agol (1991) Frequent isolation of intertypic poliovirus recombinants with serotype-2 specificity from vaccine-associated polio cases - *J. Med. Virol.* **35**, 290-296
- Lloyd, R. E. & M. Bovee (1993) Persistent infection of human erythroblastoid cells by poliovirus - *Virology* **194**, 200-209
- Lloyd, R. E., H. G. Jense & E. Ehrenfeld (1987) Restriction of translation of capped mRNA in vitro as a model for poliovirus-induced inhibition of host cell protein synthesis: Relationship to p220 cleavage - *J. Virol.* **61**, 2480-2488
- Lopez-Guerrero, J. A., L. Carrasco, F. Martinez-Abarca, M. Fresno, M. A. Alonso, S. G. (1989) Restriction of poliovirus RNA translation in a human monocytic cell line - *Eur. J. Biochem.* **186**, 577-582
- Lopez-Guerrero, J. A., F. Martinez-Abarca, M. Fresno, L. Carrasco & M. A. Alonso (1991) Cell type determines the relative proportions of (-) and (+) strand RNA during poliovirus replication - *Virus Res.* **20**, 23-29
- Lopez-Rivas, A., J. L. Castrillo & L. Carrasco (1987) Cation content in poliovirus-infected HeLa cells - *J. Gen. Virol.* **68**, 335-342
- Lubinski, J. M., G. Kaplan, V. R. Racaniello & A. Dasgupta (1986) Mechanism of in vitro synthesis of covalently linked dimeric RNA molecules by the poliovirus replicase - *J. Virol.* **58**, 459-467
- Lubinski, J. M., L. J. Ransone & A. Dasgupta (1987) Primer-dependent synthesis of covalently linked dimeric RNA molecules by poliovirus replicase - *J. Virol.* **61**, 2997-3003
- Ludlow, J. W. & R. A. Consigli (1987) Localization of calcium on the polyomavirus VP1 capsid protein - *J. Virol.* **61**, 2934-2937
- Maass, G. & U. Quast (1987) Acute spinal paralysis after the administration of poliomyelitis vaccine in the Federal Republic of Germany (1963-1984) - *J. Biol. Standardiz.* **15**, 185-191
- Macadam, A. J., C. Arnold, J. Howlett, A. John, S. Marsden, F. Taffs, P. Reeve, N. Hamada, K. Wareham, J. Almond, N. Cammack & P. D. Minor (1989) Reversion of attenuated and temperature-sensitive phenotypes of the Sabin type 3 strain of poliovirus in vaccines - *Virology* **172**, 408-414
- Macadam, A. J., G. Ferguson, C. Arnold & P. D. Minor (1991a) An assembly defect as a result of an attenuating mutation in the capsid proteins of the poliovirus type-3 vaccine strain - *J. Virol.* **65**, 5225-5231
- Macadam, A. J., G. Ferguson, J. Burlison, D. Stone, R. Skuce, J. W. Almond & P. D. Minor (1992) Correlation of RNA secondary structure and attenuation of Sabin vaccine strains of poliovirus in tissue culture - *Virology* **189**, 415-422
- Macadam, A. J., S. R. Pollard, G. Ferguson, G. Dunn, R. Skuce, J. W. Almond & P. D. Minor (1991b) The 5' non-coding region of the type-2 poliovirus vaccine strain contains determinants of attenuation and temperature sensitivity - *Virology* **181**, 451-458
- Macadam, A. J., S. R. Pollard, G. Ferguson, R. Skuce, D. Wood, J. W. Almond & P. D. Minor (1993) Genetic basis of attenuation of the Sabin type-2 vaccine strain of poliovirus in primates - *Virology* **192**, 18-26
- MacArthur, M. W. & J. M. Thornton (1991) Influence of proline residues on protein conformation - *J. Mol. Biol.* **218**, 397-412
- Magrath, D. I. (1991) Safety of vaccines produced in continuous cell lines - In: International Symposium on Virological Aspects of the Safety of Biological Products, 75, S. 17-20
- Magrath, D. I., D. M. A. Evans, M. Ferguson, G. C. Schild, P. D. Minor, F. Horaud, D. Crainic, M. Stenvik & T. Hovi (1986) Antigenic and molecular properties of type 3 poliovirus responsible for an outbreak of poliomyelitis in a vaccinated population - *J. Gen. Virol.* **67**, 899-905
- Mahon, B. P., K. Katrak & K. H. G. Mills (1992) Antigenic sequences of poliovirus recognized by T-cells - Serotype-specific epitopes on VP1 and VP3 and cross-reactive epitopes on VP4 defined by using CD4+ T-cell clones - *J. Virol.* **66**, 7012-7020
- Mandel, B. (1962) Early stages of virus-cell interaction as studied by using antibody - *Cold Spring Harbor Symp. Quant. Biol.* **27**, 123-136
- Mandel, B. (1971) Characterization of type 1 poliovirus by electrophoretic analysis - *Virology* **44**, 554-568
- Mandel, B. (1973) An analysis of the physical and chemical factors involved in the reactivation of neutralized poliovirus by the method of freezing and thawing - *Virology* **51**, 358-369
- Mandel, B. (1976) Neutralization of poliovirus: A hypothesis to explain the mechanism and the one-hit character of the neutralization reaction - *Virology* **69**, 500-510
- Mandel, B. (1979) Interaction of viruses with neutralizing antibodies - In: Comprehensive virology, Vol. 15 Virus-host interactions, Herausg. Fraenkel-Conrat, H. & R. R. Wagner, Plenum Press N.Y., London, S. 37-121
- Mannweiler, K., P. Nobis, H. Hohenberg & W. Bohn (1990) Immunoelectron microscopy on the topographical distribution of the poliovirus receptor - *J. Gen. Virol.* **71**, 2737-2740
- Marc, D., G. Drugeon, A.-L. Haenni, M. Girard & S. van der Werf (1989) Role of myristylation of poliovirus capsid protein VP4 as determined by site-directed mutagenesis of its N-terminal sequence - *EMBO J.* **8**, 2661-2668
- Marc, D., M. Girard & S. van der Werf (1991) A Gly1 to Ala substitution in poliovirus capsid protein VP0 blocks its myristylation and prevents viral assembly - *J. Gen. Virol.*

- 72, 1151-1157
- Marc, D., G. Masson, M. Girard & S. van der Werf (1990) Lack of myristylation of poliovirus capsid polypeptide VP0 presents the formation of virions or results in the assembly of noninfectious virus particles - *J. Virol.* **64**, 4099-4107
- Martin, A., D. Benichou, T. Couderc, J. M. Hogle, C. Wychowski, S. van der Werf & M. Girard (1991) Use of type-1/type-2 chimeric polioviruses to study determinants of poliovirus type-1 neurovirulence in a mouse model - *Virology* **180**, 648-658
- Martin, A., C. Wychowski, D. Benichou, R. Crainic & M. Girard (1988a) Construction of a chimaeric type 1/type 2 poliovirus by genetic recombination - *Ann. Inst. Pasteur/Virol.* **139**, 79-88
- Martin, A., C. Wychowski, T. Couderc, R. Crainic, J. Hogle & M. Girard (1988b) Engineering a poliovirus type 2 antigenic site on a type 1 capsid results in a chimaeric virus which is neurovirulent for mice - *EMBO J.* **7**, 2839-2847
- Martineau, P., J. G. Guillet, C. Leclerc & M. Hofnung (1992) Expression of heterologous peptides at 2 permissive sites of the MalE protein - Antigenicity and immunogenicity of foreign B-cell and T-cell epitopes - *Gene* **113**, 35-46
- Martyn, C. N. (1990) Poliovirus and motor neuron disease - *J. Neurol.* **237**, 336-338
- Martyn, C. N., D. J. P. Barker & C. Osmond (1988) Motor neuron disease and past poliomyelitis in England and Wales - *Lancet* **I**, 1319-1322
- Marwick, C. (1992) Alter a virus molecularly for polio vaccine - *JAMA - J. Am. Med. Assoc.* **267**, 473
- Maselli, R. A., N. R. Cashman, R. L. Wollman, E. F. Salazar-grueso & R. Roos (1992) Neuromuscular transmission as a function of motor unit size in patients with prior poliomyelitis - *Muscle & Nerve* **15**, 648-655
- Mason, P. W., B. Baxt, F. Brown, J. Harber, A. Murdin & E. Wimmer (1993) Antibody-complexed foot-and-mouth disease virus, but not poliovirus, can infect normally unsusceptible cells via the Fc receptor - *Virology* **192**, 568-577
- Mathisen, G. E. & A. D. Allen (1992) Inactivated polio vaccine hyperimmunization in adults with HIV disease: A placebo-controlled study - *AIDS* **6**, 737-738
- Matsudaira, P. (1987) Sequence from picomole quantities of proteins electroblotted onto polyvinylidene difluoride membranes - *J. Biol. Chem.* **262**, 10035-10038
- Maynell, L. A., K. Kirkegaard & M. W. Klymkowsky (1992) Inhibition of poliovirus RNA synthesis by brefeldin-A - *J. Virol.* **66**, 1985-1994
- McCammon, J. A. & M. Karplus (1983) The dynamic picture of protein structure - *Acc. Chem. Res.* **16**, 187-193
- McClure, M. A. & J. Perrault (1985) Poliovirus genome RNA hybridizes specifically to higher eukaryotic rRNAs - *Nucl. Acids Res.* **13**, 6797
- McCullough, K. C. (1986) Monoclonal antibodies: Implications for virology - *Arch. Virol.* **87**, 1-36
- McCullough, K. C., F. De Simone, E. Brocchi, L. Capucci, J. R. Crowther & U. Kihm (1992) Protective immune response against foot-and-mouth disease - *J. Virol.* **66**, 1835-1840
- McKinlay, M. A., D. C. Pevear & M. G. Rossmann (1992) Treatment of the picornavirus common cold by inhibitors of viral uncoating and attachment - *Annu. Rev. Microbiol.* **46**, 635-654
- McKusick, V. A. (1992) Classics in medicine - Three landmark articles about poliomyelitis - *Medicine* **71**, 303-(325)
- Meerovitch, K., R. Nicholson & N. Sonenberg (1991) In vitro mutational analysis of cis-acting RNA translational elements within the poliovirus type-2 5' untranslated region - *J. Virol.* **65**, 5895-5901
- Meerovitch, K., J. Pelletier & N. Sonenberg (1989) A cellular protein that binds to the 5'-noncoding region of poliovirus RNA: Implications for internal translation initiation - *Genes & Development* **3**, 1026-1034
- Melchers, W., M. Devisser, P. Jongen, A. van Loon, R. Nibbeling, P. Oostvogel, D. Willemse & J. Galama (1992) The postpolio syndrome: No evidence for poliovirus persistence - *Ann. Neurol.* **32**, 728-732
- Melnick, J. L. (1988) Vaccination against poliomyelitis: Present possibilities and future prospects - *Am. J. Public Health* **78**, 304-305
- Melnick, J. L. (1991) Virus inactivation - Lessons from the past - In: *International Symposium on Virological Aspects of the Safety of Biological Products*, London 1990, Develop. biol. Standard., Vol. 75, Karger Basel, S. 29-36
- Mendelsohn, C., B. Johnson, K. A. Lionetti, P. Nobis, E. Wimmer & V. R. Racaniello (1986) Transformation of a human poliovirus receptor gene into mouse cells - *Proc. Natl. Acad. Sci. USA* **83**, 7845-7849
- Mendelsohn, C. L., E. Wimmer & V. R. Racaniello (1989) Cellular receptor for poliovirus: Molecular cloning, nucleotide sequence, and expression of a new member of the immunoglobulin superfamily - *Cell* **56**, 855-865
- Menédez-Arias, L. & R. Rodriguez (1990) A BASIC microcomputer program for prediction of B and T cell epitopes in proteins - *Comput. Appl. Biosci.* **6**, 101-105
