Announcement of CCC2006 Conference Program

Tuesday, August 8, 2006

8:30 am  Reception
9:00  Opening Remarks
       by Dr. Robert Balaban
       (introduced by Dr. Henry Fales)
9:10  Plenary Lecture
       by Dr. James McAlpine
9:40  Coffee break

Session 1: Scaling up
(chaired by Ian A. Sutherland)

10:10  The ABC: a New Centre Dedicated to CCC From Milligram to Tonne Quantities. Ian J. Garrard, Derek Fisher, David Hawes, Svetlana Ignatova, Lee Janaway, Ian A. Sutherland, and Philip L. Wood. Brunel Institute for Bioengineering, Brunel University, UK. Dynamic Extractions Ltd., UK

10:30  Feasibility Study of Scaling from Pilot to Process Scale. Svetlana Ignatova, David Hawes, Philip L. Wood, Lee Janaway, and Ian Sutherland. Brunel Institute for Bioengineering, Brunel University, UK. Dynamic Extractions Ltd., UK

10:50  High Performance Counter-current Chromatography: Hours to Minutes in 10 Years. Lee Janaway, David Hawes, David J. Keay, and Philip L. Wood. Dynamic Extractions Ltd., UK


11:30  Scale Up on Binary Separation From 50 mL to 5000 mL FCPC Column. Gregoire Audo*, Francois De La Poype, and Celine Merle. Kromaton Technologies, Angers, France

11:50  Multi-Dimensional, Generic, Isocratic and Gradient Elution/Extrusion CCC, Flash, Plus HPLC in Laboratory & Process Scale Preparative Chromatography. Leslie Brown, AECS-Quik Prep™, Bridgend, S. Wales, UK and Douglas Cobb, 4Chrom Inc Raleigh, NC

12:10  Lunch Break

Session 2: Instrumentation
(chaired by Walter D. Conway and Martha Knight)

1:30 pm  Why the Time is Right for CCC to Impact Pharmaceutical Product Development? David Keay, Lee Janaway and Philip L. Wood. Dynamic Extractions Ltd., Slough Berkshire, UK

1:50  Service Life of CCC Coils
Walter D. Conway. School of Pharmacy & Pharmaceutical Sciences, State University at Buffalo, Buffalo, NY

2:10  Modelling CCC and Dual CCC Using Longitudinal Mixing Cell and Eluting Countercurrent Distribution Models. Artak E. Kostanyan, Vera V. Belova and Anatoly I. Khokin. Kurnakov Institute of General and Inorganic Chemistry, Russian Academy of Science, Moskow, Russia
2:30 pm  CCC in Analytical Chemistry: Comparison With Other Technique and Recommendations for the Use. Boris Y. Spavakov and Tatiana A. Maryutina. Vernadsky Institute of Geochemistry and Analytical Chemistry, Russian Academy of Sciences, Moscow, Russia

2:50  Application of High-Speed Countercurrent Chromatography in Human Serum Peptidomics. Linan Shi, Zhensheng Xie, Xueli Cao, Ying Ma, Yoichiro Ito and Fuquan Yang. Center for Computational and Systems Biology, Institute of Biophysics, Chinese Academy of Science, Beijing, China

3:10  Coffee break

3:40  New Small-Scale Cross-Axis Coil Planet Centrifuge: Partition Efficiency and Application to Separation of Bioactive Compounds. Kazufusa Shinomiya, Koji Kobayashi, Hisashi Oshima, Hiroko Kobayashi, Norio Inokuchi, Susumu Kitanaka, Kazuhiro Yanagidaira, Haruo Sasaki, Minoru Muto, Michiharu Okano, and Yoichiro Ito. College of Pharmacy, Nihon University, Japan

4:00  Numerical Investigation of Dual Flow in a Spiral CCC Column. C.S. Konig and I.A. Sutherland. Brunel Institute for Bioengineering Brunel University, UK

4:20  Preliminary Study of a Spiral Disk Column Design for High-Speed Countercurrent Chromatography. Xue-li Cao, Yin-mao Dong, Liang-sheng Huo, Xiaoping Zhu, Ting Li and Yoichiro Ito. Beijing Technology and Business University, College of Chemistry and Environmental Engineering, Beijing Key Laboratory of Plant Resource Research, Beijing, China

