QUALIFICATIONS

JOHN M WETZEL, PHD

PRINCIPAL
WETZEL CHEMISTRY CONSULTING, LLC
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PROFESSIONAL POSITIONS

Wetzel Chemistry Consulting, LLC, Albany, OH
2005 – present:
Principal

How Clients Benefited in Drug Development:

- Chemistry, Manufacturing and Controls (CMC) documents were provided in support of >10 Investigational New Drug Application (IND), New Drug Application (NDA) and post-approval filings
- Chemistry concerns raised by regulatory agencies were successfully addressed
- Two drugs received U.S. marketing approval
- Active pharmaceutical ingredients (APIs) and drug products were manufactured under cGMP, enabling clinical trials
- Technical challenges were solved in API synthesis
- API manufacturing costs were reduced
- Toxic and environmentally hazardous chemistry was eliminated from an API synthetic process

How Clients Benefited in Drug Discovery:

- Several chemical series were prioritized according to their potential to yield drug-like leads for an anti-cancer target
- The binding mode, structure-activity relationships and likely sites of off-target binding were elucidated for two leading chemical series
- Predicted off-target binding was experimentally verified for several key cross-reactivity sites
- Testing strategies were designed and implemented for efficient prioritization of new compounds and minimization of off-target interactions
- New analogs with improved selectivity for the desired target were identified
- Patent applications were carefully written, Examiner concerns were addressed and patents were issued

How Clients Benefited in Litigation:

- Trial and deposition testimony was provided on behalf of defendant in the Hatch-Waxman Act litigation case, Hospira v Sandoz, District of New Jersey

Ohio University, Athens, OH
2007 – 2009:
Visiting Assistant Professor, Department of Chemistry and Biochemistry

Lundbeck Research USA, Paramus, NJ
2003 – 2005:
Director, Chemistry Support Services

- Led project teams for MCH1 antagonist discovery and Chemistry Technology Platform development.
- Co-led the selection of an automated storage / retrieval strategy for the Lundbeck screening collection worldwide.

Synaptic Pharmaceutical Corporation, Paramus, NJ
2002 – 2003: Director, Department of Chemistry
1999 – 2001: Associate Director and Acting Head, Department of Chemistry
1996 – 1999: Group Leader, Structural Chemistry and Tracking
1993 – 1996: Senior Scientist, Structural Chemistry
1990 – 1993: Scientist, Medicinal Chemistry

- Managed 40 FTEs, including Medicinal, Computational, Analytical and Bioanalytical Chemists.
- Managed the outsourcing of Chemistry, Manufacturing and Controls (CMC) efforts for preclinical and clinical development of a novel anti-depressant, including chemical process development, GMP-compliant synthesis, GLP-compliant analysis and bioanalysis, and formulation. Contributed CMC section to IND filing and annual update.
- Designed and synthesized alpha-1a adrenoceptor antagonists for treatment of benign prostatic hyperplasia.
- Discovered the first subtype-selective alpha-1a antagonist, SNAP 5089.
- Discovered highly selective alpha-1d adrenoceptor antagonists exemplified by SNAP 8493.
- Designed and implemented a novel strategy for the efficient characterization, purification and formatting of combinatorial libraries culminating in neat solid archive samples.
- Developed a novel LCMS-guided HPLC purification strategy for library purification.
- Conducted numerous HPLC separations, including enantioselective separations and high-throughput library purifications, on milligram and gram scales.
- Procured and maintained NMR, LCMS, HPLC and other instruments.

Suntory Institute for Bioorganic Research, Osaka, Japan
1988 – 1990:
Postdoctoral Fellow

- Explored the chemical relationship between the brown planthopper (Nilaparvata lugens) and its intracellular yeast-like symbiote through deuterium labeling and GCMS techniques.
- Advisors: Prof. Koji Nakanishi and Dr. Yoko Naya.

EDUCATION

The Johns Hopkins University, Ph.D., Chemistry, 1988

- Dissertation: Part I: Silicon-promoted ring contractions in the synthesis of carbocyclic spiro

compounds. Total synthesis of (-)-solavetivone. Part II: The trimethylsilyl cationic species as a bulky proton. Application to chemoselective dioxolanation.
- Advisor: Prof. Reuben Jih-Ru Hwu.

