

E. R. Squibb & Sons, Inc.

  
SQUIBB

Georges Road  
New Brunswick, N.J. 08903  
201-545-1300

July 11, 1983

Glenda Jackson  
License Fee Management Branch  
Silver Spring Office  
Office of Administration  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Ref: License No. 29-00139-02

Dear Ms. Jackson:

This is to request an amendment to Squibb's  
Byproduct Material License No. 29-00139-02 to have  
Dr. M. D. Loberg replace Dr. S. Barker as a member of  
the Radiation Safety Committee.

Enclosed for your information is Dr. Loberg's  
resumé. Also enclosed is a check for the amendment fee  
of \$110.

Very truly yours,

RECEIVED BY LFMC
Date... 7/18/83
Log... July 4 Amendment
By... Brown
Orig. To.....
Action Compl. 7/22/83

John P. Gresh  
Radiation Safety Officer

/rk  
Enclosures

Applicant....	52224/7	mc	£8.
Check No....	110-3A		
Amount, Fee			
Type of Fee	Amendment		
USie Check rec'd	7/18/83		
Received By	Brown		3/2/84

Information in this record was deleted in  
accordance with the Freedom of Information Act.  
Exemption 6, 7  
FOIA/PA 201-0063

B504260261 B50415  
RE01 L1030  
29-00139-02 PDR

RECEIVED  
E/5 6/30/83  
3A  
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## CURRICULUM VITAE

### I. PERSONAL

NAME:

Michael Dewey Loberg, Ph.D.

(b)(6)

DATE OF BIRTH:

(b)(6)

PLACE OF BIRTH:

(b)(6)

CITIZENSHIP:

U.S.A.

MARITAL STATUS:

(b)(6)

HOME ADDRESS:

(b)(6)

Telephone:

(b)(6)

### II. EDUCATION

Undergraduate - B.S. degree in Chemistry - Trinity College,  
Hartford, Connecticut, (b)(6)

Graduate - M.S. degree in Chemistry - Washington University,  
St. Louis, Mo., (b)(6)

- Ph.D. degree in Chemistry - Washington University,  
St. Louis, Mo., (b)(6)

#### AWARDS:

Joseph V. Getlin Scholar, Trinity College 1965-1969

National Science Foundation Trainee 1969-1972

Radiation Research Society Travel Award 1972

Sigma Pi Sigma Honorary Physics Society

Best Scientific Paper Presented at the Mideastern Chapter Society  
of Nuclear Medicine Meeting, April 11-13, 1975

### III. EMPLOYMENT EXPERIENCE

July 1979 - Present

Director, Radiopharmaceutical Research  
and Development,  
E. R. Squibb & Sons, Georges Road  
New Brunswick, N.J. 08903

July 1977 - July 1979

Director, University of Maryland Central  
Nuclear Pharmacy, 636 W. Lombard Street  
Baltimore, Maryland 21201

July 1976 - July 1979

Associate Professor of Medicine, Pharmacy,  
and Medicinal Chemistry, University of  
Maryland, 22 S. Greene Street,  
Baltimore, Maryland 21201

7/11/83

ADDENDUM #1

RADIATION SAFETY COMMITTEE MEMBERSHIP

- 1) Mr. P. A. Rava, Committee Chairman, Director, Quality Control Services
- 2) Mr. F. Golub, Director, Personnel and Industrial Relations
- 3) Mr. G. Thompson, Head, Radiopharmaceutical Manufacturing
- 4) Mr. H. R. Harrison, V.P. and Regulatory Counsel
- 5) Dr. E. Banta, Director, Medical Services
- 6) Dr. M. Loberg, Director, Radiopharmaceutical Research and Development
- 7) Dr. P. P. Roets, Manager, Personnel and Industrial Hygiene and Safety
- 8) Dr. D. Benson, Manager, Radiopharmaceutical Quality Control
- 9) Mr. J. P. Gresh, Manager, Health Physics Department

