

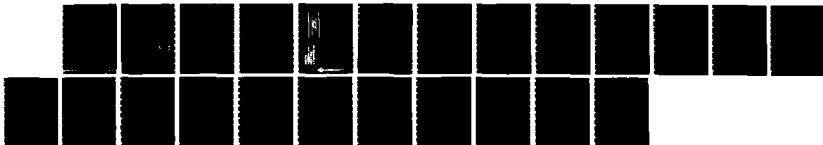
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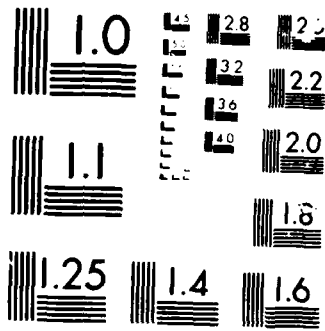
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NINTH AMERICAN PEPTIDE SYMPOSIUM
JUNE 23-28, 1985

FINAL REPORT

KENNETH D. KOPPLE

JUNE 30, 1986

Supported by

U.S. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND
Fort Detrick, Frederick, Maryland 21701-5012

Grant No. DAMD17-85-G-5039

Illinois Institute of Technology
Chicago, Illinois 60616

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REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION / AVAILABILITY OF REPORT Approved for public release; distribution unlimited.		
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE			4. PERFORMING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION Illinois Institute of Technology			6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION	
6c. ADDRESS (City, State, and ZIP Code) Chicago, Illinois 60616			7b. ADDRESS (City, State, and ZIP Code)		
8a. NAME OF FUNDING / SPONSORING ORGANIZATION U.S. Army Medical Research & Development Command		8b. OFFICE SYMBOL (If applicable) SGRD-RMI-S	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER DAMD17-85-G-5039		
8c. ADDRESS (City, State, and ZIP Code) Fort Detrick Frederick, Maryland 21701-5012			10. SOURCE OF FUNDING NUMBERS		
	PROGRAM ELEMENT NO. 62770A	PROJECT NO. 3M1- 62770A870	TASK NO. AC	WORK UNIT ACCESSION NO. 024	
11. TITLE (Include Security Classification) Ninth American Peptide Symposium					
12. PERSONAL AUTHOR(S) Kopple, Kenneth D.					
13a. TYPE OF REPORT Final		13b. TIME COVERED FROM 85/8/15 TO 86/4/14		14. DATE OF REPORT (Year, Month, Day) 86/6/30	15. PAGE COUNT 22
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP	Peptide Chemistry and Biology, Scientific Meeting		
06	03				
07	03				
19. ABSTRACT (Continue on reverse if necessary and identify by block number)					
<p>The Ninth American Peptide Symposium was held on the campus of the University of Toronto June 23-28, 1985. There were 685 registrants at the meeting, which dealt with the Chemistry and Biology of Peptides.</p> <p>The scientific record of the meeting is incorporated in the book of Abstracts, the meeting Program, and the published proceedings volume, <u>Peptides, Structure and Function, Proceedings of the Ninth American Peptide Symposium</u>, C.M. Deber, V.J. Hruby and K.D. Kopple editors, published by Pierce Chemical Co., Rockford, IL, 1985.</p> <p>About 370 papers were submitted as abstracts. Over 250 were accepted for presentation at one of the two two-day poster sections, and 40 more were presented as 10-minute talks. In addition there were 15 invited 25-minute talks and 8 speakers at two minisymposium sessions. Papers published in the proceedings volume totaled 209.</p>					
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT <input type="checkbox"/> UNCLASSIFIED/UNLIMITED <input checked="" type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED		
22a. NAME OF RESPONSIBLE INDIVIDUAL Jane B. Idoine			22b. TELEPHONE (Include Area Code) 301/663-7325	22c. OFFICE SYMBOL SGRD-RMS	

FINAL REPORT

NINTH AMERICAN PEPTIDE SYMPOSIUM
JUNE 23-28, 1985, TORONTO, ONTARIO, CANADA

The Ninth American Peptide Symposium, an open scientific meeting dealing with the Chemistry and Biology of Peptides, was held, as planned, on the Campus of the University of Toronto. June 23-28, 1985. Partial support of this meeting was provided by a grant from the U.S. Army Medical Research and Development Command, Fort Detrick, under Grant No. DAMD17-85-G-5039.

The scientific record of the Ninth American Peptide Symposium is incorporated in the book of Abstracts, the meeting Program, and the published proceedings volume, Peptides, Structure and Function, Proceedings of the Ninth American Peptide Symposium, C.M. Deber, V.J. Hruby and K.D. Kopple, editors, published by Pierce Chemical Co., Rockford, IL, 1985.

As the formal scientific report for Grant DAMD17-85-G-5039, 17 copies of the published proceedings volume were distributed as required by the grant document, separately from this report in April, 1986, to:

Commander
U.S. Army Medical Research and Development Command
4 copies ATTN: SGRD-RMS
12 copies ATTN: SGRD-PLA

Commander
U.S. Army Medical Research Acquisition Activity
1 copy ATTN: SGRD-RMA-RC

Attached as Appendix A to this report is the printed Program of the Symposium, which contains the titles of all papers, the names and affiliations of the authors, and the names of members of the Program Committee.

The Ninth American Peptide Symposium was attended by 664 regularly registered participants. Those participating represented about 25 nations. There were 445 scientists from the U.S., 55 from Canada, and more than 20 each from the United Kingdom, France, Japan and West Germany.

Over 370 papers were submitted to the Program Committee. More than 250 were accepted for presentation at poster sessions, and 40 were presented as 10-minute talks. In addition, there were 14 invited 25-minute talks, one award address, and 8 additional speakers at two minisymposium sessions. A total of 209 of the papers given at the meeting were published in the proceedings volume.

Appendix A: Program, Ninth American Peptide Symposium

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NINTH AMERICAN PEPTIDE SYMPOSIUM

PROGRAM

University of Toronto,
Toronto, Ontario, Canada

June 23-28, 1985

NINTH AMERICAN PEPTIDE SYMPOSIUM

University of Toronto,
Toronto, Ontario, Canada

June 23-28, 1985

CO-CHAIRMEN:

Dr. Charles M. Deber
Research Institute
The Hospital for Sick Children
Toronto, Ontario
Canada, M5G 1X8

Dr. Kenneth D. Kopple
Department of Chemistry
Illinois Institute of Technology
Chicago, Illinois 60616

NINTH AMERICAN PEPTIDE SYMPOSIUM

Monday, June 24, 1985

MORNING

- 7 30 REGISTRATION.
Medical Sciences Building, Main Auditorium
- 8 30 WELCOMING REMARKS:
Charles M. Deber,
University of Toronto, Toronto, Ontario, Canada;
Co-Chairman, Ninth American Peptide Symposium
George E. Connell,
President, University of Toronto
- ANTIGENIC SITES AND IMMUNOPEPTIDES**
Session Chair: Bruce W. Erickson,
The Rockefeller University, New York, NY, USA
- 8 45 ALGORITHMIC IDENTIFICATION OF ANTIGENIC DETERMINANTS IN
PROTEINS OF KNOWN STRUCTURE. (L-Mon-1)
David W. Fanning, John A. Smith and **George D. Rose**
*Pennsylvania State University, Hershey, PA, and Massachusetts General
Hospital and Harvard Medical School, Boston, MA, USA.*
- 9 15 EPI TOPE MAPPING OF BIOLOGICALLY ACTIVE REGIONS OF
HERPES SIMPLEX VIRUS GLYCOPROTEIN D. (L-Mon-2)
G.H. Cohen, D. Long, M. Ponce de Leon, V. Rinaldi and R. J. Eisenberg
University of Pennsylvania, Philadelphia, PA, USA.
- 9 45 ENHANCEMENT OF IMMUNE RESPONSE USING B-LYMPHOCYTE
MITOGENS COVALENTLY LINKED TO ANTIGENS (L-Mon-3)
G. Jung, G. Becker, K.-H. Wiesmüller, J. Metzger, L. Biesert, W. G.
Bessler, H. Bühring, and C. Mueller. *Universität Tübingen, Tübingen,
FRG.*
- 10 00 A NOVEL CROSSLINKING AGENT AND ITS APPLICATION (L-Mon-4)
Lois Aldwin and **Danute E. Nitecki**. *Cetus Corporation, Emeryville, CA,
USA.*
- 10 15 ANTAGONISTIC ANALOGS OF HUMAN TRANSFORMING GROWTH
FACTOR ALPHA. (L-Mon-5)
J.J. Nestor, Jr., S.R. Newman, B. DeLustro, and A.B. Schreiber. *Institutes
of Bio-Organic Chemistry and Biological Sciences, Syntex, Palo Alto,
CA, USA.*
- 10 30 COFFEE
- 11 00 SYNTHETIC 30-50 PEPTIDE FRAGMENT OF CHOLERA TOXIN β
CHAIN BINDS TO GM₁ GANGLIOSIDE (L-Mon-6)
R. H. Reid, C. A. Hooper, R. L. Richards, C. R. Alving, R. C. Seid, and R.
H. Boykins. *Walter Reed Army Ins. of Res., Washington, DC, USA.*
- 11 15 ISOLATION AND CHARACTERIZATION OF "NATIVE" AND
RECOMBINANT EGLIN C FROM E. COLI, SELECTIVE PROTEINASE
INHIBITORS FOR HUMAN LEUKOCYTE ELASTASE, CATHEPSIN G
AND CHYMOTRYPSIN (L-Mon-7)
W. Merkl, H. Rink, P. Sieber, R. Knecht, H.P. Schnebli and M. Liersch. F.
Raschdorf and W. Richter. *Ciba-Geigy Ltd., Switzerland.*

PLANNING COMMITTEE

Charles M. Deber, *University of Toronto*
Lila M. Gierasch, *University of Delaware*
Victor J. Hruby, *University of Arizona*
Kenneth D. Kopple, *Illinois Institute of Technology*
Garland R. Marshall, *Washington University, St. Louis*
Miguel A. Ondetti, *Squibb Research Laboratories*
Daniel H. Rich, *University of Wisconsin*
Jean E. Rivier, *The Salk Institute*
Michael Rosenblatt, *Merck Sharp and Dohme Research Labs*
Peter W. Schiller, *Clinical Research Institute of Montreal*
Clark W. Smith, *The Upjohn Company*
John M. Stewart, *University of Colorado*
Daniel F. Veber, *Merck Sharp and Dohme Research Labs*

PROGRAM COMMITTEE

Michael J. Brownstein, *National Institutes of Health*
Charles M. Deber, *University of Toronto*
Bruce W. Erickson, *Rockefeller University*
Victor J. Hruby, *University of Arizona*
Kenneth D. Kopple, *Illinois Institute of Technology*
Danute E. Nitecki, *Cetus Corporation*
Jean E. Rivier, *The Salk Institute*
Peter W. Schiller, *Clinical Research Institute of Montreal*
Daniel F. Veber, *Merck Sharp and Dohme Research Labs*

- 11 30 PROPERTIES OF INTERFERON- α_2 ANALOGUES PRODUCED FROM SYNTHETIC GENES (L-Mon-8)
R. Camble, M.D Edge and **VE Moore** *ICI Pharmaceuticals Division, Mereside, Cheshire, UK*
- 12 00-1 30 LUNCH
 (Hart House, University College, Ferguson House)
- Afternoon**
- 1 30 **PHYSICAL METHODS AND CONFORMATION**
 Session Chair: **Victor J. Hruby**,
University of Arizona, Tucson, AZ, USA
- 2 00 DESIGN, SYNTHESIS, AND CONFORMATION OF SUPERACTIVE THYMOPOLYETIN-ANALOGUES (L-Mon-9)
H. Kessler, B Kutscher, A Klein, R Kersebaum, H Mullner, R Obermaier *Goethe University, Frankfurt, West Germany*
- 2 00 CONFORMATIONAL ANALYSIS OF CONOTOXIN AND ITS ANALOGUE BY NMR MEASUREMENTS AND DISTANCE GEOMETRY ALGORITHM (L-Mon-10)
Y. Kobayashi, T Ohkubo, Y Kyogoku, Y Nishuchi, S Sakakibara, W Braun and N Go *Osaka University, Osaka; Peptide Inst., Osaka; Kyushu University, Fukuoka, Japan*
- 2 15 DETECTION AND SEQUENTIAL CHARACTERIZATION OF AIB-CONTAINING POLYPEPTIDES ("PEPTAIBOLS") AND UTILIZATION OF THEIR NATURAL MICROHETEROGENEITY FOR AN ASSIGNMENT OF NMR RESONANCES (L-Mon-11)
Hans Brückner, Michael Bokel, and Michael Przybylski *University of Hohenheim, Stuttgart; University of Mainz, FRG*
- 2 30 ENERGETICS AND DYNAMICS OF A PEPTIDE CRYSTAL (L-Mon-12)
 David H Kitson and **A.T. Hagler** *The Agouron Institute, La Jolla, CA, USA*
- 2 45 A METRIC ANALYSIS OF MINIMUM ENERGY CONFORMATIONS OF LYSINE VASOPRESSIN GENERATED USING MOLECULAR DYNAMICS SIMULATION (L-Mon-13)
Judith C. Hempel *Smith Kline and French Laboratories, Philadelphia, PA, USA*
- 3 00 CRYSTAL STRUCTURE ANALYSIS OF OXYTOCIN (L-Mon-14)
J.E. Pilts, S.P Wood, I J Tickle, S Cooper, A M Treharne, J Husain, Y Mascarenas, J Y Li, T.L. Blundell, V.J Hruby, and H.R. Wyssbrod *Birkbeck College, University of London, U.K.; University of Arizona, Tucson, AZ; Mount Sinai School of Medicine, New York, NY, USA*
- 3 15 COFFEE
- 3 45 4-ZINC HUMAN INSULIN CONFORMATIONAL FLEXIBILITY AND ITS EFFECT ON STABILITY AS DETERMINED BY X-RAY CRYSTALLOGRAPHY (L-Mon-15)
G.D. Smith, D.C Swenson, E J Dodson, G G Dodson and C D Reynolds *Medical Foundation of Buffalo, Inc., Buffalo, NY, USA; University of York, York, England*
- 4 00 VIBRATIONAL CIRCULAR DICHROISM OF OLIGOPETIDES AND PROTEINS A NEW LOOK AT AN OLD PROBLEM IN BIOCHEMISTRY (L-Mon-16)
T.A. Kelderling, S.C Yasui, A.C. Sen, C. Toniolo and G.M. Buñón *University of Illinois at Chicago, Chicago, IL, USA; University of Padova Padova, Italy*
- 4 15 A NICKEL BINDING PEPTIDE FROM HUMAN KIDNEY (L-Mon-17)
B. Sarkar and D.M. Templeton *The Hospital for Sick Children Toronto University of Toronto, Toronto, Ontario, Canada*
- 4 30 SYNTHESIS AND TRANSANNULAR REACTION OF CYCLOTRIPETIDES CONTAINING SECONDARY AMIDE GROUPS THE ANSWER TO A PROBLEM UNSOLVED FOR MORE THAN 30 YEARS (L-Mon-18)
M. Rothe, M. Fährle, K. Feige, W. Mastle *University of Ulm, Ulm, FRG*
- 4 45 MOLECULAR CORRELATIONS OF TASTE (L-Mon-19)
M. Goodman, M. Hassan, J. Bland, P.A. Temussi, T. Tancredi and F. Lejl *University of California, San Diego, La Jolla, CA, USA; University of Naples, Naples, Italy*
- Tuesday, June 25, 1985**
Morning
- SEMISYNTHESIS**
 Session Chair: **Daniel H. Rich**,
University of Wisconsin, Madison, WI, USA
- 8 30 SEMISYNTHETIC PEPTIDES AND PROTEINS (L-Tue-1)
R.E. Offord *Université de Genève, Genève, Switzerland*
- 9 00 SITE-SPECIFIC MUTAGENESIS (L-Tue-2)
 Robert C. Davenport, Jr. and **Gregory A. Petsko** *Massachusetts Institute of Technology, Cambridge, MA, USA*
- 9 30 PEPTIDE SEGMENT COUPLING BY USE OF ACYL DISULFIDES (L-Tue-3)
Donald Yamashiro *University of California, San Francisco, CA, USA*
- 9 45 SEMISYNTHESIS OF α -CHAIN OF HEMOGLOBIN S V8-PROTEASE CATALYZED CONVERSION OF THE NON-COVALENT FRAGMENT SYSTEM TO COVALENT FORM (L-Tue-4)
A.S. Acharya, S.A. Khan, and R. Seetharam *The Rockefeller University, New York, NY, USA*
- 10 00 FMOC AMINO-ACID PENTAFLUOROPHENYL ESTERS - VERSATILE NEW REAGENTS IN SOLID PHASE PEPTIDE SYNTHESIS (L-Tue-5)
E. Altherton, Alison Dryland, P. Goddard, and R.C. Sheppard *MRC Laboratory of Molecular Biology, Cambridge, England*
- 10 15 COFFEE