Ohio University, B.S., Chemistry, 1982

Professional Activities and Affiliations

Reviewerships:
- Journal of Medicinal Chemistry
- Journal of Combinatorial Chemistry

Memberships:
- American Association of Pharmaceutical Scientists
- American Chemical Society
- Association of Consulting Chemists and Chemical Engineers
- Chemical Consultants Network
- Regulatory Affairs Professionals Society

GRANTS

1. Tool Compounds for Alpha Adrenoceptors. SBIR Phase I (1995). #2 R43 NS-33418-02 ZRG7 SSS-Z (15), $75,000.
2. Tool Compounds for Alpha Adrenoceptors. SBIR Phase II (1996). #2 R44 NS-33418-02 ZRG7 SSS-Z (15), $750,000.

PATENTS

1. Use of α1C Specific Compounds to Treat Benign Prostatic Hyperplasia. Gluchowski, C.; Forray, C.C.; Chiu, G.; Branchek, T.A.; Wetzel, J.M.; Hartig, P.R. (1995). U.S. Patent 5,403,847.
2. Use of α-1C Specific Compounds to Treat Benign Prostatic Hyperplasia. Gluchowski, C.; Forray, C.C.; Chiu, G.; Branchek, T.A.; Wetzel, J.M.; Hartig, P.R. (1996). U.S. Patent 5,578,611.
3. Dihydropyridines and New Uses Thereof. Gluchowski, C.; Wetzel, J.M.; Chiu, G.; Marzabadi, M.R.; Wong, W.C.; Nagarathnam, D. (1998). U.S. Patent 5,767,131.
4. Use of α1c Specific Compounds to Treat Benign Prostatic Hyperplasia. Gluchowski, C.; Forray, C.C.; Chiu, G.; Branchek, T.A.; Wetzel, J.M.; Hartig, P.R. (1998). U.S. Patent 5,780,485.
5. α1C Specific Compounds to Treat Benign Prostatic Hyperplasia. Gluchowski, C.; Forray, C.C.; Chiu, G.; Branchek, T.A.; Wetzel, J.M.; Hartig, P.R. (1999) U.S. Patent 5,990,128.
6. Use of Alpha-1C Specific Compounds to Treat Benign Prostatic Hyperplasia. Gluchowski, C.; Forray, C.C.; Chiu, G.; Branchek, T.A.; Wetzel, J.M.; Hartig, P.R. (2000) U.S. Patent 6,015,819.
7. Dihydropyridines and New Uses Thereof. Gluchowski, C.; Wetzel, J.M.; Chiu, G.; Marzabadi, M.R.; Wong, W.C.; Nagarathnam, D. (2001) U.S. Patent 6,211,198.
8. Dihydropyridines and New Uses Thereof. Gluchowski, C.; Wetzel, J.M.; Chiu, G.; Marzabadi, M.R.; Wong, W.C.; Nagarathnam, D. (2001) U.S. Patent 6,310,076.
9. Use of α1C Specific Compounds to Treat Benign Prostatic Hyperplasia. Gluchowski, C.; Forray, C.C.; Chiu, G.; Branchek, T.A.; Wetzel, J.M.; Hartig, P.R. (2003). U.S. Patent 6,602,888.

