University of Kansas Medical Center  
Department of Physiology  
Annual Report  
July 1, 1971 - June 30, 1972

**ACADEMIC STAFF**

- E. B. Brown, Jr., Ph. D., Professor and Chairman
- D. C. Johnson, Ph. D., Professor (Ob-Gyn and Physiology)
- L. F. Sullivan, Ph. D., Professor
- A. M. Thompson, Ph. D., Professor
- G. N. Loofbourrow, Ph. D., Associate Professor
- J. B. Rhodes, M. D., Associate Professor (Physiology & Medicine)
- J. W. Trank, Ph. D., Associate Professor
- R. L. Clancy, Assistant Professor
- N. C. Gonzalez, M. D., Assistant Professor
- A. S. Hermreck, M. D., Ph. D., Assistant Professor (Surgery and Physiology)
- C. M. Tarr, Ph. D., Assistant Professor
- J. D. Wood, Ph. D., Assistant Professor
- K. L. Goetz, Ph. D., M. D., Lecturer
- G. C. Bond, Ph. D., Lecturer

**POSTDOCTORAL FELLOWS**

- Claus J. Mayer, M. D., NSF Postdoctoral Fellow from Munich, Germany, with Dr. Wood.
- Rao Mallampati, DVM, Ph. D., Ob-Gyn Postdoctoral Fellow with Dr. Johnson.

**GRADUATE STUDENTS**

<table>
<thead>
<tr>
<th>Name</th>
<th>Prelims</th>
<th>Degree Granted</th>
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</thead>
<tbody>
<tr>
<td>Yih Locng Lai</td>
<td>Completed work</td>
<td>Spring 1972</td>
</tr>
<tr>
<td>Chung-ning Pang</td>
<td>for Ph. D. degree 6/7/72</td>
<td></td>
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<tr>
<td>Kyra Riegle</td>
<td>11/20/70</td>
<td></td>
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<tr>
<td>Pat Jurewicz</td>
<td>3/9/71</td>
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<td>*Larry Welling, M. D.</td>
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<td>Richard Morrison, M. D.</td>
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<td>Donald Deeds</td>
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<td>Lester Vade</td>
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<tr>
<td>*Su-Hsin Tung, D. D. S.</td>
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<td>Michael Miner, M. D.</td>
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<td>Harvey, Grotjan</td>
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<tr>
<td>Bin Ching Wang</td>
<td></td>
<td>Fall 1971</td>
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<tr>
<td>Pat Jurewicz</td>
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<tr>
<td>Larry Welling, M. D.</td>
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<tr>
<td>Bin Ching Wang</td>
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</tbody>
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**SUMMER RESEARCH FELLOWS**

- Kent Ulrich - Medicine II (Dr. Brown)
- Leonard Moss (Dr. Sullivan)
- Sherri Miller - Medicine III (Rhodes)
- Anthony Lemanski - Medicine III (Johnson)
- Nancy Burge - Medicine I (Dr. Thompson)

*Postdoctoral and Graduate Student for Ph. D.*
KA W VALLEY HEART STUDENTS (The Science Talent Search Program - 1971)

Roxie Kirby, with Dr. Thompson
Gary Pointer, with Dr. Rhodes

OUTSIDE SPEAKERS AND VISITORS

July 19, 1971  Mr. Christopher L. Schatte, Dept. of Physiology and Biophysics, Colorado State University, Ft. Collins, Colorado. "Neon, Nitrogen and Narcosis!"


Aug. 20, 1971  Christian Crone, M.D., Professor of Institute of Medical Physiology A, Univ. of Copenhagen, Denmark. Consultation with Dr. Thompson.

Mar. 16, 1972  Peter F. Curran, M.D., Dept. Physiology, School of Medicine, Yale University, New Haven, Connecticut. "The Role of a Shunt Pathway in the Frog Skin."

April 28, 1972  Dr. Horacio Cingolani, Chairman Dept. Physiol. and Biophysics, Instituto de Fisiologia, Facultad de Ciencias Medicas, Univ. Nacional de La Plata, Argentina. "Hydrogen Ion Concentration and Contractility in the rat Heart."

