# CHIRALITY – 2007
# 19th International Symposium on Chirality

# Preliminary Scientific Program

## SUNDAY, JULY 8

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| Short Course #1: | Chiral Chromatography: Analytical & Preparative |
| Short Course #2: | NMR and Chiroptical Spectroscopy Methods for Studying Chirality |
| 5:30 pm | OPENING REMARKS & PRESENTATION OF CHIRALITY MEDAL |
| 5:45 – 6:45 pm | CHIRALITY MEDAL AWARD LECTURE<br>**Porphyrin-Based Chiroptical Sensors: Application in Stereochemical Studies.** Nina Berova, Columbia University, New York, NY, USA |
| 6:45 – 8:00 pm | CHIRALITY MEDAL RECEPTION (sponsored by Jasco) |

## MONDAY MORNING, JULY 9

### PLENARY SESSION I

**The Secret Life of Enzymes.** K. Barry Sharpless, The Scripps Research Institute, La Jolla, CA, USA [Plenary lecture]

**The Concerted Application of Density Functional Theory Calculations of Vibrational Circular Dichroism, Electronic Circular Dichroism, and Optical Rotation to the Determination of Absolute Configuration.** Philip J. Stephens, Frank J. Devlin, J.J. Pan, University of Southern California, Los Angeles, CA, USA [Plenary lecture]

### CHIROPTICAL SPECTROSCOPY I

**CD Analysis of Cyclopeptides and Mitochondrial-Targeting Sequences.** Peter Wipf, University of Pittsburgh, Pittsburgh, PA, USA [Keynote lecture]

**(*R*)-(+)-[VCD(+)945]-4-Ethyl-4-methyloctane, the Simplest and Basic Chiral Hydrocarbon with a Quaternary Stereogenic Center.** N. Harada[1,3], T. Fujita[1], K. Obata[1], S. Kuwahara[1], N. Miura[2], A. Nakahashi[2], K. Monde[2], J. Decatur[3], [1]Tohoku University, Sendai, JAPAN; [2]Hokkaido University, Sapporo, JAPAN; [3]Columbia University, New York, NY, USA [Keynote lecture]

**Biomolecular Interactions of Non Immobilized Systems by CD Spectroscopy.** Giuliano Siligardi, Rohanah Hussain, Diamond Light Source Ltd., Oxfordshire, UNITED KINGDOM

**Methods for Increasing the Sensitivity of VCD Measurements.** Richard A. Larsen[1], Wayne Kottkamp[1], John Carriker[1], Jun Koshoubu[2], Kenichi Akao[2], Toshiyuki Nagoshi[2], Ettore Castiglioni[2], Hisako Sato[3], Akihiko Yamagishi[4], [1]Jasco Inc., Easton, MD, USA; [2]Jasco Corp., Tokyo, JAPAN; [3]The University of Tokyo; PRESTO, Japan Science and Technology Corporation (JST); Tokyo, JAPAN; [4]Ochanomizu University, Tokyo, JAPAN

**Novel Chiroptical Analysis of Glycoconjugates by Vibrational Circular Dichroism (VCD).** Kenji Monde, Tohru Taniguchi, Atsufumi Nakahashi, Masumi Fukuzawa, Mai Hashimoto, Nobuaki Miura, Hokkaido University, Sapporo, JAPAN

## ENANTIOSELECTIVE SYNTHESIS

**Control of Symmetry and Topology in Molecular Design and Synthesis.** Jay S. Siegel, Organic Chemistry Institute, University of Zürich, 190 Winterthurerstr, Zürich CH-8057 SWITZERLAND [Keynote lecture]

**Chiral Ions in Asymmetric Synthesis and Catalysis.** Jérôme Lacour, University of Geneva, Genève, SWITZERLAND [Keynote lecture]

**Discrimination of Carbon Isotope Chirality by Asymmetric Autocatalysis with Amplification of Chirality.** Tsuneomi Kawasaki, Takashi Tsutsumi, Yukari Matsumura, Kenso Soai, Tokyo University of Science, Tokyo, JAPAN

**High-Throughput Reaction Monitoring of Interconverting Stereoisomers and Enantioselective Reactions.** O. Trapp, Sven Weber, Sabrina Bauch, Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr, GERMANY

**Stereo and Enantio-selective Photochemical Reaction of Achiral 2-arylthio-3-methylcyclohexene-1-ones in the Solid and Solution Phases.** R. Kuroda[a,b], Y. Imai[b], N. Tajima[b], [a]The University of Tokyo, Tokyo, JAPAN; [b]Japan Science and Technology Agency, Tokyo, JAPAN

## VENDOR SEMINARS during the *lunch time slot*

- Chiral Selectivity: Fast Track HPLC Options, Sponsored by Supelco/Sigma-Aldrich
- Sponsored by BioTools
- Preparative Chromatography for Enantiomeric Separations; Screening and Method Development Protocols with Immobilized Polysaccharide-based Chiral Stationary Phases, Sponsored by Chiral Technologies

# MONDAY AFTERNOON, JULY 9

## CHIRAL DRUG and METHOD DEVELOPMENT

**Development of a Highly Convergent, Asymmetric Manufacturing Process for Laropiprant: From Milligrams to Metric Tonnes.** Guy Humphrey, Merck & Co., USA, [Keynote lecture]

**Chiral Method Development Strategies for Early Phase of Drug Development: A Case Study.** Hongfei Yue, Xin Bu, Anwar Hussain, Joel Young, Bristol-Myers Squibb Company, New Brunswick, NJ, USA

**Analytical and Thermodynamical Study of HPLC Separation of Some Enantiomers of Local Anaestetics using Macrocyclic Glycopeptides.** J. Lehotay[1], T. Rojkovičová[1], D. W. Armstrong[2], [1]Slovak Technical University, Bratislava, SLOVAK REPUBLIC; [2]University of Texas at Arlington, Arlington, TX, USA

**Streamlining Chiral Chromatographic Selectivity Screening.** Mike A. McBrien[1], David Snyderman[1], David S. Bell[2], J.T. Lee[2], [1]Advanced Chemistry Development, Toronto, CANADA; [2]Supelco, Bellefonte, PA, USA

**Chiral Method Development Screening using Multiparallel Capillary Liquid Chromatography.** Jason A. Starkey, Eksigent Technologies, Dublin CA, USA

