

MinneCeutics

Indispensable News

Department of Pharmaceutics

Fall 1994

University of Minnesota

Regular Faculty:

Jane P. F. Bai, Gary H. Carlson, David J. W. Grant, Yueh-Erh Rahman,
Edward G. Ripple, Ronald J. Sawchuk, Raj G. Suryanarayanan,
Timothy S. Wiedmann, Cheryl L. Zimmerman.

Adjunct Faculty:

George A. Agyllirah, FMC Corporation. Walid M. Awni, Abbott
Laboratories. Keith K. H. Chan, Ciba-Geigy. Michael J. Pikal,
Eli Lilly and Company. Aldo Rescigno, University of Parma, Italy.
Robert K. Schultz, Dura Pharmaceuticals.

MESSAGE FROM THE DEPARTMENT HEAD

In last year's newsletter I mentioned that the Department was in the process of establishing a fellowship program for first-year graduate students from contributions solicited from pharmaceutical industry as well as from alumni and friends of the Department of Pharmaceutics. Now I am happy to report that our first industry-supported fellowship is in place, owing to the generosity of 3M Pharmaceuticals. The first 3M fellow joined the Pharmaceutics Graduate Program this fall; the 3M Fellowship will be offered each year. Starting in fall 1995, the Department will be offering a second industry-supported fellowship.

At this time, I would also like to thank those alumni who have contributed to the fellowship fund. We hope to be able to offer an alumni-supported fellowship in the future.

I am also proud to report that our graduate students have been very successful in competing for fellowships and awards at the national level. At the 26th Annual Pharmaceutics Graduate Student Research Meeting held in June at the University of Nebraska-Omaha, our graduate students received three of six possible awards for podium and poster presentations. Two of our graduate students were selected to present their Ph.D. thesis work in the Graduate Symposium at the AAPS annual meeting to be held in November in San Diego, California. For the academic year 1994-1995, eleven graduate students

have received a total of eighteen fellowships and awards. An impressive record indeed.

Earlier this year the College of Pharmacy received wonderful news. The largest single bequest ever made to the University of Minnesota will go to the College of Pharmacy in the form of a \$13.5 million gift from the estate of William and Mildred Peters. Mr. Peters was a 1910 pharmacy graduate, and together they owned the Lowry Hill Drug Store in Minneapolis from 1915 to 1948. Mr. and Mrs. Peters were actively involved in pharmacy education for many years. The College plans to dedicate a large portion of the funds to both undergraduate and graduate student education.

The College is implementing the all-Pharm.D. single-degree program beginning Fall Quarter 1995.

The Pharmaceutics faculty is again visiting regional colleges and universities for recruiting high-quality students into our graduate program.

Various activities of the Department of Pharmaceutics are spotlighted in the next issue of the College of Pharmacy "Record", so I won't repeat it all here.

I hope to see many of you at the Minnesota Alumni Breakfast on Monday, November 7, 1994 at the San Diego Marriott.

Best regards,

—(Jady) Yueh-Erh Rahman, M.D.
Professor and Head

LOST ALUMNI

Please help us locate these individuals:

Carol Bainbridge
Chen-Hsing Chou
Mahmood Falamauzian
Jo Gustafson

John Herath
Abu Saeed M. Huq
Hussein Gomaa Ibrahim
Bruce Martin

Travis N. T. Olson
Maturu K. Pramoda
M. Pyron
Harald Rettig

Gautam Supta Sen
Lucy Tadros
Dilip Vishwasrao

FACULTY NEWS AND ACTIVITIES

JANE P.F. BAI received the 1994 AAPS New Investigator Award in Pharmaceuticals and Pharmaceutical Technology. Bai was invited to present her research at Emisphere Technologies, Inc., in New York, in August 1994. She was also invited to present her research to Genentech, Inc., in San Francisco in November.

GARY CARLSON has been active in organizing the newly remodeled Pharmaceutical Care Laboratory, used for the first time this fall quarter. Extensive renovation throughout the summer provides professional pharmacy students with a computer-assisted pharmacy laboratory to closely simulate the entire spectrum of tasks performed by a pharmacist. The new facility allows complete integration of all aspects of the new pharmacy curriculum, and includes more hospital pharmacy and patient counseling issues. The new lab is equipped with videotaping equipment and has broadcast capabilities.