- Merril, C. R. & M. E. Pratt (1986) A silver stain for rapid quantitative detection of proteins or nucleic acids on membranes or thin layer plates - *Anal. Biochem.* **156**, 96-110
- Metzger, H. (1970) Structure and function of gamma M macroglobulins - *Adv. Immunol.* **12**, 57-108
- Milstein, C. (1986) From antibody structure to immunological diversification of immune response - *Science* **231**, 1261-1268
- Minor, P. (1990) Summary report of a meeting on the estimation of the potency of inactivated poliovaccine - Institut-Pasteur, Paris 12-13 February 1990 - *Biologicals* **18**, 243-244
- Minor, P. D. (1990) Antigenic structure of picornaviruses - In: *Current Topics in Microbiology and Immunology* Vol. 161, Picornaviruses, Herausg. Racaniello, V. R., Springer Berlin, S. 121-150
- Minor, P. D. (1992) The molecular biology of poliovaccines - *J. Gen. Virol.* **73**, 3065-3077
- Minor, P. D., D. M. A. Evans, M. Ferguson, G. C. Schild, G. Westrop & J. W. Almond (1985) Principal and subsidiary antigenic sites of VP1 involved in the neutralization of poliovirus type 3 - *J. Gen. Virol.* **65**, 1159-1165
- Minor, P. D. & G. Dunn (1988) The effect of sequences in

- the 5' non-coding region on the replication of poliovirus in the human gut - *J. Gen. Virol.* **69**, 1091-1096
- Minor, P. D., G. Dunn, D. M. A. Evans, D. I. Magrath, A. John, J. Howlett, A. Phillips, G. Westrop, K. Wareham, J. W. Almond & J. M. Hogle (1989) The temperature sensitivity of the Sabin type 3 vaccine strain of poliovirus: Molecular and structural effects of a mutation in the capsid protein VP3 - *J. Gen. Virol.* **70**, 1117-1123
- Minor, P. D., M. Ferguson, D. M. A. Evans, J. W. Almond & J. P. Icenogle (1986a) Antigenic structure of polioviruses of serotypes 1, 2 and 3 - *J. Gen. Virol.* **67**, 1283-1291
- Minor, P. D., M. Ferguson, K. Katrak, D. Wood, A. John, J. Howlett, G. Dunn, K. Burke & J. W. Almond (1990) Antigenic structure of chimeras of type-1 and type-3 poliovirus involving antigenic site-1 - *J. Gen. Virol.* **71**, 2543-2551
- Minor, P. D., M. Ferguson, K. Katrak, D. Wood, A. John, J. Howlett, G. Dunn, K. Burke & J. W. Almond (1991) Antigenic structure of chimeras of type-1 and type-3 polioviruses involving antigenic site-2, site-3 and site-4 - *J. Gen. Virol.* **72**, 2475-2481
- Minor, P. D., M. Ferguson, A. Phillips, D. I. Magrath, A. Huovilainen & T. Hovi (1987) Conservation in vivo of protease cleavage sites in antigenic sites of poliovirus - *J. Gen. Virol.* **68**, 1857-1865
- Minor, P. D., A. John, M. Ferguson & J. P. Icenogle (1986b) Antigenic and molecular evolution of the vaccine strain of type 3 poliovirus during the period of excretion by primary vaccinee - *J. Gen. Virol.* **67**, 693-706
- Minor, P. D., O. Kew & G. C. Schild (1982) Poliomyelitis - Epidemiology, molecular biology and immunology - *Nature* **299**, 109-110
- Minor, P. D., P. A. Pipkin, D. Hockley, G. C. Schild & J. W. Almond (1984) Monoclonal antibodies which block cellular receptors of poliovirus - *Virus Res.* **1**, 203-212
- Minor, P. D., G. C. Schild, J. Bootman, D. M. A. Evans, M. Ferguson, P. Reeve, M. Spitz, G. Stanway, A. J. Cann, R. Hauptmann, L. D. Clarke, R. C. Mountford & J. W. Almond (1983) Location and primary structure of a major antigenic site for poliovirus neutralization - *Nature* **301**, 674-679
- Minor, P. D., G. C. Schild, A. J. Cann, G. Dunn, D. M. A. Evans, M. Ferguson, G. Stanway, G. Westrop & J. W. Almond (1986c) Studies on the molecular aspects of antigenic structure and virulence of poliovirus - *Ann. Inst. Pasteur/Virol.* **137 E**, 107-125
- Miranda-Pfeilsticker, B., D. Figarella-Branger, J. F. Pellissier & G. Serratrice (1992) Post-poliomyelitis syndrome - 29 cases - Le syndrome post-poliomyélite: 29 cas - *Rev. Neurol.* **148**, 355-361
- Mirzayan, C., R. Ingraham & E. Wimmer (1991) Specificity of the polioviral proteinase-3C towards genetically engineered cleavage sites in the viral capsid - *J. Gen. Virol.* **72**, 1159-1163
- Mirzayan, C. & E. Wimmer (1992) Genetic analysis of an NTP-binding motif in poliovirus polypeptide-2C - *Virology* **189**, 547-555
- Miyamura, K., T. Ogino, N. Takeda, E. Utagawa, Y. Ikeda, M. Tanimura, M. Hara & S. Yamazaki (1990) A comparative seroepidemiologic study of the neutralizing antibody against the virulent standard strains and the Sabin vaccine strains of poliovirus among healthy Japanese - *Jpn. J. Med. Sci. Biol.* **43**, 141-149
- Modlin, J. F., I. M. Onorato, A. M. McBean, P. Albrecht, M. L. Thoms, L. Nerhood & R. Bernier (1990) The humoral immune response to type 1 oral poliovirus vaccine in children previously immunized with enhanced potency inactivated poliovirus vaccine or live oral poliovirus vaccine - *Am. J. Dis. Child.* **144**, 480-484
- Moeremans, M., G. Daneels, A. Van Dijk, G. Langanger & J. De Mey (1984) Sensitive visualization of antigen-antibody reactions in dot and blot immune overlay assays with immunogold and immunogold/silver staining - *J. Immunol. Method.* **74**, 353-360
- Mohammad, K. & A. Esen (1989) A blocking agent and a blocking step are not needed in ELISA, immunostaining dot-blots and Western blots - *J. Immunol. Method.* **177**, 141-145
- Molla, A., A. V. Paul & E. Wimmer (1991) Cell-free, *de novo* synthesis of poliovirus - *Science* **254**, 1647-1651
- Morrison, E. G. & J. A. Embil (1987) Poliomyelitis in North America: The disease is not dead yet - *Canad. Med. Assn. J.* **137**, 1085-1087
- Morrow, C. D., B. Warren & M. R. Lentz (1987) Expression of enzymatically active poliovirus RNA-dependent RNA polymerase in *Escherichia coli* - *Proc. Natl. Acad. Sci. USA* **84**, 6050-6054
- Morse, S. S. (1991) The origins of 'new' viral diseases - *Environ. Carcinog. Rev.* **9**, 207-228
- Moscufo, N. & M. Chow (1992) Myristate-protein interactions in poliovirus - Interactions of VP4 threonine-28 contribute to the structural conformation of assembly intermediates and the stability of assembled virions - *J. Virol.* **66**, 6849-6857
- Moscufo, N., J. Simons & M. Chow (1991) Myristylation is important at multiple stages in poliovirus assembly - *J. Virol.* **65**, 2372-2380
- Moss, E. G. & V. R. Racaniello (1991) Host range determinants located on the interior of the poliovirus capsid - *EMBO J.* **10**, 1067-1074
- Mosser, A. G. & R. R. Rueckert (1993) WIN 51711-dependent mutants of poliovirus type-3: Evidence that virions decay after release from cells unless drug is present - *J. Virol.* **67**, 1246-1254
- Mueller, W. F., R. Garofalo & P. L. Ogra (1990) Local immune response to viruses - II. The basis for serodiagnosis and vaccines - In: *Immunochemistry of Viruses*, Herausg. van Regenmortel, M. H. V. & A. R. Neurath, Elsevier, S. 53-74
- Murdin, A. D., A. Kameda, M. G. Murray & E. Wimmer (1991b) Phenotypic characterization of antigenic hybrids of poliovirus - *Microb. Pathog.* **10**, 39-45
- Murdin, A. D., H. H. Lu, M. G. Murray & E. Wimmer (1992) Poliovirus antigenic hybrids simultaneously expressing antigenic determinants from all 3 serotypes - *J. Gen. Virol.* **73**, 607-611
- Murdin, A. D., C. Mirzayan, A. Kameda & E. Wimmer (1991a) The effect of site and mode of expression of a heterologous antigenic determinant on the properties of poliovirus hybrids - *Microb. Pathog.* **10**, 27-37

- Murdin, A. D. & E. Wimmer (1989) Construction of a poliovirus type 1/type 2 antigenic hybrid by manipulation of neutralization antigenic site II - *J. Virol.* **63**, 5251-5257
- Müri, F. (1987) Trübungsmessung in Flüssigkeiten - LABO, 42-45
- Murray, M. G., R. J. Kuhn, M. Arita, N. Kawamura, A. Nomoto & E. Wimmer (1988) Poliovirus type 1/type 3 antigenic hybrid virus constructed in vitro elicits type 1 and type 3 neutralizing antibodies in rabbits and monkeys - *Proc. Natl. Acad. Sci. USA* **85**, 3203-3207
- Muzychenko, A. R., G. Y. Lipskaya, S. V. Maslova, Y. V. Svitkin, E. V. Pilipenko, B. K. Nottay, O. M. Kew & V. I. Agol (1991) Coupled mutations in the 5'-untranslated region of the Sabin poliovirus strains during in vivo passages - Structural and functional implications - *Virus Res.* **21**, 111-122
- Najita, L. & P. Sarnow (1990) Oxidation - reduction sensitive interaction of a cellular 50-kDa protein with an RNA hairpin in the 5'noncoding region of the poliovirus genome - *Proc. Natl. Acad. Sci. USA* **87**, 5846-5850
- Namba, K., R. Pattanayek & G. Stubbs (1989) Visualization of protein-nucleic acid interactions in a virus - Refined Structure of Intact Tobacco Mosaic Virus at 2.9 Å Resolution by X-ray Fiber Diffraction - *J. Mol. Biol.* **208**, 307-325
- Nathanson, N. & S. D. Horn (1992) Neurovirulence tests of type-3 oral poliovirus vaccine manufactured by Lederle-Laboratories, 1964-1988 - *Vaccine* **10**, 469-474
- Neufeld, K. L., O. C. Richards & E. Ehrenfeld (1991) Expression and characterization of poliovirus proteins 3BVPg, 3Cpro, and 3Dpol in recombinant baculovirus-infected Spodoptera-Frugiperda cells - *Virus Res.* **19**, 173-188
- Nicholson, R., J. Pelletier, S. Y. Le & N. Sonenberg (1991) Structural and functional analysis of the ribosome landing pad of poliovirus type-2 - In vivo translation studies - *J. Virol.* **65**, 5886-5894
- Nicklin, M. J. H., K. S. Harris, P. V. Pallai & E. Wimmer (1988) Poliovirus proteinase 3C: Large-scale expression, purification, and specific cleavage activity on natural and synthetic substrates in vitro - *J. Virol.* **62**, 4586-4593
- Nicklin, M. J. H., H. G. Kräusslich, G. Toyoda & J. J. Dunn (1987) Poliovirus polypeptide precursors: Expression in vitro and processing by exogenous 3C and 2A proteinases - *Proc. Natl. Acad. Sci. USA* **84**, 4002-4006
- Niman, H. L., R. A. Houghten, L. E. Walker, R. A. Reisfeld, I. A. Wilson, J. M. Hogle & R. A. Lerner (1990) Generation of protein-reactive antibodies by short peptides is an event of high frequency: Implications for the structural basis of immune recognition - *Proc. Natl. Acad. Sci. USA* **80**, 4949-4953
