2012 International Conference of the Korean Society of Pharmaceutical Sciences and Technology

"Global Cutting-Edge Technology in Pharmaceutical Sciences"

Plenary Lecture

- "Moving PKPD from Basic Towards Systems Pharmacology"
  William Jusko (School of Pharmacy and Pharmaceutical Sciences, State University of New York at Buffalo, USA)
- "Past, Present and Future of Pharmaceutics: From Galenus to Individualized"
  Chang-Koo Shim (College of Pharmacy, Seoul National University, Korea)

Drug Design & Development (DDD)

- "Current Development of Pharmaceutical Research and Technology in Malaysia"
  Eddy Yusuf (School of Pharmacy, Management and Science University, Malaysia)
- "Discovery and Development of an Anti-cerebral Ischemic Pro-drug, PHPB, from Chinese Medicine"
  Xiaoliang Wang (Institute of Materia Medica, Chinese Academy of Medical Sciences & Peking Union Medical College, China)
- "Current Status and Trend in Pharmaceutical Industry in Thailand"
  Sompol Prakongpan (Faculty of Pharmaceutical Sciences, Burapha University, Thailand)

Regulatory Science & Policy (RSP) KSPST-Biologics Research Division (KFDA) Joint Session

- "Overview of CTD (Common Technical Dossier) Structure"
  Jeong-Ja Oh (Synex Consulting Ltd., Korea)
- "Case Reviews for the Incrementally Modified Drugs - Focus on the Evaluation of the Safety and Efficacy"
  So-Young Wang (Korea Food and Drug Administration, Division of Cardiovascular and Neuropharmacological Drugs, Korea)
- "Prediction of Ethnic Differences using Modeling and Simulation and Impact on the Regulatory Process"
  Koji Chiba (Department of Drug Development Sciences and Clinical Evaluation, Faculty of Pharmacy, Keio University, Japan)

Biotechnology & Drug Delivery (BDD) KSPST-Biologics Research Division (KFDA) Joint Session

- "Rational Design of Polymeric Nanocarriers for Photodynamic Therapy"
  Kang Moo Huh (Department of Polymer Science and Engineering, Chungnam National University, Korea)
- "Drug Delivery Tools in Recent Pharmaceutical Preparations - Nano-crystals and Nanoparticles"
  Hirofumi Takeuchi (Laboratory of Pharmaceutical Engineering, Gifu Pharmaceutical University, Japan)
- "Active Targeted Polymeric Nanoparticles for Cancer Therapy and Imaging"
  Jong-Ho Kim (Department of Pharmaceutical Science, College of Pharmacy, Kyung Hee University, Korea)
- "Polymeric Micelle Carriers for Theranostics of Various Diseases"
  Masayuki Yokoyama (Medical Engineering Laboratory, Research Center for Medical Science, The Jikei University School of Medicine, Japan)
- "Chemical Conjugation of Heparinized Iron Oxide Nanoparticle onto Pancreatic Islets for in vivo MR Imaging"
  Dong Yun Lee (Department of Bioengineering, College of Engineering, and Institute for Bioengineering and Biopharmaceutical Research, Hanyang University, Korea)
- "Amphiphilic Derivative of Oligosaccharides-based Nanoparticles for Cancer Diagnosis and Therapy"
  Hyun-Jong Cho (College of Pharmacy, Kangwon National University, Korea)

Polymer Science & Materials (PSM)

- "Bio-inspired Design and Potential Biomedical Applications of Aptides"
  Sangyong Jon (KAIST Institute of the BioCentury, Department of Biological Sciences, KAIST, Korea)
- "Design and Synthesis of Nanostructured Biomaterials"
  Jackie Y. Ying (Institute of Bioengineering and Nanotechnology, Singapore)
- "Internalization of Drugs for Chondrogenesis of Stem Cells"
  Keun Hong Park (Department of Biomedical Science, CHA University, Korea)
- "Semi-fluorinated Block Copolymers for Delivery of Therapeutic Agent"
  Jun-Pil Jee (Center for Theragnosis, Biomedical Research Institute, Korea Institute of Science and Technology, Korea)
- "3-in-1 Silica Nanoparticles for Cancer Theranostics: From Promise to Practice"
  Leu Wei Lo (National Health Research Institutes, Taiwan)
- "Therapeutic Approaches to the Treatment of Intractable Diseases by using Multi-purpose and High Efficient Gene Therapy Agents"
  In-Kyu Park (Department of Biomedical Sciences, Chonnam National University Medical School, Korea)
- "DEC-205 Modified Thermosensitive Carrier for Specific Targeting of siRNA to Dendritic Cells"
  Jing-Hao Cui (College of Pharmaceutical Science, Soochow University, China)
- "Targeted Delivery and Therapy of Macromolecules using Pluronic-based Nanogel"
  Giyoong Tae (School of Materials Science and Engineering, Gwangju Institute of Science and Technology, Korea)
- "Electrically Conducting Nanofibrous Scaffolds for the Potential Neural Tissue Engineering Applications"
  Jae Young Lee (School of Material Science & Engineering, Gwangju Institute of Science and Technology, Korea)