DAVID GRANT is a new associate editor of *Journal of Pharmaceutical Sciences*. He was organizer and Chair of scientific sessions of the Second International Conference on Pharmaceutical Sciences and Technology at the 25th Annual Meeting of the Fine Particle Society, East Brunswick, NJ in July 1994, and of the First International Particle Technology Forum in Denver, CO held in conjunction with the American Institute of Chemical Engineers (AIChE) Summer Meeting in August 1994. He also presented talks at the above meetings. Grant is also a member of the Organizing Committee for the Fifth Annual Meeting of the Association for Crystallization Technology (ACT) to be held in Charlottesville, VA in 1995.

YUEH-ERH RAHMAN visited the People's Republic of China in April 1994 at the invitations of the Department of Biological Sciences and Biotechnology at Tsinghua University, Beijing, and the Shanghai Institute of Planned Parenthood Research, Shanghai. Collaborative research projects involving faculty of Pharmaceuticals and other departments at the University of Minnesota are being established with these two institutions as a result of the visit.

EDWARD RIPPIE sponsored two undergraduate UROP students, Tim Affeldt and Don Miller, whose research investigated the internal structure of compressed tablets. Dr. Derek Moe received his Ph.D. degree under Rippie's direction on the topic "Nondestructive Viscoelastic Analysis of Anisotropy in Compressed Tablets". Moe has joined the Syntex Corporation in Palo Alto, California.

RONALD SAWCHUK was invited to present research findings over the past year: "Modeling and Simulation of Complex Pharmacokinetic Systems" and "Microdialysis in the Study of Drug Distribution," NATO Advanced Study Institute, Erice, Italy, April 1994. "Pharmacokinetic Studies Utilizing Microdialysis and On-Line HPLC," 4th International Workshop in Bioanalysis, Lawrence, KS, July 1994. "Application of Microdialysis in Pharmacokinetic Studies," Gordon Research Conference in Drug Metabolism, Holderness, NH, July 1994.

RAJ SURYANARAYANAN assumed the duties of Director of Graduate Studies in April 1994, succeeding Ronald Sawchuk, whose term expired. He has also been appointed to the Editorial Advisory Board of the *Journal of Pharmaceutical Sciences*.

TIMOTHY WIEDMANN and graduate student Joel Moore have completed a collaborative study with the Departments of Anaesthesiology and Veterinary Science. The study investigated the effect of high-frequency ventilation on the respiratory deposition of a model lung surfactant. Wiedmann is presently Chair of the planning committee of the PDD section of the Midwest Regional Meeting of the AAPS.

CHERYL ZIMMERMAN has been Interim Associate Dean of the College of Pharmacy since February 1, 1994. This part-time position is slated to last until July 1, 1995. Her duties are the development of a strategic plan for the College and overseeing the operations of the Office of Student Affairs. Zimmerman was an invited speaker at the Pharmaceutical Sciences Symposium during the University of Washington College of Pharmacy Centennial Celebrations on September 8-10, 1994.

THANK YOU

We would like to take this opportunity to thank **Ronald J. Sawchuk** for his years of service and dedication as Director of Graduate Studies in providing guidance to the graduate students and representing Pharmaceuticals in Graduate School matters.

VISITORS

Ebtsam Abd El Azeem, University of Mansoura, Mansoura, Egypt, is a predoctoral scholar in the laboratory of Dr. David Grant on "Pharmaceutical Study on Controlled Release of Certain Drugs from Microdispersed Delivery Systems" as part of her Ph.D. thesis project.

Chun-Chiu Chan, Ph.D., a postdoctoral associate with Dr. David Grant, has recently accepted a teaching position in Hong Kong.

Piramiah Elayaperumal, Ph.D., is a research associate for Dr. Raj Suryanarayanan on a project dealing with the solid-state properties of drugs.

Mohammed Osman, University of Tanta, Egypt, recently returned to Egypt after a year-long study with Dr. Ronald Sawchuk. His project, entitled "*In Situ* Absorption of Selected Antiviral Nucleosides from Rabbit Intestine", is part of his Ph.D. thesis at the University of Tanta.

Javier Soria, University of Madrid, Spain, and **Maria Cristina Castelli**, University of Parma, Italy, are visiting scholars working in the pharmacokinetics lab of Dr. Cheryl Zimmerman.

GRADUATE STUDENT NEWS

The first 3M Fellowship recipient is **Stephen Pham, M.S.** ('94) from U of M - Duluth. Steve joined the Department of Pharmaceutics this fall to begin working toward his Ph.D. degree.

