

CURRICULUM VITAE

NAME: L. L. Cavalli-Sforza

BIRTHDATE: January 25, 1922

NATIONALITY: Italian

Married, four children

TITLE: Professor of Genetics

PLACE OF BIRTH: Genoa, Italy

SEX: Male

SOCIAL SECURITY NUMBER: XXXXXXXXXX

ACADEMIC HISTORY:

University of Pavia, Italy

M.D., 1944

Cambridge University, U.K.

M.A., 1950

Universities of Pavia and Parma, Italy

Libera Docenza, 1952 (Microbiology)

1952 (Genetics)

1960 (Statistics)

EMPLOYMENT RECORD:

1943-44 Intern of Genetics Department, University of Pavia  
(then located at Istituto Italiano di Idrobiologia, Verbania,  
Italy)

1944-45 Intern and resident at Verbania Hospital, Italy

1945-47 Assistant in research, Istituto, Sieroterapico Milanese,  
Milan

1948 Scholarship in genetic statistics, John Innes Horticultural  
Institution, London (U.K.)

1948-50 Research Fellow and Assistant in Research, Genetics De-  
partment, Cambridge University (U.K.)

1950-57 Director of Research in Microbiology, Istituto Siero-  
terapico Milanese (Milan, Italy)

1951-54 Lecturer in Genetics and in Statistics, Science Faculty  
(part-time), University of Parma and University of Pavia,  
Italy

1958-62 Professor of Genetics, University of Parma, Italy

1962-70 Professor of Genetics, and Director of Istituto di Genetica,  
University of Pavia (Italy)

1970- Present Professor of Genetics, Stanford University, Palo Alto,  
California

Earlier Sojourns in the United States:

- |         |  |
|---------|--|
| 1954    | Rockefeller Fellow (six months) at Genetics Department, University of Wisconsin, Madison, Wisc.      |
| 1958    | Research Associate at University of Wisconsin  |
| 1960    | Visiting Professor at Genetics Department, Stanford University (three months)                        |
| 1962    | Visiting Professor at Genetics Department and Statistics Department, Stanford University (one month) |
| 1964-65 | Visiting Professor at Department of Biology, Harvard University (three months)                       |
| 1968-69 | Visiting Professor at Genetics Department, Stanford University (one year)                            |

Expeditions to Africa in the Fall-Winter periods of 1965-66, 1966-67, 1967-68, 1968-69, 1969-70, 1970-71, conducting research in the following countries: Central African Republic, Cameroon, Zaire and Ethiopia

ACADEMIC HONORS:

President, Biometric Society, 1967-68  
Vice President, International Congress of Genetics, Tokyo, 1968  
Foreign Honorary Member of American Academy of Arts and Sciences, 1969  
Royal Anthropological Institute of Great Britain and Ireland, Huxley Award in Anthropology, 1972

MILITARY SERVICE: Medical Officer in the Italian Army, 1947-48

MAJOR RESEARCH INTERESTS: Bacterial genetics; presently, human population genetics and allied fields.

RESEARCH ACTIVITY:

Apart from early work in the fields of immunology and *Drosophila* population genetics, research activity during the first fifteen years was concentrated mostly on bacterial genetics. Among results of the analysis of sex and recombination in *E. coli* strains: the finding of the first *coli* mutant with a high recombination frequency (Hfr), of Hfr linkage with chromosome markers, and of the infective transmission of mating capacity (F episomes). Among results on the analysis of drug resistance in bacteria: a quantitative

Curriculum Vitae - 3  
L. L. Cavalli-Sforza

technique for sib selection, demonstrating the spontaneous origin of drug resistant mutants; the analysis by crossing of polygenic inheritance for chloramphenicol resistance; streptomycin resistance as a genetic modifier. Some of this work was in collaboration with the Lederbergs.

From 1954, activity was concentrated increasingly on human population genetics -- the analysis of a population in the Parma Valley showed that microgeographic variation can largely be explained by drift alone. This required the development of special techniques, including the computer simulation of human populations, methods for the reconstruction of differentiation of racial groups, and the characterization of selective and random causes of variation. Several archives, from consanguinity records to parish books, have been the subject of study to extract genetic information. A full description of the history of consanguinity in Italy has resulted. Demographic analysis of parish book records by computer is still in progress.

An analysis, during six winters, of an African Pygmy population with the help of a large team of collaborators allowed to accumulate information on the population structure of hunters-gatherers, to detect new genetic types, to account for the physiology of low stature in Pygmies and other problems of this population. Most recent work has centered on the impact of technological developments and cultural change, essentially the domestication of plants and animals, on human biological evolution.

**AUTHOR OF BOOKS:**

"The Genetics of Human Populations" in collaboration with W. Bodmer (now Professor of Genetics at Oxford, U.K.), and a short handbook of biostatistics.

100. A. MORONI, 1960. Sources, reliability and usefulness of consanguinity data with special reference to Catholic records. International Symposium of Demography and Genetics, Geneva.
101. L.L. CAVALLI-SFORZA, 1960. Indagine speciale sulla consanguineità dei matrimoni. Istituto Centrale di Statistica, Roma.
102. A. MORONI, 1960. Analisi metodologica del rilievo della consanguineità. Parte Prima - Legislazione e materiale religioso e civile italiano per il rilievo della consanguineità. Folia Hereditaria et Pathologica, 9, fasc. 3: 199-247.
103. L.L. CAVALLI-SFORZA, 1961. Lezioni di metodologia statistica per ricercatori - Il numero di osservazioni necessarie in esperimenti semplici e l'efficienza dell'esperimento. Istituto di Calcolo della Probabilità, Istituto di Statistica, 4: Articolo Terzo.
104. L.L. CAVALLI-SFORZA, 1961. Un metodo per la stima della frequenza di mutazione dell'uomo; risultati preliminari. Atti A.G.I., VI: 151-162.
105. L.L. CAVALLI-SFORZA, J.A. ROPER, G. SERMONTI, S.I. ALIKHANIAN, D.A. HOPWOOD and J.F. STAUFFER, 1961. Panel discussion: microbial genetics and its application to fermentations. Sci. Repts., 1st Super. Sanita, 1: 441-483.
106. L.L. CAVALLI-SFORZA, 1961. Biologia e genetica. L'Ateneo Parmense, XXXII, fasc. 6: 1-20.
107. M. MAINARDI, I. BARRAI, L.L. CAVALLI-SFORZA, 1962. The distribution of the number of collateral relatives. Atti A.G.I., VII: 123-130.
108. L.L. CAVALLI-SFORZA, 1960. Metodi e problemi nella analisi degli effetti biologici delle radiazioni sull'uomo. VII Rassegna Internazionale Elettronica e Nucleare, Atti Ufficiali del Congresso Scientifico, Roma.
109. L.L. CAVALLI-SFORZA, 1962. Studying human evolution by census and computer. New Scientist, 13: 92-93.
110. I. BARRAI, L.L. CAVALLI-SFORZA and A. MORONI, 1962. Frequencies of pedigrees of consanguineous marriages and mating structure of the population. Ann. Hum. Genet., 25: 347.
111. L.L. CAVALLI-SFORZA, 1961. I fattori letali nell'Uomo. Primo Simposio di Statistica Medica, Roma, 11-12 giugno 1961.
112. L.L. CAVALLI-SFORZA, 1962. Risposta ad alcune critiche sul neodarwinismo. Rendiconti della Classe di Scienze Fisiche, Matematiche e Naturali; Serie VIII, Vol. XXXII, fasc.1.
113. L.L. CAVALLI-SFORZA, 1962. Indagine speciale su alcune caratteristiche genetiche della popolazione italiana. Note e Relazioni N. 17, Istituto Centrale di Statistica.