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August 1973 - July 1976 Assistant Professor of Medicine and  
Assistant Professor of Pharmacy,  
University of Maryland, 22 S. Greene Street  
Baltimore, Maryland 21201

Sept. 1972 - Aug. 1973 Research Assistant, Washington University  
School of Medicine, St. Louis, Mo. 63110

#### IV. MEMBERSHIPS AND POSITIONS HELD IN SCIENTIFIC, PROFESSIONAL, AND SCHOLARLY SOCIETIES

- Member - American Physical Society  
Society of Nuclear Medicine  
American Association for the Advancement of Science  
Scientific Chairman for yearly Symposium on  
Radiopharmaceuticals sponsored by Mideastern  
Chapter, Society of Nuclear Medicine  
Radiopharmaceutical Science Council, 1976-1980
- Officer - Secretary/Treasurer, Mideastern Chapter, Society  
of Nuclear Medicine, 1978-1980
- Member - Board of Directors, Radiopharmaceutical Science  
Council, 1978-1980

#### V. HONORS AND EXTRAMURAL AWARDS

1. Pharmacokinetics of a Radiolabeled Derivative of Lidocaine; M.D. Loberg; Baltimore Research Award; \$910. Objective was to produce a gamma-emitting radiopharmaceutical capable of tracing the drug lidocaine in humans, 1974-1975.
2. Production of Radionuclidically Pure Iodine-123 Using a Medium Energy Cyclotron; M.D. Loberg; Bureau of Radiological Health; \$2800. The objective was to establish a Regional Radionuclide Production Center for Iodine-123 within the University of Maryland involving the Cyclotron at College Park and the Radiopharmaceutical facilities at Baltimore, 1975-present.
3. Development of Bifunctional Radiopharmaceuticals; M.D. Loberg, Co-investigators - P. Callery, A. Fields, and E. Harvey; National Institute of Health; \$160,000. The objective is to create a new class of radiopharmaceuticals in which a chelating group capable of binding gamma-emitting radiometals is attached to biologically active molecules thus forming a radioactive analog of the original compound, 1976-1978.
4. Development of Bifunctional Radiopharmaceuticals; Principal Investigator; Renewal of grant in Item 3; \$130,000, 1978-1981.

## VI. COMMITTEE SERVICE

Member - Human Use Subcommittee of the Radiation Safety Committee, UMBC, 1973-  
Research Liason Committee, UMBC, 1974-1975  
Graduate Programs, Courses, and Curricula Committee, School of Pharmacy, 1973-1976  
Guest Lecturers Committee, School of Pharmacy, 1975-1977

## VII. CONSULTING ACTIVITIES AND SERVICE TO SCHOLARLY AND PROFESSIONAL SOCIETIES, EDUCATIONAL OR GOVERNMENTAL AGENCIES

Educational Consultant to the Nuclear Regulatory Commissions Program in Graduate Education, Washington, D.C. (1974-1975)  
Educational Consultant to the U.S. Navy's Post-Graduate Residency Training Program, Bethesda, Maryland (1973-  
Educational Consultant to Georgetown University's Post-Graduate Training Program, Georgetown, Maryland (1973-1975)  
Educational Consultant to the Mideastern Chapter, Society of Nuclear Medicine's Continuing Education Program (1974-

## VIII. TEACHING

### A. Courses Taught

Pharmacy Practice, PHAR 450, 2 credits, 80 students, 8-10 contact hours on Radiopharmacy Practice, 1973-  
Basic Nuclear Science, MCHM 470, 3 credits, Coursemaster.  
Basic Nuclear Science Laboratory, MCHM 471, 1 credit, Coursemaster  
Clinical Nuclear Science A-D, PHAR 472, 4 credits, Coursemaster  
Clinical Nuclear Science Laboratory, PHAR 473, 1 credit, Coursemaster