## CHIROPTICAL SPECTROSCOPY II

**Renaissance in Chiroptical Spectroscopic Methods for Molecular Structure Determination.** Prasad L. Polavarapu, Vanderbilt University, Nashville, TN, USA [Keynote lecture]

**Photomodulation of a Chiral Nematic Liquid Crystal by the Use of a Photoresponsive Ruthenium(III) Complex.** Akihiko Yamagishi[1,2], Tadashi Mitsuoka[3], Hisako Sato[4,5], Jun Yoshida[4], Yasuaki Einaga[3], [1]Ochanomizu University, Tokyo, JAPAN; [2]CREST, Japan Science and Technology Agency, JAPAN; [3]Keio University, 3Yokohama, JAPAN; [4]The University of Tokyo, Tokyo, JAPAN; [5]PRESTO, Japan Science and Technology Agency, JAPAN

**First Principle Calculation of Circular Dichroism in Carbon Nanotubles.** A. Sanchez-Castillo[1,2], C. Noguez[1], [1]Instituto de Fısica, Universidad Nacional Autonoma de Mexico, Mexico D. F., MEXICO; [2]Universidad Autonoma de Puebla, Puebla, MEXICO

**Polarized Near Field Scanning Optical Microscopy--A Novel Method for Optical Rotation Measurements of Crystals Surfaces.** D. H. Dressler, A. Landow, A. Zaban, Y. Mastai, Bar-Ilan University, Ramat-Gan, ISRAEL

**Incorporating Circular Dichroism in the Undergraduate Chemistry Curriculum.** Dani Nott, Trace Jordan, David Clevette, Erin Wilson, Andrea E. Holmes, Doane College, Crete, NE, USA

# TUESDAY MORNING, JULY 10

## PLENARY SESSION II

**TBA.** Dale Boger, Scripps Research Institute, La Jolla, CA, USA [Plenary lecture]

**New Classes of Chiral Selectors: Their Mechanisms and Actions.** Daniel W. Armstrong, University of Texas at Arlington, Arlington, TX, USA [Plenary lecture]

## HPLC

**The Challenge of Molecular Recognition of Topological Chirality: Chromatographic Enantiomer Separation of Trefoil-Knots.** Wolfgang Lindner[a], Norbert M. Maier[a], Jens Brüggemann[b], Fritz Vögtle[b], [a]University of Vienna, Vienna, AUSTRIA; [b]Kekulé-Institut für Organische Chemie und Biochemie der Universität Bonn, Bonn, GERMANY [Keynote lecture]

**Polysaccharide CSPs in Drug Development Including the Immobilized CSPs and Coated CSPs.** Shalini Anderson, AstraZeneca, Molndal, Sweden

**Journey from Brush-type to Polysaccharide CSPs.** Vitomir Sunjic[1], Marin Roje[1], Darko Kontrec[2], Vladimir Vinkovic[2], [1]Chirallica d.o.o., Zagreb, CROATIA; [2]Rudjer Boskovic Institute, Zagreb, CROATIA

**The Chiral "Finger-Print" of an Herbicidal Product Resolved by SFC.** Les Dolak, Jaci Cole, Jennifer L. Lefler, Thar Technologies, Inc., Pittsburgh, PA, USA

**Enantioseparations using Functionalized Surfaces by Affinity Capillary Electrophoresis and Capillary Electrochromatography.** Yukihiro Okamoto, Masato Kamiya, Fumihiko Kitagawa, Koji Otsuka, Kyoto University, Kyoto, JAPAN

## CHIRAL CHEMISTRY: SUPRAMOLECULAR / SYNTHESIS

**Double Helical Polymers and Oligomers: Synthesis, Structures and Functions.** Eiji Yashima, Nagoya University and ERATO, JST, Nagoya, JAPAN [Keynote lecture]

**Chiral Memory in Supramolecular Porphyrin Aggregates.** Roberto Purrello, Università di Catania, Catania, ITALY

**Synthesis of Polyarylacetylenes Directed Toward Rotaxane-Functionalized Helices.** Toshikazu Takata, Kei-ichiro Fukasawa, Takashi Sato, Tokyo Institute of Technology, Tokyo, JAPAN

**Out Sourcing Chiral γ-butyrolactones for the Synthesis of (+) Phaseolinic Acid, (+) Nephromopsiric Acid, L-β-hydroxy Paraconic Acid, (4R, 5R)-4,5-dimethyldihydro-2(3H)-furanone.** I. Ibnusaud, Susan Varughese, H. Simimole, Deenamma Habel, Mahatma Gandhi University, Kerala, INDIA

**Photochemical Synthesis of Novel Pyrrolo-[1,4]-benzodiazepines involving a Memory of Chirality Effect via a Triplet 1,7-Biradical.** Wolfgang H. Kramer, Millsaps College, Jackson, MS, USA.

## FREE VENDOR SEMINARS during lunch time

***To participate in the free vendor seminars, you must register onsite at the booth of the seminar sponsor located in the Exhibit area***

- Kromasil® AmyCoat™ – An Amylose Based Chiral Media for Pharmaceutical Analysis and Purification, Sponsored by Akzo Nobel/Eka
- Eurocel and Europak: The Knauer Chiral Family Based on Cellulose and Amylose Derivatized Stationary Phases, Sponsored by Knauer ASI
- New Strategies for Chiral Process Development, Sponsored by NovaSep

# TUESDAY AFTERNOON, JULY 10

## PREPARATIVE SEPARATIONS

**TBA.** Eric Francotte, Novartis, SWITZERLAND. [Keynote lecture]

**Integrated Operation of SMB and Biotransformation for the Production of Optically Active Molecules in High Yield.** Matthias Bechtold, Stefan Makart, Sven Panke, ETH Zurich, Zurich, SWITZERLAND

**Use of Large Scale Chromatography in the Preparation of Armodafinil.** Willy Hauck[1], Philippe Adam[2], Nelson Landmesser[3], [1]Novasep Inc., Boothwyn, PA, USA; [2]Novasep SAS, Pompey, FRANCE, [3]Cephalon, West Chester, PA, USA

**Comparison of Different Chromatography Techniques in the Production of an API in Mg to Kg Quantities for Early Studies.** Kerstin Larson, Staffan Karlsson, Eva Pålsson, Kristina Öhlén°, AstraZeneca Process R&D, Södertälje, SWEDEN; °AstraZeneca R&D, Mölndal SWEDEN

