

TECHNICAL PROGRAM

MONDAY MORNING—APRIL 30

SESSION A

LIPID ANALYSIS—16mm Color Film

11:00 a.m.—Terrace Room

Chairpersons: **Orville S. Privett**, The Hormel Institute, University of Minnesota, Austin, MN; **Watura Yano**, Suzuka College of Technology, Suzuka, Japan

- 11:00 1. **Techniques of Lipid Analysis (50 Minute Film)**
O.S. Privett* and W.L. Erdahl, The Hormel Institute, University of Minnesota, Austin, MN

MONDAY MORNING—APRIL 30

SESSION B

GENERAL BIOCHEMISTRY—I

11:00 a.m.—Garden Room

Chairperson: **Anahid Crecelius**, California Polytechnic University, Pomona, CA

- 11:00 2. **Interaction of Human Plasma High Density Lipoprotein HDL₂ (d 1.063–1.21 g/ml) with Synthetic Phospholipids**
Elaine L. Gong,* Alex V. Nichols, and Trudy M. Forte, University of California, Berkeley, CA
- 11:20 3. **Effect of Phosphatidyl Choline on the Hemolytic Activity of Bile Salts**
Ichiro Hara,* Mitsuyo Okazaki, Tokyo Medical and Dental University; Makoto Hayashi, and Yakanori Kobayashi, University of Chiba, Japan
- 11:40 4. **Altered Phospholipid Polyunsaturated Fatty Acid Patterns in Hepatic and Cerebral Tissues of Vitamin B₁₂ Deficient Rats**
James J. Peifer,* J.N. Morgan, and R.D. Lewis, University of Georgia, Athens, GA

MONDAY MORNING—APRIL 30

SESSION C

ANTIOXIDANTS AND FLAVOR STABILITY OF OILS—I

11:00 a.m.—Pavilion Room

Chairpersons: **E.N. Frankel**, USDA, Peoria, IL; **Takashi Kaneda**, Tohoku University, Sendai, Japan

- 11:00 **Introductory Remarks**
E.N. Frankel, Northern Regional Research Center, USDA, Peoria, IL
- 11:10 5. **Radicals Formed in Autoxidizing Methyl Linoleate during the Induction Period**
Toshiyuki Chiba,* Kenshiro Fujimoto, Takashi Kaneda, Shozo Kubota, and Yusaku Ikegami, Tohoku University, Sendai, Japan
- 11:30 6. **Analysis of Autoxidized and Photosensitized Oxidized Fats by Gas Chromatography-Mass Spectrometry**
E.N. Frankel,* W.E. Neff, and T.R. Bessler, Northern Regional Research Center, USDA, Peoria, IL

* Speaker.

- 11:50 7. **Study of Addition Compounds of Tocopherol and Long Chain Unsaturated Compounds**
Hajime Seino* and Shoichiro Watanabe, Kitasato University, Kanagawa, Japan

MONDAY MORNING—APRIL 30

SESSION D

HUMAN MILK LIPIDS

11:00 a.m.—California Room

Chairperson: **Robert G. Jensen**, University of Connecticut, Storrs, CT

- 11:00 8. **The Lipids of Human Milk: A Review**
Robert G. Jensen* and Richard M. Clark, University of Connecticut, Storrs, CT
- 11:20 9. **Fatty Acids of Human Milk and of Infant Formulae**
J.L. Beare-Rogers,* L.M. Gray, and R. Hollywood, Food Directorate, Ottawa, Ontario, Canada
- 11:35 10. **Lipid Composition of Normal and Icteric Human Milk**
Mary F. Picciano* and Edward G. Perkins, University of Illinois, Urbana, IL
- 11:55 11. **Human Milk Lipids as Host Resistance Factors**
Jon. J. Kabara, Michigan State University, East Lansing, MI
- 12:10 12. **Mammary Transfer and Metabolism of Halogenated Lipids in the Rat**
H.B.S. Conacher,* R.K. Chadha, S.M. Charbonneau, and F. Bryce, Health and Welfare Canada, Ottawa, Ontario, Canada

MONDAY AFTERNOON—APRIL 30

SESSION E

ESSENTIAL FATTY ACIDS

2:00 p.m.—Terrace Room

Chairpersons: **Penny Wells**, Cutter Laboratories Inc., Berkeley, CA; **Joyce Beare-Rogers**, Food Directorate, Ottawa, Canada

- 2:00 13. **Diagnosis of Essential Fatty Acid Deficiency**
Ralph T. Holman, The Hormel Institute, University of Minnesota, Austin, MN
- 2:20 14. **Fatty Acid Patterns of Serum Lipids in Cystic Fibrosis**
Susan Johnson,* The Hormel Institute; John Lloyd-Still, Children's Memorial Hospital, Chicago, IL; and Ralph T. Holman, The Hormel Institute, University of Minnesota, Austin, MN
- 2:40 15. **Evaluation of Fetal Lung Maturity in utero by Gas Chromatography**
Eric J. Sing,* Richard Depp, Mary Ann Fletcher, and Dante G. Scarpelli, Northwestern University Medical School, Chicago, IL
- 3:00 16. **Involvement of Prostaglandins in Respiratory Distress Syndrome in the Newborn**
Eric J. Sing, Northwestern University Medical School, Chicago, IL
- 3:20 17. **Investigation of the Low Levels of Linoleic Acid in the Skin Lipids of Acne Patients**
Mary Ellen Stewart* and Donald T. Downing, University of Iowa, Iowa City, IA

- 3:40 18. **Dietary Requirements for Linolenic Acid in Animals**
J. Tinoco,* R. Babcock, I. Hincenbergs, B. Medwadowski, and P. Miljanich, University of California, Berkeley, CA
- 4:00 19. **Lipid Changes in Peripheral Nerve Myelin in Essential Fatty Acid Deficiency**
Jeffrey K. Yao,* Bruce Evans, Mayo Clinic; Ralph T. Holman, The Hormel Institute, Austin, MN; Michael F. Lubozynski, and Peter James Dyck; Mayo Clinic, Rochester, MN
- 4:20 20. **Low Dietary Iron May Cause a Delay in the Onset of Essential Fatty Acid Deficiency**
G. Ananda Rao* and Edward C. Larkin, Veterans Administration Medical Center, Martinez, CA

MONDAY AFTERNOON—APRIL 30

SESSION F

PROCESSING OF FATS AND OILS—I

1:30 p.m.—Crystal Room

Chairpersons: **William Bell**, Sullivan Systems Inc., Tiburon, CA; **Katsuyoshi Miki**, Miyoshi Oils & Fats Co. Ltd., Tokyo, Japan

- 1:30 21. **Reliability and Optional Operating Conditions with Modern Flakers**
Jack A. Hostettler, Buhler-Miag, Inc., Minneapolis, MN
- 2:00 22. **Effect of Seed Preparation on Oil Quality in Filtration Extraction of Rapeseed**
Akira Nishioka,* Oil & Fat Technical Center, Ajinomoto Co., Yokohama, Japan; Masao Nagashima, and Tetsuo Hino, Toyo Oil Mills, Inc.
- 2:30 23. **Evaluation of Extraction Plant Design and Operation**
Edward D. Milligan* and David C. Tandy, EMI Corporation, Des Plaines, IL
- 3:00 24. **Improvements and Innovations in the Technology and Equipment of Oil Processing**
H.L.S. Staff, H.L.S. Ltd. Industrial Engineering Co., Petah Tikva, Israel
- 3:30 25. **Some Studies on Further Improvement of the Qualities of Edible Oils**
Morio Hamashima, Hisashi Watanabe, Tadasu Fujita, Masanao Ozeki, and Kosaku Yasuda,* The Nisshin Oil Mills, Ltd., Yokohama, Japan
- 4:00 26. **The Refining of Fatty Oils: The Role of the Minor Constituents**
Morris Mattikow, Consultant, New York, NY
- 4:30 27. **Solvent Extraction of Spent Bleach Clay**
David C. Tandy* and Ralph W. Berger, EMI Corporation, Des Plaines, IL

MONDAY AFTERNOON—APRIL 30

SESSION G

GENERAL BIOCHEMISTRY—II

2:00 p.m.—Garden Room

Chairperson: **Anahid Crecelius**, California Polytechnic University, Pomona, CA

- 2:00 28. **Dry-Column Method for Extraction of Lipid from Muscle and Adipose Tissues**
William N. Marmer,* Robert J. Maxwell, Marta P. Zubillaga, and Gail A. Dalickas, Eastern Regional Research Center, Philadelphia, PA
- 2:20 29. **Studies on the Metabolic Fate of Alpha Olefin Sulfonate**
Shunji Inoue,* Akira Fukushima, Masahide Imori, Lion Biol. Res. Lab., Japan; J.S. O'Grodnick, G.D. Dupre, Bio/dynamics Inc.; and Setsuo Tomisawa, Department of Pharm., Kitasato University, Japan

