

## CURRICULUM VITAE

Stanley J. Cryz, Jr.

### EDUCATION:

Institution	Degree	Conferred	Scientific Field
University of Connecticut, Storrs, CT.	B.S.	1975	Microbiology
University of Texas Health Science Center at Dallas, Dallas, TX	Ph.D.	1979	Microbiology

### Predoctoral Training

Thesis: Regulation of Toxinogenesis in *Corynebacterium diphtheriae* by Iron.  
Major Advisor: Dr. R.K. Holmes

### Postdoctoral Training

Area: Immunochemistry of *Pseudomonas aeruginosa* Toxin A; Virulence of *P. aeruginosa*.  
Mentor: Dr. B.H. Iglewski

### PROFESSIONAL EXPERIENCE:

- 2004-Present Deputy Director Development and Production. Responsible for all production related activities and well as engineering and facilities. Lead team responsible for the design/build, commissioning and validation of a 153,000 square foot production (fill/finish and monoclonal antibody) and control laboratory facility.
- 2000-2003 Senior Director, Manufacturing & Development, Massachusetts Biologic Laboratories  
Professor, Department of Pathology, University of Massachusetts Medical School, 305 South Street, Boston, Massachusetts, USA 02130  
Responsible for production activities relating to tetanus and diphtheria vaccines, human immune globulins and monoclonal antibodies. Directed all aspects of facilities operations and fill/finish operations and engineering. Increased production of combined diphtheria and tetanus vaccine from 450,000 to 6 million doses per year in response to US market vaccine shortage.
- 1991 -2000 Managing Director, Research and Production, Swiss Serum and Vaccine Institute of Berne, Rehhagstrasse 79, Berne Switzerland  
Responsible for all research and development activities as well as all production for vaccine (bacterial, viral and parasitic) units, human immune globulin production and fill/finish, engineering and facilities departments. Managed 8 direct reports with a staff of 335. Lead effort to establish a subsidiary (Berna Products Corp.) for the sales and distribution of vaccines and specialty products in the United States. Lead team which expanded production capacity by 250%. Chair of internal committee responsible for design and construction of all capital projects including new 150,000 square foot fill/finish unit utilizing isolator technology for sterile operation, 70,000 square foot conjugate vaccine production facility, 150,000 square foot warehouse, pilot plant for Phase I/II clinical trial material and research facility. Established and directed unit responsible for conduct of

clinical trials in North America, South America and Asia. Responsible head for the US Food and Drug Administration. Reported to Chief Executive Officer.

- 1987-1990 Director, Research and Production, Swiss Serum and Vaccine Institute of Berne, Rehhagstrasse 79, Berne, Switzerland  
Assumed leadership role for all research, development and manufacturing activities including bacterial and viral vaccines, monoclonal antibodies and human immune globulins. Managed 5 direct reports with a staff of 130. Established North American regulatory branch leading to the licensure of typhoid and tetanus vaccines in the United States and Canada. Reported to President.
- 1983- 1986 Head, Department of Bacteriology, Swiss Serum and Vaccine Institute of Berne, Rehhagstrasse 79, Berne, Switzerland  
Responsible for all research and production activities relating to bacterial vaccines, including diphtheria, tetanus, pertussis, cholera, typhoid and Pseudomonas aeruginosa. Lead design/development team responsible for dedicated 70,000 square foot manufacturing facility to produce first live oral attenuated bacterial vaccine. Implemented expansion/modernization effort for diphtheria and tetanus vaccine manufacturing facilities. Increased output of combined bacterial vaccines from 48 to 160 million doses annually. Director of research and development.
- 1981 -1983 Group Leader, Department of Bacteriology, Swiss Serum and Vaccine Institute of Berne, Rehhagstrasse 79, Berne, Switzerland  
Responsible for directing research towards development of vaccines for cholera and Pseudomonas aeruginosa. Supervised 3 laboratory technicians, designed and implemented laboratory and animal based experiments. Reported to head of bacterial vaccines unit.
- 1979 -1981 Postdoctoral Fellow, Department of Microbiology and Immunology, University of Oregon Health Sciences Center, Portland, OR 97201
- 1976- 1979 Research-Teaching Assistant, Uniformed Services University of the Health Sciences, Bethesda, MD 20014
- 1975-1976 Teaching Assistant, University of Texas Health Sciences Center at Dallas, Dallas, TX 77235
- 1975-1975 Assistant Director, Clinical Veterinary Microbiology Laboratory, Department of Pathobiology, University of Connecticut, Storrs, CT 06268

### **RESEARCH INTERESTS:**

Development of bacterial and viral vaccines, hyperimmune globulins and human monoclonal antibodies.

### **EDITORIAL BOARDS:**

Journal of Bacteriology  
European Journal of Clinical Microbiology and Infectious Diseases  
Infection and Immunity

## **PATENTS:**

### **United States PTO**

Inventors	Title	United States Serial Number	Patent Number and Date
Dr. S.J. Cryz, Jr.,	Klebsiella Capsular Polysaccharide Vaccine	06/844,973	4,755,381 Jul. 5, 1988
Dr. S.J. Cryz, Jr.,	Nontoxic Pseudomonas Aeruginosa	892,846	4,771, 127
Dr. E. Fürer	Polysaccharide - Tetanus Toxoid and Polysaccharide - Toxin A Conjugate Vaccine		Sept. 13, 1988
Dr. R. Glick, Prof. R. Germanier, and Dr. S.J. Cryz, Jr.	Process for the Preparation of a Rabies Vaccine and Vaccine Obtained Thereof	06//905,954	Filed
Dr. S.J. Cryz, Jr. <i>et. al.</i>	Escherichia Coli O-Polysaccharide-Protein Conjugate Vaccine	07/743,787	5,370,872
Dr. S.J. Cryz, Jr. <i>et. al.</i>	Typhoid Vaccine * (Ty2 1 aVI+) Expressing Vi Capsular Antigen	07/611,557	Filed
Prof. A. Rubinstein, Dr. B.R. Bloom, Dr. Y. Devash and Dr. S.J. Crvz. Jr.	Therapeutic and Preventive Vaccines for HIV	08/200,744	Filed

### **European Patent Application EPO**

Inventors	Title	European Patent Application Number	EPO Patent Number and Date
Dr. S.J. Cryz, Jr., Dr. E. Fürer	Conjugated Vaccines Against Infections by Gramnegative Bacteria, Process for Their Preparation and Use Thereof	220'3 87	0 220 387 BI Sept. 19, 1990
Dr. J. Sadoff, Dr. S.J. Cryz, Jr.	"Conjugate Malaria Vaccine"	88300813.8	Filed
Dr. S.J. Cryz, Jr.	Klebsiella Capsular Polysaccharide Vaccine	863023 1 1.5	0 238 739 B1 Feb. 5, 1992
Prof. A. Rubenstein,	Therapeutic and Preventive	PCT/EP92100735	Filed

Dr. B. R. Bloom            Vaccines for HIV  
Dr. U. Devash and  
Dr. S.J. Cryz, Jr.

Dr. J.-F. Viret,            Recombinant Live Vaccines            92106281.6            Filed  
Dr. S.J. Cryz, Jr.            Against Gram-negative Enteric  
and                            Pathogens  
Dr. D. Favre

---

## **Publications**

Cryz, S.J., Jr., F.L. Friedman and B.H. Iglewski, 1980. Isolation and characterization of a Pseudomonas aeruainosa mutant producing a nontoxic immunologically cross-reactive (CRM) toxin A protein. Proc. Nat. Acad. Sci. USA 77: 7199-7203.

Cryz, S.J., Jr. and Barbara J. Iglewski. 1980. Production of alkaline protease by Pseudomonas aeruginosa. J. Clin. Micro. 12: 131 - 133.

Cryz, S.J., Jr., S. Welkos and R.K. Holmes. 1980. Immunochemical studies of diphtheria toxin and related nontoxic mutant proteins. Infect. Immun. 30: 835-846.

Ohman, D.E., S.J. Cryz, Jr. and B.H. Iglewski. 1980. Isolation and characterization of Pseudomonas aeruainosa PA0 mutant that produces altered elastase. J.Bact. 142: 836-842.

Cryz, S.J., Jr., R.L. Friedman, O.R. Pavlovskis and B.H. Iglewski. 1981. The effect of formalin toxoiding on Pseudomonas aeruginosa toxin A: Biological, chemical and immunochemical studies. Infect. Immun. 32:759-768.