Manufacturing Science & Engineering (MSE)

- "Enhanced Bioavailability of Sirolimus via Solid Dispersion Nanoparticles Prepared by Supercritical Antisolvent Process"
  Sung-Joo Hwang (Yonsei Institute of Pharmaceutical Sciences, College of Pharmacy, Yonsei University, Korea)
- "In Silico Prediction of Percutaneous Penetration"
  Kakuji Tojo (Kyushu Institute of Technology, Japan)
- "Micelle-like Nanoparticles of Fatty Acid-modified Phospholipids for in vivo Delivery of Nucleic Acid Therapeutics"
  Young Tak Ko (College of Pharmacy, Gachon University, Korea)

Physical Pharmacy & Formulation Design (PFD)

- "Formulation Development Based on Quality by Design Approach"
  Euichaul Oh (College of Pharmacy, The Catholic University of Korea, Korea)
- "Are Isomorphic Solvate/Desolvates Polymorphs or Not?"
  Eun Hee Lee (College of Pharmacy, Korea University, Korea)
- "Effect of Concentration on Thermal Stability of Enbrel (Etanercept) with Biophysical Analyses"
  Seong Hoon Jeong (College of Pharmacy, Dongguk University, Korea)

Biopharmaceutics, Pharmacokinetics & Metabolism (BPM) KSPST-Biologics Research Division (KFDA) Joint Session

- "The Use of Biowaivers: A Comparison of Generic Drugs in the Americas"
  Loenberg Raimar (Chemical Engineering Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Canada)
- "Vitamin D and CYP24A1 in Lung Adenocarcinoma: Alterations in Metabolism of Vitamin D"
  So Hee Kim (Department of Pharmacy, College of Pharmacy, Ajou University, Korea)
- "Problem Solving in Pharmacokinetic Experiments During Early Stage Drug Discovery"
  Eun Jung Kim (Drug Discovery Research Laboratories, Dong-A Pharmaceutical Co. Ltd., Korea)

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constituents played significant part in improving the dissolution, solubility and bioavailability of fenofibrate.

[pPFD-027] [29/11/2012 (Thur) 15:00-18:00 / Lobby]

Trial of novel solid dispersion system with improved bioavailability and stability to clopidogrel napadisilate monohydrate

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Purpose. In order to enhance the bioavailability and stability of clopidogrel napadisilate monohydrate, two solid dispersions containing different surfactant were prepared by spray-drying via surface-attached method.

Methods. Each solid dispersion system was prepared with various ratios of clopidogrel napadisilate monohydrate/HPMC/cremophor RH 60 and clopidogrel napadisilate monohydrate/HPMC/tween 80. The solubility and dissolution of the drug in the solid dispersion were evaluated compared with drug powder in water at pH 1.2, pH 4.0 and pH 6.8. The crystallinity of the solid dispersion was evaluated using SEM, DSC and PXRD. The stability of the solid dispersion was estimated at 50℃ /75 %RH for 6 weeks compared to clopidogrel bisulfate. The bioavailability in rats was evaluated and compared to drug powder.

Results. The aqueous solubility of solid dispersion increased 4.48-fold in a weight ratio of clopidogrel napadisilate monohydrate/HPMC/cremophor RH 60 of 5:1.875:1.875 and 4.65-fold in a weight ratio of clopidogrel napadisilate monohydrate/HPMC/tween 80 of 5:1.25:1.25 each compared to drug powder. The dissolution rate was significantly enhanced in these formulations compared to drug powder. SEM, DSC and PXRD showed that crystallinity of these solid dispersions was not changed to amorphous form. In stability test of these solid dispersions, hydrolyzed degradant and racemized degradant were decreased compared to clopidogrel bisulfate and drug content was not decreased compared to clpidogrel napadisilate monohydrate in spite of increased water content affected from HPMC. Then, the bioavailability of the drug in rat was significantly enhanced in each formulation as AUC and Cmax became higher.

Conclusion. The clopidogrel napadisilate monohydrate loaded-solid dispersion could be use to enhanced the solubility and bioavailability of poorly aqueous soluble clopidogrel napadisilate monohydrate and be stable in storing of long period of time as compared to clopidogrel bisulfate.