4:40  Mixer-Settler Countercurrent Chromatography With a

4:40 pm  Barricaded Spiral Disk Assembly With Glass Beads. Yoichiro Ito, Lin Qi, Jimmie Powell and James Yost. Center for Biochemistry and Biophysics, National Heart, Lung & Blood Institute, National Institutes of Health, Bethesda, MD

5:00  Contribution of Our Laboratory to the Development of Centrifugal Partition Chromatography. Alain P. Foucault, Luc R. Marchal, and Jack A. Legrand. GEPEA, Nantes University, France

Wednesday, August 9, 2006

Session 3: Solvent System
(chaired by Alain Berthod and Tatyana Maryutina)

8:30 am  Establishing Trends in Countercurrent Solvent System Families With G.U.E.S.S. Mix Standards. J. Brent Friesen and Guido F. Pauli. Department of Natural Science, Rosary College of Arts and Science, Dominican University, River Forest, IL

8:50  Accurate Calculation for Liquid-Liquid Equilibria of Quaternary Arizona Solvent Systems Widely Used in CCC. Jian Chen, Mengqiang Zhao, Yanmei Yu and Zongcheng Li. State Key Laboratory of Chemical Engineering, Department of Chemical Engineering, Tsinghua University, Beijing, China

9:10  Retention in Dual Flow Countercurrent Chromatography. Remco van den Heuvel and Ian A. Sutherland. Brunel Institute for Bioengineering, Brunel University, UK

9:30  Changing a Composition of Stationary Phase During the Chromatographic Run as a Tool to Improve Separation Efficiency. T.A. Maryutina and M.A. Rakcheev. Vernadsky Institute of Geochemistry and Analytical Chemistry, (RAS), Moscow, Russia

10:10 Coffee break

10:40 Comprehensive Separation of Secondary Metabolites in Natural Products by HSCCC Using Three-Phase Solvent System. Akio Yanagida, Yutaka Yamakawa, Ryoko Noji, Heisaburo Shindo, Yoichiro Ito, and Yoichi Shibusawa. School of Pharmacy, Tokyo University of Pharmacy and Life Science, Tokyo, Japan

11:00 Modelling of Processes of Binary Extraction Chromatography. Sergey N. Kalyakin, Vladimir I. Kuzmin, Anatoly I. Khoklin, and Artak E. Kostanyan. Institute of Chemistry and Chemical Technology, Siberian Branch of the Russian Academy of Sciences, Moscow, Russia

11:20 An Aqueous Two Phase Liquid System Based on a Room Temperature Ionic Liquid. Maria Jose Ruiz-Angel, Alain Berthod, Veronica Pino and Samuel Carda-Broch. Laboratoire des Sciences Analytiques, Universite de Lyon, Villeurbanne, France

11:40 Surfactant Analysis by the Velocity of Air Bubbles Moving Through a Rotating Coil Column in High-Speed Countercurrent Chromatography. Eiichi Kitazume, Yanjun Yang, Syou Sannohe, and Yoichiro Ito. Faculty of Humanities and Social Sciences, Iwate University, Morioka, Iwate, Japan

12:00 Lunch break

Session 4: Biopolymers, Cells & Particles (chaired by Tadashi Okada and James Hsu)

1:30 pm Coil Selection for Isolation of Bio-Macromolecules and Particles by Countercurrent Chromatography Using Aqueous Two-Phase Systems. Y.H. Guan, J. Smulders, W. te Boekhorst, Derek Fisher, and Ian A. Sutherland. Brunel Institute for Bioengineering, Brunel University, UK

1:50 Separations of Hydrophobic Synthetic Peptides. Martha Knight. CC Biotech LLC, Rockville, MD

2:10 Fractionation of Proteins by Countercurrent Chromatography Using Reverse Micelles. Ching-Wei Shen, and Tiing Yu. Department of Applied Chemistry, National Chiao Tung University, Hsinchu, Taiwan