Cryz, S.J., Jr., O.R. Pavlovskis and B.J. Iglewski. 1982. Chemical and genetic approaches to making Pseudomonas aeruginosa toxin A toxoid. In Weinstein, L., Fields, B.N. (eds.): Seminars in Infectious Disease Vol. IV, pp. 70-79, Thieme-Stratton, Inc., New York

Fürer, E., S.J. Cryz, Jr., F. Dorner, J. Nicolet, M. Wanner and R. Germanier. 1982. Protection against colibacillosis in neonatal piglets by immunization of dams with procholeraenoid. Infect. Immun. 35: 887-894.

Cryz, S.J., Jr., E. Fürer and R. Germanier. 1982. Development of an enzyme-linked immunosorbent assay for studying Vibrio cholerae cell surface antigens. J. Clin. Microbiol. 16: 41-45.

Woods, D.E., S.J. Cryz, Jr., R. Friedman and B.H. Iglewski. 1982. Contribution of toxin A and elastase to virulence of Pseudomonas aeruginosa in chronic lung infections of rats. Infect. Immun. 36: 1223-1228.

Cruz, S.J., Jr., E. Fürer and R. Germanier. 1982. Effect of chemical and heat inactivation on the antigenicity and immunogenicity of Vibrio cholerae. Infect. Immun. 38:2 1-26.

Cryz, S.J., Jr., L.M. Russel and R.K. Holmes. 1983. Regulation of toxinogenesis in Cownebacterium diphtheriae: mutations in the bacterial genome that alter the effects of iron or toxin production. J. Bact. 154: 245-256.

Cryz, S.J., Jr., E. Fürer and R. Germanier. 1983. Simple model for the study of Pseudomonas

aeruginosa in leukopenic mice. Infect. Immun. 39: 1067-1 071.

Cryz, S.J., Jr., E. Furer and R. Germanier. 1983. Protection against Pseudomonas aeruginosa infection in a murine burn wound sepsis model by passive transfer of antitoxin A, antielastase and anti-lipopolysaccharide. Infect. Immun. 30: 1072- 1079.

Cryz, S.J., Jr., E. Furer and R. Germanier. 1983. Passive protection against Pseudomonas aeruginosa infection in an experimental leukopenic animal model. Infect. Immun. 40:6659-664.

Furer, E., S.J. Cryz, Jr. and R. Germanier. 1983. Protection of piglets against neonatal colibacillosis based on antitoxic immunity. Develop. Biol. Standard. 53: 161 - 167.

Cryz, S.J., Jr., E. Furer and R. Germanier. 1983. Immunogenicity and protective capacity of inactivated Vibrio cholerae whole cell vaccines. Develop. Biol. Standard. 53: 67-72.

Cryz, S. J., Jr. and B.J. Iglewski. 1983. Toxoids of Pseudomonas aeruginosa: Production by chemical and genetic means. Rev. Inf. Dis. 5 (Suppl): S990-S997.

Cryz, S.J., Jr. 1983. Progress in Immunization against Klebsiella Infections. Eur. J. Clin. Microbiol. 2: 523-528.

Furer, E., S.J. Cryz, Jr., F. Dorner and R. Germanier. 1983. Protection of neonatal piglets colibacillosis by immunization of dams with procholeraegenoid. In S. Kuwahara and N. Pierce (eds.): Advances in Research on Cholera and Related Diarrheas. KTK Scientific Publishers, Tokyo, Japan, p. 23-33.

Cryz, S.J., Jr., E. Furer and R. Germanier. 1984. Experimental Klebsiella pneumoniae burn wound sepsis: role of capsular polysaccharide. Infect Immun. 43: 440-441.

Cryz, S.J., Jr., E. Furer and R. Germanier. 1984. Protection Against Fatal Pseudomonas aeruginosa Burn Wound Sepsis by Immunization with Lipopolysaccharide and High-Molecular-Weight Polysaccharide. Infect. Immun. 43: 795-799.

Cryz, S.J., Jr., T.L. Pitt, E. Furer and R. Germanier. 1984. Role of lipopolysaccharide in virulence of Pseudomonas aeruginosa. Infect. Immun. 44: 508-5 13.

Cryz, S.J., Jr. 1984. Pseudomonas aeruginosa Infections. In R. Germanier (ed.): Bacterial Vaccines, p. 3 17-35 1. Academic Press, New York.

Cryz, S.J. Jr., E. Furer and R. Germanier. 1984. Protection against fatal Klebsiella pneumoniae burn wound sepsis by passive transfer of anticapsular antibody. Infect. Immun. 45: 139-142.

Cryz, S. J., Jr., E. Furer and R. Germanier. 1984. Prevention of fatal experimental burn-wound sepsis due to Klebsiella pneumoniae KPI-0 by immunization with homologous capsular polysaccharide. J. Infect. Dis. 150: 8 17422.

Cryz, S.J., Jr. 1985. New insights into the epidemiology, pathogenesis and therapy of Pseudomonas aeruginosa. Eur. J. Clin. Microbiol. 4: 153-1 55.

Cryz, S.J., Jr., P.M. Meadow, E. Furer and R. Germanier. 1985. Protection against fatal Pseudomonas aeruginosa sepsis by immunization with smooth and rough lipopolysaccharides. Eur.

J. Clin. Microbiol. 4: 180-1 85.

Cryz, S.J., Jr., E. Fürer and R. Germanier. 1985. Safety and immunogenicity of Klebsiella K capsular polysaccharide vaccine in humans. J. Infect. Dis. 151: 665-671.

Øgaard, A.R., S.J. Cryz, Jr. and B.P. Berdal. 1985 Exotoxin A from various Pseudomonas aeruginosa cultures: *in vitro* activity measured by enzyme-linked immunosorbent assay (ELISA). Acta. Path. Microbiol. Immunol. Scand. B93: 217-223.

Cryz, S.J., Jr., E. Fürer and R. Germanier. 1985. Purification and vaccine potential of Klebsiella capsular polysaccharides. Infect. Immun. 50: 225-230.

Skvaril, F., S.J. Cryz, Jr. and E. Fürer. 1985. Human Immunoglobulin-G subclass distribution in response to vaccination with Vibrio cholerae vaccine and procholeraegenoid. Current Microbiol. 12: 147-150.

Cryz, S.J., Jr., P. Mortimer, A.S. Cross, E. Fürer and R. Germanier. 1986. Safety and immunogenicity of a polyvalent Klebsiella capsular polysaccharide vaccine in humans. Vaccine 4: 15-20.

Cryz, S.J., Jr., E. Fürer, J.C. Sadoff and R. Germanier. 1986. Pseudomonas aeruginosa immunotype 5 polysaccharide-toxin A conjugate vaccine. Infect. Immun. 52: 161 - 165.

Cryz, S.J., Jr., J.P. Mortimer, V. Mansfield and R. Germanier. 1986. Sero-epidemiology of Klebsiella bacteremic isolates and implications for vaccine development. J. Clin. Microbiol. 23: 687-690.

Elsheikh, L.A., R. Bergman, S.J. Cryz, Jr. and B. Wretling. 1986. A comparison of different methods for determining elastase activity of Pseudomonas aeruginosa strains from mink. Acta Path. Microbiol. Immunol. Scand. Sect. B94: 135-138.

Cryz, S.J., Jr., E. Fürer, J.C. Sadoff, M. Maag and R. Germanier. 1986. Pseudomonas aeruginosa O-polysaccharide-Protein Conjugate Vaccines. *In* Proceedings IXth International Congress of Infectious and Parasitic Diseases, p. 109-1 13. W. Marget, W. Lang, E. Gabler-Sandberger (eds.). M.M.V. Medizin Verlag, Munich, FRG

Cryz, S.J., Jr., J.C. Sadoff, E. Fürer and R. Germanier. 1986. Pseudomonas aeruginosa Polysaccharide - Tetanus Toxoid Conjugate Vaccine: Safety and Immunogenicity in Humans. J. Infect. Dis. 154: 682-688.

Cryz, S.J., Jr., A.S. Cross, E. Fürer, N. Chariatte, J.C. Sadoff and R. Germanier. 1986. Activity of Intravenous Immune Globulins against Klebsiella. J. Lab. Clin. Med. 108: 182-1 89.

Cryz, S.J., Jr., A.S. Cross, E. Fürer and R. Germanier. 1986. Polyvalent vaccine and human immune globulin for the control of Klebsiella infections. *In* M. Rye and J. Franek (eds.): Bacteria and the Host, p. 361-364. Avicenum, Prague.

Cryz, S.J., Jr., E. Fürer and R. Germanier. 1986. Immunization against fatal experimental Klebsiella pneumoniae pneumonia. Infect. Immun. 54: 403-407.

Finn, T.M., J. Reiser, R. Germanier and S.J. Cryz, Jr. 1987. Cell associated hemagglutinin-deficient

mutant of Vibrio cholerae. Infect. Immun. 55: 942-946.

