Alan F. Parr, Pharm.D., Ph.D.

Pharmaceutical Product Development
Consultant

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KEY AREAS OF EXPERTISE

- Biopharmaceutics
- Formulations
- Extemporaneous Compounding
- Innovation

PROFESSIONAL EXPERIENCE

BIOCEUTICS LLC, Acworth, GA

Managing Member (2015 – Present)

Serve as a resource to pharmaceutical companies in the areas:

- Biopharmaceutics
- Extemporaneous compounding
- Formulation development
- General product development
- Design and implementation of novel *in vivo* pre-clinical and clinical studies

GLAXOSMITHKLINE – PHARMACEUTICAL DEVELOPMENT DIVISION, RTP, NC

Director, Biopharmaceutics (2005 – 2015)

Served as a member of the GSK leadership team and directed the design, development, and implementation the Biopharmaceutics strategy, tools, and processes within GSK world-wide. Led the Biopharmaceutics program to a more efficient drug development process producing improved productivity, quality, and revenues. Key projects and innovations:

- Intelisite Capsule system design and development
  - Reduced the risk and challenges of developing modified release products.
- Characterized animal colony development
  - Achieved smaller preclinical animal studies while simultaneously increasing data quality.
- Stable isotope approach design and development
  - Reduced the number of animals or human subjects required for a study by 70% to 85%. Proved the applicability of the approach in setting Quality by Design (QbD) design space and clinically relevant product specifications.
  - Completed the preliminary human subjects study under-budget ($120K actual vs. $250K planned).
- Novel pharmacokinetic analysis
  - Innovative methodology permits teams to better understand where a drug is absorbed using existing PK data.

Dr. Falk Pharma Ex. 1029
IPR Petition - USP 10,632,069

- Compound Knowledge Library database
    - Designed and managed the global development of a user-friendly searchable database to store all the organization's critical biopharmaceutics data and knowledge (thereby reducing the amount of time required for scientists to find critical data by 60% to 80%).
- Application of extemporaneous compounding to early phase clinical studies.
    - The use of this approach for early phase studies is now the organization's preferred process, reducing development costs in this phase by 40%.

Director, Product Line Extensions (2001 – 2005)

Served as a member of the GSK leadership team and lead a team of scientists to identify and develop new Product Line Extensions (PLEs). Implemented process improvements cross-functionally to improve the organization's ability to develop new PLEs. GxP Environment.

- Identified two product line extensions: Wellbutrin® 200 mg SR and Lamictal® XR tablets
    - Garnered organizational support to develop and commercially launch both products.
    - Achieved a 12-month launch timeframe (concept to regulatory approval) for the Wellbutrin® 200 mg SR tablet due to keen formulation and biopharmaceutics insights.
    - Both SR products contributed to increased GSK revenues by filling unmet medical needs and performing well in the marketplace.
- Developed a departmental training tracking system to ensure staff training compliance.
    - This system was adopted across the R&D organization and was eventually implemented as the standard approach.
- Directed the group in the development and approval of 6 products.
- Coordinated the supervision and professional development of eight Ph.D. and 10 non-Ph.D. staff.

GLAXOWELLCOME – PHARMACEUTICAL DEVELOPMENT DIVISION, RTP, NC

Department Head, Pharmaceutics (1999 – 2001)

Coordinated the supervision and professional development of nine Ph.D. level staff and 18 non-Ph.D. level staff tasked with the development of new compounds and PLEs for solid oral dosage forms (conventional and controlled-release products), oral suspensions, and parenterals.

- Related activities:
    - Preformulation studies on drug substance and formulation experiments for excipient-drug compatibility
    - Performing manufacturing stability and ensuring clinical supplies
    - Development and implementation of stability protocols
    - Authoring the CMC section of IND/NDA submissions

Senior Group Leader (1995 – 1999)

Responsibilities in addition to those as a Senior Research Investigator include supporting the corporate merger process by participating in the selection of personnel; identifying disconnects between the merging companies and recommending and implementing procedures to overcome these disconnects; merging the job descriptions between the two companies; supervision and professional development of six Ph.D. level staff and five non-Ph.D. level staff; developing and implementing the Vision and Mission Statement of our department. Developing and implementing various improvements such as dosage form strategy and standardization of the formulation development processes within the department and the division.