MINISYMPOSIUM: PROBLEMS IN PEPTIDE COUPLING

Chair: **Bruce Merrifield**

The Rockefeller University, New York, NY, USA

COUPLING OF LARGE PROTECTED PEPTIDE FRAGMENTS IN TRIFLUOROETHANOL SYNTHESIS OF THYMOSIN α_1 (L-Tue-M1)
Arthur M. Felix, Hoffmann-La Roche Inc., Nutley, NJ, USA.

THE IMPACT OF SECONDARY STRUCTURE FORMATION IN PEPTIDE SYNTHESIS. (L-Tue-M2)

M. Mutter, K.-H. Altmann, A. Florshemer, J. Herbert, M. Huber, B. Klein and T. Vorherr, *University of Basel, Basel, Switzerland.*

DIFFICULT SEQUENCES IN STEPWISE PEPTIDE SYNTHESIS COMMON MOLECULAR ORIGINS IN SOLUTION AND SOLID PHASE? (L-Tue-M3)

Stephen B.H. Kent, *California Institute of Technology, Pasadena, CA, USA.*

DISCUSSION

LUNCH

12:00-1:30

Afternoon

NON-PROTEIN AMINO ACIDS, GLYCOPEPTIDES

Session Chair: **Daniel F. Veber**, *Merck Sharp and Dohme Research Laboratories, West Point, PA, USA.*

1 30 ASYMMETRIC SYNTHESIS OF NON-PROTEINOGENIC AMINO ACIDS (L-Tue-6)
Ulrich Scholköpl, *Institute für Organische Chemie der Universität, Göttingen, FRG.*

2 00 NOVEL CONFORMATIONALLY CONSTRAINED AMINO ACIDS AS SUITABLE SUBSTITUTIONS FOR LYSINE-9 IN SOMATOSTATIN ANALOGS (L-Tue-7)

R.F. Nutt, P.E. Curley, R. Saperstein, D.F. Veber, *Merck Sharp & Dohme Research Laboratories, West Point, PA, USA.*

2 15 (N-N-BIS[2-OXO-3-OXAZOLIDINYL]-PHOSPHORODIAMIDIC CHLORIDE AS A COUPLING REAGENT FOR N-ALKYL AMINO ACIDS (L-Tue-8)

Roger D. Tung and **D.H. Rich**, *University of Wisconsin, Madison, WI, USA.*

2 30 CHEMICAL SYNTHESIS OF GLYCOPEPTIDES. (L-Tue-9)

Andre A. Pavla, *Université de Avignon, Avignon, France.*

POSTER SESSION "MTU"

Medical Sciences Building, Lobby and Second Floor
(Odd-numbered Posters to be attended 3:00-4:30
Even-numbered Posters to be attended 4:30-6:00)

Wednesday, June 26, 1985

Morning

PEPTIDE HORMONES

Session Chair: **John M. Stewart**,
University of Colorado, Denver, CO, USA.

8 30 CONFORMATIONAL PROPERTIES OF GASTRIN RELATED PEPTIDES. (L-Wed-1)

E. Peggion, M.T. Foffani, S. Mammi, M. Goodman, L. Moroder, E. Wünsch, *University of Padua, Padua, Italy, University of California at San Diego, La Jolla, CA, USA; Max-Planck Institut für Biochemie, Martinsried bei München, West Germany.*

8 45 A NEW PROCEDURE FOR ^3H -LABELLING METHIONINE-CONTAINING PEPTIDES. APPLICATION OF THE LABELLING OF METHIONINE-AMIDE, SUBSTANCE P AND NEUROKININS A AND B (L-Wed-2)

Jean-Louis Morgat, Roger Genet, Pierre Fromageot, Gérard Chassaing, Solange Lavielle and Andrée Marquet, *Centre d'Etudes Nucléaires de Saclay, Gif-sur-Yvette, France; Université Pierre et Marie Curie, Paris, France.*

9 00 DESIGN AND SYNTHESIS OF ORALLY ANTAGONISTS OF THE ANTIURETIC (V₂) AND VASOPRESSOR (V₁) RESPONSES TO ARGININE VASOPRESSIN (AVP). (L-Wed-3)

M. Manning, A. Misicka, S. Stoev, E. Nawrocka, W.A. Kils, A. Olma, K. Bankowski, J. Seto and W.H. Sawyer, *Medical College of Ohio, Toledo, OH; College of Physicians and Surgeons of Columbia University, New York, NY, USA.*

9 30 MOLECULAR SITES OF OXYTOCIN INACTIVATION IN THE RAT UTERUS: IN VITRO INVESTIGATION WITH "ENZYME PROBES" USING OIL-IMMERSION TECHNIQUE. (L-Wed-5)

V. Pilaka, G. Jutz and S. Beck, *Technische Hochschule Zurich, Zurich, Switzerland.*

9 45 DISCRIMINATION BETWEEN PARATHYROID HORMONE (PTH) AGONISTS AND ANTAGONISTS IN VITRO: MODIFICATION OF THE RENAL MEMBRANE ADENYLATE CYCLASE ASSAY TO REFLECT IN VIVO ACTIVITY OF PTH ANALOGS (L-Wed-6)

Lynn H. Caporale, Patricia A. DeHaven, George A. Tyler and Michael Rosenblatt, *Merck Sharp & Dohme Research Laboratories, West Point, PA, USA.*

10 00 COFFEE

10 15 NOVEL SIDE-CHAIN TO SIDE-CHAIN LINKED CYCLIC OPIOID PEPTIDE MONOMERS AND DIMERS. SYNTHESIS AND ACTIVITY PROFILES (L-Wed-7)

P.W. Schiller, T.M.-D. Nguyen, C. Lemieux and L.A. Mazziak, *Clinical Research Institute of Montreal, Montreal, Que., Canada.*

9:30	RELATIONSHIPS OF CONFORMATION TO BIOLOGICAL ACTIVITY FOR CONFORMATIONALLY CONSTRAINED DELTA RECEPTOR SPECIFIC CYCLIC ENKEPHALINS (L-Wed-8) V.J. Hruby L-F Kao, T.K. Burks and L.D. Hirning <i>University of Arizona, Tucson, AZ, USA</i>	9:30	COMPARISON OF THE STRUCTURES OF INHIBITORS AND A SUBSTRATE ANALOG OF ANGIOTENSIN CONVERTING ENZYME (L-Thu-4) Alice Vrieland and Penelope W. Coddling <i>University of Calgary, Calgary, Alberta, Canada</i>
10:45	POTENT CONFORMATIONALLY CONSTRAINED ANALOGS OF GnRH (L-Wed-9) J. Varga, J. Porter, M. Perrin, Y. Haas, A. Corrigan, S. Struthers, C. Rivier, A. Hagler, W. Vale and J. Rivier <i>The Salk Institute, La Jolla, CA, The Agouron Institute, La Jolla, CA, USA</i>	9:45	LARGE-SCALE N-CARBOXYANHYDRIDE PREPARATION OF L-ALANYL-L-PROLINE AND N ₂ (TRIFLUOROACETYL)-L-LYSYL-L-PROLINE; SYNTHESIS OF THE ACE INHIBITORS ENALAPRIL AND LISINAPRIL (L-Thu-5) Thomas J. Blacklock, R. F. Shuman and John W. Butcher <i>Merck Sharp & Dohme Research Laboratories, Rahway, NJ, USA</i>
11:00	PIERCE AWARD LECTURE: ROBERT SCHWYZER <i>Introduction: Kenneth D. Kopple, Illinois Institute of Technology, Chicago, IL, USA; Co-Chairman, Ninth American Peptide Symposium.</i> PEPTIDE CHEMISTRY AS A TOOL IN MOLECULAR BIOLOGY. Robert Schwyzler , <i>Swiss Federal Institute of Technology (E.T.H.), Zurich, Switzerland</i>	10:00	A NEW APPROACH TO THE SYNTHESIS OF PEPTIDE ALDEHYDE INHIBITORS (L-Thu-6) R.J. Beynon, J. Chetland, I.J. Galpin and M.T. Mulligan <i>University of Liverpool, Liverpool, England</i>
12:00	LUNCH	10:15	COFFEE
5:30-8:00	WINE-AND-CHEESE RECEPTION Great Hall, Hart House	10:30	STRUCTURE-ACTIVITY RELATIONSHIPS IN CONOTOXINS (L-Thu-7) William R. Gray <i>University of Utah, Salt Lake City, UT, USA</i>
		11:00	SNAKE VENOM NEUROTOXINS; CONFORMATION AND TOPOGRAPHY OF THEIR BINDING TO NICOTINIC ACETYLCHOLINE RECEPTOR (L-Thu-8) Vi. Teetlin , <i>Shemyakin Institute of Bioorganic Chemistry, Academy of Sciences, Moscow, USSR</i>
		11:30	MICROBIAL FERMENTATIONS AS A SOURCE OF PEPTIDE RECEPTOR LIGANDS (L-Thu-9) G. Albers-Schönberg, R. Chang, V. Lotti, T. Chen, R. Monaghan, J. Birnbaum, E. Stapley, M. Goetz, J. Lopez, J. Liesch, O. Hensens, J. Springer , <i>Merck Sharp & Dohme Research Laboratories, Rahway, NJ, USA</i>
		12:00-1:30	LUNCH
			Afternoon
			PEPTIDE-LIPID INTERACTIONS
			<i>Chair: Peter W. Schiller, Clinical Research Institute of Montreal, Montreal, Quebec, Canada</i>
8:30	"TRANSITION STATE" SUBSTITUTED RENIN INHIBITORY PEPTIDES. STRUCTURE-CONFORMATION-ACTIVITY STUDIES ON N ^m -FORMYL-TRP AND TRP MODIFIED CONGENERS (L-Thu-1) T.K. Sawyer, D.T. Pals, C.W. Smith, H. Saneii, J.B. Hester, R.E. TenBrink, D.J. Staples, A.E. deVaux, J.A. Alfholter, G.F. Skala, B. Kamdar, D.E. Emmert, J. Lawson, W. Kati and M. Schuette , <i>The Upjohn Company, Kalamazoo, MI, USA</i>	1:30	DESIGN AND CONSTRUCTION OF PEPTIDES AND PROTEINS WITH AMPHIPHILIC SECONDARY STRUCTURES (L-Thu-10) E.T. Kaiser , <i>The Rockefeller University, New York, NY, USA</i>
9:00	POTENT INHIBITORS OF HOG AND HUMAN RENIN CONTAINING AN AMINOALCOHOL DIPEPTIDE SURROGATE (L-Thu-2) D.E. Ryono, C.A. Free, R. Neubeck, S.G. Samaniego and E.W. Petrillo, Jr , <i>The Squibb Institute for Medical Research, Princeton, NJ, USA</i>	2:00	THE AMPHIPATHIC HELIX IN PHOSPHOLIPID-PROTEIN INTERACTIONS: THE ROLE OF HYDROPHOBICITY AND HELICAL POTENTIAL (L-Thu-11) James T. Sparrow , Henry J. Pownall, Gabriel Ponsin, Pradip K Bhatnagar, Giroom G. Chang, and Antonio M. Gotto, Jr <i>Baylor College of Medicine, Houston, TX, USA</i>
9:15	A STEREOCONTROLLED SYNTHESIS OF HYDROXYETHYLENE DIPEPTIDE ISOSTERES USING NOVEL CHIRAL AMINOALKYL EPOXIDES. NEW RENIN INHIBITOR ANALOGS (L-Thu-3) Ben E. Evans, Kenneth E. Rittle, James P. Springer, Martin P. Poe, Edgar H. Ulim and Daniel F. Veber <i>Merck Sharp & Dohme Research Laboratories, West Point, PA, USA</i>	2:30	CONFORMATIONAL PROPERTIES AFFECTING THE BIOLOGICAL ACTIVITY OF SALMON CALCITONIN (L-Thu-12) Richard M. Epand, Raquel F. Epand, R.C. Orłowski and J.K. Seyler , <i>McMaster University Health Sciences Centre, Hamilton, Ontario, Canada; Armour Pharmaceutical Company, Kankakee, IL, USA</i>

2:45

HYDROPHOBIC PEPTIDE INHIBITORS OF SICKLE HEMOGLOBIN AGGREGATION HAVE SIMILAR STRUCTURAL FEATURES (L-Thur-13)
S.K. Burley, A.H.-J. Wang, J.R. Volano and A. Rich *Massachusetts Institute of Technology, Cambridge, MA, USA.*

3:00-6:00

POSTER SESSION "WTh"
Odd-numbered posters to be attended 3:00-4:30.
Even-numbered posters to be attended 4:30-6:00

7:00

Cocktail Hour and "CANADA SEA-TO-SEA" BANQUET
Old Mill Restaurant, Etobicoke, Ontario
(Buses depart from King's College Circle, adjacent to the Medical Sciences Building at 6:30 P.M.)