Cryz, S.J., Jr., A.B. Lang, J.C. Sadoff, R. Germanier and E. Furer. 1987. Vaccine potential of Pseudomonas aeruginosa O-polysaccharide-toxin A conjugates. Infect. Immun. 55: 1547-1 55 1.

Cryz, S.J., Jr., E. Furer, A.S. Cross, A. Wegmann, R. Germanier and J.C. Sadoff. 1987. Safety and immunogenicity of a Pseudomonas aeruginosa O-polysaccharide-toxin A conjugate vaccine in humans. J. Clin. Invest. 80: 51-56.

Cryz, S.J., Jr. 1987. Vaccines against gram-negative bacterial nosocomial pathogens: Klebsiella spp. and Pseudomonas aeruginosa. Drugs of the Future. 12: 575-577.

Cryz, S.J., Jr., E. Furer, J.C. Sadoff and R. Germanier. 1987. A polyvalent Pseudomonas aeruginosa O-polysaccharide-toxin A conjugate vaccine. In Basic Research and Clinical Aspects of Pseudomonas aeruginosa. G. Döring, I.A. Holder, K. Botzenhart (eds.). Antibiot. Chemother. 39: 249-255.

Cryz, S.J., Jr. 1987. Progress in immunization against Pseudomonas aeruginosa and Klebsiella spp. Pathol. Immunopathol. Research. 6: 147-152.

Marques, L.R.M., J.S.M. Peiris, S.J. Cryz, Jr. and A.D. O'Brien. 1987. Escherichia coli strains isolated for pigs with edema disease produce a variant of Shiga-like toxin 11. FEMS Microbiol. Letters 44: 33-38.

Cryz, S.J., Jr., E. Furer, J.C. Sadoff, R. Germanier, I. Pastan, M.C. Willingham and D.J.P. FitzGerald. 1987. Use of Pseudomonas aeruginosa toxin A in the construction of conjugate vaccines and immunotoxins. Rev. Infect. Dis. 9 (Suppl. 5): S644-A649.

Cryz, S.J. 1987. Prospects for the prevention and control of gram-negative nosocomial infections. Vaccine Prospects for the prevention and control of gram-negative nosocomial infections. Vaccine 5: 261-265.

Cryz, S.J., Jr., P. Mortimer, E. Furer and R. Germanier. 1987. A polyvalent Klebsiella capsular polysaccharide vaccine. In Bacterial Vaccines, J.B. Robbins, R. Schneerson, D. Klein, J. Sadoff . and M.C. Hardegree (eds.) Praeger Publishers, New York, p. 557-565.

Cryz, S.J., Jr., P. Mortimer, E. Furer and M.M. Levine. 1988. Zur Wirksamkeit des oralen, attenuierten Lebendimpfstoffes Salmonella typhi Ty 21a in kontrollierten Feldversuchen. Schweiz. med Wschr. 118: 467-470.

Sadoff, J.C., W.R. Ballou, L.S. Baron, W.R. Majarian, R.N. Brey, W.T. Hockmeyer, J.F. Young, S.J. Cryz, Jr., J. Ou, G.H. Lowell, J.D. Chulay. 1988. Oral Salmonella typhimurium Vaccine Expressing Circumsporozoite Protein Protects Against Malaria. Science. 140: 336-338.

Cryz, S.J., Jr., J.C. Sadoff and E. Furer. 1988. Characterization of the human immune response to a Pseudomonas aeruginosa O-polysaccharide-toxin A. conjugate vaccine. J. Lab. Clin. Med. 111: 70 1-707.

Cryz, S.J., Jr., J.C. Sadoff and E. Furer. 1988. Immunization with a Pseudomonas aeruginosa immunotype 5 O-polysaccharide-toxin A conjugate vaccine: effect of a booster dose on antibody levels in humans. Infect. Immun. 56: 1829-1 830.

- Cryz, S.J., Jr. and E. Furer. 1988. Further characterization of the Salmonella typhi Ty 21 vaccine strain. *J. Infect. Dis.* 157: 1276-1277.
- Cryz, S.J., Jr. 1980. Pseudomonas aeruginosa O-polysaccharide-protein conjugate vaccines. *Clin. Immunol. Newsletter.* 9: 1 13-1 15.
- Cryz, S.J., Jr. 1988. Attenuated, Live Oral Typhoid Vaccine. 1988. *Drugs of Today* 24: 349-353.
- Levine, M.M., J.B. Kaper, D. Herrington, J. Ketley, G. Losonsky, C.O. Tacket, B. Tall and S. J. Cryz, Jr. 1988. Safety, immunogenicity and efficacy of recombinant live oral cholera vaccines CVD 103 and CVD 103-HgR. *Lancet.* 2: 467-470.
- Que, J.U., S.J. Cryz, Jr., R. Ballou, E. Furer, M. Gross, J. Young, G.F. Wasserman, L.A. Loomis and J.C. Sadoff. 1988. Effect of carrier selection on immunogenicity of protein conjugate vaccines against Plasmodium falciparum circumsporozoites. *Infect. Immun.* 56: 2645-2649.
- Cryz, S.J., Jr. and M. Maag. 1988. Pseudomonas aeruginosa toxin A-neutralizing antibodies in normal human serum. *Lancet* 11: 855.
- Cryz, S.J., Jr. 1988. Bacterial and Parasitic Vaccines: Current needs and future challenges. *Drugs News and Perspectives* 1: 2 14-2 17.
- Granstrom, M., B. Wretling, B. Markman and S.J. Cryz, Jr.' 1988. Enzyme-linked immunosorbent assay to evaluate the immunogenicity of a polyvalent Klebsiella capsular polysaccharide vaccine in humans. *J. Clin. Microbiol.* 26: 2257-2261.
- Trautmann, M., S.J. Cryz, Jr., J.C. Sadoff and A.S. Cross. 1988. A murine monoclonal antibody against Klebsiella capsular polysaccharide is opsonic in vitro and protects against experimental Klebsiella pneumoniae infection. *Microb. Pathogenesis* 5: 177-18 7.
- Cryz, S.J., Jr., A.S. Cross, J.C. Sadoff and J.U. Que. 1988. Human IgG and IgA subclass response following immunization with a polyvalent Klebsiella capsular polysaccharide vaccine. *Eur. J. Immunol.* 18: 2073-2075.
- Woods, D.E., R. Franklin, S.J. Cryz, Jr., M. Ganss, M. Pepler and C. Ewanowich. 1989. Development of a rat model for respiratory infections with Bordetella pertussis. *Infect. Immun.* 57: 1018-1024.
- Cryz, S.J., Jr. 1989. Exotoxin A and other toxins of Pseudomonas aeruginosa. In. *Rapid Methods and Automation in Microbiology and Immunology.* A. Balows, R.C. Tilton and A. Turano (eds.). Brixia Academic Press, Brescia, Italy.
- Cryz, S.J., Jr., J.C. Sadoff and E. Furer. 1989. Octavalent Pseudomonas aeruginosa Opolysaccharide-toxin A conjugate vaccine. *Microbiol. Pathogen.* 6: 75-80.
- Germanier, R. and S.J. Cryz, Jr. 1989. Attenuated oral typhoid vaccine Ty 21a. In. *Progress in Vaccinology.* G.P. Talwar (ed.), p. 1 13-1 17. Springer-Verlag, New York.
- Cryz, S.J., Jr., J.C. Sadoff and J.U. Que. 1989. Conjugate Vaccines against Pseudomonas aeruginosa and Malaria. In *Conjugate Vaccines.* J.M. Cruse and R.E. Luis, Jr. (eds.). Contrib.



Microbiol. Immunolo. 10: 166-189.

Lang, A.B., M.T. Ganss and S.J. Cryz, Jr.. 1989. Monoclonal antibodies that define neutralizing epitopes of pertussis toxin: conformational dependence and epitope mapping. *Infect. Immun.* 57: 2660-2665.

Cryz, S.J., Jr., J.C. Sadoff, A.S. Cross and E. Furer. 1989. Safety and Immunogenicity of a Polyvalent Pseudomonas aeruginosa O -Polysaccharide-toxin A Vaccine in Humans. *Antibiot. Chemother.* 42: 177-183.

Migasena, S., P. Pitisuttitham, B. Prayurahong, P. Suntharasamai, W. Supanaranond, V. Desakorn, U. Vongsthongsri, B. Tall, J. Ketley, G. Losonsky, S. Cryz, Jr., J.B. Kaper and M.M. Levine. 1989. Preliminary Assessment of the Safety and Immunogenicity of Live Oral Cholera Vaccine Strain CVD-HgR in Healthy Thai Adults. *Infect. Immun.* 57: 3261-3264.