114. L.L. CAVALLI-SFORZA, 1963. Sir Ronald Fisher. Atti A.G.I., VIII: 1-8.
115. G. MODIANO, A.S. BENERECETTI-SANTACHIARA, F. GONANO, A. CAPALDO e L.L. CAVALLI-SFORZA, 1963. Analisis della popolazione leccese per gruppi sanguigni G6PD, aptoglobine, e transferrine. Atti A.G.I., 8: 64-79.
116. L.L. CAVALLI-SFORZA, 1963. Nuclear threat and human genetics. Exposure of man to radiation in nuclear warfare. Elsevier Publishing Company, Amsterdam.
117. L.L. CAVALLI-SFORZA, 1963. The distribution of migration distances, models and application to genetics. Entretiens de Monaco en Science Humaines, Premiere Session, 24-29 Mai, 1962. Human Displacements, 139-158.
118. E.M. LEDERBERG, L.L. CAVALLI-SFORZA and J. LEDERBERG, 1964. Interaction of streptomycin and a suppressor for galactose fermentation in E. coli K-12. P.N.A.S., 51: 678-682.
119. I. BARRAI, L.L. CAVALLI-SFORZA and M. MAINARDI, 1964. Testing a model of dominant inheritance for metric traits in man. Heredity, 19: 651-668.
120. A.W.F. EDWARDS and L.L. CAVALLI-SFORZA, 1964. Reconstruction of evolutionary trees. Systematic Association Publication N.6, Phenetic and Phylogenetic Classification, 67-76.
121. L.L. CAVALLI-SFORZA and A.W.F. EDWARDS, 1964. Analysis of human evolution. Genetics Today (Proceedings of the XI International Congress of Genetics, The Hague, Netherlands, September, 1963. Vol. 2: 932-952)
122. L.L. CAVALLI-SFORZA, I. BARRAI and A.W.F. EDWARDS, 1964. Analysis of human evolution under random genetic drift. Cold Spring Harbor Symposia on Quantitative Biology, 24: 9-20.
123. I. BARRAI, L.L. CAVALLI-SFORZA and A. MORONI, 1965. Record linkage from parish books. Mathematics and Computer Science in Biology and Medicine, Medical Research Council, 51-60.
124. A.W.F. EDWARDS and L.L. CAVALLI-SFORZA, 1965. A method for cluster analysis. Biometrics, 21: 362-375.
125. G. MODIANO, A.S. BENERECETTI-SANTACHIARA, F. GONANO, G. ZEI, A. CAPALDO and L.L. CAVALLI-SFORZA, 1965. An analysis of ABO, MN, Rh, Hp, Tf and G6PD types in a sample from the human population of the Lecce Province. Ann. Hum. Genet., London, 29: 19-31.
126. L.L. CAVALLI-SFORZA, 1965. Interesse genetico dei matrimoni consanguinei. Atti III Corso di Aggiornamento Professionale "Ereditarieta nella Patologia e nella Clinica" dell'ordine dei Medici di Roma e Provincia, 95-101.

127. CAVALLI-SFORZA, L.L. and A.W.F. EDWARDS, 1965. Estimation procedures for evolutionary branching processes. Bulletin of the International Statistical Institute, Proceedings of the 35th Session, Beograd.
128. CAVALLI-SFORZA, L.L., 1966. Genetic drift in popolazioni umane. Atti A.G.I., 11: 3-50.
129. CAVALLI-SFORZA, L.L., 1966. Population structure and human evolution. Proceedings, Royal Society of London, 194: 362-379.
130. CAVALLI-SFORZA, L.L., M. Kimura and I. Barrai, 1966. The probability of consanguineous marriages. Genetics, 54: 37-60.
130. DE NICOLA, P., I. Barrai, H.M. Cann and L.L. Cavalli-Sforza, 1966. bis Mutation rate in hemophilia A and B, and effect of parental age. Proc. 3rd Congr. Wld. Fed. Hemophilia, Paris 1965; Bibl. haemat., fasc. 26: 91-93, New York.
131. CAVALLI-SFORZA, L.L., 1967. Human populations. Heritage from Mendel. Ed. Alexander Brink. University of Wisconsin Press, Madison, 309-331.
132. CAVALLI-SFORZA, L.L. and A.W.F. Edwards, 1967. Phylogenetic analysis. Models and estimation procedures. Am. J. Human Genetics, 19: 233-257; and Evolution, 21: 550-570.
133. CAVALLI-SFORZA, L.L., 1967. Some old and new data on the genetics of human populations. The Alabama Journal of Medical Sciences, 3: 376-381.
134. CAVALLI-SFORZA, L.L., 1967. Da Mendel alla Genetica Umana Moderna. "Così Comincio la Genetica", Acta Geneticae Medicae et Gemelologiae, Roma, 103-130.
135. RIMOIN, D.L., T.J. Merimee, D. Rabinowitz, V.A. McKusick and L.L. CAVALLI-SFORZA, 1967. Growth hormone in African Pygmies. The Lancet, 523-526.
136. CAVALLI-SFORZA, L.L. and G. Zei, 1967. Experiments with an artificial population. Proc. III Intern. Congr. Hum. Genet., Johns Hopkins Press, Baltimore, 473-478.
137. CAVALLI-SFORZA, L.L., 1968. Introduzione all'Impiego dei Calcolatori in Genetica Umana. Quaderni de "La Ricerca Scientifica," 47: 13-16.
138. BODMER, W. and L.L. CAVALLI-SFORZA, 1968. A migration matrix model for the study of random genetic drift. Genetics, 59: 565-592.
139. BARRAI, I., H.M. Cann, L.L. CAVALLI-SFORZA, P. De Nicola, 1968. The effect of parental age on rates of mutation for hemophilia, and evidence for differing mutation rates for hemophilia A and B. Amer. J. Hum. Genet., 20: 175-196.

