55. Woods, Roy and Herzenberg, Leonard A.
Specificities common to mouse IgG and IgA molecules.
(In preparation).

56. Lanzerotti, Richard M. and Herzenberg, Leonard A.
Population of antibodies recognizing distinct allotypic specificities in mouse immunoglobulin. V.
(In preparation).

57. Herzenberg, Leonard A., Pernis, B., and Kelus, A.S.
A second locus controlling rabbit heavy chain allotypes on the Fd fragment of a second-class of immunoglobulin.
(In preparation).

58. Herzenberg, Leonard A., Carbonara, A., Tosi, R., and Pernis, B.
Comparison of a locus allotypic specificities in IgG, IgA, and IgM in the rabbit.

(Give the following information for the key personnel listed on page 3. Begin with the Principal Investigator. Do not exceed one page for each person. Follow this same format for each person.)

NAME	TITLE	BIRTHDATE (Mo., Day, Yr.)
H. Russell Hulett	Research Associate	May 5, 1920
PLACE OF BIRTH (City, State, Country)	**PRESENT NATIONALITY** (If non-U.S. citizen, indicate kind of visa and expiration date)	**SEX**
Nespelem, Washington	U.S.	☒ Male ☐ Female

EDUCATION (Begin with baccalaureate training and include postdoctoral)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Oregon State College, Corvallis, Ore.	B.S.	1941	
Oregon State College, Corvallis, Ore.	M.S.	1942	
Stanford University, Stanford, Cal.	Ph.D.	1964	Chemistry

HONORS Membership in:
Phi Lambda Upsilon
Pi Mu Upsilon
Sigma Xi

MAJOR RESEARCH INTEREST	ROLE IN PROPOSED PROJECT
Biomedical instrumentation, origin of life.	Instrumentation development, investigat. of specific cell separations, evaluatio

RESEARCH SUPPORT (See instructions)

N/A

RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List of most representative publications. Do not exceed 3 pages for each individual.)

1966 - present: Research Associate, Stanford University
1964 - 1968: Associate Professor, Head, Department of Chemistry, College of Notre Dam
1965 - 1966: Department Head, Itek Corporation
1959 - 1964: Research Director, Advanced Technology Labs
1957 - 1959: Subsystem Manager, Lockheed
1952 - 1957: Electronics Department Head, Detroit Controls
1951 - 1952: Electronics Department Head, Santa Barbara Research
1946 - 1951: Electronic Engineer, Hughes Aircraft
1942 - 1946: U. S. Army

Publications: (selected -- since 1965)

Hulett, H. R. and H. S. Loring. "Reactions of metals with tobacco mosaic virus." Federation Proceedings. 23:1943 (1965)

Hulett, H. R. and H. S. Loring. "Effect of particle length distribution on infectivity of tobacco mosaic virus." Virology 25:418 (1965)

Hulett, H. R. "Turbulence limitations in photographic resolution of planet surfaces." J. Opt. Soc. Am. 57:1335 (1967)

Ehrlich, P. and H. R. Hulett. "Living on capital." New Scientist 38:426 (1968)

Hulett, H. R. "Limitations on prebiological synthesis." J. Theor. Biol. 24:56-72 (19

Hulett, H. R., Bonner, W. A., Barrett, J. and L. A. Herzenberg. "Cell sorting: automated separation of mammalian cells as a function of intracellular fluorescence." Science 166: 747-749 (1969)

Hulett, H. R. "Optimum world population." Bioscience. 20:160 (1970)
Hulett, H. R. "Non-enzymatic hydrolysis of adenosine phosphates." Nature 225:1248 (1970
Hulett, H. R., Coukell, A., and W. Bodmer. "Tissue typing instrumentation using the fluorochromatic cytotoxicity assay." Transplantation 10:135 (1970).
Hulett, H. R. and L. A. Herzenberg. "Approaches to prescreening with special consideration of flow systems." Acta Cytologica (in press)
Hulett, H. R. and L. A. Herzenberg, W. Bonner and R. L. Wolf. "Rapid cell sorter -- a new tool for cell study with clinical appliations." Laboratory Investigations 22:501 (1970).
Hulett, H. R. "Shock synthesis of amino acids in simulated primitive atmosphere." Science 170=1000 (1970). Letter to the Editor.

Seven patents on electro-optical devices and instrumentation

Publications after 1970:

Merrill, J. T., N. Veizades, H. R. Hulett, P. L. Wolf and L. A. Herzenberg. "An Improved Cell Volume Analyzer" Rev. Sci. Instr. 42, No. 8, 1157-1163 (1971).
Bonner, W. A., H. R. Hulett, R. G. Sweet, and L. A. Herzenberg. "Fluorescent Cell Sorting" Rev. Sci. Instr. 43, 404 (1972).
Hulett, H. R., R. G. Sweet, L. A. Herzenberg. "Development and Application of Rapid Cell Sorter," to be presented at O.R.N.L. symposium on Advanced Analytical Methods for the Clinical Laboratory, Mar. 15, 1973 (and later published in Clinical Chemistry.)
Hulett, H. R. "Formaldehyde and Ammonia as Precursors to Prebiotic Amino Acids. Science 174, 1038, 1971.

BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME	TITLE	BIRTHDATE (Mo., Day, Yr.)
John D. Johnson	Assistant Professor	September 14, 1938

PLACE OF BIRTH (City, State, Country)	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date)	SEX
Palo Alto, California	U.S.A.	☒ Male ☐ Female

EDUCATION *(Begin with baccalaureate training and include postdoctoral)*

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Wabash College, Crawfordsville, Ind.	B.A.	1960	Zoology
Stanford Medical School, Stanford, Calif.	M.D.	1965	Medicine
Johns Hopkins Hospital, Baltimore, Md.		1965-67	Pediatrics, 2 yea
Stanford Medical School, Stanford, Calif.		1970	Post-Doctoral Fe
			~~Developmental Bi~~

HONORS

Phi Beta Kappa, Alpha Omega Alpha, Borden Award for Undergraduate Research (Stanford Medical School)

MAJOR RESEARCH INTEREST	ROLE IN PROPOSED PROJECT
Developmental Biochemistry, bilirubin metabolism	Investigator

RESEARCH SUPPORT *(See instructions)*

United Cerebral Palsy Associations, Inc. Grant R-245-71,
Developmental Aspects of Heme Protein Catabolism
Current $28,772. July 1, 1971 to June 30, 1973 Total $53,322.