Lang, A.B., E. Furer, J.W. Larrick and S.J. Cryz, Jr. 1989. Isolation and Characterization of a Human Monoclonal Antibody that recognizes epitopes shared by Pseudomonas aeruginosa Immunotype 1,3,4 and 6 Lipopolysaccharides. *Infect. Immun.* 57: 3851-3855.

Cryz, S.J., Jr., E. Furer, L.S. Baron, K.F. Noon, F.A. Rubin and D.J. Kopecko. 1989. Construction and Characterization of a Vi-Positive Variant of the Salmonella typhi Live Oral Vaccine Strain Ty 21a. *Infect. Immun.* 57: 3863-3868.

Cryz, S.J., Jr., E. Furer, T. Fredeking, A.S. Cross, J.C. Sadoff and J.U. Que. 1989. Effect of Race and Blood Group on the Immune Response to Bacterial Polysaccharide and Conjugate Vaccines. *The Lancet* 11: 1533-1536.

Cryz, S.J., Jr. 1989. Bacterial Vaccines. *In Immunotherapy and Vaccines*. Ullmann's Encyclopedia of Industrial Chemistry, p. 56-70. VCH Publishers, Weinheim, FRG.

Cryz, S.J., Jr. 1989. Principles of Immunotherapy and Vaccines. *In Immunotherapy and Vaccines*. Ullmann's Encyclopedia of Industrial Chemistry, p. 50-56. VCH Publishers, Weinheim, FRG.

Cryz, S.J., Jr., A.S. Cross, J.C. Sadoff and E. Furer. 1990. Synthesis and characterization of Escherichia coli O18 O-polysaccharide conjugate vaccines. *Infect. Immun.* 58: 373-377.

Gottstein, B., N. Muller, S.J. Cryz, Jr., M. Vogel, I. Tanner and T. Seebeck. 1990. Humoral and cellular immune response in mice and dogs induced by a recombinant Echinococcus multilocularis antigen produced by a Salmonella typhimurium vaccine strain. *Parasite Immunol.* 12: 163-174.

Cryz, S.J., Jr. 1990. Klebsiella Polysaccharide Vaccines. *In A. Mizrahi (ed.)*. Bacterial Vaccines. Advances in Biotechnological Processes Volume 13. p. 87-96. Wiley-Liss, New York.

Cross, A.S., J.C. Sadoff, E. Furer and S.J. Cryz, Jr. 1990. Escherichia coli and Klebsiella Vaccines and Immunotherapy. *Infectious Disease Clinics of North America*. W. Schaffner (ed.). Immunization in Adults 11. Vol. 4: 271-282.

Lang, A.B., E. Furer, U. Schurch, A.S. Cross, J.W. Larrick and S.J. Cryz, Jr. 1990. Human monoclonal antibodies to Pseudomonas aeruginosa type-specific lipopolysaccharides, toxin A and Klebsiella capsular polysaccharides. *Develop. Biol. Standard.* 71: 121-126.

Schaad, U.B., A.B. Lang, J. Wedgwood, A. Ruedeberg, E. Furer, J.U. Que and S.J. Cryz, Jr. 1990. Immunization of non-colonized cystic fibrosis patients with a Pseudomonas aeruginosa Opolysaccharide-toxin A conjugate vaccine. *Ped. Pulmonol. Suppl.* 5:91-92.

Lang, A.B., U. Bruderer, E. Furer, J.W. Larrick and S.J. Cryz, Jr. 1990. Immunoprotective capacities of human and murine monoclonal antibodies recognizing serotype-specific and common determinants of gram-negative bacteria. In *Therapeutic Monoclonal Antibodies*, C.A. K. Borrebaeck and J.W. Larrick (eds.) p. 223-234. Stockton Press, New York.

Herrington, D.A., L. Van de Verg, S.B. Formal, Th. L-Hale, B.D. Tall, S.J. Cryz, Jr., E.C. Tramont and M.M. Levine. 1990. Studies in volunteers to evaluate candidate *Shigella* vaccines: further experience with a bivalent Salmonella typhi-shigella sonnei vaccine and protection conferred by previous Shigella sonnei disease. *Vaccine* 8: 353-357.

Cross, A.S., J.C. Sadoff and S.J. Cryz, Jr. 1990. Vaccines against *Klebsiella* and *Pseudomonas* infections. In *New Generation Vaccines*, G.C. Woodrow and M.M. Levine (eds.) pp. 699-713. Marcel Dekker, Inc. New York.

Lang, A.B., E. Furer, G. Senk, J. W. Larrick and S.J. Cryz, Jr. 1990. Systematic generation of antigen specific human monoclonal antibodies with therapeutical activities using active immunization. *Hum. Antibod. Hybridomas* 1: 96- 1 03.

Levine, M.M., C. Ferreccio, S.J. Cryz, Jr. and E. Ortiz. 1990. Comparison of enteric-coated capsules and liquid formulation of Ty2la typhoid vaccine in randomized controlled field trial. *Lancet* 2: 891-894.

Bruderer, U., E. Furer, S.J. Cryz, Jr. and A.B. Lang. 1990. Qualitative analysis of antibody binding. An in vitro assay for the evaluation and development of vaccines. *J. Immunological Meth.* 133: 263-268.

Cryz, S.J., Jr., J.U. Que, J.C. Sadoff and E. Furer. 1990. The use of Pseudomonas aeruginosa toxin A as a carrier for polysaccharide and peptide antigens. In *Bacterial Protein Toxins*, R. Rappuoli, a a1 (eds.). *Entr. Blatt Bakter. - Suppl.* 19: 489-497

Cryz, S.J., Jr. and R. Glück. 1990. Large-scale production of attenuated bacterial and viral vaccines. In *New Generation Vaccines*. G.C. Woodrow and M.M. Levine (eds.) pp. 921 -932. Marcel Dekker, New York.

Cryz S.J., Jr., T.L. Pitt, B. Ayling-Smith and J.U. Que. 1990. Immunological cross-reactivity between Enterobacter aerogenes and Klebsiella capsular polysaccharides. *Microbiol. Pathogenesis* -9: 127-130.

Levine, M.M., D. Hone, C. Tacket, C. Ferreccio and S.J. Cryz, Jr. 1990. Clinical and field trials with attenuated Salmonella typhi a as live oral vaccines and as "carrier" vaccines. *Res. Microbiol.* 141: 807-816.

Gottlieb, D.J., S.J. Cryz, Jr., E.Furer, J.U. Que, H.G. Prentice, A.S. Duncombe and M.K. Brenner. 1990. Immunity Against Pseudomonas aeruginosa Adoptively Transferred to Bone Marrow Transplant Recipients. *Blood* 76: 2470-2475.

Bruderer, U., E. Furer, S. J. Cryz, Jr. and A.B. Lang. 1990. The role of human monoclonal

antibody specifically and avidity in the protection against gram-negative bacteria. In Immunotherapeutic Prospects of Infectious Diseases. K.N. Mashi and W. Lange (eds.). pp. 373-377. Springer Verlag, Berlin.

Cryz, S.J., R., M.M. Levine, J.B. Kaper, E. Furer and B. Althaus. 1990. Randomized double-blind placebo controlled trial to evaluate the safety and immunogenicity of the live oral cholera vaccine strain CVD 103-HgR in Swiss Adults. Vaccine 8: 577-580.

Cryz, S.J., Jr., E. Furer and J.U. Que. 1991. Synthesis and characterization of a Pseudomonas aeruginosa alginate-toxin A conjugate vaccine. Infect. Immun. 59: 45-50.

Cryz, S.J., Jr. 1991. Molecular parasitology: progress towards the development of vaccines for malaria, filariasis and schistosomiasis. Experientia 47: 146-151.

Cryz, S.J., Jr., E. Furer, J.C. Sadoff, T. Fredeking, J.U. Que and A.S. Cross. 1991. Herrington, D.A., L. Van de Verg, S.B. Formal, Th. L-Hale, B.D. Tall, S.J. Cryz, Jr., E.C. Tramont and M.M. Levine. 1990. Studies in volunteers to evaluate candidate Shigella vaccines: further experience with a bivalent Salmonella typhi-shinella sonnei vaccine and protection conferred by previous Shigella sonnei disease. Vaccine 8: 353-357.

Cross, A.S., J.C. Sadoff and S.J. Cryz, Jr. 1990. Vaccines against Klebsiella and Pseudomonas infections. In New Generation Vaccines, G.C. Woodrow and M.M. Levine (eds.). pp. 699-713. Marcel Dekker, Inc., New York.

Lang, A.B., E. Furer, G. Senk, J. W. Larrick and S.J. Cryz, Jr. 1990. Systematic generation of antigen specific human monoclonal antibodies with therapeutical activities using active immunization. Hum. Antibod. Hybridomas 1: 96-103.