140. CAVALLI-SFORZA, L.L. L.A. Zonta, F. Nusso, L. Bernini, W.W.W. De Jong, P. Meera Khan, A.K. Ray, L.N. Went, M. Siniscalco, L.E. Nijenhuis, E. Van Loghem and G. Modinao, 1969. Studies on African Pygmies. I. A pilot investigation of Babinga Pygmies in the Central African Republic (with an analysis of genetic distances). AM. J. HU. GEN., 21: 252-274.
141. PAOLUCCI, A.M., M.A. Spadoni, V. Pennetti and L.L. CAVALLI-SFORZA, 1968. Elevated serum phenylalanine-tyrosine ratios in African Pygmy and non-Pygmy subjects. Unpublished.
142. RIVA, S., I. Barrai, L.L. CAVALLI-SFORZA and A. Falaschi, 1969. Dependence on the buoyant density of single-stranded DNA on base composition. J. Mol. Biol., 45: 367.
143. SANTACHIARA-BENERECETTI, A.S., G. Modiano e L.L. CAVALLI-SFORZA, 1968. Studio de Alcuni Polimorfismi Enzimatici dei Globuli Rossi nei Pigmei Babinga. Atti A.G.E., 12: 99-101.
144. CAVALLI-SFORZA, L.L., 1968. Teaching of biometry in secondary schools. Biometrics, 24(3): 736-740.
145. CAVALLI-SFORZA, L.L., 1968. Recherches Genetiques sur les Pygmees Babingas de la Republique Centrafricaine. Cahiers de La Maboke, 6(1): 19-25.
146. CANN, H.M. and L.L. CAVALLI-SFORZA, 1968. Effects of grandparental and parental age, birth order, and geographic variation on the sex ratio of live-born and stillborn infants. Amer. J. Hum. Genet., 20(4): 381-391.
147. CAVALLI-SFORZA, L.L., 1968. Research on African Pygmies. International Biological Programme. Biology of Man in Africa, Warsaw meeting, 1968. N.78 Materialy I Prace Antropologiczne Wroclaw (Poland), 1970.
148. CAVALLI-SFORZA, L.L., 1968. Population structure. Proceedings of the Conference on Computer Applications in Genetics, Honolulu, Hawaii.
149. CAVALLI-SFORZA, L.L., 1969. Human diversity. Proc. XII Intern. Congr. Genet., Tokyo, Japan, 1968, 3: 405-416.
150. RIMOIN, D.L., T.J. Merimee, D. Rabinowitz, L.L. CAVALLI-SFORZA and V.A. McKusick, 1969. Peripheral subresponsiveness to human growth hormone in the African Pygmies. New England Journal of Medicine, 281: 1383-1388. (December, 1969).
151. CAVALLI-SFORZA, L.L., 1968. Studi sulla struttura genetica di una popolazione italiana. Le Scienze, 1(4): 7-19.

152. RIMOIN, D.L., T.J. Merimee, D. Rabinowitz, L.L. CAVALLI-SFORZA and V.A. McKusick, 1969. Genetic aspects of isolated growth hormone deficiency. Proc. Int. Symp. on Growth Hormone, Milan, 11-13 September, 1968, 418-432.
153. MERIMEE, T.J., D.L. Rimoin, D. Rabinowitz, L.L. CAVALLI-SFORZA and V.A. McKusick, 1969. Metabolic studies in the African Pygmy. Unpublished.
154. PAOLUCCI, A.M., M.A. Spadoni, V. Pennetti and L.L. CAVALLI-SFORZA, 1969. Serum free amino acid pattern in a Babinga Pygmy adult population. Amer. J. Clin. Nutrition, 22(12): 1652-1659.
155. MALCOLM, L.A., P.B. Booth and L.L. CAVALLI-SFORZA, 1971. Inter-marriage patterns and blood group frequencies in the Bundi people of the New Guinea highlands. Human Biology, 43(2).
156. BARRAI, I., L.L. CAVALLI-SFORZA and A. Moroni, 1969. The prediction of consanguineous marriages. Japan Journal of Genetics, 44(1): 230-233.
157. CAVALLI-SFORZA, L.L., 1969. Genetic drift in an Italian population. Scientific American, 221(2): 30-37.
158. EDWARDS, A.W.F. and L.L. CAVALLI-SFORZA, 1969. Affinity as revealed by differences in gene frequencies. Unpublished.
159. BARRAI, I., L.L. CAVALLI-SFORZA and A. Moroni, 1969. Demography and genealogy. I. Family reconstitution by computer. World Conference on Records and Genealogical Seminar, Salt Lake City, Utah, 5-8 August, 1969.



160. CAVALLI-SFORZA, L. L., 1969. Present trends in basic biomedical research. C.I.O.M.S., Table Ronde organisee avec l'assistance de l'O.M.S. et de l'UNESCO, Geneve, 8-10 Octobre 1969.
161. CAVALLI-SFORZA, L. L., F. CONTERIO and A. MORONI. 1970. Valutazione del carico genetico in relazione a matrimoni fra consanguinei. Societa Italiana di Ostetricia e Ginecologia. 54° Congresso Nazionale, Milano, 16-19 Settembre 1970.
162. BODMER, W., and L. L. CAVALLI-SFORZA, 1970. Intelligence and Race. Scientific American, 223: 19-29.
163. CAVALLI-SFORZA, L. L., 1970. Problems and prospects of genetic analysis of intelligence at the intra and interracial level. Disadvantaged Child, 3: 111-123. Ed., J. Hellmuth, Brunner Mazel, Inc., New York.
164. CAVALLI-SFORZA, L. L., 1971. Similarities and dissimilarities of sociocultural and biological evolution. In Mathematics in the Archaeological and Historical Sciences. Eds. F. R. Hodson, D. G. Kendall, and P. Tautu. Edinburgh University Press, Edinburgh. 535-541.
165. KIDD, K. K. and L. L. CAVALLI-SFORZA, 1971. Number of characters examined and error in reconstruction of evolutionary trees. In Mathematics in the Archaeological and Historical Sciences. Eds. F. R. Hodson, D. G. Kendall, and P. Tautu. Edinburgh University Press, Edinburgh. 335-346.
166. SKOLNICK, M. H., A. MORONI, C. CANNINGS and L. L. CAVALLI-SFORZA, 1971. The reconstruction of genealogies from parish books. In Mathematics in the Archaeological and Historical Sciences. Eds. F. R. Hodson, D. G. Kendall, and P. Tautu. Edinburgh University Press, Edinburgh. 319-334.

167. CAVALLI-SFORZA, L. L., and W. BODMER. 1971. THE GENETICS OF HUMAN POPULATIONS. W. H. Freeman and Company, San Francisco.
168. AMMERMAN, A., and L. L. CAVALLI-SFORZA. 1971. Measuring the rate of spread of early farming in Europe. Man, ~~in press~~ 6:674-688
169. AMMERMAN, A. J., and L. L. CAVALLI-SFORZA, 1971. A population model for the diffusion of early farming in Europe. Proceedings of the Research Seminar in Archaeology and Related Subjects, Sheffield, Dec. 13-17, 1971. In press.
170. KIDD, K. K., P. ASTOLFI, L. L. CAVALLI-SFORZA, 1971. Error in the reconstruction of evolutionary trees. In GENETIC DISTANCE, Ed., J. F. Crow, in press.
171. CAVALLI-SFORZA, L. L., 1971. Pygmies, an example of hunters-gatherers, and genetic consequences for man of domestication of plants and animals. IV Int. Congr. Human Genetics, Paris, Proceedings. In press.
172. RIMOIN, D. L., T. J. MERIMEE, and L. L. CAVALLI-SFORZA, 1971. Growth hormone unresponsiveness in the African Pygmies. IV Int. Congr. Human Genetics, Paris. Proceedings, in press.
173. SKOLNICK, M. H., A. MORONI, and L. L. CAVALLI-SFORZA, 1971. The population structure of Parma Valley, Italy. IV Int. Congr. Human Genetics, Paris, Proceedings. ~~Abstract~~ ABSTRACT.
174. BODMER, W. F., and L. L. CAVALLI-SFORZA, 1971. Variation in fitness and molecular evolution. Proceedings of the Sixth Berkeley Symposium on Mathematical Statistics and Probability, Conference on Evolution, April, 1971. ~~in press.~~ <sup>July 1973</sup>
175. CAVALLI-SFORZA, L. L., 1971. Il carico genetico nell'uomo. Atti A. G. I., 16:
176. ZEI, G., A. MORONI, and L. L. CAVALLI-SFORZA. 1971. Age of consanguineous marriages. In "Genetique et Populations. Hommage a Jean Sutter." Institut National d'Etudes Demographiques. Travaux et Documents. Cahier n°60. Presses Universitaires de France. 147-153.
177. KIDD, K. K., and L. L. CAVALLI-SFORZA, 1971. An analysis of the genetics of schizophrenia. IV Int. Congr. Human Genetics, Paris, Proceedings. In press. *Social Biol.*

