



The University of Mississippi

Interoffice Memorandum
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TO: All School of Pharmacy Personnel
FROM: Charles D. Hufford, Associate Dean for Research and Graduate Programs
DATE: November 18, 2004
SUBJECT: Research News (#3)

The following **GRANTS/CONTRACTS** have recently been awarded:

1. **Dr. Mitchell Avery** (P.I. – Medicinal Chemistry), **Dr. John Williamson** (Co-P.I. – Medicinal Chemistry), **Dr. John Rimoldi** (Co-P.I. – Medicinal Chemistry) – Development and Testing of New Medicines for Treatment of Emerging Infectious Diseases (DHHS/Centers for Disease Control and Prevention), \$1,500,000.00 – September 15, 2004-September 14, 2005.
2. **Dr. Mitchell Avery** (P.I. – Medicinal Chemistry), **Dr. John Williamson** (Co-P.I. – Medicinal Chemistry), **Dr. John Rimoldi** (Co-P.I. – Medicinal Chemistry) – Development and Testing of New Antimalarial Drugs (DHHS/Centers for Disease Control and Prevention), \$3,000,000.00 – August 1, 2004-July 31, 2005.
3. **Dr. Alicia Bouldin** (P.I. – Pharmacy Administration) – Toward an Understanding of Personal Involvement and Intrinsic Motivation to Learn Among Pharmacy Students (American Association of Colleges of Pharmacy/American Foundation for Pharmaceutical Education New Investigators Program), \$5,307.00 – January 1, 2005-January 1, 2006.
4. **Dr. Charles Burandt** (P.I. – RIPS/NCNPR) – MAJIC Planning Grant Proposal – Medicinal Plant Processing Facility and Extraction Site (Mississippi Development Authority), \$25,000.00 – July 1, 2004-December 31, 2004.
5. **Dr. John Cleary** (P.I. – Pharmacy Practice) – Pharmacogenomics of Natural Products with Antifungal Activity (National Institutes of Health), \$313,331.00 – July 1, 2004-June 30, 2005.
6. **Dr. John Cleary** (P.I. – Pharmacy Practice) – Pharmaceutical Company Support (Pfizer Global Pharmaceuticals), \$1,000.00 – October 20, 2004-December 31, 2004.
7. **Dr. Ikhlas Khan** (P.I. – RIPS/NCNPR) – Optimizing Therapeutic Ratios of Herbs: Ginkgo as a Model (Harvard Medical School/National Institutes of Health), \$44,001.00 – July 1, 2004-June 30, 2005 (Sub-contract).
8. **Dr. Ikhlas Khan** (P.I. – RIPS/NCNPR) and **Dr. Troy Smillie** (Co-P.I. – RIPS/NCNPR) – Phytotoxins from Asian Soybean Rust *Phakopsora pachyrhizi* (Mississippi State University NSF proposal), \$74,681.00 – October 1, 2004-March 31, 2005.
9. **Dr. Ikhlas Khan** (P.I. – RIPS/NCNPR) – Mechanisms of Ginkgo Biloba Neuroprotection (The University of Southern Mississippi/National Institutes of Health), \$44,000.00 – September 15, 2004-May 31, 2005.

10. **Dr. Larry Walker** (P.I. – RIPS/NCNPR) – Development of Natural Products from Plants and Microbes for Replacement of Synthetic Pesticides (U.S. Dept. of Agriculture), \$2,388,211.00 – November 21, 2004-October 31, 2005.
11. **Dr. Larry Walker** (P.I. – RIPS/NCNPR) and **Dr. Ikhlas Khan** (Co-P.I. – RIPS/NCNPR) – Botanical Dietary Supplements: Science-Base for Authentication and Analysis (Food and Drug Administration), \$831,547.00 – September 30, 2004-September 29, 2005.
12. **Dr. Larry Walker** (P.I. – RIPS/NCNPR) and **Dr. Ikhlas Khan** (Co-P.I. – RIPS/NCNPR) – Botanical Dietary Supplements: Science-Base for Authentication and Analysis/Supplemental Funding (Food and Drug Administration), \$493,453.00 – September 30, 2004-September 29, 2005.
13. **Dr. Barbara Wells** (P.I. – RIPS/School of Pharmacy) and **Dr. Charles Huffod** (Co-P.I. RIPS/School of Pharmacy) – National Center for Natural Products Research – Phase II (Dept. of Health and Human Services Health Resources and Services Administration), \$1,781,329.00 – July 1, 2004-June 30, 2005.
14. **Dr. Noel Wilkin** (P.I. – Pharmacy Administration) – ESRD Outpatient Medications (Network 8, Inc.), \$198,250.00 – July 1, 2004-June 30, 2005.
15. **Dr. Kristie Willett** (P.I. – Pharmacology) – Roles of CYP1 & 19 in Fundulus Steroid & PAH Metabolism (NIH/National Institute of Environmental Health Sciences), \$256,913.00 – July 1, 2004-April 30, 2005.
16. **Dr. John Williamson** (P.I. – Medicinal Chemistry) – IGERT – Entrepreneurship at the Interface of Polymer Science and Medicinal Chemistry (The University of Southern Mississippi/National Science Foundation), \$299,760.00 – October 1, 2004-September 30, 2005.