### B. Master and Doctoral Thesis Candidates

Mr. Steven Sikorski, Masters Thesis, Pharmacokinetics of Technetium-N-(2,6-dimethylphenylcarbamoylmethyl)iminodiacetic acid, 1976.  
Mr. David Porter, Doctoral Thesis, Development of Tc-99m labeled hepatobiliary agents, expected summer of 1979.  
Johanne Travis, Masters Thesis candidate

## IX. PROFESSIONAL ACTIVITIES

### A. Lectures and Seminars

1. M.D. Loberg, C. Coble, N. Mullani, M. Straatman, and M.J. Welch: The application of small computers to the analysis of radio-gas chromatographic data. Presented at the Sixth International Hot Atom Chemistry Symposium, Brookhaven, New York, September, 1971.
2. M.D. Loberg and M.J. Welch: The reactivity of iodine atoms formed by the decay of Xenon-123. Presented at the Sixth International Hot Atom Chemistry Symposium, Brookhaven, New York, September 1971.

3. M.D. Loberg: In-vivo and in-vitro evaluation of radio-pharmaceutical kits. Nuclear Medicine Technology Symposium, Washington, D.C., November 10, 1973. Invited.
4. M.D. Loberg: Chemistry of technetium radiopharmaceuticals, Mideastern Section, Society of Nuclear Medicine, Washington, D.C., March 29, 1974. Invited.
5. M.D. Loberg: Chaired Symposium on Technetium Radiopharmaceuticals and presented paper entitled: Effective combinations of reducing and chelating agents, Mideastern Section, Society of Nuclear Medicine, Bethesda, Maryland, October 18, 1974.
6. M.D. Loberg: Role of the pharmacist in nuclear medicine. NABP - AACP District II Meeting, Albany, New York, October 24, 1974. Invited.
7. P.S. Callery, W.C. Faith, E.B. Harvey, and M.D. Loberg: Synthesis of a technetium-99m labeled analog of lidocaine for external imaging. Abstract, 169th Meeting of the American Chemical Society, Philadelphia, April, 1975.
8. M.D. Loberg, P.S. Callery, E.B. Harvey, W.C. Faith, and M.D. Cooper: Development of drug and biochemical analogues for use as radiopharmaceuticals. Presented at the 5th Annual Meeting of the Mideastern Chapter, Society of Nuclear Medicine, April, 1975.
9. E.B. Harvey, M.D. Loberg, and M.D. Cooper: <sup>99m</sup>Tc-labeled N-substituted iminodiacetic acid - A new radiopharmaceutical for hepatobiliary imaging. Presented at the 5th Annual Meeting of the Mideastern Chapter, Society of Nuclear Medicine, April, 1975.
10. M.D. Loberg: Quality control of radiopharmaceuticals Chesapeake Nuclear Medicine Technical Society, Mideastern Chapter, Society of Nuclear Medicine, April 2, 1975. Invited.
11. J. Quinlan, M. Loberg, R. Ollodart, M. Cooper, F. Dagher, and J. Frost: Detection of acute rejection in kidney transplants using radioiodinated autologous fibrinogen (RAF). 2nd Annual Scientific Session, The Kidney Foundation of Maryland, March, 1975.
12. M.D. Loberg, S. Wall, and M. Cooper: Feasibility study on the use of medium energy cyclotrons for the production of I-123. Bureau of Radiological Health Planning Symposium, May, 1975. Invited.