Levine, M.M., C. Ferreccio, S.J. Cryz, Jr. and E. Ortiz. 1990. Comparison of enteric-coated capsules and liquid formulation of Ty2la typhoid vaccine in randomized controlled field trial. Lancet 2: 891-894.

Bruderer, U., E. Furer, S.J. Cryz, Jr. and A.B. Lang. 1990. Qualitative analysis of antibody binding. An in vitro assay for the evaluation and development of vaccines. J. Immunological Meth. 133: 263-268.

Cryz, S.J., Jr., J.U. Que, J.C. Sadoff and E. Furer. 1990. The use of Pseudomonas aeruginosa toxin A as a carrier for polysaccharide and peptide antigens. In Bacterial Protein Toxins, R. Rappuoli, et al. (eds.). Entr. Blatt Bakter. Suppl. 19: 489-497

Cryz, S.J., Jr. and R. Glück. 1990. Large-scale production of attenuated bacterial and viral vaccines. In New Generation Vaccines. G.C. Woodrow and M.M. Levine (eds.). pp. 921-932. Marcel Dekker, New York.

Cryz S.J., Jr., T.L. Pitt, B. Ayling-Smith and J.U. Que. 1990. Immunological cross-reactivity between Enterobacter aerogenes and Klebsiella capsular polysaccharides. Microbiol. Pathogenesis 9: 127-130.

Levine, M.M., D. Hone, C. Tacket, C. Ferreccio and S.J. Cryz, Jr. 1990. Clinical and field trials with attenuated Salmonella typhi as live oral vaccines and as "carrier" vaccines. Res. Microbiol. 141: 807-816.

Gottlieb, D.J., S.J. Cryz, Jr., E.Fürer, J.U. Que, H.G. Prentice, A.S. Duncombe and M.K. Brenner. 1990. Immunity Against Pseudomonas aeruginosa Adoptively Transferred to Bone Marrow Transplant Recipients. Blood 76: 2470-2475.

Bruderer, U., E. Fürer, S. J. Cryz, Jr. and A.B. Lang. 1990. The role of human monoclonal antibody specifically and avidity in the protection against gram-negative bacteria. In Immunotherapeutic Prospects of Infectious Diseases. K.N. Mashi and W. Lange (eds.). pp. 373-377. Springer Verlag, Berlin.

Cryz, S.J., R., M.M. Levine, J.B. Kaper, E. Fürer and B. Althaus. 1990. Randomized double blind placebo controlled trial to evaluate the safety and immunogenicity of the live oral cholera vaccine strain CVD 103-HgR in Swiss Adults. Vaccine 8: 577-580.

Cryz, S.J., Jr., E. Fürer and J.U. Que. 1991. Synthesis and characterization of a Pseudomonas aeruginosa alginate-toxin A conjugate vaccine. Infect. Immun. 59: 45-50.

Cryz, S.J., Jr. 1991. Molecular parasitology: progress towards the development of vaccines for malaria, filariasis and schistosomiasis. Experientia 47: 146-151.

Cryz, S.J., Jr., E. Fürer, J.C. Sadoff, T. Fredeking, J.U. Que and A.S. Cross. 1991. Production and characterization of a human intravenous immunoglobulin against Pseudomonas aeruginosa and Klebsiella species. J. Inf. Dis. 163: 1055-1061.

Cryz, S.J., Jr., A.S. Cross, J.C. Sadoff, A. Wegmann, J.U. Que and E. Fürer. 1991. Safety and immunogenicity of Escherichia coli 01 8 O-polysaccharide-toxin A and O-polysaccharide-cholera toxin conjugate vaccines in humans. J. Inf. Dis. 163: 1040-1045.

Tacket C.O., G. Losonsky, D.N. Taylor, L.S. Baron, D. Kopecko, S.J. Cryz, Jr., and M.M. Levine. 1991. Lack of immune response to the Vi-component of a Vi-positive variant of the Salmonella typhi live oral vaccine strain Ty21a in human studies. J. Inf. Dis. 163: 901-904.

Lang, A.B., U. Bruderer, G. Senyk, T.L. Pitt, J.W. Larrick and S.J. Cryz, Jr. 1991. Human monoclonal antibodies specific for capsular polysaccharides of Klebsiella recognize clusters of multiple serotypes. J. Immunol. 145:3 160-3 164.

Cryz, S.J., Jr. 1991. Extraintestinal Escherichia coli infections. In Vaccines and Immunotherapy. S.J. Cryz, Jr., (ed.). Pergamon Press, NY, pp. 186-195.

Cryz, S.J., Jr. 1991 Pseudomonas aeruginosa Vaccines. In Vaccines and Immunotherapy. S.J. Cryz, Jr., (ed.). Pergamon Press, NY, pp. 156- 165.

Favre, D., S.J. Cryz, Jr. and J.F. Viret. 1991. Cloning of the recA gene of Bordetella pertussis and characterization of its product. Biochemie. 73: 235-244.

Lang, A.B., U. Schiirch and S.J. Cryz, Jr. 1991. Optimization of growth and secretion of human monoclonal antibodies by hybridomas cultured in serum-free media. Hybridoma 10 401-409.

Trautmann, J., A. Ghandchi, T. Held, S.J. Cryz, Jr. and A.S. Cross. 1991. An enzyme-linked immunosorbent assay for the detection of soluble Klebsiella pneumoniae capsular polysaccharide. J. Microbial. Methods. 13: 305-313.

Schaad, U.B., A.B. Lang, J. Wedgwood, A. Ruedeberg, J.U. Que, E. Fürer and S.J. Cryz, Jr. 1991. Safety and immunogenicity of *Pseudomonas aeruginosa* conjugate A vaccine in cystic fibrosis. *Lancet*. 338: 1236-1237.

Cryz, S.J., Jr., E. Fürer, J.U. Que, J.C. Sadoff, M. Brenner and U.B. Schaad. 1991. Clinical Evaluation of an Octavalent *Pseudomonas aeruginosa* Conjugate Vaccine in Plasma Donors and in Bone Marrow Transplant and Cystic Fibrosis Patients. *Antibiotic. Chemother.* 44: 157-162.

Cross, A.S., J.C. Sadoff, S.M. Opal, S.J. Cryz, Jr., A.K. Bhattacharjee. 1991. Immunotherapy for Septic Shock. A process-oriented approach. IN Treatment of serious infections in the 1990's. M.A. Sande, R.K. Root (eds.). Churchill Livingstone. NY, pp. 77-91.

Pirsit S-A, S. Preecha, D.N. Taylor, C. Hoge, A. Trofa, K. Krit, M. Sricharoen, P. Punnee, L.L. Yu, G. Losonsky, J.B. Kaper, S.S. Wasserman, S.J. Cryz, Jr., P. Echeverria and M.M. Levine. 1992. Safety and Immunogenicity of Different Immunization Regimens of CVD 103-HgR live oral cholera vaccine in soldiers and civilians in Thailand. *J. Infect. Dis.* 165: 1042-1 048.

Bruderer U., E. Fürer, S.J. Cryz, Jr. and A.B. Lang. 1992. Properties determining the potential of naturally occurring and vaccine-induced human antibodies to protect against lethal infection of *Pseudomonas aeruginosa*. *Res Immunol.* 143: 165-174.

Fries L.F., D.M. Gordon, I. Schneider, J.C. Beier, G.W. Long, M. Gross, J.U. Que, S.J. Cryz, Jr. and J.C. Sadoff. 1992. Safety, Immunogenicity and Efficacy of a *Plasmodium falciparum* Vaccine Comprising a Circumsporozoite Protein Repeat Region Peptide Conjugated to *Pseudomonas aeruginosa* Toxin A. *Infect. Immun.* 60: 1834-1839.

Held T.K., M. Trautmann, M.E.A. Mielke, H. Neudeck, S. J. Cryz, Jr. and A.S. Cross. 1992. Monoclonal Antibody against *Klebsiella* Capsular Polysaccharide Reduces Severity and Hematogenic Spread of Experimental *Klebsiella pneumoniae* Pneumonia. *Infect. Immun.* 60: 1771-1778.

Cryz, S.J., Jr. 1992. Live attenuated vaccines for human use. *Current Biology.* 3: 298-302.

Olanratmanee T., Levine M., Losonsky G., Thisyakorn U. and Cryz S.J., Jr. 1992 Safety and Immunogenicity of *Salmonella typhi* Ty2 1 a Liquid Formulation Vaccine in 4- to 6-Year-Old Thai Children. *J. Infect. Dis.* 166: 45 1-452.

Bruderer U., Cryz S. J., Jr., Schaad U.B., Deusinger M., Que J.U. and Lang A.B. 1992. Affinity constants of naturally Acquired Vaccine-Induced Anti-*Pseudomonas aeruginosa* Antibodies in Healthy Adults and Cystic Fibrosis Patients. *J. Infect. Dis.* 166: 349.