The following **PUBLICATIONS** have appeared:

1. **Hassan Abou-Gazar**, E. Bedir, **Satoshi Takamatsu**, **Daneel Ferreira**, and **Ikhlas Khan** – “Antioxidant lignans from *Larrea tridentate*”, *Phytochemistry*, **65**, pp. 2499-2505, 2004.
2. Z.S. Akdemir, **Irem Tatli**, E. Bedir and **Ikhlas Khan** – “Antioxidant flavonoids from *Verbascum salviifolium* boiss”, *FABAD Journal of Pharmaceutical Sciences*, **28**, pp. 71-75, 2003.
3. Z.S. Akdemir, **Irem Tatli**, E. Bedir and **Ikhlas Khan** – “Iridoid and phenylethanoid glycosides from *Verbascum lasianthum*”, *Turkish Journal of Chemistry*, **28**, pp. 227-234, 2004.
4. Y. Akgul, **Daneel Ferreira**, E. Abourashed and **Ikhlas Khan** – “Lotaustralin from *Rhodiola rosea* roots”, *Fitoterapia*, **75**, pp. 612-614, 2004.
5. **Mitchell Avery**, **Larry Walker** and N. Peleng – “Preparation of hydroxyarylbenzopyranones and evaluation as anti-giardial agents and uses thereof”, *PCT Int. Appl.*, p. 72, 2004.
6. **Bharathi Avula** and **Ikhlas Khan** – “Separation and determination of ephedrine enantiomers and synephrine by high performance capillary electrophoresis in dietary supplements”, *Chromatographia*, **59**, pp. 71-77, 2004.
7. S.C. Benson, H.A. Pershadsingh, C.I. Ho, **Amar Chittiboyina**, **Prashant Desai**, et al. – “Identification of Telmisartan as a Unique Angiotensin II Receptor Antagonist With Selective PPAR γ -Modulating Activity”, *Hypertension*, **43**, pp. 993-1002, 2004.
8. N. Bhagavathula, K.C. Nerusu, A. Lal, C.N. Ellis, **Amar Chittiboyina** et al. – “Rosiglitazone inhibits proliferation, motility, and matrix metalloproteinase production in keratinocytes”, *Journal of Investigative Dermatology*, **122**, pp. 130-139, 2004.
9. **Sreekhhar Cheboyina**, **Walt Chambliss** and **Christy Wyandt** – “A Novel Freeze Pelletization Technique for Preparing Matrix Pellets”, *Advanstar Communications*, 2003.
10. **Amar Chittiboyina**, **Raji Chada**, **Blake Watkins** and **Mitchell Avery** – “First synthesis of antimalarial Machaeriols A and B”, *Tetrahedron Letters*, **45**, pp. 1689-1691, 2004.
11. **Amar Chittiboyina**, **Raji Chada**, **Blake Watkins** and **Mitchell Avery** – “Addition of lithioimidazoles to isocyanates followed by Pd-coupling: access to 4-substituted imidazole-2,5-dicarboxamides”, *Tetrahedron Letters*, **45**, pp. 1869-1872, 2004.
12. **Robert Doerksen**, B. Chen, D. Liu, G.N. Tew, W.F. DeGrado and M.L. Klein – “Controlling the Conformation of Arylamides: Computational Studies of Intramolecular Hydrogen Bonds Between Amides and Ethers or Thioethers”, *Chemistry: A European Journal*, **10**, pp. 5008-5016, 2004.
13. C. Erbel-Sieler, C. Dudley, **Yu Dong Zhou**, X. Wu, S.J. Estill, T. Han, R. Diaz-Arrastia, E.W. Brunskill, S.S. Potter and S.L. McKnight – “Behavioral and regulatory abnormalities in mice deficient in the NPAS1 and NPAS3 transcription factors”, *PNAS*, **101**, pp. 13648-13653, 2004.