Senior Research Investigator (1994 – 1995)

Responsibilities in addition to those as a Research Investigator II include the supervision and professional development of two Research Investigators and two Associate Scientists. Identifying and implementing process improvement initiatives within the Development Division such as Poorly Absorbed Low Solubility Committee, and Biopharmaceutics Committee, both of which were so successful that they were elevated to international status; implementing individual development initiatives such as independent research groups within the Pharmaceutics Department.

Research Investigator II (1990 – 1994)

Responsibilities in addition to those as a Research Investigator I include the supervision and professional development of two Research Investigators and one Associate Scientist; development and implementation of new research ideas in product development; representation of the Pharmaceutics Department on various multi-disciplinary (Marketing, Medical, Regulatory, Licensing) project committees; identifying and evaluating new technologies available and participating in the contract negotiations process for these technologies; protocol design and monitoring of bioavailability/bioequivalence studies.

Research Investigator I (1987 – 1990)

Responsible for research and development of new compounds and line extensions for solid oral dosage forms (conventional and control release products), oral suspensions, parenteral products and aerosol products. This included performing preformulation studies on drug substance and formulation experiments for excipient-drug compatibility; manufacturing stability and clinical supplies; developing and setting up stability protocols; writing CMC section of IND/NDA submissions. Actively participated in designing permanent facilities for the development laboratories, including selection of equipment; directed and coordinated research and development projects with various subsidiaries and contract research/development companies; initiated and developed research programs in the areas of in vivo evaluation of dosage forms and gastric retention dosage forms.

EDUCATION AND TRAINING

- Ph.D., Pharmaceutical Sciences, University of Kentucky -- College of Pharmacy, Lexington, KY
- Pharm.D., Pharmacy, University of Nebraska -- College of Pharmacy, Omaha, NE

LICENSES

- Registered Pharmacist -- North Carolina (1987 – 2022)
- Registered Pharmacist – Nebraska (1981 – 2022)

AFFILIATIONS

- Chairperson of the PQRI Biopharmaceutics Technical Committee (2001 – 2012)
- Chairperson of the PQRI Sequential Design Working Group (2001 – 2012)
- Member of the USP Biopharmaceutics Expert Committee (2005-2010)
- Member of the USP Extemporaneous Compounding Expert Committee (2010-2015 and 2015-2020)
- Member of the USP Dosage Form Expert Committee (2010-2015)
- Member of the International Federation of Pharmacists (FIP) Biowaivers Special Interest Group (2010 – Present)
- Member of American Association of Pharmaceutical Scientists (1982 – present)
- Big Brothers Big Sisters Organization (2003 – Present)

PUBLICATIONS AND PRESENTATIONS

- Author/Co-author of 40 presentations, 44 papers, and 2 book chapters
- See attached publication list.

PATENTS

- Buxton et. al., Patent No. US2004/0192690 A1
- Casper, R.A., and Parr, A.F., Patent No. 5,167,626
- Casper, R.A., and Parr, A.F., Patent No. 5,170,801
- Coffin, M.D., and Parr, A.F., Patent No. 5,407,687
- Parr, A.F., and Rizzolio, M.C., Application No. PCT/EP98/05192
- Parr, A.F., Application No. PCT/EP98/05194

ADDENDUM

PUBLICATIONS:

Biowaiver Monograph for Immediate-Release Solid Oral Dosage Forms: Isavuconazonium Sulfate." David Plano, Niklas Rudolph, Christoph Saal, Bertil Abrahamsson, Rodrigo Cristofoletti, Atsushi Kambayashi, Peter Langguth, Mehul Mehta, Alan Parr, James E Polli, Vinod P Shah, Naseem Charoo, Jennifer Dressman J, J Pharm Sci. 113(2):386-395. (Feb 2024)

Biowaiver Monograph for Immediate-Release Solid Oral Dosage Forms: Levocetirizine Dihydrochloride." Naseem A. Charoo, Daud B. Abdallah, Daoud T. Ahmed, Bertil Abrahamsson, Rodrigo Cristofoletti, Peter Langguth, Mehul Mehta, Alan Parr, James E. Polli, Vinod P. Shah, Atsushi Kambayashi, Jennifer Dressman J, J Pharm Sci. 112(4):893-903. (Apr 2023)

