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EDUCATION:

1949-54 St. Xavier's College, University of Bombay, India: B.Sc. (Honors) Microbiology
1954-56 Pathology Department, Seth G. S. Medical College, M. Sc. Microbiology.
1960-64 Pathology Department, Seth G. S. Medical College, Ph.D. Microbiology.
1973(10-12) Department of Cell Biology, Weismann Institute, Rehovoth, Israel: Sabbatical study
(Immunobiology; Prof. Michael Feldman).
1974 (1-3) Sabbatical study at Clinical Research Unit, Walter & Eliza Hall Institute, Melbourne,
Australia, (Immunology; Sir Gustaf Nossal and Dr. Ian McKay).
1980 (3-12) Senior Fulbright Scholar at Pasteur Institute, Paris, France: Sabbatical study
(Molecular Biology; Prof. Pierre Tiollais).
2006 Visiting Scholar, Department of Pediatrics, UCLA; Sabbatical leave (Prevention of
mother to child transmission of HIV-1 infection; Prof. Yvonne Bryson)

PRINCIPAL POSITIONS HELD:

1954-56 Seth G. S. Medical College, Bombay, Postgraduate Research Fellow, Pathology
1956-57 Sir J.J. Hospital, Bombay, Jr. Research Fellow, Hematology
1957-65 Indian Council of Medical Research Blood Group Reference Center, Bombay,
Assistant Research Officer
1964-65 King Edward the VII Memorial Hospital, Bombay Municipal Blood Center, Officer-
in-Charge
1965-67 Western Reserve University, Cleveland, Ohio, Post-doctoral Research Fellow
(Immunogenetics Laboratory; Prof. Arthur Steinberg)
1967-69 University of California, San Francisco, Department of Medicine, Lecturer and
Senior Research Fellow (Hematology and Immunology; Prof. H. Hugh
Fudenberg)
1969-73 University of California, San Francisco, Assistant Professor, Laboratory Medicine
1973-77 University of California, San Francisco, Associate Professor, Laboratory Medicine
1977-now University of California, San Francisco, Professor, Laboratory Medicine
1969-1988 Director of Blood Bank, UCSF Medical Center, San Francisco

OTHER POSITIONS HELD CONCURRENTLY:

1975-pre	Liver Center	Investigator/Member
1984-95	Oral Biology Group, Member	Member
1985-97	Graduate Group in Biophysics	Member
1986-now	Laboratory Medicine	Director, Transfusion Research Program
2000-now	AIDS Research Institute (ARI)	Member

HONORS AND AWARDS:

1969	Jean Julliard Prize of International Society of Blood Transfusion
1969	Outstanding Immigrant in Bay Area Communities
1980	Senior Fulbright Scholarship for Sabbatical leave at Pasteur Institute, Paris
1982	Datta Memorial Award, Postgraduate Institute for Medical Research, Punjab
1986	First P.D. Agarwal Oration in Hematology, Calcutta
1986	Dhayagude Memorial Award, Diamond Jubilee of Seth G.S. Medical College
1992	Indian Association of Pathology & Microbiology Endowment Lecture
1992	Dr. Bhatia Memorial Award, Bombay
1993	Keynote Speaker, XX Annual Conference of Indian Immunology Society
1994	White House Invitee for Briefing on President Clinton's Health Care Initiative
1995	Moolgaonkar Award, Indian Society of Immunohematology and Blood Transfusion
1997	Heffni Scholar Award for Transplantation Medicine
2003	UCSF School of Medicine Annual Salute to Excellence
2004	American Society for Microbiology Distinguished Editorial Services
2005	Editor-in-Chief, Biologicals (2006- now).
2006	Association of Scientists of Indian Origin in America (ASIOA) Oration

BIOGRAPHY CITATIONS

1977-pres.	Men of Achievement, Biography Center, Cambridge, England
1981-now	Who is Who in America
1987 - now	Who is Who in the World
1993-now	Who is who Among Asian Americans
1994-now	Notable Non-Resident Indians
1997-now	Who is Who in Medicine and Healthcare
1998-now	Who is Who in Science and Engineering

CLINICAL ACTIVITIES

- Initiated automatic blood ordering system as Chief of the Blood Bank, in collaboration with Paul Ebert and George Brecher.
- Initiated the Joint Hematology/Transfusion Medicine Training Program in collaboration with Stephen Shohet and Marc Shuman.
- Prevention of hepatitis B virus (HBV) infection through Multi-center Clinical Trials of Hepatitis B Vaccines in collaboration with Cladd Stevens and Saul Krugman, and Hepatitis B Immune Globulins (HBIG) in collaboration with George Grady and Alfred Prince.
- Principal Investigator of the clinical trial of hepatitis B immune plasma (HBIP) in orthotopic liver transplantation in collaboration with John Roberts, Nancy Ascher and Norah Terrault.
- Clinical consultation with community hospitals (Alta Bates and Brookside Hospitals) and

practicing physicians in the Northern California region regarding laboratory diagnosis and prophylactic clinical management of problems in viral hepatitis.

- Providing expert advice to California Blood Bank Society membership regarding problems of anaphylactic transfusion reactions.
- Planning pilot study for research on Inactivated HIV Envelope Proteins (HIV-env) for Immunotherapy in Perinatally Infected Babies with HAART-controlled HIV infection, in collaboration with Yvonne Bryson at UCLA.
- Initiated cryo-preservation of PHA-stimulated PBMC as a novel cell substrate useful in virologic diagnosis and assessment of HIV-neutralizing antibodies.
- In collaboration with Alyssa Ziman (Director of UCLA Blood Bank), planning to develop a new therapeutic hyperimmune globulin specific for HIV-env proteins (envHIVIG) by immunizing selected blood donors with uncommon CCR5-delta 32 homozygous mutation, which renders them resistant to HIV-1 infection.
- Planning clinical of env-HIVIG manufactured by National Bioproducts Institute in Durban for Phase II/III clinical trials for immunotherapy in persistent HIV-1 infection and in perinatal prevention of HIV-1 infection.

OTHER PROFESSIONAL ACTIVITIES

MEMBERSHIPS IN PROFESSIONAL SOCIETIES (Current)

American Association of Blood Banks
American Association of Immunologists
American Society of Hematology
American Society for Microbiology
American Association for Advancement of Science
American Association for Study of Liver Disease
International Association for Biologics

INVITED LECTURES (from 2000):

INTERNATIONAL

International Society of Analytical Cytology (ISAC Congress). “Fluorometric Array System for Blood Group Serology, Nucleic Acid Testing, and Immunoassays Performed by Blood Banks”, Montpellier, France, May 22, 2000 (invited talk).

10th International Symposium on Viral Hepatitis and Liver Disease. “Occult Viremia in HBsAg-negative/anti-HBs-positive Former Carriers among Alaska Natives Revealed by PCR Test Using HBV isolated with Anti-PreS1”, Atlanta, GA, Apr 11, 2000 (invited talk).

International AIDS Conference, “Photoinactivation of HIV-1 by Dimethyl Methylene Blue”, Durban, South Africa, Jul 11, 2000, (poster).

International AIDS Conference, “Whole Virion HIV Vaccine Derived from Human Blood”, Durban, South Africa, Jul 12, 2000 (poster).

International AIDS Conference, “HIV Vaccine Evaluation”, July 13, 2000 (session chair).

Second International Conference on Vaccines Development and Immunotherapy in HIV, “Primary Isolates of HIV (1) Inactivated by Benzonase”, San Juan, Puerto Rico, May 24, 2001 (poster).

26th Conference of the Indian Society of Blood Transfusion and Immunohematology, “Serological Screening for Hepatitis B and C”. Bangalore, India, Feb 2, 2002 (plenary talk).

Founder’s Day Symposium on Medicine in the New Millennium, Institute of Immunohematology, “Elimination of post-transfusion hepatitis”, Mumbai, India, Feb 7, 2002 (plenary talk).

International Society of Blood Transfusion, BEST Team Meeting, “CD4-enriched cell substrate for expansion of primary isolates of HIV-1”, Vancouver, Canada, Aug 23, 2002, (invited talk).

XI International Symposium on Viral Hepatitis and Liver Disease. “Current issues: what can HCV community groups learn from the history of HIV”, Sydney Convention Center, Australia, Apr 10, 2003 (Invited talk and Session Chair).