- 2:40 30. **Lipid Bromine Concentrations in Tissues of Rats Fed Brominated Fatty Acids**
Barbara Jones,* Robert R. Lowry, and Ian J. Tinsley, Oregon State University, Corvallis, OR
- 3:00 31. **An Investigation of the Metabolism of Polyenoic Acids in Isolated Rat Sertoli and Germinal Cells**
Jeffery K. Beckman* and John G. Coniglio, Vanderbilt University, Nashville, TN (**Honored Student Presentation**)
- 3:20 32. **On the Origin of Carotene in Bovine Milk Fat Globules**
Stuart Patton,* Pennsylvania State University, University Park, PA; and John J. Kelly, Swarthmore College, PA
- 3:40 33. **Fatty Acid Patterns in Serum Total Lipids from Female Swine during Estrus and Gestation**
E.G. Hill,* The Hormel Institute; W.L. Stockland, Intl. Multifoods, Courtland, MN; L.G. Blaylock, Intl. Multifoods, Minneapolis, MN; and R.T. Holman, The Hormel Institute, University of Minnesota, Austin, MN

- 4:00 34. **Giant-Ring Lactones in the Skin Surface Lipids of Horses**
Sabin W. Colton VI* and Donald T. Downing, University of Iowa, Iowa City, IA
- 4:20 35. **Influence of α -Tocopherol on Turnover of Fungal Lipids**
Michele Adler and R. Cecil Jack,* St. John's University, Jamaica, NY
- 4:40 36. **Metabolism of Triacylglycerol and Phosphatidylglycerol in Fungi**
Gregory E. Anekwe, Department of Biochemistry, University of Lagos, Lagos, Nigeria

MONDAY AFTERNOON—APRIL 30

SESSION H

FATTY ACID DERIVATIVES

2:00 p.m.—Fountain Room

Chairpersons: **Mitsuo Okahara**, University of Osaka, Osaka, Japan; **Eric Jungermann**, Jungermann Assoc., Chicago, IL

- 2:00 37. **Synthesis and Properties of N-Alkyl Monoaza Crown Ethers**
Mitsuo Okahara,* Ping-Lin Kuo, Masaki Miki, and Isao Ikeda, Osaka University, Osaka, Japan
- 2:20 38. **Studies of Alkylimidazoline Derivatives**
Motoo Koyama,* Noboru Kasatani, Tsuyoshi Ogino, and Kesaichi Ide, Nippon Oil and Fats Co., Ltd., Hyogo, Japan
- 2:40 39. **Studies on the Sulfation of Fatty Acid Alkanolamide with Chlorosulfonic Acid and Its By-products**
Yoshio Makino,* Yasushi Hayasaki, Etsuo Sugi, and Kesaichi Ide, Nippon Oil and Fats Co., Ltd., Hyogo, Japan
- 3:00 40. **Synthesis of Higher Alcohols by Gas Phase Catalytic Hydrogenation of Fatty Acid Methyl Esters under Atmospheric Pressure**
Kazuo Ikeda* and Atoh Mugishima, Kogakuin University, Tokyo, Japan
- 3:20 41. **Furanoid Fatty Acids: Synthesis and Characterization**
Marcel S.F. Lie Ken Jie,* Department of Chemistry, University of Hong Kong, Hong Kong; and F.D. Gunstone, University of Saint Andrews, St. Andrews, Scotland

MONDAY AFTERNOON—APRIL 30

SESSION I

ANTIOXIDANTS AND FLAVOR STABILITY OF OILS—II

2:00 p.m.—Pavilion Room

Chairpersons: **E.N. Frankel**, USDA, Peoria, IL; **Takashi Kaneda**, Tohoku University, Sendai, Japan

- 2:00 42. **Improvement of Oxidative Stability of Fats and Oils**
Haruo Watanabe, Tohru Kitagawa, Mutsuhito Watanabe,* and Hiroko Tahara, Showa Sangyo Co., Ltd., Chiba, Japan
- 2:20 43. **Stability of an Interesterified Blend of Soybean Oil and Edible Tallow**
A. Philip Handel,* Roy G. Arnold, and Yun Chan Lo, University of Nebraska, Lincoln, NE
- 2:40 44. **Standardization of Tests for Fat Autoxidation Stability**
Goro Kajimoto, Kazuo Horikawa,* Saburo Akashi, Tsuguo Izumi, Hiroshi Morishima, Tokao Nakayama, Etsuji Yuki, and Satoshi Yoneyama, JOCS Fat Stability Committee, Tokyo, Japan
- 3:00 45. **Measurements of Oxygen Uptake and Flavor Compounds as Indicators of Oil Flavor Quality**
David B. Min, Best Foods Research and Engineering Center, Union, NJ
- 3:20 46. **Sunflowerseed Salad Oil: Correlation of Gas Liquid Chromatography Volatiles with Flavor Intensity Scores**
W.H. Morrison, III,* B.G. Lyon, and J.A. Robertson, R.B. Russell Agricultural Research Center, USDA, Athens, GA
- 3:40 47. **Bitter Taste in Oxidized Fatty Acids**
Riichiro Usuki* and Takashi Kaneda, Tohoku University, Sendai, Japan
- 4:00 48. **Frying Quality of Palm Oils under Simulated Deep-Fat Frying Conditions**
E. Yuki* and K. Morimoto, Hiroshima Food Research Institute, Hiroshima, Japan
- 4:20 49. **Changes in Dielectric Constant as a Measure of Frying Oil Deterioration**
C.W. Fritsch,* D.C. Egberg, and J.S. Magnuson, General Mills Inc., Minneapolis, MN

MONDAY AFTERNOON—APRIL 30

SESSION J

HIGH PERFORMANCE LIQUID CHROMATOGRAPHY—I

2:00 p.m.—California Room

Chairpersons: **Orville S. Privett**, The Hormel Institute, University of Minnesota, Austin, MN; **Wataru Yano**, Suzuka College of Technology, Suzuka, Japan

- 2:00 **Opening Remarks**
Orville S. Privett, The Hormel Institute, University of Minnesota, Austin, MN
- 2:05 50. **High Performance Liquid Chromatography of Triglycerides: Controlling Selectivity with Silica and Reverse Phase Columns**
R.D. Plattner and G.F. Spencer,* Northern Regional Research Center, USDA, Peoria, IL
- 2:30 51. **High Performance Liquid Chromatographic Analysis of Vegetable Oils**
Ali El-Hamdy,* M.M. Chaudry, and Edward G. Perkins, University of Illinois, Urbana, IL
- 2:50 52. **Application of High Performance Liquid Chromatography to Analysis of Triglyceride Compositions of Fats and Oils**
Shun Wada,* Chiaki Koizumi, Akihide Takiguchi,

and Junsaku Nonaka, Tokyo University of Fisheries, Tokyo, Japan

- 3:10 53. **Triacylglycerol Composition of Rapeseed Oil**
Bengt Herslöf, Ragnar Ohlson,* and Oldrich Podlaha, AB Karlshamns Oljefabriker, Research Laboratory, Karlshamn, Sweden
- 3:30 54. **High Performance Liquid Chromatography Separation of Monounsaturated trans Fatty Acids**
R. Battaglio* and D. Fröhlich, Cantonal Laboratory of the Canton, Zurich, Switzerland
- 3:50 55. **Separation and Determination of POE Type Nonionic Surfactants by High Speed Liquid Chromatography**
Yukio Kasai* and Wataru Yano, Suzuka College of Technology, Suzuka, Japan
- 4:10 56. **Determination of Sodium Sulfate in Detergents by High Performance Liquid Chromatography**
Makoto Yamanaka,* Atsuo Nakae, Kazumi Furuya, and Tsuruo Mikata, Kao Soap Co., Ltd., Tochigi, Japan
- 4:30 57. **High Performance Liquid Chromatography Analysis of Surfactants Used in Detergents for Washing Fabrics**
D. Thomas,* Chimiotecnic, Venissieux, France; and J.L. Rocca, Lyon University

TUESDAY MORNING—MAY 1

SESSION K

LIPIDS AND ATHEROSCLEROSIS

8:30 a.m.—Terrace Room

Chairpersons: **James Felts**, Veterans Administration Hospital, San Francisco, CA; **Ichiro Hara**, Medical and Dental University, Tokyo, Japan