Biowaiver Monograph for Immediate-Release Solid Oral Dosage Forms: Levamisole Hydrochloride." Atsushi Kambayashi, Mariska deMeijer, Kim Wegman, Cees vanVeldhuizen, Bertil Abrahamsson, Rodrigo Cristofoletti, Peter Langguth, Mehul Mehta, Alan Parr, James E. Polli, Vinod P. Shah, Jennifer Dressman, J, J Pharm Sci. 112(3):634-639. (Mar 2023)

"Biowaiver Monograph for Immediate-Release Solid Oral Dosage Forms: Sitagliptin Phosphate Monohydrate." Charoo NA, Abdallah DB, Bakheit AA, Haque KU, Hassan HA, Abrahamsson B, Cristofoletti R, Langguth P, Mehta M, Parr A, Polli JE, Shah VP, Tajiri T, Dressman J, J Pharm Sci. 111(1):2-13. (Jan 2022)

"Biowaiver Monograph for Immediate-Release Solid Oral Dosage Forms: Carbamazepine" García MA, Cristofoletti R, Abrahamsson B, Groot DW, Parr A, Polli JE, Mehta, M, Shah VP, Tomakazu T, Dressman JB, Langguth P, J Pharm Sci. 110(5):1935-1947. (May 2021)

"Biowaiver Monographs for Immediate Release Solid Oral Dosage Forms: Metformin Hydrochloride." Metry M, Shu Y, Abrahamsson B, Cristofoletti R, Dressman JB, Groot DW, Parr A, Langguth P, Shah VP, Tajiri T, Mehta MU, Polli JE J Pharm Sci.110(4):1513-1526. (April 2021).

"Biowaiver Monograph for Immediate-Release Solid Oral Dosage Forms: Moxifloxacin Hydrochloride" .Charoo NA, Abdallah DB, Parveen T, Abrahamsson B, Cristofoletti R, Groot DW, Langguth P, Parr A, Polli JE, Mehta M, Shah VP, Tajiri T, Dressman J, J Pharm Sci. 2020 Sep;109(9):2654-2675. (Sep 2020)

"Biowaiver Monographs for Immediate Release Solid Oral Dosage Forms: Cephalexin Monohydrate." Plöger GF, Quizon PM, Abrahamsson B, Cristofoletti R, Groot DW, Parr A, Langguth P, Polli JE, Shah VP, Tajiri T, Mehta MU, Dressman J, J Pharm Sci.109(6):1846-1862. (June 2020)

"Biowaiver Monograph for Immediate Release Solid Oral Dosage Forms: Ondansetron" G.S.Rajawat, T. Belubbi, M.S. Nagarsenker, B. Abrahamsson, R. Cristofoletti, D.W. Groot, P. Langguth, A. Parr, J. E. Polli, M.U. Mehta, V. P. Shah, T. Tajiri, and J.B. Dressman, J. Pharm. Sci.108(10) 3157-3168 (2019).

"Biowaiver Monograph for Immediate Release Solid Oral Dosage Forms: Proquanil Hydrochloride" G.F. Plöger, B. Abrahamsson, R. Cristofoletti, D.W. Groot, P. Langguth, M.U. Mehta, A. Parr, J. E. Polli, V. P. Shah, T. Tajiri, and J.B. Dressman, J. Pharm. Sci. 107(7) 1761-1772 (2018).

"Biowaiver Monograph for Immediate Release Solid Oral Dosage Forms: Folic Acid" M.A. Hofsäss, J. Souza, N.M. Silva-Barcellos, K.R. Bellavinha, B. Abrahamsson, R. Cristofoletti, D.W. Groot, A. Parr, P. Langguth, J. E. Polli, V. P. Shah, T. Tajiri, M.U. Mehta, and J.B. Dressman, J. Pharm. Sci. 106(12) 3421-3430 (2017).

"Biowaiver Monograph for Immediate Release Solid Oral Dosage Forms: Amoxicillin Trihydrate" D. Thambavita, P. Galappatthy, U. Mannapperuma, R.L. Jayakody, R. Cristofoletti, B. Abrahamsson, D.W. Groot, P. Langguth, M. Mehta, A. Parr, J. E. Polli, V. P. Shah, and J. Dressman, J. Pharm. Sci. 106(10) 2930-2945, (2017).

"Biowaiver Monographs for Immediate Release Solid Oral Dosage Forms: Enalapril," R. K. Verbeeck, I. Kanfer, R. Lobenberg, B. Abrahamsson, R. Cristofoletti, D.W. Groot, P. Langguth, J. E. Polli, A. Parr, V.P. Shah, M. Mehta, and J.B. Dressman, J. Pharm. Sci. 106(8) 1933-1943, (2017).