178. BODMER, W., and L. L. CAVALLI-SFORZA, 1971. Migration matrices. IV  
Int. Congress Human Genet., Paris, Proceedings. In press.
179. CAVALLI-SFORZA, L. L., and K. K. KIDD, 1972. Considerations on genetic  
models of schizophrenia. Neurosciences Research Program Bulletin. ~~In~~  
~~press~~. *NOVEMBER, 1972*
180. CAVALLI-SFORZA, L. L., 1972. Book review (David Rosenberg) in Psychiatry.
181. SGARAMELLA-ZONTA, L., and L. CAVALLI-SFORZA, 1972. A method of the  
detection of a demic cline. Proceedings, Workshop on Population  
Structure, Hawaii. In press.
182. CAVALLI-SFORZA, L. L., and M. W. FELDMAN, 1972. Models for cultural  
inheritance. I.: Group mean and within group variation. Theoretical  
Population Biology. In press.
183. CAVALLI-SFORZA, L. L., and C. CANNINGS, 1972. Human Population Structure,  
Advances in Human Genetics. Ed. K. Hirschhorn.
184. CAVALLI-SFORZA, L. L., 1972. Phylogenetic analysis. In Histocompatibility  
Testing, Munksgaard, Copenhagen, 1972.
185. CAVALLI-SFORZA, L. L., 1972. Elements of human genetics. An Addison-  
Wesley Module, Addison-Wesley, Reading, Mass. In press.
186. CAVALLI-SFORZA, L. L., 1972. Evolution. In Enciclopedia del Novecento.  
Ed. V. Cappelletti. In press.
187. CAVALLI-SFORZA, L. L., 1972. Some current problems of human population  
genetics. Am. J. Hum. Gen. In press.
188. CAVALLI-SFORZA, L.L. and N. Yasuda, 1972. The evolution of surnames. For  
submission to Theoretical Population Biology.

## BIOGRAPHICAL SKETCH

FD-204 (Rev. 5-22-64)  
Department of Pediatrics

*(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 <b>CHRISTIANSEN, Robert O.</b>	TITLE <b>Assistant Professor of Pediatrics</b>	BIRTHDATE (Mo., Day, Yr.) <b>November 10, 1936</b>
PLACE OF BIRTH (City, State, Country) <b>San Francisco, California U.S.A.</b>	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) <b>U.S.</b>	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female
EDUCATION (Begin with baccalaureate training and include postdoctoral)		
INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED
Stanford University Stanford University School of Medicine	B.A. M.D.	1958 1961
		SCIENTIFIC FIELD <b>Basic Medical Sciences Medicine</b>

HONORS

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MAJOR RESEARCH INTEREST <b>Endocrine Biochemistry</b>	ROLE IN PROPOSED PROJECT
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RESEARCH SUPPORT (See instructions)

1. Support from September 1969 to September 1972: HD02147 (principal investigator: Norman Kretchmer, M.D., Ph.D.) Program Grant in Human Development, from which I was allocated \$25,000 per year, which supported ongoing projects herein described.
2. Current Research Support: HD06868-01, Biochemical Studies of Male Sexual Maturation, from 9/1/72 to 8/31/75. Budget for 9/1/72 to 8/31/73 is \$26,342.
3. Patient care costs for ongoing projects are derived from RR-70, General Clinical Research Centers Branch, and RR-00-81-11, Premature Infant Clinic Research Centers Branch, both of NIH.

RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List 2 or most representative publications. Do not exceed 3 pages for each individual.)

Assistant Professor of Pediatrics, Division of Metabolism, Stanford Medical School, 1969-present

Post-doctoral Fellow, Department of Biochemistry & Molecular Biology, Cornell University, Ithaca, New York, 1967-1969

Post-doctoral Fellow in Metabolism, Department of Pediatrics, Stanford Medical School, 1967

Chief Resident in Pediatrics, Stanford Medical School, 1966

Post-doctoral Fellow in Metabolism, Department of Pediatrics, Stanford Medical School, 1965-1966

Resident in Pediatrics, Stanford Medical School, 1964-1965

Pediatrician, USAH, La Chapelle Saint Mesmin, France, 1962-1964

Intern, University of Utah Medical School, Salt Lake City, Utah, 1961-1962

Societies: American Association of University Professors  
 American Association for the Advancement of Science  
 Society for Pediatric Research  
 Western Society for Pediatric Research  
 The Endocrine Society  
 Society for Developmental Biology

Licensure: National Board of Medical Examiners, 1962  
 State of California, 1964  
 Diplomate, American Board of Pediatrics, 1967