International Society of Blood Transfusion Asia-Pacific Regional Meeting, “Pursuits in HIV Vaccinology”, New Delhi, Nov 16, 2003 (Plenary talk).

IV plenary Meeting of Global Collaboration for Blood Safety (GCBS), “Role of International Association of Biologics in Education”, Tunis, Tunisia, Dec 4, 2003, (plenary talk).

University of London, Bart & Queen Mary’s School of Medicine and Dentistry, “Inactivated HIV Vaccine for Immunotherapy in post-ART AIDS”, London, England, Jan 23, 2004 (invited talk).

WHO Workshop on Hepatitis B Transmission Risk in Jet Injector Evaluation, Laboratory Determination of Infectious Dose of HBV”, Geneva, Switzerland, Mar 31, 2004, (invited talk).

Kedrion Corporation, “Prospects for Inactivated HIV vaccine”, Castelveccchio Pascoli (LU), Italy, Apr 1, 2004, (invited talk).

Pasteur Institute Colloquium, “Blood-derived Vaccines: Molecular Biology Won One”, Paris, France, Nov 10, 2004, (plenary talk).

University of Barcelona Faculty Research Discussion-Workshop, “Immunotherapy in Post-HAART HIV Infection”, Madrid, Spain, Feb 26, 2005 (invited discussion).

South African national Blood Service, “Primary Isolates of Prevalent HIV-1 in Developing an Inactivated HIV Vaccine Candidate”, Johannesburg, S. Africa, Feb 28, 2005, (invited talk).

National Bioproducts Institute, “Inactivated HIV-1 Vaccine Candidate”, Pinetown-Durban, South Africa, Mar 3, 2005, (invited talk).

Center for AIDS Programs in South Africa (CAPRISA), University of Kwazulu-Natal, “HIVACC suited for South Africa”, Durban, South Africa, Mar 4, 2005, (invited talk).

Indian Institute of Science and Sir Dorabji Tata Trust, “Role of Hepatitis in the Evolution of Safe Blood”, Bangalore, India, Mar 11, 2005 (visiting professor).

National AIDS Research Institute, “Transfer of Technology for HIVACC suited for India”, Pune, India, Mar 14, 2005, (invited talk).

National Institute for Communicable Disease, “Laboratory Tests for Assessing Efficacy of Inactivated HIV Vaccine Candidate”, Sadringham, South Africa, Mar 16, 2005, (invited talk).

VII International Symposium on Cytokines and Chemokines, “Genetic Diversity of Inactivated HIV-1 for Eliciting Neutralizing Antibodies to Complement CTL Induced by DNA Vaccination”, Montreal, Canada, Oct 9, 2005 (invited talk).

St. Xavier's College Microbiology Department Platinum Jubilee Symposium on Pharmaceutical Microbiology, "Progress in Vaccination against Viral Hepatitis A, B, C, D, and E", Mumbai, India, Jan 6, 2007.

ISBT Academy Brazilian Meeting in collaboration with IPFA, "Hepatitis B Immune Globulin (HBIG) to prevent Reinfection in Liver Transplants", Hospital SirioLibanes, Sao Paulo, Brazil, Sep 18, 2007.

IABS Symposium on Advances Transfusion Safety, "Hepatitis Viruses and Blood Transfusion: Lessons from the Past", Sao Paulo, Brazil, Sep 20, 2007.

International Society for Cell and Gene Therapy in Cancer, "HBV Vaccination Prevents Hepatocellular Carcinoma: A Paradigm in Prophylaxis against Viral Etiology of Cancer", Ranaissance Convention Center, Mumbai, India, Nov 16, 2007

International AIDS Conference, "Overview of Preclinical Studies and Animal Models of HIV vaccines", Mexico City, August 6, 2008

Ehrlich II- Second World Conference on Magic Bullets, "Synthesis of a Novel Subunit Vaccine against HIV-1" Nurenberg, Germany, Oct 4, 2008.

International Symposium on Viral Hepatitis and Liver Disease, Plenary Session Moderator "Overview of HBV and HDV Basic Virology and Immunology". Washington, D.C. Mar 22, 2009.

NATIONAL

AIDS Vaccine 2001 Conference, "Enhanced Production of Primary Isolates of HIV-1 in CD4-enriched Cell Substrate", Philadelphia, PA, Sep 6, 2001 (poster).

Inactivated Retroviral Virions Symposium, "Expansion and inactivation of HIV-1 derived from human blood components enable feasibility of whole inactivated HIV vaccine candidate", Annapolis, MD, May 29, 2002, (poster).

American Association of Blood Banks Annual Convention, "Improving Transfusion Safety in Developing World, Orlando, FL, Oct 28, 2002 (invited talk).

AIDS Vaccine 2003 Symposium, "Primary isolates of HIV-1 Retain Immunoreactive gp120 after Inactivation by Repeated Thermal Cycling", New York, NY, Sep 18, 2003 (poster).

FDA Blood Products Advisory Committee Meeting, "Hepatitis B Immune Plasma as an Alternate to Hepatitis B Immune Globulins in Liver Transplantation", Gaithersburg, MD, Mar 17, 2004, (invited talk).

FDA Center for Biologic Evaluation and Research, "Blood-derived HIV Vaccine Candidate: Inactivated Native Envelope Proteins Simulate the Genetic Diversity of HIV-1 Prevalent in the Population", Oct 21, 2004 (invited talk).

First ASIOA meeting, University of Texas, "Lessons Learnt from HBV are Applicable in Developing HIV Vaccine", San Antonio, TX, Jan 21, 2005, (invited talk).

FDA Workshop on Rare Plasma protein Disorders. "IgA Deficiency". NIH, Bethesda, MD, Jun 13, 2005, (invited discussion).

UCLA Pediatric Immunology Seminar, Revisiting IgA deficiency, Apr 14, 2006.

Continuing Medical Education Lecture on Transfusion Safety, APIA, Anaheim, CA, Apr 26, 2006.

UCLA, CHIPTS, AIDS Institute HIV Research Conference, “Prospects for preventive and therapeutic vaccination against HIV. Los Angeles, CA, April 9, 2007.

IABS Conference on New Cells for New Vaccines from Bench to Clinical Trials, “PBMC as a Unique Substrate for a Vaccine Candidate using Inactivated HIV Envelope Proteins”, DuPont Hotel, Wilmington, DE, Sept 28, 2008.

The Discovery of AIDS and HIV: Contributions of California Community to the Early years of AIDS, “Epidemiology of Transfusion-transmitted AIDS”, Center for Comparative Medicine, UC Davis, Sep 25, 2009.

REGIONAL AND OTHER PRESENTATIONS

Sacramento Medical Foundation, “Hepatitis B Immune Plasma to block HBV Infection in Orthotopic Liver Transplantation”, Sacramento, CA, Aug 31, 2000 (invited talk).

University-wide AIDS Research Program, “Whole Inactivated Virus Vaccine”, Sacramento, CA, Feb 22, 2002 (poster).

California Blood Bank Society, “Worldwide blood safety”, UCLA, Mar 15, 2003 (invited talk).

UCB/UCSF Immunology Program Retreat, “Back to the future with thermal cycling to inactivate primary isolates without loss of gp120 for an inactivated HIV-1 vaccine candidate”, Granlibakken, CA, Nov 7, 2003 (poster).

PAMET Continuing Education, “Laboratory Testing for Differential Diagnosis of Chronic Viral Hepatitis B and C”, South San Francisco, CA, Oct 25, 2003 (two back to back invited talks).

Laboratory Medicine Grand Rounds, Quest for HIV Vaccines, Oct 15, 2005.

Keynote Address, Evolution of Transfusion Safety, ASIOA Annual meeting, San Francisco, CA, Apr 3, 2006.

Laboratory Medicine, Grand Rounds, Genetics of Immune Deficiency Disorders. January 28, 2008.

AIDS Research Institute Vaccine TAG, Optimizing Bioreactor Conditions for vast expansion of HIV-1 from Infected Plasma Negative for Antibodies, CA-DHS, Richmond, CA, February 7, 2008.

20th Annual Student AIDS Forum, UCSF, “HIV Vaccine: Promises and Progress”, Nov 8, 2008.