2:30 One Step Purification of Histone Deacetyl Enzyme From E. Coli Cell-Lysate by Countercurrent Chromatography Using Aqueous Two-Phase System. Yoichi Shibusawa, Naoko Takeuchi, Kanako Tsutsumi, Heisaburo Shindo and Yoichiro Ito. Tokyo University of Pharmacy and Life Science, Tokyo, Japan

2:50 Immuno-Affinity Centrifugal Precipitation Chromatography. Lin Qi and Yoichiro Ito. Office of New Drug Quality Assessment, OPS/CDER/FDA. Silver Spring, MD

3:10 Coffee break

3:40 Preparative Fractionation of Protein, RNA, & Plasmid DNA Using Centrifugal Precipitation Chromatography With Tubular Dialysis Membrane.
Inside a Convoluted Tubing as Separation Channel.
Panarat Tomanee and James T. Hsu. Biopharmaceutical Technology Institute Department of Chemical Engineering, Lehigh University, Bethlehem, PA

The Colony-Forming Cell Assay for Human Hematopoietic Progenitor Cells Harvested by a Novel Continuous-Flow Cell Separation Method. Hiroyuki Shiono, Hong Miao Chen, Tadashi Okada and Yoichiro Ito. Department of Physiology, Aichi Medical University School of Medicine, Nagakute, Aichi, Japan

Liquid-Solid and Liquid-Solid-Liquid Systems for Separation of Solutes & Particles in Rotating Coiled Columns. Petr S. Fedotov. Vernadsky Institute of Geochemistry and Analytical Chemistry, Russian Academy of Sciences, Moscow, Russia

Analysis of TiO₂ Particles Combined With 5-ALA by Counter-Current Chromatography to Modify Photo- & Sono-Sensitizers. Norio Miyoshi. Division of Tumor Pathology, Faculty of Medicine, University of Fukui, Yoshida-gun, Japan

Coffee break

CCC of Natural Products
Kurt Hostettmann, Ph.D. Université de Geneve, Switzerland

CCC of Chinese Medicinal Herbs. Tian-You Zhang, Ph.D. Beijing Institute of New Technology Application, Beijing, China

Lunch break

Application of CCC to Food Chemistry. Peter Winterhalter, Ph.D., Technical University of Braunschweig, Germany

Coffee/Spectrometry
Hisao Oka, Ph.D. Kinjogakuin University, Nagoya, Japan

Industrial Scaling-Up of CCC
Ian A. Sutherland, Ph.D. Brunel University, United Kingdom

Drug Discovery by CCC
James B. McAlpine, Ph.D. Ecopia BioScience, Inc. Canada

Group photograph (in front of Lister Hill Center Building)

International Advisory Committee Meeting (Building 50, Rm. 3328)

Poster Reception (Lister Hill Center) [Posters should be displayed before 9:00 am on August 10 and taken off by 6:00 pm on August 11]

Session 5: CCC Applications I
(chaired by Kurt Hostettmann and Gilda G. Leitao)

The Modernisation of Traditional Chinese Medicines: A New Drug Screening Approach Using High Performance
8:30 am  **Countercurrent Chromatography (HPCCC).** Lei Gao, Lijuan Chen, Linyu Fan, Qiang Zhang, Guangli Yang, Derek Fisher and Ian A. Sutherland. College of Chemical Engineering, Sichuan University, Chengdu, China

8:50  **Centrifugal Partition Chromatography (CPC) in Enantioseparation.** A. Perez, E. Perez and C. Minguillon. Institut de Recerca Biomedica, Parc Cientific de Barcelona (IRB-PCB), Barcelona, Spain

9:10  **Oleoresins Fractionation on FCPC50 Model.** Gregoire Audo and Francois De La Poype. Kromaton Technologies, Angers, France

9:30  **Isolation and Purification of Antioxidant Phenolic Compounds From Bathysa australis by HSCCC.** Thiago Beretta Brum, Fernanda das Neves Costa, Lisandra Ferreira de Abreu and Gilda Guimaraes Leitao. Nucleo de Pesquisas de Produtos Naturais, Universidade Federal do Rio de Janeiro, Brazil

