

7 Literaturverzeichnis

- Aboulker, J. P., and Swart, A. M. (1993). Preliminary analysis of the Concorde trial. Concorde Coordinating Committee. *Lancet* **341**(8849), 889-90.
- Albert, J., Abrahamsson, B., Nagy, K., Aurelius, E., Gaines, H., Nystrom, G., and Fenyo, E. M. (1990). Rapid development of isolate-specific neutralizing antibodies after primary HIV-1 infection and consequent emergence of virus variants which resist neutralization by autologous sera. *Aids* **4**(2), 107-12.
- Aldovini, A., and Young, R. A. (1991). Humoral and cell-mediated immune responses to live recombinant BCG-HIV vaccines. *Nature* **351**(6326), 479-82.
- Alkhatib, G., Berger, E. A., Murphy, P. M., and Pease, J. E. (1997). Determinants of HIV-1 coreceptor function on CC chemokine receptor 3. Importance of both extracellular and transmembrane/cytoplasmic regions. *J Biol Chem* **272**(33), 20420-6.
- Alkhatib, G., Combadiere, C., Broder, C. C., Feng, Y., Kennedy, P. E., Murphy, P. M., and Berger, E. A. (1996). CC CKR5: a RANTES, MIP-1alpha, MIP-1beta receptor as a fusion cofactor for macrophage-tropic HIV-1. *Science* **272**(5270), 1955-8.
- Altfeld, M., Allen, T. M., Yu, X. G., Johnston, M. N., Agrawal, D., Korber, B. T., Montefiori, D. C., O'Connor, D. H., Davis, B. T., Lee, P. K., Maier, E. L., Harlow, J., Goulder, P. J., Brander, C., Rosenberg, E. S., and Walker, B. D. (2002). HIV-1 superinfection despite broad CD8+ T-cell responses containing replication of the primary virus. *Nature* **420**(6914), 434-9.
- Altfeld, M. A., Livingston, B., Reshamwala, N., Nguyen, P. T., Addo, M. M., Shea, A., Newman, M., Fikes, J., Sidney, J., Wentworth, P., Chesnut, R., Eldridge, R. L., Rosenberg, E. S., Robbins, G. K., Brander, C., Sax, P. E., Boswell, S., Flynn, T., Buchbinder, S., Goulder, P. J., Walker, B. D., Sette, A., and Kalams, S. A. (2001). Identification of novel HLA-A2-restricted human immunodeficiency virus type 1-specific cytotoxic T-lymphocyte epitopes predicted by the HLA-A2 supertype peptide-binding motif. *J Virol* **75**(3), 1301-11.
- Baba, T. W., Jeong, Y. S., Pennick, D., Bronson, R., Greene, M. F., and Ruprecht, R. M. (1995). Pathogenicity of live, attenuated SIV after mucosal infection of neonatal macaques. *Science* **267**(5205), 1820-5.
- Baba, T. W., Liska, V., Khimani, A. H., Ray, N. B., Dailey, P. J., Penninck, D., Bronson, R., Greene, M. F., McClure, H. M., Martin, L. N., and Ruprecht, R. M. (1999). Live attenuated, multiply deleted simian immunodeficiency virus causes AIDS in infant and adult macaques. *Nat Med* **5**(2), 194-203.
- Baier, M., Werner, A., Bannert, N., Metzner, K., and Kurth, R. (1995). HIV suppression by interleukin-16. *Nature* **378**(6557), 563.
- Balachandran, N., Frame, B., Chernesky, M., Kraiselburd, E., Kouri, Y., Garcia, D., Lavery, C., and Rawls, W. E. (1982). Identification and typing of herpes simplex viruses with monoclonal antibodies. *J Clin Microbiol* **16**(1), 205-8.
- Banapour, B., Sernatinger, J., and Levy, J. A. (1986). The AIDS-associated retrovirus is not sensitive to lysis or inactivation by human serum. *Virology* **152**(1), 268-71.
- Barouch, D. H., Santra, S., Schmitz, J. E., Kuroda, M. J., Fu, T. M., Wagner, W., Bilska, M., Craiu, A., Zheng, X. X., Krivulka, G. R., Beaudry, K., Lifton, M. A., Nickerson, C. E., Trigona, W. L., Punt, K., Freed, D. C., Guan, L., Dubey, S., Casimiro, D., Simon, A., Davies, M. E., Chastain, M., Strom, T. B., Gelman, R. S., Montefiori, D. C., Lewis, M. G., Emini, E. A., Shiver, J. W., and Letvin, N. (2000). Control of viremia and prevention of clinical AIDS in rhesus monkeys by cytokine-augmented DNA vaccination. *Science* **290**(5491), 486-92.
- Barre-Sinoussi, F., Chermann, J. C., Rey, F., Nugeyre, M. T., Chamaret, S., Gruest, J., Dauguet, C., Axler-Blin, C., Vezinet-Brun, F., Rouzioux, C., Rozenbaum, W., and Montagnier, L. (1983). Isolation of a T-lymphotropic retrovirus from a patient at risk for acquired immune deficiency syndrome (AIDS). *Science* **220**(4599), 868-71.
- Berggren, R. E., Wunderlich, A., Ziegler, E., Schleicher, M., Duke, R. C., Looney, D., and Fang, F. C. (1995). HIV gp120-specific cell-mediated immune responses in mice after oral immunization with recombinant *Salmonella*. *J Acquir Immune Defic Syndr Hum Retrovirol* **10**(5), 489-95.
- Binninger-Schinzel, D., Norley, S., Adler, H. S., Oberg, H. H., and Kurth, R. (2002). Simian immunodeficiency viruses with defective nef genes show increased susceptibility to the noncytotoxic antiviral activity of CD8+ lymphocytes. *Virology* **294**(1), 209-21.