## MASS SPECTROMETRY / NMR

**Cyclodextrins, Crown Ethers, and calix[4]resorcarenes as Enantioselective NMR Shift Reagents.** T. J. Wenzel, Bates College, Lewiston, ME, USA [Keynote lecture]

**Electrospray Ionization-Mass Spectrometry: Old Tools, New Tools, Applications, and Key Aspects of Quantitative Binding Determinations in Chiral Recognition Systems.** Kevin A. Schug, Petr Frycak, Manishkumar Joshi, Aruna Wijeratne, University of Texas at Arlington, Arlington, TX, USA

**Effects of Backbone and Side-Chain on the Molecular Environments of Chiral Cavities and Chiral Recognition in Polysaccharide-Based Sorbents.** Rahul B. Kasat, N.-H. Linda Wang, Elias I. Franses**,** Purdue University, W. Lafayette, IN, USA

**High Throughput Intelligent Chiral Method Development and Optimization by Parallel SFC/MS.** Lu Zeng, Ronda Xu, Daniel B. Kassel, Takeda SD, Inc. San Diego, CA, USA

**Direct Screening of Chiral Discrimination Abilities of Chiral Hosts Using Mass Spectrometry.** M. Shizuma[a], H. Adachi[b], D. Ono[a], H. Sato[a], M. Nakamura[a], [a]Osaka Municipal Technical Research Institute, Osaka, JAPAN; [b]Osaka University, Osaka, JAPAN

# WEDNESDAY MORNING, JULY 11

## PLENARY SESSION III

**Chirality in Pheromone Science**. Kenji Mori, The University of Tokyo, Tokyo, JAPAN [Plenary lecture]

**Chiral Interaction and Asymmetry in Crystallization.** Dilip Kondepudi, Thurman D. Kitchin, Department of Chemistry, Wake Forest University, Winston-Salem, NC, USA [Plenary lecture]

## BIOLOGICAL CHIRALITY

**Fate and Effects of the Enantiomers of Chiral Environmental Pollutants.** Arthur Wayne Garrison, U.S. Environmental Protection Agency, Athens, GA, USA [Keynote lecture]

**Controlling Handedness and DNA Binding Properties of Peptide Nucleic Acids (PNAs) through Chirality.** Roberto Corradini, University of Parma, Parma, ITALY [Keynote lecture]

**Homochiral Preference in Peptide Synthesis.** N. Nandi[1], K. Thirumoorthy, Birla Institute of Technology and Science, Rajasthan, INDIA

**Bioinspired Chemical Inversion of L-Amino Acids to D-amino Acids.** Kwan Mook Kim, Ewha Womans University, Seoul, KOREA

**Investigation of the Structural Basis of Antibody Stereoselectivity using Homology-based Protein Modeling and Ligand Docking.** Daniel I. Ranieri, Heike Hofstetter, Oliver Hofstetter, Northern Illinois University, DeKalb, IL, USA

### CHIRAL SENSORS and SURFACE INTERACTIONS

**Development of Colorimetric and Fluorescent Chiral Sensors.** Myung Ho Hyun, Hee Jeong Choi, Yoon Kyung Kim, Min Ki Choi, Pusan National University, Busan, KOREA [Keynote lecture]

**Stochastic Sensing of Enantiomers in an Engineered Nanopore.** Xiyun Guan, Qitao Zhao, Dilani A. Jayawardhana, University of Texas at Arlington, Arlington, TX, USA

**A Close Look at Chirality - Sub-micrometer Polarimetry of Chiral Surfaces using Near-field Scanning Optical Microscopy.** D. H. Dressler, A. Zaban, Yitzhak Mastai, Bar-Ilan University, Ramat-Gan, ISRAEL

**Temperature-induced Inversion of the Elution Order of Enantiomers in Gas Chromatography.** Pavel A. Levkin, Anna Levkina, Harri Czesla, Volker Schurig, University of Tübingen, Tübingen, GERMANY

**Gas Chromatographic Determination of the Activation Energy for Interconversion of Dialkyl 2,3-Pentadienedioate Enantiomers.** J. Krupcik[1], J. Mydlova[1], D.W. Armstrong[2], [1]Slovak University of Technology, Bratislava, SLOVAKIA; [2]University of Texas at Arlington, Arlington, TX, USA

## WEDNESDAY AFTERNOON, JULY 11

### PLENARY SESSION IV

**Bloopers in Chirality: Use and Abuse of Stereochemical Language.** Joseph Gal, University of Colorado Health Sciences Center, Denver, CO, USA [Plenary lecture]

### NEW CHIRAL PHASES

**Immobilization of Polysaccharide Derivatives as Chiral Stationary Phases for Enantioseparation.** Yoshio Okamoto, Nagoya University, Nagoya, JAPAN [Keynote lecture]

**Application of Capillary Electrophoresis for Studies of Enantioselective Intermolecular Interactions.** Bezhan Chankvetadze, Tbilisi State University, Tbilisi, GEORGIA

**Proline Chiral Stationary Phases.** Tingyu Li, Mississippi State University, Mississippi State, MS, USA

# POSTER PRESENTATIONS - Monday

**Highly Sensitive Analysis of Vigabatrin Enantiomers by Fluorogenic Derivatization and Liquid Chromatography.** Chun-Yu Hsieh[a], Shing-Yaw Wang[b], Aij-Lie Kwan[c], Hsin-Lung Wu[a*], [a]Graduate Institute of Pharmaceutical Sciences, College of Pharmacy, Kaohsiung Medical University, Kaohsiung, TAIWAN; [b]Departments of Internal Medicine and Psychiatry, Chung-Ho Memorial Hospital, Kaohsiung, TAIWAN; [c]Departments of Neurosurgery, Chung-Ho Memorial Hospital, Kaohsiung, TAIWAN

**Enantioselective Gas Chromatographic Separation of Racemic *N*-alkylated Barbiturates and Cyclopropane Derivatives: Application of C11-Chirasil-Dex as Chiral Stationary Phase in GC.** Ashraf Ghanem[1], Volker Schurig[2], [1]King Faisal Specialist Hospital and Research Centre, Riyadh, SAUDI ARABIA; [2]University of Tübingen, Tübingen, GERMANY