9:50  **Separation of nor-β-Lapachone Heterocycles From Their N-Oxides Using Non-Aqueous Solvent Systems.** Raphael S.F. Silva, Thiago B. Brum, Maria do Carmo F.R. Pinto, Antonio V. Pinto and Gilda G. Leitao. Nucleo de Pesquisas de Produtos Naturais, Universidade Federal do Rio de Janeiro, Brazil

10:10  **Coffee break**

10:40  **A Novel Non-Aqueous Two-Phase Solvent System for Countercurrent Chromatographic Separation of Solanesol in Tobacco Leaf Extract.** Yang Zhao and Qizhen Du. Institute of Food and Biological Engineering, Zhejiang Gongshang University, Hangzhou, China

11:00  **Analysis of Synergism in an Anti-TB Alaskan Ethnobotanical.** Taichi Inui, Yuehong Wang, David C. Smith, Scott G. Franzblau, and Guido F. Pauli. Department of Medicinal Chemistry and Pharmacognosy, Chicago, IL

11:20  **Advanced Applications of CCC in the Isolation of Anti-TB Constituents From Dracaena angustifolia.** Ryan J. Case, Yuehong Wang, Scott G. Franzblau, D. Doel Soejarto, Lohi Matarinaho, Pius Piskaut and Guido F. Pauli. Institute for Tuberculosis Research, University of Illinois at Chicago, Chicago, IL

11:40  **pH-Zone-Refining Countercurrent Chromatography of Stereoisomeric 1,3-Cyclohexanedicarboxylic Acids.** Adrian Weisz, Ana Idina, Julius Ben-Ari, Miriam Karni, Asher Mandelbaum and Yoichiro Ito. Office of Cosmetics and Colors, U.S. Food and Drug Administration, College Park, MD

12:00  Lunch break

Session 6: CCC Applications II
(chaired by Tian You Zhang and Xueli Cao)

1:30 pm  **Preparative Separation of Phenolic Constituents in the Fruits of Luffa cylindrica (L.) Roem Using Slow Rotary Countercurrent Chromatography.** Qizhen Du, Yuanjin Xu and Yang Zhao. Institute of Food and Biological Engineering Zhejiang Gongshang University, Hangzhou, China

1:50  **Separation of Artemisinin and 3,5-Dihydroxy-6,7,3′,4′-Tetramethoxy Flavone From Artemisia annua L. by**
1:50 pm  

**HSCC-ELSD.** Xiao Han, Tianyou Zhang, Yabin Zhang, and Yoichiro Ito. Key Laboratory on National Reference Materials for Natural Products, Beijing UE Biotech Co., Ltd, Beijing, China

**2:10**  
Preparative Isolation and Identification of Tyrosinase Inhibitors From the Seeds of *Garcinia kola* by High-Speed Countercurrent Chromatography. Christopher Okunji, Slavko Komarnytsky, George Fear, Alexander Poulev, David M. Ribnicky, Peter I. Awachie, Yoichiro Ito and Ilya Raskin. Biotech Center, Cook College, Rutgers University, New Brunswick, NJ

**2:30**  
Preparative Isolation of Hyperoside and Luteolin-Glucoside From *Agrimonia pilosa* Ledeb by Stepwise Elution High-Speed Countercurrent Chromatography. Yun Wei and Yoichiro Ito. Applied Chemistry Department, Faculty of Science, Beijing University of Chemical Technology, Beijing, China

**2:50**  
Isolation of Anti-HIV-1 Compounds From Plant Extract by High-Speed Countercurrent Chromatography. Bertin Guede Kipre, Benjamin Goese, Ibrahim Abd-Elazem, Yoichiro Ito and Ru Chih Huang. Department of Biology, Johns Hopkins University, Baltimore, MD

**3:10**  
Coffee break

**3:40**  
Isolation of Verbascoside and Other Phenylpropanoids From Two Verbenaceae Species by Gradient Elution HSCCC. Danilo Ribeiro de Oliveira, Lisieux de Santana Juliao, Patricia Timoteo, Anderson Machado, Suzana Guimaraes Leitao, and Gilda Guimaraes Leitao. Nucleo de Pesquisas de Produtos Naturais, Universidade Federal do Rio de Janeiro, Brazil