- Borrow, P., Lewicki, H., Hahn, B. H., Shaw, G. M., and Oldstone, M. B. (1994). Virus-specific CD8+ cytotoxic T-lymphocyte activity associated with control of viremia in primary human immunodeficiency virus type 1 infection. *J Virol* **68**(9), 6103-10.
- Boyer, J. D., Ugen, K. E., Wang, B., Agadjanyan, M., Gilbert, L., Bagarazzi, M. L., Chattergoon, M., Frost, P., Javadian, A., Williams, W. V., Refaeli, Y., Ciccarelli, R. B., McCallus, D., Coney, L., and Weiner, D. B. (1997). Protection of chimpanzees from high-dose heterologous HIV-1 challenge by DNA vaccination. *Nat Med* **3**(5), 526-32.
- Boyer, J. D., Wang, B., Ugen, K. E., Agadjanyan, M., Javadian, A., Frost, P., Dang, K., Carrano, R. A., Ciccarelli, R., Coney, L., Williams, W. V., and Weiner, D. B. (1996). In vivo protective anti-HIV immune responses in non-human primates through DNA immunization. *J Med Primatol* **25**(3), 242-50.
- Braciale, T. J., Morrison, L. A., Sweetser, M. T., Sambrook, J., Gething, M. J., and Braciale, V. L. (1987). Antigen presentation pathways to class I and class II MHC-restricted T lymphocytes. *Immunol Rev* **98**, 95-114.
- Brander, C., and Goulder, P. J. (2000). The Evolving Field of HIV CTL Epitope Mapping: New Approaches to the Identificaton of Novel Epitopes. *Los Alamos Databank*.
- Brinchmann, J. E., Gaudernack, G., and Vartdal, F. (1990). CD8+ T cells inhibit HIV replication in naturally infected CD4+ T cells. Evidence for a soluble inhibitor. *J Immunol* **144**, 2961-2966.
- Burton, D. R., and Montefiori, D. C. (1997). The antibody response in HIV-1 infection. *Aids* **11 Suppl A**, S87-98.
- Cann, A. J., and Karn, J. (1989). Molecular biology of HIV: new insights into the virus life-cycle. *Aids* **3 Suppl 1**, S19-34.
- Cao, H., Kanki, P., Sankale, J. L., Dieng-Sarr, A., Mazzara, G. P., Kalams, S. A., Korber, B., Mboup, S., and Walker, B. D. (1997). Cytotoxic T-lymphocyte cross-reactivity among different human immunodeficiency virus type 1 clades: implications for vaccine development. *J Virol* **71**(11), 8615-23.
- Carmichael, A., Jin, X., Sissons, P., and Borysiewicz, L. (1993). Quantitative analysis of the human immunodeficiency virus type 1 (HIV- 1)-specific cytotoxic T lymphocyte (CTL) response at different stages of HIV-1 infection: differential CTL responses to HIV-1 and Epstein- Barr virus in late disease. *J Exp Med* **177**(2), 249-56.
- Chen, Z., Telfier, P., Gettie, A., Reed, P., Zhang, L., Ho, D. D., and Marx, P. A. (1996). Genetic characterization of new West African simian immunodeficiency virus SIVsm: geographic clustering of household-derived SIV strains with human immunodeficiency virus type 2 subtypes and genetically diverse viruses from a single feral sooty mangabey troop. *J Virol* **70**(6), 3617-27.
- Choe, H., Farzan, M., Sun, Y., Sullivan, N., Rollins, B., Ponath, P. D., Wu, L., Mackay, C. R., LaRosa, G., Newman, W., Gerard, N., Gerard, C., and Sodroski, J. (1996). The beta-chemokine receptors CCR3 and CCR5 facilitate infection by primary HIV-1 isolates. *Cell* **85**(7), 1135-48.
- Clapham, P. R., Blanc, D., and Weiss, R. A. (1991). Specific cell surface requirements for the infection of CD4-positive cells by human immunodeficiency virus types 1 and 2 and by Simian immunodeficiency virus. *Virology* **181**(2), 703-15.
- Clark, S. J., Saag, M. S., Decker, W. D., Campbell-Hill, S., Roberson, J. L., Veldkamp, P. J., Kappes, J. C., Hahn, B. H., and Shaw, G. M. (1991). High titers of cytopathic virus in plasma of patients with symptomatic primary HIV-1 infection. *N Engl J Med* **324**, 954-960.
- Clerici, M., Balotta, C., Trabattoni, D., Papagno, L., Ruzzante, S., Rusconi, S., Fusi, M. L., Colombo, M. C., and Galli, M. (1996). Chemokine production in HIV-seropositive long-term asymptomatic individuals. *Aids* **10**(12), 1432-3.
- Clerici, M., Barassi, C., Devito, C., Pastori, C., Piconi, S., Trabattoni, D., Longhi, R., Hinkula, J., Brolden, K., and Lopalco, L. (2002). Serum IgA of HIV-exposed uninfected individuals inhibit HIV through recognition of a region within the alpha-helix of gp41. *Aids* **16**(13), 1731-41.
- Cocchi, F., DeVico, A. L., Garzino-Demo, A., Arya, S. K., Gallo, R. C., and Lusso, P. (1995). Identification of RANTES, MIP-1 alpha, and MIP-1 beta as the major HIV-suppressive factors produced by CD8+ T cells. *Science* **270**(5243), 1811-5.
- Cooper, D. A., Gold, J., Maclean, P., Donovan, B., Finlayson, R., Barnes, T. G., Michelmore, H. M., Brooke, P., and Penny, R. (1985). Acute AIDS retrovirus infection. Definition of a clinical illness associated with seroconversion. *Lancet* **1**(8428), 537-40.

- Copeland, K. F., McKay, P. J., and Rosenthal, K. L. (1996). Suppression of the human immunodeficiency virus long terminal repeat by CD8+ T cells is dependent on the NFAT-1 element. *AIDS Res Hum Retroviruses* **12**(2), 143-8.
- D'Souza, M. P., and Harden, V. A. (1996). Chemokines and HIV-1 second receptors. Confluence of two fields generates optimism in AIDS research. *Nat Med* **2**(12), 1293-300.
- Dalgleish, A. G., Beverley, P. C., Clapham, P. R., Crawford, D. H., Greaves, M. F., and Weiss, R. A. (1984). The CD4 (T4) antigen is an essential component of the receptor for the AIDS retrovirus. *Nature* **312**(5996), 763-7.
- Daniel, M. D., Kirchhoff, F., Czajak, S. C., Sehgal, P. K., and Desrosiers, R. C. (1992). Protective effects of a live attenuated SIV vaccine with a deletion in the nef gene. *Science* **258**(5090), 1938-41.
- Daniel, M. D., Sehgal, P. K., Kodama, T., Wyand, M. S., Ringler, D. J., King, N. W., Schmidt, D. K., Troup, C. D., and Desrosiers, R. C. (1990). Use of simian immunodeficiency virus for vaccine research. *J Med Primatol* **19**, 395-399.
- Deml, L., Bojak, A., Steck, S., Graf, M., Wild, J., Schirmbeck, R., Wolf, H., and Wagner, R. (2001). Multiple effects of codon usage optimization on expression and immunogenicity of DNA candidate vaccines encoding the human immunodeficiency virus type 1 Gag protein. *J Virol* **75**(22), 10991-1001.
- Deng, H., Liu, R., Ellmeier, W., Choe, S., Unutmaz, D., Burkhardt, M., Di Marzio, P., Marmon, S., Sutton, R. E., Hill, C. M., Davis, C. B., Peiper, S. C., Schall, T. J., Littman, D. R., and Landau, N. R. (1996). Identification of a major co-receptor for primary isolates of HIV-1. *Nature* **381**(6584), 661-6.
- Devito, C., Hinkula, J., Kaul, R., Lopalco, L., Bwayo, J. J., Plummer, F., Clerici, M., and Brodiden, K. (2000). Mucosal and plasma IgA from HIV-exposed seronegative individuals neutralize a primary HIV-1 isolate. *Aids* **14**(13), 1917-20.
- Dierich, M. P., Frank, I., Stoiber, H., Clivio, A., Spruth, M., Steindl, F., and Katinger, H. W. (1996). The envelope of HIV. *Immunol Lett* **54**(2-3), 205-6.
- Doranz, B. J., Rucker, J., Yi, Y., Smyth, R. J., Samson, M., Peiper, S. C., Parmentier, M., Collman, R. G., and Doms, R. W. (1996). A dual-tropic primary HIV-1 isolate that uses fusin and the beta-chemokine receptors CKR-5, CKR-3, and CKR-2b as fusion cofactors. *Cell* **85**(7), 1149-58.
- Doyle, C. B., Bhattacharyya, U., Kent, K. A., Stott, J. E., and Jones, I. M. (1995). Regions required for CD4 binding in the external glycoprotein gp120 of simian immunodeficiency virus. *J Virol* **69**(2), 1256-60.
- Dragic, T., Litwin, V., Allaway, G. P., Martin, S. R., Huang, Y. X., Nagashima, K. A., Cayanan, C., Madden, P. J., Koup, R. A., Moore, J. P., and Paxton, W. A. (1996). HIV-1 entry into CD4(+) cells is mediated by the chemokine receptor CC-CKR-5. *Nature* **381**, 667-673.
- Emau, P., McClure, H. M., Isahakia, M., Else, J. G., and Fultz, P. N. (1991). Isolation from African Sykes' monkeys (*Cercopithecus mitis*) of a lentivirus related to human and simian immunodeficiency viruses. *JOURNAL OF VIROLOGY* **65**, 2135-2140.
- Embreton, J., Zupancic, M., Beneke, J., Till, M., Wolinsky, S., Ribas, J. L., Burke, A., and Haase, A. T. (1993). Analysis of human immunodeficiency virus-infected tissues by amplification and in situ hybridization reveals latent and permissive infections at single-cell resolution. *Proc Natl Acad Sci U S A* **90**(1), 357-61.
- Ennen, J., Norley, S., and Kurth, R. (1994a). The activated CD8 T-lymphocyte-derived immunodeficiency-virus-suppressing lymphokine in African green monkeys: evidence for a role in control of infection? *Res Immunol*. **145**, 647-652.
- Ennen, J., Norley, S., and Kurth, R. (1994b). The activated CD8 T-lymphocyte-derived immunodeficiency-virus-suppressing lymphokine in African green monkeys: evidence for a role in control of infection? *Res Immunol* **145**(8-9), 647-52; discussion 652-3.
- Enose, Y., Ui, M., Miyake, A., Suzuki, H., Uesaka, H., Kuwata, T., Kunisawa, J., Kiyono, H., Takahashi, H., Miura, T., and Hayami, M. (2002). Protection by intranasal immunization of a nef-deleted, nonpathogenic SHIV against intravaginal challenge with a heterologous pathogenic SHIV. *Virology* **298**(2), 306-16.
- Fauci, A. S., and Lane, H. C. (1984). Overview of clinical syndromes and immunology of AIDS. *Top Clin Nurs* **6**(2), 12-8.
- Feng, Y., Broder, C. C., Kennedy, P. E., and Berger, E. A. (1996). HIV-1 entry cofactor: functional cDNA cloning of a seven-transmembrane, G protein-coupled receptor. *Science* **272**(5263), 872-7.