Friday, June 28, 1985

Morning

MINISYMPOSIUM:

ATRIAL NATRIURETIC FACTORS

Chair: Ralph F. Hirschmann, Merck, Sharp and Dohme Research Laboratories, Rahway, NJ, USA. (L-Fri-M)

8:30-12:00

HISTORICAL INTRODUCTION AND OVERVIEW

Adolfo J. de Bold, Queen's University, Kingston, Canada.

PHYSIOLOGIC ROLE OF ANF.

Marc Cantlin, Clinical Research Institute of Montreal, Montreal, Canada.

STUDIES WITH ANF RECEPTORS.

Mary A. Napier, Merck, Sharp and Dohme Research Laboratories, Rahway, NJ, USA.

COFFEE

MOLECULAR FORMS AND DISTRIBUTION IN MAMMALIAN TISSUES AND PLASMA OF ATRIAL NATRIURETIC POLYPEPTIDES.

Hisayuki Matsuo, Miyazaki Medical College, Miyazaki, Kiyotake, Japan.

PHARMACOLOGY OF THE ATRIAL PEPTIDES.

Philip Needleman, Washington University School of Medicine, St. Louis, MO, USA.

CLINICAL STUDIES.

Michael Rosenblatt, Merck Sharp & Dohme Research Laboratories, West Point, PA, USA.

DISCUSSION

SYMPOSIUM CLOSES

12:00

POSTER SESSION "MTu"

HYDROGEN ION TITRATION OF CONFORMATIONALLY RESTRICTED ANGIOTENSIN II ANALOGS

L. Juliano, A. Miranda, C. R. Nakate and A. C. M. Paiva *Escola Paulista de Medicina, Sao Paulo, Brazil*

P-MTu-1

INVESTIGATION OF THE PATHWAY OF PROTEIN FOLDING BY SITE-SPECIFIC CHEMICAL MODIFICATION AND FLUORESCENCE EXCITATION ENERGY-TRANSFER MEASUREMENTS

D. Amir and E. Haas *Bar-Ilan University, Ramat-Gan, Israel*

P-MTu-2

SYNTHESIS OF (R)- AND (S)-1-AMINO-[2,2-²H₂]CYCLOPROPANE-1-CARBOXYLIC ACIDS. A DOUBLE VIOLATION OF SCHOLLKOPF'S RULE

Pullachipatti K. Subramanian and Ronald W. Woodard *College of Pharmacy, University of Michigan, Ann Arbor, MI, USA.*

P-MTu-3

THE DIFFERENTIATION OF π - AND τ -DERIVATISED HISTIDINES

Roberto Colombo, Fabio Colombo, Andrew E. Derome, Francesca Fontana, John H. Jones, Daniel L. Rathbone, and David W. Thomas *University of Milan, CNR and Scientific Institute S. Raffaele, Milan, Italy. University of Oxford, Oxford, U.K.*

P-MTu-4

DITHIOETHER-CONTAINING CYCLIC ENKEPHALIN ANALOGS

Henry I. Moberg and John R. Omnaas *College of Pharmacy, University of Michigan, Ann Arbor, MI, USA.*

P-MTu-5

DESIGN, SYNTHESIS AND BIOLOGICAL ACTIVITY OF TOPOLOGICALLY RELATED PARTIAL NON-PEPTIDIC-PEPTIDOMIMETIC ANALOGS OF SUBSTANCE P AND ENKEPHALIN

E. Rubini, U. Wormser, D. Levian-Teitelbaum, C. Gilon, Z. Selinger and M. Chorev. *The Hebrew University of Jerusalem, Jerusalem, Israel.*

P-MTu-6

THE SYNTHESIS AND SAR OF ORALLY ACTIVE ENKEPHALIN ANALOGS WITH MODIFIED N-TERMINAL TYROSINE RESIDUES

Donald W. Hansen Jr., Robert H. Mazur, Michael Clare *Searle Research and Development, Skokie, IL, USA.*

P-MTu-7

SYNTHESIS AND BIOLOGICAL ACTIVITIES OF FOUR NEW PHOTOAFFINITY LABELLING ANALOGUES OF LHRH

Zbigniew Mackiewicz, Ginette Lagacé, Michelle Beauchesne, Serge Bélisle, Diego Bellabarba, Nicole Gallo-Payet, Jean-Guy Lehoux and Emanuel Escher. *University of Sherbrooke, Sherbrooke, Quebec, Canada.*

P-MTu-8

A CYCLIC HEXAPEPTIDE LH-RH ANTAGONIST

Roger M. Freidinger, C. Dyllon Colton, Richard Saperstein, Edward J. Brady, William C. Randall, and Daniel F. Veber. *Merck Sharp & Dohme Research Laboratories, West Point, PA, USA.*

P-MTu-9

CYCLIC β -CYANOENAMINES AS CONFORMATIONALLY RIGID ANALOGS OF THE PEPTIDE BOND

D. S. Kemp and Jeffery Carter. *Massachusetts Institute of Technology, Cambridge, MA, USA.*

P-MTu-10

EXAMINATION OF THE CONFORMATIONAL REQUIREMENTS OF GLUCAGON AT ITS RECEPTOR

John L. Krstenansky, Beat Gysin, Dev Trivedi, and Victor J. Hruby *University of Arizona, Tucson, AZ, USA*

P-MTu-11

- P-MTu-12 INTRAMOLECULAR MOBILITY IN A CYCLIC OCTAPEPTIDE EFFECT ON SPIN LATTICE RELAXATION IN THE ROTATING FRAME
Kenneth D. Koppie and Yu-Sen Wang *Illinois Institute of Technology, Chicago, IL, USA*
- P-MTu-13 AN EXPOSED BACKBONE IN L¹-PERHYDROANTAMANIDE, AN INACTIVE ANALOG OF THE CYCLIC DECAPEPTIDE ANTAMANIDE
Isabella L. Karle *Naval Research Laboratory, Washington, DC, USA*
- P-MTu-14 SYNTHESIS AND CONFORMATIONAL ANALYSIS OF THREE DEHYDROPHENYLALANINE-CONTAINING MODEL CYCLIC PENTAPEPTIDES
Alvin C. Bach II, Lila M. Gierasch, and Arnold L. Rheingold *University of Delaware, Newark, DE, USA*
- P-MTu-15 A 500 MHz NMR STUDY OF THE 20-31 FRAGMENT OF CALMODULIN OF THE CORRESPONDING CYCLIC ANALOG
A. Motta, T. Tancredi, P. A. Temussi *Istituto Chimica MIB of CNR and University of Naples, Arco Felice, Italy*
- P-MTu-16 A SYNTHETIC OLIGOPEPTIDE SIGNAL PEPTIDE OF BACTERIORHODOPSIN
Paul Wrede, Georg Buldt, Benno Hess and **Martin Engelhard** *Freie Universität Berlin, Berlin, FRG; Max-Planck-Institut für Ernährungsphysiologie, Dortmund, FRG*
- P-MTu-17 BIOPHYSICAL STUDIES OF GENETICALLY-DEFINED SYNTHETIC SIGNAL SEQUENCES
M. S. Briggs, D. G. Cornell, G. J. Feulner, D. W. Hoyt, C. J. McKnight, A. N. Stroup, and L. M. Gierasch *University of Delaware, Newark, DE, Yale University, New Haven, CT; Eastern Regional Research Center, Philadelphia, PA, USA*
- P-MTu-18 THE CONFORMATIONAL PROPERTIES OF THR-RESIDUE
I.Z. Slemion, K. Sobczyk and M. Lisowski *Wroclaw University, Poland*
- P-MTu-19 SYNTHESIS OF FLUORESCENT SIGNAL PEPTIDES AND THEIR INTERACTION WITH MODEL MEMBRANES
M. Joseph and R. Nagaraj *Centre for Cellular & Molecular Biology, Hyderabad, India*
- P-MTu-20 SYNTHESIS OF APOLIPOPROTEIN C-II PEPTIDES AND STUDIES OF THEIR ACTIVATION OF LIPOPROTEIN LIPASE
Patrick Kanda, Michael F. Rohde, Antonio M. Gotto, Jr., and James T. Sparrow *Baylor College of Medicine and the Methodist Hospital, Houston, TX, USA*
- P-MTu-21 ¹H- and ³¹P-NMR STUDIES OF MORPHINE, MET-ENKEPHALIN AND ENDORPHIN BINDING TO DODECYLPHOSPHORYLCHOLINE
Pierluigi Gariboldi *Dipartimento di Chimica Organica e Industriale dell'Università di Milano, Milano, Italy*
- P-MTu-22 CHARACTERIZATION OF HYDROPHOBIC PEPTIDES BY MASS SPECTROMETRY: FAB/MS STUDIES OF M13 LEADER PEPTIDE
A. Eisenberg Shinnar, E. T. Kaiser and Steven Carr *The Rockefeller University, New York; Smith, Kline, French, Philadelphia, PA, USA*
- P-MTu-23 SYNTHETIC PEPTIDE ANALOGS OF APOLIPOPROTEINS
G. M. Anantharamiah, Christine G. Brouillette, Byung H. Chung, Charlie F. Schmidt, Ali Gawish and Jere P. Segrest *University of Alabama at Birmingham, Birmingham, AL, USA*
- P-MTu-24 INTERACTION OF OPIOID PEPTIDES WITH MODEL MEMBRANES: ¹H-NMR EVIDENCE FOR THE FORMATION OF A FOLDED STRUCTURE OF β -ENDORPHIN IN MICELLAR SYSTEMS
Lucia Zetta *Istituto Chimica Macromolecole, Milano, Italy*
- P-MTu-25 STRUCTURAL STUDIES OF INTERLEUKIN 2
Thomas L. Clardell, Robert Gadski, Joann Strnad, Larry Butler, and Kendall Smith *Dartmouth Medical School, Hanover, NH, The Lilly Research Laboratories, Eli Lilly & Co., Indianapolis, IN, The Veterans Administration Hospital, White River Jct., VT, USA*
- P-MTu-26 CONFORMATION OF THE TRI-PROLINE SEQUENCE OF MYELIN BASIC PROTEIN
Paul E. Fraser and Charles M. Deber *University of Toronto, The Hospital for Sick Children, Toronto, Ontario, Canada*
- P-MTu-27 EMPIRICAL RULES PREDICTING CONFORMATION OF CYCLIC TETRAPEPTIDES FROM PRIMARY STRUCTURE
Tetsuo Kato, Sannamu Lee, Yasuyuki Shimohigashi, and Nobuo Izumiya *Kyushu University, Fukuoka University, Fukuoka, Japan*
- P-MTu-28 CONFORMATION OF CYCLO-(L-PROLYL-GLYCYL)₃ IN ITS COMPLEX WITH SODIUM AND CALCIUM
K. Krishna Bhandary and Gopinath Kartha *Roswell Park Memorial Institute, Buffalo, NY, USA*
- P-MTu-29 BICYCLIC NONAPEPTIDES: SYNTHESIS, CONFORMATION, AND ION-BINDING
Giancarlo Zanotti, **Bruce Campbell**, Mark A. Staples, Eric T. Fessel, and Elkan R. Blout *Harvard Medical School, Beth Israel Hospital, Boston, MA, USA*
- P-MTu-30 SYNTHESIS AND CONFORMATIONAL COMPARISON OF PROLINE AND HYDROXYPROLINE-CONTAINING PEPTIDES
V. S. Ananthanarayanan and S. K. Aitah-Poku *Memorial University of Newfoundland, St. John's, Newfoundland, Canada*
- P-MTu-31 ¹³C NMR CP/MAS SPECTROSCOPIC STUDY OF SOLID PROLINE CONTAINING PEPTIDES AND PROTEINS
Hans R. Kricheldorf and Detlef Müller *Institut für Technische und Makromolekulare Chemie der Universität, Hamburg, West Germany*
- P-MTu-32 PROLINE RING MOTION IN SOLID STATE: A ²H NMR STUDY
Susanta K. Sarkar, P. E. Young, C. E. Sullivan and D. A. Torchia *Rockefeller University, New York; State University of New York at Stony Brook, Stony Brook, NY, USA*
- P-MTu-33 SELF-ASSOCIATION AND SOLUBILITY OF PEPTIDES: A SOLVENT TITRATION STUDY OF PEPTIDES RELATED TO THE C-TERMINAL DECAPEPTIDE SEQUENCE OF PORCINE SECRETIN
C. Toniolo and G. M. Bonoira *University of Padova, Padova, Italy; Case Western University, Cleveland, OH, USA*
- P-MTu-34 SUBSTRATES FOR THE ASPARTYL PROTEINASES
Ben M. Dunn, Malba Jimenez, Benne Parthen, and Jeff Van Dyke *University of Florida College of Medicine, Gainesville, FL, USA; Cardiff College, Cardiff, Wales, UK*