RESEARCH AND/OR PROFESSIONAL EXPERIENCE *(Starting with present position, list training and experience relevant to area of project. List e or most representative publications. Do not exceed 3 pages for each individual.)*

1971 to present - Assistant Professor of Pediatrics, Stanford University
1971 to present - Assistant Director of Newborn Service, Stanford University
1970 - Post-Doctoral Fellow, Department of Pediatrics, Stanford University
1967 -- 1969 - Research Associate, NICHD
1960 - 1963 - Pre-Doctoral Fellow, Department of Pediatrics, Stanford University

Publications

Johnson, J.D., Hurwitz, R., and Kretchmer, N.: Utilization of fat and glycerol for glycogenesis by the neonatal rat. J. Nutrition, 101, 299, 1971.

Johnson, J.D., Jant, B.A., Kaufman, S., and Sokoloff, L.: Effect of ionic strength on the RNA polymerase activities of isolated nuclei and nucleoli of rat liver. Arch. Biochem. Biophys., 142, 489, 1971.

Johnson, J.D., Christiansen, R.O., and Kretchmer, N.: Lactose synthetase in mammary gland of the California Sea Lion. Biochem. Biophys. Res. Comm. 47, 393, 1972.

Johnson, J.D., Albritton, W.L., and Sunshine, P.: Hyperammonemia accompanying parenteral nutrition in newborn infants. J. Pediatrics 81, 154, 1972.

Johnson, J.D.: Neutral hetero-β-galactosidase from the small intestine of the rabbit. Submitted for publication to Biochim. Biophys. Acta.

BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME	TITLE	BIRTHDATE *(Mo., Day, Yr.)*
Judith P. Koehler, M.D.	Assistant Professor of Neurology and Pediatrics	April 27, 1939
PLACE OF BIRTH *(City, State, Country)*	**PRESENT NATIONALITY** *(If non-U.S. citizen, indicate kind of visa and expiration date)*	**SEX**
New York, New York	U.S. Citizen	☐ Male ☒ Female

EDUCATION *(Begin with baccalaureate training and include postdoctoral)*

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Mount Holyoke College	A.B.	1960	
Dartmouth Medical School	B.M.S.	1962	
University of Pennsylvania	M.D.	1966	

HONORS

American Academy of Neurology (Junior Member)

MAJOR RESEARCH INTEREST	ROLE IN PROPOSED PROJECT
Pediatric Neurology	

RESEARCH SUPPORT *(See instructions)*

RESEARCH AND/OR PROFESSIONAL EXPERIENCE *(Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)*

1966-1967 Intern, Mixed Pediatrics, Montefiore Hospital and Medical Center, Bronx, N.Y.
1967-1968 Junior Resident, Neurology, Albert Einstein College Hospital and Bronx Municipal Hos
1968-1970 Senior Resident, Neurology, Albert Einstein College Hosp. and Bronx Municipal Hospital Center, New York.
1969-1971 Postdoctoral Fellow, Anatomy, College of Physicians and Surgeons, Columbia Univ., N.
1971-1972 Fellow in Pediatric Neurology, Columbia-Presbyterian Medical Center, N.Y.
1972- Assistant Professor of Neurology and Pediatrics, Stanford Medical Center.

Publications (selected)

Koehler, J.P., Lovelace, R.E., Spiro, A.J.: Basement membrane and capillary endothelial alterations in hypokalemic periodic paralysis: an electron microscopic study. (Abstract) Presented at the American Association of Neuropathologists, 47th Annual Meeting, June 1971.

Koehler, J.P., Spiro, A.J., Lovelace, R.E.: I. Thyrotoxic periodic paralysis: light and electron microscopic observations of nerve and muscle. (In preparation).

Koehler, J.P. and Chuzorian, A.: Tissue culture of medulloblastoma cells from spinal fluid, a useful diagnostic technique. (In preparation).

Spiro, A.J., Koehler, J.P., Taylor, J.M.: Oculopharyngeal dystrophy: ultrastructural and histochemical observations of skeletal muscle. (Abstract) Presented at the American Association of Neuropathologists, June 1972.

Koehler, J.P., Duffy, P.E., Carter, S. (1973) Selective type I fiber atrophy in childhood neuropathy: light and electron microscopic observations of peripheral nerve, Schwann cells, neuromuscular junction, and muscle. (In preparation).

BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME	TITLE	BIRTHDATE (Mo., Day, Yr.)
Norman Kretchmer	Harold K. Faber Professor of Pediatrics	January 20, 1923
PLACE OF BIRTH (City, State, Country)	**PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date)**	**SEX**
New York, N.Y.	U.S.A.	☒ Male ☐ Female

EDUCATION *(Begin with baccalaureate training and include postdoctoral)*

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Cornell University	B.S.	1944	Animal Physiology
University of Minnesota	M.S.	1945	Physiological Chem.
University of Minnesota	Ph.D.	1947	Physiological Chem.
Downstate Medical Center, State Univ. of	M.D.	1952	

HONORS Commonwealth Fund Fellow, 1952,57,65
Mead Johnson Award, 1958;
Borden Award, 1969
President, Int. Organ. Study Human Development, 1969; President, Soc.Ped.Res., 1968
Council, Amer. Soc. Clin. Invest., 1964-6
Alumni Medallion SUNY, 1969.