- Fischl, M. A., Richman, D. D., Grieco, M. H., Gottlieb, M. S., Volberding, P. A., Laskin, O. L., Leedom, J. M., Groopman, J. E., Mildvan, D., Schooley, R. T., and et al. (1987). The efficacy of azidothymidine (AZT) in the treatment of patients with AIDS and AIDS-related complex. A double-blind, placebo-controlled trial. *N Engl J Med* **317**(4), 185-91.
- Forthal, D. N., Landucci, G., Katz, J., and Tilles, J. G. (1993). Comparison of measles virus-specific antibodies with antibody-dependent cellular cytotoxicity and neutralizing functions. *J Infect Dis* **168**(4), 1020-3.
- Frank, H., Schwarz, H., Graf, T., and Schafer, W. (1978). Properties of mouse leukemia viruses. XV. Electron microscopic studies on the organization of Friend leukemia virus and other mammalian C-type viruses. *Z Naturforsch [C]* **33**(1-2), 124-38.
- Fuller, D. H., Murphey-Corb, M., Clements, J., Barnett, S., and Haynes, J. R. (1996). Induction of immunodeficiency virus-specific immune responses in rhesus monkeys following gene gun-mediated DNA vaccination. *J Med Primatol* **25**(3), 236-41.
- Fuller, D. H., Simpson, L., Cole, K. S., Clements, J. E., Panicali, D. L., Montelaro, R. C., Murphey-Corb, M., and Haynes, J. R. (1997). Gene gun-based nucleic acid immunization alone or in combination with recombinant vaccinia vectors suppresses virus burden in rhesus macaques challenged with a heterologous SIV. *Immunol Cell Biol* **75**(4), 389-96.
- Fust, G., Dierich, M. P., and Hidvegi, T. (1995). Role of humoral factors in the progression of HIV disease. *Immunol Today* **16**(4), 167-9.
- Gallo, R. C., Salahuddin, S. Z., Popovic, M., Shearer, G. M., Kaplan, M., Haynes, B. F., Parker, T. J., Redfield, R., Oleske, J., Safai, B., and et al. (1984). Frequent detection and isolation of cytopathic retroviruses (HTLV-III) from patients with AIDS and at risk for AIDS. *Science* **224**(4648), 500-3.
- Gao, F., Bailes, E., Robertson, D. L., Chen, Y., Rodenburg, C. M., Michael, S. F., Cummins, L. B., Arthur, L. O., Peeters, M., Shaw, G. M., Sharp, P. M., and Hahn, B. H. (1999). Origin of HIV-1 in the chimpanzee Pan troglodytes troglodytes. *Nature* **397**(6718), 436-41.
- Gardner, M. B., Luciw, P. A., Sawai, E. T., Marthas, M. L., Miller, C. J., McChesney, M. B., Lerche, N. W., and Pedersen, N. C. (1996). Simian retrovirus vaccines: simian retrovirus and simian immunodeficiency lentivirus. *AIDS Res Hum Retroviruses* **12**(5), 399-401.
- Gartner, S., Markovits, P., Markovitz, D. M., Betts, R. F., and Popovic, M. (1986). Virus isolation from and identification of HTLV-III/LAV-producing cells in brain tissue from a patient with AIDS. *Jama* **256**(17), 2365-71.
- Gelderblom, H. R. (1991). Assembly and morphology of HIV: potential effect of structure on viral function. *Aids* **5**(6), 617-37.
- Gelderblom, H. R., Hausmann, E. H., Ozel, M., Pauli, G., and Koch, M. A. (1987). Fine structure of human immunodeficiency virus (HIV) and immunolocalization of structural proteins. *Virology* **156**(1), 171-6.
- Gibbs, J. S., Regier, D. A., and Desrosiers, R. C. (1994). Construction and in vitro properties of SIVmac mutants with deletions in "nonessential" genes (corrected and republished article originally printed in AIDS Res Hum Retroviruses 1994 Apr;10(4):333-42). *Aids Res Hum Retroviruses* **10**(5), 607-16.
- Gottlieb, M. S., Schroff, R., Schanker, H. M., Weisman, J. D., Fan, P. T., Wolf, R. A., and Saxon, A. (1981). Pneumocystis carinii pneumonia and mucosal candidiasis in previously healthy homosexual men: evidence of a new acquired cellular immunodeficiency. *N Engl J Med* **305**(24), 1425-31.
- Graziosi, C., and Pantaleo, G. (1998). Analysis of virologic and immunologic events in HIV infection. *Pathobiology* **66**(3-4), 123-7.
- Greenberg, M. L., Lacey, S. F., Chen, C. H., Bolognesi, D. P., and Weinhold, K. J. (1997). Noncytolytic CD8 T cell-mediated suppression of HIV replication. *Springer Semin Immunopathol* **18**(3), 355-69.
- Greene, W. C. (1991). The molecular biology of human immunodeficiency virus type 1 infection. *N Engl J Med* **324**(5), 308-17.
- Gruters, R. A., Terpstra, F. G., De Jong, R., Van Noesel, C. J., Van Lier, R. A., and Miedema, F. (1990). Selective loss of T cell functions in different stages of HIV infection. Early loss of anti-CD3-induced T cell proliferation followed by decreased anti-CD3-induced cytotoxic T lymphocyte generation in AIDS-related complex and AIDS. *Eur J Immunol* **20**(5), 1039-44.
- Guyader, M., Emerman, M., Sonigo, P., Clavel, F., Montagnier, L., and Alizon, M. (1987). Genome organization and transactivation of the human immunodeficiency virus type 2. *Nature* **326**(6114), 662-9.