13. M.D. Loberg and M.D. Cooper: Performance and reproducibility of radiopharmaceuticals produced from kits for the labeling of autologous proteins and cells. Symposium on Standardization, Performance, and Quality Control in Nuclear Medicine, National Bureau of Standards, Gaithersburg, Maryland, June, 1975. Invited.
14. M.D. Loberg: Design of radiopharmaceuticals. Teaching and Training Symposium sponsored by E.R. Squibb & Sons, Williamsburg Virginia, September, 1975. Invited.
15. M.D. Loberg: Chaired Symposium on Drug Analogs and presented a paper entitled: Current methodologies for the radiolabeling of drugs and biochemicals. Mideastern Chapter, Society of Nuclear Medicine, Silver Spring, Maryland, Nov. 21, 1975. Invited.
16. M.D. Loberg: Radiolabeling of drug and biochemical analogs, Johns Hopkins University, Medical School, November, 1975. Invited.
17. M.D. Loberg: Radiopharmaceuticals based on N-substitution of iminodiacetic acid, New England Nuclear, Billerica, Mass. January, 1976.
18. M.D. Loberg: Use of radiolabeled drug analogs for the measurement of regional pharmacokinetics. Vanderbilt University, Nashville, Tenn., January, 1976.
19. M.D. Loberg: Chemistry of radiopharmaceuticals. April, 1976 meeting of the Chesapeake Chapter of the American Chemical Society. Invited.
20. M.D. Loberg: Drug analogs based on N-substituted iminodiacetic acid. Symposium on the Chemistry of Radiopharmaceuticals, Hahnemann Medical College, Philadelphia, Pa., April, 1976. Invited.
21. M.D. Loberg and A.T. Fields: Kinetic and thermodynamic description of exchange reaction between  $^{99m}\text{Tc}$ -HIDA and EDTA. Brookhaven National Laboratory, Long Island, New York, September, 1976.
22. M.D. Loberg: Comparison of Tc-99m labeled hepatobiliary agents. Annual Meeting of the Missouri Valley Chapter of the Society of Nuclear Medicine, St. Louis, Mo., October, 1977. Invited.
23. M.D. Loberg: Pharmacokinetics of Tc-99m labeled hepatobiliary agents. University of Chicago, Chicago, Ill., October, 1977. Invited.
24. M.D. Loberg: Clinical utility of various Tc-99m labeled hepatobiliary agents. Mid-winter Meeting, Mideastern Chapter, Society of Nuclear Medicine, October, 1977. Invited.

25. D. Porter, M.D. Loberg, E.B. Harvey and G.S. Johnston: Synthesis and biodistribution of Tc-99m-3 $\alpha$ :7 $\alpha$ :12 $\alpha$ -trihydroxy-24-norcholanyl-23 iminodiacetate (Tc-CIDA): A potential liver scanning agent. Annual Mideastern Chapter Meeting, April, 1977.
26. M.D. Loberg: Development of Tc-99m labeled bifunctional radiopharmaceuticals. Mid-Atlantic Regional Meeting of the American Chemical Society, Hunt Valley, Md., April, 1978. Invited.
27. M.D. Loberg, A.T. Fields and D.W. Porter: Radiochemically pure Tc-99m labeled fatty acid analogs. Mideastern Chapter Meeting, Society of Nuclear Medicine, April, 1978.
28. M.D. Loberg: Radiopharmaceutical distribution by active transport: The implications of non-linear kinetics. 1st International Symposium on Radiopharmacology, Innsbruck, Austria, May, 1978. Invited.
29. M.D. Loberg: Recent advances in radiopharmaceuticals derived from bifunctional chelating agents. Northeast Regional Meeting of the American Chemical Society, Boston, Mass., June, 1978. Invited.
30. M.D. Loberg, P.S. Callery, D.W. Porter, and A.T. Fields: Chemistry of technetium radiopharmaceuticals derived from bifunctional chelating agents. 2nd International Symposium on Radiopharmaceutical Chemistry, Oxford, England, July, 1978. Invited.
31. M.D. Loberg, E.S. Hedlund, and P.S. Callery: Uptake of technetium labeled radiopharmaceuticals by normal brain tissue. 2nd International Congress of World Federation of Nuclear Medicine and Biology, Washington, D.C., September, 1978.
32. D.W. Porter, M.D. Loberg, A.T. Fields, and P.S. Callery: Structure activity relationships (SAR) of Tc-99m labeled N-substituted iminodiacetates. 2nd International Congress of World Federation of Nuclear Medicine and Biology, Washington, D.C., September, 1978.
33. D.W. Porter, M.D. Loberg, P.I. Eacho and M. Weiner: Comparison of hepatobiliary agents in an in-vitro model. IX Annual Mideastern Chapter Meeting, Society of Nuclear Medicine, Ocean City, Md., April, 1979.