- 8:30 58. **Atherosclerosis: An Overview**
David Kritchevsky, Wistar Institute, Bryn Mawr, PA
- 8:50 59. **Diet and the Development of Atheroma**
A. Whitley Branwood, College of Physicians and Surgeons, New York, NY
- 9:10 60. **Effects of Dietary Fat on the Clinical and Biochemical Features of Familial Hyperlipoproteinemia**
Akira Yamamoto,* Hiroshi Sudo, Taku Yamamura, and Masaharu Kubo, National Cardiovascular Center, Osaka University, Osaka, Japan
- 9:30 61. **Relation of Serum Lipoproteins to Arteriosclerosis and Nutrition**
E. Renner, Justus-Liebig-University, Giessen, Germany
- 9:50 62. **Postheparin Lipolytic Activity in Patients with Chylomicronemia**
Hiroshi Sudo,* Taku Yamamura, Masaharu Kubo, Osaka University Medical School, Osaka, Japan; and Akira Yamamoto, Research Institute, National Cardiovascular Center, Osaka, Japan
- 10:10 63. **Some Regulatory Mechanisms of Cholesterol Metabolism**
Hans Kaunitz, Columbia University, New York, NY
- 10:30 64. **Liperoxide and Glutathione Peroxidase in Human Atherosclerosis**
Fumio Kuzuya* and Noboru Yoshimine, Nagoya University School of Medicine, Nagoya, Japan
- 10:50 65. **Some Atherogenetic Parameters in the Patients Having and/or Being Prone to Atherosclerotic Diseases**
Chikayuki Naito,* Hirokazu Kato, Tsuyoshi Watanabe, Takeshi Yamanaka, Hidetoshi Memezawa, and Tamio Teramoto, University of Tokyo, Tokyo, Japan

- 11:10 66. **Effect of Neonatal Manipulation of Cholesterol Homeostasis on Subsequent Response to Cholesterol in Adult Guinea Pig: Comparison of Enhancing Cholesterol Degradation versus Cholesterol Feeding**
Job R. Li,* Laurie K. Bale, Bruce A. Kottke, Mayo Clinic/Foundation, Rochester, MN; and M.T. Ravi Subbiah, Cincinnati Medical Center, OH
- 11:30 67. **Effect of Dietary Cholesterol and Corn Oil on Rabbit Growth**
T.R. Wrenn,* Joel Bitman, J.R. Weyant, and D.L. Wood, Beltsville Agricultural Research Center, USDA, Beltsville, MD
- 11:50 68. **Long Term Feeding of Partially Hydrogenated Herring Oils to Cynomolgus Monkeys**
R.G. Ackman,* Fisheries and Oceans Canada, Halifax, Nova Scotia; F.M. Loew, Johns Hopkins School of Medicine, Baltimore, MD; B. Schiefer, and E.D. Offert, University of Saskatchewan, Canada

TUESDAY MORNING—MAY I

SESSION L

PROCESSING FATS AND OILS—II

8:30 a.m.—Crystal Room

Chairpersons: **William Bell**, Sullivan Systems Inc., Tiburon, CA; **Kosaku Yasuda**, The Nisshin Oil Mills, Ltd., Yokohama, Japan

- 8:30 69. **Continuous Oil Winterization Development**
Basil T. Papahronis, Hunt-Wesson Foods, Fullerton, CA
- 9:00 70. **Winterization**
Duriron Co.
- 9:30 71. **Winterization of Peanut Oil**
R.O. Feuge* and John L. White, Sr., Southern Regional Research Center, USDA, New Orleans, LA
- 10:00 72. **New Process of Interesterification of Fats and Oils with Caustic Soda Catalyst**
Katsuyoshi Miki,* Hiroto Suzuki, and Koji Ito, Miyoshi Oil and Fat Co., Ltd., Tokyo, Japan
- 10:30 73. **High Quality Food Products from Beef Tallow by a Two-Step Solvent Fractionation Process**
Francis E. Luddy,* James W. Hampson, and Ronald E. Koos, Eastern Regional Research Center, USDA, Philadelphia, PA
- 11:00 74. **Operation of H.L.S. Plant for Fractionating Palm Oil by Transesterification**
H.L.S. Staff, H.L.S. Ltd. Industrial Engineering Co., Petah Tikva, Israel
- 11:30 75. **Hydrogen Production by Automation**
Ronald G. Minet, KTI Corporation, Pasadena, CA

TUESDAY MORNING—MAY I

SESSION M

GENERAL BIOCHEMISTRY—III

8:30 a.m.—Garden Room

Chairpersons: **Lilla Aftergood**, University of California, Los Angeles, CA; **Kunihiko Saito**, Kansai Medical College, Osaka, Japan

- 8:30 76. **Mild Base and Acid Stable Phospholipids from Chicken Egg Yolk**
Un Hoi Do* and S. Ramachandran, Applied Science Laboratories, State College, PA
- 8:50 77. **Quantitation of Cholesterol α -Oxide in Eggs by Gas Chromatography and High Performance Liquid Chromatography**
L.S. Tsai,* C.A. Hudson, K. Ijichi, and J.J. Meehan, USDA, Albany, CA

- 9:10 78. **Dietary Eggs and Changes in Plasma, Liver, and Brain Lipids**
Susan Bony, Carole Subramanian, James F. Mead, and Govind A. Dhopeswarkar,* University of California, Los Angeles, CA
- 9:30 79. **Cholesterol and Cholesterol Esters of Eggs from Various Avian Species**
Joel Bitman* and D.L. Wood, Beltsville Agricultural Research Center, Beltsville, MD
- 9:50 80. **Uptake and Distribution of cis- and trans-12-Octadecenoic Acids in Human Blood Lipids**
E.A. Emken,* H.J. Dutton, W.K. Rohwedder, Henry Rakoff, R.O. Adlof, Northern Regional Research Center, USDA, Peoria, IL; R.M. Gulley, St. Francis Hospital Med Center; and J.J. Canary, Georgetown University, Washington, DC

- 10:10 81. **Desaturation of Isomeric trans-Octadecenoic Acids by Rat Liver Microsomes**
M.M. Mahfouz* and R.T. Holman, The Hormel Institute, University of Minnesota, Austin, MN

- 10:30 82. **Effect of Autoxidized Oil on Carp**
Kazuhiko Hata* and Takashi Kaneda, Tohoku University, Sendai, Japan

- 10:50 83. **The Effect of Pyrophosphate on Microsomal NADPH-induced Lipid Peroxidation and Chemiluminescence**
Sandra L. Guthans,* Richard H. Steele, and William H. Baricos, Tulane University Medical School, New Orleans, LA

- 11:10 84. **Absorption of Methyl Linoleate Hydroperoxides in Rats**
Kenichi Nakatsugawa* and Takashi Kaneda, Tohoku University, Sendai, Japan

- 11:30 85. **Effect of Glutathione Peroxidase on the Autoxidized Methyl Linoleate**
Hironori Negishi,* Kenshiro Fujimoto, and Takashi Kaneda, Tohoku University, Sendai, Japan

TUESDAY MORNING—MAY I

SESSION N

SYMPOSIUM: NEW DEVELOPMENTS FOR DETERGENTS IN THE 1980s—I

9:00 a.m.—Fountain Room

Chairpersons: **Eric Jungermann**, Jungermann Assoc., Chicago, IL; **Shigeo Hayano**, University of Tokyo, Tokyo, Japan

- 9:00 86. **Color Improvement in Surfactants, Detergents, and Soaps via Sodium Borohydride Purification**
Michael M. Cook* and Richard A. Mikulski, Ventron Corp., Beverly, MA
- 9:20 87. **Mass Balance of Fluorescent Brightening Agents in Built Detergents**
Masako Hayashi,* The Ochanomizu University, Tokyo; Yuko Ueno, Beppu College, Beppu, Japan; Motoko Komaki, and Akihiko Yabe, The Ochanomizu University, Tokyo, Japan
- 9:40 88. **A Study of Moisture Distribution in Powdered Synthetic Detergents by Thermogravimetry**
Claude Benz* and Joseph P. Simko, Jr., Colgate-Palmolive Co., Piscataway, NJ
- 10:00 89. **Properties of New β -Alanine Type Amphoteric Surfactants Containing Hydroxy Groups**
Hisao Hidaka,* Meisei University, Tokyo, Japan; Masafumi Moriya, and Makoto Takai, Miyoshi Oil and Fat Company, Ltd., Japan
- 10:20 90. **Fundamental Studies of the Parameters Governing Oily Soil Removal from Synthetic Substrates**
K.W. Dillan,* E.D. Goddard, and D.A. McKenzie, Union Carbide Corporation, Tarrytown, NY

- 10:40 91. **Recent Development in Alpha Olefin Sulfonate Technology**
Sadao Toyoda, Lion Fat & Oil Co., Ltd., Tokyo, Japan
- 11:00 92. **Detergency Enhancements by Pure Alcohol Ethoxylates**
H.L. Benson* and Y.C. Chiu, Shell Development Co, Houston, TX