Awards: Special Fellowship, American Cancer Society, 1967-1969

1. Loyter, A., R.O. Christiansen, and E. Racker. Respiratory control in submitochondrial particles and Ca<sup>++</sup> transport. Biochem.Biophys.Res.Comm. 29:450, 1967.
2. Christiansen, R.O., L.A. Page, and R.E. Greenberg. Glycogen storage in a hepatoma: Dephosphophosphorylase kinase defect. Pediatrics 42:694, 1968.
3. Christiansen, R.O., A. Loyter, and E. Racker. Effect of anions on oxidative phosphorylation in submitochondrial particles. Biochem.Biophys.Acta 180:207, 1969.
4. Loyter, A., R.O. Christiansen, H. Steensland, J. Saltzgaber, and E. Racker. Energy-linked ion translocation in submitochondrial particles. I. Ca<sup>++</sup> accumulation in submitochondrial particles. J.Biol.Chem. 244:4422, 1969.
5. Christiansen, R.O., A. Loyter, H. Steensland, J. Saltzgaber, and E. Racker. Energy-linked ion translocation in submitochondrial particles. II. Properties of submitochondrial particles capable of Ca<sup>++</sup> translocation. J.Biol.Chem. 244:4428, 1969.
6. Loyter, A., C. Burstein, R.O. Christiansen, and E. Racker. The polarity of the mitochondrial membrane, Proceedings of the Bari Symposium, B.B.A. Library, Adriatica Editrice Bari, p. 235, 1970.
7. Greenberg, R.E., and R.O. Christiansen. The critically ill child. XV. Hypoglycemia. Pediatrics 46:915, 1970.
8. Loyter, A., R.O. Christiansen, and E. Racker. The two sides of the mitochondrial membrane in B. Chance (ed.), Johnson Foundation Symposia: "Probes of structure and function of macromolecules and membranes", p. 407, Academic Press, New York, 1971.
9. Monn, E. and R.O. Christiansen. Adenosine 3',5'-monophosphate phosphodiesterase: Multiple molecular forms. Science 173:540, 1971.
10. Monn, E. and R.O. Christiansen. "Guanylate kinase in man: Multiple molecular forms", Human Heredity 22:18-27, 1972.
11. Johnson, J.D., R.O. Christiansen, and N. Kretchmer. "Lactose synthetase in mammary gland of the California sea lion". Biochem.Biophys.Res.Comm., 47:393-397, 1972.
12. Monn, E., M. Desautel and R.O. Christiansen. Highly specific testicular adenosine 3',5'-monophosphate phosphodiesterase associated with sexual maturation, Endocrinology 91:716-720, 1972.
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1. Christiansen, R.O., L.A. Page, and R.E. Greenberg. Analysis of glycogen storage in hepatoma: dephosphophosphorylase kinase defect. J.Pediat. 69:988, 1966.
2. Christiansen, R.O., and R.E. Greenberg. Hypoglycemia due to diminished hepatic gluconeogenesis. Proc.West.Soc.Pediat.Res. 14:79, 1967.
3. Christiansen, R.O., and R.E. Greenberg. Regulation of gluconeogenic enzymes in the newborn period. Soc.Pediat.Res.Abs. 37:158, 1967.
4. Greenberg, R.E., R.O. Christiansen, R.N. Remen, A.F. Kohrman, and G. Reaven. Physiologic mechanisms in infantile hypoglycemia. Pediat.Res. 1:292, 1967.
5. Christiansen, R.O., and A. Loyter. Respiratory control and calcium binding in submitochondrial particles. Fed.Proc. 27:527, 1968.
6. DiJeso, F., R.O. Christiansen, H. Steensland, and A. Loyter. Localization of inner mitochondrial membrane components. Fed.Proc. 28:663, 1969.
7. Christiansen, R.O., W.J.W. Fan, D.A. Belenky, and L.A. Page. Effect of

- chlorpropamide in central and nephrogenic diabetes insipidus. Amer.Pediat.Soc.& Soc.Pediat.Res.Abs., p. 192, 1970.
8. Christiansen, R.O., J.D. Johnson, J. Mellema, and G. Reaven. Severe prolonged neonatal hypoglycemia, nodular hyperplasia of the pancreas and hyperinsulinism. Amer.Pediat.Soc.&Soc.Pediat.Res.Abs., p. 193, 1971.
  9. Christiansen, R.O., E. Monn and M. Desautel. Highly specific isozyme of cyclic nucleotide phosphodiesterase associated with sexual maturation. Clin.Res., 20: 252, 1972.
  10. Hansen, R., J. Johnson, W. Albritton, R.O. Christiansen and V. Werthemann. Absent anterior pituitary and neonatal hypoglycemia, Clin.Res., 20:254, 1972.
  11. Christiansen, R.O. and M. Desautel. Highly specific testicular isozyme of cyclic nucleotide phosphodiesterase associated with sexual maturation., Ped.Res. 6:349, 1972.
  12. Christiansen, R.O., E. Monn and M. Desautel. Highly specific isozyme of phosphodiesterase associated with male sexual maturation. Abstracts, IV Int. Cong.Endo., 4:536, 1972.

DO NOT TYPE IN THIS SPACE-BINDING MARGIN

NAME Alan M. DUFFIELD	TITLE Research Associate	START DATE December 16, 1966
PLACE OF BIRTH (City, State, Country) Perth, Western Australia	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) Australian, Permanent resident Permanent Visa	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female

EDUCATION (Begin with baccalaureate training and include postdoctoral)			
INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
University of Western Australia	B. Sc (1st Class Hons)	1958	Organic Chemistry
University of Western Australia	Ph.D.	1962	Organic Chemistry

HONORS

MAJOR RESEARCH INTEREST Applications of mass spectrometry to Biology and Biomedical Problems	ROLE IN PROPOSED PROJECT Organic Chemist/mass spectroscopist
---	---

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 all of most representative publications. Do not exceed 3 pages for each individual.)

- 1970 - Research Associate, Department of Genetics, Stanford University School of Medicine
- 1969 - Head of the Mass Spectrometry Laboratory, Chemistry Department Stanford University
- 1965 - 69 Research Associate, Department of Chemistry, Stanford University
- 1963 - 65 Postdoctoral Fellow, Department of Chemistry, Stanford University
- 1962 - 63 Postdoctoral Fellow, Department of Biochemistry, Stanford University School of Medicine.

PUBLICATIONS SINCE 1971

1. An Application of Artificial Intelligence to the Interpretation of Mass Spectra. Mass Spectrometry, B.W.G. Milne, Ed., John Wiley and Sons, New York, 1971, pp. 121-178  
By B. G. Buchanan, A. M. Duffield and A. V. Robertson

2. Mass Spectrometry in Structural and Stereochemical Problems. CCIV. Spectra of Hydantoins. II. Electron Impact Induced Fragmentation of some Substituted Hydantoins.  
Org. Mass Spectr., 5, 551 (1971)  
By R. A. Corral, O. O. Orazi, A. M. Duffield and C. Djerassi
3. Electron Impact Induced Hydrogen Scrambling in Cyclohexanol and Isomeric Methylcyclohexanols.  
Org. Mass Spectr., 5, 383 (1971)  
By R. H. Shapiro, S. P. Levine and A. M. Duffield
4. Derivatives of 2-Biphenylcarboxylic Acid.  
Rev. Roumain. Chem., 16, 1095 (1971)  
By A. T. Balaban and A. M. Duffield
5. Alkaloide aus *Evonymus europaea* L.  
Helv. Chim. Acta, 54, 2144 (1971)  
By A. Klásek, T. Reichstein, A. M. Duffield and F. Santavý
6. Studies on Indian Medicinal Plants. XXVIII. Sesquiterpene Lactones of Enhydra Fluctuans Lour. Structure of Enhydrin, Fluctuanin and Fluctuadin.  
Tetrahedron, 28, 2285 (1972).  
By E. Ali, P. P. Ghosh Dastidar, S. C. Pakrashi, L. J. Durham and A. M. Duffield
7. The Electron Impact Promoted Fragmentation of Aurone Epoxides.  
Org. Mass Spectr., 5, 199 (1972)  
By B. A. Brady, W. I. O'Sullivan and A. M. Duffield
8. The Determination of Cyclohexylamine in Aqueous Solutions of Sodium Cyclamate by Electron Capture Gas Chromatography.  
Anal. Letters, 4, 301 (1971)  
By M. D. Solomon, W. E. Pereira and A. M. Duffield
9. Computer Recognition of Metastable Ions. Nineteenth Annual Conference on Mass Spectrometry, Atlanta, 1971, p. 63  
By A. M. Duffield, W. E. Reynolds, D. A. Anderson, R. A. Stillman, Jr. and C. E. Carroll
10. Spectrometrie de Masse. VI. Fragmentation de Dimethyl-2,2-dioxolanes-1,3-Insatures.  
Org. Mass Spectr., 5, 1409 (1971)  
By J. Kossanyi, J. Chucho and A. M. Duffield
11. Chlorpromazine Metabolism in Sheep. II. In vitro Metabolism and Preparation of 3H-7-Hydroxychlorpromazine.  
Journees D'Agressologie, 12, 333 (1971)  
By L. G. Brooks, M. A. Holmes, I. S. Forrest, V. A. Bacon, A. M. Duffield and M. D. Solomon
12. Mass Spectrometry in Structural and Stereochemical Problems. CCXVII. Electron Impact Promoted Fragmentation of O-Methyl Oximes of Some  $\alpha,\beta$ -Unsaturated Ketones and Methyl Substituted Cyclohexanones.  
Canadian J. Chem., 50, 2776 (1972)  
By Y. M. Sheikh, R. J. Liedtke, A. M. Duffield and C. Djerassi