10. Dihydropyridines and New Uses Thereof. Gluchowski, C.; Wetzel, J.M.; Chiu, G.; Marzabadi, M.R.; Wong, W.C.; Nagarathnam, D. (2003). U.S. Patent 6,608,086.
11. Compounds Specific for the Human α1d Adrenergic Receptor and Uses Thereof. Konkel, M.; Wetzel, J.M.; Noble, S.A.; Gluchowski, C.; Craig, D.A. (2004). U.S. Patent 6,706,716.
12. Selective Melanin Concentrating Hormone-1 (MCH1) Receptor Antagonists and Uses Thereof. Marzabadi, M.R.; Wetzel, J.; DeLeon, J.E.; Lagu, B; Gluchowski, C.; Noble, S.; Nagarathnam, D. (2004). U.S. Patent 6,720,324.
13. Substituted Anilinic Piperidines as MCH Selective Antagonists. Marzabadi, M.R.; Wetzel, J.; Deleon, J.E.; Jiang, Y.; Chen, C.-A.; Lu, K. (2004). U.S. Patent 6,727,264.
14. Substituted Anilinic Piperidines as MCH Selective Antagonists. Marzabadi, M.R.; Wetzel, J.; DeLeon, J.E.; Jiang, Y.; Chen, C.-A.; Lu, K. (2006). U.S. Patent 7,067,534.
15. Use of GALR3 Receptor Antagonists for the Treatment of Depression and/or Anxiety and Compounds Useful in Such Methods. Konkel, M.; Wetzel, J.M.; Talisman, J. (2006). U.S. Patent 7,081,470.
16. Substituted Alkyl Amido Piperidines. Marzabadi, M.R.; Wetzel, J.; Chen, C.-A.; Jiang, Y.; Lu, K. (2006). U.S. Patent 7,105,544.
17. 3-Imino-2-indolones for the Treatment of Depression and/or Anxiety. Konkel, M.; Wetzel, J.M.; Talisman, J. (2007). U.S. Patent 7,166,635.
18. Substituted Alkyl Amido Piperidines. Marzabadi, M.R.; Wetzel, J.; Chen, C.-A.; Jiang, Y.; Lu, K. (2007). U.S. Patent 7,199,135.
19. Spirocyclic Piperidines as MCH1 Antagonists and Uses Thereof. Marzabadi, M.R.; Jiang, Y.; Lu, K.; Chen, C.-A.; De Leon, J.E.; Wetzel, J.M.; Andersen, K. (2008). U.S. Patent 7,335,665.
20. Use of GALR3 Antagonist for Treatment of Depression and/or Anxiety and Compounds Useful in Such Methods. Blackburn, T.P.; Konkel, M.J.; Boteju, L.W.; Talisman, I.J.; Wetzel, J.M.; Packiarajan, M.; Chen, H.; Jimenez, H. (2008). U.S. Patent 7,465,750.
21. Secondary Amino Anilinic Piperidines as MCH1 Antagonists and Uses Thereof. Marzabadi, M.R.; Jiang, Y.; Lu, K.; Chen, C.-A.; De Leon, J.E.; Wetzel, J.M. (2009). U.S. Patent 7,473,698.

PUBLICATIONS

1. Mechanistic studies in the deoxygenation of pyridine N-oxide: new 1,2 elimination. Hwu, J.R.; Wetzel, J.M. (1985) Journal of Organic Chemistry 50(3), 400-2.
2. The trimethylsilyl cationic species as a bulky proton. Application to chemoselective dioxolanation. Hwu, J.R.; Wetzel, J.M. (1985) Journal of Organic Chemistry 50(20), 3946-8.
3. Calcium in liquid ammonia for the reduction of benzyl ethers. Mechanistic clues derived from chemoselectivity studies. Hwu, J.R.; Chua, V.; Schroeder, J.E.; Barrans, R.E., Jr.; Khoudary, K.P.; Wang, N.; Wetzel, J.M. (1986) Journal of Organic Chemisty 51(24), 4731-3.
4. General scope of 1,3-dioxolanation of α,β-unsaturated aldehydes with 1,2-bis(trimethylsilyloxy)ethane and trimethylsilyl trifluoromethanesulfonate. Hwu, J.R.; Leu, L.C.; Robl, J.A.; Anderson, D.A.; Wetzel, J.M.. (1987) Journal of Organic Chemistry 52(2), 188-91.
5. Silicon-promoted ring contractions in the formation of carbocyclic spiro compounds. Total synthesis of (-)-solavetivone. Hwu, J.R.; Wetzel, J.M. (1992) Journal of Organic Chemistry 57(3), 922-8.
6. Diversity in steroidogenesis of symbiotic microorganisms from planthoppers. Wetzel, J.M.; Ohnishi, M.; Fujita, T.; Nakanishi, K.; Naya, Y.; Noda, H.; Sugiura, M. (1992) Journal of Chemical Ecology 18(11), 2083-94.
7. Comparison of the electronic effect and the steric influence between the 1,1,2,2,2-pentamethyldisilanyl and the trimethylsilyl groups. Hwu, J.R.; Wetzel, J.M.; Lee, J.S.; Butcher, R.J. (1993) Journal of Organometallic Chemistry 453(1), 21-8.
8. The α1-adrenergic receptor that mediates smooth muscle contraction in human prostate has the pharmacological properties of the cloned human a1c subtype. Forray, C.; Bard, J.A.; Wetzel, J.M.; Chiu, G.; Shapiro, E.; Tang, R.; Lepor, H.; Hartig, P.R.; Weinshank, R.L.; Branchek, T.A.; Gluchowski, C. (1994) Molecular Pharmacology 45(4), 703-8.
9. Discovery of α1a-adrenergic receptor antagonists based on the L-type Ca2+ channel antagonist niguldipine. Wetzel, J. M.; Miao, S.W.; Forray, C.; Borden, L.A.; Branchek, T.A.; Gluchowski, C. (1995) Journal of Medicinal Chemistry 38(10), 1579-81.