TUESDAY MORNING—MAY 1

SESSION O

ANTIOXIDANTS AND FLAVOR STABILITY OF OILS—III

9:00 a.m.—Pavilion Room

Chairpersons: **E.N. Frankel**, USDA, Peoria, IL; **Takashi Kaneda**, Tohoku University, Sendai, Japan

- 9:00 93. **Thermal Degradation and Oxidation of Thin Films of Unsaturated Glycerides**
Kyoh Takaoka,* Musashi Institute of Technology; and Yoshiyuki Toyama, Toyo University, Tokyo, Japan
- 9:20 94. **Antioxidant Activity of Sea Algae**
Kenshiro Fujimoto* and Takashi Kaneda, Tohoku University, Sendai, Japan
- 9:40 95. **Effect of Amino Acids on Autoxidation of Safflower Oil in Emulsions**
Tom Riisom,* Rex J. Sims, and Joseph A. Fioriti, General Foods Corporation, Pleasantville, NY
- 10:00 96. **Antioxidant Activity of Amino Acids Bound to Trolox-C**
M. Taylor* and T. Richardson, University of Wisconsin, Madison, WI
- 10:20 97. **Diversity of Synergism between Phenolic Antioxidants and Amino Compounds**
Yukihiro Ishikawa, Tottori University, Tottori, Japan
- 10:40 98. **Behavior of Citric Acid in Edible Oils**
Mamoru Komoda,* Kouji Miyakoshi, and Shigezo Matsubara, Sugiyama Chemical and Industrial Lab., Yokohama, Japan
- 11:00 99. **A Rapid Method for Analysis of Refined Vegetable Oils for TBHQ by Gas Chromatography**
Richard E. Austin* and David M. Wyatt, Eastman Chemical Products, Inc., Kingsport, TN
- 11:20 100. **A Comparison of the Volatilities of TBHQ, BHA, and BHT Antioxidants from Soybean Oil under Simulated Frying Conditions**
Dan F. Buck, Eastman Chemical Products, Inc., Kingsport, TN

TUESDAY MORNING—MAY 1

SESSION P

HIGH PERFORMANCE LIQUID CHROMATOGRAPHY—II

9:00 a.m.—California Room

Chairpersons: **Orville S. Privett**, The Hormel Institute, University of Minnesota, Austin, MN; **Wataru Yano**, Suzuka College of Technology, Suzuka, Japan

- 9:00 101. **High Performance Liquid Chromatography of Steroids**
Erich Heftmann, Western Regional Research Center, USDA, Berkeley, CA
- 9:30 102. **Quantitative Determination of Ferulates in Rice Bran Oil by High Performance Liquid Chromatography**
K. Tanabe, A. Tanaka, A. Kato, and T. Hashi-

moto,* National Chemical Laboratory for Industry, Tokyo, Japan

- 9:50 103. **Analysis of Autoxidation Products of Cholesterol by High Performance Liquid Chromatography**
L.S. Tsai and C.A. Hudson,* USDA, Albany, CA
- 10:10 104. **Reverse Phase High Performance Liquid Chromatography of Heated Soybean Oil**
M.M. Chaudry* and E.G. Perkins, University of Illinois, Urbana, IL
- 10:30 105. **High Performance Liquid Chromatography of Heated Fats and Oils: Olive Oil**
Ali El-Hamdy* and Edward G. Perkins, University of Illinois, Urbana, IL
- 10:50 106. **Naturally Occurring Vitamin D₃ in Fish Products Analyzed by High Performance Liquid Chromatography, Using Vitamin D₂ as an Internal Standard**
Eliann Egaas* and Georg Lambertsen, Directorate of Fisheries, Bergen, Norway
- 11:10 107. **Determination of Tocopherol Homologues in Foodstuffs by High Performance Liquid Chromatography**
Hiroyasu Fukuba,* Toruko Miyoshi, and Toshie Tsuda, Ochanomizu University, Tokyo, Japan
- 11:30 108. **High Performance Liquid Chromatography Analysis of Several Preservatives in Oils and Foods**
William P. Van Antwerp, Agri-Science Laboratories Inc., Los Angeles, CA

TUESDAY AFTERNOON—MAY 1

SESSION Q

SYMPOSIUM: LOW DENSITY AND VERY LOW DENSITY LIPOPROTEINS: STRUCTURE, COMPOSITION, AND PROPERTIES

1:30 p.m.—Terrace Room

Chairperson: **Lewis I. Gidez**, Albert Einstein College of Medicine, Bronx, NY

- 1:30 109. **Very Low Density Lipoprotein and Low Density Lipoprotein Metabolism: An Overview**
D. Steinberg, University of California, San Diego, CA
- 2:00 110. **Physical-Chemical Investigations of Low Density Lipoprotein and Very Low Density Lipoprotein**
Donald M. Small, Boston University Medical Center, Boston, MA
- 2:30 111. **Spherical Symmetry and Structure of Serum Low Density Lipoproteins**
Angelo M. Scanu, University of Chicago, Chicago, IL
- 2:50 112. **Size Determination of Human Low Density Lipoprotein Subfractions**
Mason M.S. Shen,* Ronald M. Krauss, Frank T. Lindgren, Trudy M. Forte, and Thornton W. Sargent IV, University of California, Berkeley, CA
- 3:10 113. **Conformation of the Protein Moiety of Low Density Lipoprotein Treated with Trypsin**
J.P. Kane,* G.C. Chen, University of California, San Francisco, CA; and M.J. Chapman, INSERM, Creteil, France
- 3:30 114. **The B Proteins of Human Serum Lipoproteins**
Karen S. Kuehl* and Robert G. Langdon, University of Virginia, Charlottesville, VA
- 3:50 115. **The Properties of Solubilized Apolipoprotein B**
Waldo R. Fisher,* Rachel B. Shireman, and Paul W. Chun, University of Florida, Gainesville, FL
- 4:10 116. **Glutathione and Nitrogen Protect Apolipoprotein B from Aggregation**
Diana M. Lee,* Wu H. Kuo, and Hedio Maeda, Oklahoma Medical Research Foundation, Oklahoma City, OK

- 4:30 117. **Characterization of the LP(a) Lipoprotein**
John J. Albers, Northwest Lipid Research Clinic,
University of Washington, Seattle, WA
- 4:50 118. **Plasma and Urinary Lipoproteins and Apolipo-
proteins in Human Nephrotic Syndrome**
V.G. Shore,* Lawrence Livermore Laboratory,
University of California; T.M. Forte, Lawrence
Berkeley Laboratory, University of California;
H. Licht, and S.B. Lewis, Naval Regional Medical
Center, Oakland, CA

TUESDAY AFTERNOON—MAY 1

SESSION R

ANALYTICAL METHODS

1:55 p.m.—Crystal Room

Chairpersons: A.J. St. Angelo, USDA, New Orleans, LA;
S. Watanabe, Kitasato University, Kanegawa,
Japan

- 1:55 **Introductory Remarks**
A.J. St. Angelo, Southern Regional Research
Center, USDA, New Orleans, LA
- 2:00 119. **Rapid Instrumental Techniques for the Analysis
of Volatiles in Salad Dressing**
M.G. Legendre,* E.T. Rayner, W.H. Schuller,
and H.P. Dupuy, Southern Regional Research
Center, USDA, New Orleans, LA
- 2:20 120. **Gas Chromatography-Mass Spectrometry of
C₉₀₋₈₀ Mycolic Acids from Mycobacteria and
Related Acid-Fast Bacteria**
Seiko Toriyama,* Ikuya Yano, Masamichi Masui,
Emi Kusunose, and Masamichi Kusunose, Osaka
City University, Osaka, Japan
- 2:40 121. **Analysis of Cured Meat Flavor Volatiles by Direct-
Sampling Gas Chromatography-Mass Spec-
trometry**
M.E. Bailey,* University of Missouri, Columbia,
MO; M.G. Legendre, and H.P. Dupuy, Southern
Regional Research Center, USDA, New Orleans,
LA
- 3:00 122. **Identification of Enzymic Reaction Products by
Rapid Unconventional Methodology**
Allen J. St. Angelo* and Michael G. Legendre,
Southern Regional Research Center, USDA, New
Orleans, LA
- 3:20 123. **A Simple Procedure for the Quantitative Ex-
traction of Lipids from Animal Tissues**
F. Phillips* and O.S. Privett, The Hormel Insti-
tute, University of Minnesota, Austin, MN
- 3:40 124. **Some Results from an IUPAC Study on the
Lipoxygenase Catalyzed Determination of Poly-
unsaturated Fatty Acids**
Osten Levin, Margarinbolaget AB, Stockholm,
Sweden
- 4:00 125. **Evaluation of Oxidative Deterioration of Oils
and Foods by Measurement of Ultraweak
Chemiluminescence**
Riichiro Usuki,* Takashi Kaneda, Akio Yamagishi,
Choichi Takyu, and Humio Inaba, Tohoku Uni-
versity, Sendai, Japan
- 4:20 126. **Quantitative Estimation of Lipids by Thin Layer-
Flame Ionization Detector Chromatography**
Toshihiro Itoh,* Madamichi Tanaka, and Hiroshi
Kaneko, Kitasato University, Kanagawa, Japan
- 4:40 127. **A Simple Mathematical Correction for Non-
linearity of Optical Density in the Quantitation
of Thin Layer Chromatograms of Lipids by
Photodensitometry**
Donald T. Downing* and Anna M. Stranieri,
University of Iowa, Iowa City, IA
- 5:00 128. **The Determination of Microamounts of Iron in
Fats and Oils by Atomic Absorption Spectro-
photometry**
Haruo Hirayama, Zenya Shimoda, and Masahiko