**Direct Enantioselective HPLC Monitoring of Lipase-catalyzed Kinetic Resolution of Phenoxy Propionic Acid in Non-standard Solvents.** Ashraf Ghanem, Farrag El-Behairy, Mohammed Al-Ahdal, King Faisal Specialist Hospital and Research Centre, Riyadh, SAUDI ARABIA

**Resolution and Quantitation of A Pharmaceutical Drug Candidate and Its Stereoisomeric Impurities: A Case Study.** Brian Lingfeng He, Yueer Shi, Bristol-Myers Squibb, New Brunswick, NJ, USA

**A New Chromatographic Technique in the Study of Adverse Effect of Pindolol Enantiomers in Rat.** Mohamed M. Hefnawy[a], Hamad A. Al-Khamees[a], Abd-Rahman A. Al-Majed[a], Mohamed G. Kassem[a], Kamal El-Dine H. El-Tahir[b], [a]Department of Pharmaceutical Chemistry, King Saud University, Riyadh, SAUDI ARABIA; [b]Department of Pharmacology, King Saud University, Riyadh, SAUDI ARABIA

**Strategies for the Development of Enantiomer Separations using Immobilized Polysaccharide-based Chiral Stationary Phases.** C. W. Amoss, B. C. Coryell, G. B. Cox, P. Franco[a], C. Suteu[a], T. Zhang[a], Chiral Technologies, Inc., West Chester, PA, USA; [a]Chiral Technologies, Europe, Illkirch, FRANCE

**Properties of New Immobilized Cellulose Chiral Stationary Phases in Supercritical Fluid Chromatography.** Christelle Delobel[1], Didier Thiébaut[1], M.-C. Hennion[1], Raphaël Duval[2], [1]Ecole Supérieure de Physique et de Chimie Industrielles de la Ville de Paris, Paris, FRANCE; [2]Chirosep, La Fresnaye, FRANCE

**Optimizing Chiral Separations via an Automated Parallel Scouting System for On-Line Preparative Chiral Purification.** Joan M. Stevens, Mark Crawford, Gilson, Inc., Middleton, WI, USA

**Chiral Retention Behavior of β-lactam Compounds on Different Types of Polysaccharide CSP.** Silvia Marten, Knauer GmbH, Berlin, GERMANY

**Liquid and Supercritical Fluid Chromatographic Chiral Separation and Purification of Nutlin-3—A Small Molecule Antagonist of MDM2.** Zhenyu Wang, Malgorzata Jonca, Ted Lambros, Stephen Ferguson, Robert Goodnow, Hoffmann-La Roche Inc., Nutley, NJ, USA

**Axially Chiral 2-arylimino-3-aryl-thiazolidine-4-one Derivatives: Enantiomeric Separation and Determination of Racemization Barriers by Chiral HPLC.** Sule Erol, Ilknur Dogan, Boğaziçi University, İstanbul, TURKEY

**Evaluation of an HPLC Chiral Separation Flow Scheme for Small Molecules.** V. Scott Sharp, Donald S. Risley, Trent J. Oman, Eli Lilly and Company, Indianapolis, IN, USA

**Chiral Chromatography: How to Provide Quick Access to Chiral Pure Compounds.** V. Pinilla, A. Brémaud, M. Van Thuyne, D. Sénéchal, R. Jacqmin, D. Lagneaux, E. Cavoy, UCB Pharma, Braine L'Alleud, BELGIUM

**Investigation and Application of "Superoptimal" Flow Rates with Preparative Supercritical Fluid Chromatography.** Wesley W. Barnhart, Kyung H. Gahm, Zheng Hua, Amgen Inc., Thousand Oaks, CA, USA

**Development and Validation of a Capillary Electrophoresis Method for the Determination of Enantiomeric Impurities of a VEGFR-2 Inhibitor Compound.** Qinggang Wang, Bristol-Myers Squibb, New Brunswick, NJ, USA

**Improving Solubility, Resolution And Production Rate By SFC Employing A Dual Co-Solvent System On A Whelk-O 1 CSP.** Ted Szczerba, Zahid Ali, Regis Technologies, Inc., Morton Grove, IL, USA

**Recent Advances in Chiral Resolution of β-Blockers by Liquid Chromatography.** Imran Ali, Afzal Hussain, Jamia Millia Islamia (Central University), New Delhi, INDIA

**Epimerization Study of a Thermal Decomposition Product of Dihydroartemisinin by Dynamic HPLC.** W. Cabri[a], A. Ciogli[b], I. D'Acquarica[b], M. Di Mattia[a], F. Gasparrini[b], F. Giorgi[a], A. Mazzanti[c], M. Pierini[b], M. Quaglia[a], [a]Sigma-Tau SpA, Pomezia, ITALY; [b]Università "La Sapienza", Roma, ITALY; [c]Università di Bologna, Bologna, ITALY

**Direct Chromatographic Enantioresolution and Absolute Configuration Determination of a New Chiral Oxadiazol-3-one Calcium Channel Blocker.** P. J. Stephens[a], F. J. Devlin[a], F. Gasparrini[b], A. Ciogli[b], D. Spinelli[c], B. Cosimelli[d], [a]University of Southern California, Los Angeles, CA, USA; [b]Università "La Sapienza", Roma, ITALY; [c]Università di Bologna, Bologna, ITALY; [d]Università di Napoli "Federico II", Napoli, ITALY

**Chromatographic Enantiomer Separation of Chiral Amines with a Novel Strong Cation Exchange Type Chiral Stationary Phase.** Christian Hoffmann, Michael Laemmerhofer, Wolfgang Lindner, University of Vienna, Vienna, AUSTRIA

**Enantioselective C – H Functionalization: Making the Green Reaction Greener.** Phillip M. Pelphrey, Huw M. L. Davies, University at Buffalo, Buffalo, NY, USA

**Chiral Methods and Analysis of PCB 95 and cis-permethrin in Environmental Samples from the CTEPP Study.** E. M. Ulrich[1], T. Cummings[2], A. W. Garrison[3], M. K. Morgan[1], [1]U.S. Environmental Protection Agency, Research Triangle Park, NC, USA; [2]North Carolina Central University, Durham, NC, USA, currently U.S. EPA, Washington, DC, USA; [3]U.S. Environmental Protection Agency, Athens, GA, USA