- Ninomiya, Y., N. Shimma & H. Ishitsuka (1990) Comparative studies on the antirhinovirus activity and the mode of action of the rhinovirus capsid binding agents, chalcone amides - *Antivir. Res.* **13**, 61-74
- Nishio, O., J. Sumi, K. Sake, Y. Ishihara, S. Isomura & S. Inouye (1990) Fecal IgA antibody responses after oral poliovirus vaccination in infants and elder children - *Microbiol. Immunol.* **34**, 683-689
- Nobis, P., R. Zibire, G. Meyer, J. Kühne, G. Warnecke & G. Koch (1985) Production of a monoclonal antibody against an epitope on HeLa cells that is the functional poliovirus binding site - *J. Gen. Virol.* **66**, 2563-2569
- Nolan, O. & R. O'Kennedy (1990) Bifunctional antibodies: Concept, production and application - *Biochim. Biophys. Acta* **1040**, 1-11
- Nomoto, A. (1993) Recombinant polioviruses as candidates for oral live poliovaccines - *Microbiol. Immunol.* **37**, 169-174
- Nomoto, A., N. Iizuka, M. Kohara & M. Arita (1988) Strategy for construction of live picornavirus vaccines - *Vaccine* **6**, 134-137
- Nomoto, A., T. Omata, H. Toyoda, S. Kuge, H. Horie, Y. Kataoka, Y. Genba, Y. Nakano & N. Imura (1982) Complete nucleotide sequence of the attenuated poliovirus Sabin 1 strain genome - *Proc. Natl. Acad. Sci. USA* **79**, 5793-5797
- Nomoto, A. & E. Wimmer (1987) Genetic studies of the antigenicity and the attenuation phenotype of poliovirus - In: *Molecular basis of virus disease*, Herausg. Russell, W. C. & J. W. Almond, Cambridge University Press, S. 107-134
- Novak, J. E. & K. Kirkegaard (1991) Improved method for detecting poliovirus negative strands used to demonstrate specificity of positive-strand encapsidation and the ratio of positive to negative strands in infected cells - *J. Virol.* **65**, 3384-3387
- Novotny, J. (1991) Protein antigenicity: A thermodynamic approach - *Mol. Immunol.* **28**, 201-207
- Novotny, J. & K. Sharp (1992) Electrostatic fields in antibodies and antibody/antigen complexes - *Prog. Biophys. Mol. Biol.* **58**, 203-224
- O'Callaghan, D., A. Charbit, P. Martineau, C. Leclerc, S. van der Werf, C. Naucié & M. Hofnung (1990) Immunogenicity of foreign peptide epitopes expressed in bacterial envelope proteins - *Res. Microbiol.* **141**, 963-969
- O'Neill, R. & V. R. Racaniello (1989) Inhibition of translation in cells infected with a poliovirus 2Apro mutant correlates with phosphorylation of alpha subunit of eucaryotic initiation factor 2 - *J. Virol.* **63**, 5069-5075
- Oberste, M. S. & J. B. Flanagan (1988) Measurement of poliovirus RNA polymerase binding to poliovirion and non-viral RNAs using a filter-binding assay - *Nucl. Acids Res.* **16**, 10339-10352
- Ogra, P. L., H. S. Faden, R. Abraham, L. C. Duffy, M. Sun & P. D. Minor (1991) Effect of prior immunity on the shedding of virulent revertant virus in feces after oral immunization with live attenuated poliovirus vaccines - *J. Infect. Dis.* **164**, 191-194
- Oldstone, M. B. A. (1989) Viral persistence - *Cell* **56**, 517-520
- Ollier, P., J. Rocca-Serra, G. Somme, J. Theze & M. Fougeau (1985) The idiotype network and the internal image: Possible regulation of a germline network by paucigene encoded Ab2 (anti-idiotypic) antibodies in the GAT system - *EMBO J.* **4**, 3681-3688
- Olson, N. H., P. R. Kolatkar, M. A. Oliveira, R. H. Cheng, J. M. Greve, A. McClelland, T. S. Baker & M. G. Rossman (1993) Structure of a human rhinovirus complexed with its receptor molecule - *Proc. Natl. Acad. Sci. USA*

- 90, 507-511
- Omata, T., M. Kohara, S. Kuge, T. Komatsu, S. Abe, B. L. Semler, A. Kameda, H. Itoh, M. Arita, E. Wimmer & A. Nomoto (1986) Genetic analysis of the attenuation phenotype of poliovirus type 1 - *J. Virol.* **58**, 348-358
- Onodera, S., J. J. Cardamone & B. A. Phillips (1986) Biological activity and electron microscopy of poliovirus 14S particles obtained from alkali-dissociated procapsids - *J. Virol.* **58**, 610-618
- Onodera, S. & B. A. Phillips (1988) A novel method for obtaining poliovirus 14 S pentamers from procapsids and their self-assembly into virus-like shells - *Virology* **159**, 278-287
- Onorato, I. M., J. F. Modlin, A. M. Mcbean, M. L. Thoms, G. A. Losonsky & R. H. Bernier (1991) Mucosal immunity induced by enhanced-potency inactivated and oral polio vaccines - *J. Infect. Dis.* **163**, 1-6
- Ornoy, A., J. Arnon, M. Feingold & P. Ben Ishai (1990) Spontaneous abortions following oral poliovirus vaccination in first trimester - *Lancet* **I**, 800
- Ornoy, A. & P. Ben Ishai (1993) Congenital anomalies after oral poliovirus vaccination during pregnancy - *Lancet* **341**, 1162
- Outlaw, M. C. & N. J. Dimmock (1991) Insights into neutralization of animal viruses gained from study of influenza virus - *Epidemiol. Infect.* **106**, 205-220
- Page, G. S., A. G. Mosser, J. M. Hogle, D. J. Filman, R. R. Rueckert & M. Chow (1988) Three-dimensional structure of poliovirus serotype 1 neutralizing determinants - *J. Virol.* **2**, 1781-1794
- Pallai, P. V., F. Burkhardt, M. Skoog, K. Schreiner, P. Bax, K. A. Cohen, G. Hansen, D. E. H. Palladino, K. S. Harris, M. J. Nicklin & E. Wimmer (1989) Cleavage of synthetic peptides by purified poliovirus 3C proteinase - *J. Biol. Chem.* **264**, 9738-9741
- Palmenberg, A. (1987) A vaccine for the common cold? - *Nature* **329**, 668-669
- Pangonis, W. J., W. Heller & A. Jacobson (1957) Tables of light scattering functions for spherical particles - Wayne State University Press, Detroit ,
- Parker, J. M. R., D. Guo & R. S. Hodges (1986) New hydrophilicity scale derived from high-performance liquid chromatography peptide retention data: Correlation of predicted surface residues with antigenicity and X-ray-derived accessible sites - *Biochemistry* **25**, 5425-5432
- Parvin, J. D., A. Moscona, W. T. Pan, J. M. Leider & P. Palese (1986) Measurement of the mutation rates of animal viruses: Influenza A virus and poliovirus type 1 - *J. Virol.* **59**, 377-383
- Patel, V., M. Ferguson & P. D. Minor (1993) Antigenic sites on type 2 poliovirus - *Virology* **192**, 361-364
- Patriarca, P. A., F. Laender, G. Palmeira, M. J. Couto Oliveira, J. Lima Filho, M. C. de Souza Dantes, M. Tenorio Cordeiro, J. B. Risi & W. A. Orenstein (1988) Randomized trial of alternative formulations of oral poliovaccine in Brazil - *Lancet* **I**, 429-432
- Patriarca, P. A., P. F. Wright & T. J. John (1991) Factors affecting the immunogenicity of oral poliovirus vaccine in developing countries - Review - *Rev. Infect. Dis.* **13**, 926-939
- Paul, A. V., A. Schultz, S. E. Pincus, S. Oroszlan & E. Wimmer (1987) Capsid protein VP4 of poliovirus is N-myristoylated - *Proc. Natl. Acad. Sci. USA* **84**, 7827-7831
- Payment, P., M. Trudel, L. Thibodeau & J. Lecomte (1989) Production and characterization of neutralizing monoclonal antibodies against poliovirus type 1, 2, and 3 - *Can. J. Microbiol.* **35**, 550-553
- Pearson, W. & D. J. Lipman (1988) Improved tools for biological sequence comparison - *Proc. Natl. Acad. Sci. USA* **85**, 2444-2448
- Pellequer, J. L., E. Westhof & M. H. V. van Regenmortel (1991) Predicting location of continuous epitopes in proteins from their primary structures - In: *Molecular design and modeling : Concepts and applications, Methods in Enzymology* **203**, S. 176-201
- Pelletier, I., T. Couderc, S. Borzakian, E. Wyckoff, R. Crainic, E. Ehrenfeld & F. Colbère-Garapin (1991) Characterization of persistent poliovirus mutants selected in human neuroblastoma cells - *Virology* **180**, 729-737
- Pelletier, J., M. E. Flynn, G. Kaplan, V. Racaniello & N. Sonenberg (1988a) Mutational analysis of upstream AUG codons of poliovirus RNA - *J. Virol.* **62**, 4486-4492
- Pelletier, J., G. Kaplan, V. R. Racaniello & N. Sonenberg (1988b) Translational efficiency of poliovirus mRNA: Mapping inhibitory cis-acting elements within the 5' non-coding region - *J. Virol.* **62**, 2219-2227
- Pelletier, J. & N. Sonenberg (1989) Internal binding of eukaryotic ribosomes on poliovirus RNA: Translation in HeLa cell extracts - *J. Virol.* **63**, 441-444
- Percy, N., W. S. Barclay, M. Sullivan & J. W. Almond (1992) A poliovirus replicon containing the chloramphenicol acetyltransferase gene can be used to study the replication and encapsidation of poliovirus RNA - *J. Virol.* **66**, 5040-5046
- Pérez, L. & L. Carrasco (1993) Entry of poliovirus into cells does not require a low-pH step - *J. Virol.* **67**, 4543-4548
- Pestova, T. V., C. U. T. Hellen & E. Wimmer (1991) Translation of poliovirus RNA - Role of an essential cis-acting oligopyrimidine element within the 5' nontranslated region and involvement of a cellular 57-kilodalton protein - *J. Virol.* **65**, 6194-6204
- Pestova, T. V., S. V. Maslova, V. K. Potapov & V. I. Agol (1989) Distinct modes of poliovirus polyprotein initiation in vitro - *Virus Res.* **14**, 107-118
- Petersen, N. O. (1986a) Scanning fluorescence correlation spectroscopy - 1. Theory and simulation of aggregation measurements *Biophys. J.* **49**, 809-815
- Petersen, N. O. (1986b) Scanning fluorescence correlation spectroscopy - 2. Application to virus glycoprotein aggregation *Biophys. J.* **49**, 817-820
- Pettit, C., L. L. Minnich, Z. S. Shehab & C. G. Ray (1987) Comparison between indirect immunofluorescence and microneutralization for detection of antibodies to polioviruses - *J. Clin. Microbiol.* **25**, 1325-1326
- Pfister, T., L. Pasamontes, M. Troxler, D. Egger & K. Bienz (1992) Immunocytochemical localization of capsid-related particles in subcellular fractions of poliovirus-infected cells - *Virology* **188**, 676-684
- Phillips, B. A. & A. Emmert (1986) Modulation of the expression of poliovirus proteins in reticulocyte lysates - *Vi-*

- rology **148**, 255-267
- Pilipenko, E. V., V. M. Blinov & V. I. Agol (1990) Gross rearrangements within the 5'-untranslated region of the picornaviral genomes - *Nucl. Acids Res.* **18**, 3371-3375
- Pilipenko, E. V., V. M. Blinov, L. I. Romanova, A. N. Sinyakov, S. V. Maslova & V. I. Agol (1989) Conserved structural domains in the 5'-untranslated region of picornaviral genomes: An analysis of the segment controlling translation and neurovirulence - *Virology* **168**, 201-209