Three of six possible awards of excellence were received by our graduate students at this year's 26th Annual Pharmaceutics Graduate Student Research Meeting held at the University of Nebraska-Omaha in June:

Bimal Malhotra: "Modeling of the CNS Distribution of EAB 515 Following IV and ICV Administration" (Podium—First Place Award)

Yazdi K. Pithavala: "The Influence of Gut Wall Metabolism on the Intestinal Absorption of Etrinate From Mixed Micelles" (Podium—Third Place Award)

Cheng-Pang Hsu: "Investigation into the Role of Insulin-degrading Enzyme in Pulmonary Absorption of Insulin (Poster—First Place Award)

Bimal Malhotra and Mark Sorenson were selected to present their Ph.D. thesis work in the Graduate

Symposium at the AAPS Annual Meeting to be held in November in San Diego.

Eleven Pharmaceutics graduate students received 18 fellowships and awards for academic year 1994-1995.

Raghu Cavatur was a summer intern at Abbott Laboratories in North Chicago, Illinois. His project, entitled "Effect of Percent Relative Humidity on Hiestand Indices of Avicel PH-102", was guided by Dr. Armin Gerhardt, Group Leader in Pharmaceutical Solids.

Marina Mathew worked with Dr. Steve Krill as a summer intern at Abbott Laboratories in Abbott Park, Illinois. Her project was entitled "Use of DMPC Monolayer to Predict Membrane Permeability".

This fall brought the largest group of new students in the history of the Department. We extend a warm welcome to **Xueqing Chen** (China), **Marta Farolfi** (Italy), **Xiaorong He** (China), **Ramya Kumbale** (India), **Aparna Lakkaraju** (India), **Yinghua Li** (China), **Luna Musib** (India), **Stephen Pham** (U.S.), **Suneel Rastogi** (India), **Jitesh Tank** (India), and **Guangzhong (Geoff) Zhang** (China).

UNDERGRADUATE ACTIVITIES

Two students worked with Dr. Cheryl Zimmerman during summer 1994. **Sarah Vanderlinde**, a second-year Pharmacy student, undertook a research project on the pharmacokinetics of diazepam in rats. The project was supported by a Melendy fellowship. **Kimberly Chapman** of St. Louis University worked on a research project concerning the uptake of retinoids into isolated hepatocytes, supported by the College of Biological Sciences Summer Undergraduate Research Program.

UROP (Undergraduate Research Opportunities Program) Awards:

Dr. David Grant—Nam Tran Ly, Quyen Nguyen, Wing Poon, Richard Ruesch
Dr. Raj Suryanarayanan—Wendy Greenwalt
Dr. Edward Rippie—Don Miller, Tim Affeldt
Dr. Jane Bai—Phuong Tran, John Vu

ALUMNI NEWS

Sarma P. Duddu, Ph.D. ('93) received the Directors' Impact Award in recognition of his work at SmithKline Beecham Pharmaceuticals, King of Prussia, Pennsylvania.

Soumojeet Ghosh, Ph.D. ('93) has accepted a position as Pharmaceutical Research Scientist with Abbott Laboratories in North Chicago, Illinois, and will be specializing in sterile liquid products.

John Hedenstrom, Ph.D. ('93) has accepted a position with 3M Pharmaceuticals, St. Paul, Minnesota.

Robert Schultz, Ph.D. ('93), has recently accepted a position at Dura Pharmaceuticals in San Diego, California as Director of Research and Development.

Inmaculada Soria, Ph.D. ('92), has joined 3M Pharmaceuticals in St. Paul, Minnesota.

S. Venkatesh, Ph.D. ('93) is the recipient of a 1994 Postdoctoral Research Fellowship in Pharmaceutics from the Pharmaceutical Research and Manufacturers of American Foundation (formerly PMA Foundation).

1994 GRADUATES:

Mark Decker, M.S.: Pharmacist at Snyder Drug in Apple Valley, Minnesota

Nithya Iyer, M.S.: Relocated to Clifton Park, New York

Devalina Law, Ph.D.: Abbott Laboratories, North Chicago, Illinois

Bimal Malhotra, Ph.D.: Bristol Myers-Squibb, Princeton, New Jersey

Derek Moe, Ph.D.: Syntex Research, Palo Alto, California

Yanfeng Wang, Ph.D.: Warner-Lambert/Parke-Davis, Ann Arbor, Michigan

HAPPENINGS

Mark your calendars for the 1994 AAPS Annual Meeting and Exposition at the Convention Center in San Diego, California on November 6-10, 1994. We invite you to attend our **ALUMNI BREAKFAST** to be held this year at the San Diego Marriott Hotel on **MONDAY, NOVEMBER 7, 1994** from 7:15 to 8:15 a.m. It's a great way to catch up with news of your fellow Minnesota graduate students. Please join us.