THESIS DEFENSE SEMINARS:


GRADUATE COURSES

Material describing our program for the Ph. D. Degree in Physiology was re-written. The current list and description of courses is attached to this report.

GRADUATE COURSES TAUGHT

#330 Cardiovascular Physiology - 3 hrs. Taught for the first time this fall (1971) by Drs. Tarr, Gonzalez, Clancy, Trank, Bond, Goetz, and Hermreck.

#318 Gastroenterology - 2 hrs. Taught by Drs. Wood and Rhodes - Spring Semester.

#322 Neurophysiology - 3 hrs. Taught by Drs. Loofbourrow, Brown, Tarr and Wood - Spring Semester.

GENERAL COMMENTS

At the time the report from this department was being prepared one year ago, much of the time and effort of the staff members of this department were focused on preparation for the fall meetings of the American Physiological Society which were held on the campus at Lawrence, and on this campus, in mid-August. As the host institution, this department, with the members of the Physiology and Cell Biology Department at Lawrence, were responsible for all of the arrangements for this national meeting. With yeoman service from Mr. Bill Chestnut on the Lawrence Campus and with unusual cooperation from the weather, we had a highly successful meeting. More than 600 participants registered for the meetings and some 323 free communications were presented. In addition, five half-day seminars with invited participants were held. Three of these seminars were held on the KUMC campus on the last day of the meetings.

Drs. Sullivan and Clancy devoted considerable time during the summer months to tutoring the group of minority students who had been admitted to the entering medical school class for 1971. Other members of the physiology staff also contributed to this program on occasion. Again this summer Dr. Sullivan has held regular sessions with a similar group of students who have been admitted to the medical school class beginning in July 1972.

The medical school physiology course returned to the format previously used in which Physiology and Biochemistry run concomitantly. Graduate courses were completely restructured last summer and the first three of these courses were taught during the past school year. A list of these courses and their descriptions is attached to this report.

At the request of the faculty members involved in teaching the integrated endocrinology course, this course in which several departments participate, is now listed as a Department of Physiology course. This constitutes no change in the faculty or arrangement for teaching endocrinology, but means simply that
the records will be kept in the Department of Physiology office, and that Endocrinology will be listed as a separate medical school course for purposes of the record in the Registrar's Office.

Two new staff members joined the department in 1971. Arlo Hermreck, M.D., Ph.D., was appointed Assistant Professor of Physiology and Assistant Professor of Surgery. Jackie Wood, Ph.D., was appointed Assistant Professor of Physiology. Both Drs. Wood and Hermreck have vigorous research programs in operation and both have participated in our teaching program. Medical students Richard Berg and James Ruhlen working with Dr. Hermreck won the prize at the Student Research Day in April. Dr. Wood has expertise in more than one field and he participated to a major degree in two of the graduate courses offered during the past year as well as in the medical school physiology course. Dr. Hermreck contributed to the medical school physiology course and to the graduate course in cardiovascular physiology.

It is anticipated that Dr. Paul Hensleigh, who holds the M.D. degree from this medical school and the Ph.D. degree from this department, will join our staff as an Assistant Professor with a joint appointment as Assistant Professor in the Department of Obstetrics and Gynecology, beginning in the fall of '72. Dr. Hensleigh will strengthen the endocrine and physiology of reproduction group in which Dr. Johnson is a leading participant.

ACTIVITIES OF STAFF

Gary Bond, Ph.D., Lecturer in Physiology

Aug. 1971 Attended American Physiological Society meetings, Lawrence, Ks.

Fall 1971 Lectured to first-year students in medicine.

April 1972 Attended FASEB meetings, Atlantic City, N. J.

E. B. Brown, Jr., Ph.D., Professor and Chairman

Aug. 19, 1971 - Chaired the symposium on "Tissue Buffering in Wahl Hall West Auditorium. APS Autumn Meeting.

Sept. 10-11 Attended 22nd Annual meeting and the 8th Annual Delegate Assembly of the Kansas Heart Association in Salina, Kansas.