**4:00**  
Purification of the Seven Tetranortriterpenoids in Neem (*Azadirachta indica*) Seed by Countercurrent Chromatography Followed by Preparative HPLC. Gulab N. Jham, Julio Cesar T. Silva and Rosangela D'arc de L. Oliveira. Departamento de Quimica, Departamento de Fitopatologia, Universidade Federal de Vicosa-Brazil

**4:20**  
Isolation and Purification of Deoxynivalenol (DON) From *Gibberella zeae* Rice Culture and Mouldy Corn by High-Speed Countercurrent Chromatography. Jianwei He, Raymond Yang, Ting Zhou, J. Christopher Young, Honghui Zhu, Rong Tsao, and Greg J. Boland. Department of Environmental Biology, University of Guelph, Guelph, Canada

**4:40**  
Separation of Theaflavins From Black Tea Using HSCCC. N. Savitri Kumar, Vijaya Kumar and Maduwantha A.B. Wijekoon. Department of Chemistry, University of Peradeniya, Peradeniya, Sri Lanka

**5:00**  
Application of HSCCC in the Separation and Purification of Fatty Acid Synthase Inhibitors From the Stems of *Polygonum Multiflorum* Thunb. Xiaofeng Ma, Yan Liang, Qiuping Chen, Yao Li, and Weixi Tian. Department of Biology, the Graduate University of Chinese Academy of Sciences, Beijing, China

**6:30**  
Reception and Dinner  
(Tragara Restaurant in Bethesda)
P-1 Analysis of New CCC Operating Modes
Artak E. Kostanyan and Andrei A. Voshking, Kumakov Institute of General & Inorganic Chemistry, Russian Academy of Science, Moscow, Russia

P-2 Dynamic Extraction of Oil-Hydrocarbons From Soils by Using Rotating Coiled Columns. E. Yu. Savonina, T.A. Maryutina, O.N. Katasonova, V.V. Khasykova and T.V. Arbuzova. Vernadsky Institute of Geochemistry and Analytical Chemistry Russian Academy of Science. Yukos Research and Development Center, Moscow, Russia

P-3 Separation of Proteins Using Dynamic Extraction Technology. Emma C. Bourton. Advanced Bioprocessing Center, Brunel Institute for Bioengineering, Brunel University, Uxbridge, UK

P-4 The Physical Model of Spiral Coils Associated with J Type Countercurrent Chromatography. Y.H. Guan. Brunel Institute for Bioengineering, Brunel University, Uxbridge, UK

P-5 Fractionation of Solid Microparticles in Rotating Coiled Columns. O.N. Katasonova and P.S. Fedotov. Vernadsky Institute of Geochemistry and Analytical Chemistry, Russian Academy of Science, Moscow, Russia

P-6 Mathematical Study on Gradient Formation of Cetyltrimethylammonium Bromide in Centrifugal Precipitation Chromatography. Panarat Tomane, Terasut Sookkumnerd and James T. Hsu. Biopharmaceutical Technology Institute Department of Chemical Engineering Lehigh University Bethlehem, PA

P-7 Purification of a Synthetic Quinoxaline From nor-β-Lapachone by HSCCC. Raphael Salles F. Silva, Gilda Guimaraes Leitao, Ana Paula G. Lobato, Maria do Carmo F. R. Pinto and Antonio Ventura Pinto. Nucleo de Pesquisas de Produtos Naturais, Universidade Federal do Rio de Janeiro, Brazil

P-8 Isolation of a Semi-Synthetic Trypanocidal Naphthoimidazole From β-Lapachone by HSCCC. Raphael Salles F. Silva, Gilda Guimaraes Leitao, Maria do Carmo F. R. Pinto and Antonio Ventura Pinto. Nucleo de Pesquisas de Produtos Naturais, CCS, Universidade Federal do Rio de Janeiro, Brazil