14. M. Ganzera, H. Stuppner and **Ikhlas Khan** – “Simultaneous determination of saponins and isoflavones in soybean (*Glycine max* L.) by reversed-phase liquid chromatography with evaporative light-scattering and ultraviolet detection”, *Journal of AOAC International*, **87**, pp. 1189-1194, 2004.
15. M. Ganzera, J. Gampenrieder, **Rahul Pawar**, **Ikhlas Khan**, and H. Stuppner – “Separation of the major triterpenoid saponins in *Bacopa monnieri* by high-performance liquid chromatography”, *Analytica Chimica Acta*, **516**, pp. 149-154, 2004.
16. K. Garrett, G. Basmadjian, **Ikhlas Khan**, B.T. Schaneberg and T.W. Seale – “Extracts of kava (*Piper methysticum*) induce acute anxiolytic-like behavioral changes in mice”, *Psychopharmacology*, **170**, pp. 33-41, 2003.
17. **Mary Haasch** and **Annette Ford** – “Combined effects of ethanol and cinnamaldehyde in the Japanese medaka embryo-larval assay (MELA)”, *Marine Environmental Research*, **58**, pp. 175-179, 2004.
18. G. R. Labadie, **Seoung-Ryoung Choi** and **Mitchell Avery** – “Diamine derivatives with antiparasitic activities”, *Bioorganic & Medicinal Chemistry Letters*, **14**, pp. 615-619, 2004.
19. M.S. Levi, **Omar Khan** and **Ronald Borne** – “Solution-Phase Parallel Synthesis of *N*-Substituted Isoquinuclidines”, *Letters in Drug Design and Discovery*, pp. 384-386, 2004.
20. D. Liu, S. Choi, B. Chen, **Robert Doerksen**, D.J. Clements, J.D. Winkler, M.L. Klein, W.F. DeGrado – “Nontoxic Membrane-Active Antimicrobial Arylamide Oligomers”, *Angewandte Chemie International Edition*, **43**, pp. 1158-1162, 2004.
21. **Guoyi Ma**, **Shabana Khan**, **Melissa Jacob**, **Babu Tekwani**, **Zuqiang Li**, **David Pasco**, **Larry Walker** and **Ikhlas Khan** – “Antimicrobial and Antileishmanial Activities of Hypocrellins A and B”, *Antimicrobial Agents and Chemotherapy*, **48**, pp. 4450-4452, 2004.
22. J.W. McGinity and **Michael Repka** – “Hot-Melt Extruded Films for Transmucosal and Transdermal Drug Delivery Applications”, *Drug Del Tech*, **4**, pp. 72-78, 2004.
23. K. McLuskey, F. Gibellini, **Paulo Carvalho**, **Mitchell Avery** and W.N. Hunter – “Inhibition of *Leishmania major* pteridine reductase by 2,4,6-triaminoquinazoline: structure of the NADPH ternary complex”, *Acta Crystallographica, Section D: Biological Crystallography*, **60**, pp. 1780-1785, 2004.
24. E.M.F. Muri, M. Gomes, J.S. Costa, F.L. Alencar, A. Sales, M.L. Bastos, R. Hernandez-Valdes, M.G. Albuquerque, E.F.F. da Cunha, R.B. Alencastro, **John Williamson** and Q.A.C. Antunes – “N-t-Boc-amino acid esters of isomannide Potential inhibitors of serine proteases”, *Amino Acids*, **27**, pp. 153-159, 2004.
25. E.M.F. Muri, H. Mishra, **Steven Stein** and **John Williamson** – “Molecular Modeling, Synthesis and Biological Evaluation of Heterocyclic Hydroxamic Acids Designed as *Helicobacter Pylori* Urease Inhibitors”, *Letters in Drug Design & Discovery*, pp. 30-34, 2004.
26. E.M.F. Muri, **Marcelo Nieto** and **John Williamson** – “Hydroxamic Acids as Pharmacological Agents: An Update”, *Medicinal Chemistry Reviews – Online*, pp. 385-394, 2004.
27. E.M.F. Muri and **John Williamson** – “Anti-*Helicobacter pylori* Agents. An Update”, *Mini Reviews in Medicinal Chemistry*, **4**, pp. 201-206, 2004.
28. J. Mustafa, R. Khan, **Ikhlas Khan**, and **Daneel Ferreira** – “Benzylation of flavan-3-ols (catechins)”, *Organic Preparations and Procedures International*, **36**, pp. 61-67, 2004.
29. J. Mustafa, **Shabana Khan**, **Guoyi Ma**, **Larry Walker** and **Ikhlas Khan** – “Synthesis and anticancer activities of fatty acid analogs of podophyllotoxin”, *Lipids*, **39**, pp. 167-172, 2004.
30. **Igor Parshikov**, **Kannoth Muraleedharan**, **Bruhaspathy Miriyala**, **Mitchell Avery** and **John Williamson** – “Hydroxylation of 10-Deoxyartemisinin by *Cunninghamella elegans*”, *Journal of Natural Products*, **67**, pp. 1595-1597, 2004.
31. H.A. Pershadsingh and **Mitchell Avery** – “Novel PPAR agonists, pharmaceutical compositions and uses thereof”, *PCT Int. Appl*, p. 100, 2004.
32. **Karumanchi Rao**, **Noer Kasanah**, S. Wahyuono, **Babu Tekwani**, R.F. Schinazi and **Mark Hamann** – “Three New Manzamine Alkaloids from a Common Indonesian Sponge and Their Activity Against Infectious and Tropical Parasitic Diseases”, *Journal of Natural Products*, **67**, pp. 1314-1318, 2004.
33. **Michael Repka**, **Praveen Mididoddi** and **Steven Stodghill** – “Influence of Human Nail Etching for the Assessment of Topical Onychomycosis Therapies”, *International Journal of Pharmaceutics*, **282**, pp. 95-106, 2004.
34. **Michael Repka**, **Suneela Prodduturi**, **Manish Munjal**, and **Praveen Mididoddi** – “Matrix and Reservoir-Based Transmucosal Delivery Systems: Tailoring Delivery Solutions”, *American J. Drug Delivery*, **2**, pp. 173-192, 2004.