"A survey on IVIVC/IVIVR development in the pharmaceutical industry – Experience and current perspective", M.A. Nguyen, T. Flanagan, M. Brewster, F. Kesisoglou, S. Beato, J. Biewenga, J. Crison, R. Holm, R. Li, E. Mannaert, M. McAllister, M. Mueller-Zsigmondy, U. Muenster, K. Ojala, S. Page, A. Parr, S. Rossenu, P. Timmins, A. Van Peer, A. Vermeulen, and P. Langguth, Eur. J. Pharm. Sci. 102, 1-13, (2017)

"Solubility Criteria for Veterinary Drugs" M. Apley, B. Crist, M.A. Gonzalez, R. P. Hunter, M.N. Martinez, S. Modric, M.G. Papich, A.F. Parr, J.E. Riviere, and M.RC. Marques, Dissolution Tech., 24(1), 22-35, (2017).

Determination of Thermodynamic Solubility of Active Pharmaceutical Ingredients for Veterinary Species: A new USP General Chapter" M. Apley, G.B. Crist, V. Fellner, M.A. Gonzalez, R. P. Hunter, M.N. Martinez, J.R. Messenheimer, S. Modric, M.G. Papich, A.F. Parr, J.E. Riviere, and M.RC. Marques, Dissolution Tech., 24(1), 36-39, (2017).

"Application of a Stable Isotope Approach to Evaluate Impact of Changes in Manufacturing Parameters for an Immediate-Release Tablet" A. Parr, G. Badman, C. L. Bowen, M. Coffin, M. Gupta, L. Jones, M. Kurtinecz, O. Naderer, E. Travis, J. Zhu, and P. Patel, The J. of Clin. Pharmacol., 56(7), 801–805, (2016)

"Optimal Adaptive Sequential Designs for Crossover Bioequivalence Studies" J. Xu, C. Audet, C. E. DiLiberti, W. W. Hauck, T. H. Montague, A. F. Parr, D. Potvin, D. J. Schuirmann, Pharmaceut. Statist., 15, 15–27, (2016).

"Clinical Evaluation of Application of Stable Isotope Approach to Reduce Sample Size using Carvedilol as a Model Compound," A. Parr, G. Badman, A. Cheng, O. Dewit, D. Fernando, M. Gupta, F. Hoke, T. Montague, D. Robertson, and S. Wang, The AAPS Journal (Submitted).

"The Effect of Excipients on the Permeability of BCS Class III Compounds and Implications for Biowaivers," A. Parr, I.J. Hidalgo, C. Bode, W. Brown, M. Yazdanian, M.G. Gonzalez, K. Sagawa, and E. Stippler, Pharm. Res., 33(1), 167-176, (2016).

Determination of Thermodynamic Solubility of Active Pharmaceutical Ingredients for Veterinary Species: A new USP General Chapter" M. Apley, G.B. Crist, V. Fellner, M.A. Gonzalez, R. P. Hunter, M.N. Martinez, J.R. Messenheimer, S. Modric, M.G. Papich, A.F. Parr, J.E. Riviere, and M.RC. Marques, Pharmacopeial Forum, 41(3), (2015).

"Strength and Stability Testing for Compound Preparations" L.V. Allen Jr, G.S. Bassani, E.J. Elder Jr, and A.F. Parr USP website (http://www.usp.org/search/site/Strength%20and%20stability), (2014).

"A New General Chapter on Tablet Splitting" G.W. Radebaugh, J.E. DeMuth, A.F. Parr, R.D. Skwierczynski, A.M. Viehmann, R.P. Wesdyk, and W.E. Brown, Pharmacopeial Forum, 39(4), (2013).

"Solubility Criteria for Veterinary Drugs, Workshop Report" R. P. Hunter, M. Apley, B. Crist, M. Gonzalez, M.N. Martinez, S. Modric, M.G. Papich, A.F. Parr, J.E. Riviere, M.RC. Marques, Pharmacopeial Forum, 39(4), (2013).

"Re-introduction of a Novel Approach to the Use of Stable Isotopes in Pharmacokinetic Studies" A. Parr, M. Gupta, T.H. Montague, and F. Hoke, The AAPS Journal, 14(3), 639-645, (2012).