21st Annual Students AIDS Forum UCSF, “Progress in Promises for HIV vaccine”, Nov 7, 2009.

TEACHING & MENTORING

DIDACTIC TEACHING

In 2002 the Core Curriculum in Transfusion Medicine for Residents in Laboratory Medicine was fully revised, setting goals and objectives, and examination for evaluating and documenting their professional competence. This task was carried out in collaboration with Enrique Terrazas and Pearl Toy.

- Adverse Transfusion Reactions and their Investigations, Residents Core Curriculum Lecture (Jul 23, 2002).
- Prospects of vaccination for the prevention of HIV-1 infection. Combined Laboratory Medicine and Pathology Grand Rounds, UCSF (Jan 7, 2003)
- HIV Vaccine development. Graduate Course in Applied Pathophysiology of HIV/AIDS, School

of Nursing, UCSF (Feb 11, 2003)

- 16th Annual School of Medicine Students Forum, “HIV Vaccine Development”, UCSF (Oct 9, 2004)
- Pediatric Immunology Research Conference, UCLA, “Immunogenetics of IgA deficiency Disorders”, May 14, 2006
- Oral and Craniofacial Sciences 225, Oral Microbiology/Virology Course Lecture, Hepatitis B Virus Infection, UCSF (May 31, 2006).
- Invited Lecture on HIV in Transfusion, UCLA School of Public Health Epidemiology Course – AIDS a Major Challenge in Transfusion Practice, May 22, 2006.
- UCLA Pathology Residents Core Curriculum, Lecture on “Adverse Effects of Transfusion”, Jul 17, 2006
- Pediatric Immunology Clinical Rounds, UCLA, “Prospects of Immunotherapy in HIV infection”, September 22, 2006.
- Combined Adult & Pediatric Infectious Disease Conference, UCLA, Lecture “Preventing Viral Hepatitis”, UCLA, Sep 25, 2006.
- Combined Adult and Pediatric Infectious Diseases Conference, Lecture on “HIV Immunotherapy”, Nov 20, 2006
- International Development Course by Prof. David Blundell, Lecture on “International AIDS Prevention Programs”, UCLA, Nov 28, 2006.
- Oral and Craniofacial Sciences 225, Lecture on “Viral Hepatitis”, UCSF, May 26, 2010

LABORATORY TEACHING

Field of teaching: Preclinical development of HIV vaccine involving virology, immunology, cell biology, and flow cytometry.

Type of students taught: Graduate students from SFSU for their Master’s thesis research and an undergraduate honors research student from the San Francisco State University’s Center for Biomedical Laboratory Science.

- Chia-rong Wu (2000-2004) completed research for Master’s thesis entitled – Evaluation of CD4-enriched Cell Substrate for Culturing Primary Isolates of HIV-1. Then employed as a full-time Associate Research Specialist for year before permanently returning to Taiwan in 2004.
- Maggie Leong (2004-2006) works part-time as an SRA for inactivating primary isolates of HIV-1. She is due to complete her graduate research for Master’s thesis entitled – A Hollow-fiber Bioreactor System for HIV-1 Expansion in Co-cultures with Human Peripheral Blood Mononuclear Cells (PBMCs). She has submitted an abstract for presentation of her research at the AIDS VACCINE 2005 Conference in Montreal, Sep 6-9, 2005.
- Christopher I. Lai Hipp (2004-2006) is an undergraduate at SF State University and gets a scholarship for his research project in my lab. His project is entitled – Optimal Expansion of HIV-1 Field Isolates Using Human CD4+ Cell Substrate Derived from Selected Blood Donors: Feasibility of an Inactivated HIV Vaccine Candidate. He has submitted an abstract for presentation of his interim research results research at the AIDS VACCINE 2005 Conference in Montreal, Sep 6-9, 2005.
- Beamy Sharma (June-August, 2005), Pre-Med student at Union College, Schenectady, NY, worked in our lab as a summer intern.
- William Babbitt, (Oct 2005-Sept 2006), Graduated from UC-Berkeley and worked as a research

intern and an editorial assistant before entering joint MD-MPH UCSF/UCB Medical School.

- Karen Tkach (Jun 2007- May 2008), Honors undergraduate in Molecular and Cell Biology, candidate for BMS Program.
- Jason Norman (July 2008- 2009), Pre-med graduate major in Molecular and Cell biology, UC-Berkeley.
- Tsung Mou (Jul 2009-present), Premed undergraduate Howard Hughes Scholar for Summer research and Honors thesis student doing research on Immunobiology of primary HIV-1 .
- Tiffany Goldberg (Oct 2009- present) Pharmacy School candidate and a research intern for development of biologicals (HIV-env vaccine candidate).

CLINICAL TEACHING

Following resignation as the Chief of the Blood Bank in 1988, the day to day clinical service and in-service teaching have been passed on to the faculty directly responsible for the Blood Bank at UCSF Medical Center. Thus, my clinical teaching principally involves resolving complex problems in diagnostic dilemma in viral hepatitis, immune deficiencies, and transfusion medicine, at regional, national and international level. More specifically, I have assumed responsibility for the scheduled biennial symposia on Advances in Transfusion Safety (ATS) initiated in 1999 in behalf of the International Association of Biologics (IABs). As Chairman of IABs Committee on Blood I have arranged the biennial ATS Symposia through 2007. Beginning this year I will also be responsible for editing and publishing the proceedings of the ATS Symposia. The International Symposia in Viral Hepatitis and Liver Disease (ISVHLD) initiated in 1972 were organized by me in 1972, 1978, and 1984. I continue to serve as a member of the International Advisory Committee for ISVHLD, now scheduled through 2009.

STUDENTS PERSONALLY SUPERVISED

Walter Shaffer (1972 Summer), Med student, UCSF; now in Family Practice in Oregon.
Mary Martin (1972-74), Med student, Tulane; UCSF faculty, now retired.
Lynn Haroun (1973-74), Grad student, U. Colorado; now at ICRC, Lyon, France.
Joey Lerner (1975-76), Med student, U Mich; now in family practice in Illinois.
Emily McClure (1985-86), Med student, U Tenn; no further contact.
Shuyuarn Fu (1986-87), SFSU Master's student, Chaired thesis committee; no further contact.
Bernice Wong (1987 Summer), Premed, Harvard College; no further contact.
Irene Kelly (1987-89), Med student, St Louis Univ Sch Med; now in family practice.
Zahwa El-Amad (1987-91), Grad student, UC Berkeley; now Scientist, Calif Dept of Health.
John Olson (1993-94), Med student, Georgetown Univ; no further contact
Sanjeev Garhwal (1994-95), Med student, NYU, now practicing cardiologist
Patricia Magnani (1994-95), Medical student, Tulane; no further contact
Amal Trivedi (1994-95), Medical student, UCLA; now training in cardiology
Shadi Aminoloma (1995 Summer), Med student, Temple Univ, Philadelphia; now clinical training.
Binita Kamath (1995 Summer), Med student, Cambridge Univ, England; now practicing pediatrics.
Eyal Oren (1996), Undergrad research student at UC Berkeley; no further contact
Niraj Hazari (1996-97), Undergrad honors thesis research at Cal-Poly; now in biotech industry
Steven Rehbein (1997), Grad student at SUNY, Buffalo; no further contact.
Fawn Wang (1998 Summer), Undergrad research student, UCSD; now in medical school.

Nehad Alajez (1998-99), SFSU Grad student, thesis research at UCSF; now postdoc in Canada.
 Jerome Dumortier (1999 Summer), Grad student visiting from University of Mainz, Germany.
 Tina Ng (2000 Spring), Premed UC Berkeley; completing M.D. UCLA 2005, now training in surgery.
 Chia-rong Wu (2000-04), SFSU Grad student thesis research at UCSF; now Biotech in Taiwan.
 Roland Ruby (2002-03), SFSU Grad student, dropped out of the research project at UCSF.
 Maggie Leong (2004-2006), SFSU Grad student, completed Master's thesis research at UCSF; now in Biotech Company.
 Christopher Lipp Hai (2004-2006) SFSU Premed NIH-MARC Scholar; now Pharm D freshman at Univeristy of Hawaii-Hilo.
 William Ben Babbitt (2006-2007), Premed UC-Berkeley student, research intern & editorial assistant; now III year Medical Student at UCSF.
 Karen Tkach (2007- 2008), Undergrad research student & editorial assistant; now pursuing Ph D degree at Cornell, New York.
 Jason Norman (2008-2010) Graduate research intern & editorial assistant; now a accepted as a freshman at Johns Hopkins School of Medicine, Baltimore, MD.
 Tsung Mou (2009-present), Premed Undergraduate majoring in Molecular and Cell Biology from UC-Berkeley, Howard Hughes Schioler for summer 2009 and 2010.