Higuchi,* JOCS Committee of Fats and Oils
Analysis, Tokyo, Japan

TUESDAY AFTERNOON—MAY 1

SESSION S

LIPIDS AND CANCER

2:00 p.m.—Garden Room

Chairpersons: Roslyn B. Alfin-Slater, University of California,
Los Angeles, CA; Eiji Araki, National Cancer
Center, Tokyo, Japan

- 2:00 129. **Polyunsaturated Fatty Acids of Human Neo-
plastic Tissues**
Eiji Araki,* Nobuo Okazaki, National Cancer
Center, Tokyo, Japan; and Toshio Ariga, Tokyo
Metropolitan Institute of Medical Science, Tokyo,
Japan
- 2:20 130. **Composition of Dietary Fat and Tumor Incidence**
Ian J. Tinsley,* John A. Schmitz, and Philip D.
Whanger, Oregon State University, Corvallis,
OR
- 2:40 131. **Effect of Dietary Protein and Fat on Fecal Sterols
and Bile Acids in the Rat and Hamster**
N. Totani,* M.E. Momsen, and J.R. Chipault,
The Hormel Institute, University of Minnesota,
Austin, MN
- 3:00 132. **Lipid Metabolism in Aflatoxin- and/or Oral Con-
traceptive-Treated Rats**
Lilla Aftergood,* Anne Rogel, and Roslyn B.
Alfin-Slater, University of California, Los Angeles,
CA
- 3:20 133. **Effect of Aflatoxin, Ingested with Corn Oil, on
Hepatic Microsomal Cytochrome P-450 Levels in
Rats**
A. Crecelius,* California State Polytechnic Uni-
versity, Pomona, CA; L. Aftergood, and R.B.
Alfin-Slater, University of California, Los Angeles,
CA
- 3:40 134. **Lipid Mobilization in Lymphoma-Bearing Mice**
Shinichi Kitada,* James F. Mead, and Esther F.
Hays, Laboratory of Nuclear Medicine and
Radiation Biology, University of California, Los
Angeles, CA
- 4:00 135. **Molecular Disorganization of Plasma Membrane
Lipid Bilayer of Cancer Cells**
Kinya Koizumi,* Naoki Yamanaka, and Kazuo Ota,
Aichi Cancer Center Research Institute, Nagoya,
Japan
- 4:20 136. **Increase of Antitumor Effect of Drugs by Cell
Membrane Modifications**
Naoki Yamanaka,* Taketoshi Kato, and Kazuo
Ota, Aichi Cancer Center Research Institute,
Nagoya, Japan

TUESDAY AFTERNOON—MAY 1

SESSION T

SYMPOSIUM: NEW DEVELOPMENTS FOR DETERGENTS IN THE 1980s—II

2:00 p.m.—Fountain Room

Chairpersons: Eric Jungermann, Jungermann Assoc., Chicago,
IL; Shigeo Hayano, University of Tokyo, Tokyo,
Japan

- 2:00 137. **Synthesis and Antimicrobial Activity of Deriva-
tives of Polyoxyethylene Alkylphenyl Ether**
Shoichiro Watanabe,* Tsuyoshi Uchibori, and
Kazuo Kawada, Kitasato University, Kanagawa,
Japan
- 2:20 138. **Organosulfur Compounds as Peroxygen Activators**
Joseph H. Finley,* Fred Scholer, John Blumbergs,
Burt Baum, Gaylen Brubaker, Charles Lutz, and
Andy Gallopo, FMC Corporation, Princeton, NJ

- 2:40 139. **Adsorption of a Surfactant on the Bubble Surface by Foam Fractionation**
Isao Maruishi, Osaka Prefectural Industrial Research Institute, Osaka, Japan
- 3:00 140. **Soap-Based Detergent Formulation: XXVI. Formulations of Soap-Lime Soap Dispersant Combinations with Builders and Inorganic Salts**
W.R. Noble and W.M. Linfield, Eastern Regional Research Center, USDA, Philadelphia, PA
- 3:20 141. **Properties of Aqueous Solutions of Alkoxypropylamine Surfactants**
Yoshio Nemoto* and Hiroyuki Funahashi, Nagoya Municipal Industrial Research Institute, Nagoya, Japan
- 3:40 142. **Ultimate Biodegradability of Alcohol Ethoxylates: Surfactant Concentration and Polyoxyethylene Chain Length Effects**
L. Kravetz,* K.F. Guin, W.T. Shebs, and H. Chung, Shell Development Company, Houston, TX
- 4:00 143. **Acylglutamate (AGS) and Its Application for Allergen Control**
H. Nakayama,* Saiseikai Central Hospital, Tokyo, Japan; and M. Takehara, Ajinomoto Co. Inc., Yokohama, Japan
- 4:20 144. **Analysis for Carboxymethylsuccinate (CMOS) in Environmental Samples**
Eugene Mones* and Joan G. Barrows, Lever Brothers, Edgewater, NJ

TUESDAY AFTERNOON—MAY 1

SESSION U

SYMPOSIUM: BUILDING OILSEED PLANTS OUTSIDE THE USA

2:00 p.m.—Pavilion Room

Chairperson: John E. Heilman, Continental Grain Co., New York, NY

- 2:00 145. **Engineering and Design of Overseas Plants**
C. Louis Kingsbaker, Dravo Corp., Chemical Plants Division, Pittsburgh, PA
- 2:20 146. **Bidding and Exporting Equipment from the United States**
William A. Barger, French Oil Mill Machinery Co., Piqua, OH
- 2:40 147. **Budgeting and Purchasing in Foreign Countries**
John E. Heilman, Continental Grain Co., New York, NY
- 3:00 148. **Modern Oilseed Processing Plants Overseas**
Willi Fetzer, Buhler Brothers Limited, Uzwil, Switzerland
- 3:20 149. **Physical Construction Overseas**
Harold J. Sandvig, Cargill, Inc., Minneapolis, MN
- 3:40 150. **Start-ups Outside the USA**
Leslie Watkins, Anderson, Clayton, and Co., Houston, TX
- 4:00 Panel Discussion

TUESDAY AFTERNOON—MAY 1

SESSION V

PROTEIN AND LIPIDS IN OILSEEDS AND CEREAL GRAINS

1:55 p.m.—California Room

Chairpersons: M. Sahasrabudhe, Food Research Institute, Ontario, Canada; Y. Fujino, Obihiro University, Obihiro, Hokkaido, Japan

- 1:55 Opening Remarks

M. Sahasrabudhe, Food Research Institute, Ontario, Canada

- 2:00 151. **Occurrence and Structure of Novel Glycolipids of Rice Bran Oil**
Y. Fujino,* M. Ohnishi, and T. Miyazawa, Obihiro University, Obihiro, Japan
- 2:20 152. **An Improved Method for the Acid Values of Rice Bran Oil**
Yasuhiki Takeshita, Kokushikan University, Tokyo, Japan
- 2:40 153. **Lipid Composition of Oats (*Alvina sativa* L.)**
Madhu R. Sahasrabudhe, Agriculture Canada, Ottawa, Ontario, Canada
- 3:00 154. **Extractability of Wheat Flour Lipids by Solvents that Vary in Solubility Parameters**
O.K. Chung,* Y. Pomeranz, and R.M. Jacobs, U.S. Grain Marketing Research Laboratory, Manhattan, KS
- 3:20 155. **Lipid-Protein Concentrates from Safflower Expeller Cake**
C.K. Lyon* and G.O. Kohler, Western Regional Research Center, USDA, Berkeley, CA
- 3:40 156. **Nutritional Evaluation of Rice Bran and Rice Bran Fractions Using Rat and Chick Bioassays**
A.A. Betschart,* R.M. Saunders, M.R. Gumbmann, and F.H. Kratzer, Western Regional Research Center, USDA, Berkeley, CA
- 4:00 157. **Sulfur Amino Acid-Oxidized Lipid Interactions: A Possible Cause of Lysinoalanine Formation**
J.W. Finley,* E.L. Wheeler, and H.G. Walker, Western Regional Research Center, USDA, Berkeley, CA
- 4:20 158. **Conversion of Soybean Extraction Plant in Bolivia to Production of Flours for Human Consumption**
G.C. Mustakas,* Northern Regional Research Center, USDA, Peoria, IL; E.D. Milligan, EMI Corp., Des Plaines, IL; J. Taborga A., Sociedad Aceitera del Oriente; and D.A. Fellers, USDA, Albany, CA
- 4:40 159. **Development of a Commercially Producing Low Calorie, High Protein Hamburger Bun**
Sharon L. Melton, Sarah L. Cantrell,* and Karen Goff, University of Tennessee, Knoxville, TN (Honored Student Presentation)