- Pilipenko, E. V., A. P. Gmyl, S. V. Maslova, Y. V. Svitkin, A. N. Sinyakov & V. I. Agol (1992a) Prokaryotic-like cis elements in the cap-independent internal initiation of translation on picornavirus RNA - *Cell* **68**, 119-131
- Pilipenko, E. V., S. V. Maslova, A. N. Sinyakov & V. I. Agol (1992b) Towards identification of cis-acting elements involved in the replication of enterovirus and rhinovirus RNAs - A proposal for the existence of tert-RNA-like terminal structures - *Nucl. Acids Res.* **20**, 1739-1745
- Pincus, S. E., D. C. Diamond, E. A. Emini & E. Wimmer (1986) Guanidine-selected mutants of poliovirus: Mapping of point mutations to polypeptide 2C - *J. Virol.* **57**, 638-646
- Pincus, S. E., H. Rohl & E. Wimmer (1987) Guanidine-dependent mutants of poliovirus: Identification of three classes with different growth requirements - *Virology* **157**, 83-88
- Plotch, S. J., O. Palant & Y. Gluzman (1989) Purification and properties of poliovirus RNA polymerase expressed in *Escherichia coli* - *J. Virol.* **63**, 216-225
- Pohl, H. E. W., J. Hock & W. Müller-Esterl (1988) Plaque-lift testing of expression vector lambda $\text{gt}11$ with gold-labeled immunoglobulins - *Anal. Biochem.* **175**, 414-421
- Poljak, R. J. (1991) Structure of antibodies and their complexes with antigens - *Mol. Immunol.* **28**, 1341-1345
- Pollard, S. R., G. Dunn, N. Cammack, P. D. Minor & J. W. Almond (1989) Nucleotide sequence of a neurovirulent variant of the type 2 oral poliovirus vaccine - *J. Virol.* **63**, 4949-4951
- Porath, J., T. Laas & J.-C. Janson (1975) Agar derivatives for chromatography, electrophoresis and gel-bound enzymes - Rigid agarose gels cross-linked with divinyl sulphone (DVS) - *J. Chromatogr.* **103**, 49-62
- Pöyry, T., L. Kinnunen, J. Kapsenberg, O. Kew & T. Hovi (1990) Type-3-poliovirus/Finland/1984 is genetically related to common mediterranean strains - *J. Gen. Virol.* **71**, 2535-2541
- Pöyry, T., L. Kinnunen & T. Hovi (1989) Restricted variability of a 17 nucleotide stretch within the 5'-noncoding region of poliovirus genome - *Epidemiol. Infect.* **103**, 671-683
- Pöyry, T., L. Kinnunen & T. Hovi (1992) Genetic variation in vivo and proposed functional domains of the 5'noncoding region of poliovirus RNA - *J. Virol.* **66**, 5313-5319
- Puglisi, J. D., J. R. Wyatt & I. Tinoco (1991) RNA pseudoknots - *Acc. Chem. Res.* **24**, 152-158
- Putnak, J. R. & B. A. Phillips (1982) Poliovirus empty capsid morphogenesis: Evidence for conformational differences between self- and extract-assembled empty capsids - *J. Virol.* **41**, 792-800
- Querfurth, H. & P. Swanson (1990) Vaccine-associated para-lytic poliomyelitis - *Arch. Neurol.* **47**, 541-544
- Qureshi, G. A., L. Fohlin & J. Bergström (1984) Application of high-performance liquid chromatography to the determination of free amino acids in physiological fluids - *J. Chromatogr.* **297**, 91-100
- Racaniello, V. R. (1986) Viral sequences required for neurovirulence of poliovirus - *BioEssays* **5**, 266-270
- Racaniello, V. R. & D. Baltimore (1981a) Molecular cloning of poliovirus cDNA and determination of the complete nucleotide sequence of the viral genome - *Proc. Natl. Acad. Sci. USA* **78**, 4887-4891
- Racaniello, V. R. & D. Baltimore (1981b) Cloned poliovirus complementary DNA is infectious in mammalian cells - *Science* **214**, 916-919
- Ramlow, J., M. Alexander, R. La Porte, C. Kaufmann & L. Kuller (1992) Epidemiology of the post-polio syndrome - *Am. J. Epidemiol.* **136**, 769-786
- Ransone, L. J. & A. Dasgupta (1987) Activation of double-stranded RNA - Activated protein kinase in HeLa cells after poliovirus infection does not result in increased phosphorylation of eucaryotic initiation factor-2 - *J. Virol.* **61**, 1781-1787
- Ransone, L. J. & A. Dasgupta (1989) Multiple isoelectric forms of poliovirus RNA-dependent RNA polymerase: Evidence for phosphorylation - *J. Virol.* **63**, 4563-4568
- Rao, A. (1991) Signaling mechanisms in T-cells - *Crit. Rev. Immunol.* **10**, 495-519
- Rapp, F. & J. M. Cory (1988) Mechanisms of persistence in human virus infections - *Microb. Pathog.* **4**, 85-92
- Rashin, A. A., M. Iofin & B. Honig (1986) Internal cavities and buried waters in globular proteins - *Biochemistry* **25**, 3619-3625
- Raymond, C. A. (1986) Decades after polio epidemics, survivors report new symptoms - *J. Amer. Med. Ass.* **255**,
- Reimann, B. Y., R. Zell & R. Kandolf (1991) Mapping of a neutralizing antigenic site of coxsackievirus-B4 by construction of an antigen chimera - *J. Virol.* **65**, 3475-3480
- Reincke, H. & K. R. Nelson (1990) Duchenne de Boulogne: Electrodagnosis of poliomyelitis - *Muscle & Nerve* **13**, 56-62
- Ren, G., T. En-Hua, W. Hong, Y. Xiao-Feng, L. Ming-Ying, Q. Hong-Xing, L. Qi-Han, Z. Jun-Ying & L. Kai-Ming (1987) Preliminary studies on antigenic variation of poliovirus using neutralizing monoclonal antibodies - *J. Gen. Virol.* **68**, 989-994
- Ren, R., F. Costantini, E. J. Gorgacz, J. J. Lee & V. R. Racaniello (1990) Transgenic mice expressing a human poliovirus receptor: A new model for poliomyelitis - *Cell* **63**, 353-362
- Ren, R. & V. R. Racaniello (1992) Human poliovirus receptor gene expression and poliovirus tissue tropism in transgenic mice - *J. Virol.* **66**, 296-304
- Reuer, Q., R. J. Kuhn & E. Wimmer (1990) Characterization of poliovirus clones containing lethal and nonlethal mutations in the genome-linked protein VPg - *J. Virol.* **64**, 2967-2975
- Revzin, A., E. Neumann & A. Katchalsky (1973) Metastable secondary structures in ribosomal RNA - Molecular hysteresis in the acid-base titration of *Escherichia coli* riboso-

- mal RNA - *J. Mol. Biol.* **79**, 95-114
- Reynolds, C., D. Birnby & M. Chow (1992) Folding and processing of the capsid protein precursor P1 is kinetically retarded in neutralization site 3B mutants of poliovirus - *J. Virol.* **66**, 1641-1648
- Reynolds, C., G. Page, H. Zhou & M. Chow (1991) Identification of residues in VP2 that contribute to poliovirus neutralization antigenic site 3B - *Virology* **184**, 391-396
- Richards, O. C., L. A. Ivanoff, K. Bienkowska-Szewczyk, B. Butt, S. R. Petteway, M. A. Rothstein & E. Ehrenfeld (1987) Formation of poliovirus RNA polymerase 3D in *Escherichia coli* by cleavage of fusion proteins expressed from cloned viral cDNA - *Virology* **161**, 348-356
- Richards, O. C., P. Yu, K. L. Neufeld & E. Ehrenfeld (1992) Nucleotide binding by the poliovirus RNA polymerase - *J. Biol. Chem.* **267**, 17141-17146
- Richardson, J. S., E. D. Getzoff & D. C. Richardson (1978) The beta-bulge: a common small unit of nonrepetitive protein structure - *Proc. Natl. Acad. Sci. USA* **75**, 2574-2578
- Rico-Hesse, R., M. A. Pallansch, B. K. Notay & O. M. Kew (1987) Geographic distribution of wild poliovirus type 1 genotypes - *Virology* **160**, 311-322
- Roberts, L. (1988) Change in polio strategy? - *Science* **240**, 1145
- Rodriguez, P. L. & L. Carrasco (1992) Gliotoxin: Inhibitor of poliovirus RNA synthesis that blocks the viral RNA polymerase 3D^{Pol} - *J. Virol.* **66**, 1971-1976
- Rodriguez, P. L. & L. Carrasco (1993) Poliovirus protein-2C has ATPase and GTPase activities - *J. Biol. Chem.* **268**, 8105-8110
- Rodriquez, A. A. & J. C. Agre (1991) Correlation of motor units with strength and spectral characteristics in polio survivors and controls - *Muscle & Nerve* **14**, 429-434
- Rovainen, M. & T. Hovi (1987) Intestinal trypsin can significantly modify antigenic properties of poliovirus: Implications for use of inactivated poliovirus vaccine - *J. Virol.* **61**, 3749-3753
- Rovainen, M. & T. Hovi (1988) Cleavage of VP1 and modification of antigenic site 1 of type 2 polioviruses by intestinal trypsin - *J. Virol.* **62**, 3536-
- Rovainen, M., B. Montagnon, H. Chalumeau, M. Murray, E. Wimmer & T. Hovi (1990) Improved distribution of antigenic site specificity of poliovirus-neutralizing antibodies induced by a protease-cleaved immunogen in mice - *J. Virol.* **64**, 559-562
- Rovainen, M., A. Narvanen, M. Korkolainen, M. L. Huhtala & T. Hovi (1991) Antigenic regions of poliovirus type-3/Sabin capsid proteins recognized by human sera in the peptide scanning technique - *Virology* **180**, 99-107
- Rombaut, B., K. Andries & A. Boeyé (1991a) A comparison of WIN-51711 and R-78206 as stabilizers of poliovirus virions and procapsids - *J. Gen. Virol.* **72**, 2153-2157
- Rombaut, B. & A. Boeyé (1991) Invitro assembly of poliovirus-14-S subunits - Disoxaril stabilization as a model for the antigenicity conferring activity of infected cell extracts - *Virology* **180**, 788-792
- Rombaut, B., A. Boeyé, M. Ferguson, P. D. Minor, A. Mosser & R. Rueckert (1990) Creation of an antigenic site in poliovirus type 1 by assembly of 14 S subunits - *Virology* **174**, 305-307
- Rombaut, B., P. Brion & A. Boeyé (1990a) Disoxaril stabilization and immunogenicity of poliovirus procapsids - *J. Gen. Virol.* **71**, 1081-1086
- Rombaut, B., A. Foriers & A. Boeyé (1990b) Purification of poliovirus 14-S subunits by sucrose gradient ultracentrifugation and high-performance size-exclusion chromatography - *J. Virol. Meth.* **29**, 303-312
- Rombaut, B., A. Foriers & A. Boeyé (1991b) In vitro assembly of poliovirus-14-S subunits - Identification of the assembly promoting activity of infected cell extracts - *Virology* **180**, 781-787
- Rombaut, B., R. Vrijen & A. Boeyé (1984) In vitro assembly of poliovirus empty capsids: Antigenic consequences and immunological assay of the morphopoietic factor - *Virology* **135**, 546-550
- Rombaut, B., R. Vrijen & A. Boeyé (1986) Assembly factors in poliovirus morphogenesis - *Virology* **153**, 137-144
- Rombaut, B., R. Vrijen & A. Boeyé (1987) A pH-dependent dissociation of poliovirus procapsids - *Virology* **157**, 245-247
- Rombaut, B., R. Vrijen & A. Boeyé (1989) Denaturation of poliovirus procapsids - *Arch. Virol.* **106**, 213-220
- Rombaut, B., R. Vrijen, P. Brion & A. Boeyé (1982b) A pH-dependent antigenic conversion of empty capsids of poliovirus studied with the aid of monoclonal antibodies to N and H antigen - *Virology* **122**, 215-218
- Rosenberg, L. T. & V. V. Hamparian (1992) Immune responses in the post-polio syndrome - Reply - *N. Engl. J. Med.* **326**, 640-641