POST DOCTORAL FELLOWS PERSONALLY SUPERVISED

Eugene Gardner, Ph.D. (Mar-Jul 1970), left for business; no further contact.
 Juhani Leikola, M.D. (Jul 1970-Jun 71), retired as Chief of Red Cross Blood Service in Finland.
 Kasturi Rao, Ph.D. (Jul 1971-Oct 75), returned to India for family reasons; no further contact.
 Ali B. Ibrahim, Ph.D. (Jul 1972-Jun 75), career in Public Health in Saudi Arabia
 Vinay Likhite, Ph.D. (Jul 1973-Jun 74), no further contact
 Darrell Peterson, Ph.D. (Jul 1974 – Jun 78), Professor of Biochemistry, Medical College of Virginia.
 Isabel Roberts, Ph.D. (Jul 1974-Jun 76), management career in biotechnology, Australia.
 David Chien, Ph.D. (Mar 1977-Oct 78), senior director of Diagnostics R&D, Chiron.
 David Milich, Ph.D. (Oct 1979–Sep 81), scientist at Scripps Res. Inst, San Diego.
 Pradip Bhatnagar, Ph.D. (Mar 1980-Feb 84) senior director Glaxo-Smith-Kline.
 Gundhild Muller, Ph.D. (Oct 1980-Jun 82), no further contact.
 Analisa Figus, M.D. (Sep 1982-Aug 84), research scientist, U. Cagliari, Sardenia, Italy.
 Eliana Lai, M.D. (Oct 1983 – Mar 1984), now professor of medicine U. Cagliari, Sardenia, Italy.
 Michael Busch, M.D., Ph.D. (Jul 1984-Jun 85) concurrently chief resident; now Director BSRI.
 M.S. Rajagopalan, Ph.D. (Oct 1984 – Apr 86); biotech consultant in Lexington, KY.
 Elizabeth Donegan, M.S., M.S.(Jun 1985-Mar 87), now practicing anesthesiology at UCSF.
 John Morrow, Ph.D. (Feb 1986-Oct 87), returned to academic career in UK.
 Paul Ulrich, M.D. (Sep 1986-May 92), practicing anesthesiologist in Marin County.
 Lu-Yu Hwang, M.D. (Nov 1986-Oct 88), professor of public health at University of Texas, Houston.
 Tarek El-Beik, Ph.D. (Dec 1986-May 88), now Specialist in Lab Medicine at SFGH.
 Soumit Roy, M.D. (Jan 1987-Jun 88), gene therapy research at Univ Pennsylvania.
 Ramesh Bhat, Ph.D. (Feb 1987-Dec 88), vaccine R&D, Wyeth, King of Prussia, Pennsylvania.
 Philip Lane, M.D. (Jul 1987-Jul 90), biomedical scientist, NASA.
 James Scillian, M.D., Ph.D. (Jul 1987-Dec 88), concurrent residency, now in private practice.

Bhupat Rawal, Ph.D. (Sep 1987-May 94), transferred to Irwin Memorial Blood Bank.
 Bernard Eble, Ph.D. (Sep 1987-Apr 90), moved to Cerus Corporation, no further contact.
 Ronald Schwadron, Ph.D. (Oct 1987-Oct 89), scientist, U.S. Patents & Trademarks Office.
 Ildiko Sarosi, M.D., Ph.D. (Nov 1987- Nov 89), research pathologist, Amgen, Thousand Oaks, CA.
 Konrad Oexle, M.D. (Mar 1988- Mar 89), returned to Germany, no further contact.
 Joseph Romeo, Ph.D. (Apr 1989- Jun 92), professor of biology at SFSU.
 George Babu, Ph.D. (Aug 1990- Aug 91), returned to India, now deceased.
 Daniel Prati, (Nov 1990- Dec 90), returned to University of Milan, Italy.
 George Yang, M.D. (Nov 1990-June 99), now private practice in pathology
 Janet Scott, Ph.D. (Jan 1991- Jun 92), transferred to Microbiology at UCSF.
 Timothy Sankary, M.D. (Nov 1991-Jan 94), joined Ph.D. program at UCLA Sch Pub Health.
 Kakoli Banerji, Ph.D. (Aug 1992-Apr 93), moved to Indian Inst of Immunology, New Delhi.
 Rulian Pu, Ph.D. (Aug 93-Sep 95), no further contact.
 Kodumudi Venkateswaran, Ph.D. (Aug 1994-July 97), scientist at LLNL, Livermore, CA
 Susan Ding, Ph.D. (Aug 1995-Jul 96); no further contact.
 Erik Wilson, Ph.D. (Oct 1995-Sep 97), NSF science teaching fellowship at UCSF-SEP.
 Maarit Tiirikainen, Ph.D. (Nov 1995-Jun 96), mover to Cancer Center, UCSF.
 Manish Gandhi, M.D. (Jul 1997-Jun '00), research scientist, Puget Sound Blood Center, Seattle, WA
 Lin Yi (Mar 1998-Jan 99), moved to Mt Sinai Medical Center, NY, no further contact.

VISITING FACULTY PERSONALLY SUPERVISED

- Hubert Blum, M. D. (Jul 1981 – June 84), Visiting Assistant Professor of Laboratory medicine and Medicine; currently Professor & Chairman of Medicine, University of Freiburg, Germany
- Hyo-Suk Lee, M.D., Ph.D. (Oct 1985-Sep 87), Associate Professor of Medicine, Seoul National University, Seoul, South Korea.
- George Grady, M.D. (Jan 2003-Mar 2004), Director, Massachusetts State Laboratory Institute; Professor of Medicine, University of Massachusetts.
- John Oxford, Ph.D., Awarded Presidential Chair at UCSF (Oct 2004-Jun 2005), emergency cancellation of sabbatical leave by the Board of RetroScreen Virology Ltd. at Univ. of London.

MENTORING ACTIVITIES

As a senior faculty member I have recruited, mentored, and initiated the careers of the following UCSF faculty as outlined below:

- Pearl Toy, M.D. (1981-84) for the NHLBI Transfusion Medicine Training Award (TMAA) at the outset of her career; I also transferred to her the fully funded project for hepatitis B vaccine studies in Asian newborns.
- Michael Busch, M.D., Ph.D. (1984-88) initiated into HIV research as the chief resident and recruited into the faculty as a Project Investigator in the NHLBI Program Project; provided subcontracts supporting his early research on HIV culture and PCR testing among blood donors.
- Elizabeth Donegan, M.D., M.S. (1985-88) recruited for conducting the NHLBI Transfusion Safety Study; subsequently made her the Principal Investigator for this long-term funded project, and designated her as Chief of the Blood Bank.
- Edward Murphy (1987-90) recruited and initiated in getting the Culpepper Young Faculty

Award; engaged him in the NHLBI contract for Transfusion Recipient Study.

- Norah Terrault, M.D. (2001-04), Assistant Professor of Medicine, initiated the clinical trial of FDA-approved IND for hepatitis B immune plasma (HBIP) in immunotherapy in orthotopic liver transplantation and subsequently made her the Principal Investigator.
- Mayumi Nakagawa, M.D., Ph.D., (2000-04) Asst. Prof. of Laboratory Medicine; collaborated on CTL assays in HIV vaccine project, provided her lab/office space and career guidance.
- Ashok Nambiar, M.D. (2004-05) recruited as Assistant Professor and Assistant Director of the Blood Bank; initiated and offered counsel as one of the faculty he could comfortably trust.
- Alyssa Ziman, M.D., Associate Professor & Chief, Transfusion Medicine, UCLA. Initiated her into research on cell substrate for HIV vaccine development and got her start-up grant.