35. B.T. Schaneberg, R. Molyneux and **Ikhlas Khan** – “Evaporative light scattering detection of pyrrolizidine alkaloids”, *Phytochemical Analysis*, **15**, pp. 36-39, 2004.
36. **Nurhayat Tabanca, Shabana Khan**, E. Bedir, S. Annavarapu, **Kristine Willett, Ikhlas Khan**, N. Kirimer and K.H.C. Baser – “Estrogenic Activity of Isolated Compounds and Essential Oils of Pimpinella Species from Turkey, Evaluated using a Recombinant Yeast Screen”, *Planta Medica*, **70**, pp. 728-735, 2004.
37. **Irem Tatli**, Z.S. Akdemir, E. Bedir and **Ikhlas Khan** – “Saponin, iridoid, phenylethanoid and monoterpene glycosides from *Verbascum pterocalycinum* var. *mutense*”, *Turkish Journal of Chemistry*, **28**, pp. 111-122, 2004.
38. A.K. Tripathi, **Prashant Desai, Anupam Pradhan, Shabana Khan, Mitchell Avery, Larry Walker** and **Babu Tekwani** – “An alpha-proteobacterial type malate dehydrogenase may complement LDH function in *Plasmodium falciparum* – Cloning and biochemical characterization of the enzyme”, *European Journal of Biochemistry*, **271**, pp. 3488-3502, 2004.
39. **Francis Tukov, Sridhar Anand, Rama Gadepalli**, A.A.L. Gunatilaka, **John Matthews** and **John Rimoldi** – “Inactivation of the Cytotoxic Activity of Repin, a Sesquiterpene Lactone from *Centaurea repens*”, *Chem. Res. Toxicology*, **17**, pp. 1170-1176, 2004.
40. **Francis Tukov, John Rimoldi** and **John Matthews** – “Characterization of the Role of Glutathione in Repin-Induced Mitochondrial Dysfunction, Oxidative Stress and Dopaminergic Neurotoxicity in Rat Pheochromocytoma (PC12) Cells”, *NeuroToxicology*, **25**, pp. 989-999, 2004.
41. M.S. Venkatraman, **Amar Chittiboyina**, J. Meingassner, C.I. Ho, J. Varani. et al. – “A-Lipoic acid-based PPAR γ agonists for treating inflammatory skin diseases”, *Archives of Dermatological Research*, **296**, pp. 97-104, 2004.
42. F. Wei, S.C. Ma, L.Y. Ma, P. But, R.C. Lin and **Ikhlas Khan** – “Antiviral Flavonoids from the Seeds of *Aesculus chinensis*”, *Journal of Natural Products*, **67**, pp. 650-653, 2004.
43. A. Yesilada, S. Koyunoglu, N. Saygili, E. Kupeli, E. Yesilada, E. Bedir and **Ikhlas Khan** – “Synthesis, anti-inflammatory and analgesic activity screening of some new 4(3H)-quinazolinone derivatives”, *Archiv der Pharmazie* (Weinheim, Germany), **337**, pp. 96-104, 2004.
44. **Yan-Song Zheng** and **Mitchell Avery** – “Asymmetric aldol reactions using catalytic D-(+)-proline: a new, economic and practical approach to a commonly employed C1-C6 keto-acid synthon of the epothilones”, *Tetrahedron*, **60**, pp. 2091-2095, 2004.