WEDNESDAY MORNING—MAY 2

SESSION W

SYMPOSIUM: LOW DENSITY AND VERY LOW DENSITY LIPOPROTEINS: COMPOSITION AND METABOLISM

10:00 a.m.—Terrace Room

Chairperson: Christopher J. Fielding, Cardiovascular Research Institute, University of California, San Francisco, CA

- 10:00 160. **Serum Lipoprotein Changes in Baboons after Removal of a Cholesterol Supplemented Diet**
Arthur W. Kruski, University of Texas, San Antonio, TX
- 10:20 161. **Diet Induced Alterations of Plasma Low Density Lipoproteins in Nonhuman Primates**
L.L. Rudel, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, NC
- 10:40 162. **Lipoproteins of Fetal and Newborn Calves**
Trudy Forte,* and Julia Bell-Quint, University of California, Berkeley, CA; and Fenny Cheng, Public Health Research Institute, New York, NY
- 11:00 163. **Cholesterol Metabolism in Human Monocyte-Macrophages**
Alan M. Fogelman,* Janet Seager, Martha Hokom, John S. Child, and Peter A. Edwards, UCLA School of Medicine, Los Angeles, CA

- 11:20 164. **Hormonal Regulation of the Low Density Lipoprotein Receptor**
Alan Chait,* John J. Albers, and Edwin L. Bierman, University of Washington, Seattle, WA
- 11:40 165. **Secretion of Very Low Density Lipoprotein and the Degradation of Low Density and High Density Lipoproteins by Cultured Rat Hepatocytes**
David B. Weinstein,* Sharon Pangburn, Roger A. Davis, and Daniel Steinberg, University of California, San Diego, CA
- 12:00 166. **Abnormal HMG-CoA Reductase Suppression by Hypertriglyceridemic Very Low Density Lipoprotein Subclasses**
S.H. Gianturco,* C.J. Packard, J.S. Shepherd, S.G. Eskin, L.C. Smith, and A.M. Gotto, Jr., Baylor College of Medicine and Methodist Hospital, Houston, TX

drogenation of Fish Oil
Ernst H. Goebel,* Quimica Sumex, S.A. de C.V.; Miguel Romero, and German Paul, Investigacion y Desarrollo Industrial, S.A., Mexico

- 10:40 175. **Selective Hydrogenation of Soybean Oil. XI. Conjugation and Catalytic Activity with Copper-Chromite at Practical Pressures**
S. Koritala,* J.P. Friedrich, and T.L. Mounts, Northern Regional Research Center, USDA, Peoria, IL
- 11:00 176. **Sulfur-Promoted Nickel Hydrogenation Catalysts**
D.A. Scarpiello, Dwight P. Joyce Research Center, Strongsville, OH
- 11:20 177. **Selective Hydrogenation with Copper Catalysts. V. Kinetics and Mechanism at High Pressure**
S. Koritala, Northern Regional Research Center, USDA, Peoria, IL

WEDNESDAY MORNING—MAY 2

SESSION X

ANALYSIS OF LIPIDS—I

10:00 a.m.—Crystal Room

Chairpersons: T.K. Miwa, USDA, Peoria, IL, T. Hashimoto, National Chemical Lab. of Industry, Tokyo, Japan

- 10:00 **Introductory Remarks**
T.K. Miwa, Northern Regional Research Center, USDA, Peoria, IL
- 10:10 167. **Determination of Mono- and Disulfonates in Alpha Olefin Sulfonate by Capillary Tube Iso-tachophoresis**
Toyoki Sugiyama, Kenzo Sakurai, and Toshio Nagai,* Lion Fat and Oil Co., Ltd., Tokyo, Japan
- 10:30 168. **Determination of Oil Content of Sunflowerseed by Nuclear Magnetic Resonance**
J.A. Robertson* and W.H. Morrison, III, Russell Research Center, USDA, Athens, GA
- 10:50 169. **Structure Determination of Nonionic Surfactants Using ¹³C Nuclear Magnetic Resonance**
Thomas R. Oakes, Economics Laboratory, Inc., St. Paul, MN
- 11:10 170. **Separation and Determination of Isomeric Octadecenoates by Gas Liquid Chromatography-Mass Spectrometry**
Kunihiko Saito* and Kiyoshi Satouchi, Kansai Medical School, Osaka, Japan
- 11:30 171. **Quantitative Microanalysis of Mixtures of Positional Isomers in Ethylenic Fatty Acid Methyl Esters**
Donald T. Downing, University of Iowa, Iowa City, IA
- 11:50 172. **Automatic Retrieval of Cosmetic Materials by Methylene Unit Values**
Ryujiro Namba,* Akira Shibamoto, Sachi Hashimoto, and Isao Matsumoto, Shiseido Lab, Yokohama, Japan

WEDNESDAY MORNING—MAY 2

SESSION Y

HYDROGENATION

10:00 a.m.—Garden Room

Chairperson: William Bell, Sullivan Systems Inc., Tiburon, CA

- 10:00 173. **Selective Hydrogenation of Soybean Oil. X. Ultra High Pressure and Copper-Chromite Catalyst**
S. Koritala,* J.P. Friedrich, and T.L. Mounts, Northern Regional Research Center, USDA, Peoria, IL
- 10:20 174. **Some Aspects on Adsorbent Treatment and Hy-**

WEDNESDAY MORNING—MAY 2

SESSION Z

MARINE LIPIDS—I

9:55 a.m.—Fountain Room

Chairpersons: R.G. Ackman, Department of Fisheries, Halifax, Nova Scotia, Canada; M. Kayama, Department of Fisheries, Hiroshima University, Hiroshima, Japan

- 9:55 **Introductory Remarks**
R.G. Ackman, Department of Fisheries, Halifax, Nova Scotia, Canada
- 10:00 178. **Arsenolipids in Marine Diatoms**
Robert V. Cooney,* University of California San Diego, La Jolla, CA; and A.A. Benson, Scripps Institution of Oceanography, La Jolla, CA
- 10:20 179. **Analysis and Quantitation of Molecular Species of Phospholipids from Sea Squirts, Including Ether Analogues**
Akira Hayashi,* Masanori Morita, and Fumito Matsuura, Kinki University, Higashiosaka, Japan
- 10:40 180. **Characterization of Long Chain Bases from Starfish**
Taro Hori,* Mutsumi Sugita, Chiaki Nishimori, and Naomi Nishio, Shiga University, Otsu, Japan
- 11:00 181. **Quantitation of Steroids in Molluscs**
Dennis T. Gordon, Oregon State University, Seafoods Laboratory, Astoria, OR
- 11:20 182. **Lipids of Deep Benthic Animals**
Judd C. Nevenzal, Scripps Institution of Oceanography, La Jolla, CA
- 11:40 183. **Distribution and Biosynthesis of Wax Esters in Deep-Sea Animals**
Mitsu Kayama, Hiroshima University, Hiroshima, Japan

WEDNESDAY MORNING—MAY 2

SESSION AA

POSTER SESSION—I

10:00 a.m.—Pavilion Room

Chairperson: Bob Delmont, PVO Int'l., Richmond, CA

NOTE: Time listed for papers is when author will give formal presentation. Authors will be available for discussion during entire session time.