SUMMARY OF TEACHING DUTIES:

The Department offers no formal courses to the medical students, yet I taught the II year ICM course in hematology and blood transfusion from 1969-78. The core course for residents originated in 1971 and taught for 17 years is now led by Pearl Toy. Except for revising the core course in 2002 and giving a lecture in that course, I do not have didactic teaching assignment in the Department. Teaching activities principally involve postgraduate research instructions and individual review of research plans and progress of the two students in the research laboratory. In addition, seminars and national or international invited lectures outside UCSF are major venues for teaching.

Last Academic Year: Total hours of teaching (including preparation): 550 hours

Current Academic Year: Laboratory teaching: 450 hours
 Professional teaching and lecturing: 100 hours

Next Academic year: Total hours of anticipated teaching (including preparation): 250 hours
 Laboratory teaching: 200 hours
 Professional teaching: 50 hours.

SERVICE

UNIVERSITY SERVICE (since 2000)

DEPARTMENTAL SERVICE

1999-2003	Chair, Department of Laboratory Medicine Biosafety Committee.
2002-03	Member, Working Group for Transfusion Medicine Core Curriculum
2003-now	Member, Grand Rounds Committee
2003-04	Chair, Search Committee for Assistant Chief of Blood Bank.
2003-now	Chair, Endowed Memorial Lectures Committee
2004-07	Member, APM Committee
2004-07	Member, Chairman's Advisory Committee

SCHOOL, CAMPUS, AND SYSTEMWIDE SERVICE

1992-now	Ad Hoc Reviewer for UCSF Aids Clinical Research Center Grants.
1995-03	Medical School Admissions Committee
1997-02	Academic Senate Committee on Research

1999-02	Member, University System-wide Committee on Research Policy (UCORP)
2007-09	Chair, Academic Senate Committee on Privilege and Tenure
2008-09	Member, Systemwide Committee on Privilege and Tenure
2008	Expert Reviewer, Grants for Industry-UC Research Program (IUCRP)
2009-10	Member, UCSF Senate Committee on Research

GOVERNMENT SERVICE

1970	National Research Council Committee on Hepatitis Associated Antigen (HBsAg).
1972	NHLBI Task Force for National Blood Program.
1974-75	National Research Council Committee on Viral Hepatitis
1974	World Health Organization Committee on Immunoglobulin Allotypes
1979-80	Consultant, WHO Southeast Asia Regional Office, New Delhi
1980	Fogarty International Center (Immunology Commission to Romania & Hungary)
1981-85	NIAID Ad hoc consultant for Virology Study Section
1982-86	NCI Ad Hoc Review Groups for Program Projects
1982-87	National Science Foundation
1984-88	United Nations Development Program for China
1985-95	V. A. Medicine Research Grants Reviewer
1985-99	NHLBI, Special Emphasis Panels and Ad Hoc Review Groups for Program Project Grants in Transfusion and Transplantation.
1985-92	FDA Blood Products Advisory Committee.
1988-02	NIDDK Program Projects in Liver Diseases and SEP Reviewer
1989	NHLBI Transfusion Medicine SCOR Grants Review Committee
1992	NIAID ACTG Review Group (Virology)
1992	FDA Research in Retrovirology, Chairman, Review Committee
1999-04	Lawrence Livermore National Laboratory, U.S. Department of Energy
2000	Fogarty AIDS International Training and Research Program Review Committee.
2005-08	WHO Expert Committee on Biological Standardization
2009	AIBS/US Military Med Res & Dev, Rapid Point of Care Testing for Blood Screening
2010	NIAID, Contracts Review Group for External Quality Assurance Program

PUBLIC SERVICE

1975-90	California State Disability Board Examiners Consultant for Chronic Hepatitis
1988	Tokyo Metropolitan Government Commission on AIDS
1998-03	International Consortium for Blood Safety, New York Blood Center
2001	Gates Foundation Project for Assessment of Blood Safety in Pakistan

SERVICE TO PROFESSIONAL SOCIETIES

1971-74	American Association of Blood Banks Committee on Scientific Programs
1972	XIII International Transfusion Congress, Scientific Programs Committee
1972-84	International Symposia on Viral Hepatitis and Liver Disease (ISVHLD), Chairman
1972-90	Irwin Memorial Blood Bank Scientific Advisory Committee
1981-94	Study Group for Prevention of Chronic Hepatitis B in Asian Newborns
1984-'09	International Advisory Committee for the triennial ISVHLD
1988-'00	American Red Cross Transplantation Services Medical Advisory Committee.
1989-92	American Society of Hematology, Committee on Transfusion Medicine (Chair 1991)

1990-'00	International Society of Blood Transfusion, BEST Collaborative
1992-'02	International Association of Biological Standardization (IABS), Council Member
1992-96	American Association of Tissue Banks, Medical Advisory Committee
1995-98	International Congress of Immunology, Scientific Program Committee
1997-99	IABS Scientific Program Committee, Chairman
1997	International Advisory Committee, Conference on AIDS INDIA 2000.
1998-'02	International Consortium for Blood Safety (ICBS).
1999-'07	Biennial IABS Symposia on Advances in Transfusion Safety, Founder-Overseer.
2002-'06	IABS Committee on Blood, Chairman
2006-'14	IABS Publications Committee, Chairman
2006-'12	Elected as a Board Member of IABS.

SERVICE TO PROFESSIONAL PUBLICATIONS

Editorial Boards:

1994-2004	Clinical & Diagnostic Laboratory Immunology.
1996-now	Biologicals; Editor-in-Chief (2006-10).

Ad hoc Referee for Journals:

1969-now: AIDS, American Journal of Pathology, Annals of Internal Medicine, Archives of Pathology and Laboratory Medicine, Biotechniques, Biologicals, Blood, Clinical Chemistry, Clinical Immunology, Clinical Immunology and Immunopathology, International Journal of Infectious Diseases, Gastroenterology, Hepatology, Journal of Acquired Immunodeficiency Syndromes, Journal of Clinical Immunology, Journal of Clinical Investigation, Journal of Clinical Microbiology, Journal of Clinical Vaccine Immunology, Journal of Hepatology, Journal of Immunology, Journal of Infectious Diseases, Leukemia, Nature, Nature Biotechnology, Proceedings of the National Academy of Sciences, Science, Sexually Transmitted Diseases, The New England Journal of Medicine, Transfusion, Vox Sanguinis.

RESEARCH AND CREATIVE ACTIVITIES

PATENTS ISSUED OR PENDING

Granted following U.S. Patents:

3,887,697	Hemagglutination Assays for HBV antigens/antibodies; co-inventor Dr. Shulman
4,415,491	Synthetic Peptide Vaccine for Hepatitis B
4,483,793	Tetanus Toxoid Coupled Dimeric Peptide Epitope of HBsAg
4,596,792	Polymerized Albumin as a Safe Vaccine for Hepatitis B
5,776,711	Simultaneous detection of ABO and Rh blood groups by flow cytometry

PUBLICATIONS

Summary:

- 12 Books/Monographs
- 224 Papers, chapters, reviews, and editorial letters including -
 - 152 Original papers in peer-reviewed journals underlined
 - 59 Chapters and Reviews identified by Numbers with Suffix cr;
 - 13 Letters or Correspondence identified by Numbers with Suffix lc.