"Solubility Criteria for Veterinary Drugs" M. Apley, B. Crist, M. Gonzalez, R. P. Hunter, M.N. Martinez, S. Modric, M.G. Papich, A.F. Parr, J.E. Riviere, M.RC. Marques' Pharmacopeial Forum, 38(4), (2012).

"Additional results for 'Sequential design approaches for bioequivalence studies with crossover designs'" T.H. Montague, D. Potvin, C.E. DiLiberti, W.W. Hauck, A.F. Parr, and D.J. Schuirmann, Pharmaceut. Statist., 7(4), 245-262, (2011).

"Description of the upcoming change in data analysis for USP dissolution performance verification tests" W.W. Hauck, A.J. DeStefano, W.E. Brown, E. Stippler, D.R. Abernethy, R.L. Williams, T.S. Foster, J.E. Polli, D.J. Burgess, G.B. Crist, M.A. Gonzalez, V.A. Gray, J. Kraemer, L.J. Leeson, A.F. Parr, L. Shargel, E. Shefter, W.C. Simon, N.L. Tran, and C.T. Ueda. Dissolution Technologies, 16 (1), 7-12 (2009).

"Sequential design approaches for bioequivalence studies with crossover designs" D. Potvin, C.E. DiLiberti, W.W. Hauck, A.F. Parr, D.J. Schuirmann and R.A. Smith, Pharmaceut. Statist., 7, 245-262, (2008).

"The use of the InteliSite companion device to deliver mucoadhesive polymers to the dog colon" M.E. McGirr, S.M. McAllister, E.E. Peters, A.W. Vickers, A.F. Parr, and A.W. Basit, Eur. J. Pharmaceut. Sci., 36(4-5), 386-91, (2008).

"Description of the upcoming change in data analysis for USP dissolution performance verification tests" W.W. Hauck, A.J. DeStefano, W.E. Brown, E. Stippler, D.R. Abernethy, R.L. Williams, T.S. Foster, J.E. Polli, D.J. Burgess, G.B. Crist, M.A. Gonzalez, V.A. Gray, J. Kraemer, L.J. Leeson, A.F. Parr, L. Shargel, E. Shefter, W.C. Simon, N.L. Tran, and C.T. Ueda. Pharmacopeial Forum, 34(6), 1630-1634, (2008).

"Evaluation of the Feasibility and use of a Prototype Remote Drug Delivery Capsule (RDDC) for Non-invasive Regional Drug Absorption studies in the GI Tract of Man and Beagle Dogs" A.F. Parr, E.P. Sandefer, P. Wissel, M. McCartney, C. McClain, U.Y. Ryo, and G.A. Digenis, Pharm. Res., 16, 266-271, (1999).

"Use of the IntelSite Capsule to Study Ranitidine Absorption from Various Sites Within the Human Intestinal Tract" Y.K. Pithavala, W.D. Heizer, A.F. Parr, R.J. O'Connor-Semmes, and K.L.R. Brouwer, Pharm. Res., 15, 1869-1875, (1998).

"I-125 Aqueous Waste Volume Reduction at a Pharmaceutical Research Laboratory" B.E. Edwards, N.W. Couch, K.D. Myers, S.G. Blanchard, G. Chandra, and A.F. Parr, Health Physics, 71, 379-383, (1996).

Kolwalsky, R.J. and Parr A.F., In Encyclopedia of Pharmaceutical Technology; Nuclear Medicine and Pharmacy, J. Swarbrick and J.C. Boylan ed.; Marcel Dekker: New York, 1995; Chapter 1.

"Effect of Sodium Acid Pyrophosphate on Ranitidine Bioavailability and Gastrointestinal Transit Time" K.M. Koch, A.F. Parr, J.J. Tomlinson, E.P. Sandefer, G.A. Digenis, K.H. Donn, and J.R. Powell, Pharm. Res., 10, 1027-1030, (1993).

"Dual Isotope Imaging of Neutron Activated Er-171 and Sm-153 and the In Vivo Evaluation of a Dual Labeled Bilayer Tablets by Gamma Scintigraphy" G.A Digenis, E.P. Sandefer, R.M. Beihn, and A.F. Parr, Pharm. Res. 8, 1335, (1991).

"Gastrointestinal Behavior of Orally-Administered Radiolabeled Erythromycin Pellets in Man as Determined by External Scintigraphy" G.A. Digenis, A.F. Parr, R.M. Beihn, E.P. Sandefer, and B.S. Scheinthal, J. Clin. Pharmacol. 30, 621, (1990).