ADAYAPALAM T. GANESAN

**Born:** Madras State, India. May 15, 1932.

**Citizenship:** U. S. Citizen

**Married** Ann K. Cook, Ph.D. (Stanford University, Department of Genetics),  
Research Associate, Department of Biology, Stanford University.

**Education:** 1947-1951 Annamalai University, Madras State, India. Physics,  
Chemistry, English.  
B. S. (1951) Botany.  
1951-1953 Annamalai University, Madras State, India.  
M. A. (1953) Plant Physiology and Genetics  
1959-1963 Stanford University, Department of Genetics, Palo Alto,  
California (National Institutes of Health Trainee under  
Professor Joshua Lederberg).  
Ph. D. (1963) Genetics. Thesis title: Physical and  
Biological Studies on Transforming DNA from B. subtilis.

Professional Experience:

**Research Fellow** (1953-55), Department of Biochemistry, Indian Institute of  
Science, Bangalore, India. Awarded Institute Fellowship.  
**Research Associate** (1955-57), Botany Department, Indian Agricultural Research  
Institute, New Delhi, India. Responsible for plant tissue culture,  
teaching of genetics course (laboratory and lectures).  
**Fellowship** (1957-59). Awarded by Rask Ørsted Foundation of Denmark for study at:  
Department of Physiology, Carlsberg Laboratory, Copenhagen,  
Denmark. Worked under Professor O. Winge, F.R.S. (fermentation  
genetics and some aspects of cytology).  
Department of Physiological Chemistry, Carlsberg Laboratory,  
Copenhagen. Worked under Professor Holter (physiology of sporu-  
lation in yeasts).  
Department of Genetics, University of Copenhagen. Neurospora  
genetics and methods.  
**Research Associate** (1963-65), Department of Genetics, Stanford University, Palo  
Alto, California. Assistant Professor (1965-70); Associate  
Professor (1970-present).

Special Fields of Research Interest: DNA Replication and Recombination Mechanisms  
in B. subtilis; in vitro Synthesis of Biologically Active DNA.  
Repair of DNA Molecules and its genetics. Phage DNA Biosynthesis.  
Cytogenetics of Eukaryotic Cells.

Recent Publications:

**Studies on in vitro Replication of B. subtilis DNA.** Cold Spring Harbor Symp.  
Quant. Biol. 33:45 (1968).  
**ATP Dependent Synthesis of Biologically Active DNA by Azide Poisoned Bacteria.**  
Proc. Natl. Acad. Scie. 68:1296 (1971).

DNA Synthesis in Bacteriophage SPO-1 Infected Bacillus subtilis. J. Virology  
9:263 (1972), with C. O. Yehle.

A Deoxyribonucleic Acid Polymerase I Deficient Mutant of B. subtilis. J. Biol.  
Chem. 247:5867 (1972), with P. J. Laipis.

In vitro Repair of X-irradiated DNA Extracted from a Polymerase I Deficient  
Bacillus subtilis. Proc. Natl. Acad. Sci. (November-1972), with P. J. Laipis.  
69: 2211, 1972

In vitro DNA Synthesis and Function of DNA Polymerases in Bacillus subtilis  
in "DNA Synthesis in vitro". Ed. R. D. Wells and R. B. Inman, University  
Park Press, Baltimore, Maryland (1972), with C. O. Yehle and P. J. Laipis.

Source of Funds: NIH, General Medical Sciences  
NIH Research Career Development Award (GM-50199)

Title of Project: DNA Replication and Recombination in Bacillus subtilis

Principle Investigator: A. T. Ganesan

Grant Number: GM 14108, GM-50199 (Award through November 1975)

Vol. 26, No. 5

## 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 Terence John Gribble	TITLE Assistant Professor	BIRTHDATE (Mo., Day, Yr.) April 6, 1937
PLACE OF BIRTH (City, State, Country) Cardiff, Wales	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) U.S.A.	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female

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

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
University of the South, Sewanee, Tenn.	B.S.	1959	Chemistry
Stanford University, Stanford, California	M.D.	1964	

HONORS  
Sigma Pi Sigma,, Physics Honor Society (1958); Phi Beta Kappa (1959); Alpha Omega Alpha; Faber Pediatric Award (1964); Borden Student Research Award (1964); Dernham Senior Fellow (1970). SOCIETIES: Western Soc. for Pediat. Resaarch (1968): Amer. Soc. Hematolo

MAJOR RESEARCH INTEREST Pediatric Hematology - Hemoglobin Synthesis	ROLE IN PROPOSED PROJECT Investigator
--	--

RESEARCH SUPPORT (See instructions)

Dernham Senior Fellow, American Cancer Society, July 1, 1970 - June 30, 1973  
Current year \$20,690. Total \$60,989.

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

- 1969 to present - Assistant Professor of Pediatrics, Stanford University
- 1969 - Chief Resident in Pediatrics, Stanford University
- 1968 - Research Fellow in Pediatric Hematology, Stanford University
- 1966 - 1968 - U.S. Public Health Service (NIH) National Heart Institute, Bethesda, Maryland.

Publications (Selected)

Walters, T.R., Gribble, T.J., and Schwartz, H.C.: Heme Synthesis in Normal and Leukemic Leukocytes. *Nature* 197:1213, 1963.

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

Gribble, T.J., Comstock, T.J., and Udenfriend, S.: Collagen Chain Formation and Peptide Proline Hydroxylation in Monolayer Tissue Cultures of L-929 Fibroblasts. *Arch. Biochem. Biophys.* 129:308, 1969.

Comstock, J.P., Gribble, T.J., and Udenfriend, S.: Further Studies on the Activation of Collagen Proline Hydroxylation in Cultures of L-929 Fibroblasts. *Archives Biochem. and Biophys.* 137:115, 1970.

Lincoln, D.R., Edmunds, D.J., Gribble, T.J., and Schwartz, H.C.: Studies on the Hemoglobins of Pinniped. In press, January 1973, *Blood*.