Cryz S.J., Jr., B. Althaus and J.U. Que. 1992. Phase I Clinical Evaluation of a *Pseudomonas aeruginosa* alginate-toxin A conjugate vaccine. IN Cystic Fibrosis, Basic and Clinical Research. N. Hoiby and S.S. Pedersen (eds.). Elsevier, Netherlands, pp. 159-163.

Cryz S.J., Jr., M.M. Levine, G. Losonsky, J.B. Kaper and B. Althaus. 1992 Safety and Immunogenicity of a Booster Dose of *Vibrio cholerae* CVD 103-HgR Live Oral Cholera Vaccine in Swiss Adults. *Infect. Immun.* 60: 3916-3917.

Schaad U.B., A.B. Lang, J. Wedgwood, A. Ruedeberg, J.U. Que, E. Furer and S.J. Cryz, Jr. 1992. Safety and Immunogenicity of an Octavalent *Pseudomonas aeruginosa* Octavalent *Pseudomonas aeruginosa* O-polysaccharide-toxin A Conjugate Vaccine in Cystic Fibrosis Patients. IN Cystic Fibrosis, Basic and Clinical Research. N. Hoiby and S.S. Pedersen (eds.). Elsevier, Netherlands, pp. 165- 174.

Cryz S.J.jr., E. Furer, U. Bruderer, A.B. Lang, J.U. Que, J. Wedgwood, A. Ruedeberg and U.B. Schaad. 1992. Safety and Immunogenicity of a *Pseudomonas aeruginosa* O-polysaccharide (O-PS)-Toxin A Conjugate Vaccine in Non Colonized and Colonized Cystic Fibrosis (CF) Patients. Pediatr. Pulmonol. Suppl. 8: 191 - 193.

Suharyono, C. Simanjuntak, N. Witham, N. Punjabi, D.G. Heppner, G. Losonsky, J. Totosudirjo, A.R. Rifai, J. Clemens, U.L. Lim, D. Burr, S.S. Wasserman, J. Kaper, K. Sorenson, S.J. Cryz, Jr., M.M. Levine. 1992. Safety and immunogenicity of single-dose live oral cholera vaccine CVD 103-HgR in 5-9 year-old Indonesian children. Lancet 340: 689-694.

Kotloff K.L., S.S. Wasserman, S. O'Donnell, G.A. Losonsky, S.J. Cryz, Jr. and M.M. Levine. 1992. Safety and Immunogenicity in North Americans of a Single Dose of Live Oral Cholera Vaccine CVD 103-HgR: Results of a Randomized, Placebo-Controlled, Double-Blind Crossover Trial. Infect. Immun. 60: 430-4432.

Tacket Carol O., Genevieve Losonsky, James P. Nataro, Stanley J. Cryz, Jr., Robert Edelman, James B. Kaper and Myron M. Levine. 1992. Onset and Duration of Protective Immunity in Challenged Volunteers after Vaccination with Live Oral Cholera Vaccine CVD 103-HgR. J. Infect. Dis. 166: 837-841.

Glück R., R. Mischler, S. Brantschen, M. Just, B. Althaus, Stanley J. Cryz, Jr., 1992. Immunopotentiating Reconstituted Influenza Virus Virosome Vaccine Delivery System for Immunization against Hepatitis A. J. Clin. Invest. 90: 2491-2492.

Cryz S.J., Jr. 1993. Post-marketing experience with live oral Ty21a vaccine. Lancet 341: 49-50.

Cryz S.J., Jr. 1993. The state of the art in the development of *Pseudomonas aeruginosa* vaccine. IN *Pseudomonas aeruginosa* as an Opportunistic Pathogen. M. Compa, M. Bendinelli and J. Friedman (eds.). Plenum Press, NY, pp. 383-396.

Schiff D.E., C.A. Wass, S.J. Cryz, Jr. A.S. Cross, K.S. Kim. 1993. Estimation of Protective Levels of Anti-O-Specific Lipopolysaccharide Immunoglobulin G Antibody against Experimental *Escherichia coli* Infection. Infect. Immun. 61: 975-980.

Cryz S.J., Jr., N. Vanprapar, U. Thisyakorn, T. Olanratmanee, G. Losonsky, M.M. Levine, S. Chearskul. 1993 Safety and Immunogenicity of *Salmonella typhi* Ty21a Vaccine in Young Thai Children. Infect. Immun. 61: 1149- 1151.

Brauner A., S.J. Cryz, Jr., M. Granström, H.S. Hanson, L. Löfstrand, B. Strandvik, B. Wretling. 1993 Immunoglobulin G Antibodies to *Pseudomonas aeruginosa* Lipopolysaccharides and Exotoxin A in Patients with Cystic Fibrosis or Bacteremia. Clin. Microbiol. Infect. Dis. 12: 430-436.

Lang A.B., E. Furer, S.J. Cryz, Jr. 1993. Feasibility of prophylaxis and therapy against Gramnegative infections by human monoclonal antibodies. *FEMS Immunol. Med. Microbiol.* 7: 9-14.

Lang A.B., S.J. Cryz, Jr., U. Schiirch, M.T. Ganss, U. Bruderer. 1993. Immunotherapy with Human Monoclonal Antibodies. *J. Immunology* 151: 466- 472.

Saxen J., J. Vuopio-Varkila, J. Luk, A. Lindberg, A. Lang, F. Dipadova, S.J. Cryz, Jr., J. Mertsola, G.J. McCracken, Jr., E.G. Hansen. 1993. Detection of Enterobacterial Lipopolysaccharides and Experimental Endotaxemia by Means of an Immunolimus Assay Using Both Serotype-Specific and Cross-Reactive Antibodies. *J. Infect. Dis.* 168: 393-399.

Gotuzzo E., B. Butron, C. Seas, M. Penny, R. Ruiz, G. Losonsky, C.F. Lanata, S.S. Wasserman, E. Salazar, J.B. Kaper, S.J. Cryz, Jr. and M.M. Levine. 1993. Safety, Immunogenicity and Excretion Pattern of Single-Dose Live Oral Cholera Vaccine CVD 103-HgR in Peruvian Adults of High and Low Socioeconomic Levels. *Infect. Immun.* 61: 3994-3997.

Cryz S.J., Jr., H. Goldstein, E. Furer, J.U. Que, T. Hasler, B. Althaus and A Rubinstein. 1993. Prospects for Prevention of Vertical Transmission of Human Immunodeficiency virus by Immunization in Pediatric AIDS: Clinical, Pathologic and Basic Science Perspectives. W.D. Lyman and A. Rubinstein (eds.). *Annals New York Acad. Sci.* 693: 194-201.

Levine M.M., D.M. Hone, C.D. Tacket, M. Sztein, G. Losonsky, J.D. Nataro, C. Gonzalez, G. Dougan, S. Chatfield, S.J. Cryz, Jr., R. Curtiss and S. Kelley. 1993. Attenuated *Salmonella typhi* as Live Oral Vaccines to Prevent Typhoid Fever and as Carrier Vaccines to Express Foreign Antigens. *IN* *Biology of Salmonella*. F. Cabello, C. Hormache, P. Mastroeni, and L. Bonina (eds.). Plenum Press, New York. pp.343-346.

Olanratmanee T., M.M. Levine, G. Losonsky, V. Thisyakorn and S.J. Cryz, Jr. 1993. Safety and Immunogenicity of *Salmonella typhi* Ty Ola Liquid Formulation Vaccine in 4 to 6 Year Old Thai Children. *IN* *Biology of Salmonella*. F. Cabello, C. Hormache, P. Mastroeni, and L. Bonina (eds.). Plenum Press, New York. pp.355-359.

Simanjuntak C.H., P. O'Hanley, N.H. Punjabi, F. Noriega, G. Pazzaglia, P. Dykstra, B. Kay, Suharyono, A. Budiarmo, A.T. Rifai, S.S. Wasserman, G. Losonsky, J. Kaper, S.J. Cryz, Jr. and M.M. Levine. 1993. Safety, Immunogenicity and Transmissibility of single-Dose Live Oral Cholera Vaccine Strain CVD 103-HgR in 24-to 59-Month-Old Indonesian Children. *J. Infect. Dis.* 168: 1169-1176.

Barret P., P. Clarke and S.J. Cryz, Jr. 1993. Oral cholera vaccine well tolerated. *Brit. Med. Journ.* 307: 1425.

Tacket C.O., G. Losonsky, J.P. Nataro, S.J. Cryz, Jr., R. Edelman, A. Fasano, J. Michalski, J.B. Kaper and M.M. Levine. 1993. Safety and Immunogenicity of Live Oral Cholera Vaccine Candidate CVD 1 10, a *DctxA Dzt Dce* Derivative of El Tor Ogawa *Vibrio cholerae*. *J. Infect. Dis.* 168: 1536-1540.