"Manufacture and Properties of Erythromycin Beads Containing Neutron-Activated Erbium-171" A. Parr, G.A. Digenis, E.P. Sandefer, I. Ghebre-Sellassie, U. Iyer, B. Scheinthal, and R. Nesbit, Pharm. Res. 7, 264, (1990).

Digenis, G.A., Parr, A.F., and Jay, M. In Drug Delivery to the Gastrointestinal Tract; Hardy, J.G., Davis, S.S., and Wilson, C.G. Ed.; Ellis Horwood: West Sussex, 1989; Chapter 9.

"Radiolabeling of Intact Dosage Forms by Neutron Activation: Effects on In Vitro Performance" A. Parr and M. Jay, Pharm. Res. 4, 524, (1987).

"Correlation of Ibuprofen Bioavailability with GI Transit by Scintigraphic Monitoring of ^{171}Er-Labeled Sustained Release tablets" A. Parr, R.M. Beihn, R.M. Franz, G.J. Szpunar, and M. Jay, Pharm. Res. 4, 486, (1987).

"Evaluation of the Effect of Food and Specific Gravity of Tablets on Gastric Retention Time" S. Sangekar, W.A. Vadino, I. Chaudry, A. Parr, R.M. Beihn, and G.A. Digenis, Int. J. Pharm. 35, 187, (1987).

"Radiolabeling of an Enteric Coated Tablet by (n, g) Radioactivation of Erbium-170 for Scintigraphic Imaging" A. Parr, R.M. Beihn, and M. Jay, Int. J. Pharm. 32, 251, (1986).

"Radiolabeling of Intact Tablets by Neutron Activation for In Vivo Scintigraphic Studies" A. Parr, M. Jay, G.A. Digenis, and R.M. Beihn, J. Pharm. Sci. 74, 590, (1985).

"Drug Distribution and Biliary Excretion Pattern of a Cyclic Somatostatin Analog: A Comparison of ^{14}C Labeled Drug and ^{131}I Iodinated Drug Analog" L.J. Caldwell, A. Parr, R.M. Beihn, B.J. Agha, A.R. Mlodozeniec, M. Jay, and G.A. Digenis, Pharm. Res. 2, 80, (1985).

ABSTRACTS AND PRESENTATIONS:

"Utilization of BCS Based Biowaivers for approval of drug products: current practice" **R.** Cristofoletti1, M. Mehta, A. Parr, B. Abrahamsson, P. Langguth, J. Polli, V. P. Shah, and J. B. Dressman, 74th FIP World Congress of Pharmacy and Pharmaceutical Sciences, August 31 – September 4, 2014

"Novel Approach to PK Studies for QbD Design Space, Product Specifications, and BE Studies," A. Parr, Colorcon RTP Pharmaceutical Technical Seminar, RTP, NC, November 20, 2013.

"Use of Stable Isotopes for QbD Design Space, Specifications, and Bioequivalence Studies", A. Parr, Facilitating Oral Product Development and Reducing Regulatory Burden through Novel Approaches to Assess Bioavailability/Bioequivalence, Washington, DC, October 22-23, 2011.

"Predictability of Pre-Clinical Data to Human Results", A. Parr, Colorcon RTP Pharmaceutical Technical Seminar, RTP, NC, September 16, 2010.

"Predictability of Pre-Clinical Data to Human Results", A. Parr, The 52nd Annual International Industrial Pharmaceutical Research and Development Conference (June LOL), Merrimac, WI, June 7-11, 2010.

"Ensuring Success for the Development of Controlled Release Formulations", A. Parr, The 50th Annual International Industrial Pharmaceutical Research and Development Conference (June LOL), Merrimac, WI, June 2-6, 2008.

"Physiological Factors to be Considered by Pharmaceutical Scientists Developing Oral Controlled Released Products", A. Parr, AAPS Northeastern Regional Discussion Group Meeting, Rocky Hill, CT, April 24, 2000.

"Physiological Factors to be Considered by Pharmaceutical Scientists during Product Development", A. Parr, The 41st Annual International Industrial Pharmaceutical Research and Development Conference (June LOL), Merrimac, WI, June 7-11, 1999.