- Rossmann, M. G. (1988) Antiviral agents targeted to interact with viral capsid proteins and a possible application to human immunodeficiency virus - *Proc. Natl. Acad. Sci. USA* **85**, 4625-4627
- Rossmann, M. G. (1989a) The structure of antiviral agents that inhibit uncoating when complexed with viral capsids - *Antivir. Res.* **11**, 3-14
- Rossmann, M. G. (1989b) The canyon hypothesis - *J. Biol. Chem.* **264**, 14587-14590
- Rossmann, M. G., E. Arnold, J. W. Erickson, E. A. Frankenberger, J. P. Griffith, H.-J. Hecht, J. E. Johnson, G. Kamer, M. Luo, A. G. Mosser, R. R. Rueckert, B. Sherry & G. Vriend (1985) Structure of a human common cold virus and functional relationship to other picornaviruses - *Nature* **317**, 145-153
- Rossmann, M. G. & J. E. Johnson (1989) Icosahedral RNA virus structure - *Annu. Rev. Biochem.* **58**, 533-573
- Rossmann, M. G. & M. A. McKinlay (1992) Application of crystallography to the design of antiviral agents - *Infectious Agents and Disease - Reviews Issues and Commentary* **1**, 3-10
- Rossmann, M. G. & A. C. Palmenberg (1988) Conservation of the putative receptor attachment site in picornaviruses - *Virology* **164**, 373-382
- Rossmann, M. G. & R. R. Rueckert (1987) What does the molecular structure of viruses tell us about viral functions? - *Microbiol. Sci.* **4**, 206-214
- Rotbart, H. A. (1991) Nucleic acid detection systems for enteroviruses - *Clin. Microbiol. Rev.* **4**, 156-168

- Roth, M. (1971) Fluorescence reaction for amino acids - *Anal. Chem.* **43**, 880-882
- Rothbard, J. B. & W. R. Taylor (1988) A sequence pattern common to T cell epitopes - *EMBO J.* **7**, 93-100
- Rothstein, M. A., O. C. Richards, C. Amin & E. Ehrenfeld (1988) Enzymatic activity of poliovirus RNA polymerase synthesized in *Escherichia coli* from viral cDNA - *Virology* **164**, 301-308
- Rubinstein, S. J., T. Hämmerle, E. Wimmer & A. Dasgupta (1992) Infection of HeLa cells with poliovirus results in modification of a complex that binds to the rRNA promoter - *J. Virol.* **66**, 3062-3068
- Rueckert, R. R. (1976) On the structure and morphogenesis of picornaviruses - In: *Comprehensive Virology*, Vol. 6, Herausg. Frankel-Conrat, H., Wagner, R.R., Plenum Press New York, S. 131-213
- Rueckert, R. R. (1985) Picornaviruses and their replication - In: *Virology*, Herausg. Fields, B. N., Raven Press New York, S. 705-738
- Sabin, A. B. (1986) Strategy for rapid elimination and continuing control of poliomyelitis and other vaccine preventable diseases of children in developing countries - *Br. Med. J.* **292**, 531-533
- Sabin, A. B. (1991) Perspectives on rapid elimination and ultimate global eradication of paralytic poliomyelitis caused by polioviruses - *Eur. J. Epidemiol.* **7**, 95-120
- Salk, D. (1988) Polio immunization policy in the United States: A new challenge for a new generation - *Am. J. Public Health* **78**, 296-300
- Salk, J. (1990) Are booster doses of poliovirus vaccine necessary? - *Vaccine* **8**, 419-420
- Samuel, R., V. Balraj & T. J. John (1993) Persisting poliomyelitis after high coverage with oral poliovaccine - *Lancet* **341**, 903
- Sanekata, T., M. Arita, A. Kawamoto & A. F. Magnusen (1992) Reverse passive haemagglutination test for identification and serotyping of polioviruses - *Lancet* **340**, 1297-1298
- Saragovi, H. U., D. Fitzpatrick, A. Raktabutr, H. Nakanishi, M. Kahn & M. J. Greene (1991) Design and synthesis of a mimetic from an antibody complementarity-determining region - *Science* **253**, 792-795
- Sarnow, P. (1989) Role of 3'-end sequences in infectivity of poliovirus transcripts made in vitro - *J. Virol.* **63**, 467-470
- Sarnow, P., H. D. Bernstein & D. Baltimore (1986) A poliovirus temperature-sensitive RNA synthesis mutant located in a noncoding region of the genome - *Proc. Natl. Acad. Sci. USA* **83**, 571-575
- Sarnow, P., S. J. Jackson & L. Najita (1990) Poliovirus genetics - *Curr. Top. Microbiol. Immunol.* **161**, 155-188
- Satterthwait, A. C., T. Arrhenius, R. A. Hagopian, F. Zavala, V. Nussenzweig & R. A. Lerner (1989) The conformational restriction of synthetic peptides, including a malaria peptide, for use as immunogens - *Phil. Trans. Roy. Soc. London B* **323**, 565-572
- Savithri, H. S., S. Suryanarayana & M. R. N. Murthy (1989) Structure-function relationships of icosahedral plant viruses - *Arch. Virol.* **109**, 153-172
- Scheper, G. C., H. O. Voorma & A. A. M. Thomas (1992) Eukaryotic initiation factor-4E and factor-4F stimulate 5' cap-dependent as well as internal initiation of protein synthesis - *J. Biol. Chem.* **267**, 7269-7274
- Schimmel, P. (1989) RNA pseudoknots that interact with components of the translation apparatus - *Cell* **58**, 9-12
- Schmidt, B. F., B. Berkhouit, G. P. Overbeek & A. van Strien van Duin, J. (1987) Determination of the RNA secondary structure that regulates lysis gene expression in Bacteriophage MS2 - *J. Mol. Biol.* **195**, 505-516
- Schneider, R. J. & T. Shenk (1987) Impact of virus infection on host cell protein synthesis - *Annu. Rev. Biochem.* **56**, 317-332
- Schnittger, L. (1990) Untersuchungen über die Ausbildung antigener Strukturen während der Poliovirus-Morphogenese. Diplomarbeit Universität Hamburg, FB Biologie
- Schoftissek, C. & E. Naylor (1988) Fish farming and influenza pandemics - *Nature* **331**, 215
- Schoub, B. D., S. Johnson, J. McAnerney, L. Gilbertson, K. I. M. Klaassen & S. G. Reinach (1988) Monovalent neonatal polio immunization - A strategy for the developing world - *J. Infect. Dis.* **157**, 836-839
- Schuler, G. D., S. F. Altschul & D. J. Lipman (1991) A workbench for multiple alignment construction and analysis - *Protein-Struct. Funct. Genet.* **9**, 180-190
- Schulz, G. E. (1988) A critical evaluation of methods for prediction of protein secondary structures - *Annu. Rev. Biophys. Biophys. Chem.* **17**, 1-21
- Schulz, M., R. M. Zinkernagel & H. Hengartner (1991) Peptide-induced antiviral protection by cytotoxic T-cells - *Proc. Natl. Acad. Sci. USA* **88**, 991-993
- Schumaker, V. N., D. C. Hanson, C. A. Smith, P. H. Poon & M. L. Phillips (1984) The role of segmental flexibility in the immune response - In: *Multidomain Proteins, Proceedings of the UNESCO Workshop on Structure and Function of Proteins*, Herausg. Patthy, L. & P. Friedrich Budapest, S. 133-155
- Schumaker, V. N., M. L. Phillips & D. C. Hanson (1991) Dynamic aspects of antibody structure - *Mol. Immunol.* **28**, 1347-1360
- Schwabe, C. & J. C. Catlin (1989) Removal of a fluoram-positive impurity from hydrochloric acid - *Anal. Biochem.* **61**, 302-304
- Scott, J. K. & G. P. Smith (1990) Searching for peptide ligands with an epitope library - *Science* **249**, 386-390
- Selinka, H. C., A. Zibert & E. Wimmer (1991) Poliovirus can enter and infect mammalian cells by way of an intercellular adhesion molecule-1 pathway - *Proc. Natl. Acad. Sci. USA* **88**, 3598-3602
- Selinka, H. C., A. Zibert & E. Wimmer (1992) A chimeric poliovirus/CD4 receptor confers susceptibility to poliovirus on mouse cells - *J. Virol.* **66**, 2523-2526
- Selvakumar, R. & T. J. John (1989) Intestinal immunity to poliovirus develops only after repeated infections in monkeys - *J. Med. Virol.* **27**, 112-116
- Semler, B. L. & E. Ehrenfeld (1989) Molecular aspects of picornavirus infection and detection. American Society for Microbiology, Washington
- Semler, B. L., V. H. Johnson, P. G. Dewalt & M. F. Ypma-Wong (1987) Site-specific mutagenesis of cDNA clones

- expressing a poliovirus proteinase - *J. Cell. Biochem.* **33**, 39-51
- Sette, A., S. Buus, E. Appella, J. A. Smith, R. Chesnut, C. Miles, S. M. Colon & H. M. Grey (1989) Prediction of major histocompatibility complex binding regions of protein antigens by sequence pattern analysis - *Proc. Natl. Acad. Sci. USA* **86**, 3296-3300
- Sharief, M. K. (1992) Immune responses in the post-polio syndrome - Reply - *N. Engl. J. Med.* **326**, 642
- Sharief, M. K., M. Phil, R. Hentges & M. Ciardi (1991) Intrathecal immune response in patients with the post-polio syndrome - *N. Engl. J. Med.* **325**, 749-755
- Shepley, M. P., B. Sherry & H. L. Weiner (1988) Monoclonal antibody identification of a 100-kDa membrane protein in HeLa cells and human spinal cord involved in poliovirus attachment - *Proc. Natl. Acad. Sci. USA* **85**, 7743-7747
- Sheriff, S., E. W. Silverton, E. A. Padlan, G. H. Cohen, S. J. Smith-Gill, B. C. Finzel & D. R. Davies (1987) Three-dimensional structure of an antibody-antigen complex - *Proc. Natl. Acad. Sci. USA* **84**, 8075-8079
- Sibbald, P. R. & M. J. White (1987) How probable are antibody cross-reactions? - *J. theor. Biol.* **127**, 163-169
- Sicinski, P., J. Rowinski, J. B. Warchol, Z. Jarzabek, W. Gut, B. Szczygiel, K. Bielecki & G. Koch (1990) Poliovirus type 1 enters the human host through intestinal M cells - *Gastroenterology* **98**, 56-58
- Simoes, E. A. F. & T. J. John (1986) The antibody response of seronegative infants to inactivated poliovirus vaccine of enhanced potency - *J. Biol. Standardiz.* **14**, 127-131
- Simoes, E. A. F. & P. Sarnow (1991) An RNA hairpin at the extreme 5' end of the poliovirus RNA genome modulates viral translation in human cells - *J. Virol.* **65**, 913-921
- Simons, J., M. Kutubuddin & M. Chow (1993a) Characterization of poliovirus-specific T-lymphocytes in the peripheral blood of Sabin-vaccinated humans - *J. Virol.* **67**, 1262-1268
- Simons, J., A. Rogove, N. Moscufo, C. Reynolds & M. Chow (1993b) Efficient analysis of nonviable poliovirus capsid mutants - *J. Virol.* **67**, 1734-1738
- Singer, C., F. Knauert, G. Bushar, M. Klutch, R. Lundquist & G. V. Quinnan (1989) Quantitation of poliovirus antigens in inactivated viral vaccines by enzyme-linked immunosorbent assay using animal sera and monoclonal antibodies - *J. Biol. Standardiz.* **17**, 137-150
- Skern, T., H. Torgersen, H. Auer, E. Kuechler & D. Blaas (1991) Human rhinovirus mutants resistant to low pH - *Virology* **183**, 757-763