- P-MTu-48 INHIBITION OF AMINOPEPTIDASES BY PEPTIDES INCORPORATING THE L-TOMETHYLENE GROUP AS AN AMIDE BOND REPLACEMENT
Scott L. Harbeson and **Daniel H. Rich**, School of Pharmacy, University of Wisconsin, Madison, WI, USA
- P-MTu-49 FLUOROPHOSPHONAMIDE-CONTAINING PEPTIDE ANALOGS AS IRREVERSIBLE PEPTIDASE INHIBITORS
Michael Calandra, Rutgers University, New Brunswick, NJ, USA
- P-MTu-50 NMR EVIDENCE FOR A COVALENT INTERMEDIATE IN PEPSIN-CATALYSED REACTIONS
Charles M. Deber, **Mary K. Lulek** and **Theo Hofmann**, University of Toronto, The Hospital for Sick Children, Toronto, Ontario, Canada
- P-MTu-51 CONFORMATIONAL STUDY OF OLIGOPEPTIDES CONTAINING GLYCINE AND LEUCINE RESIDUES
M. D'Alagni and **M. Manigrasso**, Università di Roma "La Sapienza", Roma, Italy
- P-MTu-52 SYNTHESIS AND BIOLOGICAL PROPERTIES OF NOVEL TRYPTOPHAN-MODIFIED PEPTIDES: CONVENIENT PREPARATION OF 2-SUBSTITUTED TRYPTOPHAN DERIVATIVES
Stephen F. Brady, **Richard Saperstein**, and **Roger M. Freidinger**, Merck Sharp & Dohme Research Laboratories, West Point, PA, USA.
- P-MTu-53 SYNTHESIS OF NOVEL SYMMETRIC DIAMINO ACIDS
P. Anantha Reddy and **Bruce W. Erickson**, The Rockefeller University, New York, NY, USA
- P-MTu-54 PENTAFLUOROPHENOL DERIVATIVES IN PEPTIDE SYNTHESIS
L. Kistaludy, **L. Olovos Jr.**, **I. Schon**, **M. Low**, Chemical Works of Gedeon Richter Ltd., Budapest, Hungary
- P-MTu-55 TRIBENZYLAMINE AS A VERY EFFICIENT SUPPRESSOR OF SIDE PRODUCT YIELD IN PEPTIDE SYNTHESIS
Aleksander M. Kolodziejczyk and **Marek Sieboida**, Technical University of Gdansk, Gdansk, Poland
- P-MTu-56 THE P-METHYLSULFINYLBENZYL GROUP, A SELECTIVELY CLEAVABLE CARBOXYL PROTECTING GROUP
James Samanen, Ester Brandeis Smith, Kline Beckman Corporation, Palo Alto, CA, USA
- P-MTu-57 BENZYL-8-HYDROXY-CHINOLYL-CARBONATE (Z-8-OO): A NEW REAGENT FOR THE PREPARATION OF Z-AMINO-ACIDS WITHOUT SIDE REACTION(S)
Andras Turan, Ferring Arzneimittel GmbH, Kiel, West Germany
- P-MTu-58 CARBOHYDRATE DERIVATIVES OF PEPTIDES: SYNTHESIS OF A GLYCATED HEPTAPEPTIDE SEQUENCE OF HUMAN HEMOGLOBIN
John Halstrom and **Viggo Kruse**, Novo Research Institute, Bagsvaerd, Denmark
- P-MTu-47 LARGE SCALE SYNTHESIS OF hGRF [1-44]NH₂
J. Diaz, **R. Guegan**, **P. Cabrera**, **Y. Muneaux**, **P. Perrault**, **M. Vedel**, **R. Roncucci**, Centre de Recherches Chim-Midy-Sanofi, Montpellier, France
- P-MTu-46 IMPROVED RESULTS WITH DCC-HOBT COUPLINGS FOR PEPTIDES CONTAINING TOS HIS
D. Chaturvedi, **J. Dattilo**, **P. Darman**, **K. Suvastava**, **G. Fuchter**, **C. Grogonsky** and **R. Carter**, Vega Biotechnology, Inc., Tucson, AZ, USA
- SOLID PHASE SYNTHESIS OF SEQUENCE 1-9 OF BETA-2-MICROGLOBULIN PROTHROMBIN PRECURSOR BY DIFFERENT METHODS
Gunter Benz, **Richard Pottorf**, and **Daniel H. Rich**, School of Pharmacy, University of Wisconsin, Madison, WI, USA
- AS PEPTIDE LENGTH INCREASES DURING SOLID PHASE SYNTHESIS THE AMINO TERMINUS pKa INCREASES WHILE IN AN AQUEOUS SOLUTION THE pKa DECREASES
C. A. Hooper, **J. J. Bresch** and **R. H. Reid**, Walter Reed Army Institute of Research, Washington, DC, USA
- PREPARATION AND USE OF AN AMINOETHYL POLY(ETHYLENE TEREPHTHALATE)-CROSSLINKED POLYSTYRENE GRAFT RESIN SUPPORT FOR SOLID-PHASE PEPTIDE SYNTHESIS
Shmuel Zalipsky, **Fernando Alberico**, and **George Barany**, University of Minnesota, Minneapolis, MN, USA
- AN IMPROVED SYNTHESIS OF BENZHYDRYLAMINE RESIN
William M. Bryan, Smith Kline & French Laboratories, Philadelphia, PA, USA
- A CONVENIENT GENERAL METHOD FOR THE PREPARATION OF BOC-PROTECTED PEPTIDE ALCOHOLS BY THE REDUCTION OF THE CORRESPONDING PEPTIDYL RESINS WITH SODIUM BOROHYDRIDE
T. M. Balasubramanian, **A. S. Redlinski**, **J. Zabrocki** and **G. R. Marshall**, Washington University Medical School, St. Louis, MO, USA
- EVALUATION OF DIFFERENT HF CLEAVAGE PROCEDURES BASED ON SEVERAL SOLID PHASE SYNTHESIS OF PEPTIDES AT MICROLE SCALE
A. Scarso, **R. Viville**, **J. Degelaen**, UCB-Bioproducts S.A., Biacore, L'Alleud, France
- ACYLATION WITH N⁶-PROTONATED ARGININE AND C-TERMINAL ARGININE CONTAINING PEPTIDES IN SEMISYNTHESIS
V. K. Nalithant and **H. G. Galtner**, Deutsches Wollforschungsinstitut der TH Aachen, Aachen, West Germany
- TRITIUM LABELLING OF INSULIN BY ENZYMIC SEMIOTRANSFER
K.-D. Kaufmann, **J. Oehlke**, **A. Hansicke**, **M. Beyersmann**, and **M. Groll**, Institute of Drug Research, Academy of Sciences of GDR, Berlin
- TRITATION OF PEPTIDES TO HIGH SPECIFIC ACTIVITY
SYNTHESIS OF (³H)-NORVALINE¹ or MSH (³H)-PHENYLALANINE² or MSH AND (³H)-NORVALINE¹ MELANOPHORE-CONCENTRATING HORMONE (MCH)
Alex N. Eberle, **Klaus Neubert**, **Jürg Girard** and **Albert Zuber**, Children's Hospital and University Children's Hospital, Basel, Switzerland
- CHEMICAL CLEAVAGE OF PEPTIDES BEFORE CELL EXAMINATION OF RESIDUES
Shabbir A. Khan and **Bruce W. Erickson**, The Rockefeller University, New York, NY, USA
- A RAPID METHOD FOR THE DETERMINATION OF THE AMINO ACID CONTENT OF SOLID PHASE RESIN SUPPORT MATERIALS
Paul S. Darman, **Dharindran Chaturvedi**, **R. Carter**, **C. Grogonsky**, **James W. Fuchter**, **Vega Biotechnology, Inc.**, Tucson, AZ, USA

- P-MTu-59 A MONITORING METHOD FOR SOLID PHASE PEPTIDE SYNTHESIS USING N- α -TERTIARY-BUTOXYCARBONYL (BOC) PROTECTION FOR AMINO ACIDS
S. M. Kalbag, E. S. Snyder, P. J. Voelker, and J. L. Hughes. *Smithkline Beckman Corporation, Palo Alto, CA, USA*
- P-MTu-60 GEL PHASE ^{13}C NMR SPECTROSCOPY AS A METHOD OF ANALYTICAL CONTROL IN ULTRA HIGH LOAD SOLID (GEL) PHASE PEPTIDE SYNTHESIS
F. G. W. Butwell, R. Epton, P. W. Small and D. A. Wellings. *Wolverhampton Polytechnic, Wolverhampton, England*
- P-MTu-61 HYDROPHOBICITY PARAMETERS IN PEPTIDES. 1. PREDICTION OF PEPTIDE RETENTION IN REVERSED-PHASE HPLC (RPC)
2. PREDICTION OF HYDROPHILIC REGIONS ON THE SURFACE OF PROTEINS
D. Guo, C. T. Mant, J. M. R. Parker, and R. S. Hodges. *University of Alberta, Edmonton, Alberta, Canada*
- P-MTu-62 APPLICATION OF HIGH PERFORMANCE LIQUID CHROMATOGRAPHY AND NMR-SPECTROSCOPY TO THE DETECTION OR RACEMIZATION DURING PEPTIDE SYNTHESIS
Hans-Werner Lahm, Heinz Berndt, and Helmut Zahn. *Roche Research Center, Hoffmann-La Roche Inc. Nutley, NJ, USA*
- P-MTu-63 TOTALLY SYNTHETIC PEPTIDES IN THE SEMISYNTHESIS OF CYTOCHROME c
C. J. A. Wallace. *Institut de Biochemie, Switzerland; Centro di Studi sui Biopolimeri, Padova, Italy*
- P-MTu-64 SYNTHESIS OF DIHYDROFOLATE REDUCTASE ENCODED BY PLASMID R67
Richard Ogden, Dan Herendeen and Suzanna Horvath. *The Agouron Institute, La Jolla, CA; California Institute of Technology, Pasadena, CA, USA*
- P-MTu-65 ON THE INDISPENSABILITY OF Arg³⁶ IN COMPLEXES OF COMPLEMENTARY CYTOCHROME C FRAGMENTS
H. A. Boots and G. I. Tesser. *Catholic University Nijmegen, Nijmegen, The Netherlands*
- P-MTu-66 MODIFICATION AND CLEAVAGE OF PEPTIDES AT ASPARAGINE AND GLUTAMINE RESIDUES
James K. Blodgett and G. Marc Loudon. *Purdue University, West Lafayette, IN, USA*
- P-MTu-67 STRUCTURE-ACTIVITY STUDIES ON DEHYDROAMINO ACID CONTAINING ADDUCTS OF TENOXIN AND MALFORMIN
J. V. Edwards, A. Lak, E. B. Lillehoj. *United States Department of Agriculture, Southern Research Center, New Orleans, LA, USA*
- P-MTu-68 METABOLIC PROFILING OF PITUITARY PEPTIDES BY A NOVEL COMBINATION OF HPLC, RIA, AND MS
D. M. Desiderio, H. Takahashi, H. Otsuki, G. Fredland, and C. Dasso. *Department of Physiology and Center for the Study of the Brain, Stanford University, Stanford, CA, USA*
- P-MTu-69 SYNTHESIS AND PROPERTIES OF A DUAL ACTION PEPTIDE INSULIN DIMER
W.H. Fischer, D. J. Saunders, A. Wollmer, and H. Zuber. *Boehringer-Ingelheim, Biberach, Germany*
- P-MTu-70 SYNTHESIS AND PROPERTIES OF A DUAL ACTION PEPTIDE INSULIN DIMER
W.H. Fischer, D. J. Saunders, A. Wollmer, and H. Zuber. *Boehringer-Ingelheim, Biberach, Germany*
- P-MTu-71 PURIFICATION OF MICROTEGROSERINOLYSIS (MTEGRO) GLYCOPROTEIN FRACTIONS BY MULTIDIMENSIONAL GEL PERFORMACE LIQUID CHROMATOGRAPHY AND MULTIDIMENSIONAL OPTIMISATION OF RESOLUTION PARAMETERS FOR ANALYTICAL MODELS
Milton T. W. Hearn, P. G. Manning, M. J. Agopian, and A. Zuber. *Boehringer-Ingelheim, Biberach, Germany*
- P-MTu-72 NON DESTRUCTIVE MONITORING OF CELL GROWTH BY SYNTHESIS BY MASS SPECTROMETRY
Robert Jacquier, Jean-Louis A. Bado, M. J. Agopian, M. J. Agopian, D. Bado, and B. Sano. *Boehringer-Ingelheim, Biberach, Germany*
- P-MTu-73 CHROMATOGRAPHY OF PEPTIDES BY THE USE OF A PLANET CENTRIFUGAL
Martha Knight. *Boehringer-Ingelheim, Biberach, Germany*
- P-MTu-74 MICROANALYSIS OF PEPTIDES BY THE USE OF A PLANET CENTRIFUGAL WITH PREVIOUSLY SEPARATED SAMPLES
MANUEL EDUARDO E. GUARATE, Roberto Jacquier, and Simon Lemaire. *Boehringer-Ingelheim, Biberach, Germany*
- P-MTu-75 SYNTHESIS OF A PEPTIDE WHICH TAKES PLACE IN THE PROTEIN-MEMBRANE INTERACTION OF CELL GROWTH
Richard Pottorf. *Boehringer-Ingelheim, Biberach, Germany*
- P-MTu-76 SYNTHESIS OF PEPTIDES WHICH TAKE PLACE IN THE CELL GROWTH FACTOR INTERACTION
Maqsood A. Sheikh. *Boehringer-Ingelheim, Biberach, Germany*
- P-MTu-77 TOTAL SYNTHESIS OF A PEPTIDE WHICH TAKES PLACE IN THE CELL GROWTH FACTOR INTERACTION
James Blake. *Boehringer-Ingelheim, Biberach, Germany*
- P-MTu-78 DIKETOPOLYMERIZATION OF PEPTIDES
THE EFFECT OF POLYMERIZATION ON THE PROPERTIES OF PEPTIDES
C. S. Pande. *Boehringer-Ingelheim, Biberach, Germany*
- P-MTu-79 SYNTHESIS OF A PEPTIDE WHICH TAKES PLACE IN THE CELL GROWTH FACTOR INTERACTION
R. de Castiglione. *Boehringer-Ingelheim, Biberach, Germany*
- P-MTu-80 SYNTHESIS OF A PEPTIDE WHICH TAKES PLACE IN THE CELL GROWTH FACTOR INTERACTION
W. F. G. van der Vliet. *Boehringer-Ingelheim, Biberach, Germany*