- Hacker, G., Redecke, V., and Hacker, H. (2002). Activation of the immune system by bacterial CpG-DNA. *Immunology* **105**(3), 245-51.
- Hadida, F., Parrot, A., Kieny, M. P., Sadat-Sowti, B., Mayaud, C., Debre, P., and Autran, B., . (1992). Carboxyl-terminal and central regions of human immunodeficiency virus-1 NEF recognized by cytotoxic T lymphocytes from lymphoid organs. An in vitro limiting dilution analysis. *J Clin Invest* **89**, 53-60.
- Hanke, T. (2001). Vehicles for genetic vaccines against human immunodeficiency virus: induction of T cell-mediated immune responses. *Curr Mol Med* **1**(1), 123-35.
- Hanke, T., McMichael, A. J., Mwau, M., Wee, E. G., Ceberej, I., Patel, S., Sutton, J., Tomlinson, M., and Samuel, R. V. (2002a). Development of a DNA-MVA/HIVA vaccine for Kenya. *Vaccine* **20**(15), 1995-8.
- Hanke, T., McMichael, A. J., Samuel, R. V., Powell, L. A., McLoughlin, L., Crome, S. J., and Edlin, A. (2002b). Lack of toxicity and persistence in the mouse associated with administration of candidate DNA- and modified vaccinia virus Ankara (MVA)-based HIV vaccines for Kenya. *Vaccine* **21**(1-2), 108-14.
- Hanke, T., Samuel, R. V., Blanchard, T. J., Neumann, V. C., Allen, T. M., Boyson, J. E., Sharpe, S. A., Cook, N., Smith, G. L., Watkins, D. I., Cranage, M. P., and McMichael, A. J. (1999). Effective induction of simian immunodeficiency virus-specific cytotoxic T lymphocytes in macaques by using a multiepitope gene and DNA prime-modified vaccinia virus Ankara boost vaccination regimen. *J Virol* **73**(9), 7524-32.
- Hanke, T., Schneider, J., Gilbert, S. C., Hill, A. V., and McMichael, A. (1998). DNA multi-CTL epitope vaccines for HIV and Plasmodium falciparum: immunogenicity in mice. *Vaccine* **16**(4), 426-35.
- Haseltine, W. A. (1991). Molecular biology of the human immunodeficiency virus type 1. *Faseb J* **5**(10), 2349-60.
- Hazenberg, M., Hamann, D., Schuitemaker, H., and Miedema, F. (2000). T cell depletion in HIV-1 infection: how CD4+ T cells go out of stock. *Nature Immunology* **1**(4), 285-289.
- Heinzinger, N. K., Bukinsky, M. I., Haggerty, S. A., Ragland, A. M., Kewalramani, V., Lee, M. A., Gendelman, H. E., Ratner, L., Stevenson, M., and Emerman, M. (1994). The Vpr protein of human immunodeficiency virus type 1 influences nuclear localization of viral nucleic acids in nondividing host cells. *Proc Natl Acad Sci U S A* **91**(15), 7311-5.
- Hirsch, V. M., Olmsted, R. A., Murphey-Corb, M., Purcell, R. H., and Johnson, P. R. (1989). An African primate lentivirus (SIVsm) closely related to HIV-2. *Nature* **339**(6223), 389-92.
- Ho, D. D., Neumann, A. U., Perelson, A. S., Chen, W., Leonard, J. M., and Markowitz, M. (1995). Rapid turnover of plasma virions and CD4 lymphocytes in HIV-1 infection. *Nature* **373**(6510), 123-126.
- Hoffenbach, A., Langlade-Demoyen, P., Dadaglio, G., Vilmer, E., Michel, F., Mayaud, C., Autran, B., and Plata, F. (1989). Unusually high frequencies of HIV-specific cytotoxic T lymphocytes in humans. *J Immunol* **142**, 452-462.
- Holland, P. M., Abramson, R. D., Watson, R., and Gelfand, D. H. (1991). Detection of specific polymerase chain reaction product by utilizing the 5'----3' exonuclease activity of *Thermus aquaticus* DNA polymerase. *Proc Natl Acad Sci U S A* **88**(16), 7276-80.
- Howard, T. M., and Rasheed, S. (1996). Genomic structure and nucleotide sequence analysis of a new HIV type 1 subtype A strain from Nigeria. *AIDS Res Hum Retroviruses* **12**(15), 1413-25.
- Huet, T., Cheynier, R., Meyerhans, A., Roelants, G., and Wain-Hobson, S. (1990). Genetic organization of a chimpanzee lentivirus related to HIV-1. *Nature* **345**(6273), 356-9.
- Jassoy, C., Johnson, R. P., Navia, B. A., Worth, J., and Walker, B. D. (1992). Detection of a vigorous HIV-1-specific cytotoxic T lymphocyte response in cerebrospinal fluid from infected persons with AIDS dementia complex. *J Immunol* **149**(9), 3113-9.
- Javaherian, K., Langlois, A. J., McDanal, C., Ross, K. L., Eckler, L. I., Jellis, C. L., Profy, A. T., Rusche, J. R., Bolognesi, D. P., Putney, S. D., and et al. (1989). Principal neutralizing domain of the human immunodeficiency virus type 1 envelope protein. *Proc Natl Acad Sci U S A* **86**(17), 6768-72.
- Jin, X., Bauer, D. E., Tuttleton, S. E., Lewin, S., Gettie, A., Blanchard, J., Irwin, C. E., Safrit, J. T., Mittler, J., Weinberger, L., Kostrikis, L. G., Zhang, L., Perelson, A. S., and Ho, D. D. (1999). Dramatic rise in plasma viremia after CD8(+) T cell depletion in simian immunodeficiency virus-infected macaques. *J Exp Med* **189**(6), 991-8.

- June, R. A., Schade, S. Z., Bankowski, M. J., Kuhns, M., McNamara, A., Lint, T. F., Landay, A. L., and Spear, G. T. (1991). Complement and antibody mediate enhancement of HIV infection by increasing virus binding and provirus formation. *Aids* **5**(3), 269-74.
- Kannagi, M., Chalifoux, L. V., Lord, C. I., and Letvin, N. L. (1988). Suppression of simian immunodeficiency virus replication in vitro by CD8+ lymphocytes. *J Immunol* **140**, 2237-2242.
- Katzenstein, T. L., Pedersen, C., and Gerstoft, J. (1997). HIV quantification--how and why. *Ugeskr Laeger* **160**(1), 18-24.
- Kestler, H. W., Ringler, D. J., Mori, K., Panicali, D. L., Sehgal, P. K., Daniel, M. D., and Desrosiers, R. C. (1991). Importance of the nef gene for maintenance of high virus loads and for development of AIDS. *Cell* **65**(4), 651-62.
- Klein, M. (2001). Current progress in the development of human immunodeficiency virus vaccines: research and clinical trials. *Vaccine* **19**(17-19), 2210-5.
- Klein, M. R., van Baalen, C. A., Holwerda, A. M., Kerkhof Garde, S. R., Bende, R. J., Keet, I. P., Eeftinck-Schattenkerk, J. K., Osterhaus, A. D., Schuitemaker, H., and Miedema, F. (1995). Kinetics of Gag-specific cytotoxic T lymphocyte responses during the clinical course of HIV-1 infection: a longitudinal analysis of rapid progressors and long-term asymptomatics. *J Exp Med* **181**(4), 1365-72.
- Klimkait, T., Strelbel, K., Hoggan, M. D., Martin, M. A., and Orenstein, J. M. (1990). The human immunodeficiency virus type 1-specific protein vpu is required for efficient virus maturation and release. *J Virol* **64**(2), 621-9.
- Kotsopoulos, E., Kim, V. N., Kingsman, A. J., Kingsman, S. M., and Mitrophonous, K. A. (2000). A Rev-independent human immunodeficiency virus type 1 (HIV-1)-based vector that exploits a codon-optimized HIV-1 gag-pol gene. *J Virol* **74**(10), 4839-52.
- Koup, R. A., Safrit, J. T., Cao, Y., Andrews, C. A., McLeod, G., Borkowsky, W., Farthing, C., and Ho, D. D. (1994). Temporal association of cellular immune responses with the initial control of viremia in primary human immunodeficiency virus type 1 syndrome. *J Virol* **68**(7), 4650-5.
- Kowalski, M., Potz, J., Basiripour, L., Dorfman, T., Goh, W. C., Terwilliger, E., Dayton, A., Rosen, C., Haseltine, W., and Sodroski, J. (1987). Functional regions of the envelope glycoprotein of human immunodeficiency virus type 1. *Science* **237**(4820), 1351-5.
- Koyanagi, Y., Miles, S., Mitsuyasu, R. T., Merrill, J. E., Vinters, H. V., and Chen, I. S. (1987). Dual infection of the central nervous system by AIDS viruses with distinct cellular tropisms. *Science* **236**(4803), 819-22.
- Kurth, R., Kraus, G., Werner, A., Hartung, S., Centner, P., Baier, M., Norley, S., and Loewer, J. (1988). AIDS: animal retrovirus models and vaccines. *J Acquir Immune Defic Syndr* **1**, 284-294.
- Lang, W., Perkins, H., Anderson, R. E., Royce, R., Jewell, N., and Winkelstein, W., Jr. (1989). Patterns of T lymphocyte changes with human immunodeficiency virus infection: from seroconversion to the development of AIDS. *J Acquir Immune Defic Syndr* **2**(1), 63-9.
- Langlade-Demoyen, P., Ngo-Giang-Huong, N., Ferchal, F., and Okkenhoud, E. (1994). Human immunodeficiency virus (HIV) nef-specific cytotoxic T lymphocytes in noninfected heterosexual contact of HIV-infected patients. *J Clin Invest* **93**(3), 1293-7.
- Letvin, N. L., Daniel, M. D., Sehgal, P. K., Desrosiers, R. C., Hunt, R. D., Waldron, L. M., MacKey, J. J., Schmidt, D. K., Chalifoux, L. V., and King, N. W. (1985). Induction of AIDS-like disease in macaque monkeys with T-cell tropic retrovirus STLV-III. *Science* **230**(4721), 71-3.
- Letvin, N. L., Montefiori, D. C., Yasutomi, Y., Perry, H. C., Davies, M. E., Lekutis, C., Alroy, M., Freed, D. C., Lord, C. I., Handt, L. K., Liu, M. A., and Shiver, J. W. (1997). Potent, protective anti-HIV immune responses generated by bimodal HIV envelope DNA plus protein vaccination. *Proc Natl Acad Sci U S A* **94**(17), 9378-83.
- Levy, J. A. (1993). HIV pathogenesis and long-term survival. *Aids* **7**(11), 1401-10.
- Levy, J. A. (1996). The value of primate models for studying human immunodeficiency virus pathogenesis. *J Med Primatol* **25**(3), 163-74.
- Ljunggren, K., Biberfeld, G., Jondal, M., and Fenyo, E. M. (1989). Antibody-dependent cellular cytotoxicity detects type- and strain-specific antigens among human immunodeficiency virus types 1 and 2 and simian immunodeficiency virus SIVmac isolates. *J Virol* **63**(8), 3376-81.