- 10:00 184. **Simplified Method for the Determination of Tocopherols and Sterols by Glass Capillary Gas Chromatography**
Hal T. Slover,* Raymond H. Thompson, Jr., and George V. Merola, Nutrition Institute, USDA, Beltsville, MD

- 10:20 185. Use of Response Surface Methodology to Study Gas Chromatographic Variables Relating to Instrument Performance and Versatility
Thomas R. Ferguson* and Lloyd M. Smith, University of California, Davis, CA
- 10:40 186. The Use of Lipo-Frax Column Chromatography for the Purification of Neutral Lipid Extracts for Analysis on the Autoanalyzer-II
Herbert K. Naito,* Violet Miletic, Cleveland Clinic Foundation, Cleveland, OH; and Laurance F. Ferreri, Virginia Polytechnic Institute and State University
- 11:00 187. A Further Study on the Triterpene Alcohols of Theaceae and Some Other Vegetable Oils
Toshihiro Itoh,* Toshitake Tamura, and Tarō Matsumoto, Nihon University, Tokyo, Japan
- 11:20 188. Total Lipid, Protein, Starch, Sugar, and Fatty Acid Kernel Composition of 39 Filbert (*Corylus avellana*, L.) Clones
Daryl G. Richardson* and Maxine M. Thompson, Oregon State University, Corvallis, OR
- 11:40 189. Nutrient Composition of the Fats and Oils
John L. Weihrauch, Consumer and Food Economics Institute, USDA, Hyattsville, MD

WEDNESDAY MORNING—MAY 2

SESSION BB

ENERGY CONSERVATION

10:00 a.m.—California Room

Chairperson: Calvin T. Zehnder, Chematron Corp., Louisville, KY

- 10:00 190. Operating a 500 Kw Organic Rankine Cycle System Utilizing Low Temperature Heat
S. Ichikawa, R.H. Sawyer,* AFI Energy Systems, Livingston, NJ; and H.R. Tyler, Allied Chemical Corp., Morristown, NJ
- 10:30 191. Steam Ejector Design and Operation in Today's World of High Steam Costs
D. Richard O'Connor, Kinema, Inc., Elizabeth, PA
- 11:00 192. New Developments in Waste Heat Recovery Using Heat Pipes
Dennis A. Littwin, Q-dot Corporation, Dallas, TX
- 11:30 193. Energy Conservation in the Edible Oil Refinery
Philip Bollheimer, Jr.,* and William B. Campbell, PSI Process Systems, Inc., Memphis, TN

WEDNESDAY AFTERNOON—MAY 2

SESSION CC

SYMPOSIUM: LOW DENSITY AND VERY LOW DENSITY LIPOPROTEINS: METABOLISM

1:30 p.m.—Terrace Room

Chairperson: John Kane, Cardiovascular Research Institute, University of California, San Francisco, CA

- 1:30 194. Mechanism of Action of Lipoprotein Lipase
Christopher J. Fielding, University of California, San Francisco, CA
- 2:00 195. Use of Three Isotopic Labels (^3H , ^{131}I , ^{125}I) to Measure Turnover of Plasma Triglyceride and Apolipoprotein B in Very Low Density Lipoproteins and Low Density Lipoproteins
Ngoc Anh Le, John Turner, University of California, San Diego, CA; John Melish, University of Hawaii, Honolulu, HI; Henry Ginsberg, and W. Virgil Brown,* Mt. Sinai School of Medicine, New York, NY

- 2:30 196. Immunochemical Studies of Apolipoprotein B (ApoB) in Triglyceride (TG)-Rich Lipoproteins
Gustav Schonfeld, Washington University School of Medicine, St. Louis, MO
- 3:00 197. Polydispersity: An Altered Structural State of Human Plasma Low Density Lipoprotein
Waldo R. Fisher, University of Florida, Gainesville, FL
- 3:20 198. Formation and Catabolism of Plasma Cholesteryl Esters in the Rat
Richard J. Havel, University of California, San Francisco, CA
- 3:40 199. Hepatic Biosynthesis of Plasma Lipoproteins during Cholestasis
T.E. Felker,* R.L. Hamilton, J.L. Vigne, and R.J. Havel, University of California, San Francisco, CA
- 4:00 200. Stimulation of Low Density Lipoprotein Secretion by Perfused Livers of Guinea Pigs Fed Cholesterol
R.L. Hamilton,* L.S.S. Guo, R.J. Havel, University of California, San Francisco, CA; and R. Ostwald, University of California, Berkeley, CA
- 4:20 201. Lymph Chylomicron Subpopulations
Alan Vost, McGill University Medical Clinic, The Montreal General Hospital, Montreal, Quebec, Canada
- 4:40 202. Effect of a Cholesterol Diet on Chicken Serum Lipoproteins and Apolipoproteins
Arthur W. Kruski, The University of Texas, San Antonio, TX

WEDNESDAY AFTERNOON—MAY 2

SESSION DD

ANALYSIS OF LIPIDS—II

2:00 p.m.—Crystal Room

Chairpersons: T.K. Miwa, USDA, Peoria, IL; Akira Hayashi, Kinki University, Osaka, Japan

- 2:00 203. Quantitative Gas Liquid Chromatography Determination of Methyl Linolenate in the Presence of Conjugated Dienes
S. Koritala, Northern Regional Research Center, USDA, Peoria, IL
- 2:20 204. The Measurement of Fat Dilution
Kazuaki Suzuki,* Eiji Nakai, and Yukinobu Murase, Asahi Electro-Chemical Co., Ltd., Tokyo, Japan
- 2:40 205. Quantitative Analysis of Sterols in Foods by Gas Liquid Chromatography
T. Kaneda,* F. Fujimoto, and A. Yusa, Tohoku University, Sendai, Japan
- 3:00 206. Silver Nitrate Coating of Thin Layer Chromatography Plates for Sterol Acetate Separations
Henry W. Kircher* and Jan Mrguditch, University of Arizona, Tucson, AZ
- 3:20 207. Determination of Sterols in Fats and Oils
Satoshi Yoneyama,* Toshitake Tamura, and Takenori Maruyama, JOCS Committee of Fats and Oils Analysis, Tokyo, Japan
- 3:40 208. Application of Near-Infrared Reflectance Spectroscopy to Quality Control in Oil Plant
Y. Machida, T. Watanabe,* and K. Aonuki, Showa Sangyo Co. Ltd., Chiba, Japan
- 4:00 209. Quantitative Analysis of Hydronaphthalene Derivatives Contained in Heated Tung Oil
Nagao Totani,* The Hormel Institute, Austin, MN; Setsuko Hara, Yoichiro Totani, and Noboru Matsuo, Seikei University, Tokyo, Japan
- 4:20 210. Modern Analytical Methods for Sunflowers
Art Carnrick, A&L Plains Agricultural Labs, Lubbock, TX

- 4:40 211. **Color Control by Automated Tintometer**
D.G. Chamberlin, Tintometer, USA, Pompton
Lakes, NJ

WEDNESDAY AFTERNOON—MAY 2

SESSION EE

UTILIZATION OF FATS AND OILS AND THEIR DERIVATIVES

2:00 p.m.—Garden Room

Chairperson: To be announced.

Co-Chairperson: A. Uzzan, Deputy Director, Institut des
Corps Gras, Paris, France

- 2:00 212. **Loss of Added Fatty Acid Esters from Grape
Surfaces during Drying to Raisins**
A.E. Stafford,* G. Fuller, and H.R. Bolin, Western
Regional Research Center, USDA, Albany, CA
- 2:20 213. **Use of Oil in Baked Products: I. Background
and Bread**
Deborah Hartnett and William Thalheimer,* ICI
Americas Inc., Wilmington, DE
- 2:40 214. **Use of Oil in Baked Products: II. Cakes and Sweet
Goods**
Deborah Hartnett* and William Thalheimer, ICI
Americas Inc., Wilmington, DE
- 3:00 215. **The Functions of Silicone in Frying Oil**
Shizuyuki Ohta* and Hyoji Kusaka, Kitasato Uni-
versity, Japan
- 3:20 216. **Effects of Microclimate on Composition and
Melting Characteristics of Bahia Cocoa Butter**
Douglas W. Lehrian,* Hershey Foods Corp.,
Hershey, PA; Philip G. Keeney, Pennsylvania
State University; and David R. Butler, Overseas
Development Ministry
- 3:40 217. **Fats and Oils Status in France**
A. Uzzan, Institut des Corps Gras, Paris, France

WEDNESDAY AFTERNOON—MAY 2

SESSION FF

MARINE LIPIDS—II

2:00 p.m.—Fountain Room

Chairpersons: R.G. Ackman, Department of Fisheries, Halifax,
Nova Scotia, Canada; M. Kayama, Depart-
ment of Fisheries, Hiroshima University, Hiro-
shima, Japan

- 2:00 218. **Metabolism of (^{14}C) Linolenic Acid in Coho
Salmon, *Oncorhynchus kisutch***
R.S. Parker* and R.O. Sinnhuber, Oregon State
University, Corvallis, OR
- 2:20 219. **Modified Methodology for Determination of Free
Fatty Acids and Iodine Value of Solvent-Extracted
Fish Oils and Lipids**
Jeanne D. Joseph* and Gloria T. Seaborn, South-
east Fisheries Center, Charleston, SC
- 2:40 220. **Lipid Classes and Fatty Acids of Atlantic Herring
Roe**
J. Kaitaranta,* C.A. Eaton, and R.G. Ackman,
Department of Fisheries, Halifax, Nova Scotia,
Canada
- 3:00 221. **A Comparison of the Fatty Alcohols and Acids
of Copepod Lipids with Those of Atlantic Her-
ring, Mackerel, and Capelin**
W.N. Ratnayake,* Dalhousie University, Halifax,
Nova Scotia, Canada; and R.G. Ackman, Fish-
eries Canada, Halifax, Nova Scotia, Canada
- 3:20 222. **Alterations in Longer Chain Fatty Acids of Fish
Oil during Partial Hydrogenation**
J.L. Sebedio,* Zapata-Haynie Corp., Halifax,
Nova Scotia, Canada; R.G. Ackman, and M.F.