- P-MTu-81 METHODS OF SYNTHESIS AND SOLID PHASE COUPLING OF KETOMETHYLENE DIPEPTIDE ISOSTERES
C. M. Olsen, A. K. Judd, and R. G. Almquist *SRI International, Menlo Park, CA, USA.*
- P-MTu-82 DESIGN AND SYNTHESIS OF HIGHLY IMMUNOGENIC PEPTIDE PREPARATIONS
V. I. Deigin, E. A. Makarov, V. A. Rar, V. V. Jurowski *Branch of Shemyakin Institute of Bioorganic Chemistry USSR, Academy of Sciences, Moscow Region, Puschino, USSR.*
- P-MTu-83 DEVELOPMENT OF SITE-SPECIFIC ANTIBODIES FROM SYNTHETIC PEPTIDES OF THE c-myc ONCOGENE PROTEIN STUDIES TOWARD STRUCTURE-FUNCTION RELATIONSHIPS
D. R. Bollin, I.-I. Sytzu and J. Meienhofer *Roche Research Center, Nutley, NJ, USA.*
- P-MTu-84 TWIN- α_1 , THE HEAD-TO-HEAD ANALOG OF THYMOSIN- α_1 IS A MORE POTENT IMMUNOREGULATORY DRUG THAN THE PARENT COMPOUND
Chr. Blirr, T. L. Ciardelli, T. C. Nebe, W. Heinzel, K. Gottschall, M. Young *Max-Planck-Institute for Medical Research, Heidelberg, FRG.*
- P-MTu-85 ORAL IMMUNISATION WITH A SYNTHETIC PEPTIDE SELECTED IN THE CHOLERA TOXIN B SUBUNIT OBTENTION OF SERUM ANTIBODIES AND LOCAL PROTECTION
A. Gruz-Guyon, A. Delmas, S. Pedoussaut, G. Milhaud, D. Raulais, P. Rivaille *CHU Saint-Antoine, Paris, France.*
- P-MTu-86 PHYSALAEAMIN-LIKE PEPTIDES FROM RABBIT STOMACH PURIFICATION AND ELUCIDATION OF STRUCTURE USING ATOM BOMBARDMENT-TANDEM MASS SPECTROMETRY
W. E. Wilson, D. J. Harvan, C. Hamm, L. H. Lazarus, D. G. Clapper, and H. Yajima *Natl. Inst. Environ. Health Sci., Research Triangle Park, NC; University of N. Carolina, Chapel Hill, NC, USA; Kyoto University, Kyoto, Japan.*
- P-MTu-87 MAPPING OF THE HUMAN RENIN "PRO" SEGMENT, SYNTHESIS OF PEPTIDES FRAGMENTS COMPARISON OF THEIR IMMUNOGENIC AND INHIBITORY PROPERTIES
J. Bouhnik, J. A. Fehrentz, F. Cumin, F. X. Galen, R. Seyer, G. Evin, **B. Castro**, J. Menard and P. Convol *Inserm U96, Paris; Centre CNRS-INSERM de Pharmacologie-Endocrinologie, Montpellier; UER de Medecine et de Pharmacie, Limoges, France.*
- P-MTu-88 CROSS-REACTIVITY OF MONOCLONAL ANTIBODIES RAISED AGAINST FROG RHODOPSIN
Grazyna Adamus, **Anatol Arendt**, Heidi E. Hamm, Paul A. Hargrave, Robert W. Jackson, J. Hugh McDowell, Agnieszka Szary, and Joseph S. Takahashi *University of Carbondale, IL, University of Illinois, Chicago, IL, Northwestern University, Evanston, IL, USA.*
- P-MTu-89 ANTIBODY BINDING BY CHEMICALLY SYNTHESIZED SEQUENCE 49-58 OF LACTATE DEHYDROGENASE
Prajin Kaumaya, Joyce Shelton, Elizabeth Wilder, Cathy Driscoll, Erwin Goldberg *Northwestern University, Evanston, IL, USA.*
- P-MTu-90 THE USE OF SITE-DIRECTED-POLYCLONAL ANTIBODIES AS IMMUNOTOPOLOGICAL PROBES FOR THE lac PERMEASE OF *ESCHERICHIA COLI*
W. Danho, R. Makolske, F. Hubner, T. F. Gabriel, N. Carrasco and H. H. Kaback *Hoffmann-La Roche Inc., Nutley, NJ, USA.*
- P-MTu-91 NEW APPROACHES TO A SAFE FOOT AND MOUTH DISEASE VIRUS VACCINE
J. J. Leban, H. Kupper, H. G. Bohm, H.-J. Thiel, E. Pfaff, E. Beck, H. Schaller *S.A. Biogen, Geneva, Switzerland; Federal Research Institute for Animal Virus Diseases, Tubingen; Microbiology, University of Heidelberg and ZMBH, Heidelberg, FRG.*
- P-MTu-92 SYNTHESIS, VIA THE POLYMERIC REAGENT METHOD, OF A THYMOSIN-LIKE PEPTIDE AS A POTENTIAL IMMUNOSTIMULANT
Michael Mokotoff, Steven M. Roth, Jean A. Shelley, and Joseph N. Slavoski *University of Pittsburgh, PA, USA.*
- P-MTu-93 STRUCTURE-FUNCTION RELATIONSHIPS IN PARATHYROID HORMONE: THE ROLE OF METHIONINE AND LYSINE RESIDUES IN THE BIOLOGICALLY ACTIVE CONFORMATION
James E. Zull, Case Western Reserve University, Cleveland, OH, USA.
- P-MTu-94 PHARMACOLOGICAL POTENCY, BINDING PROPERTIES AND ENZYMATIC DEGRADATION OF CCK $_8$ AND NEW RELATED PEPTIDES
C. Durlieux, B. Charpentier, D. Pelaprat, M. Coppey, I. Menant, G. Gacel and B. P. Roques *U.E.R. des Sciences Pharmaceutiques et Biologiques, Paris, France.*
- P-MTu-95 EVIDENCE FOR A CHOLECYSTOKININ-OCTAPEPTIDE RECEPTOR ON GUINEA PIG TRACHEA
S. Bunting, **H.H. Holzgrefe**, **A.E. deVaux**, D. J. Staples and T.K. Sawyer *The Upjohn Company, Kalamazoo, MI, USA.*
- P-MTu-96 SYNTHESIS OF KELATORPHAN, A FULL ENKEPHALIN DEGRADING ENZYME INHIBITOR AND OF A TRITIATED PROBE FOR ENKEPHALINASE STUDIES
M.C. Fournie-Zalinski, R. Bouhoutou, G. Waksman, R. Besselièvre and B.P. Roques *U.E.R. des Sciences Pharmaceutiques et Biologiques Paris, France.*
- P-MTu-97 SYNTHESIS AND INCORPORATION OF 3-FLUOROAMINO ACIDS INTO PEPTIDES
Simon J. Hocart and David H. Coy *Tulane University Medical School, New Orleans, LA, USA.*
- P-MTu-98 CONFORMATIONALLY RESTRICTED ANALOGUES OF PRO-LEU-GLY-NH $_2$
Kuo Long Yu, **Irach Taraporewala**, G. Rajakumar, Ram K. Mishra and Rodney L. Johnson *University of Minnesota, MN, USA; McMaster University, Hamilton, Ontario, Canada.*
- P-MTu-99 REVERSIBILITY OF TRYPTIC HYDROLYSIS IN A SERIES OF DISULFIDE LOOP SUBSTRATES
John D. Glass, Irving L. Schwartz, Susan Fairman, Susanna Feates **Chandra S. Pande** and Angeliki Buku *Mount Sinai School of Medicine, New York, NY, USA.*
- P-MTu-100 ENZYMATIC SYNTHESIS OF ARGININE PROLINE PEPTIDE BODIES USING CLOSTRIPAIN AS A CATALYST
A. J. Andersen *Carlsberg Biotechnology Ltd., Copenhagen, Denmark.*
- P-MTu-101 ENZYMATIC SYNTHESIS OF O-AMINO ACID CONTAINING PEPTIDES
Pia Thorbek and **Fred Widmer** *Carlsberg Biotechnology Ltd., Copenhagen, Denmark.*

- P-MTu-103
STRUCTURAL FEATURES OF SYNTHETIC PEPTIDE SUBSTRATES FOR TRANSGLUTAMINASES
J.J. Gorman and **J.E. Folk** *GSIRO ANARL Geelong Victoria Australia Enzyme Chemistry Section Bethesda MD USA*
- P-MTu-104
HYDROSOLUBILIZED PEPTIDE DERIVATIVES AS PROTEASE SUBSTRATES AND PRODRUGS
R. Mayer, **M. Pontoni**, **A.C. Roche** and **M. Monsigny** *Centre de Biophysique Moléculaire Orleans France*
- P-MTu-105
HPLC SEPARATION OF β -ENDORPHIN-(6-17) AND POSSIBLE METABOLITES
P.S.L. Janssen, **J.W. van Nispen**, **P.A.T.A. Meijers** and **R.L.A.E. Hamelink** *Orion Int. B.V. The Netherlands*
- P-MTu-106
OPIOID RECEPTOR BINDING AFFINITY AND EFFICACY OF METKEPHAMID ANALOGS MODIFIED AT THE PHENYLALANINE RESIDUE
P.D. Geelichen, **R.T. Shuman**, **R.C.A. Frederickson**, and **M.D. Hynes** *Eli Lilly and Company, Indianapolis, IN, USA*
- P-MTu-107
PUTATIVE OPIOID PEPTIDE ANTAGONISTS SYNTHESIS AND BIOLOGICAL PROPERTIES OF D-ALA¹ MET-ENK-AMIDE ANALOGS WITH UNUSUAL TYROSINE RESIDUES
A. Judd, **L. Toll**, **J. Lawson**, **E. Uyeno**, **W. Polgar** and **G. Loew** *SRI International, Menlo Park, CA, USA*
- P-MTu-108
SYNTHESIS AND ANALGESIC EFFECTS OF TYROSYL-X-PHENYLALANINOL
Misuko Maeda, **Toshiki Tsuji**, **Koichi Kawasaki**, **Joe Watanabe**, and **Hiroshi Kaneto** *Kobe-Gakuin University, Nagasaki University, Japan*
- P-MTu-109
EFFECTS OF D-AMINO ACID SUBSTITUENTS ON SITES OF LHRH ANALOG CLEAVAGE BY RENAL TISSUE
G. Flouret, **F.A. Carone**, **D.R. Peterson**, **E. Ferronyalka** *Northwestern University Medical School, Chicago, IL, USA*
- P-MTu-110
SYNTHESIS AND BIOLOGICAL ACTIVITY OF DIMERIC DES-Gly¹⁰[D-Lys⁶]-GnRH-NHE1
Y. Kitejima, **J.P. Chang**, **J.S. Graeter** and **H.C. Chen** *NIH, Bethesda, MD, USA*
- P-MTu-111
SYNTHESES AND PROPERTIES OF PEPTIDES RELATED TO ATRIAL NATRIURETIC HORMONE
Yoshiaki Kiso, **Masanori Shimokura**, **Satoshi Hosoi**, **Toshio Fujisaki**, **Yoichi Fujiwara** and **Makoto Yoshida** *Kyoto Pharmaceutical University, Japan*
- P-MTu-112
A NEUROPEPTIDE PROCTOLIN AND ITS NEW ANALOGS
SYNTHESIS AND CARDIOEXCITATORY EFFECT ON INSECTS - PERIPLANETA AMERICANA AND TENEBRIO MOLITOR
D. Konopinska, **W. Sobotka**, **G. Rosinski**, **A. Lesicki**, and **P. Sujak** *Institute of Chemistry, Wrocław, Institute of Organic Chemistry, Warszawa, Institute of Zoology, Poznan, Poland*
- P-MTu-113
SECRETIN GLUCAGON HYBRIDS: SYNTHESIS AND BIOLOGICAL ACTIVITY
David Andreu and **Bruce Merrifield** *The Rockefeller University, New York, NY, USA*
- P-MTu-114
THE ISOLATION AND CHARACTERISATION OF MULTIPLE FORMS OF HAEMOPOIETIC GROWTH FACTORS
R.J. Simpson, **E.C. Nice**, **J.A. Hamilton**, **I. Kozka**, **D. McCall** and **A.W. Burgess** *Ludwig Institute for Cancer Research, Eliza Hall Institute of Medical Research and University of Melbourne, Victoria, Australia*
- P-MTu-115
THE DEGRADATION OF BOMBESIN AND GASTRIN RELEASING PEPTIDE (GRP) BY LIVER AND PLASMA
H. Bachelard, **P. Sirois**, **J. Barabé** and **S.A. St-Pierre** *Université de Sherbrooke, Quebec, Canada*
- P-MTu-116
PREPARATION OF PORCINE RELAXIN DERIVATIVES SHORTENED AT THE N TERMINUS OF THE A-CHAIN
Erika E. Büllesbach, and **C. Schwabe** *Medical University of South Carolina, Charleston, SC, USA*
- P-MTu-117
IDENTIFICATION AND BIOLOGICAL ACTIVITY OF CHICKEN CALCITONIN I ISOLATED FROM CHICKEN ULTIMOBRANCHIAL GLANDS
Tamotsu Homma, **Motoo Watanabe**, **Sachio Hirose**, **Akira Kanai**, **Kenji Kangawa** and **Hisayuki Matsuo** *Miyazaki Medical College, Miyazaki, Miyazaki; Mitsubishi Petrochem Co., Ltd., Ami, Inashiki, Japan*
- P-MTu-118
STRUCTURE/FUNCTION STUDIES ON HUMAN RELAXIN
Paul D. Johnston, **John Burnier**, **Sharon Chen**, **David Davis**, **Harvard Morehead**, **Malissa Remington**, **Martin Siruble**, **Geoffrey Tregear** and **Hugh Niall Genentech, Inc.** *South San Francisco, CA, USA; University of Melbourne, Victoria, Australia*
- P-MTu-119
SYNTHETIC C-TERMINAL FRAGMENTS OF HUMAN GLYCOPROTEIN-HORMONE ALPHA SUBUNIT USE AS PROBES FOR BIOLOGICAL ACTIVITY
Henry T. Keutmann, **Kathleen B. Mason**, **Teofila Ostrea**, **Kathleen Kitzmann** and **Robert J. Ryan** *Massachusetts General Hospital, Boston MA, Mayo Medical School, Rochester, MN, USA*
- P-MTu-120
PANCREATIC PREPROSOMATOSTATIN PROCESSING, ISOLATION AND STRUCTURES OF INTERMEDIATES AND FINAL PRODUCTS OF PROCESSING
P.C. Andrews and **J.E. Dixon** *Purdue University, W. Lafayette, IN, USA*
- P-MTu-121
AMINO-TERMINAL FRAGMENTS OF BOVINE PRO-OPIOMELANOCORTIN (POMC) O-GLYCOSYLATION AND CYSTINE BRIDGE ORIENTATION
M.A. Seger and **H.P.J. Bennett** *Royal Victoria Hospital, McGill University, Montreal, Quebec, Canada*
- P-MTu-122
USE OF SYNTHETIC FRAGMENTS TO STUDY ENZYMIC PROCESSING AND MOLECULAR ORGANIZATION OF NEUROPEPTIDE BIOSYNTHETIC PRECURSORS
R.S. Rapaka, **S. Ando**, **T. Kanmera**, **T.H. Miller** and **I.M. Chaiken** *NIH Bethesda MD, USA*