Sept. 21 Guest speaker in Pediatrics Department, seminar topic was "Acid Base Balance in Hypoxemic States.

Oct. 20-27, 1971 - Visiting Professor at University of California Medical School, Irvine, California.

Oct. 23 National-Regional Research Committee of the American Heart Association meetings, Tucson, Arizona.

Oct. 30-Nov. 2, 1971 - AAMC Council of Academic Societies meeting and the meetings of the Association of Chairman of Departments of Physiology. Dr. Brown is President-Elect of the ACDP.

Nov. 19 Participated in Medical Technology Postgraduate Course at invitation of Dr. Robert Druet, Clinical Laboratories, giving lecture on "Pitfalls in Blood Gas Analysis."

Nov. 22 Attended meeting of the Executive Committee of the Great Plains Region of AAMC in St. Louis, Missouri.

Jan. 7-8, 1972 - South Dakota Site Visit (Watertown, South Dakota) for American Heart Association Great Plains Regional Office (Minneapolis, Minn.)

Jan. 10-11 Midwest Great Plains Region of AAMC at O'Hare Inn, Chicago, Ill. Became Chairman of Council of Faculties, Jan. 1972.)

Jan. 13-14 Madison, Wisconsin. Lecture at University of Wisconsin Medical Center. Seminar on "Respiratory Alkalosis and Respiratory Regulation."

Jan. 25 Gave series of lectures to nurses here at KUMC - arranged through Mrs. Anita Wingate).

Jan. 28 American Heart Association Great Plains Regional Research Review and Advisory Committee Meeting, Omaha, Nebraska.

Mar. 1-2 Finance Committee of the American Physiological Society meeting in Bethesda, Maryland, at the APS Headquarters.

Mar. 9, 10, 11 - Great Plains Regional Research, Review and Advisory Comm. of American Heart Association, Minneapolis, Minnesota.

Mar. 20 Lecture at Washburn University, Topeka, Kansas

Mar. 27, Executive Council Meeting of Midwest-Great Plains Region of the AAMC, University of Illinois, Chicago, Ill.

April 5 Lecture at VA Hospital - Wadsworth, Kansas, at the invitation of Dr. Sato.

April 9 Meeting of subcommittee on Regional National Research of the American Heart Association in Haddon Hall, Atlantic City, N.J.

April 9-14 American Physiological spring meetings in Atlantic City, N.J. Also became President of the Association of Chairman of Departments of Physiology at the meeting of the Association in Atlantic City.
April 21, 1972 - Kansas Heart Association meeting at Emporia, Kansas.

April 26    Panelist, Assembly of the Christian Church in St. Joseph, Mo.

April 28    Kansas Heart Association - Program Coordinating Committee meeting, Topeka, Kansas.

May 10 National Medical Audiovisual Center (NMAC), member of the Steering Committee of NMAC.

May 11 Veterans Administration Hospital, Wadsworth, Kansas, gave lecture at invitation of Dr. Sato.

Richard L. Clancy, Ph. D., Assistant Professor

Elected to office of Treasurer of Sigma Xi Scientific Society for 1971-72.

Aug. 1971 Co-chairman with Dr. Tarr for a symposium on "Mechanisms of Muscle Contraction" of the APS in Battefeld Auditorium.

Directing the work of Miss Kyra Riegle, Graduate Student

Kenneth Goetz, M. D., Ph. D. - Lecturer in Physiology

Director of Experimental Medicine, St. Luke's Hospital, K. C. Mo.


Aug. 16-19 Presented a paper at Annual fall meeting of the American Physiological Society in Lawrence, Kansas.

Nov. 11-14 Presented a paper at the 44th Annual meeting of the American Heart Association in Anaheim, California.

April 9-14, 1972 - Attended 56th Annual FASEB Meeting in Atlantic City, N. J.

Norberto Gonzalez, M. D., Assistant Professor

Jan. 9-11, 1972 - Attended meeting of Head Injury Units, Miami, Florida.