- Lu, M., Blacklow, S. C., and Kim, P. S. (1995). A trimeric structural domain of the HIV-1 transmembrane glycoprotein. *Nat Struct Biol* **2**(12), 1075-82.
- Lu, S., Arthos, J., Montefiori, D. C., Yasutomi, Y., Manson, K., Mustafa, F., Johnson, E., Santoro, J. C., Wissink, J., Mullins, J. I., Haynes, J. R., Letvin, N. L., Wyand, M., and Robinson, H. L. (1996). Simian immunodeficiency virus DNA vaccine trial in macaques. *J Virol* **70**(6), 3978-91.
- Luukonen, B. G., Fenyo, E. M., and Schwartz, S. (1995). Overexpression of human immunodeficiency virus type 1 protease increases intracellular cleavage of Gag and reduces virus infectivity. *Virology* **206**(2), 854-65.
- Lyerly, H. K., Matthews, T. J., Langlois, A. J., Bolognesi, D. P., and Weinhold, K. J. (1987). Human T-cell lymphotropic virus IIIB glycoprotein (gp120) bound to CD4 determinants on normal lymphocytes and expressed by infected cells serves as target for immune attack. *Proc Natl Acad Sci U S A* **84**(13), 4601-5.
- Mackewicz, C., and Levy, J. A. (1992). CD8+ cell anti-HIV activity: Nonlytic suppression of virus replication. *AIDS Res. Hum. Retroviruses* **8**, 1039-1050.
- Marschang, P., Kruger, U., Ochsenbauer, C., Gurtler, L., Hittmair, A., Bosch, V., Patsch, J. R., and Dierich, M. P. (1997). Complement activation by HIV-1-infected cells: the role of transmembrane glycoprotein gp41. *J Acquir Immune Defic Syndr Hum Retrovirology* **14**(2), 102-9.
- Marschang, P., Sodroski, J., Wurzner, R., and Dierich, M. P. (1995). Decay-accelerating factor (CD55) protects human immunodeficiency virus type 1 from inactivation by human complement. *Eur J Immunol* **25**(1), 285-90.
- McCune, J. M., Rabin, L. B., Feinberg, M. B., Lieberman, M., Kosek, J. C., Reyes, G. R., and Weissman, I. L. (1988). Endoproteolytic cleavage of gp160 is required for the activation of human immunodeficiency virus. *Cell* **53**(1), 55-67.
- McKeating, J. A., Gow, J., Goudsmit, J., Pearl, L. H., Mulder, C., and Weiss, R. A. (1989). Characterization of HIV-1 neutralization escape mutants. *Aids* **3**(12), 777-84.
- Mellors, J. W., Rinaldo, C. R., Jr., Gupta, P., White, R. M., Todd, J. A., and Kingsley, L. A. (1996). Prognosis in HIV-1 infection predicted by the quantity of virus in plasma. *Science* **272**(5265), 1167-70.
- Merluzzi, V. J., Hargrave, K. D., Labadia, M., Grozinger, K., Skoog, M., Wu, J. C., Shih, C. K., Eckner, K., Hattox, S., Adams, J., and et al. (1990). Inhibition of HIV-1 replication by a nonnucleoside reverse transcriptase inhibitor. *Science* **250**(4986), 1411-3.
- Mitchell, W. M., Torres, J., Johnson, P. R., Hirsch, V., Yilma, T., Gardner, M. B., and Robinson, W. E., Jr. (1995). Antibodies to the putative SIV infection-enhancing domain diminish beneficial effects of an SIV gp160 vaccine in rhesus macaques. *Aids* **9**(1), 27-34.
- Modrow, S., and Falke, D. (1997). "Molekulare Virologie." Spektrum Akad. Verlag.
- Montefiori, D. C., Cornell, R. J., Zhou, J. Y., Zhou, J. T., Hirsch, V. M., and Johnson, P. R. (1994). Complement control proteins, CD46, CD55, and CD59, as common surface constituents of human and simian immunodeficiency viruses and possible targets for vaccine protection. *Virology* **205**(1), 82-92.
- Montelaro, R. C., Grund, C., Raabe, M., Woodson, B., Cook, R. F., Cook, S., and Issel, C. J. (1996). Characterization of protective and enhancing immune responses to equine infectious anemia virus resulting from experimental vaccines. *AIDS Res Hum Retroviruses* **12**(5), 413-5.
- Moore, J., and Ho, D. (1993). HIV tropism. *Nature* **361**(6410), 309-10.
- Moore, J. P., and Nara, P. L. (1991). The role of the V3 loop of gp120 in HIV infection. *Aids* **5 Suppl 2**, S21-33.
- Morrow, C. D., Park, J., and Wakefield, J. K. (1994). Viral gene products and replication of the human immunodeficiency type 1 virus. *Am J Physiol* **266**(5 Pt 1), C1135-56.
- Moss, A. R., and Bacchetti, P. (1989). Natural history of HIV infection. *Aids* **3**(2), 55-61.
- Mullis, K. B., and Falloona, F. A. (1987). Specific synthesis of DNA in vitro via a polymerase-catalyzed chain reaction. *Methods Enzymol* **155**, 335-50.
- Murphy-Corb, M., Martin, L. N., Davison-Fairburn, B., Montelaro, R. C., Miller, M., West, M., Ohkawa, S., Baskin, G. B., Zhang, J. Y., Putney, S. D., Allison, A. C., and Eppstein, D. A. (1989). A formalin-inactivated whole SIV vaccine confers protection in macaques. *Science* **246**, 1293-1297.
- Murphy, E., Korber, B., Georges-Courbot, M. C., You, B., Pinter, A., Cook, D., Kieny, M. P., Georges, A., Mathiot, C., Barre-Sinoussi, F., and et al. (1993). Diversity of V3 region sequences of human

