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)

Hosted by
The Korean Society of Pharmaceutical Sciences and Technology

Supported by

- The Korean Federation of Science and Technology Societies
- Biologics Research Division/KFDA
- Gwangju Convention & Visitors Bureau
- The Korean Pharmaceutical Association
- Korea Pharmaceutical Manufacturers Association

November 29-30, 2012
Hotel Holiday Inn Gwangju

dissolution rate of solid SMEDDS containing clopidogrel napadisilate monohydrate was 1.2-fold higher than that of pure powder ($p<0.05$). Furthermore, time for complete release of SMEDDS was 4-fold less than that of pure powder. These solid SMEDDS improved stability at the accelerated condition of 50 ℃/75 % RH for 4 weeks compared to clopidogrel bisulfate. The pharmacokinetic parameters including AUC and Cmax were significantly increased by solid SMEDDS over that of pure clopidogrel napadisilate monohydrate ($p<0.05$).

Conclusion. This solid SMEDDS could be an outstanding candidate for improving the stability and bioavailability of clopidogrel napadisilate monohydrate and its low Cmax value as compared to clopidogrel bisulfate represents that it can reduce the toxicity related with high Cmax value of clopidogrel bisulfate.

[pPFD-026] [29/11/2012 (Thur) 15:00-18:00 / Lobby]

Effect of preparation method on the solubility, dissolution and bioavailability of fenofibrate loaded in the spray-dried solid dispersions

Abid Yousaf[1)], Fakhar Din[1)], Min Seok Kwon[1)], Dong Wuk Kim[1)], Jong Oh Kim[2)], Chul Soon Yong[2)], Jin-Ki Kim[1)], and Han-Gon Choi[1)]

[1)]College of Pharmacy, Hanyang University, 1271, Sa-3-Dong, Ansan 426-791, South Korea, and [2)]College of Pharmacy, Yeungnam University, 214-1, Dae-Dong, Gyongsan 712-749, South Korea

Purpose. To compare the crystalline property, solubility, dissolution and bioavailability of fenofibrate in the solid dispersions prepared by different methods.

Methods. Various fenofibrate-loaded solid dispersions were prepared with water, polyvinylpyrrolidone (PVP) and sodium lauryl sulfate (SLS) using spray drying technique via the surface-attached method. The constituent's ratio with the highest solubility and dissolution was used to prepare solid dispersions by the same technique via the solvent-evaporation method and solvent-wetting method with 95% ethanol and acetone, respectively. The physicochemical properties were investigated by SEM, DSC and PXRD. The solubility, dissolution and pharmacokinetic studies were performed in comparison with fenofibrate powder.

Results. In the surface attached method, the solid dispersion with fenofibrate/PVP/SLS at the weight ratio of 5/23/2 showed the highest solubility and dissolution. XRD, DSC and SEM confirmed that the solid dispersions obtained by the surface attached method and the solvent wetting method appeared as heterogeneous systems (solid suspensions) with crystalline drug and carriers suspended, respectively. Conversely, the system was homogeneous (solid solution) in case of solid dispersion prepared via the solvent evaporation method. The drug was crystalline in case of the surface attached method. However, it was amorphous in the solid dispersions prepared by the other two methods. The solubility, dissolution and bioavailability of the drug were improved in order of the solid dispersions possessing: homogeneous amorphous system > heterogeneous amorphous system > heterogeneous crystalline system.

Conclusion. The amorphous form of the drug and the extent of molecular level intermingling of the