EDITED BOOKS/MONOGRAPHS

1. Vyas GN. Studies of blood transfusion with special reference to blood volume and erythrocyte survival rates. Ph.D. Thesis, University of Bombay, 1964.
2. Vyas GN, Perkins HA and Schmid R.: Editors, Hepatitis and Blood Transfusion, Grune and Stratton, Inc., New York, NY, 1972.
3. Vyas GN, Stites DP and Brecher, G.: Laboratory Diagnosis of Immunologic Disorders, Grune and Stratton, Inc., New York, NY, 1975.
4. Vyas GN. Membrane Structure and Function of Human Blood Cells, American Association of Blood Banks, Washington, D.C., 1976.
5. Vyas GN, Cohen SN and Schmid R.: Viral Hepatitis, Franklin Institute Press, Philadelphia, PA, 1978.
6. Vyas GN, Dienstag JL, Hoofnagle JH: Hepatitis and Liver Disease, Grune & Stratton, New York, 1984.
7. Vyas GN, Hennesen W: Use and Standardization of Chemically Defined Antigens: Developments in Biological Standardization Vol 63, S. Karger, Basel, 1986.
8. Vyas GN, Guest Editor, Transfusion Medicine Reviews. Special Issue on Transfusion Associated Infections and Immune Response, Vol. 2(4), 1988.
9. Vyas GN, Venkateswaran KS, Gelb AB. Editors, Proceedings of the Symposium on Molecular Approaches to Laboratory Diagnosis. Biologicals Vol 24 (3), 1996.
10. Brown F and Vyas GN Advances in Transfusion Safety, Developments in Biological Standardization, Karger, Basel, 2000.
11. Vyas GN and Williams AE. Advances in Transfusion Safety, Developments in Biological Standardization, Karger, Basel, 2005.
12. Dax E, Farrugia A, Vyas G. Advances in Transfusion Safety, Karger, Basel, 2007.

BIBLIOGRAPHY OF PUBLISHED PAPERS (Excluding Abstracts)

1. Sukumaran PK, Sanghvi LD and Vyas GN. Sick cell trait in some tribes of Western India. Curr Sci 1956; 25:290-291.
2. Banker DD and Vyas GN. Determination of blood groups and other genetical characters in certain endogenous Gujarati groups in the city of Bombay. J Gujarat Res Soc 1955; XVI: 157-161.
3. Vyas GN. Serological studies for the Gujarat region. J Gujarat Res Soc 1957; XIX: 232-241.
4. Vyas GN. Data relating to blood groups, sickling and other genetical characters in Gamit, a tribe of Surat District. Journal J J Group of Hospitals 1957; 2:189-196.
5. Vyas GN, Bhatia HM, Purandare NM and Banker DD. Study of blood groups and other genetical characters in six Gujarati endogamous groups in Western India. Ann of Hum Genet (London) 1958; 22:185-198.
6. Hakim SA, Vyas GN, Bhatia HM and Sanghvi LD. Eleven cases of "Bombay" blood phenotype in six families - Evidence of suppression of ABO genes in two families. Transfusion 1961; 1:218-222.
7. Vyas GN, Bhatia HM and Sanghvi LD. Three cases of weak B in an Indian family. Vox Sang 1961; 5:509-516.
8. Vyas GN, Bhatia HM, Sukumaran PK, Balkrishnan V and Sanghvi LD. Study of blood groups, abnormal haemoglobins and other genetical characters in some tribes of Gujarat. Am J Phys Anthropol 1962; 20:255-265.
9. Vyas GN, Pandit HM and Purandare NM. Suppression of gene A in two cases of anti-H in a family from South Canara. J Assoc Phys of India 1962; 10:745-748.
10. Vyas GN, Sathe MS, Purandare NM and Satoskar RS. Red cell, plasma and blood volume measured by radiochromium labeled cells and haematocrit in Indian males and females. Indian J of Med Res 1965; 53:122-139.
11. Sathe MS, Vyas GN, Bhatia HM and Purandare NM. Hemagglutinating substances in plant seeds. J Postgrad Med 1967; XIII: 29-36.
12. Vyas GN, Pretty HM, Fudenberg HH and Gold ER. A new rapid method for genetic typing of human immunoglobulins. J Immunol 1968; 100:274-279.
13. Vyas GN, Munver UL, Purandare NM and Salgaonkar DS. Human cadaver blood for transfusion. Transfusion 1968; 8:250-253.
14. Fudenberg HH, Gold ER, Vyas GN and MacKenzie MR. Human antibodies to human IgA globulins. Immunochem 1968; 5:203-206.
15. Vyas GN, Perkins HA and Fudenberg HH. Anaphylactoid transfusion reactions associated with anti-IgA. Lancet 1968; ii: 312-315.
16. Vyas GN and Fudenberg HH. Use of *B. subtilis* neutral proteinase in blood group serology. Vox Sang 1969; 15:300-303.
17. Vyas GN, Sasseti RJ, Petz LD and Fudenberg HH. Experimental study of aldomet induced positive antiglobulin reaction (part I). Brit J Haemat 1969; 16:137-143.

18. Vyas GN, and Fudenberg HH. Evolutionary dissociation of gamma G2 and Gm(n) antigens. Vox Sang 1969; 16:233-236.
19. Vyas GN, Holmdahl L, Perkins, HA and Fudenberg HH. Serologic specificity of anti-IgA and its significance in transfusion. Blood 1969; 34:573-581.
20. Vyas GN and Fudenberg HH. Am(1), the first genetic marker of human IgA globulin. Proc Nat'l Acad Sci USA 1969; 64:1211-1216.
21. cr Vyas GN and Fudenberg HH. Isoimmune anti-IgA causing anaphytactoid reaction. Invited Editorial. N Engl J Med 1969; 280:1073.
22. Vyas GN, Levin AS, and Fudenberg HH. Intra-uterine isoimmunization caused by maternal IgA crossing the placenta. Nature 1970; 225:275-276.
23. Vyas GN and Fudenberg HH. Immunobiology of human anti-IgA: A serologic and immunogenetic study of immunization to IgA in transfusion and pregnancy. Clin Genet 1970; 1:45-64.
24. Vyas GN and Shulman NR. Hemagglutination assay for antigen and antibody associated with viral hepatitis. Science 1970; 170:332-333.
25. cr Vyas GN. Antibodies to IgA causing anaphylactic reactions to small transfusions. American Association of Blood Banks Workshops on Transfusion Problems. 1970. Vol. II:21.
26. cr Fudenberg HH and Vyas GN. Human antibodies to human IgA: A clinical, serologic and immunogenetic study. Swedish Medical Research Council Symposium on Gammaglobulins. In: Wenner-Gren International Symposium Series. Oxford: Pergamon Press, 1970: 135-142.
27. Leikola J, Fudenberg HH, Vyas GN and Perkins HA. Isoantibodies to human IgM: Serologic and immunochemical investigations. J Immunol 1971; 106:1147-1153.
28. Leikola J and Vyas GN. Human antibodies to ruminant IgM concealing the absence of IgA in man. J Lab and Clin Med 1971; 77:629-638.
29. Schuh V, Vyas GN and Fudenberg HH. A study of a French family with a new variant of blood group A: Alae. Am J Hum Genet 1972; 24:11-17.
30. cr Fudenberg HH and Vyas GN. Current status of isoimmunization to IgA with special reference to allotype. In: Kaufman et al, eds. The Secretary Immunologic System. U.S. Government Printing Office, 1971: pp. 455-466.
31. Faulk WP, Vyas GN, Phillips CA and Fudenberg HH. Rhinovirus: Passive hemagglutination system. Nature 1971; 231:101-104.
32. cr Perkins HA, Payne RO, Vyas GN and Fudenberg HH. Nonhemolytic reactions to blood transfusion and organ transplantation. Proc. 12th Cong. Int. Soc. Blood Transf., Moscow 1969. Bibl Haemat No. 38, 1971; Part I, pp. 315-318.
33. cr Fudenberg HH, Vyas GN and Perkins HA. Clinical and immunological study of human anti-IgA. Proc. 12th Cong. Int. Soc. Blood Transf., Moscow 1969. Bibl. Haemat. No. 38, 1971; Part I, pp. 373-376.
34. cr Vyas GN and Perkins HA. Nonhemolytic blood transfusion reactions. EXCERPTA MEDICA. Proc. 7th Cong. World Federation of Haemophilia. Tehran, 1971; pp. 141-147.