- immunodeficiency viruses type 1 from the central African Republic. *AIDS Res Hum Retroviruses* **9**(10), 997-1006.
- Myers, G. (1994). Molecular investigation of HIV transmission. *Ann Intern Med* **121**(11), 889-90.
- Nabholz, M., Cianfriglia, M., Acuto, O., Conzelmann, A., Haas, W., von Boehmer, H., McDonald, H. R., Pohlit, H., and Johnson, J. P. (1980). Cytolytically active murine T-cell hybrids. *Nature* **287**(5781), 437-40.
- Nara, P. L., Smit, L., Dunlop, N., Hatch, W., Merges, M., Waters, D., Kelliher, J., Gallo, R. C., Fischinger, P. J., and Goudsmit, J. (1990). Emergence of viruses resistant to neutralization by V3-specific antibodies in experimental human immunodeficiency virus type 1 IIIB infection of chimpanzees. *J Virol* **64**(8), 3779-91.
- Natuk, R. J., Chanda, P. K., Lubeck, M. D., Davis, A. R., Wilhelm, J., Hjorth, R., Wade, M. S., Bhat, B. M., Mizutani, S., Lee, S., and et al. (1992). Adenovirus-human immunodeficiency virus (HIV) envelope recombinant vaccines elicit high-titered HIV-neutralizing antibodies in the dog model. *Proc Natl Acad Sci U S A* **89**(16), 7777-81.
- Natuk, R. J., Lubeck, M. D., Chanda, P. K., Chengalvala, M., Wade, M. S., Murthy, S. C., Wilhelm, J., Vernon, S. K., Dheer, S. K., Mizutani, S., and et al. (1993). Immunogenicity of recombinant human adenovirus-human immunodeficiency virus vaccines in chimpanzees. *AIDS Res Hum Retroviruses* **9**(5), 395-404.
- Norley, S., Beer, B., Binninger-Schinzel, D., Cosma, C., and Kurth, R. (1996a). Protection from pathogenic SIVmac challenge following short-term infection with a nef-deficient attenuated virus. *Virology* **219**(1), 195-205.
- Norley, S., Beer, B., Binninger-Schinzel, D., Vogel, T., Siegel, F., Cosma, C., Konig, H., Megede, J. Z., and Kurth, R. (1996b). Simian immunodeficiency virus live and inactivated experimental vaccines. *AIDS Res Hum Retroviruses* **12**(5), 447-9.
- Norley, S., Beer, B., Binninger-Schinzel, D., Vogel, T., Hohn, O., Seibold, E., Radke, D., Cosma, C., and Kurth, R. (in Press). Vaccine Development using the Simian Immunodeficiency Virus Model for AIDS. *Intervirology*.
- Norley, S., Beer, B., Konig, H., Jensen, F., and Kurth, R. (1998). SIVmac vaccine studies using whole inactivated virus antigen sequentially depleted of viral proteins. *J Med Primatol* **27**(4), 184-92.
- Norley, S., and Kurth, R. (1992). Vaccination against HIV. *Immunobiology* **184**(2-3), 193-207.
- Norley, S., and Kurth, R. (1997). Simian immunodeficiency virus as a model of HIV pathogenesis. *Springer Semin Immunopathol* **18**(3), 391-405.
- Norley, S. G., Mikschy, U., Werner, A., Staszewski, S., Helm, E. B., and Kurth, R. (1990). Demonstration of cross-reactive antibodies able to elicit lysis of both HIV-1- and HIV-2-infected cells. *J Immunol* **145**(6), 1700-5.
- Norley, S. G., Vogel, T., and Kurth, R. (1993). Anti-HIV vaccines. Current status and future developments. *Drugs* **46**(6), 947-60.
- O'Brien, T. R., Blattner, W. A., Waters, D., Eyster, E., Hilgartner, M. W., Cohen, A. R., Luban, N., Hatzakis, A., Aledort, L. M., Rosenberg, P. S., Miley, W. J., Kroner, B. L., and Goedert, J. J. (1996). Serum HIV-1 RNA levels and time to development of AIDS in the Multicenter Hemophilia Cohort Study. *Jama* **276**(2), 105-10.
- Ostrowski, M. A., Stanley, S. K., Justement, J. S., Gantt, K., Goletti, D., and Fauci, A. S. (1997). Increased in vitro tetanus-induced production of HIV type 1 following in vivo immunization of HIV type 1-infected individuals with tetanus toxoid. *AIDS Res Hum Retroviruses* **13**(6), 473-80.
- Palker, T. J., Clark, M. E., Langlois, A. J., Matthews, T. J., Weinhold, K. J., Randall, R. R., Bolognesi, D. P., and Haynes, B. F. (1988). Type-specific neutralization of the human immunodeficiency virus with antibodies to env-encoded synthetic peptides. *Proc Natl Acad Sci U S A* **85**(6), 1932-6.
- Pantaleo, G., Cohen, O. J., Schacker, T., Vaccarezza, M., Graziosi, C., Rizzardi, G. P., Kahn, J., Fox, C. H., Schnittman, S. M., Schwartz, D. H., Corey, L., and Fauci, A. S. (1998). Evolutionary pattern of human immunodeficiency virus (HIV) replication and distribution in lymph nodes following primary infection: implications for antiviral therapy. *Nat Med* **4**(3), 341-5.
- Pantaleo, G., and Fauci, A. S. (1994). Tracking HIV during disease progression. *Curr Opin Immunol* **6**(4), 600-4.
- Pantaleo, G., Graziosi, C., and Fauci, A. S. (1993). The role of lymphoid organs in the pathogenesis of HIV infection. *Semin Immunol* **5**(3), 157-63.

- Park, I. W., Steen, R., and Li, Y. (1991). Characterization of multiple mRNA species of simian immunodeficiency virus from macaques in a CD4+ lymphoid cell line. *J Virol* **65**(6), 2987-92.
- Peeters, M., Courgnaud, V., Abela, B., Auzel, P., Pourrut, X., Bibollet-Ruche, F., Loul, S., Liegeois, F., Butel, C., Koulagna, D., Mpoudi-Ngole, E., Shaw, G. M., Hahn, B. H., and Delaporte, E. (2002). Risk to human health from a plethora of simian immunodeficiency viruses in primate bushmeat. *Emerg Infect Dis* **8**(5), 451-7.
- Perelson, A. S., Essunger, P., and Ho, D. D. (1997). Dynamics of HIV-1 and CD4+ lymphocytes in vivo. *Aids* **11**(Suppl A), S17-24.
- Perelson, A. S., Neumann, A. U., Markowitz, M., Leonard, J. M., and Ho, D. D. (1996). HIV-1 dynamics in vivo: virion clearance rate, infected cell life-span, and viral generation time. *Science* **271**(5255), 1582-6.
- Pinto, L. A., Sullivan, J., Berzofsky, J. A., Clerici, M., Kessler, H. A., Landay, A. L., and Shearer, G. M. (1995). ENV-specific cytotoxic T lymphocyte responses in HIV seronegative health care workers occupationally exposed to HIV-contaminated body fluids. *Journal of Clinical Investigation* **96**(2), 867-876.
- Plata, F., Autran, B., Martins, L. P., Wain-Hobson, S., Raphael, M., Mayaud, C., Denis, M., Guillou, J. M., and Debre, P. (1987). AIDS virus-specific cytotoxic T lymphocytes in lung disorders. *Nature* **328**, 348-351.
- Popovic, M., Sarngadharan, M. G., Read, E., and Gallo, R. C. (1984). Detection, isolation, and continuous production of cytopathic retroviruses (HTLV-III) from patients with AIDS and pre-AIDS. *Science* **224**(4648), 497-500.
- Powell, J. D., Bednarik, D. P., Folks, T. M., Jehuda-Cohen, T., Villinger, F., Sell, K. W., and Ansari, A. A. (1993). Inhibition of cellular activation of retroviral replication by CD8+ T cells derived from non-human primates. *Clin Exp Immunol* **91**(3), 473-81.
- Preston, B. D., Poiesz, B. J., and Loeb, L. A. (1988). Fidelity of HIV-1 reverse transcriptase. *Science* **242**(4882), 1168-71.
- Prevec, L., Christie, B. S., Laurie, K. E., Bailey, M. M., Graham, F. L., and Rosenthal, K. L. (1991). Immune response to HIV-1 gag antigens induced by recombinant adenovirus vectors in mice and rhesus macaque monkeys. *J Acquir Immune Defic Syndr* **4**(6), 568-76.
- Refaeli, Y., Levy, D. N., and Weiner, D. B. (1995). The glucocorticoid receptor type II complex is a target of the HIV-1 vpr gene product. *Proc Natl Acad Sci U S A* **92**(8), 3621-5.
- Regier, D. A., and Desrosiers, R. C. (1990). The complete nucleotide sequence of a pathogenic molecular clone of simian immunodeficiency virus. *Aids Res Hum Retroviruses* **6**(11), 1221-31.
- Reimann, K. A., Tenner-Racz, K., Racz, P., Montefiori, D. C., Yasutomi, Y., Lin, W., Ransil, B. J., and Letvin, N. L. (1994). Immunopathogenic events in acute infection of rhesus monkeys with simian immunodeficiency virus of macaques. *J Virol* **68**(4), 2362-70.
- Reitz, M. S., Jr., Wilson, C., Naugle, C., Gallo, R. C., and Robert-Guroff, M. (1988). Generation of a neutralization-resistant variant of HIV-1 is due to selection for a point mutation in the envelope gene. *Cell* **54**(1), 57-63.
- Riviere, Y., Robertson, M. N., and Buseyne, F. (1994). Cytotoxic T lymphocytes in human immunodeficiency virus infection: regulator genes. *Curr Top Microbiol Immunol* **189**, 65-74.
- Robert-Guroff, M., Brown, M., and Gallo, R. C. (1985). HTLV-III-neutralizing antibodies in patients with AIDS and AIDS-related complex. *Nature* **316**(6023), 72-4.
- Roberts, J. D., Bebenek, K., and Kunkel, T. A. (1988). The accuracy of reverse transcriptase from HIV-1. *Science* **242**(4882), 1171-3.
- Robertson, D. L., Anderson, J. P., and Bradac, J. A. (1999). HIV-1 nomenclature proposal: A reference guide to HIV-1 classification, Vol. 2003. Los Alamos HIV Database.
- Rouse, B. T., Norley, S., and Martin, S. (1988). Antiviral cytotoxic T lymphocyte induction and vaccination. *Rev Infect Dis* **10**(1), 16-33.
- Rowland-Jones, S., Sutton, J., Ariyoshi, K., Dong, T., Gotch, F., McAdam, S., Whitby, D., Sabally, S., Gallimore, A., Corrah, T., and et al. (1995). HIV-specific cytotoxic T-cells in HIV-exposed but uninfected Gambian women [published erratum appears in Nat Med 1995 Jun;1(6):598]. *Nat Med* **1**(1), 59-64.