MAJOR RESEARCH INTEREST	ROLE IN PROPOSED PROJECT
	Investigator

RESEARCH SUPPORT *(See instructions)*

RR 81 - Clinical Research Center for Premature Infants, 10/1/69-9/30/74
Amount current year: 418,532 - Total amount: 2,021.300- (5%) renewal pending
HD 02147 - Biochemical Studies of Development, 6/1/66-5/30/73,
Amount current year: 206,593 - Total amount: 1,309,278- (15%) renewal pending.
CRBS 252 - National Foundation - Cellular and Molecular Determinants of Morphogenesis
Amount current year: $27,273 - Total amount: 54,546 (7/1/71-6/30/73)- (15%)
HD 00049 - Human Development and Pediatrics Training Grant, 7/1/70-6/30/74,
Amount current year: $90,588 - Total amount: 448,936.- (10%)renewal pending
(Please see continuation on attached sheet)

RESEARCH AND/OR PROFESSIONAL EXPERIENCE *(Starting with present position, list training and experience relevant to area of project. List 5 most representative publications. Do not exceed 3 pages for each individual.)*

1971 to present - Harold K. Faber Professor of Pediatrics
1969 - 1972 - Chairman, Program in Human Biology (Baccalaureate Prog., Stanford Uni
1959 - 1969 - Professor and Executive Head, Pediatrics
1953 - 1959 - Assistant then Associate Professor, Dept. of Peds, Cornell Univ. New York Hospital
1950 - 1955 - Lecturer, Department of Biology, Brooklyn College
1948 - 1952 - Research Associate, Dept. of Pathol., State Univ. of New York
1947 - 1948 - Assistant Professor, Departments of Pathology and Biochemistry, Univ. of Vermont.
From 1952 - Various clinical appointments from Intern to Pediatrician-in-Chief

Publications (Six relevant publications are listed from a total of 101)

Kretchmer, N.: Lactose and lactase: A historical perspective. Gastrcenterology 61:805, 1971.

Levine, R.L., Hoogenraad, N.J., and Kretchmer, N.: Regulation of activity of carb amyl-phosphate synthetase from mouse spleen. Biochemistry 10:3694, 1971.

Lebenthal, E., Sunshine, P., and Kretchmer, N.: Effect of carbohydrate and corticosteroids on activity of α-glucosidases in intestine of the infant rat. J. Clin. Invest. 51:1244, 1972.

Kretchmer, N., Ransome-Kuti, O., Hurwitz, R., Dungy, C., and Alakija, W.: Intestinal absorption of lactose in Nigerian ethnic groups. The Lancet 2:392, 1971.

Research Support, continued

HD 00391 - Regulation of enzyme action during development, 9/1/68-8/31/73
Amount current year: 42,289 - total amount: 183,822 (15%)

Publications, continued

Weichsel, M.E., Jr., Hoogenraad, N.J., Levine, R.L., and Kretchmer, N. Pyrimidine biosynthesis during development of rat cerebellum Pediatric Res. 6:682, 1972.

Johnson, J.D., Christiansen, R.O., and Kretchmer, N. Lactose synthetase in mammary gland of the California sea lion. Biochem. Biophys. Res. Commun. 47:393, 1972.

Note: Renewal of HD-02147 is pending. This present renewal application, HD 00391, in part overlaps with some material included in HD-02147.

SECTION II—PRIVILEGED COMMUNICATION

BIOGRAPHICAL SKETCH

(Give the following information for each KEY professional staff member, whether or not salary is requested. Begin with the Program Director.)

APPLICATION NUMBER (Leave blank)

NAME (Last, first, initial)	TITLE	BIRTHDATE (Mo., Day, Yr.)
Luigi Luzzatti, M.D.	Professor of Pediatrics and Community & Preventive Medicine	9/6/14
PLACE OF BIRTH (City, State, Country)	PRESENT NATIONALITY (If non-U.S. citizen, indicate visa symbol)	SEX: ☒ MALE ☐ FEMALE
Rome, Italy	U.S. Citizen	SOC. SEC. NO. 570-42-7539

RELATIONSHIP TO PROPOSED PROGRAM

Investigator

EDUCATION (Begin with baccalaureate training and include postdoctoral)

ORGANIZATION AND LOCATION	DEGREE	YEAR CONFERRED	DISCIPLINE
University of Minnesota, Mpls, Minn.	M.S.	1942	
University of Minnesota, Mpls, Minn.	M.D.	1943	

HONORS

MAJOR RESARCH OR PROFESSIONAL INTEREST (If applicable)

Congenital Defects and Cytogenetics

LIST RECENT RELEVANT PUBLICATIONS

Miles, C.P., Luzzatti, L., Storey, S. and Peterson, C.D.: A male pseudo-hermaphrodite with a probable XO/XY mosaicism. Lancet, Sept. 1, 1962, 455.

Luzzatti, L.: Failure to thrive - a diagnostic approach. Postgrad. Med. 35:270-8, March 1964.

Peterson, C.D. and Luzzatti, L.: The role of chromosome translocation in the recurrence risk of Down's syndrome. Pediat. 35:463-9, March 1965.

Weichsel, M.E., Jr., and Luzzatti, L.: Trisomy 17-18 syndrome with congenital extrahepa biliary atresia and congenital amputation of the left foot. J. Ped. 67:324-7, Aug.

PROFESSIONAL AND/OR RESEARCH EXPERIENCE (Start with present position and list recent significant experience relevant to program) (publications cont.)

1972- Professor of Pediatrics & Community and Preventive Medicine
1967- Director, Birth Defects Center, Stanford Univ. School of Medicine
1963- Director, Cytogenetic Lab., Stanford Univ. School of Medicine
1957-72 Associate Prof. of Pediatrics and Preventive Medicine, Stanford Univ. Sch. of M
1955-67 Director, Pediatric Outpatient Dept., Stanford Univ. School of Medicine
1954-57 Assistant Prof. of Pediatrics and Preventive Medicine, Stanford Univ. Sch. of M
1953-54 Director of Cerebral Palsy Training Program, Children's Hospital of San Francisco

P-208

U.S. GOVERNMENT PRINTING OFFICE : 1970 OF - 386-486

Publications (continued)

Craig, A., and Luzzatti, L.: Translocation in De Lange's syndrome? Lancet 2:445-6, August 1965.

Craig, A., and Luzzatti L.: Translocation in trisomy D syndrome. A case of probable D/18 translocation. J. Pediat. 70:264-9, Feb. 1967.

Greenstein, R.M., Harris, D.J., Luzzatti, L. and Cann, H.M.: Cytogenetic analysis of a boy with the XXXY syndrome: origin of the X-chromosomes. Pediatrics, 45:677-686, April 1970.

Knight, L., Sakaguchi, S., and Luzzatti, L.: Unusual mechanism of transmission of a chromosome translocation from mother to offspring. American J. Dis. of Children 121:162-167. Feb. 1971.