P-MTu-124	RENIN INHIBITORS SUB-NANOMOLAR COMPETITIVE INHIBITORS CONTAINING A NOVEL ANALOG OF STATINE Joshua Boger, Linda S. Payne , Debra S. Perlow, Martin Poe, Edward H. Blaine, Edgar H. Uhm, Terry W. Schorn, Bruce I. LaMont, Mark G. Bock, Robert M. DiPardo, Tsau-Yen Lin, Megumi Kawai, Daniel H. Rich, and Daniel F. Veber, <i>Merck Sharp & Dohme Research Laboratories, West Point, PA and Rahway, NJ, University of Wisconsin, Madison, WI, USA</i>	P-WTh-1	THE STRUCTURE OF ARIDICIN A, AN INTEGRATED APPROACH EMPLOYING 2D NMR, ENERGY MINIMISATION AND DISTANCE GEOMETRY CONSTRAINTS FOR THE DERIVATION OF 3-DIMENSIONAL STRUCTURES IN SOLUTION P.W. Jeffs, L. Mueller, C.W. LeBrosse, S.L. Heald and R. Fisher, <i>Smith Kline and French Labs, Philadelphia, PA, USA</i>
P-MTu-125	TRANSPORT OF AN INTACT NONAPEPTIDE RENIN INHIBITOR ACROSS ADULT JEJUNUM Kazuo Takaoi, Mark Donowitz, James Burton , <i>University Hospital, Boston, MA, USA</i>	P-WTh-2	THE CONFORMATION OF N-ACETYL-N-PHENYLGLYCINE CORRELATION BETWEEN NMR, SINGLE CRYSTAL X-RAY, AND MOLECULAR MECHANICS CALCULATIONS David E. Portlock , Edward G. Soyke, Jr., Stephen B. Ashton, Thomas P. Demuth Jr., Joel D. Oliver, Lawrence C. Strickland and Fouad S. Ezra, <i>Norwich Eaton Pharmaceuticals, Inc., Norwich, NY; Proctor & Gamble Co., Cincinnati, OH, USA</i>
P-MTu-126	SYNTHESIS OF NOVEL TYPE OF PLASMIN INHIBITOR, AMIDE DERIVATIVES OF (N ² -ARYLSULFONYL)-L-LYSINE, BLOCKING ACTIVE CENTRE OF THE ENZYME Yoshiko Okada , Yuko Tsuda, Naoki Teno, Takatoshi Naito, Hiroshi Suzuki, Morihiko Yamada, Yumi Seki, and Shosuke Okamoto, <i>Kobe-Gakuin University, Showa Denko & Co., Ltd., Tokyo; Kobe University School of Medicine, Kobe, Japan</i>	P-WTh-3	CONFORMATIONAL STUDIES OF DERMORPHIN FROM FT-IR, LASER RAMAN, CD, CONFORMATIONAL ENERGY CALCULATIONS AND MOLECULAR MODELING R.S. Bhatnagar, N. Pattabiraman, K. Sorensen, T.W. Collette, L.A. Carreira, V. Renugopalakrishnan, R.S. Rapaka , <i>University of California, San Francisco, CA; University of Georgia, Athens, GA; Harvard Medical School, Boston, MA; NIDA, Rockville, MD, USA</i>
P-MTu-127	IDENTIFICATION OF GLUCAGON-LIKE PEPTIDE (GLP) ₁ SPECIFIC ANTIGENIC DETERMINANTS IN RAT PANCREAS, INTESTINE AND BRAIN Svetlana Mojslov , Linda Epstein and Joel F. Habener, <i>Massachusetts General Hospital and the Howard Hughes Medical Institute, Boston, MA, USA</i>	P-WTh-4	2D-NMR STUDY OF PRO-PRO SEQUENCES, A PROPOSED NMR CORRELATION CONCERNING THE ψ ANGLE M.T. Cung , A. Aubry, C. Giessner-Prettre, B. Vitoux and M. Marraud, <i>ENSIC-INPL, Nancy; University of Nancy; Institute of Biological Chemistry, Paris, France</i>
P-MTu-128	INHIBITION OF SUBSTANCE P DEGRADING ACTIVITY FROM RAT BRAIN BY ANALOGS OF THE SUBSTANCE P C-TERMINAL SEQUENCE R. Laufer, A. Ewenson, E. Rubini, J. Frey, M. Chorev, Z. Selinger, and C. Gilon, <i>The Hebrew University of Jerusalem, Israel</i>	P-WTh-5	2D-NMR STUDY OF SOMATOSTATIN AND ANALOGUES — SOLVENT EFFECT ON CONFORMATIONAL EQUILIBRIUM E. Van den Berg, C. Wynants, A. Jans and G. Van Blinst , <i>Vrije University, Brussels, Belgium</i>
P-MTu-129	SYNTHESIS AND SOME PHARMACOLOGICAL PROPERTIES OF VASOPRESSIN ANALOGS MODIFIED IN POSITIONS 2, 4 and 8 G.K. Toth , B. Penke, F. Laszlo, and K. Kovacs, <i>Szeged University Medical School, Hungary</i>	P-WTh-6	ON (S)-5-THIOPROLINE (TOP), A NEW MODIFIED AMINO ACID PREPARATION, CRYSTALLOGRAPHIC STRUCTURE, CHEMICAL AND SPECTROSCOPIC PROPERTIES AND SYNTHESIS OF TOP-CONTAINING PEPTIDES P.B. Rasmussen , T.P. Andersen, I. Thomsen and S.-O. Lawesson, <i>University of Aarhus, Denmark</i>
P-MTu-130	STUDIES ON THE GUANOSINE TRIPHOSPHATE BINDING SITE OF RAS PROTEIN BY NMR AND CD SPECTROSCOPY Chien-Hua Niu , Kyouhoon Han, Peter P. Roller, and Shorri S. Thorgerisson, <i>National Cancer Institute, National Institutes of Health, Bethesda, MD, USA</i>	P-WTh-7	SYNTHESIS AND PROPERTIES OF SOME PEPTIDES CONTAINING A BICYCLIC DIPEPTIDE UNIT WITH SEMI-RIGID β -TURN CONFORMATION Ukon Nagai , Rika Sugawara and Kazuki Sato, <i>Mitsubishi-Kasei Institute of Life Sciences, Tokyo, Japan</i>
P-MTu-131	MODELLING OF A HYPOTHETIC IONIC BOND IN THE ACTIVE CENTRE OF ACTH BY THE AMIDE BOND: SYNTHESIS AND BIOLOGICAL ACTIVITY OF MODEL COMPOUNDS P.J. Romanovskis , I.K. Liepkaula, E.A. Porunkевич, M.P. Ratkevica, A.A. Skujins, G.I. Chipens, <i>Latvian SSR Academy of Sciences, Riga, USSR</i>	P-WTh-8	DESIB26-B30) INSULIN, B-24 LEU, B-25 LEU, B-24 SER, AND B-24 D-PHE DPPI, DES (23-63)PROINSULIN Teresa Kublak , Francis Picart and David Cowburn, <i>The Rockefeller University, New York, NY, USA</i>
P-MTu-132	STRUCTURAL STUDIES OF CYCLIC DIPEPTIDES CONTAINING TRYPTOPHAN DERIVATIVES Zenyk Kosarych , Zenon Konteatis, James Florence, Charles Martucci, and Alphonse Galdes, <i>The BOC Group Inc., Murray Hill, NJ, USA</i>	P-WTh-9	CYCLOPROPYL PHE ⁴ -ENKEPHALINS C. Mapelli, H. Kimura, C. Toniolo, G. Newton and C.H. Stammer , <i>University of Georgia, Athens, GA, USA</i>

- P-WTh-10 INTERPRETATION OF THE MU ACTIVITY OF SEVERAL DERMOPHIN FRAGMENTS IN TERMS OF A NEW RECEPTOR MODEL
A Pastore, T Tancredi, **P.A. Temussi**, S. Salvadori and R. Tomatis
University of Naples; Istituto Chimica MIB of CNR; University of Ferrara, Italy
- P-WTh-11 SYNTHESIS AND CONFORMATIONAL STUDIES OF ENKEPHALINE-LIKE CYCLIC PEPTIDES AND DEPSIPEPTIDES
H Kessler, R Geiger, **C. Zechel**
University of Frankfurt; Frankfurt, West-Germany.
- P-WTh-12 NMR AND COMPUTER SIMULATION STUDIES OF A DIASTEREOMERIC PAIR OF CYCLIC ENKEPHALIN ANALOGS
Murray Goodman, Nancy Jenkins Mammì and Moises Hassan.
University of California-San Diego, La Jolla, CA, USA.
- P-WTh-13 CONFORMATION AND DESIGN OF CYCLIC SOMATOSTATIN ANALOGUES WITH HIGH AFFINITY FOR μ -OPIATE RECEPTORS
John T. Pelton, Wayne L. Cody, Victor J. Hruby, Karoly Gulya and Henry I Yamamura.
University of Arizona, Tucson, AZ, USA.
- P-WTh-14 CONFORMATIONAL ANALYSIS OF A CYCLIC LH-RH ANTAGONIST BY TWO-DIMENSIONAL VERY HIGH FIELD PROTON NMR
E.L. Baniak, L.M. Gierasch, A.T. Hagler, J. Rivier, T. Solmajer and R.S. Struthers.
University of Delaware, Newark, DE; The Salk Institute, La Jolla, The Agouron Institute, La Jolla, CA, USA.
- P-WTh-15 PREDICTIVE CONFORMATIONAL ANALYSIS OF ATRIAL NATRIURETIC FACTOR (CARDIONATRIN)
T.G. Flynn and D.F. Weaver.
Queen's University, Kingston, Ontario, Canada.
- P-WTh-16 A NEW TECHNIQUE FOR THE DETERMINATION OF BIOLOGICALLY ACTIVE CONFORMATIONS OF PEPTIDES BOUND TO PROTEINS
N.R. Nirmala, **K. Hallenga**, L.R. Brown, P. Hill and V.J. Hruby.
Michigan State University, East Lansing, MI; Michigan Molecular Institute, Midland, MI; University of Arizona, Tucson, AZ, USA.
- P-WTh-17 DETERMINATION OF STATISTICAL WEIGHTS FOR OLIGOPEPTIDE CONFORMERS IN SOLUTION
G.V. Nikiforovich, B.G. Vesterman, I. Sekacis, J. Betins, L. Podins.
Latvian SSR Academy of Sciences, Riga, USSR.
- P-WTh-18 FOLDED, HELICAL AND EXTENDED STRUCTURES OF PEPTIDES FROM $\text{Ca}\alpha$ -DIALKYLATED α -AMINO ACIDS. SOLID-STATE AND SOLUTION CONFORMATIONS OF HOMO-OLIGOPEPTIDES FROM $\text{Ca}\alpha$ -DIETHYLGLYCINE
A Bavoso, **E. Benedetti**, B. Di Blasio, V. Pavone, C. Toniolo, G.M. Bonora, M.T. Lepiawy, A. Redlinski and K. Kaczmarek.
University of Padova, Italy, Technical University, Lodz, Poland
- P-WTh-19 SEQUENTIAL POLYPEPTIDES AS HISTONE MODELS AND THEIR COMPLEXES WITH DNA. SYNTHESIS AND CONFORMATIONAL STUDIES
E. Panou-Pomonis, **C. Sakarellos** and M. Sakarellos-Daitsiotis
University of Ioannina, Greece
- P-WTh-20 SYNTHESIS AND PROPERTIES OF SYNDIOTACTIC CYCLIC PEPTIDES CONTAINING ALPHA-AMINO FATTY ACIDS
Norikazu Nishino, Munetaka Ishiyama and Tsutomu Fujimoto.
Kyushu Institute of Technology, Tobata-ku, Japan
- P-WTh-21 PROTON NMR ASSIGNMENTS AND SOLUTION CONFORMATION FEATURES OF THYMULIN
J.B. Vaughn, Jr.
The Rockefeller University, New York, NY, USA
- P-WTh-22 ¹H-NMR STUDIES OF THE EPIDERMAL GROWTH FACTOR (EGF) IN NORMAL AND REVERSE MICELLES
Antonio De Marco, Enea Menegatti and Mario Guarneri.
Istituto Chimica Macromolecole CNR, Milano; University of Ferrara, Ferrara, Italy
- P-WTh-23 SYNTHESIS OF AN ARGININE-RICH RNA-BINDING FRAGMENT OF A VIRAL PROTEIN
Paul B.W. Ten Kortenaar, Jaap Kruse, Marcus A. Hemminga and Godfriedus I. Tesser.
Catholic University, Nijmegen; Agricultural University, Wageningen, The Netherlands.
- P-WTh-24 ISOLATION AND 2D ¹H NMR OF THE NH₂-TERMINAL 24 RESIDUES PEPTIDE FRAGMENT FROM DOG SERUM ALBUMIN (DSA) AND ITS COMPLEXATION WITH COPPER AND NICKEL
B. Decock-Le Reverend, B. Perly and B. Sarkar.
Université des Sciences et Techniques de Lille, Cedex; Centre d'études nucléaires de Saclay IRI/IDPG, France; The Hospital for Sick Children, Toronto; University of Toronto, Ontario, Canada.
- P-WTh-25 CIRCULAR DICHROISM, 2D-NMR AND BIOLOGICAL ACTIVITY OF THE DODECAPEPTIDE α -FACTOR FROM SACCHAROMYCES CEREVISIAE
Fred Nalder, Ponniah Shenbagamurthi, Michelle S. Broido, Linda Hughes, Susan Rath and Jeffrey M. Becker.
C.U.N.Y., Staten Island, NY; University of Tennessee, Knoxville, TN, USA.
- P-WTh-26 NEW APPROACHES TO AROMATIC SIDE-CHAIN CONFORMATION USING TIME-RESOLVED FLUORESCENCE SPECTROSCOPY
H.R. Wyszbrod, W.R. Laws and J.B.A. Ross.
Mount Sinai School of Medicine, New York, NY, USA.
- P-WTh-27 PATTERNS IN AMPHIPHILIC HELICAL SEQUENCES
Peter V. Pallat and Robert M. Abarbanel.
Research Institute of Scripps Clinic, La Jolla, CA; Intelligenetics, Inc., Palo Alto, CA, USA.
- P-WTh-28 HELIX STABILIZATION IN ANALOGS OF RIBONUCLEASE A (1-13)
Eunice J. York, John M. Stewart, Robert L. Baldwin and Kevin R. Shoemaker.
University of Colorado School of Medicine, Denver, CO; Stanford University Medical Center, CA, USA.
- P-WTh-29 SYNTHESIS, CHARACTERIZATION AND BLM STUDIES OF L-ALA⁷-GRAMICIDIN A ANALOG
Karl U. Prasad, S. Alonso-Romanowski, Tina L. Trapani, C.M. Venkatachalam and Dan W. Urry.
University of Alabama Medical Center, Birmingham, AL, USA
- P-WTh-30 STUDY OF THE LIPID-BINDING DOMAIN OF PHOSPHOLIPASE A₂ USING SEMISYNTHESIS AND CHEMICAL MODIFICATION
Arend J. Slobboom, **Gustaaf J.M. van Scharrenburg**, Frans van der Wiele, Wim Alisma and Gerard H. de Haas.
State University of Utrecht, The Netherlands
- P-WTh-31 DESIGN OF A MEMBRANE-ANCHORING PEPTIDE AND ITS SYNTHESIS, PURIFICATION, AND PHYSICAL CHARACTERIZATION
Heather K.B. Simmerman, Thomas E. Thompson and Frank R.N. Gurd.
University of Virginia School of Medicine, Charlottesville, VA, USA