10. Fragmentation studies of ergosterol. The formation of the fragment ion at m/z 337. Kenney, P.T.M.; Wetzel, J.M. (1995) European Mass Spectrometry 1(4), 411-13.
11. Modeling and mutagenesis of the human α1a-adrenoceptor: orientation and function of transmembrane helix V sidechains. Wetzel, J.M.; Salon, J.A.; Tamm, J.A.; Forray, C.; Craig, D.; Nakanishi, H.; Cui, W.; Vaysse, P.J.-J.; Chiu, G.; Weinshank, R.L.; Hartig, P.R.; Branchek, T.A.; Gluchowski, C. (1996) Receptors and Channels 4(3), 165-177.
12. Localization of mRNA and receptor binding sites for the α1a-adrenoceptor subtype in the rat, monkey and human urinary bladder and prostate. Walden, P.D.; Durkin, M.M.; Lepor, H.; Wetzel, J.M.; Gluchowski, C.; Gustafon, E.L. (1997) Journal of Urology (Baltimore) 157(3), 1032-1038.
13. Characterization of specific binding of [125I]L-762,459, a selective α1A-adrenoceptor radioligand to rat and human tissues. O'Malley, S.S.; Chen, T.B.; Francis, B.E.; Gibson, R.E.; Burns, H.D.; DiSalvo, J.; Bayne, M.L.; Wetzel, J.M.; Nagarathnam, D.; Marzabadi, M.; Gluchowski, C.; Chang, R.S.L. (1998) European Journal of Pharmacology 348(2/3), 287-295.
14. Identification of a dihydropyridine as a potent α1a adrenoceptor-selective antagonist that inhibits phenylephrine-induced contraction of the human prostate. Wong, W.C.; Chiu, G.; Wetzel, J.M.; Marzabadi, M.R.; Nagarathnam, D.; Wang, D.; Fang, J.; Miao, S.W.; Hong, X.; Forray, C.; Vaysse, P.J.J.; Branchek, T.A.; Gluchowski, C.; Tang, R.; Lepor, H. (1998) Journal of Medicinal Chemistry 41(14), 2643-2650.
15. Design and synthesis of novel α1a adrenoceptor-selective dihydropyridine antagonists for the treatment of benign prostatic hyperplasia. Nagarathnam, D.; Wetzel, J.M.; Miao, S.W.; Marzabadi, M.R.; Chiu, G.; Wong, W.C.; Hong, X.; Fang, J.; Forray, C.; Branchek, T.A.; Heydorn, W.E.; Chang, R.S.L.; Broten, T.; Schorn, T.W.; Gluchowski, C. (1998) Journal of Medicinal Chemistry 41(26), 5320-5333.
16. Design and synthesis of novel dihydropyridine alpha-1A antagonists. Marzabadi, M.R.; Hong, X.; Nagarathnam, D.; Miao, S.; Chiu, G.; Wong, W.C.; Wetzel, J.M.; Fang, J.; Forray, C.; Chen, T.B.; O'Malley, S.S.; Chang, R.S.L.; Gluchowski, C. (1999) Bioorganic & Medicinal Chemistry Letters 9(19), 2843-2848.