The annual **OPEN HOUSE** is slated for **SATURDAY, FEBRUARY 11, 1995** from 1:00-5:00 p.m. This event showcases our graduate program to interested/curious prospective graduate students. Should you know of someone who would like information, we'll be pleased to send an invitation. A hockey game between the Gophers and UM-D follows the Open House at 7:00 p.m.

RECENT PUBLICATIONS

Bai J.P.F. Distribution of brush-border membrane peptidase along the rat intestine. *Pharm. Res.* 11: 897-900, 1994.

Bai J.P.F. Subcellular distribution of proteolytic activities degrading bioactive peptides and analogues in small cells of the small intestine and colon. *J. Pharm. Pharmacol.* 46: 671-675, 1994.

Bai J.P.F. The regional differences in the mucosal-cell lysosomal proteases within the rat small intestine. *Inter. J. Pharm.* 107: 133-140, 1994.

Duddu S.P., Vakilynejad M., Jamali F. and Grant D.J.W. Stereoselective dissolution of propranolol hydrochloride from hydroxypropyl methylcellulose matrices. *Pharm. Res.* 10: 1648-1653, 1993.

Kontoghiorghes G.J., Agarwal M.B., Tondury P., Kersten M.J., Jaeger M., Vreugdenhil G., Vania A. and Rahman Y.E. Future of oral iron chelator deferiprone (L1). *Lancet* 341: 1479-1480, 1993 (letter).

Malhotra B.K., Lemaire M. and Sawchuk R.J. Investigation of the distribution of EAB 515 to cortical ECF and CSF in freely moving rats utilizing microdialysis. *Pharm. Res.* 11: 1223-1232, 1994.

Mendez A., Camarata P., Suryanarayanan R. and Ebner T.J. Sustained intracerebral delivery of nerve growth factor with biodegradable polymer microspheres. In "Providing Pharmacological Access to the Brain", *Methods in Neurosciences*, Vol. 21, T.R. Flanagan, D.F. Emerich and S.R. Winn, Eds., Academic Press, 1994.

Nguyen N.-A.T., Ghosh S., Gatlin L.A. and Grant D.J.W. Physicochemical characterization of the various forms of carbovir — an antiviral nucleoside. *J. Pharm. Sci.* 83: 1116-1123, 1994.

Oberle R.L., Das H., Wong S.L., Chan K.K.H. and Sawchuk R.J. Pharmacokinetics and metabolism of diclofenac sodium in Yucatan miniature pigs. *Pharm. Res.* 11: 698-703, 1994.

Rippie E.G. and Morehead W.T. Structure evolution of tablets during compression unloading. *J. Pharm. Sci.* 83(5): 708-715, 1994.

Saleh S.I. and Rippie E.G. Application of ultrasonics as a means of particle size control. *S.T.P. Pharm Sciences* 4(3): 220-225, 1994.

Soria I. and Zimmerman C.L. Intestinal absorption of (-)-carbovir in the rat. *Pharm. Res.* 11: 267-271, 1994.

Suryanarayanan R., Wu Q. and Rahman Y.E. Development of a suspension formulation of 1,2-dimethyl-3-hydroxypyrid-4-one (DMHP) for the treatment of iron overload. In *Medical and Surgical Paediatrics*, G.J. Kontoghiorghes and V. Carnelli, Eds., October 1994.

Zimmerman C.L., Iyer K.R., Faudskar II A.L. and Rimmel R.P. Glucuronidation as a transient intermediate metabolic step in the elimination of (-)-carbovir: identification of (-)-carbovir-5'-O-glucuronide in rat bile. *Drug Metabolism and Disposition* 21: 902-910, 1993.

Alumni News

Name _____

Work Address and Phone _____

Home Address and Phone _____

NEWS: _____

Please send news about yourself that we can include in the next newsletter. It's always a lift to learn about good things happening to former colleagues, so keep us up-to-date on your whereabouts. Any promising students to whom we can send graduate program application materials? We'll be happy to send information about the Department and University. We'd like to hear from you!

Please clip this form and mail to:
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