Tune, B.M., Leavitt, T.J., and Gribble, T.J.: The Hemolytic-Uremic Syndrome in California: Review of Twenty-Eight Non-Reparitized Cases With Long Term Follow-up. Accepted for publication in *J. of Pediatrics*

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

NAME Leonard A. Herzenberg	TITLE Professor of Genetics	BIRTHDATE (Mo., Day, Yr.) Nov. 5, 1931
PLACE OF BIRTH (City, State, Country) Brooklyn, New York	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) U.S.	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female

EDUCATION (Begin with baccalaureate training and include postdoctoral)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Brooklyn College, Brooklyn, New York	A.B.	1952	Biology, Chemistry
California Institute of Technology Pasadena, Calif.	Ph.D.	1955	Biochemistry, Immunology
Pasteur Institute, Paris, Postdoctoral Fellow		1957	

HONORS

Phi Beta Kappa, Sigma Xi  
Distinguished Alumnus Award, Brooklyn College, 1970  
Genetics Study Section, National Institutes of Health

MAJOR RESEARCH INTEREST

Immunogenetics, somatic cell genetics

ROLE IN PROPOSED PROJECT

Principal Investigator

RESEARCH SUPPORT (See instructions)

N.I.H. GM-17367, Automated Cell Sorting-Clinical & Biological Uses, \$160,802 current year direct costs, total funds for project \$585,977 (1/1/73-12/31/75).  
N.I.H/ AI-08917, Genetics of Immunoglobulins, \$52,774 current year direct costs, total funds for project \$246,386 (5/1/69-4/31/74).  
N.I.H. CA 04681, Genetic Studies with Mammalian Cells, \$80,994, current year direct costs, total funds for project \$424,981 (9/1/72-8/31/77)  
N.I.H. HD 01287, Fetal-maternal Immunological Interactions, \$35,000 current year direct costs, total funds for project \$101,572 (5/1/70-4/30/73)

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.)

1969-present Stanford University School of Medicine, Stanford, California, Professor of Genetics  
1964-1969 Stanford University School of Medicine, Stanford, California, Asso. Professor of Genetics  
1959-1964 Stanford University School of Medicine, Stanford, California, Assistant Professor of Genetics  
1957-1959 National Institutes of Health, Bethesda, Maryland. Officer, USPHS (Dr. Harry Eagle)  
1955-1957 Pasteur Institute, Paris, France (Prof. Jacques Monod, American Cancer Society Postdoctoral Fellow)  
1952-1955 Ph.D. California Institute of Technology, Pasadena, California (Major: Biochemistry, Prof. H.K. Mitchell; Minor: Immunology, Prof. R.D. Owen)  
1948-1952 A.B. Brooklyn College, New York

## Publication List

1. Mitchell, H. K. and Herzenberg, L.A.  
Enzymatic degradation of cytochrome C  
Colowick, S.P. and Kaplan, H. O. (eds.)  
Methods of Enzymology 60:167-69, Academic Press, N.Y., 1955.
2. Mitchell, H. K. and Herzenberg, L.A.  
Zone electrophoresis on sponge rubber  
Analytical Chemistry 29:1229, 1957.
3. Herzenberg, L.A. and Herzenberg, L.A.  
Adaptation to lactose  
Nutrition Reviews 17:65-67, 1959.
4. Herzenberg, L.A.  
Studies on the induction of beta-galactosidase in a cryptic strain  
of escherichia coli  
Biochimica et Biophysica Acta 31:525-38, 1959.
5. Herzenberg, L.A.  
Discussion of genetics of somatic cells (Bar Harbor, Maine, Sept. 1960)  
Burdette, W. J. (ed)  
Methodology in Mammalian Genetics, p. 462-63, Holden-Day, Inc.,  
San Francisco, 1963.
6. Herzenberg, L.A. and Roosa, R.A.  
Nutritional requirements for growth of a mouse lymphoma in cell culture.  
Experimental Cell Research 21:430-38, 1960.
7. Herzenberg, L.A.  
Isolation and identification of derivatives formed in the course of  
intracellular accumulation of thiogalactosides by escherichia coli.  
Archives of Biochemistry and Biophysics 93:314-15, 1961.
8. Cann, H.M. and Herzenberg, L.A.  
Detection and localization of H-2 antigen in cells grown in culture.  
American Journal of Diseases of Children 102:477, 1961. (Abstract)
9. Herzenberg, L.A.  
Chemical and serological characterization of purified H-2 antigens.  
"Mechanisms of Immunological Tolerance" Proceedings of a Conference  
of the Czechoslovak Academy of Science, Prague (Nov. 1961) p. 495-99,  
1962.
10. Herzenberg, L.A. and Herzenberg, L.A.  
Association of H-2 antigens with the cell membrane fraction of  
mouse liver.  
Proceedings of the National Academy of Sciences 47:762-67, 1961.

12. Herzenberg, L. A.  
Histocompatibility antigens and tissue transplantation.  
American College of Physicians, Annual Meeting, April 1962.
13. Herzenberg, L. A.  
A genetic and immunologic approach to the purification of an histocompatibility antigen.  
Leone, C. A. (ed.)  
The Effects of Ionizing Radiations on Immune Processes, Gordon and Breach Science Publishers, N. Y., 1962.
15. Cann, H. M. and Herzenberg, L. A.  
In vitro selection for isoantigenic variants of mammalian somatic cells.  
American Journal of Diseases of Children, p. 533, 1962. (Abstract)
- 16 &  
17. Herzenberg, L. A.  
Part I. Steps toward a genetics of somatic cells in culture.  
Part II. Maternal isoimmunization as a result of breeding in the mouse.  
Journal of Cellular and Comparative Physiology, Suppl. 1, 60:145-57, 1962.
18. Roosa, R. A., Bradley, T. R., Law, L. W. and Herzenberg, L. A.  
Characterization of resistance to amethopterin, 8-azaguanine and several fluorinated pyrimidines in the murine lymphocytic neoplasm, p. 388.  
Journal of Cellular and Comparative Physiology, 60:109-26, 1962.
19. Wunderlich, J. R. and Herzenberg, L. A.  
A second gamma globulin isoantigen (allotype) in the mouse.  
Genetics 47:995, 1962 (Abstract).
20. Cann, H. M. and Herzenberg, L.A.  
In vitro studies of mammalian somatic cell variation I. Detection of H-2 phenotype in cultured mouse cell lines.  
Journal of Experimental Medicine, 117:259-65, 1963.
21. Cann, H. M. and Herzenberg, L. A.  
In vitro studies of mammalian somatic cell variation. II. Isoimmune cytotoxicity with a cultured mouse lymphoma and selection of resistant variants.  
Journal of Experimental Medicine , 117:267-84, 1963.
22. Mishell, R. I., Herzenberg, L. A. and Herzenberg, L.A.  
Leukocyte agglutination in mice, Detection of H-2 and non H-2 isoantigens.  
Journal of Immunology, 90:628-33, 1963.
23. Herzenberg, L. A. Tachibana, D. K., Herzenberg, L.A. and Rosenberg, L.T.  
A gene locus concerned with hemolytic complement in mus musculus.  
Genetics 48:711-15, 1963.