17. Design and synthesis of novel α1a adrenoceptor-selective antagonists. 4. Structure-activity relationship in the dihydropyrimidine series. Wong, W.C.; Sun, W.; Lagu, B.; Tian, D.; Marzabadi, M.R.; Zhang, F.; Nagarathnam, D.; Miao, S.W.; Wetzel, J.M.; Peng, J.; Forray, C.; Chang, R.S.L.; Chen, T.B.; Ransom, R.; O'Malley, S.; Broten, T.P.; Kling, P.; Vyas, K.P.; Zhang, K.; Gluchowski, C. (1999) Journal of Medicinal Chemistry 42(23), 4804-4813.
18. Design and synthesis of novel α1a adrenoceptor-selective antagonists. 1. Structure-activity relationship in dihydropyrimidinones. Nagarathnam, D.; Miao, S.W.; Lagu, B.; Chiu, G.; Fang, J.; Dhar, T.G.M.; Zhang, J.; Tyagarajan, S.; Marzabadi, M.R.; Zhang, F.; Wong, W.C.; Sun, W.; Tian, D.; Wetzel, J.M.; Forray, C.; Chang, R.S.L.; Broten, T.P.; Ransom, R.W.; Schorn, T.W.; Chen, T.B.; O'Malley, S.; Kling, P.; Schneck, K.; Bendesky, R.; Harrell, C.M.; Vyas, K.P.; Gluchowski, C. (1999) Journal of Medicinal Chemistry 42(23), 4764-4777.
19. Design and synthesis of novel α1a adrenoceptor-selective antagonists. 2. Approaches to eliminate opioid agonist metabolites via modification of linker and 4-methoxycarbonyl-4-phenylpiperidine moiety. Dhar, T.G.M.; Nagarathnam, D.; Marzabadi, M.R.; Lagu, B.; Wong, W.C.; Chiu, G.; Tyagarajan, S.; Miao, S.W.; Zhang, F.; Sun, W.; Tian, D.; Shen, Q.; Zhang, J.; Wetzel, J.M.; Forray, C.; Chang, R.S.L.; Broten, T.P.; Schorn, T.W.; Chen, T.B.; O'Malley, S.; Ransom, R.; Schneck, K.; Bendesky, R.; Harrell, C.M.; Vyas, K.P.; Zhang, K.; Gilbert, J.; Pettibone, D.J.; Patane, M.A.; Bock, M.G.; Freidinger, R.M.; Gluchowski, C. (1999) Journal of Medicinal Chemistry 42 (23), 4778-4793.
20. De novo design of a novel oxazolidinone analogue as a potent and selective α1A adrenergic receptor antagonist with high oral bioavailability. Lagu,B.; Tian, D.; Jeon, Y.; Li, C.; Wetzel, J.M.; Nagarathnam, D.; Shen, Q.; Forray, C.; Chang, R.S.L.; Broten, T.P.; Ransom, R.W.; Chan, T.-B.; O'Malley, S.S.; Schorn, T.W.; Rodrigues, A.D.; Kassahun, K.; Pettibone, D.J.; Freidinger, R.; Gluchowski, C. (2000) Journal of Medicinal Chemistry 43(15), 2775-2778.
21. Determination of the relative and absolute stereochemistry of a potent and α1A-selective adrenoceptor antagonist. Lagu, B.; Wetzel, J.M.; Forray, C.; Patane, M.A.; Bock, M.G. (2000) Bioorganic & Medicinal Chemistry Letters 10(24), 2705-2707.
22. Identification and characterization of two G protein-coupled receptors for neuropeptide FF. Bonini, J.A.; Jones, K.A.; Adham, N.; Forray, C.; Artymyshyn, R.; Durkin, M.M.; Smith, K.E.; Tamm, J.A.; Boteju, L.W.; Lakhlani, P.P.; Raddatz, R.; Yao, W.-J.; Ogozalek, K.L.; Boyle, N.;