Knight, L., and Luzzatti, L.: Replication patterns of X & Y chromosomes in partially synchronized human lymphocyte cultures. Chromosoma, Vol. 40, 153-166, 1973.

Use continuation pages and follow the same general format for each person.)

NAME	TITLE	BIRTHDATE (Mo., Day, Yr.)
Wilfred E. PEREIRA	Research Associate	June 23 1936
PLACE OF BIRTH (City, State, Country)	**PRESENT NATIONALITY** (If non-U.S. citizen, indicate kind of visa and expiration date)	**SEX**
Madras, S. India	Indian, Permanent Resident Immigrant Visa	☑ Male ☐ Female

EDUCATION (Begin with baccalaureate training and include postdoctoral)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Madras Medical College, Madras, India	B. Pharm	1960	Pharmaceutical Chemistry
Saugar Univ, Madhya Pradesh, India	M. Pharm	1962	Pharm. Chem & Chem of Nat
U.C. Med. Center, San Francisco, Calif	Ph.D.	1968	Pharm. Chem & Pharmacolog

HONORS

MAJOR RESEARCH INTEREST	ROLE IN PROPOSED PROJECT
Identification of Metabolites & drug metabolites in Biological fluids	Organic chemist

RESEARCH SUPPORT (See instructions)

RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)

1968 - 1970 Post Doctoral Fellow, Dept. of Genetics Stanford University Med. School
1970 - present Research Associate same institution
During these four years I have been involved with peptide synthesis, amino acid analysis and synthetic organic chemistry. I helped develop methods for the separation of diasterioisomers by gas chromatography and have been involved with the routine use of gas chromatography mass spectrometry for the identification of urinary metabolites in normal and pathological urine and serum samples. My applications of mass spectrometry have included the development of mass fragmentography for the determination of the amino acid contents of soil and ~~xxxxxx~~ serum. My present project involves the screening of urine from leukemic patients for abnormal metabolites and to investigate the metabolic fate of anti-leukemic chemotheropeutic agents in the body.

PUBLICATIONS

1. Transesterification with an Anion-exchange Resin;
W. Pereira, V. Close, W. Patton and B. Halpern,
J. Org. Chem. 34:2032 (1969).

2. Alcoholysis of the Merrifield-type Peptide-polymer Bond with an Anion Exchange Resin;
W. Pereira, V. A. Close, E. Jellum, W. Patton and B. Halpern,
Australian J. of Chem. 22:1337 (1969).

3. The Action of Nitrosyl Chloride on Phenylalanine Peptides;
W. Patton, E. Jellum, D. Nitecki, W. Pereira and B. Halpern,
Australian J. of Chem. 22:2709 (1969).

4. Abnormal Circular Dichroism of α-Amino Acid Esters;
J. Cymerman Craig and W. E. Pereira,
Tet. Let. 18:1563 (1970).

5. The Use of (+)-2,22-Trifluoro-1-Phenylethylhydrazine in the Optical Analysis of Asymmetric Ketones by Gas Chromatography;
W. E. Pereira, M. Solomon and B. Halpern,
Australian J. of Chem.24:1103 (1971).

6. The Microsomal Oxygenation of Ethyl Benzene. Isotopic, Stereochemical, and Induction Studies;
R. E. McMahon, H. R. Sullivan, J. Cymerman Craig and W. E. Pereira,
Arch. Biochem. Biophys. 132:575 (1969).

7. The Steric Analysis of Aliphatic Amines with Two Asymmetric Centers by Gas-liquid Chromatography of Diastereoisomeric Amides.
W. E. Pereira and B. Halpern,
Australian J. Chem. 25:667 (1972).

8. Optical Rotatory Dispersion and Absolute Configuration -XVII. α-Alkylphenylacetic Acids;
J. Cymerman Craig, W. E. Pereira, B. Halpern and J. W. Westley,
Tetrahedron 27:1173 (1971).

9. The Optical Rotary Dispersion and Circ dar Dichroism of α-Amino and α-Hydroxy Acids;
J. Cymerman Craig and W. E. Pereira
Tetrahedron 26:3457 (1970).

10. The Determination of Cyclohexylamine in Aqueous Solutions of Sodium Cyclamate by Electron-capture Gas Chromatography;
M. D. Solomon, W. E. Pereira and A. M. Duffield,
Anal. Let. 4:301 (1971).

Publications continued-

11. Chlorination Studies. I. The Reaction of Aqueous Hypochlorous Acid with Cytosine;
W. Patton, V. Brown, A. M. Duffield, B. Halpern, Y. Hoyano, W. Pereira and J. Lederberg,
Biochem. Biophys. Res. Commun. 48:880 (1972).

12. The Use of R-(+)-1-Phenylethylisocyanate in the Optical Analysis of Asymmetric Secondary Alcohols by Gas Chromatography;
W. Pereira, V. A. Bacon, W. Patton, B. Halpern, and G. E. Pollock,
Anal. Let. 3:23 (1970).

13. A Rapid and Quantitative Gas Chromatographic Analysis for Phenylalanine in Serum;
B. Halpern, W. E. Pereira, M. D. Solomon and E. Steed,
Anal. Biochem. 39:156 (1971).

14. Electron-impact Promoted Fragmentation of Alkyl-N-(1-Phenylethyl)-Carbamates of Primary, Secondary and Tertiary Alcohols;
W. E. Pereira, B. Halpern, M. D. Solomon and A. M. Duffield,
Org. Mass Spectrometry 5:157 (1971).

15. Peptide Sequencing by Low Resolution Mass Spectrometry;
V. Bacon, E. Jellum, W. Patton, W. Pereira and B. Halpern,
Biochem. Biophys. Res. Commun. 37:878 (1969).

16. A Gas Liquid Chromatographic Method for the Determination of Phenylalanine in Serum;
E. Jellum, V. A. Close, W. Patton, W. Pereira and B. Halpern,
Anal. Biochem. 31:227 (1969).

17. Quantitative Determination of Biologically Important Thiols and Disulfides by Gas Liquid Chromatography;
E. Jellum, W. Patton, V. A. Bacon, W. E. Pereira and B. Halpern,
Anal. Biochem. 31:339 (1969).

18. A Study of the Electron Impact-promoted Fragmentation of Promazine Sulfoxide and Promazine Using Specifically Deuterated Analogues;
M. D. Solomon, R. Summons, W. Pereira and A. M. Duffield,
Australian J. Chem. (1973, in press).