- P-WTh-32 DESIGN AND CHARACTERIZATION OF A MODEL PEPTIDE TESTING THE STRUCTURAL REQUIREMENT FOR THE HYDROPHILIC SPACER REGION IN β -ENDORPHIN
B. Rajshekhkar and **E. T. Kaiser**. *The Rockefeller University, New York, NY, USA*
- P-WTh-33 SPECTRAL STUDIES OF BACTERIORHODOPSIN FRAGMENTS IN MEMBRANE
A. T. Kozhich, **S. V. Sychev**, **L. D. Tchikin**, **E. N. Dudoladova** *Shemyakin Institute of Bioorganic Chemistry, USSR Academy of Sciences, Moscow, USSR*
- P-WTh-34 SOLID PHASE PEPTIDE SYNTHESIS OF (NLE-27)-OXYNTOMODULIN AND PRELIMINARY EVALUATION OF ITS BIOLOGICAL ACTIVITIES
M. P. Audoussert-Puech, **A. Kerivan**, **F. Mercier**, **M. Dufour**, **B. Castro**, **B. Bataille**, and **J. Martinez**. *CNRS-INSERM, Montpellier, France*
- P-WTh-35 TYROSINE SPECIFIC PROTEIN KINASE INHIBITOR. SYNTHESIS OF PEPTIDE SUBSTRATE INHIBITORS
James P. Tam, **Noritake Asato** and **Nicholas F. Pileggi**. *The Rockefeller University, New York, NY, USA*
- P-WTh-36 EFFECTS OF THE PEPTIDE BOND RETRO-INVERSION ON THE BIOLOGICAL ACTIVITY OF BRADYKININ POTENTIATING PEPTIDE 5a (BPP5a) ANALOGUES
A. Groggia, **A. Pessi**, **A. Sisto**, **A. S. Verdini**, **G. C. Viscomi** and **A. Viridia**. *Enrinerche, S.p.A., Monterotondo, Roma, Italy*
- P-WTh-37 RENIN INHIBITORS. SYNTHESIS AND BIOLOGICAL ACTIVITY OF STATINE-CONTAINING PEPTIDES HAVING POLAR END GROUPS
Mark G. Bock, **Robert M. DiPardo**, **Ben E. Evans**, **Roger M. Freidinger**, **W. L. Whittier**, **Linda S. Payne**, **Joshua S. Boger**, **Edgar H. Ulm**, **Martin Poe**, **Edward H. Blaine** and **Daniel F. Veber**. *Merck, Sharp, and Dohme, West Point, PA, USA*
- P-WTh-38 RENIN INHIBITION BY NEW CONFORMATIONALLY RESTRICTED ANALOGS OF RENIN SUBSTRATE
C. R. Nakale, **M. C. F. Oliveira**, **L. Juliano** and **A. C. M. Paiva**. *Escola Paulista de Medicina, Sao Paulo, Brazil*
- P-WTh-39 X-RAY ANALYSIS OF RENIN INHIBITOR: Leu-Leu-Stat-Ala-Stat
C. Courselle, **G. Geoffre**, **E. Ouyard** and **G. Precigoux**. *Universite de Bordeaux, Talence, France*
- P-WTh-40 THE USE OF THEORETICAL ENERGY CALCULATIONS IN THE ANALYSIS OF THE THREE DIMENSIONAL STRUCTURE OF HUMAN RENIN AND INHIBITORS BOUND TO ITS ACTIVE SITE
William Carlson, **Mark Handschumacher**, **Neena Summers**, **Martin Karplus** and **Edgar Haber**. *Massachusetts General Hospital, Boston, MA, USA*
- P-WTh-41 NOVEL INHIBITORS OF RENIN
D. M. Jones, **J. Suerias-Diaz** and **M. Szeiké**. *Royal Postgraduate Medical School, London, England*
- P-WTh-42 SYNTHESIS, CHARACTERIZATION AND BIOLOGICAL ACTIVITY OF KETO-METHYLENE PSEUDOPEPTIDE ANALOGS RELATED TO THE C-TERMINAL HEXAPEPTIDE OF SUBSTANCE P
A. Ewenson, **R. Cohen**, **D. Levian**, **Teitelbaum**, **M. Chorev**, **R. Laufer**, **Z. Seilinger** and **C. Gilon**. *The Hebrew University of Jerusalem, Israel*
- P-WTh-43 KETOMETHYLPEPTIDES - A NEW CLASS OF ANGIOTENSIN CONVERTING ENZYME INHIBITORS
S. Natarajan, **E. M. Gordon**, **E. F. Sabo**, **J. D. Godfrey**, **H. N. Weller**, **J. Pluscec**, **M. B. Rom**, **D. W. Cushman**, **J. M. DeForrest** and **J. R. Powell**. *The Squibb Institute for Medical Research, Princeton, NJ, USA*
- P-WTh-44 DESIGN OF TRIPEPTIDE DERIVED INHIBITORS OF ANGIOTENSIN CONVERTING ENZYME STUDIES ON THE ROLE OF THE N-BENZAMIDO SUBSTITUENT
E. M. Gordon, **J. D. Godfrey**, **H. N. Weller**, **Jelka Pluscec**, **M. B. Rom**, **K. Niemeia**, **S. Natarajan**, **E. F. Sabo**, and **D. W. Cushman**. *The Squibb Institute for Medical Research, Princeton, NJ, USA*
- P-WTh-45 SMALL SUBSTRATE ANALOG INHIBITORS OF BACTERIAL IGA₁ PROTEASES
James Burton, **Andrew G. Plaut**, **Joanne Gilbert**. *University Hospital, Boston, MA, USA*
- P-WTh-46 SYNTHESIS OF SULFUR CONTAINING ANALOGS OF BESTATIN
Timothy D. Ocaln, and **Daniel H. Rich**. *University of Wisconsin, Madison, WI, USA*
- P-WTh-47 KETOMETHYLENE TRYPSIN INHIBITORS AS PROBES OF SERINE PROTEINASES
John S. McMurray and **Douglas F. Dyckee**. *University of Houston, Houston, TX, USA*
- P-WTh-48 SOLID PHASE SYNTHESIS OF TRYPSIN INHIBITORS CMTI I AND CMTI III FROM SQUASH SEEDS/CUCURBITA MAXIMA
Gotfryd Kupryszewski, **Ulf Ragnarsson**, **Krzysztof Rolka**, **Tadeusz Wilusz** and **Antoni Polanowski**. *University of Gdansk, Gdansk, Poland; University of Uppsala, Uppsala, Sweden; University of Wroclaw, Wroclaw, Poland*
- P-WTh-49 INCORPORATION OF COORDINATING AMIDE BOND SURROGATES WITHIN MAMMALIAN COLLAGENASE INHIBITORS
Robert B. Miller, **Arno F. Spatola**, and **Robert D. Gray**. *University of Louisville, Louisville, KY, USA*
- P-WTh-50 INHIBITION OF HUMAN LEUKOCYTE ELASTASE, PORCINE PANCREATIC ELASTASE AND CATHEPSIN G BY PEPTIDE KETONES
Hiroshi Hori, **Akira Yasutake**, **Yoshihiro Minematsu** and **James C Powers**. *Georgia Institute of Technology, Atlanta, GA, USA*
- P-WTh-51 NMR STUDIES OF SCORPION NEUROTOXINS
D. Nettlesheim, **C. E. Bugg**, **M. R. Kitchin**, **D. D. Watt**. *University of Alabama at Birmingham, Birmingham, AL; Creighton University, Omaha, NB, USA*
- P-WTh-52 CHEMICAL SYNTHESIS OF HEAT-STABLE ENTEROTOXINS PRODUCED BY ENTERIC BACTERIA - STRUCTURE AND BIOLOGICAL ACTIVITY
S. Almoto, **S. Yoshimura**, **Y. Hidaka**, **H. Ikemura**, **Y. Shimomishi**, **T. Takeda**, **M. Arita**, **T. Miwatani**, and **Y. Takeda**. *Osaka University, Osaka, University of Tokyo, Minato-ku, Japan*
- P-WTh-53 NEW LYTIC PEPTIDES IN INSECT VENOMS AND FROG SKIN
J. J. Pisano, **R. Horikawa** and **A. Argiolas**. *NIH, Bethesda, MD, USA*
- P-WTh-54 MOLECULAR MECHANISM OF HEMOLYSIS OF HUMAN ERYTHROCYTES BY SNAKE VENOM CARDIOTOXIN (A MEMBRANE-DISRUPTIVE POLYPEPTIDE)
Yee-Hsiung Chen. *Academia Sinica, Taipei, Taiwan Republic of China*

- P-WTh-55 PHOTOACTIVABLE APAMIN DERIVATIVES AS K⁺ CHANNEL PROBES
C. Labbe-Julie, M. Seagar, C. Granier, F. Couraud, and J. Van Rietschoten. *Faculté de Médecine Secteur Nord, Marseille, France*
- P-WTh-56 DETERMINATION OF PICOMOLE LEVELS OF NEUROTENSIN, BOMBESIN AND RELATED PEPTIDE FRAGMENTS USING GRADIENT ELUTION HIGH PERFORMANCE LIQUID CHROMATOGRAPHY COUPLED WITH ELECTROCHEMICAL DETECTION
Andrea L. Drumheller, Helene Bachelard, Robert Rivest, Serge St-Pierre and Francois B. Jolicœur. *Université de Sherbrooke, Sherbrooke, Quebec, Canada*
- P-WTh-57 FACILITATED FORMATION OF UNSYMMETRICAL DISULFIDE BONDS VIA THE S-(3-NITRO-2-PYRIDINESULFENYL)-DERIVATIVE OF CYSTEINE
Michael S. Bernatowicz, Rei Matsueda, and Gary R. Matsueda. *Sankyo Chemical Co., Tokyo, Japan, Harvard Medical School, Boston, MA, USA*
- P-WTh-58 SOLID-PHASE SYNTHESIS OF PHOSPHOPEPTIDES. SYNTHESIS OF PEPTIDE ANALOGS FROM THE CARBOXYL-TERMINUS OF RHODOPSIN
Anatol Arendt, J. Hugh McDowell, and Paul A. Hargrave. *Southern Illinois University, Carbondale, IL, USA*
- P-WTh-59 A NEW SIMPLE, AND CONVENIENT SYNTHESIS OF [Leu⁵]-ENKEPHALIN AMENABLE TO LARGE SCALE PRODUCTION
Kripa S.L. Srivastava, Charles M. Groginsky and Ronald D. Jasensky. *Vega Biotechnologies, Inc., Tucson, AZ, USA*
- P-WTh-60 SYNTHESIS OF A BASE LABILE 9-(AMINOACYLONXYMETHYL)-FLUORENE-4-CARBOXYAMIDOMETHYL RESIN (I) AND ITS APPLICATION IN THE PREPARATION OF HUMAN ANGIOTENSIN II AND ATRIOPEPTIN (1-22) FRAGMENT
Foe S. Tjoeng, Mark Zupiec, Shad Eubanks and Steven P. Adams. *Monsanto Co., St. Louis, MO, USA*
- P-WTh-61 EFFICIENCY OF SOLID PHASE SYNTHESIS USING AN AUTOMATED FLOW REACTOR. A COMPARISON STUDY
Yin-Zeng Liu and Johannes Meienhofer. *Hoffmann-La Roche Inc., Nutley, NJ, USA*
- P-WTh-62 BB₁-CF₃COOH AS PEPTIDE RESIN DEBLOCKING AGENT - OPTIMAL CONDITION STUDIES
K.T. Wang, and YS. Tseng. *Academia Sinica, Taipei, Taiwan, Republic of China*
- P-WTh-63 PEPTIDE CYCLIZATIONS ON POLYSTYRENE SUPPORTS. A STUDY OF INTRASITE AND INTERSITE REACTIONS
A.R. Mitchell and R.B. Merrifield. *The Rockefeller University, New York, NY, USA*
- P-WTh-64 SYNTHESIS OF TRITIUM LABELLED GASTRIN C-TERMINAL PEPTIDES
P.V.C. Pham, M. Ponchant, C. Mendre, TH. Lam, M. Dubrasquet, J.L. Morgat and P. Fromageot. *CEN de Saclay, France*
- P-WTh-65 NOVEL ANALOGUES OF LULIBERIN (LH-RH)
V.S. Chauhan and A.K. Sharma. *University of Delhi, Delhi, India*
- P-WTh-66 IDENTIFICATION OF IMPURITIES AND SIDE REACTIONS IN THE SYNTHESIS OF ATRIAL NATRIURETIC FACTOR (ANF) USING PREPARATIVE HPLC AND FAB/MS
Terry A. Lyle, Terry M. Ciccarone, Carl F. Homnick, Jack L. Smith and Ruth F. Nutt. *Merk Sharp & Dohme Research Laboratories, West Point, PA, USA*
- P-WTh-67 SYNTHESIS OF SULFATED CHOLECYSTOKININ OCTAPEPTIDE WHEREIN ALL SYNTHETIC STEPS ARE PERFORMED ON A SOLID MATRIX
James D. Rosamond and Jeanne Comstock. *Pennwalt Pharmaceutical, Rochester, NY, USA*
- P-WTh-68 A CONVENIENT METHOD FOR SYNTHESIS, PURIFICATION AND CONJUGATION OF SYNTHETIC PEPTIDE ANTIGENS
H.R. Wolfe, Jr. and WF. DeGrado. *E.I. du Pont de Nemours & Co., Wilmington, DE, USA*
- P-WTh-69 SYNTHESIS AND BIOLOGICAL ACTIVITIES OF HUMAN PLASMA APOLIPOPROTEIN C-II PEPTIDES
A. Balasubramaniam, R.F. Murphy, R.A. Demel and R.L. Jackson. *University of Cincinnati Medical Center, Cincinnati, OH, USA, The State University of Utrecht, Netherlands*
- P-WTh-70 SOLID PHASE SYNTHESIS OF THYMOSIN β_4 USING THE IMPROVED HF DEPROTECTION METHOD
N. Chandramouli, K. Bhargava and R.B. Merrifield. *The Rockefeller University, New York, NY, USA*
- P-WTh-71 SOLID PHASE SYNTHESIS OF HUMAN PLASMA APOLIPOPROTEIN C-II AND SOME OF ITS FRAGMENT PEPTIDES
Fairwell Thomas, A.V. Hospattankar and S.A. Khan. *National Heart, Lung, and Blood Institute, Bethesda, MD; The Rockefeller University, New York, NY, USA*
- P-WTh-72 SYNTHESIS OF GASTRIN-17, CAERULEIN AND CCK-8 WITH THE STANDARD MERRIFIELD AND THE "LOW-HIGH HF" PROCEDURES
B. Penke, M. Zarandi, J. Varga, J. Zsigo, J. Rivier and K. Kovacs. *Szeged University Medical School, Szeged, Hungary*
- P-WTh-73 SYNTHESIS OF A DECAPEPTIDE CORRESPONDING TO ANTIGENIC SITE III OF RABIES VIRUS GLYCOPROTEIN
Didier Blenot, Patrice Coulon, Jean van Heijenoort and Anne Flaimand. *Université de Paris-Sud, Laboratoire de Génétique des Virus, Gif-Sur-Yvette, France*
- P-WTh-74 HUMAN T-CELL LEUKEMIA VIRUS STRUCTURAL PROTEINS SYNTHETIC FRAGMENTS AND THEIR ANTIBODIES IDENTIFY ANTIGENIC SITES
T.D. Copeland, WP. Tsai, YD. Kim and S. Oroszlan. *NCI-Frederick Cancer Research Facility, Frederick, MD, USA*
- P-WTh-75 THE C-TERMINAL HOMOCYSTEINE THIOLACTONE AS A PRECURSOR FOR THE SYNTHESIS OF IMMUNOGENS APPLICATION TO THE TACHYKININS
Solange Lavielle, Gérard Chassaing, Sylviane Julien and Andree Marquet. *Université P et M Curie, Paris, France*
- P-WTh-76 THE IDENTIFICATION OF ANTIGENIC DETERMINANTS IN PROTEINS BY THE ANALYSIS OF PEPTIDES FROM PROTEOLYSED ANTIGEN-ANTIBODY COMPLEXES
Ronald Jemmerson and Yvonne Paterson. *Scrpps Clinic and Research Foundation, La Jolla, CA, USA*