Langman, Department of Fisheries, Halifax, Nova
Scotia, Canada

- 3:40 223. **Alkoxy-Acyl Combinations in the Wax Esters from
Winterized Sperm Whale Oil**
Gayland F. Spencer, Northern Regional Research
Center, USDA, Peoria, IL
- 4:00 224. **Jajoba Oil as a Replacement for Sperm Whale
Oil**
Thomas K. Miwa, Northern Regional Research
Center, USDA, Peoria, IL

WEDNESDAY AFTERNOON—MAY 2

SESSION GG

POSTER SESSION—II

2:00 p.m.—Pavilion Room

Chairperson: Bob Delmont, PVO Int'l, Richmond, CA

NOTE: Time listed for papers is when author will give formal
presentation. Authors will be available for discussion
during entire session time.

- 2:00 225. **The Effect of in vivo Alteration of Adipose Tissue
Lipid Composition upon the in vitro Lipolytic
response to Norepinephrine**
Atif B. Awad* and E. Andrew Zepp, Kirksville
College of Osteopathic Medicine, Kirksville, MO
- 2:20 226. **Response of Linolenic Acid-Deficient Rats to
Dietary Choline Deficiency: Studies on the Role
of Linolenic Acid in Choline Biosynthesis in
Female Rats**
J. Tinoco,* G. Endemann, B. Medwadowski, and
P. Miljanich, University of California, Berkeley,
CA
- 2:40 227. **The Effects of Peroxide and Thyroid Hormones on
Erythrocyte Membranes**
Sushil K. Jain* and Paul Hochstein, University
of Southern California, School of Medicine, Los
Angeles, CA
- 3:00 228. **Biological, Quantitative, Ultrastructural, and Bio-
chemical Studies on Isolated Rat Hearts Fed with
Erucic Acid**
H.M. Manz,* H.H. Hiller, Freie Universität Ber-
lin, Berlin, West Germany; K. Stahl, and H.
Themann, Universität Münster, Münster, West
Germany
- 3:20 229. **Surface Viscosities of Phospholipid and Cho-
lesterol Monolayers as Measured by the Oscil-
lating Pendulum Method**
Rohbert W. Evans,* J. Tinoco, and M.A. Williams,
University of California, Berkeley, CA
- 3:40 230. **Blood Plasma Lipoprotein and Tissue Cholesterol
of Calves Fed Soybean Oil, Corn Oil, Vegetable
Shortening, or Tallow**
Marlene Richard,* Norman Jacobson, Kenneth
Wiggers, Jeanne Stewart, and Thomas Heeg,
Iowa State University, Ames, IA
- 4:00 231. **Effects of Dietary Lipid on the Levels of Free
and Esterified Plasma Cholesterol in the Mon-
golian Gerbil**
Nina J.H. Mercer* and Bruce J. Holub, Uni-
versity of Guelph, Guelph, Ontario, Canada

THURSDAY MORNING—MAY 3

SESSION HH

SYMPOSIUM: LOW DENSITY AND VERY LOW DENSITY LIPOPROTEINS: CLINICAL ASPECTS

8:30 a.m.—Terrace Room

Chairperson: Richard J. Havel, Cardiovascular Research In-
stitute, University of California, San Francisco,
CA

- 8:30 232. **Determinants of Plasma Triglycerides and Very Low Density Lipoprotein Cholesterol in the Multiple Risk Factor Intervention Trial (MRFIT) Study**
Lewis H. Kuller,* Arlene Caggiula,* University of Pittsburgh, Pittsburgh, PA; W. McFate Smith, Institutes of Medical Sciences; Norman Lasser, College of Medicine and Dentistry of New Jersey; Stephen Hulley, Stanford University; and Richard Grimm, University of Minnesota
- 8:50 233. **Contributions of Weight Loss to Changes in Lipoprotein Cholesterol Levels in the Multiple Risk Factor Intervention Trial (MRFIT)**
Norman L. Lasser,* College of Medicine and Dentistry of New Jersey, Newark, NJ; Stephen B. Hulley, Institutes of Medical Sciences; Elizabeth D. Munves, College of Medicine and Dentistry of New Jersey; Jeremiah Stamler, Northwestern University Medical School; and Roger Sherwin, University of Maryland
- 9:10 234. **Abnormalities of Serum Lipoproteins in Abetalipoproteinemia**
Herbert J. Kayden, New York University School of Medicine, New York, NY
- 9:40 235. **Normotriglyceridemic Abetalipoproteinemia: A Clinical Syndrome Associated with Abnormal Apolipoprotein B**
Mary J. Malloy,* John P. Kane, D.A. Hardman, University of California, San Francisco, CA; and Kanu B. Dalal, Presbyterian Medical Center, San Francisco, CA
- 10:00 236. **Type III Hyperlipoproteinemia: Implications for the Roles of Isoapolipoprotein E₃ and Estrogens in Normal Lipoprotein Homeostasis**
William R. Hazzard, University of Washington, Seattle, WA
- 10:30 237. **The Metabolism of Very Low Density Lipoproteins and Low Density Lipoproteins in Normal and Dyslipoproteinemic Man**
Ernst J. Schaefer,* Loren A. Zech, and H. Bryan Brewer, Jr., National Heart, Lung & Blood Institute, Bethesda, MD

- 10:50 238. **Oxandrolone Causes Disappearance of ApoE from Very Low Density Lipoprotein in Type V Hyperlipoproteinemia**
Josef R. Patsch,* Tsumoto Hara, and Antonia M. Gotto, Jr., Baylor College of Medicine and Methodist Hospital, Houston, TX

THURSDAY MORNING—MAY 3

SESSION II

GENERAL PAPERS

9:00 a.m.—Fountain Room

Chairperson: To be announced

- 9:00 239. **Detoxification of Zearalenone-Contaminated Corn**
G.A. Bennett,* O.L. Shotwell, and C.W. Hessel-tine, Northern Regional Research Laboratory, USDA, Peoria, IL
- 9:20 240. **A Sensitive Screening Method for Zearalenone in Corn**
Charles E. Holaday, National Peanut Research Laboratory, USDA, Dawson, GA
- 9:40 241. **Crystallization Behavior of High Erucic Acid Rapeseed Oil**
Kinichi Kawamura, Best Foods, CPC International, Union, NJ
- 10:00 242. **Synthesis of 7-, 8-, 9-, and 10-oxo-16-Hydroxyhexadecanoic Acids and of 7,16-, 8,16-, 9,16-, 10-16-Dihydroxyhexadecanoic Acids**
A.P. Tullock, National Research Council of Canada, Saskatoon, Canada
- 10:20 243. **Methanol and Preparative Lipid Chemistry**
B. Ramesh* and C.V. Viswanathan, Lipid Research Lab, Poona, India
- 10:40 244. **Critical Analysis of Sodium Stearoyl Lactylate by Gas Liquid Chromatography**
Richard R. Suchanec,* Hercules Inc., Wilmington, DE

SESSION CHAIRMEN

Chairman	Session
Ackman, R.G.	Z,FF
Aftergood, L.	M
Alfin-Slater, R.B.	S
Araki, E.	S
Beare-Rogers, J.L.	E
Bell, W.	F,L,Y
Creelius, A.	B,G
Delmont, B.	AA,GG
Felts, J.	W
Fielding, C.J.	K
Frankel, E.N.	C,I,O
Fujino, Y.	V
Gidez, L.I.	Q
Hara, I.	K
Hashimoto, T.	X
Havel, R.J.	HH
Hayano, S.	N,T
Hayashi, A.	DD

Heilman, J.E.	U
Jensen, R.G.	D
Jungermann, E.	H,N,T
Kane, J.	CC
Kaneda, T.	C,I,O
Kayama, M.	Z,FF
Miki, K.	F
Miwa, T.K.	X,DD
Okahara, M.	H
Privett, O.S.	A,J,P
Sahasrabudhe, M.R.	V
Saito, K.	L
St. Angelo, A.J.	R
Uzzan, A.	EE
Watanabe, S.	R
Wells, P.	E
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