Brown A.E., P. Sinharaj, H.K. Webster, J. Pipithkul, D.M. Gordon, J.W. Boslego, K. Krinchai, P. Su-archawaratana, C. Wongsrichanalai, W.R. Ballou, B. Permpnich, K.C. Kain,

M.R. Hollingdale, J. Wittes, J.U. Que, M. Gross, S.J. Cryz, Jr. and J.C. Sadoff. 1994. Safety, immunogenicity and limited efficacy study of a recombinant *Plasmodium falciparum* circumsporozoite vaccine in Thai soldiers. *Vaccine* 12: 102- 108.

Poovorawan Y., A. Theamboonlers, S. Chumdermpadetsuk, R. Glück and S.J. Cryz, Jr. 1994. Control of a Hepatitis A Outbreak by Active Immunization of High-Risk Susceptible Subjects. *J. Inf. Dis.* 169: 228-229.

Cryz S.J., Jr., J. Wedgwood, A.B. Lang, A. Ruedeberg, J.U. Que, E. Fürer and U.B. Schaad. 1994. Immunization of Noncolonized Cystic Fibrosis Patients against *Pseudomonas aeruginosa*. *J. Inf. Dis.* 169: 1 159-1 162.

Cryz S.J., Jr. 1994. Klebsiella Pneumonia. IN *Pulmonary Infections and Immunity*. H. Chernel M. Bendinelli and H. Friedman \*eds.). Plenum Press, New York, NY, pp. 85-93.

Cryz S.J., Jr. 1994. Vaccines, Immunoglobulins and monocloned antibodies for the prevention and treatment of *Pseudomonas aeruginosa* infections. IN *Pseudomonas aeruginosa* Infections and Treatment. A.L. Baltch and R.P. Smith (eds.). Marcel Dekker, Inc. New York, NY pp. 519-538.

Glück R., R. Mischler, B. Finkel, J.U. Que, B. Scarpa and S.J. Cryz, Jr. 1994. Immunogenicity of new virosome influenza vaccine in elderly people. *Lancet* 344: 160- 163.

Cross A., A. Artenstein, J.U. Que, T. Fredeking, E. Fürer, J.C. Sadoff and S.J. Cryz, Jr. 1994. Safety and Immunogenicity of a Polyvalent *Escherichia coli* Vaccine in Human Volunteers. *J. Inf. Dis.* 170: 834-840.

Krogh Johansen H., F. Espersen, S.J. Cryz, Jr., H.P. Hougen, A. Fomsgaard, J. Rygaard and N. Hoiby. 1994. Immunization with *Pseudomonas aeruginosa* Vaccines and Adjuvant Can Modulate the Type of Inflammatory Response Subsequent to Infection. *Infect. Immun.* 62: 3146-3155.

Cross A., A. Artenstein, J. Que, T. Fredeking, E. Fürer J.C. Sadoff and S.J. Cryz, Jr. 1994. Safety and Immunogenicity of a Polyvalent *Escherichia coli* Vaccine in Human Volunteers. *J. Inf. Dis.* 170: 834-840.

Rubinstein A., S.J. Cryz, Jr. 1995. Preventive and therapeutic AIDS peptide vaccines. *Eur. J. Pediatr.* 154 (Suppl. 3): 28-29.

Cryz S.J., Jr. 1995. Immunization against *Salmonella typhi*. Letter to the Editor, *Inf. Dis. in Clin. Practice.* 4: 473-474.

Poovorawan Y, A. Theamboonlers, L. Vimalkej and S.J. Cryz., Jr.. 1995. Anti-Hepatitis A Antibody Titers After Passive Immunization with Hepatitis A Hyperimmune Globulin. *Southeast Asian J. Trop Med. Public Health* 26: 193-1 94.

Lang A.B., U.B. Schaad, A Ruedeberg, J. Wedgwood, J.U. Que, E. Fürer and S.J. Cryz, Jr. 1995. Effect of high-affinity anti-*Pseudomonas aeruginosa* lipopolysaccharide antibodies induced by immunization on the rate of *Pseudomonas aeruginosa* infection in patients with cystic fibrosis. *J. Pediatr.* 127: 71 1-717.



Krogh Johansen H., H.P. Hougen, S.J. Cryz, Jr., et al. 1995. Vaccination Promotes TH1-like Inflammation and Survival in Chronic *Pseudomonas aeruginosa* Pneumonia in Rats. *Am. J. Respir. Crit. Care Med.* 152: 1337-1346.

Favre D., S.J. Cryz, Jr. and J.-F. Viret. 1996. Development of *Shigella sonnei* Live Oral Vaccines Based on Defined rfb/Inaba Deletion Mutants of *Vibrio cholerae* Expressing the Shigella Serotype D O Polysaccharide. *Infect. Immun.* 64: 576-584.

Favre D., M.-M. Struck, S.J. Cryz, Jr. and J.-F. Viret. 1996. Further molecular characterization and stability of the live oral attenuated cholera vaccine strain CVD 103-HgR. *Vaccine* 14: 526-531.

Cryz, S.J., Jr., S.S. Davis, G. Gregoriadis, J.-A. Grimaud, P. Kourilsky, M.E. Selkirk, M. Slaoui and G.L. Smith. 1996. Vaccine Delivery Systems (Report of the Expert Panel VII, European Commission Cost/STD Initiative). *Vaccine.* 14: 665-690.

Kollaritsch H., E. Fürer, C. Herzog, G. Wiedermann, J.U. Que and S.J. Cryz, Jr. 1996. Randomized, double-blind placebo-controlled trial to evaluate the safety and immunogenicity of combined *Salmonella typhi* Ty2 1 a and *Vibrio cholerae* CVD 103 HgR live oral vaccines. *Infect. Immun.* 64: 1454-1457.

Cryz S.J., O. Pasteris, S.J. Varallyay and E. Fürer. 1996. Factors influencing the stability of live oral attenuated bacterial vaccines. Vol. 87, pp. 277-281. IN F. Brown (ed.): *New Approaches to Stabilisation of Vaccines Potency*. Dev. Biol. Stand. Karger, Basel.

Campbell W.N.E. Hendrix, S.J. Cryz, Jr. and A.S. Cross. 1996. Immunogenicity of a 24-valent *Klebsiella* Capsular Polysaccharide Vaccine and an Eight-Valent *Pseudomonas* O Polysaccharide Conjugate Vaccine Administered to Victims of Acute Trauma. *Clin. Inf. Dis.* 23: 179-181

Donata S.T., P. Peduzzi, A.S. Cross, J. Sadoff, C. Haakenson, S.J. Cryz, Jr., et al. 1996. Immunoprophylaxis against *Klebsiella* and *Pseudomonas aeruginosa* Infections. *J. Inf. Dis.* 174: 537-543.

Cryz S.J., Jr. P. Peduzzi, A.S. Cross, J.C. Sadoff and S. Donata. 1996. Immunoprophylaxis against Bacterial Infection in the Intensive-Care Unit. *Dig. Surg.* 13: 435-438.

Viret, J.-F., S.J. Cryz, Jr. and D. Favre. 1996. Expression of *Shigella sonnei* lipopolysaccharide in *Vibrio cholerae*. *Molecular Microbiol.* 19: 949-963.

Cryz S.J., Jr. D. Favre and J.-F. Viret. 1996. Bacterial vectors for the delivery of vaccine antigens. pp. 321-327. IN S. Plotkin, B. Fantini (eds.). *Vaccinia, vaccination, vaccinology: Jenner, Pasteur and their successors*. Elsevier, Paris.

Sherwood J.A., R.S. Copeland, K.A. Taylor, K. Abok, A.J. O'100, J.B.O. Were, G. T. Strickland, D.M. Gordon, W.R. Ballou, J.D. Bales, R.A. Wirtz, J. Wittes, M. Gross, J.U. Que, S.J. Cryz, C.N. Oster, C.R. Roberts and J.C. Sadoff. 1996. *Plasmodium falciparum* circumsporozoite vaccine immunogenicity and efficacy trial with natural challenge quantitation in an area of endemic human malaria of Kenya. *Vaccine* 14: 817-827.

Favre D., S.J. Cryz, Jr., J.-F. Viret. 1996. Construction and Characterization of a Potential

Live Oral Carrier-Based Vaccine against *Vibrio cholerae* 0139. *Infect. Immun.* 64: 3565-3570.