TECHNOLOGY TRANSFER transactions:

In the interest of protecting confidential information, the names and titles associated with School of Pharmacy invention disclosures and patent applications will no longer be published until after a patent has issued.

Invention Disclosures Filed in 2004: 10
Patent Applications Pending: 29
Recent Patents Granted: 1
 “Dihydroartemisinin and dihydroartemisinin dimers as anti-cancer and anti-infective agents”
 US Patent #: 6,790,863
Mahmoud A. ElSohly, Samir A. Ross, Ahmed M. Galal
 September 14, 2001

The following **SPECIAL ANNOUNCEMENTS** are also listed:

- The research of **Robert J. Doerksen** (Medicinal Chemistry and RIPS) on computational approaches to effective and selective antimicrobial oligomers was featured recently in the Society Journal of the American Society for Microbiology (July 2004) and in Business Week (April 19, 2004).
- The American Association of Pharmaceutical Scientists Annual Southern Regional Meeting (AAPS SRDG) was held May 17-18, 2004 at the University of Tennessee Health Science Center, Memphis, TN. The following Podium and Poster presentations were presented:
Podium Presentation: **Suneela Prodduturi, Melissa Jacob, Steven Stodghill, Michael Repka** – “Characterization of hot-melt extruded films containing antifungals for oral candidiasis”.
Poster Presentations: (1) **Praveen Mididoddi, Steven Stodghill, Michael Repka** – “Influence of 'etching' on the permeability of ketoconazole through the human nail”, (2) **Sreekhhar Cheboyina, Christy Wyandt** – “Evaluation of the effect of drug solubility on the characteristics

of matrix pellets prepared by the freeze pelletization technique”. (3) **Amit Shah, John Williamson, Christy Wyandt** – “Pre-formulation studies of a novel anti-tumor agent”.
Pharmaceutics graduate students received the following awards for their exceptional presentations:
Suneela Prodduturi – Outstanding Podium Presentation award; **Praveen Mididoddi** – Outstanding Poster Presentation award.

The next AAPS SRDG Annual meeting will be held here at Ole Miss in May 2005.

- The following presentation was made during the American Association of Pharmaceutical Scientists (AAPS) Meeting in Baltimore, MD, November 2004: **Amit Shah, John Williamson, Steven Stodghill and Christy Wyandt** – “Characterization of novel tubulin binding agent and its comparison with taxol”.
- **John Williamson** participated in the Special Emphasis Panel, National Cooperative Drug Discovery Groups for Cancer (NCDDG) Chemistry/Natural Products Review Panel, National Cancer Institute, National Institutes of Health, Gaithersburg, MD October 27-29, 2004.
- **Dr. Williamson** has also been invited to participate in: (a) Special Emphasis Panel, United States Department of Agriculture, Cooperative State Research, Education, and Extension Service, Small Business Innovation Research Program (SBIR), Rural & Community Development, January 2005; and (b) Special Emphasis Panel, the Integrative Graduate Education and Research Traineeship (IGERT) program, National Science Foundation (NSF), Arlington, VA January 27-28, 2005.

Please continue to send me important research and graduate information so that I might share it with your faculty colleagues. **THIS INFORMATION IS NOW BEING POSTED ON THE SCHOOL OF PHARMACY WEB PAGE!** Thank you.

cc: Dean Barbara G. Wells
Ms. Dabney Weems