**Gaseous- Versus Solution-phase Recognition of Some Aromatic Amino Esters by 2,8,14,20-tetrakis(*L*-valinamido)[4]resorcinarene.** Bruno Botta, Caterina Fraschetti, Laura Nevola, Deborah Subissati, Fabiana Subrizi, Danila Tullo, Maurizio Speranza, Universit`a di Roma "La Sapienza", Roma, ITALY

**Cellulose-based CSPs as Effective Tools for Enantioselective Separation of Structurally Different Disubstituted Binaphtyls.** L. Loukotková[1], Z. Bosáková[1], E. Tesařová[2], [1]Department of Analytical Chemistry, Charles University in Prague, Prague, CZECH REPUBLIC; [2]Department of Physical and Macromolecular Chemistry, Charles University in Prague, Prague, CZECH REPUBLIC

**Enantioselective Analysis of Cloprostenol by HPLC.** Květa Kalíková[1], Zuzana Bosáková[2], Eva Tesařová[1], [1]Department of Physical and Macromolecular Chemistry, Charles University in Prague, Prague, CZECH REPUBLIC; [2]Department of Analytical Chemistry, Charles University in Prague, Prague, CZECH REPUBLIC

**Capillary Liquid Chromatography with Teicoplanin and Teicoplanin Aglycone Chiral Selectors for Separation of Profen Enantiomers; Evaluation of Preparation of Chiral Capillary Columns.** M. Vadimská[1], Z. Bosáková[1], E. Tesařová[2], J. Ševčík[3], D. W. Armstrong[4], [1]Department of Analytical Chemistry, Charles University in Prague, Prague, CZECH REPUBLIC; [2]Department of Physical and Macromolecular Chemistry, Charles University in Prague, Prague, CZECH REPUBLIC; [3]Palacky University in Olomouc, Olomouc, CZECH REPUBLIC; [4]University of Texas at Arlington, Arlington, TX, USA

**Separation Behavior of Amylose Derivatized Chiral Stationary Phase Europak 01 in Different Polar Modes.** Silvia Marten, Dr. Ing. Herbert Knauer GmbH, Berlin, GERMANY

**Robustness of -Tocopherol Enantioseparation with Europak 01.** Silvia Marten, Dr. Ing. Herbert Knauer GmbH, Berlin, GERMANY

**Investigation of the Interconversion of Tris(1,10-phenanthroline)-metal-complexes by Dynamic Micellar Electrokinetic Chromatography.** S. Bauch, S. K. Weber, O. Trapp, Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr, GERMANY

**Kromasil AmyCoat, A New Polysaccharide-based Chiral Stationary Phase for Rapid and Efficient Chiral Resolution.** Maria Eliasson, Eric Collet, Britt Kofoed-Hansen, Kristina Hallman, Eka Chemicals, Bohus, SWEDEN

**From Screening to Purification, Presentation of a Strategic Approach to Solving Chiral Separation Issues by HPLC.** Kristina Hallman, Sylvia Winkel Pettersson, Britt Kofoed-Hansen, Eka Chemicals, Bohus, SWEDEN

**Resolution of Aryl α-amino Ketones on Silanol Group-modified Chiral Stationary Phase Based on Optically Active (3,3´-diphenyl-1,1´-binaphthyl)-20-crown-6.** Hee Jung Choi, Min Sub Sin, Myung Ho Hyun, Pusan National University, Busan, KOREA

**Resolution of β-amino acids on a Modified New CSP Based on Optically Active (3,3´-diphenyl-1,1´-binaphthyl)-20-crown-6.** Hee Jung Choi, Hyun Ju Ha, Sang Cheol Han, Myun Ho Hyun, Pusan National University, Busan, KOREA

**Liquid Chromatographic Resolution of Tocainide and Its Analogues on a Modified New CSP Based on Optically Active (3,3´-diphenyl-1,1´-binaphthyl)-20-crown-6.** Hee Jung Choi, Hyun Ju Ha, Bu Sung Kang, Myun Ho Hyun, Pusan National University, Busan, KOREA

**Liquid Chromatographic Resolution of γ-amino Acids Including Vigabatrine on Crown Ether-based Chiral Stationary Phases.** Su Jin Lee, Hwan Sun Cho, Hee Jung Choi, Myung Ho Hyun, Pusan National University, Busan, KOREA

**Enantiomeric Separations of Ruthenium(II) Polypyridyl Complexes Using High Performance Liquid Chromatography (HPLC) with Cyclodextrin Chiral Stationary Phases (CSPs).** Ping Sun, Arthi Krishnan, Abhishek Yadav, Kelly Wouters, Frederick M. MacDonnell, Daniel W. Armstrong, University of Texas at Arlington, Arlington, TX, USA

**Enantioresolution of Racemic Alcohols and Amines by Steroidal Inclusion Crystals.** Kazuaki Aburaya, Yusuke Yamahata, Ichiro Hisaki, Norimitsu Tohnai, Mikiji Miyata, Osaka University, Suita, Osaka, JAPAN

**Theoretical Studies on the Mechanism of the Enantioselective Discrimination in the Pauson-Khand Reaction.** Torstein Fjermestad, Feliu Maseras, Miquel A. Pericàs, Institute of Chemical Research of Catalonia (ICIQ), Tarragona, SPAIN

**A Prominent Effect of Orientation of Amide Groups on Enantiomeric Separations of Two New Synthetic Polymeric Chiral Stationary Phases on HPLC and SFC.** Xinxin Han, Jeffery W. Remsburg, Daniel. W. Armstrong, Chemistry & Biochemistry Department, University of Texas at Arlington, Arlington, TX, USA

**Separation of Epimeric, Diastereomeric, and Polymorphic Peptides on Macrocyclic Glycopeptide Chiral Stationary Phases.** Renee J. Soukup-Hein, Daniel W. Armstrong, University of Texas at Arlington, Arlington, TX, USA

**Chiral Screening in the Chemical Development Department of GlaxoSmithKline's Research Triangle Park.** Christopher G. Henry, GlaxoSmithKline, RTP, NC, USA

**Structural Elucidation of Cation Exchange Type Chiral Selectors for Enantiomer Separation using Liquid Chromatography, NMR Spectroscopy and X-Ray Diffraction Analysis.** Christian Hoffmann, Hanspeter Kählig, Michael Laemmerhofer, Wolfgang Lindner, University of Vienna, Vienna, AUSTRIA

**Enantiomeric Separation of Chiral Ruthenium(II) Complexes Using Capillary Zone Electrophoresis.** Chunxia Jiang, Ben Tong, Ye Bao, Junming Huang, Frederick MacDonnell, Daniel Armstrong, University of Texas at Arlington, Arlington, TX, USA