24. Wunderlich, J. and Herzenberg, L.A.  
Genetics of a gamma globulin isoantigen (allotype) in the mouse.  
Proceedings of the National Academy of Sciences 49:592-98, 1963.
25. Herzenberg, L. A., Rosenberg, P. and Herzenberg, L. A.  
Gamma globulin isoantigens (allotypes) in the mouse.  
Genetics 48:892, 1963. (Abstract).
26. Herzenberg, L.A., Mishell, R. I. and Herzenberg, L.A.  
Gamma-globulin isoantigens (allotypes) in the house mouse.  
Proc. of the XI International Congress of Genetics, The Hague,  
The Netherlands, Sept. 1963. I:196. (Abstract).
27. Erickson, R. P. Herzenberg, L.A. and Goor, R.  
Partial immune elimination of homologous red blood cells in mice.  
Transplantation 2:175-82, 1964.
28. Herzenberg, L. A. and Cole, L. J.  
Presence of donor specific gamma-globulins in sera of allogeneic  
mouse radiation chimeras.  
Nature 202:352-53, 1964.
29. Erickson, R. P., Tachibana, D.K. Herzenberg, L. A. and Rosenberg,  
L. T.  
A single gene controlling hemolytic complement and a serum antigen in  
the mouse.  
Journal of Immunology 92:611-15, 1964.
30. Papermaster, B. W. and Herzenberg, L.A.  
In vitro selection of an isoantigenic variant from a cultured mouse  
lymphoma heterozygous at the H-2 locus.  
Genetics 50:274
31. Herzenberg, L.A.  
Study of the H-2 locus in murine cell cultures  
Krooth, R. S. (ed.)  
Somatic Cell Genetics, p. 140-166, University of Michigan Press,  
Ann Arbor, 1964.
32. Herzenberg, L. A.  
A chromosome region for gamma<sub>2A</sub> and beta<sub>2A</sub> globulin h chain  
isoantigens in the mouse.  
Cold Spring Harbor Symp. Quant. Biol. 29:455-64, 1964.
33. Herzenberg, L. A., Warner, N. L., and Herzenberg, L.A.  
Immunoglobulin isoantigens (allotypes) in the mouse.  
I. Genetics and cross-reactions of the 7S gamma<sub>2A</sub> isoantigens  
controlled by alleles at the Ig-1 locus.  
Journal of Experimental Medicine 121:415-38, 1965.
34. Warner, N. L. and Herzenberg, L. A., Cole, L.A. and Davis, W. E., Jr.  
Dissociation of skin homograft tolerance and donor type gamma globulin  
synthesis in allogeneic mouse radiation chimaeras.  
Nature 205:1077-79, 1965.

35. Papermaster, B. W. and Herzenberg, Leonard A, 1966. Isolation and characterization of an isoantigenic variant from a heterozygous mouse lymphoma in culture. *Journal of Cell Physiology* 67:407-20, 1966.
36. Herzenberg, L. A., 1966, H-2 and immunoglobulin isoantigens (allotypes) in somatic cell genetics. (Antigenic variation of somatic cells and genetics cytogenetic aspects of cell antigenicity-introduction), p. 363-65. In Jan Klein, Marta Vojtiskova and Valdimire Zeleny (Genetic Variations in Somatic Cells, Proc. Symp. Mutational Process. Praha, August 9-11, 1965. Academia (Czechoslovakian publisher).
37. Herzenberg, L. A. and Herzenberg, L.A. 1966. Suppression of a  $\gamma$ G-Globulin allotype in mice by anti-allotype antibodies, pp. 227-32. In Jan Klein, Marta Vojtiskova and Vladimire Zeleny (ed.), Genetic Variation in Somatic Cells, Proc. Symp. Mutational Process, Praha, August 9-11, 1965. Academia (Czechoslovakian publisher)
38. Warner, Noel L., Herzenberg, L. A., and Goldstein, Gideon, 1966. Immunoglobulin isoantigens (allotypes) in the mouse. II Allotypic analysis of three  $\gamma$ G<sub>2</sub> myeloma proteins from (NZB X BALB/c)F hybrids and of normal  $\gamma$ G<sub>2</sub> globulins. *Journal of Experimental Medicine* 123:707-721, 1966.
39. Warner, Noel L., Herzenberg, Leonard A., 1966. Immunoglobulin isoantigens (allotypes) in the mouse. III. Detection of allotypic antigens with heterologous antisera. *Journal of Immunology* 97:525-31, 1966.
40. Herzenberg, Leonard A, and Warner, Noel L., 1967. Genetic control of mouse immunoglobulins, p. In B. Cinader (ed.), Regulation of the Antibody Response, Chapter XV. C. C. Thomas, Springfield, Illinois, 1967.
41. Tyan, Marvin L., Cole, Leonard J., and Herzenberg, Leonard A., 1967. Fetal liver cells: A source of thymus-dependent specific immunoglobulin production in radiation chimeras. *Proceedings of the Society of Experimental Biology and Medicine* 124:1161-63, 1967.
42. Klein, Jan, Martinkova, Jitka, and Herzenberg, Leonard A., 1967. Analysis of the histo-compatibility-2 (H-2) locus of NZB mice. *Transplantation* 5:1335-37, 1967.
43. Klein, Jan and Herzenberg, Leonard A., 1967. Congenic mouse strains with different immunoglobulin allotypes. I. Breeding scheme, histocompatibility tests and kinetics of  $\gamma$ G<sub>2A</sub> globulin production by transferred cells for C3H. S. W. and its congenic partner CMB/5. *Transplantation* 5:1484-1495, 1967.
44. Welton, John, Walker, Samuel R., Sharp, Gordon C, Herzenberg, Leonard A., Wistar, Richard, and Creger, William P., 1968. Macroglobulinemia with bone destruction. Difficulty of distinguishing between macroglobulinemia and myeloma. *American Journal of Medicine* 44:280-88, 1968.



45. Warner, Noel L., and Herzenberg, Leonard A., 1967  
Immunoglobulin isoantigens (allotypes) in the mouse. IV.  
Allotypic specificities common to two distinct immunoglobulin  
classes.  
*Journal of Immunology* 99: 675-678, 1967.
46. Minna, John D., Iverson, G. Michael, and Herzenberg, Leonard A., 1967.  
Identification of a gene locus for  $\gamma G_1$  immunoglobulin H chains and its  
linkage to the H chain chromosome region in the mouse.  
*Proceedings of the National Academy of Sciences* 58: 188-194, 1967.
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Fetal liver cells: A source of specific immunoglobulin production  
in radiation chimeras, pp. 87-89. In J. Dausset, J. Hambrugger,  
G. Mathe(Eds.) *Advance in transplantation, Proceedings First Inter-  
national Congress Transplantation Society, Paris, June 27-30, 1967.*  
(Munksgaard, Publisher).
48. Herzenberg, Leonore A., Herzenberg, Leonard A., Goodlin, Robert C.,  
and Rivera, Edna C., 1967. Immunoglobulin synthesis in mice:  
Suppression by anti-allotype antibody.  
*Journal of Experimental Medicine* 126: 701, 1967.
49. Herzenberg, Leonard A., Minna, John D., and Herzenberg, Leonore A.,  
1967.  
The chromosome region for immunoglobulin heavy chains in the mouse:  
Allelic electrophoretic mobility differences and allotype suppression.  
*Cold Spring Harbor Symposia on Quantitative Biology* 32: 181-86, 1967.
50. Herzenberg, Leonard A., McDevitt, Hugh O., Herzenberg, Leonore A.,  
1968.  
Genetics of antibodies.  
*Annual Review of Genetics*, 1968.
51. Tyan, M.L. and Herzenberg, L.A., 1968.  
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