- Rud, E. W., Cranage, M., Yon, J., Quirk, J., Ogilvie, L., Cook, N., Webster, S., Dennis, M., and Clarke, B. E. (1994). Molecular and biological characterization of simian immunodeficiency virus macaque strain 32H proviral clones containing nef size variants. *Journal Of General Virology* **75**(Pt 3), 529-43.
- Rud, E. W., Yon, J., Cranage, M. P., Cook, N., Larder, B. A., and Clarke, B. E. (1991). A naturally attenuated SIVmac32H variant? *Symp Nonhum Primate Models Aids*(78), 6-9.
- Rusche, J. R., Javaherian, K., McDanal, C., Petro, J., Lynn, D. L., Grimalia, R., Langlois, A., Gallo, R. C., Arthur, L. O., Fischinger, P. J., and et al. (1988). Antibodies that inhibit fusion of human immunodeficiency virus-infected cells bind a 24-amino acid sequence of the viral envelope, gp120. *Proc Natl Acad Sci U S A* **85**(9), 3198-202.
- Safrit, J. T., Andrews, C. A., Zhu, T., Ho, D. D., and Koup, R. A. (1994). Characterization of human immunodeficiency virus type 1-specific cytotoxic T lymphocyte clones isolated during acute seroconversion: recognition of autologous virus sequences within a conserved immunodominant epitope. *J Exp Med* **179**(2), 463-72.
- Saifuddin, M., Parker, C. J., Peeples, M. E., Gorny, M. K., Zolla-Pazner, S., Ghassemi, M., Rooney, I. A., Atkinson, J. P., and Spear, G. T. (1995). Role of virion-associated glycosylphosphatidylinositol-linked proteins CD55 and CD59 in complement resistance of cell line-derived and primary isolates of HIV-1. *J Exp Med* **182**(2), 501-9.
- Saiki, R. K., Scharf, S., Falooma, F., Mullis, K. B., Horn, G. T., Erlich, H. A., and Arnheim, N. (1985). Enzymatic amplification of beta-globin genomic sequences and restriction site analysis for diagnosis of sickle cell anemia. *Science* **230**(4732), 1350-4.
- Sarngadharan, M. G., DeVico, A. L., Bruch, L., Schupbach, J., and Gallo, R. C. (1984). HTLV-III: the etiologic agent of AIDS. *Princess Takamatsu Symp* **15**, 301-8.
- Sastray, K. J., and Arlinghaus, R. B. (1991). Identification of T-cell epitopes without B-cell activity in the first and second conserved regions of the HIV Env protein. *Aids* **5**(6), 699-707.
- Schellekens, P. T., Tersmette, M., Roos, M. T., Keet, R. P., de Wolf, F., Coutinho, R. A., and Miedema, F. (1992). Biphasic rate of CD4+ cell count decline during progression to AIDS correlates with HIV-1 phenotype. *Aids* **6**(7), 665-9.
- Schmitz, J. E., Kuroda, M. J., Santra, S., Sasseville, V. G., Simon, M. A., Lifton, M. A., Racz, P., Tenner-Racz, K., Dalesandro, M., Scallon, B. J., Ghrayeb, J., Forman, M. A., Montefiori, D. C., Rieber, E. P., Letvin, N. L., and Reimann, K. A. (1999). Control of viremia in simian immunodeficiency virus infection by CD8+ lymphocytes. *Science* **283**(5403), 857-60.
- Schultz, A. M., and Hu, S. L. (1993). Primate models for HIV vaccines. *Aids* **7**(Suppl 1), S161-70.
- Schultz, A. M., and Stott, E. J. (1994). Primate models for AIDS vaccines. *AIDS* **8** (suppl. 1)(Suppl.8), 203-212.
- Shiver, J. W., Perry, H. C., Davies, M. E., Freed, D. C., and Liu, M. A. (1995). Cytotoxic T lymphocyte and helper T cell responses following HIV polynucleotide vaccination. *Ann N Y Acad Sci* **772**, 198-208.
- Siebelink, K. H., Tijhaar, E., Huisman, R. C., Huisman, W., de Ronde, A., Darby, I. H., Francis, M. J., Rimmelzwaan, G. F., and Osterhaus, A. D. (1995). Enhancement of feline immunodeficiency virus infection after immunization with envelope glycoprotein subunit vaccines. *J Virol* **69**(6), 3704-11.
- Simon, M. A., Brodie, S. J., Sasseville, V. G., Chalifoux, L. V., Desrosiers, R. C., and Ringler, D. J. (1994). Immunopathogenesis of SIVmac. *Virus Res* **32**(2), 227-51.
- Sissons, J. G., and Oldstone, M. B. (1980). Killing of virus-infected cells: the role of antiviral antibody and complement in limiting virus infection. *J Infect Dis* **142**(3), 442-8.
- Spear, G. T., Sullivan, B. L., Landay, A. L., and Lint, T. F. (1990). Neutralization of human immunodeficiency virus type 1 by complement occurs by viral lysis. *J Virol* **64**(12), 5869-73.
- Stahl, R. E., Friedman-Kien, A., Dubin, R., Marmor, M., and Zolla-Pazner, S. (1982). Immunologic abnormalities in homosexual men. Relationship to Kaposi's sarcoma. *Am J Med* **73**(2), 171-8.
- Stebbing, R., Stott, J., Almond, N., Hull, R., Lines, J., Silvera, P., Sangster, R., Corcoran, T., Rose, J., Cobbald, S., Gotch, F., McMichael, A., and Walker, B. (1998). Mechanisms of protection induced by attenuated simian immunodeficiency virus. II. Lymphocyte depletion does not abrogate protection. *AIDS Res Hum Retroviruses* **14**(13), 1187-98.
- Stevenson, M., Stanwick, T. L., Dempsey, M. P., and Lamonica, C. A. (1990). HIV-1 replication is controlled at the level of T cell activation and proviral integration. *Embo J* **9**(5), 1551-60.