19. The Determination of Phenylalanine in Serum by Mass Fragmentography;
W. Pereira, V. A. Bacon, Y. Hoyano, R. Summons and A. M. Duffield,
Clin. Biochem. (In press).

20. Chlorination Studies II. The Reaction of Aqueous Hypochlorous Acid with α-Amino Acids and Dipeptides;
W. E. Pereira, Y. Hoyano, R. Summons, V. A. Bacon and A. M. Duffield,
Biochem. et Biophys. Acta (In press).

SECTION II – PRIVILEGED COMMUNICATION

BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME	TITLE	BIRTHDATE (Mo., Day, Yr.)
Thomas C. Rindfleisch	Research Associate	12-10-41
PLACE OF BIRTH (City, State, Country)	**PRESENT NATIONALITY** (If non-U.S. citizen, indicate kind of visa and expiration date)	**SEX**
Oshkosh, Wisconsin, USA	USA	☒ Male ☐ Female

EDUCATION *(Begin with baccalaureate training and include postdoctoral)*

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Purdue University, Lafayette, Ind.	B.S	1962	Physics
California Institute of Technology, Pasadena, CA	M.S	1965	Physics
	Ph.D	Thesis to be completed. All course work and examinations completed.	

HONORS

Purdue University, Graduated with Highest Honors, Sigma Xi.

MAJOR RESEARCH INTEREST	ROLE IN PROPOSED PROJECT
Space sciences, computer science and image processing	Technical Support

RESEARCH SUPPORT *(See instructions)*

RESEARCH AND/OR PROFESSIONAL EXPERIENCE *(Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)*

1971-Present Stanford University Medical School, Department of Genetics, Stanford, CA.
Research Associate - Mass Spectrometry, Instrumentation research.

1962-1971 Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA.
Relevant Experience:
1969-1971: Supervisor of Image Processing Development and Applications Group.
1968-1969: Mariner Mars 1969 Cognizant Engineer for Image Processing
1962-1968: Engineer - design and implement image processing computer software.

1. Rindfleisch, T. and Willingham, D., "A Figure of Merit Measuring Picture Resolution," JPL Technical Report 32-666, September 1, 1965.

2. Rindfleisch, T. and Willingham, D., "A Figure of Merit Measuring Picture Resolution," Advances in Electronics and Electron Physics, Volume 22A, Photo-Electronic Image Devices, Academic Press, 1966.

Thomas C. Rindfleisch
PUBLICATIONS (cont'd)

3. Rindfleisch, T., "A Photometric Method for Deriving Lunar Topographic Information," JPL Technical Report 32-786, September 15, 1965.

4. Rindfleisch, T., "Photometric Method for Lunar Topography," Photogrammetric Engineering, March 1966.

5. Rindfleisch, T., "Generalizations and Limitations of Photoclinometry," JPL Space Science Summary Volume III, 1967.

6. Rindfleisch, T., "The Digital Removal of Noise from Imagery," JPL Space Science Summary 37-62 Volume III, 1970.

7. Rindfleisch, T., "Digital Image Processing for the Rectification of Television Camera Distortions," Astronomical Use of Television-Type Image Sensors, NASA Special Publication SP-256, 1971.

8. Rindfleisch, T., Dunne, J., Frieden, H., Stromberg, W., and Ruiz, R., "Digital Processing of the Mariner 6 and 7 Pictures," Journal of Geophysical Research, Volume 76, Number 2, January 1971.

9. Rindfleisch, T., "Digital Image Processing," To be published, IEEE Special Issue, July 1972.

SECTION II – PRIVILEGED COMMUNICATION

Prof. J. Lederberg
Department of Genetics

BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME	TITLE	BIRTHDATE (Mo., Day, Yr.)
Schulman, Irving	Professor and Chairman Department of Pediatrics	2/17/22
PLACE OF BIRTH (City, State, Country)	**PRESENT NATIONALITY** (If non-U.S. citizen, indicate kind of visa and expiration date)	**SEX**
New York City, New York	U.S.A.	☒ Male ☐ Female

EDUCATION *(Begin with baccalaureate training and include postdoctoral)*

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
New York University, New York	B.A.	1942	
New York University College of Medicine, New York	M.D.	1945	

HONORS

Phi Beta Kappa, Alpha Omega Alpha
Mead Johnson Award for Pediatric Research, 1960
President, Society for Pediatric Research, 1966

MAJOR RESEARCH INTEREST	ROLE IN PROPOSED PROJECT
Coagulation physiology, Hemorrhagic diseases	

RESEARCH SUPPORT *(See instructions)*

See next page

RESEARCH AND/OR PROFESSIONAL EXPERIENCE *(Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)*

Professor and Chairman, Dept. of Pediatrics, Stanford University- 1972
Professor and Head, Dept. of Pediatrics, University of Illinois - 1961 - 1972
Professor of Pediatrics, Northwestern University - 1958-1961
Associate Professor of Pediatrics, Cornell University - 1956-1958
Assistant Professor of Pediatrics, Cornell University - 1952-1956
USPHS Post-Doctoral Fellow in Pediatrics, Cornell University - 1950-1952
Resident in Pediatrics, Bellevue Hospital -1948-1950
Military Service - 1946-1948
Intern, Queens General Hospital, New York City - 1945-1946

Biographical Sketch (continued)

Research Support

HD-00568-12 Hemostasis and Hemorrhagic Disease in Children

Principal Investigator	20% time
Project period	1/1/70 - 12/31/72
Total Funds	(Direct) $122,993
Current Year	(Direct) $ 15,814 1/1/72 - 5/31/72
	University of Illinois
HD-07300-01	-------- $27,426 6/1/72 - 8/31/72
	Stanford University

TI-AM-05344 Training Grant in Pediatric Hematology

Program Director	20% time
Period	7/1/67 - 6/30/72
Total Funds	$263,465
Current Year	$ 54,458

*Training grant renewed at University of Illinois for five years effective 7/1/72 ($332,600)- application for new training grant in Pediatric Hematology has been submitted from Stanford University.

Representative Bibliography

Irving Schulman, M.D.