35. Shaffer WE, Vyas GN, Shahed A, Chen E and Perkins HA. Comparison of counter-electrophoresis and hemagglutination inhibition tests for hepatitis-associated antigen. Vox Sang 1972; 22:366-370.
36. Vyas GN, Williams EW, Claus GGB and Bond HE. Hepatitis associated Australia antigen - protein, peptides and amino acid composition of purified antigen with its use in determining sensitivity of the hemagglutination test. J Immunol 1972; 108:1114-1118.
37. cr Gerin JL and Vyas GN. Hepatitis-associated (Australia) antigen (HBAG): Biophysical and immunochemical characteristics. In: Schmidt, ed. Progr. in Trans. and Transplant. Arlington, VA: Am. Assoc. Blood Banks, 1972: 167-190.
38. cr Vyas GN, Mason MA and Williams EW. Detection of hepatitis B antigen and antibodies by hemagglutination assay. In: Vyas et al., eds. Hepatitis and Blood Transfusion. New York: Grune and Stratton, Inc., 1972: 137-145.
39. cr Vyas GN. Discussion on Immunofluorescence and Immunoelectronmicroscopy. In: Vyas et al., eds. Hepatitis and Blood Transfusion. New York: Grune and Stratton, Inc., 1972: 249.
40. cr Ibrahim AB, Adelberg S and Vyas GN. In vitro correlation of delayed hypersensitivity to hepatitis B antigen (HBAG) in guinea pigs. In: Vyas et al eds. Hepatitis and Blood Transfusion. New York: Grune and Stratton, Inc., 1972: 249-254.
41. Vyas GN. Hepatitis B antigen and antibodies: Detection by hemagglutination assay. Am J Med Tech 1972; 38:366-369.
42. Vyas GN, Rao KR and Ibrahim AB. Hepatitis-associated Australia antigen (HBAG): A conformational antigen dependent on disulfide bonds. Science 1972; 178:1300-1301.
43. Pai MKR, Zipursky A and Vyas GN. Antibodies to IgA in pregnancy and recipient Rh (D) immune globulin (human). Transfusion 1972; 12:394-399.
44. cr Perkins HA, Perkins SL, Chen E and Vyas GN. A latex-agglutination test for hepatitis-associated antigen (HBAG). In: Vyas et al, eds. Hepatitis and Blood Transfusion. New York: Grune and Stratton, Inc., 1972: 181-187.
45. Rao KR and Vyas GN. Hepatitis B antigen activity in protein subunits produced by sonication. Nature (New Biol.) 1973; 241:240-241.
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47. Perkins HA, Perkins SL and Vyas GN. Further evaluation of a latex-agglutination test for detection of hepatitis B antigen. Transfusion 1974; 14:287-290.
48. Vyas GN, Adelberg S and Perkins HA. Nonspecificity of hepatitis B antigen detected with ¹²⁵I-labelled antibody. Science 1973;182:1368-1369.
49. Ibrahim AB and Vyas GN. A simple inexpensive method for the in vitro leukocyte migration. Vox Sang 1973; 25:552-556.
50. Szmunes W, Prince AM, Freidman EA, Grady GF, Jacobs MJ, Mann MK, Ribot S, Shapiro FL, Stenzel K, Suki WN and Vyas GN. Hepatitis B infection in patients and medical staff of

- 15 hemodialysis units in the USA: A point-prevalence survey. J Am Med Assoc 1974; 227:901-906.
51. cr Vyas GN and Garratty G. contributed chapter on Adverse Effects of Blood Transfusion to Technical Methods and Procedures, American Association of Blood Banks, Washington, D.C., 1974; pp. 191-199.
 52. Vyas GN, Ibrahim AB, Rao KR and Likhite V. In vitro transfer of cell-mediated immunity to hepatitis B antigen with RNA. Nature 1974; 247:377-378.
 53. Vyas GN. Evidence against recessive inheritance of susceptibility to the chronic carrier state for hepatitis B antigen. Nature 1974; 248:159-160.
 54. Rao KR and Vyas GN. Structure and activity of hepatitis B antigen (HB_{Ag}): 1. Studies on some conformational aspects and chemical modification of hepatitis B antigen. Microbios 1974; 9:239-245.
 55. Rao KR and Vyas GN. Structure and activity of hepatitis B antigen (HB_{Ag}): 2. Amino acid composition of an active subunit of HB_{Ag}. Microbios 1974; 10:233-238.
 56. Rao KR and Vyas GN. Hepatitis B surface antigen (HB_{Ag}): Tryptophan content and biological activity. J Gen Virol 1974; 54:571-573.
 57. Berg JVR, Berntsen KO, Bjorling H, Holmstrom B and Vyas GN. Recovery of hepatitis B antibody from human plasma products separated by a modified Cohn fractionation. Vox Sang 1974; 27:302-309.
 58. Ibrahim AB, Vyas GN and Prince AM. Studies on delayed hypersensitivity to hepatitis B antigen in chimpanzees. Clin Exp Immunol 1974; 17:311-318.
 59. Vyas GN, Ibrahim AB, Rao KR and Schmid R. Tolerance to hepatitis B antigen: A concept for its termination with 'immune-RNA'. Life Sciences 1974; 15:261-268.
 60. Ibrahim AB, Vyas GN and Perkins HA. Immune response to hepatitis B surface antigen. Infec and Immun 1975; 11:137-141.
 61. Greenman RL, Robinson WS and Vyas GN. A sensitive test for antibody against the hepatitis B core antigen (anti-HB_c). Vox Sang 1975; 29:77-80.
 62. Rao KR and Vyas GN. Biochemical characterization of hepatitis B surface antigen in relation to serologic activity. J of Biol Stand 1975; 4:295-304.
 63. cr Vyas GN, Schmid R, Ibrahim AB and Rao KR. Specific immunotherapy proposed for hepatitis B virus infection. Proceedings of the IABS Symposium on Viral Hepatitis, Milan, Italy, December 16-19, 1974. Develop Biol Standard (S. Karger, Basel 1975); Vol. 30:350-356.
 64. Vyas GN, Perkins HA, Yang Yee-mui and Basantani GK. Healthy blood donors with selective absence of immunoglobulin A: Prevention of anaphylactic transfusion reactions caused by antibodies to IgA. J Lab and Clin Med 1975; 85:838-842.
 65. Roberts IM, Bernard C, Vyas GN and Mackay IR. T-cell dependence of immune response to hepatitis B antigen in mice. Nature 1975; 254:606-607.
 66. Vyas GN, Roberts IM, Mackay IR and Gust ID. Immunologic mechanisms in hepatitis B

assayed by antigen-binding lymphocytes. Am J Med Sci 1975; 270:241-246.