"The Application of Fast Atom Bombardment (Fab) And Mass Spectrometry (MS) To the Evaluation of the Bioavailability of Various Salts of Calcium", A. Parr, E. Sandefer, and G.A. Digenis, American Association of Pharmaceutical Scientists Thirteen National Meeting, San Francisco, CA, November 15-19, 1998.

"Studies on regional Drug Absorption in The GI Tract of Man and Beagle Dog Using Remote Drug Delivery Capsule" G.A. Digenis, A.F. Parr, E.P. Sandefer, R.C. Page, and W.J. Doll, Ninth Panhellenic Pharmaceutical Congress, Athens Greece, November 7-9, 1998.

"Evaluation of A Prototype Remote Drug Delivery Capsule (RDDC) in Healthy Adult Volunteers for Non-invasive Regional Drug Absorption Studies in the GI Tract of Man", A.F. Parr, E.P. Sandefer, R. Casper, M. McCartney, C.J. McClain, U.Y. Ryo, and G.A. Digenis, American Association of Pharmaceutical Scientists Twelfth National Meeting, Boston, MA, November 2-6, 1997.

"Use of an Externally Activated Drug Delivery System to Compare Ranitidine Absorption from Various Sites Within the Intestinal Tract in Humans," Y.K. Pithavala, A.F. Parr, W.D. Heizer, R.L. O'Connor-Semmes, and K.L. Brouwer, American Association of Pharmaceutical Scientists Twelfth National Meeting, Boston, MA, November 2-6, 1997.

"An Overview of GI Physiology and Transit Times and Their Impact on Drug Absorption", A. Parr, The 39th Annual International Industrial Pharmaceutical Research and Development Conference (June LOL), Merrimac, WI, June2-6, 1997.

"Development and Validation of an Analytical Method for the Analysis of Calcium in Antacids Using an Ion Selective Electrode", B. Downey, A. Parr, and K. Polowy, The Eighth International Symposium on Pharmaceutical and Biomedical Analysis, Kissimmee, FL, May 4, 1997.

"Modern Methods for the In Vivo Evaluation of Pharmaceutical Dosage Forms and Drug Absorption Phenomenon" A. Parr, Controlled Release Society Workshop on Technology, Design and Evaluation of Oral Controlled-Release Dosage Forms, Baltimore, MA, August 21-22, 1996.

"Application of External Scintigraphy for the In Vivo Evaluation of Pharmaceutical Formulations" A. Parr, Controlled Release Society Workshop on Technology, Design and Evaluation of Oral Controlled-Release Dosage Forms, Baltimore, MA, August 21-22, 1996.

"Formulation Development and Selection of Soft Gelatin Capsules using Experimental Design" M. Gillespie, M. Emptage, M. Rizzolio, A. Parr, and E. Elder, American Association of Pharmaceutical Scientists Tenth National Meeting, Miami, FL, November 5-9, 1995.

"Physicochemical Evaluation of 17(beta)-N-(2-t-butyl-5-trifluoromethyl) phenyl-carbomyl-6-azaandrost-4-en-3-one (Compound Z)" M. Rizzolio, A. Parr, B. Willoughby, F. Lee, and P. Maffuid, American Association of Pharmaceutical Scientists Tenth National Meeting, Miami, FL, November 5-9, 1995.

"Formulation Development and selection Soft Gelatin Capsules Using Experimental Design" M.C. Gillespie, M.R. Emptage, M.C. Rizzolio, A.F. Parr, and E.J. Elder, American Association of Pharmaceutical Scientists Southeastern Regional Meeting, RTP, NC, June 12, 1995.

"History of the In Vivo Evaluation of Pharmaceutical Dosage Forms" AAPS Short Course on Recent Advances in the In Vivo Evaluation of Dosage Forms and Drug Absorption Phenomenon, A. Parr, American Association of Pharmaceutical Scientists Ninth National Meeting, San Diego, CA, November 6, 1994.

"Adsorption of I-125 in Aqueous Waste by Addition of Activated Charcoal: N.W. Couch, S.G. Blanchard, G. Chandra, A.F. Parr, and B.E. Edwards, 39th Health Physics Conference, San Francisco, CA, June 27-30, 1994.

"Evaluation of Micro-pig as a Potential Model for Studying Controlled-release Formulations: Study of Ondansetron" P. Hysu, A. Parr, M. Coffin, H. Farrish, and L. Clifton, Proceed. Intern. Symp. Control. Rel. Bioact. Mater., Nice, France, June 27-30, 1994.

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