(Past 5 Years)

1. Abildgaard, C.F., Corrigan, J.J., Seeler, R.A., Simone, J.V., and Schulman, I.: Meningoccemia associated with intravascular coagulation. Pediatrics 40:78, 1968

2. Johnson, C.A., Abildgaard, C.F., and Schulman, I.: Coagulation studies in children with cyanotic congenital heart disease. Lancet 2:660, 1968

3. Seeler, R.A., Forman, E.N., Bolger, J.F., Abildgaard, C.F., and Schulman, I.: Induction of intravascular coagulation and renal cortical necrosis in rabbits by simultaneous injection of thorotrast and endotoxin. Brit. J. Haemat. 16:501, 1969.

4. Forman, E.N., Abildgaard, C.F., Bolger, J.F., Johnson, C.A., and Schulman, I.: Generalized Shwartzman reaction: Role of the granulocyte in intravascular coagulation and renal cortical necrosis. Brit. J. Haemat. 16:507, 1969.

5. Honig, G.R., Forman, E.N., Johnson, C.A., Seeler, R.A., Abildgaard, C.F., and Schulman, I.: Administration of single doses of AHF (Factor VIII) concentrates in the treatment of hemophilic hemarthroses. Pediatrics 43:26, 1969.

6. Honig, G.R., Abildgaard, C. F., Forman, E.N., Gotoff, S.P., Lindley, A., and Schulman, I.: Some properties of the anticoagulant factor of aged pooled plasma. Thrombosis et Diathesis Haemorrhagic 22:151, 1969.

7. Schulman, I., Abildgaard, C. F., Johnson, C. A. and Lindley, A.: Immunosuppressive therapy in the management of acquired inhibitors of Factor VIII in hemophilia. Hemophilia and New Hemorrhagic States (Brinkhous, editor), New York, The University of North Carolina Press, 1970, p.164.

8. Johnson, C.A., Abildgaard, C.F., and Schulman, I.: Functional studies of young versus old platelets in a patient with chronic thrombocytopenia. Blood 37:163, 1971.

9. Corby, D.G., Zirbel, C.L., and Schulman, I.: Thrombasthenia. Am. J. Dis. Child. 121:40, 1971.

10. Corby, D.G., Zirbel, C.L., Gibson,M.S., and Schulman,I.: Effects of antenatal drug administration on platelet function of newborn infants. J. Ped. 79:307, 1971.

11. Corby, D.G., and Schulman, I.: Effect of bilirubin on unwashed platelets in experimental hyperbilirubinemia. J.Ped. (in press).

SECTION II – PRIVILEGED COMMUNICATION

BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME	TITLE	BIRTHDATE (Mo., Day, Yr.)
Herbert C. Schwartz	Professor of Pediatrics	May 8, 1926
PLACE OF BIRTH *(City, State, Country)*	**PRESENT NATIONALITY** *(If non-U.S. citizen, indicate kind of visa and expiration date)*	**SEX**
New Haven, Connecticut	U.S.A.	☒ Male ☐ F

EDUCATION *(Begin with baccalaureate training and include postdoctoral)*

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Alma College, Alma, Michigan			
Illinois Institute of Technology, Chicago			
Yale University, New Haven, Connecticut	A.B.	1948	Psychology-Chem
State University of New York, Brooklyn	M.D.	1952	

HONORS

John and Mary Markle Scholar in Academic Meeicine (1962); Visiting Prof. State Univ. Netherlands (1967); SOCIETIES: Society for Pediatric Research (1961); American Soc. Clinical Invesgigation (1962); American Pediatric Society (1967), etc.

MAJOR RESEARCH INTEREST	ROLE IN PROPOSED PROJECT
Hemoglobin Structure and Synthesis	Investigator

RESEARCH SUPPORT *(See instructions)*

U.S.P.H.S. Grant RO1 AM 12467-10, Formation of Hemoglobin and Other Hemeproteins June 1, 1968, to May 31, 1973. Current year $28,866. Total (Years 6-10) $145,295.

RESEARCH AND/OR PROFESSIONAL EXPERIENCE *(Starting with present position, list training and experience relevent to area of proposed project. Also list selected publications. Do not exceed 3 pages for each individual.)*

1968 - 1971 Professor of Pediatrics, Stanford University
1969 - 1971 Chairman, Department of Pediatrics, Stanford University
1963 - 1968 Associate Professor of Pediatrics, Stanford Unversity
1960 - 1963 Assistant Professor of Pediatrics, Stanford University
1958 - 1960 Research Instructor in Medicine, University of Utah
1957 - 1958 Research Fellow in Biochemistry, University of Utah
1955 - 1957 Research Fellow in Medicine (Hematology), University of Utah

Publications (Selected from a total of 19.)

Schwartz, H.C., Cartwright, G.E., Smith, E.L., and Wintrobe, M.M.: Studies on the Biosynthesis of Heme from Iron and Protoporphyrin, Blood 14:486, 1959.

Hill, R.L., Swenson, R.T., and Schwartz, H.C.: Characterization of a Chemical Abnormality in Hemoglobin G. J. Biol. Chem. 235:3182, 1960.

Gribble, T.J., and Schwartz, H.C.: Effect of Protoporphyrin on Hemoglobin Synthesis. Biochem. Biophys. Acta. 103:333, 1965.

Dallman, P.R. and Schwartz, H.C.: Myoglobin and Cytochrome Response during Nutritional Deficiency in the Rat. J. Clin. Invest. 44:1631, 1965.

Walters, T.R., Welland, F.H., Gribble, T.J., and Schwartz, H.C.: Biosynthesis of Heme in Leukemic Leukocytes. Cancer 20:117, 1967.

Lincoln, D., Edmunds, D.J., Gribble, T.J., and Schwartz, H.C.: Pinniped Hemoglobins. Blood (in-press, January, 1973).

CURRICULUM VITAE

Eric M. Shooter

Born: April 18, 1924 Mansfield, Nottingham, England.

Married: Elaine Arnold (Born Dec. 22, 1924) Newhall, Burton-on-Trent.
Children: Annette (Born Nov. 18, 1956) Redhill, Surrey, England.