P-9 Single Compound Subtraction of Bioactive Herbal Constituents-a New Role for Countercurrent Chromatography. Shao-Nong Chen, Allison Turner, Birgit U. Jak, Dejan Nikolic, Harry H.S. Fong, Norman R. Farnsworth, Richard B. van Breemen and Guido F. Pauli. Department of Medicinal Chemistry and Pharmacognosy and Institute for Tuberculosis Research, College of Pharmacy, University of Illinois at Chicago, IL

P-10 Preparative Isolation and Purification of Antioxidative Isomeric Polyphenols From the Root of Parthenocissus Laste-virens by Upright Countercurrent Chromatography. Shan He, Yanbin Lu, Bin Wu and Yuanjiang Pan. Department of Chemistry, Zhejiang University, Hangzhou, China

P-11 Isolation of Antioxidant Constituents of Abeliophyllum Distichum by High-Speed Countercurrent Chromatography. Soon Sung Lim, Soo Kyung Lee, Yeun Sil Lee, Karine Ndjoko, Andrew Marston and Kurt Hostettmann. Regional Innovation Center, Hallym University, Gangwon-do Chunchon, South Korea

P-12 HSCCC as a Useful Tool for Isolation of Styrylpyrones and Arylpyrones From Bark of Ocotea Odorifera Vell. Rodrigo Rodrigues de Oliveira, Alan Patrick Heringer, Maria Auxiliadora Coelho Janpl and Maria Raquel Figueiredo. Laboratorio de Quimica de Produtos Naturais, Far-Manguinhos, Fiocruz, Rio de Janeiro, Brazil
P-13 **Limonoid Mixture Separation by Countercurrent Chromatography.** Vagner Pereira da Silva, Rodrigo Rodrigues de Oliveira and Maria Raquel Figueiredo. Laboratorio de Quimica de Produtos Naturais, Far-Manguinhos, Fiocruz, Rio de Janeiro, Brazil

P-14 **On-Line Heart-Cutting Two-dimensional Countercurrent Chromatography Method for Preparative Isolation and Purification of Prenylflavonoids From Artocarpus Altilis.** Yanbin Lu, Cuirong Sun, Yu Wang and Yuanjiang Pan. Department of Chemistry, Zhejiang University, Hangzhou, China

P-15 **Isolation of Fucosterol From Pelvetia Siliquosa by HSCCC Coupled with Evaporative Light Scattering Detector.** Yeon Sil Lee, Kyu Hyun Choi, Soo Kyung Lee, Hyun-Kyung Shin, and Soon Sung Lim. Regional Innovation Center, Hallym University, Gangwon-do Chunchon, South Korea

P-16 **Preparative Isolation of Less Polar Ginsenosides From Korean Red Ginseng by HSCCC Coupled with ELSD.** Young Wan Ha, Soon Sung Lim, HeungSop-Shin, Sung-Ho Son, and Yeong Shik Kim. Natural Products Research Institute, College of Pharmacy, Seoul National University, Seoul, Korea

P-17 **Liquid Phase Chemical Compositions of the Arizona Biphasic Liquid System.** Alain Berthod, Mahmoud Hassoun, and Maria Jose Ruiz-Angel. Laboratoire des Sciences Analytiques, Universite de Lyon, Villeurbanne, France

P-18 **Application of HSCCC for the Isolation of 9’-cis Neoxanthin.** Susanne Baldermann, Annika Reinhard, Nils Kohler and Peter Fleischmann. Institute of Food Chemistry, Technical University of Braunschweig, Germany

P-19 **pH-Zone-Refining Countercurrent Chromatography as a Tool for the Standardization of Ionizable Biological Dyes and Stains.** Adrian Weisz and Yoichiro Ito. Office of Cosmetics and Colors, CFSAN, U.S. Food and Drug Administration, College Park, MD

P-20 **Separation of Radiotracers for PET Imaging by Countercurrent Chromatography.** Ying Ma, Lixing Lang, Dale O. Kiesewetter and Yoichiro Ito. PET Radiochemistry Group, National Institute of Biomedical Imaging and Bioengineering (NIBIB), National Institutes of Health, Bethesda, MD
The 4th International Conference on Countercurrent Chromatography
August 8 - 11, 2006
The National Institutes of Health
Bethesda, MD 20892, USA

Conference Location
CCC2006 will be held in the Lister Hill Center Auditorium on the NIH campus. The Auditorium is a 10-15 min. walk from the Medical Center Metro Station (on the Red line).
Packing on the NIH Campus is limited.