April 10-14, Attended FASEB Meeting in Atlantic City, N. J. Presented a paper on "Effects of Temperature and Metabolic Acidosis Upon Myocardial Performance."
Arlo Hermreck, Ph.D., M.D., Assistant Professor (Surgery and Physiology)
Jan. 10-12, 1972 - Attended Seminar - Cleveland Clinic

G. N. Loofbourrow, Ph.D., Associate Professor
Jan. 11, 1972 - Gave lecture, by invitation, to the Heart of America Society of EEG Technicians on Basic Neurophysiology.
Feb. 18 - Representative from this Department to the Library Committee
April 20 - Served as Coordinator from Department of Physiology to the Basic Science Internal Planning Subcommittee.

James B. Rhodes, M.D., Associate Professor
Is President-Elect of KUMC Sigma Xi Club for 1971-72.
Oct. 8-12, 1971 - Dr. Rhodes attended Sigma Xi meeting in Daytona Beach, Florida.
April 1972 - FASEB meetings in Atlantic City, New Jersey.
May 1972 - American Gastrointestinal Association Meeting in Dallas, Texas.
May 1972 - Talk at Lincoln University in Jefferson City, Missouri, on Protein Digestion.

L. P. Sullivan, Ph.D., Professor
Nov. 22-23, 1971 - Attended the American Society of Nephrology Meetings in Washington, D.C.
Is directing the research effort of graduate student Don Deeds.

C. Merrill Tarr, Ph.D., Assistant Professor
Aug. 1971 - Cochairman with Dr. Clancy for a symposium on "Mechanisms of Muscle Contraction" in Battenfeld Auditorium at the time of the APS meetings on this campus.
Directing the work of Graduate Student, Patricia Jurewicz.
In charge of Departmental Seminars.
Chairman of Ad Hoc Faculty Committee on Tenure at the University of Kansas Medical Center.
Alan M. Thompson, Ph. D., Professor


Aug. 18, 1971 - Chaired Symposium on "The Blood-Brain Barrier" at Fall American Physiological Society meeting.


Oct. 20-21 - Attended meetings of the Association of Graduate Schools in Minneapolis, Minnesota.

Nov. 5, 1971 - Hosted physics students from Benedictine College.


April 10-14 - Attended FASEB in Atlantic City, N. J.

June 19, 1972 - Attended a retreat of the Kansas UAF group south of Kansas City.

Coordinator of subcommittee planning new basic science building. Also a member of Central Administrative Planning Committee.

Held joint appointment as Associate Dean of the Graduate School

Directed the work of Lester Wade, Graduate Student.

Paper Referee for Science Journal.

J. W. Trank, Ph. D., Associate Professor

Sept. 14-17, 1971 - Dr. Trank attended the AIBS Review of the Project Sanguine Site in Wisconsin.

March 6, 1972 Lecture to AMSEC - "Electric Shock - a Real Hazard", KUMC.

March 8, 1972 Conducted a seminar at Northwest Missouri State College by invitation.

April 24, 1972 Lectured at VA Hospital in Kansas City, Missouri, on "Hospital Electrical Hazards".

May 1-3, 1972 Biomedical Engineering Symposium in Omaha, Nebraska.

J. D. Wood, Ph. D., Assistant Professor

Came to KUMC in August 1971.


D. C. Johnson, Ph. D., Professor

Nov. 1971 - Lecture: Dept. of Obstetrics and Gynecology, St. Francis Hospital.

Nov. 1971 - Seminar - Dept. of Anatomy, University of Illinois College of Medicine, Chicago, Illinois.

March 1972 - Society for Gynecologic Investigation, San Francisco, California.

RESEARCH GRANTS ACTIVE DURING THE YEAR

#1722 NIH #5ROIHL 12231-04. 10/1/70-9/30/72. "Intracellular Response to Acid-Base Changes." Dr. E. B. Brown, Jr.

#9221 Kansas Heart Association 7/1/70 to 6/30/72. "Acid Base Disturbances and Cardiac Glycoside Activity." R. L. Clancy, Ph. D.