Permanent Address: Department of Genetics
Stanford University School of Medicine
Stanford, California 94305

1942-45 Natural Sciences Tripos (Part II in Chemistry) University of Cambridge

1942 Exhibitioner of Gonville & Caius College, Cambridge

1943 Minor Scholar of same.

1945 B.A. (Cantab.)

1945-46 and 1946-49 Research under Professor Sir Eric Rideal in the Department of Colloid Science, Cambridge and the Davy Faraday Laboratory of the Royal Institution, London (Proteins of the ground nut).

1949 M.A. (Cantab.)

1950 Ph.D. (Cantab.)

1949-50 Postdoctoral Fellowship with Dr. J. W. Williams, Department of Chemistry, University of Wisconsin, Madison, and partly with Dr. D. E. Green, Enzyme Institute, University of Wisconsin. (Enzymes of the electron transport system).

1950-53 Senior Scientist in charge of Biochemistry, Brewing Industry Research Foundation, Nutfield (Proteins and enzymes of barley and other brewing materials).

1953-63 Lecturer in Biochemistry, Department of Biochemistry, University College, London with Professor Ernest Baldwin. (Molecular biology of normal and abnormal haemoglobins; protein-ion interactions of ribonuclease).

1961-62 U.S.P.H.S. International Fellow, Department of Biochemistry, Stanford University School of Medicine, with Professor R. L. Baldwin (Replication of DNA).

1963-68 Associate Professor of Genetics, Stanford University School of Medicine (Molecular Neurobiology). Head of Neurobiology Group, Lt. Joseph P. Kennedy, Jr. Laboratories for Molecular Medicine.

1964 D.Sc. University of London (awarded for distinguished work in the field of Biochemistry).

1968 Professor of Genetics, Stanford University School of Medicine.

1968-present Professor of Genetics and Biochemistry, Stanford University School of Medicine.

69. Varon, S., Nomura, J. and E. M. Shooter, 1968. Reversible dissociation of the mouse nerve growth factor protein into different subunits. Biochemistry 7, 1296-1303.

70. Shooter, E. M., Smith, A. P., and S. Varon, 1968. Heterogeneity of the nerve growth factor protein and its subunits. Fed. Proc. 27, 464.

71. Herschkowitz, N., McKhann, G. M., Saxena, S. and E. M. Shooter, 1968. Characterization of sulfatide-containing lipoproteins in rat brain. J. Neurochem. 15, 1181-1183.

72. Smith, A. P., Varon, S. and E. M. Shooter, 1968. Multiple forms of the nerve growth factor protein and its subunits. Biochemistry 7, 3259-3268.

73. Greene, L. A., Shooter, E. M. and S. Varon, 1968. Enzymatic activities of mouse nerve growth factor and its subunits. P.N.A.S. 60, 1383-1388.

74. McKhann, G. M. and E. M. Shooter, 1969. Genetics of Seizure Susceptibility in Basic Mechanisms of the Epilepsies, H. H. Jasper, A. A. Ward, Jr., and A. Pope, Ed., Boston, Little, Brown and Company, Chapter 24.

75. Herschkowitz, N., McKhann, G. M., Saxena, S., Shooter, E. M. and R. Herndon 1969. Synthesis of sulfatide-containing lipoproteins in rat brain. J. Neurochem. 16, 1049-1057.

76. Goodall, P. T. and E. M. Shooter, 1969. Changes in Heme Environment due to subunit interaction in hemoglobin. J. Mol. Biol. 39, 675-678.

77. Smith, A. P., Varon, S. and E. M. Shooter, 1969. Equilibria of the Nerve Growth Factor proteins and their subunits. Fed. Proc. 28, 897.

78. Greene, L. A., Shooter, E. M. and Silvio Varon, 1969. Subunit interaction and enzymatic activity of mouse 7S Nerve Growth Factor. Biochemistry 8, 3735-3741.

79. Shooter, E. M., Smith, A. P., Greene, L. A. and S. Varon, 1969. Aspects of the dissociation equilibria between 7S NGF and its subunits. Abstracts of Second International Meeting of the International Society for Neurochemistry, p. 366.

80. Waehneldt, T. V., Grossfeld, R. M. and E. M. Shooter, 1969. The solubilization and electrophoretic analysis of membrane proteins from mouse brain. Abstracts of Second International Meeting of the International Society for Neurochemistry, p. 411.

81. Smith, A. P., Greene, L. A., Fisk, H. R., Varon, S. and E. M. Shooter, 1969. Subunit equilibria of the 7S Nerve Growth Factor protein. Biochemistry 8, 4918-4926.

82. Shooter, E. M. and S. Varon, 1970. Macromolecular aspects of the Nerve Growth Factor proteins in Protein Metabolism of the Nervous System. A. Lajtha, Ed., New York, N.Y., Plenum Press, 419-438.

83. Varon, S. and E. M. Shooter, 1970. The Nerve Growth Factor proteins of the mouse submaxillary gland in Biochemistry of Brain and Behavior, R. E. Bowman and S. P. Datta, Ed., New York, N.Y., Plenum Press, 41-64.

84. Shooter, E. M., 1970. Some aspects of gene expression in the nervous system in The Neurosciences; Second Study Program, F. O. Schmitt, Ed., New York, N.Y., The Rockefeller University Press, 812-827.

85. Shooter, E. M. and S. Varon, 1971. Biological activities of the subunits of the 7S Nerve Growth Factor protein in Cellular Aspects of Neural Growth and Differentiation, D. C. Pease, Ed., UCLA Forum in the Medical Sciences, No. 14, 269-272.

86. Shooter, E. M. and Elizabeth R. Einstein, 1971. Proteins of the Nervous System in Annual Review of Biochemistry: Vol. 40, E. E. Snell, Ed., Annual Reviews, Inc., Palo Alto, Calif. 635-652.

87. Perez-Polo, J. R., Bamburg, J. R. and E. M. Shooter, 1971. 7S Nerve Growth Factor: a subunit containing protein. Fed. Proc. 30, 1194.

88. Greene, Lloyd A., Varon, S., Piltch, A. and E. M. Shooter, 1971. Substructure of the β subunit of the mouse 7S Nerve Growth Factor. Neurobiology 1, 37-48.

89. Morris, S. J., Louis, C. F. and E. M. Shooter, 1971. Separation of myelin protein on two different polyacrylamide gel systems. Neurobiology 1, 64-67.