- Skinner, M. A., V. R. Racaniello, G. Dunn, J. Cooper, P. D. Minor & J. W. Almond (1989) New model for the secondary structure of the 5'non-coding RNA of poliovirus is supported by biochemical and genetic data that also show that RNA secondary structure is important in neurovirulence - *J. Mol. Biol.* **207**, 379-392
- Slater, P. E., W. A. Orenstein, A. Morag, A. Avni, R. Handsher, M. S. Green, C. Costin, A. Yarrow, S. Rishpon, O. Havkin, T. Ben-Zvi, O. M. Kew, M. Rey, I. Epstein, T. A. Swartz & J. L. Melnick (1990) Poliomyelitis outbreak in Israel in 1988: a report with two commentaries - *Lancet* **335**, 1192-1198
- Smith, C. E., P. R. Musich & D. A. Johnson (1989) Sodium dodecyl sulfate enhancement of quantitative immunoenzyme dot-blot assays on nitrocellulose - *Anal. Biochem.* **177**, 212-219
- Smith, D. B. & S. C. Inglis (1987) The mutation rate and variability of eukaryotic viruses: An analytical review - *J. Gen. Virol.* **68**, 2729-2740
- Smith, P. K., R. I. Krohn, G. T. Hermanson, A. K. Mallia, F. H. Gartner, M. D. Provenzano, E. K. Fujimoto, N. M. Goede, B. J. Olson & D. C. Klenk (1985) Measurement of protein using bicinchoninic acid - *Anal. Biochem.* **150**, 76-85
- Smith, T. J. & E. S. Chase (1992) Purification and crystallization of intact human rhinovirus complexed with a neutralizing Fab - *Virology* **191**, 600-606
- Smith, T. J., N. H. Olson, R. H. Cheng, H. S. Liu, E. S. Chase, W. M. Lee, D. M. Leippe, A. G. Mosser, R. R. Rueckert & T. S. Baker (1993) Structure of human rhinovirus complexed with Fab fragments from a neutralizing antibody - *J. Virol.* **67**, 1148-1158
- Sokhey, J., C. K. Gupta, B. Sharma & H. Singh (1988) Stability of oral polio vaccine at different temperatures - *Vaccine* **6**, 12-13
- Somerville, L. L. & K. Wang (1981) The ultrasensitive silver "protein" stain also detects nanograms of nucleic acids - *Biochem. Biophys. Res. Commun.* **102**, 53-58
- Sonenberg, N. & K. Meerovitch (1990) Translation of poliovirus messenger RNA - *Enzyme* **44**, 278-291
- Sonenberg, N. & J. Pelletier (1989) Poliovirus translation: A paradigm for a novel initiation mechanism - *BioEssays* **11**, 128-132
- Sonies, B. C. & M. C. Dalakas (1991) Dysphagia in patients with the post-polio syndrome - *N. Engl. J. Med.* **324**, 1162-1167
- Springer, T. A. (1990) Adhesion receptors of the immune system - *Nature* **346**, 425-434
- Srivastava, A. K. (1989) Stabilization of the attenuated poliovirus type 3 vaccine strain by sucrose - *Acta Virol.* **33**, 188-190
- Stanway, G. (1990) Structure, function and evolution of picornaviruses - *J. Gen. Virol.* **71**, 2483-2501
- Stanway, G., P. J. Hughes, R. C. Mountford, P. Reeve, P. D. Minor, G. C. Schild & J. W. Almond (1984) Comparison of the complete nucleotide sequences of the genomes of the neurovirulent poliovirus P3/Leon/37 and its attenuated Sabin vaccine derivative P3/Leon 12a1b - *Proc. Natl. Acad. Sci. USA* **81**, 1539-1543
- Stegmann, T., F. P. Booy & J. Wilschut (1987) Effects of low pH on influenza virus - *J. Biol. Chem.* **262**, 17744-17749
- Steinhauer, D. A. & J. J. Holland (1987) Rapid evolution of RNA viruses - *Annu. Rev. Microbiol.* **41**, 409-433
- Steitz, T. A. (1990) Structural studies of protein - nucleic acid interaction: The sources of sequence-specific binding - *Quart. Rev. Biophys.* **23**, 205-280
- Stille, C. J., L. J. Thomas, V. E. Reyes & R. E. Humphreys (1987) Hydrophobic strip-of-helix algorithm for selection of T cell-presented peptides - *Mol. Immunol.* **24**, 1021-1027
- Strauss, J. H. & E. G. Strauss (1988) Evolution of RNA viruses - *Annu. Rev. Microbiol.* **42**, 657-683

- Sun, X.-H. & D. Baltimore (1989) Human immunodeficiency virus tat-activated expression of poliovirus protein 2A inhibits mRNA translation - *Proc. Natl. Acad. Sci. USA* **86**, 2143-2146
- Sutherland, M. W. & J. H. Skerritt (1986) Alkali enhancement of protein staining on nitrocellulose - *Electrophoresis* **7**, 401-407
- Sutter, R. W., E. W. Brink, S. L. Cochi, O. M. Kew, W. A. Orenstein, R. J. Biellik & A. R. Hinman (1989) A new epidemiologic and laboratory classification system for paralytic poliomyelitis cases - *Am. J. Public Health* **79**, 495-498
- Sutter, R. W., P. A. Patriarca, S. Brogan, P. G. Malankar, M. A. Pallansch, O. M. Kew, A. G. Bass, S. L. Cochi, J. P. Alexander, D. B. Hall, A. J. M. Suleiman, A. A. K. Alghassany & M. S. Elbualy (1991) Outbreak of paralytic poliomyelitis in Oman - Evidence for widespread transmission among fully vaccinated children - *Lancet* **338**, 715-720
- Svitkin, Y., N. Cammack, P. D. Minor & J. W. Almond (1990) Translation deficiency of the Sabin type 3 poliovirus genome: Association with an attenuating mutation C₄₇₂ to U - *Virology* **175**, 103-109
- Svitkin, Y. V., S. V. Maslova & V. I. Agol (1985) The genomes of attenuated and virulent poliovirus strains differ in their in vitro efficiencies - *Virology* **147**, 243-252
- Svitkin, Y. V., T. V. Pestova, S. V. Maslova & V. I. Agol (1988) Point mutations modify the response of poliovirus RNA to a translation initiation factor: A comparison of neurovirulent and attenuated strains - *Virology* **166**, 394-404
- Swartz, T. A., R. Handsher, P. Stoeckel, J. Drucker, P. Caudrelier, A. L. van Wezel, H. Cohen, D. Salk & J. Salk (1989) Immunologic memory induced at birth by immunization with inactivated polio vaccine in a reduced schedule - *Eur. J. Epidemiol.* **5**, 143-145
- Takahara, Y., N. Ando, M. Kohara, K. Hagino-Yamagishi, A. Nomoto, H. Itoh, N. Numao & K. Kondo (1989) Purification of enzymatically active poliovirus proteinase 3C produced in Escherichia coli - *Gene* **79**, 249-258
- Takeda, N., R. J. Kuhn, C.-F. Yang, T. Takegami & E. Wimmer (1986) Initiation of poliovirus plus-strand RNA synthesis in a membrane complex of infected HeLa cells - *J. Virol.* **60**, 43-53
- Takeda, N., C.-F. Yang, R. J. Kuhn & E. Wimmer (1987) Uridylation of the genome-linked protein of poliovirus in vitro is dependent upon an endogenous RNA template - *Virus Res.* **8**, 193-204
- Taniguchi, K. & S. Urasawa (1987) Different virus-precipitating activities of monoclonal antibodies that recognize distinct sites of poliovirus particles - *Arch. Virol.* **92**, 27-40
- Tardy-Panit, M., B. Blondel, A. Martin, F. Tekaia, F. Horaud & F. Delpeyroux (1993) A mutation in the RNA polymerase of poliovirus type 1 contributes to attenuation in mice - *J. Virol.* **67**, 4630-4638
- Tartaglia, J. & E. Paoletti (1990) Live Recombinant Viral Vaccines - The basis for serodiagnosis and vaccines. - In: *Immunochemistry of viruses*, II., Herausg. van Regenmortel, M. H. V. & A. R. Neurath, Elsevier, S. 125-151
- Tatem, J. M., C. Weekslevy, A. Georgiu, S. J. Dimichele, E. J. Gorgacz, V. R. Racaniello, F. R. Cano & S. J. Mento (1992) A mutation present in the amino terminus of Sabin 3 poliovirus VP1 protein is attenuating - *J. Virol.* **66**, 3194-3197
- Tatem, J. M., C. Weekslevy, S. J. Mento, S. J. DiMichele, A. Georgiu, W. F. Waterfield, B. Sheip, C. Costalas, T. Davies, M. B. Ritchey & F. R. Cano (1991) Oral poliovirus vaccine in the United States - Molecular characterization of Sabin type 3 after replication in the gut of vaccinees - *J. Med. Virol.* **35**, 101-109
- Tershak, D. R. (1985) Effect of temperature on growth of guanidine-resistant mutants of poliovirus - *Can. J. Microbiol.* **31**, 1166-1168
- Tershak, D. R. & R. Makkar (1988) Attachment, uncoating and blockage of cell protein synthesis by Sabin derivatives of poliovirus in HeLa and Vero cells - *Intervirology* **29**, 292-300
- Tessmer, U. & R. Dernick (1987) Isoelektrische Focussierung von Poliovirus-Partikeln in Saccharose-Gradienten - In: *Electrophorese-Forum 1987*, Herausg. Radola, B. J., Technische Universität München, S. 329-335
- Tessmer, U. & R. Dernick (1989) Preparative separation of poliovirus structural polypeptides by sodium dodecyl sulfate polyacrylamide gel electrophoresis, copper staining and electroelution, and induction of monospecific antisera - *Electrophoresis* **10**, 277-279
- Tessmer, U. & R. Dernick (1990) Poliovirus production in HeLa cells propagated by continuous flow culture in a cell fermentor - In: *Dechema Biotechnology Conferences*, Vol.4, Part A, Herausg. Behrens, D. & P. Krämer, Dechema Frankfurt/Main, S. 147-150
- Thean, E. T. & B. H. Toh (1989) Western immunoblotting: Temperature-dependent reduction in background staining - *Anal. Biochem.* **177**, 256-258
- Thomas, A. A. M., P. Brion & A. Boeyé (1985) A monoclonal antibody that neutralizes poliovirus by cross-linking virions - *J. Virol.* **54**, 7-13
- Thomas, A. A. M., R. Vrijen & A. Boeyé (1986) Relationship between poliovirus neutralization and aggregation - *J. Virol.* **59**, 479-485
- Tinoco, I., P. W. Davis, C. C. Hardin, J. D. Puglisi, G. T. Walker & J. Wyatt (1987) RNA structure from A to Z - *Cold Spring Harbor Symp. Quant. Biol.* **LII**, 135-146
- Tolskaya, E. A., T. A. Ivannikova, M. S. Kolesnikova, S. G. Drozdov & V. I. Agol (1992) Postinfection treatment with antiviral serum results in survival of neural cells productively infected with virulent poliovirus - *J. Virol.* **66**, 5152-5156
- Tormo, J., E. Stadler, T. Skern, H. Auer, O. Kanzler, C. Betzel, D. Blaas & I. Fita (1992) 3-Dimensional structure of the Fab fragment of a neutralizing antibody to human rhinovirus serotype-2 - *Protein Science* **1**, 1154-1161
- Tovey, E. R., S. A. Ford & B. A. Baldo (1982) Enhanced immunodetection of blotted house dust mite protein allergens on nitrocellulose following blocking with Tween 20 - *Electrophoresis* **10**, 243-249
- Toyoda, H., K. Michinori, Y. Kataoka, T. Suganama, T. Omata, N. Imura & A. Nomoto (1984) Complete nucleotide sequence of all three poliovirus serotype genomes: Implications for genetic relationship, gene function, and

- antigenic determinants. - *J. Mol. Biol.* **174**, 561-585
- Toyoda, H., M. J. H. Nicklin, M. G. Murray, C. W. Anderson, J. J. Dunn, F. W. Studier & E. Wimmer (1986) A second virus-encoded proteinase involved in proteolytic processing of poliovirus polyprotein - *Cell* **45**, 761-770
- Toyoda, H., C.-F. Yang, N. Takeda, A. Nomoto & E. Wimmer (1987) Analysis of RNA synthesis of type 1 poliovirus by using an in vitro molecular genetic approach - *J. Virol.* **61**, 2816-2822