**Evaluation of Pentaproline-based Chiral Stationary Phase by High-Performance Liguid Chromatography.** Y. Bao[1], J. Huang[2], D. W. Armstrong[2], T. Li[3], [1]Iowa State University, Ames, IA, USA; [2]University of Texas at Arlington, Arlington TX, USA; [3]Mississippi State University, Mississippi State, MS, USA

**Click Chemistry as Innovative Tool for the Preparation of Chiral Stationary Phases. Triazolo-Linked *Cinchona* Alkaloid Carbamate Anion Exchange-Type CSPs.** Karol Kacprzak, Norbert Maier, Wolfgang Lindner, Vienna University, Vienna, AUSTRIA

**Using Supercritical Fluid Chromatography (SFC) and Tandem Mass Spectrometry Detection for the Development of a Qualitative Tandem Column Chromatographic Separation of Six Stereoisomers of Aprepitant.** C. M. Chavez-Eng, W. F. Kline, R. W. Lutz, M. L. Constanzer, E. J. Woolf, Merck & Co., Inc., West Point, PA, USA

**Chromatographic Enantiomer Separation of Topologically Chiral Trefoil-Knots.** Norbert M. Maier[a], Wolfgang Lindner[a], Jens Brüggemann[b], Fritz Vögtle[b], [a]University of Vienna, Vienna, AUSTRIA; [b]Universität Bonn, Bonn, GERMANY

**Improvements in ParallelChiral Column Screening with New Hardware and Software Add-Ons.** Holger Gumm, A. Bredebusch, Sepiatec GmbH, Berlin, GERMANY

**Enantiomeric Resolution of Primary Amine Compounds by Covalently Bonded Macrocyclic Antiobiotic, Boromycin, HPLC Chiral Stationary Phase.** Chunlei Wang, Daniel W. Armstrong, University of Texas at Arlington, Arlington TX, USA

**Chiral Screen Evaluation using Supercritical Fluid Chromatography and Normal Phase HPLC.** Ling S. Xiao, James B. Murphy, Mary Gasper, Pfizer Global Research & Development, Chesterfield, MO, USA

**An Examination of the Impact of the Sugar Moiety on Glycopeptides with Respect to Enantioselectivity.** Beth Ann Baker, Aprile Gilmore, Courtney Vowell, Matthew Oglesbee, Erin Redman, Keith Parsons, Timothy J. Ward, Millsaps College, Jackson, MS, USA

**Analytical HPLC Direct Comparison of RegisCell™ and CHIRACEL® OD®-H.** F. Mannerino, T. Szczerba, J. Kocergin, A. Miles, Regis Technologies, Morton Grove, IL, USA

**Expanding Use of the" Inverted Chirality Columns Approach" for Enantiomeric Excess Evaluation in Absence of Reference Compounds: Successful Application to a Water-soluble Camptothecin Derivative.** E. Badaloni[a], W. Cabri[a], A. Ciogli[b], R. Deias[a], F. Gasparrini[b], F. Giorgi[a], A. Vigevani[a], C. Villani[b], [a]Sigma-Tau SpA, Pomezia, Rome, ITALY; [b]Università "La Sapienza", Rome, ITALY

# POSTER PRESENTATIONS - Tuesday

**Yeast Mediated Enantioselective Synthesis of Chiral *R*-(+)- and *S*-(–)-1-Phenyl-1-Butanol from Prochiral Phenyl *n*-Proyl Ketone in Hexane-Water Biphasic Culture.** Cheanyeh Cheng, Hsiang-Rong Tsai, Chung Yuan Christian University, Chungli, Taiwan, REPUBLIC OF CHINA

**Atropisomeric 4-aryl-2-oxo-4-oxazolidinones and Some Sulphur Analogues – Enantiodifferentiation and Ligand Competition in Applying the Dirhodium Method.** Edison Díaz Gómez[a], Ilknur Doğan[b], Dieter Albert[a], Helmut Duddeck[a], [a]Leibniz University Hannover, Hannover, GERMANY; [b]Boğaziçi University, Istanbul, TURKEY

**The 150th Anniversary of the Discovery of Biological Enantioselectivity: Louis Pasteur and the Enantioselective Fermentation of Tartaric Acid, 1857.** Joseph Gal, University of Colorado Health Sciences Center, Denver, CO, USA

**Lipase-catalysis in Non-standard HPLC Organic Solvents: A Versatile Method in Chiral Separation.** Ashraf Ghanem, King Faisal Specialist Hospital and Research Centre, Riyadh, SAUDI ARABIA

**Asymmetric Radical Polymerization and Copolymerization of N-[(4-Butylphenyl)dibenzo-suberyl]methacrylamide Leading to Optically Active Helical Polymers.** A.K.M. Fakhrul Azam[1], Masami Kamigaito[1], Yoshio Okamoto[2], [1]Department of Applied Chemistry, Nagoya University, Nagoya, JAPAN; [2]EcoTopia Science Institute, Nagoya University, Nagoya, JAPAN

**Study of Chiroptical Properties of L-leucine Containing Chiral Monomer and its Polymer.** Dibyendu S. Bag, Dhiraj Dutta, T. C. Shami, K. U. Bhaskar Rao, Defence Materials and Stores Research and Development Establishment, Kanpur, INDIA

**Real Time Chiral Reaction Monitoring with Micro-Scale HPLC.** J. Kittell, S. Hobbs, P. Deland, J. Rehm, Eksigent Technologies, Dublin, CA, USA

**Correlation Between Microscopic and Mesoscopic Chirality in Monolayers.** N.Nandi[1] K. Thirumoorthy[1], D. Vollhardt[2], [1]Birla Institute of Technology and Science-Pilani, Rajasthan, INDIA; [2]Max Planck Institute for Colloid and Interface Science, Potsdam, GERMANY

**Induced Chiral Fields.** Hiroshi Ohrui, Yokohama College of Pharmacy, Yokohama, JAPAN

**Chiral Discrimination of 3-*O*-methyl-α–cyclofructan Toward Ammonium Ions of Amino Acid Esters in FAB Mass Spectrometry.** M. Shizuma[a], H. Terauchi[b], H. Adachi[c], D. Ono[a], H. Sato[a], O. Shimomura[b], R. Nomura[b], M. Nakamura[a], [a]Osaka Municipal Technical Research Institute, Osaka, JAPAN; [b]Osaka Institute of Technology, Osaka, JAPAN; [c]Osaka University, Osaka, JAPAN