Kouranova, E.V.; Quan, Y.; Vaysse, P.J.; Wetzel, J.M.; Branchek, T.A.; Gerald, C.; Borowsky, B. (2000) Journal of Biological Chemistry 275(50), 39324-39331.

23. Synthesis and structure-activity relationship of fluoro analogues of 8-{2-[4-(4-methoxyphenyl)piperazin-1yl]ethyl}-8-azaspiro[4.5]decane-7,9-dione as selective alpha(1d)-adrenergic receptor antagonists. Konkel, M.J.; Wetzel, J.M.; Cahir, M.; Craig, D.A.; Noble, S.A.; Gluchowski, C. (2005) Journal of Medicinal Chemistry 48(8), 3076-3079.
24. Synthesis and SAR Investigations for Novel Melanin-Concentrating Hormone 1 Receptor (MCH1) Antagonists Part 1. The Discovery of Arylacetamides as Viable Replacements for the Dihydropyrimidinone Moiety of an HTS Hit. Jiang, Y.; Chen, C.-A.; Lu, K.; Daniewska, I.; De Leon, J.; Kong, R.; Forray, C.; Li, B.; Hegde, L.G.; Wolinsky, T.D.; Craig, D.A.; Wetzel, J.M.; Andersen, K.; Marzabadi, M. (2007) Journal of Medicinal Chemistry 50(16), 3870-3882.
25. Synthesis and SAR Investigations for Novel Melanin-Concentrating Hormone 1 Receptor (MCH1) Antagonists Part 2: A Hybrid Strategy Combining Key Fragments of HTS Hits. Chen, C.-A.; Jiang, Y.; Lu, K.; Daniewska, I.; Mazza, C.G.; Negron, L.; Forray, C.; Parola, T.; Li, B.; Hegde, L.G.; Wolinsky, T.D.; Craig, D.A.; Kong, R.; Wetzel, J.M.; Andersen, K.; Marzabadi, M. (2007) Journal of Medicinal Chemistry 50(16), 3883-3890.

SELECTED PRESENTATIONS

1. Binding and intrinsic activity profiles of 4-aminoquinazolines and 4-aminoquinolines at cloned human alpha adrenergic receptors. Wetzel, J.M., Miao, S.W., Gluchowski, C., Forray, C., Vaysse, P.J.-J., Borden, L.A., Branchek, T.A., Bard, J.A., Weinshank, R.L. and Hartig, P.H. (1993). Presented at the 206th American Chemical Society National Meeting, Chicago, IL, Aug. 22-27, MEDI 53.
2. Use of recombinant human alpha adrenergic receptors for the pharmacological evaluation of alpha adrenergic ocular hypotensive agents. Gluchowski, C., Jeon, Y.T., Wetzel, J.M., Vaysse, P.J.-J., Branchek, T.A., Weinshank, R.L., Borden, L.A., Bard, J.A., Hartig, P.R. and Forray, C. (1994). Invest. Opthalmol. Vis. Sci. 35, 1399, 669.
3. Distribution of the α1A adrenoceptor in rat CNS - Comparison of in situ hybridization and receptor autoradiography studies. Durkin, M.M., Gustafson, E.L., Forray, C., Smith, K.E., Wetzel, J.M., Gluchowski, C., Branchek, T.A. (1995). Society for Neuroscience Annual Meeting, San Diego, CA.
4. Hypotensive potency of α-1 adrenergic receptor antagonists in spontaneously hypertensive rats (SHR) correlates with binding affinity for the α-1d receptor subtype. Scott, A., Broten, T., Siegl, P., Bock, M., DiPardo, R., Payne, L., Chiu, G., Wetzel, J., Marzibadi, M.R., Gluchowski, C., Forray, C. (1999). FASEB J. 13, 150.6.
5. Autoradiographic distribution of the α1D-AR in the rat CNS. Cahir, M., Konkel, M.J., Durkin, M.M., Wetzel, J.M., Branchek, T.A., Craig, D.A. (1998). Joint Meeting British Pharmacological Society and The Physiological Society, Southampton, U.K.
6. A Genomic Approach to Drug Discovery: MCH-1 Antagonists for the Treatment of Obesity and Affective Disorders. Wetzel, J.M. (2003) Case Western Reserve University Department of Chemistry.
7. 3-Phenyl-2-indolylcarbohydrazide and their azo analogues as potent antagonists for the GalR3 receptor. Topiwala, U.P.; Chen, H.; Jimenez, H.; Reitman, M.; Wetzel, J.M.; Walker, M.; Han, K.; Boyle, N.; Caputo, G.; Muske, G.; Konkel, M.J. (2004) Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, MEDI-030.
8. Discovery of 3-phenyl-2-indolylcarbohydrazides as antagonists of the GalR3 receptor. Chen, H.; Topiwala, U.P.; Boteju, L.W.; Eldemenky, E.; Jimenez, H.; Reitman, M.; Walker, M.W.; Han, K.; Boyle, N.; Caputo, G.; Muske, G.; Yang, J.; Konkel, M.J.; Wetzel, J.M. (2004) Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, MEDI-031.
9. Enhancement of Flexibility, Efficiency and Data Quality through Logistics Optimization. Wetzel, J.M. (2005) Drug Discovery Technology 2005, Boston, MA.