- Tribbick, G., B. Triantafyllou, R. Lauricella, S. J. Rodda, T. J. Mason & H. M. Geysen (1991) Systematic fractionation of serum antibodies using multiple antigen homologous peptides as affinity ligands - *J. Immunol. Method.* **139**, 155-166
- Trono, D., P. Andino & D. Baltimore (1988a) An RNA sequence of hundreds of nucleotides at the 5' end of poliovirus RNA is involved in allowing viral protein synthesis - *J. Virol.* **62**, 2291-2299
- Trono, D., J. Pelletier, N. Sonenberg & D. Baltimore (1988b) Translation in mammalian cells of a gene linked to the poliovirus 5' noncoding region - *Science* **241**, 445-448
- Troxler, M., D. Egger, T. Pfister & K. Bienz (1992) Intracellular localization of poliovirus RNA by in situ hybridization at the ultrastructural level using single-stranded riboprobes - *Virology* **191**, 687-697
- Tsilimigras, C. W. A., E. Rossouw & B. D. Schoub (1989) Outbreak of poliomyelitis in South Africa investigated by oligonucleotide mapping - *J. Med. Virol.* **28**, 52-56
- Tucker, S. P., C. L. Thornton, E. Wimmer & R. W. Compans (1993) Bidirectional entry of poliovirus into polarized epithelial cells - *J. Virol.* **67**, 29-38
- Tulchinsky, T., Y. Abed, S. Shaheen, N. Toubassi, Y. Sever, M. Schoenbaum & R. Handsher (1989) A ten-year experience in control of poliomyelitis through a combination of live and killed vaccines in two developing areas - *Am. J. Public Health* **79**, 1648-1652
- Turner, D. H. & N. Sugimoto (1988) RNA structure prediction - *Annu. Rev. Biophys. Chem.* **17**, 167-192
- Turner, P. C., D. C. Young, J. B. Flanagan & R. W. Moyer (1989) Interference with vaccinia virus growth caused by insertion of the coding sequence for poliovirus protease 2A - *Virology* **173**, 509-521
- Uhlenbeck, O. C., H.-N. Wu & J. R. Sampson (1987) Recognition of RNA by protein - In: *Molecular biology of RNA: New perspectives*, Herausg. Inouye, M. & B. S. Dudock, Academic Press, Inc., S. 285-294
- Uhlig, H. (1986) Charakterisierung viraler Antigene mit Hilfe monoklonaler Antikörper am Beispiel des Poliovirus. Dissertation Universität Hamburg
- Uhlig, H. & R.-Dernick (1988a) Intertypic cross-neutralization of polioviruses by human monoclonal antibodies - *Virology* **163**, 214-217
- Uhlig, H. & R.-Dernick (1988b) Different specificities of murin and human monoclonal antibodies against poliovirus type 1 - *Zbl. Bakt. Hyg. A* **268**, 130
- Uhlig, H., F. Haardt & R. Dernick (1985) Binding of neutralizing monoclonal antibodies to empty capsids of poliovirus can be blocked by monospecific antisera to structural polypeptides VP1 and VP2 - *Arch. Virol.* **83**, 295-303
- Uhlig, H., G. Rutter & R. Dernick (1983) Evidence for several unrelated neutralization epitopes of poliovirus type 1, strain Mahoney, provided by neutralization tests and quantitative enzyme-linked immunosorbent assay (ELISA) - *J. Gen. Virol.* **64**, 2809-2812
- Uhlig, J. (1991) Spezifität monoklonaler Antikörper gegen Poliovirus. Dissertation Heinrich-Pette-Institut für Experimentelle Virologie und Immunologie an der Universität Hamburg
- Uhlig, J., K. Wiegers & R. Dernick (1990) A new antigenic site of poliovirus recognized by an intertypic cross-neutralizing monoclonal antibody - *Virology* **178**, 606-610
- Unanue, E. R. & J.-C. Cerottini (1989) Antigen presentation - *FASEB J.* **3**, 2496-2502
- Urakawa, T., M. Ferguson, P. D. Minor, J. Cooper, M. Sullivan, J. W. Almond & D. H. L. Bishop (1989) Synthesis of immunogenic, but non-infectious, poliovirus particles in insect cells by a baculovirus expression vector - *J. Gen. Virol.* **70**, 1453-1463
- Urzainqui, A. & L. Carrasco (1989a) Degradation of cellular proteins during poliovirus infection: Studies by two-dimensional gel electrophoresis - *J. Virol.* **63**, 4729-4735
- Urzainqui, A. & L. Carrasco (1989b) Post-translational modifications of poliovirus proteins - *Biochem. Biophys. Res. Commun.* **158**, 263-271
- UytdeHaag, F. G. C. M., H. Bunschoten, K. Weijer & A. D. M. E. Osterhaus (1986) From Jenner to Jerne: Towards idiotype vaccines - *Immunol. Rev.* **90**, 93-113
- Vajda, S., R. Kataoka, C. DeLisi, H. Margalit, J. A. Berzofsky & J. L. Cornette (1990) Molecular structure and vaccine design - *Annu. Rev. Biophys. Biophys. Chem.* **19**, 69-82
- van Amerongen, H., R. van Grondelle & P. C. van der Vliet (1987) Interaction between adenovirus DNA-binding protein and single-stranded polynucleotides studied by circular dichroism and ultraviolet absorption - *Biochemistry* **26**, 4646-4652
- Vanden Berghe, D. & A. Boeyé (1973) Stepwise degradation of poliovirus and top component by concentrated urea - *Arch. ges. Virusforsch.* **41**, 216-228
- van der Marel, P., T. G. Hazendonk, M. A. C. Henneke & A. L. van Wezel (1983) Induction of neutralizing antibodies by poliovirus capsid polypeptides VP1, VP2 and VP3 - *Vaccine* **1**, 17-22
- van der Sluis, P. J., C. W. Pool & A. A. Sluiter (1987) Press-blotting on gelatin-coated nitrocellulose membranes - A method for sensitive quantitative immunodetection of peptides after gel isoelectric focusing - *J. Immunol. Method.* **104**, 65-71
- van der Sluis, P. J., C. W. Pool & A. A. Sluiter (1989) Immunological detection of peptides and proteins on press-blots after direct tissue gel isoelectric focusing - *Electrophoresis* **9**, 654-661
- van der Werf, S., J. Bradley, E. Wimmer, F. W. Studier & J. J. Dunn (1986) Synthesis of infectious poliovirus RNA by purified T7 RNA polymerase - *Proc. Natl. Acad. Sci. USA* **83**, 2330-2334
- van der Werf, S., A. Charbit, C. Leclerc, V. Mimic, J. Ronco, M. Girard & M. Hofnung (1990) Critical role of neighbouring sequences on the immunogenicity of the C3 poliovirus neutralization epitope expressed at the surface of recombinant bacteria - *Vaccine* **8**, 269-277

- van Regenmortel, M. H. V. (1987) Antigenic cross-reactivity between proteins and peptides: New insights and applications - *Trends Biochem. Sci.* **12**, 237-240
- van Regenmortel, M. H. V. (1989) The concept and operational definition of protein epitopes - *Phil. Trans. Roy. Soc. London B* **323**, 451-466
- van Regenmortel, M. H. V. (1990) The Structure of Viral Epitopes - In: *Immunochemistry of Viruses, II. The basis for serodiagnosis and vaccines*, Herausg. van Regenmortel, M. H. V. & A. R. Neurath, Elsevier, S. 1-24
- van Regenmortel, M. H. V. (1992) The conformational specificity of viral epitopes - *FEMS Microbiol. Lett.* **100**, 483-488
- Vardinon, N., R. Handsher, M. Burke, V. Zacut & I. Yust (1990) Poliovirus vaccination responses in HIV-infected patients: Correlation with T4 cell counts - *J. Infect. Dis.* **162**, 238-241
- Verlinde, J. D. & J. B. Wilterdink (1970) Neurovirulence of poliovirus isolated from sewage and stool of healthy children - *Arch. ges. Virusforsch.* **32**, 311-317
- Vertosick, F. T. & R. H. Kelly (1991) The immune system as a neural network: A multi-epitope approach - *J. Theor. Biol.* **150**, 225-237
- Vonsover, A., R. Handsher, M. Neuman, S. Guillot, J. Balant, H. Rudich, E. Mendelson, T. Swartz & R. Crainic (1993) Molecular epidemiology of type 1 polioviruses isolated in Israel and defined by restriction fragment length polymorphism assay - *J. Infect. Dis.* **167**, 199-203
- Vrijen, R., A. Mosser & A. Boeyé (1993) Postadsorption neutralization of poliovirus - *J. Virol.* **67**, 3126-3133
- Vrijen, R., B. Rombaut & A. Boeyé (1983) pH-dependent aggregation and electrofocusing of poliovirus - *J. Gen. Virol.* **64**, 2339-2342
- Vrijen, R., B. Rombaut & A. Boeyé (1984) Intertypic cross-reactions of nonneutralizing, monoclonal Poliovirus antibodies - *J. Virol.* **49**, 1002-1004
- Wada, A. & A. Suyama (1986) Local stability of DNA and RNA secondary structure and its relation to biological functions - *Prog. Biophys. Mol. Biol.* **47**, 113-157
- Wade, R. C. & J. A. McCammon (1992) Binding of an anti-viral agent to a sensitive and a resistant human rhinovirus - Computer simulation studies with sampling of amino acid side-chain conformations. 1. Mapping the rotamers of residue-188 of viral protein-1 - *J. Mol. Biol.* **225**, 679-696
- Wallis, C. & J. L. Melnick (1962) Cationic stabilization - A new property of enteroviruses - *Virology* **16**, 504-506
- Wallis, C. & J. L. Melnick (1971) Herpesvirus neutralization: The role of complement - *J. Immunol.* **107**, 1235-1242
- Wang, G. J., C. Porta, Z. G. Chen, T. S. Baker & J. E. Johnson (1992) Identification of a Fab interaction footprint site on an icosahedral virus by cryoelectron microscopy and X-ray crystallography - *Nature* **355**, 275-278
- Wang, K., L. Sun, B. Jubelt & C. Waltenbaugh (1989) Cell-mediated immune responses to poliovirus - I. Conditions for induction, characterization of effector cells, and cross-reactivity between serotypes for delayed hypersensitivity and T cell proliferative responses - *Cell. Immunol.* **119**, 252-262
- Ward, C. D. & J. B. Flanagan (1992) Determination of the poliovirus RNA polymerase error frequency at 8 sites in the viral genome - *J. Virol.* **66**, 3784-3793
- Ward, R. L. & C. S. Ashley (1979) pH modification of the effects of detergents on the stability of enteric viruses - *Appl. Environ. Microbiol.* **34**, 314-322
- Warwicker, J. (1992) Model for the differential stabilities of rhinovirus and poliovirus to mild acidic pH, based on electrostatics calculations - *J. Mol. Biol.* **223**, 247-257
- Weckx, L. Y., B. J. Schmidt, A. A. Herrmann, C. H. Miyasaki & N. F. Novo (1992) Early immunization of neonates with trivalent oral poliovirus vaccine - *Bull. WHO* **70**, 85-91
- Weidner, J. R. & B. M. Dunn (1991) Development of synthetic peptide substrates for the poliovirus-3C proteinase - *Arch. Biochem. Biophys.* **286**, 402-408
- Weiss, R. (1988) Change the U.S. polio vaccine or leave it alone? - *ASM News* **54**, 560-562
- Welsh, R. M. (1986) Regulation of virus infections by natural killer cells - *Natur. Immun. Cell Growth Regul.* **5**, 169-199