**Accelerating the Drug Development Process via an Automated SPE Employing a Shaped-Based Nanotechnology as a Chiral Discriminator.** Joan M Stevens, Mark Crawford, Gilson, Inc., USA; Regina Valuzzi, Mike Kopczynski, Daniel Sauerstrom, Evolved Nanomaterial Sciences, Inc., USA

**Polarizing Force Field for Protein Folding.** Francisco Torrens, Gloria Castellano, Universitat de València, València, SPAIN

**VCD Application for Chiral Nematic Liquid Crystals.** Hisako Sato[1,2], Tohru Taniguchi[3], Kenji Monde[3], Akihiko Yamagishi[4,5], [1]The University of Tokyo, Tokyo, JAPAN; [2] PRESTO, Japan Science and Technology Agency, JAPAN; [3]Hokkaido University, Sapporo, JAPAN; [4]Ochanomizu University, Tokyo, JAPAN; [5]CREST, Japan Science and Technology Agency, JAPAN

**Incorporating Circular Dichroism in the Undergraduate Chemistry Curriculum.** Katie Wilcox, Andrea E. Holmes, Doane College, Crete, NE, USA

**Asymmetric Oxidation of Acyloxyalkenes Leading to Acyloxyfurans using Hypervalent Iodine Reagents.** Morifumi Fujita, Sakuro Okuno, Hee Jin Lee, Takashi Sugimura, University of Hyogo, Hyogo, JAPAN

**Asymmetric Synthesis of Optically Active Peroxides Using Reactions of Naphthalenes with Singlet Oxygen.** Morifumi Fujita, Yoshihiro Akiyama, Takashi Sugimura, University of Hyogo, Hyogo, JAPAN

**Catalytic Enantioselective 1, 4-addition with α'-Phosphoric Enones and α'-Sulfonic Enones.** Hyeyeon Yang, Kyoung-Chan Lim, Sunggak Kim, Korea Advanced Institute of Science and Technology, Daejeon, KOREA

**Enantioselective Addition of Aniline to Epoxide in a Homochiral Porous Metal-organic Framework.** K. Tanaka,[a] S. Oda[a], M. Shiro[b], [a]Kansai University, Osaka, JAPAN; [b]Rigaku Corporation, Tokyo, JAPAN

**Triangleamine as Chiral Shift Reagent for Secondary Alcohols.** K. Tanaka, T. Fujiwara, N. Fukuda, Kansai University, Osaka, JAPAN

**Parallel SFC/MS-IPOCSS Screening for Enantiomeric Purity Assessment.** Derek B. Laskar, Lu Zeng, Rongda Xu, Daniel B. Kassel, Takeda San Diego, San Diego, CA, USA

**Optical Resolution of Medium-size Lactones by Inclusion Crystallization with Optically Active Host Compounds: Odd-even Effects on the Chiral Recognition.** K. Tanaka[a], D. Kuchiki[a], M.R. Caira[b], [a]Kansai University, Osaka, JAPAN; [b]University of Cape Town, Rondebosch, SOUTH AFRICA

**Syntheses, X-Ray Structures and Circular Dichroism of Cobalt and Nickel Complexes of N,N-Dialkymethionine Derivatives.** Debasis Das[1], Zhaohua Dai[1,2], Andrea Holmes[1,3], James W. Canary[*1], [*1]New York University, New York, NY, USA; [2]Pace University, New York, NY, USA; [3]Doane College, Crete, NE, USA

**Immobilization of Polysaccharide Derivatives onto Silica Gel through Intermolecular Polycondensation and Its Chiral Recognition Abilities.** Tomoyuki Ikai[1], Chiyo Yamamoto[1,2], Masami Kamigaito[1], Yoshio Okamoto[3], [1]Nagoya University, Nagoya, JAPAN; [2]Suzuka National College of Technology, Suzuka, JAPAN; [3]EcoTopia Science Institute, Nagoya University, Nagoya, JAPAN

**Assigning the Absolute Stereochemistry of Pyranonigrin A by Electronic CD and ORD.** Tohru Taniguchi[1], Gerhard Schlingmann[2], Nina Berova[1], [1]Columbia University, New York, NY, USA; [2]Wyeth Research, Pearl River, NY, USA

**Chiral Molecules with a Polyhedral T, O or I Symmetry: Theoretical Solutions to an Open Problem in Stereochemistry and Their Significance in Forming New Phases of Liquid Crystals.** Sri Kamesh Narasimhan, Preeti Sejwal, Xiaoying Lu, Yan-Yeung Luk, Syracuse University, Syracuse, NY, USA

**Synthesis, Resolution and Determination of Absolute Configuration of a Class of C3-Dissymmetric Trioxatricorna: New Structure for Asymmetric Catalyst and Nanometeric Multivalent Agents.** Yan-Yeung Luk, Teresa B. Freedman, Sri Kamesh Narasimhan, Jun Li, Rosina Lombardi, Syracuse University, Syracuse, NY, USA

**A Catalytic Asymmetric Three-Component 1,4-Addition/Aldol Reaction: Enantioselective Synthesis of the Spirocyclic System of Vannusal A.** K.C. Nicolaou, Wenjun Tang, Philippe Dagneau, Raffaella Faraoni, Merck & Co., Inc., Rahway, NJ, USA

**Synthesis and Polymerization of Chiral Maleimide Derivatives Having Unsaturated Group as *N*-Substituent.** T. Oishi, H. Gao, Y. Isobe, K. Onimura, Yamaguchi University, Yamaguchi, JAPAN

**Synthesis of (S)-BINOL-Terminated Poly(ethylene glycol) Polyrotaxane Including α-Cyclodextrin.** Kenjiro Onimura, Masayuki Kawashima, Kazuhiro Yamabuki, Yukio Isobe, Tsutomu Oishi, Yamaguchi University, Yamaguchi, JAPAN

**Synthesis of Chiral Dianionic Ionic Liquids from Simple Sugars.** Aruna B. Wijeratne, Pritesh S. Sharma, Jeffrey A. Crank, Junmin Huang, Kevin A. Schug, Daniel W. Armstrong, University of Texas at Arlington, Arlington, TX, USA