90. Perez-Polo, J. R. and E. M. Shooter, 1971. Comparison of the properties of native and modified β subunits of 7S NGF. Abstracts of the Third International Meeting of the International Society for Neurochemistry, Budapest, Hungary, p. 212.

91. Shooter, E. M., Bamburg, J. R., Perez-Polo, J. R., Piltch, A. and D. Straus, 1971. Structural studies on the 7S Nerve Growth Factor protein. Abstracts of Third International Meeting of the International Society for Neurochemistry, Budapest, Hungary, p. 428.

BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME	TITLE	BIRTHDATE (Mo., Day, Yr.)
Philip Sunshine	Associate Professor	June 16, 1930
PLACE OF BIRTH (City, State, Country)	**PRESENT NATIONALITY** (If non-U.S. citizen, indicate kind of visa and expiration date)	**SEX**
Denver, Colorado	American	☒ Male ☐ Female

EDUCATION *(Begin with baccalaureate training and include postdoctoral)*

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
University of Colorado, Boulder, Colo.	B.A.	1952	Pre-Medicine
University of Colorado, Denver, Colo.	M.D.	1955	Medicine

HONORS

Alpha Omega Alpha
Ross Award for Pediatric Research 1970
Council Western Society for Pediatrics Research, 1972

MAJOR RESEARCH INTEREST	ROLE IN PROPOSED PROJECT
Developmental Gastroenterology and Nutrition	Investigator

RESEARCH SUPPORT *(See instructions)*

RR 81 - Clinical Research Center for Premature Infants, 10/1/69 - 9/30/74
Amt. Current Year: $385,882. Total Amount: – $2,380,594 (Norman Kretchmer - Principal Investigator)

RESEARCH AND/OR PROFESSIONAL EXPERIENCE *(Starting with present position, list training and experience relevant to area of project. List or most representative publications. Do not exceed 3 pages for each individual.)*

Associate Professor of Pediatrics	1968-present	Stanford Univ. School of Medicine
Director, Center for Premature Infants	1968- present	Stanford Univ. School of Medicine
Instructor through Assist. Professor	1963-1968	Stanford Univ. School of Medicine
Fellow in Pediatrics	1961-1963	Stanford Univ. School of Medicine
Resident in Pediatrics	1959-1961	Stanford Univ. School of Medicine

Publications (Selected)

Sunshine, P. and Kretchmer, N.: Studies of small intestine during development. III. Infantile diarrhea associated with intolerance to disaccharides. Pediatrics 34: 38, 1964.

Sunshine, P. and Kretchmer, N.: Absence of intestinal disaccharidases in two species of sea lions. Science 144:850, 1964.

Herbst, J.J., Hurwitz, R., Sunshine, P. and Kretchmer, N.: Effect of colchicine on intestinal disaccharidases: Correlation with biochemical aspects of cellular renewal. J. Clin. Invest. 49:530, 1970.

Sunshine, P., Herbst, J.J., Koldovsky, O. and Kretchmer, N.: Adaptation of the gastrointestinal tract to extrauterine life. Ann. N.Y. Acad. Sci. 176:16-29, 1971.

Sunshine, P., et al.: Hyperammonemia due to a defect in hepatic ornithine transcarb... Pediatrics 50:100, 1972.

BIOGRAPHICAL SKETCHES

Prof. J. Lederberg
Department of Genetics

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME	TITLE	BIRTHDATE (Mo., Day, Yr.)
Tsuboi, Kenneth K.	Senior Scientist	February 7, 1922
PLACE OF BIRTH (City, State, Country)	**PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date)**	**SEX**
Okayama, Japan	U.S.A.	☒ Male ☐ Female

EDUCATION *(Begin with baccalaureate training and include postdoctoral)*

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
St. Thomas College, St. Paul, Minnesota	B.S.	1944	Chem.
University of Minnesota, Minn., Minn.	M.S.	1946	Biochem.
University of Minnesota, Minn., Minn.	Ph.D.	1948	Biochem.

HONORS

Established Investigator, American Heart Association, 1960 - 1964.

MAJOR RESEARCH INTEREST	ROLE IN PROPOSED PROJECT
Biochemistry, Enzymology, Nucleotides, Muscle Proteins	Investigator

RESEARCH SUPPORT *(See instructions)*

Contract Award: Division of Biologic Standards, N.I.H., Biochemical Parameters of Primate Cell Cultures, June 1, 1972 to May 31, 1974. Current year $23,598. Total $47,196.

AM 03978 Metabolism of Human Erythrocyte, June 1, 1967 - May 31, 1972. Current $12,500. Total $102,880.

RESEARCH AND/OR PROFESSIONAL EXPERIENCE *(Starting with present position, list training and experience relevant to area of project. List all or most representative publications. (Do not exceed 3 pages for each individual.)*

1966 to present - Senior Scientist, Biochemistry in Pediatrics
1960 - 1966 - Associate Professor, Biochemistry in Pediatrics, Stanford Medical School
1957 - 1960 - Assistant Professor, Biochemistry in Pediatrics, Cornell Medical School
1951 - 1957 - Research Associate, Biochemistry, Columbia University Medical School
1948 - 1951 - Research Associate, Oncology, University of Kansas Medical School

Publications (Five relevant publications are listed from a total of 48).

Tsuboi, K.K., Greenberg, R.E., and Kretchmer, N.: Carbohydrate Metabolism, in Biological Basis of Pediatric Practice, R.E. Cooke, ed., McGraw-Hill (1968).

Tsuboi, K.K., Fukunaga, K., and Petricciani, J.C.: Purification and Specific Kinetic Properties of Erythrocyte Uridine Diphosphate Glucose Pyrophosphorylase. J.Biol. Chem. 244, 1008 (1969).

Tsuboi, K.K., Fukunaga, K.: Relationship of solute permeability to erythrocyte glycolysis. Biochem. Biophys. Acta, 196, 215 (1970).

Uchino, J. and Tsuboi, K.K.: Actin Accumulation in Developing Rat Muscle. Amer. J. Physiology, 219, 154 (1970).

Tsuboi, K.K., Fukunaga, K., and Chervenka, C.H.: Phosphoglucose Isomerase from Human Erythrocyte Preparation and Properties. J. Biol. Chem., 246, 7586 (1971).