Cryz S.J., Jr., J.U. Que and R. Gliick. 1996. A virosome vaccine antigen delivery system does not stimulate an antiphospholipid antibody response in humans. *Vaccine* 14: 1381 - 1383.  
Briggs D.J., D.W. Dreesen, P. Morgan, J.E. Curtis, C.D. Seedle, L. Cryz, R. Glück and S.J. Cryz, Jr. 1996. Safety and immunogenicity of Lyssavac Berna human diploid cell rabies vaccine in healthy adults. *Vaccine* 14: 1361 - 1365.

Kollaritsch H., J.U. Que, C. Kunz, G. Wiedermann, C. Herzog and S.J. Cryz, Jr. 1997. Safety and immunogenicity of live oral cholera and typhoid vaccines administered alone or in combination with antimalarial drugs, oral polio vaccine or yellow fever vaccine. *J. Inf. Dis.* 175: 871-875.

Krogh Johansen H. S.J. Cryz, Jr., H.P. Hougen, C. Moser and N. Hoiby. 1997. Vaccination promotes TH1 -like inflammation and survival in chronic *Pseudomonas aeruginosa* pneumonia. A new prophylactic principle. *Behring Inst. Mitt.*, 98: 269-273.

Cryz S.J., Jr., A. Lang, A. Rudeberg, J. Wedgwood, J.U. Que, E. Fürer and U. Schaad. 1997. Immunization of Cystic Fibrosis Patients with a *Pseudomonas aeruginosa* O-Polysaccharide-Toxin A Conjugate Vaccine. *Behring Inst. Mitt.*, 98: 345-349.

Herzog C., B. Wegmuller and S.J. Cryz, Jr. 1997. Live oral cholera vaccines. *Lancet.* 349: 1772- 1773.

Cross A.S. and S.J. Cryz, Jr. 1997. Vaccines Against *Klebsiella*, *Pseudomonas* and Septicemic *E. coli* Infections. pp. 93 1-943. IN M.M. Levine, G.C. Woodrow, J.B. Kaper and G.S. Cobon (eds.): *New Generation Vaccines*, 2nd Edition. Marcel Dekker, Inc., New York.

Glück R. and S.J. Cryz, Jr. 1997. Immunopotentiating Reconstituted Influenza Virosomal Vaccine Delivery System,. pp. 247-252. IN M.M. Levine, G.C. Woodrow, J.B. Kaper and G.S. Cobon (eds.): *New Generation Vaccines*, 2nd Edition. Marcel Dekker, Inc., New York.

Cryz, S.J., Jr. and R. Glück. 1997. Large-Scale Production of Live Attenuated Bacterial and Viral Vaccines. pp. 1153-1 163. M.M. Levine, G.C. Woodrow, J.B. Kaper and G.S. Cobon (eds.): *New Generation Vaccines*, 2nd Edition. Marcel Dekker, Inc., New York.

Cryz, S.J., Jr. and F. Andre. '1997. Prospects for the Development of Dengue Fever, *Neisseria Meningitidis* Group B and HIV Vaccines for Travelers. pp. 178- 182. IN DuPont and Steffen (eds.): *Textbook of Travel Medicine*, B.C. Becker, Inc. Ontario.

Chotpitayasunondh T., C. Panpitpat, U. Thisyakorn, E. Fürer, J.U. Que, T. Hasler and S.J. Cryz, Jr. 1997. Safety and immunogenicity of a *Haemophilus influenzae* type B polysaccharide-tetanus toxoid conjugate vaccine combined with diphtheria, tetanus and pertussis vaccines in Thai infants. *Southeast Asian. J. Trop. Med. Public Health.* 28: 91-98.

Conne P., L. Gauthey, P. Vernet, B. Althaus, J.U. Que, B. Finkel, R. Glück and S.J. Cryz, Jr. 1997. Immunogenicity of trivalent subunit versus virosome-formulated influenza vaccines in geriatric patients. *Vaccine* 15: 1675- 1679.

Taylor, D.N., C.O. Tacket, G. Losonsky, O. Castro, J. Gutierrez, R. Meza, J.P. Nataro, J.B.

Kaper, S.S. Wasserman, R. Edelman, M.M. Levine and S.J. Cryz, Jr. 1997. Evaluation of a Bivalent (CVD 103-HgRICVD 111) Live Oral Cholera Vaccine in Adult Volunteers from the United States and Peru. *Inf. Immun.* 65:3852-3856.

Saurwein-Teissl M., M.M. Steger, R. Glick, S. Cryz and B. Brubeck-Loebenstein. 1998. Influenza vaccination in a healthy geriatric population: preferential induction of antibodies specific for the H3N2 influenza strain despite equal T cell responsiveness to all vaccine strains. *Vaccine* 16: 196-200.

Schwarzer S., S. Reibel, A.B. Lang, et al. 1998. Safety and characterization of the immune response engendered by two combined measles, mumps and rubella vaccines. *Vaccine* 16: 298-304.

Cryz, Jr. S.J. and R. Glick. 1998. Immunopotentiating Reconstituted Influenza Viromes as a Novel Antigen Delivery System. vol. 92, pp. 219-223. *In*: Brown F, Haaheim LR (eds): *Modulation of the Immune Response to Vaccine Antigens*. Dev. Biol. Stand. Karger, Basel.

Cryz, Jr., S.J. 1998 Patient Compliance in the Use of Vivotif Bema@ Vaccine, Typhoid Vaccine, Live Oral Ty2 1 a J. Trav. Med. 5: 14-17.

Fryauff, D.J., S.J. Cryz, Jr., H. Widjaja, et al. 1998. Humoral Immune Response to Tetanus-Diphtheria Vaccine Given during Extended Use of Chloroquine or Primaquine Malaria Chemoprophylaxis. *J. Inf. Dis.* 177: 1762-1765.

Saurwein-Teissl M., M.M. Steger, R. Glück, S. Cryz and B. Brubeck-Loebenstein. 1998. Influenza vaccination in a healthy geriatric population: preferential induction of antibodies specific for the H3N2 influenza strain despite equal T cell responsiveness to all vaccine strains. *Vaccine* 16: 196-200.

Tsai T.F., J. Kollaritsch, J.U. Que, C. Bruce Cropp, C. Kunz, G. Widemann, C. Herzog and S.J. Cryz, Jr. 1999. Compatible Concurrent Administration of Yellow Fever 17D Vaccine with Oral, Live, Attenuated Cholera CVD103-HgR and Typhoid Ty2la Vaccines. *J. Inf. Dis.* 179: 522-524.

Richie E., N.H. Punjabi, S.J. Hajanto, et al. 1999. Safety and immunogenicity of combined diphtheria-tetanus-pertussis (whole cell and acellular)-Haemophilus influenzae-b conjugate vaccines administered to Indonesian children. *Vaccine*.17: 1384-1393.

Taylor D.N., J.L. Sanchez, J.M. Castro, C.M. Lebron, C.M. Parrado, D.E. Jonson, et al. 1999. Expanded Safety and Immunogenicity of a Bivalent, Oral, Attenuated Cholera Vaccine, CVD 103-HgR Plus CVD 111, in United States Military Personnel Stationed in Panama. *Inf. Immun.* 67:2030-2034.

Viret J.F., Favre D., Wegmuller B., Herzog, Ch., Que John U., Cryz, Jr. S.J., Lang Alois B. 1999. Mucosal and Systemic Immune Responses in Humans after Primary and Booster Immunizations with Orally Administered Invasive and Noninvasive Live Attenuated Bacteria. *Inf. Immun.* 67:3680-3685.

Rubinstein A., Y. Mizrahi, M. Pettoello-Mantovani, J. Lenz, G-Q. Liu, Y. Rubinstein, H. Goldstein, I. Yust, M. Burke, N. Vardinon, Z. Spierer and S.J. Cryz, Jr. 1999. Immunologic Responses of HIV-1 - Infected Study Subjects to Immunization With a Mixture of Peptide Protein Derivative - V3 Loop peptide Conjugates. *JAIDS* 22:467-476.

Panpitpat C., U. Thisyakorn, T. Chotpitayasunondh, E. F $\ddot{u}$ rer, J.U. Que, T. Hasler and S.J. Cryz, Jr. 2000. Elevated levels of maternal anti-tetanus toxin antibodies do not suppress the immune response to a Haemophilus influenzae type b polyribosylphosphate-tetanus toxoid conjugate vaccine. Bull World Health Organ 78: 364-371.

Gl $\ddot{u}$ ck R., R. Mischler, P. Durrer, E. F $\ddot{u}$ rer, A.B. Lang, C. Herzog and S.J. Cryz, Jr. Safety and Immunogenicity of Intranasally Administered Inactivated Trivalent Virosome-Formulated Influenza Vaccine Containing *Escherichia coli* Heat-Labile Toxin as a Mucosal Adjuvant. 2000. J. Inf. Dis. 181:1129-1132.