**Combination of Chemical Reaction and Analysis with Chiral Camphor-based Transition Metal Catalysts in One Chromatographic Reactor.** S. K. Weber, S. Bauch, O. Trapp, Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr, GERMANY

**Resolution of Fluoroquinolone Antibacterials on a Modified New CSP Based on Optically Active (3,3´-diphenyl-1,1´-binaphthyl)-20-crown-6.** Hwan Sun Cho, Hee Jung Choi, Sang Cheol Han, Myun Ho Hyun, Pusan National University, Busan, KOREA

**Chiral Crystal of Achiral Cytosine as an Origin of Biochirality in Conjunction with Asymmetric Autocatalysis.** Kenta Suzuki, Yuko Hakoda, Tsuneomi Kawasaki, Kenso Soai, Tokyo University of Science, Tokyo, JAPAN

**Stereoselective Isomerization and Degradation of Ticarcillin in the Presence of Human Serum Albumin.** Y. Tsuda, T. Itoh, Kitasato University, Tokyo, JAPAN

**Biological Investigation of Some 2-Aryl-2-fluoropropionic Acids as Anti-allergy and Anti-Alzheimer's Disease Agents.** Tomoya Fujiwara[1], Hidehito Fujisawa[1], Yoshio Takeuchi[1], Takashi Morihara[2], Masatoshi Takeda[2], Miku Todo[3], Michiko Yoshii[3], Koichiro Ozawa[3], [1]University of Toyama, Toyama 930-0194, JAPAN; [2]Osaka University Graduate School of Medicine, Osaka, JAPAN; [3]Hiroshima University, Hiroshima, JAPAN

**Saccharide Recognition of Double Helical Oligoresorcinols via Heterocomplex Formation through Noncovalent Interactions in Water.** Hidetoshi Goto[1], Yoshio Furusho[1], Eiji Yashima[1,2], [1]Japan Science and Technology Agency, Nagoya, JAPAN; [2]Nagoya University, Nagoya, JAPAN

**Solid-state Diffuse Reflectance Circular Dichroism (DRCD) Spectroscopy.** T. Harada[1], N. Asano[2] , T. Sato[1], T. Konno[2], R. Kuroda[1,2], [1]Japan Science and Technology Agency, Tokyo, JAPAN; [2]The University of Tokyo, Tokyo, JAPAN

**Synthesis and Function of Complementary, Optically-Active Double Helices Utilizing Amidinium-Carboxylate Salt Bridge Formation.** Takashi Hasegawa[1,2], Hiroshi Katagiri[1], Yoshio Furusho[1], Eiji Yashima[1,2], [1]Japan Science and Technology Agency, Nagoya, JAPAN; [2]Nagoya University, Nagoya, JAPAN

**Chiral Solvent Induction in Asymmetric Synthesis: Room-temperature Ionic Liquids Move to the Forefront.** Junmin Huang, Xiaotong Zhang, Daniel W. Armstrong, University of Texas at Arlington, Arlington, TX, USA

**Design of B23 Circular Dichroism beamline at Diamond Light Source.** Giuliano Siligardi, Rohanah Hussain, Diamond Light Source Ltd., Oxfordshire, UNITED KINGDOM

**Helical Induction Controls DNA Binding in Chiral PNAs with Two Stereogenic Centers.** Stefano Sforza, Tullia Tedeschi, Roberto Corradini, Rosangela Marchelli, University of Parma, Parma, ITALY

**Circular Dichroism Study of DNA Binding by a Potential Anticancer Peptide Nucleic Acid (PNA) Targeted Against the MYCN Oncogene.** Roberto Corradini[a], Andrea Faccini[a], Andrea Tortori[b], Tullia Tedeschi[a], Stefano Sforza[a], Roberto Tonelli[b], Andrea Pession[b], Rosangela Marchelli[a], [a]Università di Parma, Parma, ITALY; [b]University of Bologna, Bologna, ITALY

**Supramolecular Tilt Chirality Based on 21 Helical Assemblies.** Ichiro Hisaki, Norimitsu Tohnai, Mikiji Miyata, Osaka University, Osaka, JAPAN

**Attempts To Measure Magneto-Chiral Circular Dichroism - The Cross Effect of Natural CD and MCD.** Sumio Kaizaki, Osaka University, Osaka, JAPAN

**A Supramolecular Acid Catalysed Racemisation Process for Atropisomeric N-(2-aminophenyl) thiazoline-2-thione.** Federico Andreoli, Nicolas Vanthuyne, Christian Roussel, Ibon Alkorta[*], I, José Elguero[*], Paul Cézanne University, Marseille, FRANCE; [*]Inst. Quim. Med., Madrid, SPAIN

**Synthesis of Optically Active Poly(arylene-ethynylene) having $C_2$ Chiral Spirobifluorene Skeleton in the Main Chain.** Ryota Seto, Takashi Sato, Toshikazu Takata, Tokyo Institute of Technology, Tokyo, JAPAN

**A Single Abiotic Chiral Event Could have been the Key to the Origin of Biological Homochirality.** Sylvain Smadja, Lycee Francais de Los Angeles, Los Angeles, CA 90034, USA

**Chiral Influence on Helical Sense Choice in Duplex PNA Tests the Cooperativity of the Double Helix of this DNA Mimic.** Filbert Totsingan[a,b], Vipul Jain[b], Roberto Corradini[a], Andrea Faccini[a], Tullia Tedeschi[a], Rosangela Marchelli[a], Loren A. Day[c], Mark M. Green[b], [a]University of Parma, Parma, ITALY; [b]Polytechnic University, Brooklyn, NY, USA; [c]Public Health Research Institute, Newark, NJ, USA

**Vibrational Circular Dichroism used for Diastereodiscrimination of Bilirubin, Biliverdin and Bilirubin Ditaurate.** Iryna Goncharova, Marie Urbanová, Institute of Chemical Technology, Prague, CZECH REPUBLIC

**Determination of the Absolute Configuration of a Planar Chiral ($\eta^6$-arene)chromium Tricarbonyl Complex by DFT Calculation of Vibrational CD.** C. Villani[a], F. Gasparrini[a], S. Levi Mortera[a], F. J. Devlin[b], P. J. Stephens[b], [a]Sapienza Università di Roma. Rome, ITALY; [b]University of Southern California, Los Angeles, CA, USA