#1732 - PHS #HL 14362-02. 9/1/71 - 8/31/73, "The Study of Acute Renal Failure in the Conscious Dog." A. S. Hermreck, M. D., Ph. D.

#9734-01 Kaw Valley Heart, 7/1/71 to 6/30/72. "The Study of Cardiac and Peripheral Vascular Effects of Sepsis." A. S. Hermreck, M. D., Ph. D.

#5 R01 HL 14047, USPHS 5/1/71 to 4/30/74. "Relative Effects of Volume Receptors on ADH titer." Gary C. Bond, Ph. D.

Missouri Heart Association 7/1/71 to 6/30/72. "Arterial Baroreceptors and Plasma ADH." Gary C. Bond, Ph. D.

Population Council, Inc. grant to study "Control of Male and Female Gonadotropin Patterns. 3/1/72 to 2/28/73. Dr. D. C. Johnson.

#5 R01 AM 12329 PHS - 6/1/68 to 5/31/71 - 3 yr period and 5/31/71 to 12/31/71 emergency funds and extended 12/31/71 to 6/30/72. "Intestinal Peptidases and Peptides Hydrolysis." James B. Rhodes, M.D.

#1149-01 NIH - 1R01 AM 15883-01 1/1/72 to 12/31/72 to study "Effect of Acid Base Changes on Renal K Transport." L. P. Sullivan, Ph. D.

#1124-06 NIH 5 R01 AM 10227-06, 1/1/71 to 12/31/71. "Diuretic Agents and Ion Transport in the Toad Bladder." Dr. L. P. Sullivan

#9223-01 Kansas Heart Association; 71-KS-511, 7/1/71 to 6/30/72. "Acid Base and K Transport by Renal Tubular Cells." Dr. L. P. Sullivan

#9225 Kansas Heart Association, 71-KS-508, 7/1/71 to 6/30/72. "Tonic Mechanism of Drug Action in Cardiac Muscle." Dr. C. M. Tarr

#9214 Kansas Heart Association 7/1/71 to 6/30/72. "Inotropic Agents and Ca++-current in Cardiac Muscle. Dr. C. M. Tarr.

#1725-04 NIH 2 R01 HL 12426-04. 2/1/72 to 1/31/76. "Voltage Clamp of Cardiac Muscle." Dr. C. M. Tarr.

#1920-05 NIH 2 R01 NS 07059-05, 1/1/71 to 8/31/72. "Nonelectrolyte Transport Alteration in Perfused Brain." Dr. A. M. Thompson

#9215 Kansas Heart Association, 7/1/70 to 6/30/72. "Stimulus Pattern-and-Cardiovascular Control Function." Dr. J. W. Trank.

#9214 Kansas Heart Association, 7/1/71 to 6/30/72. "Inotropic Agents and Ca++-current in Cardiac Muscle." Dr. J. W. Trank

#8119 NSF - GB-31292, 10/15/71 to 3/31/73. "Function of the Enteric Nervous System". Dr. J. D. Wood.

Missouri Heart Assoc. Grant to study "Reflex Control of Blood Volume by Cardiac Receptors." 7/1/71 to 6/30/72. Dr. Kenneth Goetz.

PUBLICATIONS


Since this report contains considerable material on the revision of our graduate programs, this may be a logical time to review and place into the record a resume of the graduate degrees granted by this department since its reorganization in 1962. With the granting of the Ph. D. degree to Mr. Chung-nung Pang, 14 Ph. D.'s have been granted by this department since 1965. In addition, two other students carried out work for the Ph. D. in this department. Dr. Robert Pendleton conducted his research with Dr. Sullivan, and his degree was granted by this University by the Pharmacology Department. Dr. William Hamilton worked under the direction of Dr. Brown and his degree was granted by the University of Minnesota.