- Westrop, G. D., K. A. Wareham, D. M. A. Evans, G. Dunn, P. D. Minor, D. I. Magrath, F. Taffs, S. Marsden, M. A. Skinner, G. C. Schild & J. W. Almond (1989) Genetic basis of attenuation of the Sabin type 3 oral poliovirus vaccine - *J. Virol.* **63**, 1338-1344
- Wetz, K. (1993) Attachment of neutralizing antibodies stabilizes the capsid of poliovirus against uncoating - *Virology* **192**, 465-472
- Wetz, K. & K.-O. Habermehl (1982) Specific cross-linking of capsid proteins to virus RNA by ultraviolet irradiation of poliovirus - *J. Gen. Virol.* **59**, 397-401
- Wetz, K. & T. Kucinski (1991) Influence of different ionic and pH environments on structural alterations of poliovirus and their possible relation to virus uncoating - *J. Gen. Virol.* **72**, 2541-2544
- Wetz, K., P. Willingmann, H. Zeichhardt & K.-O. Habermehl (1986) Neutralization of poliovirus by polyclonal antibodies requires binding of a single IgG molecule per Virion - *Arch. Virol.* **91**, 207-220
- WHO (1990) Potential use of new poliomyelitis vaccines: Memorandum from a WHO meeting - *Bull. WHO* **68**, 545-548
- WHO (Editorial) (1992) Poliovirus neutralizing antibody assays - *Bull. WHO* **70**, 669
- Wickens, M. P. & J. E. Dahlberg (1987) RNA-protein interactions - *Cell* **51**, 339-342
- Wiegers, K.-J. & R. Dernick (1983) Monospecific antisera against capsid polypeptides of poliovirus type 1 distinguish antigenic structures of poliovirus proteins - *J. Gen. Virol.* **64**, 777-785
- Wiegers, K.-J. & R. Dernick (1985) Evidence for conformational changes of poliovirus precursor particles during virus morphogenesis - *J. Gen. Virol.* **66**, 1037-1044
- Wiegers, K.-J. & R. Dernick (1987) Binding site of neutralizing monoclonal antibodies obtained after in vivo priming with purified VP1 of poliovirus type 1 is located between amino acid residues 93 and 104 of VP1 - *Virology* **157**, 248-251
- Wiegers, K.-J., H. Uhlig & R. Dernick (1986) In vitro stimu-

- lation of presensitized mouse spleen cells with poliovirus type 1, Mahoney, and enhancement of poliovirus-specific hybridomas - *J. Gen. Virol.* **67**, 2053-2057
- Wiegers, K.-J., H. Uhlig & R. Dernick (1988a) Characterization of neutralization escape mutants selected by a monoclonal antibody against VP1 of poliovirus, type 1, Mahoney - *Zbl. Bakt. Hyg. A* **268**, 123
- Wiegers, K.-J., H. Uhlig & R. Dernick (1989) N-AglB of poliovirus, type 1: A discontinuous epitope formed by two loops of VP1 comprising residues 96-104 and 141-152 - *Virology* **170**, 583-586
- Wiegers, K. & R. Dernick (1992) Molecular basis of antigenic structures of poliovirus - Implications for their evolution during morphogenesis - *J. Virol.* **66**, 4597-4600
- Wiegers, K. J., K. Wetz & R. Dernick (1990) Molecular basis for linkage of a continuous and discontinuous neutralization epitope on the structural polypeptide VP2 of poliovirus type 1 - *J. Virol.* **64**, 1283-1289
- Wiegers, K., H. Uhlig & R. Dernick (1988b) Evidence for a complex structure of neutralization antigenic site I of poliovirus type 1 Mahoney - *J. Virol.* **62**, 1845-1848
- Wiegers, K., U. Yamaguchi-Koll & R. Drzeniek (1976) A complex between poliovirus RNA and the structural polypeptide VP1 - *Biochem. Biophys. Res. Commun.* **71**, 1308-1312
- Williams, W. V., H. R. Guy, J. A. Cohen, D. B. Weiner & M. I. Greene (1990) Structure and regulation of internal image idiotypes - In: *Idiotypes in biology and medicine*, Chem. Immunol. Vol. 48, Herausg. Carson, D. A., P. P. Chen & T. J. Kipps, Karger Basel, S. 185-208
- Willingmann, P., H. Barnert, H. Zeichhardt & K.-O. Habermehl (1989) Recovery of structurally intact and infectious poliovirus type 1 from HeLa cells during receptor-mediated endocytosis - *Virology* **168**, 417-420
- Wilson, C. C. (1988) Analysis of conformational parameters in nucleic acid fragments. III. Very short chain oligonucleotides. The effect of base stacking - *Nucl. Acids Res.* **16**, 4751-4759
- Windebank, A. J., W. J. Litchy, J. R. Daube, L. T. Kurland, M. B. Codd & R. Iverson (1991) Late effects of paralytic poliomyelitis in Olmsted county, Minnesota - *Neurology* **41**, 501-507
- Wittmann-Liebold, B. (1989) Moderne chemische Strukturanalyse von Proteinen und Peptiden: Strategien, Methoden, Einsatzmöglichkeiten - *Kontakte* (Darmstadt) **3**, 16-28
- Wolfenden, R., L. Andersson, P. M. Cullis & C. C. B. Southgate (1981) Affinities of amino acid side chains for solvent water - *Biochemistry* **20**, 849-855
- Wright, P. F., R. J. Kimfarley, C. A. Dequadros, S. E. Robertson, R. M. Scott, N. A. Ward & R. H. Henderson (1991) Strategies for the global eradication of poliomyelitis by the year 2000 - *N. Engl. J. Med.* **325**, 1774-1779
- Wu, B., J. Mahony & M. Chernesky (1989) Comparison of three protein A-gold immune electron microscopy methods for detecting rotavirus - *J. Virol. Meth.* **25**, 109-118
- Wyatt, H. V. (1990) Incubation of poliomyelitis as calculated from the time of entry into the central nervous system via the peripheral nerve pathways - *Rev. Infec. Dis.* **12**, 547-556
- Wychowski, C., S. U. Emerson, J. Silver & S. M. Feinstone (1990) Construction of recombinant DNA molecules by the use of a single stranded DNA generated by the polymerase chain reaction: Its application to chimeric hepatitis A virus / poliovirus subgenomic cDNA - *Nucl. Acids Res.* **18**, 913-918
- Yang, C. F., L. De, B. P. Holloway, M. A. Pallansch & O. M. Kew (1991) Detection and identification of vaccine-related polioviruses by the polymerase chain reaction - *Virus Res.* **20**, 159-179
- Yang, C. F., L. N. De, S. J. Yang, J. R. Gomez, J. R. Cruz, B. P. Holloway, M. A. Pallansch & O. M. Kew (1992) Genotype-specific in vitro amplification of sequences of the wild type 3 polioviruses from Mexico and Guatemala - *Virus Res.* **24**, 277-296
- Yaron, A. & F. Naider (1993) Proline-dependent structural and biological properties of peptides and proteins - *Crit. Rev. Biochem. Molec. Biol.* **28**, 31-81
- Yeates, T. O., D. H. Jacobson, A. Martin, C. Wychowski, M. Girard, D. J. Filman & J. M. Hogle (1991) Three-dimensional structure of a mouse-adapted type-2/type-1 poliovirus chimera - *EMBO J.* **10**, 2331-2341
- Yohannan, M. D., S. Ramia & A. R. S. Alfrayh (1991) Acute paralytic poliomyelitis presenting as Guillain-Barre syndrome - *J. Infection* **22**, 129-133
- Young, D. C., B. M. Dunn, G. J. Tobin & J. B. Flanagan (1986) Anti-VPg antibody precipitation of product RNA synthesized in vitro by the poliovirus polymerase and host factor is mediated by VPg on poliovirion RNA template - *J. Virol.* **58**, 715-723
- Young, D. C., G. J. Tobin & J. B. Flanagan (1987) Characterization of product RNAs synthesized in vitro by poliovirus RNA polymerase purified by chromatography on hydroxylapatite or poly(U) sepharose - *J. Virol.* **61**, 611-614
- Young, P. R. (1989) Enhancement of immunoblot staining using a mixed chromogenic substrate - *J. Immunol. Method.* **121**, 295-296
- Ypma-Wong, M. F., P. G. Dewalt, V. H. Johnson, J. G. Lamb & B. L. Semler (1988b) Protein 3CD is the major poliovirus proteinase responsible for cleavage of the P1 capsid precursor - *Virology* **166**, 265-270
- Ypma-Wong, M. F., D. J. Filman, J. M. Hogle & B. L. Semler (1988a) Structural domains of the poliovirus polyprotein are major determinants for proteolytic cleavage at Gln-Gly pairs - *J. Biol. Chem.* **263**, 17846-17856
- Ypma-Wong, M. F. & B. L. Semler (1987a) In vitro molecular genetics as a tool for determining the differential cleavage specificities of the poliovirus 3C proteinase - *Nucl. Acids Res.* **15**, 2069
- Ypma-Wong, M. F. & B. L. Semler (1987b) Processing determinants required for in vitro cleavage of the poliovirus P1 precursor to capsid proteins - *J. Virol.* **61**, 3181-3189
- Yu, S. F. & R. E. Lloyd (1991) Identification of essential amino acid residues in the functional activity of poliovirus 2A-protease - *Virology* **182**, 615-625
- Yu, S. Y. F. & R. E. Lloyd (1992) Characterization of the roles of conserved cysteine and histidine residues in poliovirus 2A-protease - *Virology* **186**, 725-735
- Yuan, J. & P. S. Low (1992) Epitope mapping by a method

- that requires no amino acid sequence information - Anal. Biochem. **205**, 179-182
- Zaman, S., B. Carlsson, A. Morikawa, S. Jeansson, I. Narayanan, K. Thiringer, F. Jalil & L. Å. Hanson (1993) Poliovirus antibody titres, relative affinity, and neutralising capacity in maternal milk - Arch. Dis. Child. **68**, 198-201
- Zegers, N. D., E. Claassen, C. Neelen, E. Mulder, J. H. Vanlaar, M. M. Voorhorst, C. A. Berrevoets, A. O. Brinkmann, T. H. Vanderkast, J. A. R. Dewinter, J. Trapman & W. J. A. Boersma (1991) Epitope prediction and confirmation for the human androgen receptor - Generation of monoclonal antibodies for multi-assay performance following the synthetic peptide strategy - Biochim. Biophys. Acta **1073**, 23-32
- Zeichhardt, H., M. J. Otto, M. A. McKinlay, P. Willingmann & K.-O. Habermehl (1987) Inhibition of poliovirus uncoating by disoxaril (WIN 51711) - Virology **160**, 281-285
- Zhaori, G., M. Sun & P. L. Ogra (1988) Characteristics of the immune response to poliovirus virion polypeptides after immunization with live or inactivated polio vaccines - J. Infec. Dis. **158**, 160-165
- Zhou, E.-M., G. R. Dreesman & R. C. Kennedy (1987) Anti-idiotypic antibodies: A new generation of vaccines against infectious agents - Microbiol. Sci. **4**, 36-40
- Zibert, A., H. C. Selinka, O. Elroystein, B. Moss & E. Wimmer (1991) Vaccinia virus-mediated expression and identification of the human poliovirus receptor - Virology **182**, 250-259
- Zibert, A., H. C. Selinka, O. Elroystein & E. Wimmer (1992) The soluble form of 2 N-terminal domains of the poliovirus receptor is sufficient for blocking viral infection - Virus Res. **25**, 51-61
- Zibert, A. & E. Wimmer (1992) N-glycosylation of the virus binding domain is not essential for function of the human poliovirus receptor - J. Virol. **66**, 7368-7373
- Zuker, M., J. A. Jaeger & D. H. Turner (1991) A comparison of optimal and suboptimal RNA secondary structures predicted by free energy minimization with structures determined by phylogenetic comparison - Nucl. Acids Res. **19**, 2707-2714