Accommodations
Reservations at the following hotels can be made at special conference rates:
1. American Inn (ca 0.5 mile from NIH)
   8130 Wisconsin Ave., Bethesda, MD 20814
   Phone: 1.800.323.7081; 301.656.9300
   Fax: 301.656.2907
   Small double-bed room: $ 105.00 + tax
   Standard double-bed room: $ 139.00 + tax
   Note: only 30 rooms are available for CCC2006 attendees.

2. Marriott International (ca 1 mile from NIH)
   5151 Pook's Hill Rd., Bethesda, MD 20814
   Phone: 1.800.228.9290  Fax: 301.897.4156
   Single or double bed room: $ 145.00 + tax

Please directly reserve your rooms under “CCC2006” in order to receive the discount rate. Hotels provide transportation to and from the closest Metro station and NIH.

Transportation
Reagan National Airport (DCA)
Cost of taxi service to Bethesda: $30.00 - $35.00.
Metro: From the airport station, take the Yellow Line in the direction of Mt. Vernon Square/JDDC to the Gallery Place stop. From Gallery Place, take the Red Line in the direction of Shady Grove/Grosvenor and stop at the station closest to your hotel, (Bethesda Station for American Inn and Grosvenor Station for Marriott International).

Dulles International Airport (IAD)
Cost of taxi service to Bethesda: $40.00 - $45.00
No Metro service available
Shuttle vans operate regularly.

Baltimore/ Washington International Airport (BWI)
Cost of taxi service to Bethesda: $50.00 - $55.00
No Metro service available
Shuttle vans operate regularly.

Metro Services:
http://www.wmata.com/metrorail/systemmap.htm
Washington DC area:
http://digitalcity.netscape.com/washington

Background and Scope of Meeting
Countercurrent Chromatography (CCC) (1970) is a collection of continuous liquid-liquid partition techniques that do not use a solid support. These include high-speed CCC (HSCCC) (1981), centrifugal partition chromatography (CPC) (1982) and pH-zone-refining CCC (1993). All CCC systems use suitable column configurations to retain one of the two immiscible solvent phases in the column while the second phase is pumped through the column. These techniques apply to separations of mixtures that range from microgram (for preparative low-10 grams up to kilograms) scale at are usually accomplished within a few hours. This relatively new methodology was found to be useful for separation and/or purification of components of medicinal plants (e.g., flavonoids, alkaloids, anthraquinones, lignans, steroids, saponins, glycosides), dyes, lipids, agrochemicals, vitamins, inorganic elements, amino acids, peptides and various closely-related isomers. It can be used for separation of biopolymers, such as proteins and nucleic acids, using Albertsson’s aqueous-aqueous polymer-phase systems.

The 4th International Conference on CCC (http://www.ccc2006.org) will be held on Aug 8 - 11, 2006 in the cradle of CCC development, the campus of th National Institutes of Health outside of Washington, D.C., and will encompass areas involving CCC, such as theory, new technology and applications. A comprehensive symposium involving several invited speakers on the applications of CCC to natural products is scheduled for Aug. 10, 2006. The attendees at the 47th Annual Meeting of the American Society of Pharmacognosy (ASP) in Alexandria, VA on Aug. 5-9, 2006 are invited to attend the above one-day symposium.

CCC2006 will be dedicated to the memory of the late Dr. Edward Chou who facilitated the spread and use of the CCC technology throughout the world with the CCC instrumentation provided by the Pharma-Tech Research Corporation, Baltimore, MD.

Conference Papers
Presenters are invited to submit full papers of their work for inclusion in a special issue on CCC of the Journal of Chromatography A scheduled for publication in the Spring/Summer of 2007. Instructions for authors will be provided.

Important Dates
July 31, 2006 Deadline for registration
Aug. 8-11, 2006 Conference
Aug. 10, 2006 Symposium
Sept. 30, 2006 Deadline for receipt of conference papers for the J. Chromatogr. A special issue