With the considerable interest over the past year or so in overproduction of Ph. D.'s in various fields of science, it may be pertinent to review where these 16 individuals who have received the Ph. D. degree from this department during the past 7 years are now located. Seven are in academic positions, 2 have positions in industry, one has a position in full time research, and 5 are still engaged in postdoctoral training. A list of the recipients of the Ph. D. degree and the M.S. degree with the name of their advisor, the year the degree was granted and the current position and current address of the recipient follows.
<table>
<thead>
<tr>
<th>Name</th>
<th>Advisor</th>
<th>Ph.D. /M.S. Year Granted</th>
<th>Current Position</th>
<th>Current Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clancy, Richard L.</td>
<td>E. B. Brown, Jr.</td>
<td>1965</td>
<td>Academic</td>
<td>Assistant Professor of Physiology, Dept. of Physiology, KUMC</td>
</tr>
<tr>
<td>Thurber, Robert E.</td>
<td>A. M. Thompson</td>
<td>1965</td>
<td>Academic</td>
<td>Chairman, Physiology Department, East Carolina University Med. Sch., Greenville, North Carolina 27834</td>
</tr>
<tr>
<td>McDougal, Barbara</td>
<td>L. P. Sullivan</td>
<td>1969</td>
<td>Training</td>
<td>Obtained the M.D. Degree spring of 1972 from Univ. of New Mexico Sch. Medicine. Now doing internship in medicine at KUMC beginning 7/1/72.</td>
</tr>
<tr>
<td>Kramen, Martin</td>
<td>D. C. Johnson</td>
<td>1969</td>
<td>Academic</td>
<td>Physiology Dept., Univ. of Texas Medical School, San Antonio, Texas 78229</td>
</tr>
<tr>
<td>Proudfit, Carol</td>
<td>D. C. Johnson</td>
<td>1971</td>
<td>Postdoc.</td>
<td>Postdoctoral Fellow with Dr. Neena B. Schwartz, Univ. of Illinois at Medical Center, Dept. of Psychiatry, Chicago, Illinois</td>
</tr>
<tr>
<td>Hensleigh, Paul, M.D.</td>
<td>D. C. Johnson</td>
<td>1970</td>
<td>Academic</td>
<td>Assistant Professor Department of Physiology and Ob-Gyn., University of Kansas Medical Center.</td>
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<td>Name</td>
<td>Advisor</td>
<td>Ph.D. / M.S. Year Granted</td>
<td>Current Position</td>
<td>Current Address</td>
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<td>Waring, Dennis</td>
<td>L. P. Sullivan</td>
<td>1970</td>
<td>Postdoc</td>
<td>Postdoctoral Fellow, Dr. Orloff's Lab. Kidney and Electrolyte Metabol. Lab., National Health Institute Bethesda, Maryland</td>
</tr>
<tr>
<td>Welling, Larry, M.D.</td>
<td>L. P. Sullivan</td>
<td>1972</td>
<td>Academic</td>
<td>Research and Education Associate at K. C. Veterans Administration Hospital, K. C. Mo., and Asst. Prof. of Pathology, KUMC.</td>
</tr>
<tr>
<td>Lai, Yih Loong</td>
<td>E. B. Brown, Jr.</td>
<td>1972</td>
<td>Research</td>
<td>Research Assistant to Dr. Robert Hiatt, Mayo Clinic, Rochester, Minn.</td>
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<td>Pang, Chung Ning</td>
<td>D. C. Johnson</td>
<td>1972</td>
<td>Postdoc.</td>
<td>Postdoctoral Fellow, Dept. of Anatomy, Univ. Calif. Medical School, (UCLA), Los Angeles, California, Dr. C. H. Sawyer.</td>
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<tr>
<td>Hermreck, Arlo, M.D.</td>
<td>K. L. Goetz</td>
<td>1970</td>
<td>Academic</td>
<td>Asst. Prof. Departments of Physiol. and Surgery at KUMC.</td>
</tr>
<tr>
<td>Slick, Gary</td>
<td>K. L. Goetz</td>
<td>1969</td>
<td>Postdoc.</td>
<td>Obtained the M. A. from KUMC. Also received the D. O. in 1969 from the K. C Mo. College of Osteopathy. Will be a Postdoctoral Fellow in Nephrology at Univ. of Iowa beginning 7/1/72.</td>
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