B. Service to Editorial Boards of Journals

Reviewer for:

1. Journal of Nuclear Medicine
2. International Journal of Applied Radiation Isotopes
3. Radiation Research



## XI. PUBLICATIONS - National Journals

1. M.D. Loberg: Ph.D. Thesis: The Chemical Reactions of Energetic Iodine Atoms with Simple Hydrocarbons, 1973.
2. M.D. Loberg, M.D. Phelps, and M.J. Welch: Preparation of pure carrier free Xenon-123 for rare gas washout studies. J. Nucl. Med., 14:733, 1973.
3. M.D. Loberg and M.J. Welch: The reaction of recoil iodine formed by the  $^{123}\text{Xe} + ^{123}\text{I}$  system with simple hydrocarbons: The effect of additives on the reactivity. J. Am. Chem. Soc., 95:1075, 1973.
4. M.D. Loberg, K.A. Krohn, and M.J. Welch: The reactions of recoil iodine formed by the  $^{123}\text{Xe} + ^{123}\text{I}$  system with simple hydrocarbons II. Pressure studies on the Methane and ethane systems. J. Am. Chem. Soc., 95:5496, 1973.
5. J.M.S. Henis, M.D. Loberg, and M.J. Welch: Ion molecule reactions in methyl halids. J. Am. Chem. Soc., 96:1665, 1974.
6. P. Hagan, M.D. Loberg, B.A. Rhodes, K. Harrison, M.D. Cooper: "Kit" preparation of radioiodinated autologous fibrinogen using iodine-131 monochloride. J. Nucl. Med., 15:974, 1974.
7. J. Quinlan, F. Dagher, R. Ollodart, M. Loberg, R. Mason, J. Frost, and M. Cooper: Early detection of acute rejection in renal allografts using radioiodinated autologous fibrinogen (RAF). Amer. J. Surg., 130:136, 1975.
8. M.D. Loberg, M.D. Cooper, E. Harvey, P. Callery, and B. Faith: Development of new radiopharmaceuticals based on N-substituted iminodiacetic acids. J. Nucl. Med., 17:633, 1976.
9. M.D. Loberg and A. Fields: Stability of  $^{99\text{m}}\text{Tc}$ -labeled N-substituted iminodiacetic acids: Ligand exchange reaction between  $^{99\text{m}}\text{Tc}$ -HIDA and EDTA. Int. J. Appl. Radiat., 28:687, 1977.
10. P. Callery, B. Faith, M. Loberg, E. Harvey, and M. Cooper: Tissue distribution of technetium-99m and carbon-14 labeled N-(2,6-dimethylphenylcarbamoylmethyl)iminodiacetic acid. J. Med. Chem., 19:952, 1976.
11. J. Ryan, M. Cooper, M. Loberg, E. Harvey, and S. Silorski:  $^{99\text{m}}\text{Tc}$ -[N-(2,6-dimethylphenylcarbamoylmethyl)]iminodiacetic acid (Tc-HIDA): A new radiopharmaceutical for hepatobiliary imaging studies. J. Nucl. Med., 18:997, 1977.
12. M.D. Loberg, and A. Fields: Chemical structure of technetium-99m labeled N-(2,6-dimethylphenylcarbamoylmethyl)iminodiacetic acid (Tc-HIDA). Int. J. Appl. Radiat. & Isotopes., 29:167, 1978.
13. A.T. Fields, D. Porter, P.S. Callery, E. Harvey, and M.D. Loberg: Synthesis and radiolabeling of technetium radiopharmaceuticals based on N-substituted iminodiacetic acid: Effect of radio-labeling conditions on radiochemical purity. Radiopharm. and Labeled Compounds, 15:387, 1978.

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