67. Magnius L, Kaplan L, Vyas GN and Perkins HA. A new virus specified determinant of hepatitis B surface antigen. Acta Path Microbiol Scand Sect B 1975; 83:295-297.
68. lc Vyas GN, Basantani GK and Perkins HA. Hepatitis in selective IgA deficiency? Br Med J 1975; i:736.
69. Prince AM, Szmunes W, Mann MK, Vyas GN, Grady GF, Shapiro FL, Suki WN, Friedman EA and Stenzel KH. Hepatitis B "immune" globulin: Effectiveness in prevention of dialysis-associated hepatitis. A preliminary report of a cooperative multicenter trial. N Engl J Med 1975; 293:1063-1067.
70. Leikola J, Gudmunsson S, Hanson LA, Koistinen J, van Loghem E, Ring J, Rudowski W, Vyas G. Transfusion reactions caused by IgA and other plasma proteins. Vox Sang 1975; 31:154-158.
71. Vyas GN, Roberts I, Peterson DL and Holland PV. Nonspecific test reactions for antibodies to hepatitis B surface antigen in chronic HBsAg carriers. J Lab and Clin Med 1977; 89:428-432.
72. lc Vyas GN and Perkins HA. Potent anti-IgA in blood donors lacking IgA. Transfusion 1976; 16:289-290.
73. Vyas GN and Roberts IM. Radioimmunoassay of hepatitis B core antigen and antibody with autologous reagents. Vox Sang 1977; 33:369-372.
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75. Peterson DL, Roberts IM and Vyas GN. Identical amino acid sequence of two major component polypeptides of HBsAg. Proc Natl Acad Sci, USA 1976; 74:1530-1534.
76. Tanno H, Fay OH, Finder J, Igartua EB, Roncoroni ME, Gerety RJ and Vyas GN. The role of the hepatitis B virus infection in patients with chronic hepatitis in Argentina. J Med Virol 1978; 3:119-123.
77. Prince AM, Szmunes W, Mann MK, Vyas GN, Grady GF, Shapiro FL, Suki WN, Friedman EA, Avram MM and Stengel KH. Hepatitis B immune globulin: Final report of a multicenter trial of efficacy in prevention of dialysis-associated hepatitis. J Infect Dis 1978; 137:131-144.
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81. cr Peterson DL, Chien DY, Vyas GN, Nitecki D and Bond HE. Characterization of polypeptides of HBsAg for the proposed "U.C.-Vaccine" for hepatitis B. Chapter 54 in *Viral Hepatitis*. Edited by Vyas GN, Cohen SN and Schmid R. Franklin Institute Press, Philadelphia, PA. 1978, pp. 569-573.
82. cr Vyas GN. Open discussion of new information and invited discussion of unanswered questions. Organized and moderated by Girish N. Vyas, Chapter 58 in *Viral Hepatitis*. Edited by Vyas GN, Cohen SN and Schmid R. Franklin Institute Press, Philadelphia, PA. 1978, pp 593-625.
83. lc Chien DY and Vyas GN. Quantitative correlation of the hepatitis B surface and 'e' antigens. N Engl J Med 1978; 299:1253-1254.
84. Tong MJ, Weiner JM, Ashcavai MW, Redeker AG, Comparini SO and Vyas GN. A comparative study of hepatitis B viral markers in Asian and non-Asian family members of patients with hepatitis B surface antigen positive hepatocellular carcinoma or with chronic hepatitis B infection. J of Infec Dis 1979; 140:506-512.
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86. cr Stevens CE and Vyas GN. Viral Hepatitis. In: Rudolph's Pediatrics, 17th Edition. New York: Appleton-Century Crofts, 1982: 616-621.
87. cr Vyas GN, Cohen SN and Schmid R. Viral Hepatitis update. Preface to Second Printing in *Viral Hepatitis*. Edited by Vyas GN, Cohen SN and Schmid R, Franklin Institute Press, Philadelphia, PA, 1979; pp. xiii.
88. Milich DR, Vyas GN, Holland PV, Courouce-Pauty AM and Sampliner RE. Plasmapheresis of HBsAg carriers. Acta Haemat. Pol. 1980; XL 73-78.
89. Vyas GN, and Schmid R. Immunodiagnosis of viral hepatitis. West J Med 1980; 133:241-242.
90. cr Vyas GN. Biology, diagnosis and prophylaxis of viral hepatitis. Proc. of WHO/ICMR GEA Workshop on Hepatitis, Indian Council of Medical Research. New Delhi, 1979, pp. 7-11.
91. Milich DR, Papas E, Bhatnagar P and Vyas GN. Interactions between polymerized human albumin, hepatitis B surface antigen and complement; I. Binding of polyalbumin to C1q. J Med Virol 1981; 7:181-192.
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93. Milich DR, Gottfried T and Vyas GN. Characterization of the interaction between polymerized human albumin and hepatitis B surface antigen. Gastroenterology 1981; 81:218-225.
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1981; 66:475-479.

96. cr Vyas GN. Molecular immunology of hepatitis B surface antigen (HBsAg). In: Maupas P and Guesy P, eds. *Hepatitis B Vaccine*. New York: Elsevier, 1981: 227-237.
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99. Blum HE and Vyas GN. Non-A, Non-B hepatitis: A contemporary assessment. *Haematologia* 1982; 15:153-173.
100. Vyas GN and Perkins HA. Non-B posttransfusion hepatitis associated with hepatitis B core antibodies in donor blood. *N Engl J Med* 1982; 306:749-750.
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105. cr Vyas GN, Blum HE, Figus A and Bhatnagar PK. Molecular immunobiology of posttransfusion hepatitis types B and non-A, non-B: possible genetic similarities of viruses. Proceedings of the International Hematology and Transfusion Congress, Hungarian Academy of Sciences, Budapest, 1982.
106. cr Toy P and Vyas GN. Blood Transfusion Reactions. In: Engelfriet CP, Kr. von dem Borne AEG and van Loghem JJ, eds. *Immunohaematology*. Amsterdam: Elsevier Biomedical Press, 1984: 119-135.
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109. cr Vyas GN, and Blum HE. Genes and antigens of hepatitis viruses. de la Maza L, ed. *Proc. II Int. Symp. Med. Virol.* New York: Elsevier, 1983: 121-146.
110. cr Vyas GN, Bhatnagar PK, Blum HE, Expose J and Heldebrant C. Appraisal and prospects of a dimeric synthetic peptide coupled with tetanus toxoid for a bifunctional vaccine against hepatitis B virus infection. In: *Proceedings of WHO/IABS Symposium on Viral Hepatitis*, Athens. Develop Biol Standard S. Karger, Basel, 1983; 54:93-102.

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- 114.cr Vyas GN. Citation Classic. Commentary on Science. 1970; 170:332-333. *Current Contents* 6:16, February 6, 1984.
- 115.cr Vyas GN and Blum HE. Hepatitis: The Yellow Menace. *Science Today*, 1984; August; 58-62.
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ANNOTATION OF SIGNIFICANT PUBLICATIONS

The publication record consists of 12 edited books and monographs in the field of laboratory medicine. A total of 224 published articles include 152 original papers in peer-reviewed journals, 59 Chapters and Reviews, and 13 letters or editorial correspondence. Papers published in the most prestigious journals include: Science (#24, 42, 48, 78, 97, 222); Nature (# 22, 31, 45, 52, 53, 65); N Engl J Med (21, 69, 100, 104, 160, 166,176,196); Proc Natl Acad Sci USA (# 20, 75, 94, 101, 107).

SUMMARY OF CURRENT RESEARCH INTEREST/PROGRAM

From a service dispensing blood products for transfusion to UCSF patients, our blood bank is established as a national leader in the evolving discipline of Transfusion Medicine. With NHLBI grants and contracts totaling \$20 million (1985-2000), our research and training program has played a pivotal role in accomplishing the mission of transfusion safety, viz. post-transfusion hepatitis reduced from 1:5 before 1970 to <1:1000,000 after 2001 by continued improvements in screening tests (EIA and NAT).

UCSF's pivotal role in prevention of hepatitis B virus (HBV) infection by vaccination with the HB-surface antigen (HBsAg) and passive prophylaxis with hyperimmune globulin against HBsAg (HBIG) form the foundation for our innovative approach to immunoprophylaxis against HIV-1 infection. In 2001 we embarked upon developing an HIV envelope vaccine candidate (HIV-env) predicated upon growing the virions from plasma of blood donors with acute HIV-1 infection diagnosed by positive nucleic acid amplification test (NAT) without detectable antibodies. The plasma-derived HIV-1 (PHIV) is genetically homogeneous with CCR5 phenotype, which can be readily expanded in pooled human blood mononuclear cells (PBMC) to obtain needed amounts of purified virions. Such virions can be orthogonally inactivated with beta-cyclodextrin and Benzonase to obtain virion particles with conformationally conserved envelope proteins but devoid of virion RT, core proteins, and nucleic acids of viral/host origin. The safety and immunogenicity of HIV-env proteins in native lipid bilayer is likely to overcome the continuing failures of clonally-derived HIV DNA (free and vectored) and monomeric HIV envelope proteins in inducing broadly neutralizing antibodies against HIV-1 transmitted in the population. We postulate that the genetic diversity of an inactivated pool of PHIV would elicit broadly neutralizing antibodies (bnAb) for protection against HIV-1 transmitted in humans. The bnAb against HIV-env will notably enable a practical distinction between immunity and infection, which is marked by high level of antibodies to the gag proteins (anti-p24). The resulting HIV-env vaccine candidate will also enable immunization of selected blood donors with CCR5-delta 32 homozygosity to enable plasmapheresis of immunized donors and provide hyperimmune globulin specific for HIV-env (env-HIVIG). Thus, akin to HBV prophylaxis, we envision ultimate availability of safe and effective means for passive-active immunization for perinatal prevention of mother to child transmission of HIV-1 infection.

The foregoing approach to developing HIV-env and env-HIVIG have not been popular with the peer review system at NIAID. Endorsing this approach might appear to negate the validity of the ongoing, yet so far unsuccessful, research that has consumed nearly \$4 billion. Consequently, this promising avenue of research approach has not been funded. Despite the daunting politics of HIV vaccine research funding we continue to make steady progress. The National Bioproducts Institute (NBI), affiliated with the South African Blood Service, and the University of Kwazulu-Natal in Durban are engaged as our research partners for capacity building in non-profit provision of HIV-env and env-HIVIG.