- P-WTh 88 SYNTHESIS AND BIOLOGICAL EVALUATION OF PEPTIDE E AND ALA¹PEPTIDE E AND CARBOXY-TERMINUS FRAGMENTS
E.P. Helmer, A.M. Felix, M. Ahmad, T.J. Lambros, S. Spector, D.H. Helmes and C.H. Li, *Hoffmann-La Roche Inc., Nutley, NJ, Roche Institute of Molecular Biology, Nutley, NJ, University of CA, San Francisco, CA, USA*
- P-WTh 89 ENKEPHALIN TRIPEPTIDE AMIDES
D. Sarantakis, H. Fletcher III, R. Tasse and W. Dvonch, *Wyeth Labs Inc Philadelphia, PA, USA*
- P-WTh 90 SYNTHESIS AND BIOLOGICAL ACTIVITY OF A POTENT ENKEPHALIN ANALOG, Tyr-DThr-Gly-Phe-Δ³Pro-NH₂, **Chrysa Tzougaki**, Wallace M. Dairman, Raymond C. Makofske, Lislot Aeppli and Johannes Meinhöfer, *University of Athens, Greece; Roche Research Center, Nutley, NJ, USA; Hoffmann-La Roche & Co., Ltd. Basel, Switzerland*
- P-WTh 91 URINARY METABOLITES OF NAFARELIN, A SUPERAGONISTIC ANALOGUE OF LHRH, IN MONKEYS
R.L. Chan, and M.D. Chaplin, *Syntex Research, Palo Alto, CA, USA*
- P-WTh 92 POTENT LHRH AGONISTS CONTAINING N⁶-N^{6'}-DIALKYL-D-HOMOARGININES
J.J. Nestor, Jr., R. Tahirramani, T.L. Ho, G. I. McRae and B.H. Vickery, *Syntex Research, Palo Alto, CA, USA*
- P-WTh 93 SUBSTITUTION OF ARG³ FOR TYR³ IN GnRH ANTAGONISTS
R.W. Roedel, N. Chaturvedi, J. Rivier, W. Vale, J. Porter and M. Perrin, *Indiana University School of Medicine, Indianapolis, IN, The Salk Institute, San Diego, CA, USA*
- P-WTh 94 SYNTHESIS AND CARDIOVASCULAR ACTIVITY OF IMIDAZOLE SUBSTITUTED ANALOGUES OF TRH
Virender M. Labroo, Giora Feuerstein and Louis A. Cohen, *National Institutes of Health, Bethesda, MD, Uniformed Services University of the Health Sciences, Bethesda, MD, USA*
- P-WTh 95 SOLID PHASE SYNTHESIS AND BIOLOGICAL ACTIVITY OF FRAGMENTS OF hCRF
J.L. Morell, J.H. Brown, C.W. Grewe, G. Aguilera and K.J. Catt, *NICHHD NIH, Bethesda, MD, USA*
- P-WTh 96 SINGLE AMINO ACID DELETION ANALOGS OF HUMAN GROWTH HORMONE RELEASING FACTOR
T. Munegumi, A. Baurd, W.B. Wehrenberg, N. Ueno, and N. Ling, *The Salk Institute, San Diego, CA, USA*
- P-WTh 97 STRUCTURE-ACTIVITY STUDIES ON ATRIOPEPTINS
K. Fok, F.S. Tjeng, J. Houbion, K. Spear, S.T. Nugent, S.R. Eubanks, M.E. Zupiec, G. Olins, D. Blehm, K. Wakatani, P. Needleman and S.P. Adams, *Monsanto Co., Washington University Medical School, St. Louis, MO, USA*
- P-WTh 98 ISOLATION OF CARDIODILATIN (CDD 1-126), THE COMPLETE cGENE PRODUCT OF AN ATRIAL PEPTIDE HORMONE
W.G. Forsmann, D. Hock, C. Kuhn, J. Metz, C. Birr, M. Calkquist and J. Mull, *University of Heidelberg (FRG), Heidelberg, FRG, Arrhenius University, Stockholm, Sweden*
- P-WTh 78 PREDICTION AND SYNTHESIS OF POTENTIAL ACTIVE SITES OF SOME IMMUNOREGULATORY PROTEINS AND PEPTIDES
G. Chipens, N. Ievina, O. Papsuevich, T. Petrova, G. Rosenthal, R. Vegners, I. Rituma, *Institute of Organic Synthesis, Riga, USSR*
- P-WTh 79 RECEPTORS FOR TUFTSIN ON PLASMA MEMBRANES OF MACROPHAGES AND MACROPHAGE HYBRIDOMA CELLS
M. Fridkin, S. Dagan, E. Tzehoval and M. Feldman, *The Weizmann Institute of Science, Rehovot, Israel*
- P-WTh 79 STRUCTURAL REQUIREMENTS FOR THE BIOLOGICAL ACTIVITY OF THYMOPENTIN ANALOGS
Daniel Kroon, Tapan Audhya, Gideon Goldstein, and **George A. Heavner**, *Ortho Pharmaceuticals Corporation, Raritan, NJ, USA*
- P-WTh 80 IDENTIFICATION OF IMMUNODOMINANT SITES ON C-TERMINAL REGIONS OF CYTOCHROME C BY USING SYNTHETIC PEPTIDES
Bhagirath Singh, Patrick D. Kilgannon and Ester Fraga, *University of Alberta, Edmonton, Alta, Canada*
- P-WTh 81 SYNTHESIS AND PHARMACOLOGY OF DI-PEPTIDES RELATED TO DES[Gly⁷]ENKEPHALIN, MODIFICATION OF THE C-TERMINAL AMIDE
J. Singh, B. A. Morgan and S. J. Ward, *Sterling-Winthrop Research Institute, Rensselaer, NY, USA*
- P-WTh 82 CARBOXY-TERMINUS OF α-MELANOTROPIN STRUCTURAL DETERMINANTS IMPORTANT FOR POTENCY VERSUS INTRINSIC BIOACTIVITY
D.J. Staples, A.E. de Vaux, J.A. Altholter, T.K. Sawyer, P.S. Darman, W.L. Cuddy, **B.C. Wilkes**, V.J. Hruby, M.F. Engel, and M.E. Hadley, *The Upjohn Company, Kalamazoo, MI, University of Arizona, Tucson, AZ, University of Oklahoma, Norman, OK, USA*
- P-WTh 83 MUTATION AND DESIGN OF INTERMOLECULAR RECOGNITION IN MODEL SEMISYNTHETIC RIBONUCLEASE
Xun Liang, and Irwin M. Chaiken, *Nankai University, People's Republic of China, National Institutes of Health, Bethesda, MD, USA*
- P-WTh 84 ENZYME-CATALYZED PEPTIDE SYNTHESIS AT PHENYLALANINE (B25) OF INSULIN WITH DIFFERENT ENZYMES
Hans-Gregor Gattner, *Deutsches Welforschungsinstitut, Aachen, FRG*
- P-WTh 85 INSULIN ANALOGUES BEARING UNNATURAL AROMATIC AMINO ACID SUBSTITUTIONS AT POSITION B25
S.H. Nakagawa, M.J. Sheetz and H.S. Tager, *The University of Chicago, IL, USA*
- P-WTh 86 SEMISYNTHETIC INSULIN ANALOGS SUBSTITUTION FOR GLY-B23 SIGNIFICANTLY ALTERS THE ACTIVITY OF DESTETRAPEPTIDE-INSULIN
Mark W. Riemen, John T. Hosoume, Nancy A. Hillyard, Michael P. Allen and Frederick H. Carpenter, *University of California, Berkeley, CA, USA*
- P-WTh 87 PEPTIDE DEGRADATION BIOLOGICAL HALF-LIVES AND FRAGMENTATION PATTERNS FOR CCK OCTAPEPTIDE AND ENKEPHALINS IN HUMAN SERUM AND KIDNEY HOMOGENATES
Arno F. Spatola and Deanne E. Benowitz, *University of Louisville, KY, USA*

EXHIBITORS

- P-WTh-119 THE SYNTHESIS AND STRUCTURE ACTIVITY STUDIES OF VASO PRESSIN ANTAGONISTS MODIFIED AT POSITIONS ONE AND TWO
Neilson C.F. Yim, Fadia E. Ali, William Bryan, William F. Huffman, Michael L. Moore, Joanne Silvestri, and Su-Sun Wang, R. Erickson, G. Heckman, L. Kinter, J. McDonald, D. Schmidt, D. Shue, F. Stassen, J. Stefankiewicz and L. Sulat, Smith Kline & French Laboratories, Philadelphia, PA, Alpha Biomedicals, Inc., San Carlos, CA, USA
- P-WTh-120 BENZYLOXYCARBONYLARGINYL- AND p-NITROBENZYL-OXY-CARBONYLARGINYL GROUPS AS AMINE PROTECTION AND CHROMATOGRAPHIC HANDLES DURING PEPTIDE SYNTHESIS
John D. Glass, Angeliki Buku, Uma Roy, Diana Gazis, and Brian Hayes Mount Sinai School of Medicine, New York, NY, USA.
- P-WTh-121 STATINE-CONTAINING RENIN INHIBITORY PEPTIDES. EFFECTS ON BLOOD PRESSURE IN THE PRIMATE
Kwan Y. Hui, Michael S. Bernatowicz, H. Hartley, and Edgar Haber Massachusetts General Hospital, Boston, MA, USA.
- P-WTh-122 SYNTHESIS OF BIOLOGICALLY ACTIVE PEPTIDES ON A NOVEL AUTOMATED PEPTIDE SYNTHESIZER
S. Meister, T. Geiser, and S. Kent, Applied Biosystems, Inc., Foster City, CA; California Institute of Technology, Pasadena, CA, USA.

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ACKNOWLEDGEMENTS

The Ninth American Peptide Symposium is pleased to acknowledge the following organizations for their support and generous financial assistance:

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The symposium is also supported by a grant from the U.S. Public Health Service, funded by the National Institute of General Medical Sciences, and the National Institute of Arthritis, Diabetes and Digestive and Kidney Disease

SPECIAL THANKS TO:

Ms Homer Harwood and Mr. Steven A. Cap, Assistants to K.D.K.
Ms Christie Chanter, Assistant to C.M.D.
Queenie Teichman, Irene Derrett, and the staff of Insight Planners, Inc.
505 Eglinton Avenue W., Toronto
Eva McGrath and the staff of the Word Processing Center, Research Institute, Hospital for Sick Children
Tnu Kask, Padam Shukla and the staff at Instructional Media Services, University of Toronto
Jack Riley and the staff at the Media Center, University of Toronto
Maurice Jones, Residence Complex Officer, University of Toronto
Lucy and Jerry, Nicola's Choice Meats Ltd.,
298 Eglinton Avenue W., Toronto
and the *Phi Psi Omega Fraternity*:
Simon Crook, Raisa Deber, Ph.D., Paul Fraser, Nigel Girgrah, Lynn Hsu,
Mary Lutek, Alice Newman, Asha Pawagi, Robert Stewart, Jim Webster,
Drew Woolley, and Xenia Young.

END

2-87

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