- Stoiber, H., Clivio, A., and Dierich, M. P. (1997). Role of complement in HIV infection. *Annu Rev Immunol* **15**, 649-74.
- Stott, E. J. (1991). Anti-cell antibody in macaques. *Nature* **353**(6343), 393.
- Sullivan, B. L., Knopoff, E. J., Saifuddin, M., Takefman, D. M., Saarloos, M. N., Sha, B. E., and Spear, G. T. (1996). Susceptibility of HIV-1 plasma virus to complement-mediated lysis. Evidence for a role in clearance of virus in vivo. *J Immunol* **157**(4), 1791-8.
- Sutter, G., and Moss, B. (1992). Nonreplicating vaccinia vector efficiently expresses recombinant genes. *Proc Natl Acad Sci U S A* **89**(22), 10847-51.
- Taylor, J. M., Schwartz, K., and Detels, R. (1986). The time from infection with human immunodeficiency virus (HIV) to the onset of AIDS. *J Infect Dis* **154**(4), 694-7.
- Toth, F. D., Szabo, B., Ujhelyi, E., Paloczi, K., Horvath, A., Fust, G., Kiss, J., Banhegyi, D., and Hollan, S. R. (1991). Neutralizing and complement-dependent enhancing antibodies in different stages of HIV infection. *Aids* **5**(3), 263-8.
- Trono, D. (1995). HIV accessory proteins: leading roles for the supporting cast. *Cell* **82**(2), 189-92.
- Uberla, K., Stahlhennig, C., Bottiger, D., Matzrensing, K., Kaup, F. J., Li, J., Haseltine, W. A., Fleckenstein, B., Hunsmann, G., Oberg, B., and Sodroski, J. (1995). Animal model for the therapy of acquired immunodeficiency syndrome with reverse transcriptase inhibitors. *Proceedings of the National Academy of Sciences of the United States of America* **92**(18), 8210-8214.
- Venet, A., Bourgault, I., Aubertin, A. M., Kiény, M. P., and Levy, J. P. (1992). Cytotoxic T lymphocyte response against multiple simian immunodeficiency virusA (SIV) proteins in SIV-infected macaques. *J Immunol* **148**(9), 2899-908.
- Verani, P., Butto, S., Taddeo, B., Federico, M., and Rossi, G. B. (1993). HIV variability and perspectives for a vaccine. *Vaccine* **11**(5), 542-4.
- Vogel, T. U., Beer, B. E., zur Megede, J., Ihlenfeldt, H. G., Jung, G., Holzammer, S., Watkins, D. I., Altman, J. D., Kurth, R., and Norley, S. (2002). Induction of anti-simian immunodeficiency virus cellular and humoral immune responses in rhesus macaques by peptide immunogens: correlation of CTL activity and reduction of cell-associated but not plasma virus load following challenge. *J Gen Virol* **83**(Pt 1), 81-91.
- Volberding, P. A., Lagakos, S. W., Koch, M. A., Pettinelli, C., Myers, M. W., Booth, D. K., Balfour, H. H., Jr., Reichman, R. C., Bartlett, J. A., Hirsch, M. S., and et al. (1990). Zidovudine in asymptomatic human immunodeficiency virus infection. A controlled trial in persons with fewer than 500 CD4-positive cells per cubic millimeter. The AIDS Clinical Trials Group of the National Institute of Allergy and Infectious Diseases. *N Engl J Med* **322**(14), 941-9.
- Wagner, R., Graf, M., Bieler, K., Wolf, H., Grunwald, T., Foley, P., and Uberla, K. (2000). Rev-independent expression of synthetic gag-pol genes of human immunodeficiency virus type 1 and simian immunodeficiency virus: implications for the safety of lentiviral vectors. *Hum Gene Ther* **11**(17), 2403-13.
- Walker, B. D., and Plata, F. (1990). Cytotoxic T lymphocytes against HIV. *Aids* **4**(3), 177-84.
- Wei, X., Ghosh, S. K., Taylor, M. E., Johnson, V. A., Emini, E. A., Deutsch, P., Lifson, J. D., Bonhoeffer, S., Nowak, M. A., Hahn, B. H., and et al. (1995). Viral dynamics in human immunodeficiency virus type 1 infection. *Nature* **373**(6510), 117-22.
- Weiss, R. A., Clapham, P. R., Cheingsong-Popov, R., Dalgleish, A. G., Carne, C. A., Weller, I. V., and Tedder, R. S. (1985). Neutralization of human T-lymphotropic virus type III by sera of AIDS and AIDS-risk patients. *Nature* **316**(6023), 69-72.
- Whatmore, A. M., Cook, N., Hall, G. A., Sharpe, S., Rud, E. W., and Cranage, M. P. (1995). Repair and evolution of nef in vivo modulates simian immunodeficiency virus virulence. *J Virol* **69**(8), 5117-23.
- Wyand, M. S., Manson, K., and Desrosiers, R. C. (1994). *Seventh Annual Meeting of the National Cooperative Vaccine Development Groups for AIDS, Reston, Virginia, USA*.
- Wyand, M. S., Manson, K. H., Garciamoll, M., Montefiori, D., and Desrosiers, R. C. (1996). Vaccine protection by a triple deletion mutant of simian immunodeficiency virus. *Journal of Virology* **70**, 3724-3733.
- Yagita, M., Noda, I., Maehara, M., Fujieda, S., Inoue, Y., Hoshino, T., and Saksela, E. (1992). The presence of concanavalin-A(Con-A)-like molecules on natural-killer (NK)-sensitive target cells: their possible role in swainsonine-augmented human NK cytotoxicity. *Int J Cancer* **52**(4), 664-72.

- Yang, O. O., Kalams, S. A., Rosenzweig, M., Trocha, A., Jones, N., Koziel, M., Walker, B. D., and Johnson, R. P. (1996). Efficient lysis of human immunodeficiency virus type 1-infected cells by cytotoxic T lymphocytes. *J Virol* **70**(9), 5799-806.
- Yasutomi, Y., Reimann, K. A., Lord, C. I., Miller, M. D., and Letvin, N. L. (1993). Simian immunodeficiency virus-specific CD8+ lymphocyte response in acutely infected rhesus monkeys. *J Virol* **67**(3), 1707-11.
- Yasutomi, Y., Robinson, H. L., Lu, S., Mustafa, F., Lekutis, C., Arthos, J., Mullins, J. I., Voss, G., Manson, K., Wyand, M., and Letvin, N. L. (1996). Simian immunodeficiency virus-specific cytotoxic T-lymphocyte induction through DNA vaccination of rhesus monkeys. *J Virol* **70**(1), 678-81.
- Zhang, L., Yu, W., He, T., Yu, J., Caffrey, R. E., Dalmasso, E. A., Fu, S., Pham, T., Mei, J., Ho, J. J., Zhang, W., Lopez, P., and Ho, D. D. (2002). Contribution of human alpha-defensin 1, 2, and 3 to the anti-HIV-1 activity of CD8 antiviral factor. *Science* **298**(5595), 995-1000.
- Zhu, T., Korber, B. T., Nahmias, A. J., Hooper, E., Sharp, P. M., and Ho, D. D. (1998). An African HIV-1 sequence from 1959 and implications for the origin of the epidemic. *Nature* **391**(6667), 594-7.

Publikationen

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- Posterpräsentation und Abstract

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„DNA Vaccine Based on Codon optimized Genes of HIV-1 Circulating Recombinant Forms in Nigeria“

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- Intervirology (in Press)

„Vaccine Development using the Simian Immunodeficiency Virus Model for AIDS“

Norley, S*., Beer, B., Binnninger-Schinzel, D., Vogel, T., Hohn, O., Seibold, E., Radke, D., Cosma, C., and Kurth, R.

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