# *SAL GIANDINOTO, PH.D.*

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## CAREER OBJECTIVE

To contribute proven abilities in medicinal chemistry with emphasis on the design and synthesis of novel pharmaceutical compounds. I seek an opportunity that will ideally allow me to make significant scientific contributions to the company through the utilization of my skills, experience and creativity. I prefer an environment that encourages multidisciplinary interaction, scientific excellence, team work and individuality.

## ACCOMPLISHMENTS

- Designed a number of solid-phase combinatorial libraries to be used in the high throughput screening of compounds as potential G-Protein Coupled Receptor (GPCR) ligands.
- Designed and synthesized a large number of Neuropeptide Y and Galanin antagonists utilizing parallel synthesis.
- Stereospecific syntheses of a number of chirally pure herbicides and fungicides. Resulted in recent patent issues (U.S. 5,866,512 and U.S. 6,207,695).
- Discovered and published a facile synthesis of a series of novel Class II Mesoionic Xanthine Acyclonucleosides as potential antiviral and anti-neoplastic agents.
- Synthesized over 75 purine nucleoside analogs as potential immunomodulators for the treatment of neurological disorders including Alzheimer's Disease, Schizophrenia and neurologic dysfunction associated with AIDS. Resulted in recent patent issue (U.S. 5,091,432).
- Synthesized lipophilic quinoline anti-malarial compounds for the U.S. Army utilizing cGMP regulations.
- Synthesized approximately 35 pyrrolidinone acetamides and bis-pyrrolidinones as potential immunomodulators for the treatment of neurological disorders.
- Developed an improved synthetic method for the preparation of the Dopamine-1 receptor antagonists SKF-85366 and SCH-23390.
- Developed the synthesis of $^{18}$F-Spiperone as a radioligand for imaging Dopamine-2 receptors *in vivo* using Positron Emission Tomography (PET).
- Discovered and developed a simpler and more efficient method for synthesizing [1-$^{14}$C]-Arachidonic and [1-$^{14}$C]-Oleic acids.
- Discovered and developed a one-pot synthesis of [1,2-$^{3}$H]-Myo-inositol as a new product.
- Synthesized 19 different bonded silica phases that included polar, non-polar and ion-exchange properties.
- Synthesized precursors for the production of the $^{3}$H-labeled neurochemical ligands 7-OH DPAT, 8-OH DPAT and Baclofen.

## EDUCATION

1980 - 1985 **DOCTOR OF PHILOSOPHY**
*Polytechnic University - Brooklyn, New York*
Major: **Organic Chemistry** Minor: **Physical Chemistry**

1976 - 1980 **BACHELOR OF SCIENCE IN CHEMISTRY**
*Clarkson University - Potsdam, New York*

1987 - 1988 **Postdoctoral Research Associate**
*University of Pennsylvania - Philadelphia, Pennsylvania*
*Cerebrovascular Research Center, Cyclotron/PET Facility*

1986 - 1987 **Postdoctoral Research Fellow**
*Medical University of South Carolina - Charleston, South Carolina*
*Department of Basic & Clinical Immunology and Microbiology*

## TECHNICAL SKILLS

FT-IR including HATR, FT-NMR, LC/MS/MS (ThermoFinnegan LCQ Advantage), UV/Visible and Fluorescence spectroscopy. HPLC, TLC, preparative TLC, Flash column and Ion-exchange chromatography. Radiolabeling techniques, Autoradiography, Liquid scintillation counting, Parallel synthesis.

## COMPUTER SKILLS

Isis Base, Chemical Inventory Management System (CIMS), Reaction Browser, ACD Find, Microsoft Word 2002, WordPerfect 6.1, Excel, ChemWindow 3.1, Molecular Modeling, Alchemy III, MathCad, HyperChem for Windows, STN Express and ACD/Labs.

## EMPLOYMENT

2002 - Present **Chemir Analytical Services - St. Louis, Missouri**
*Project Leader*

Leader of Separations/Custom Synthesis Group. Manage four chemists (3 Ph.D., 1 M.S.) and numerous analytical and synthetic projects for outside clients. Maintain customer contact from beginning to end of projects. Manage many legal projects including patent litigation support and provide expert witness testimony when needed. Responsible for obtaining routine $^{1}H$, $^{13}C$ and $^{31}P$-NMR spectra on a Bruker 270 MHz NMR. Have, installed a new Bruker 500 MHz NMR vastly expanding our multinuclear and multidimensional NMR capabilities. Routinely run 2D experiments such as COSY, HMQC, HMBC, HSQC, HETCOR, NOESY,TOCSY and numerous other complex NMR experiments. Perform structural elucidation on proprietary API's and intermediates for the biotechnology industry and large pharmaceutical companies. Responsible for IQ/OQ/PQ and writing of all SOP's applicable to acquiring and processing of NMR data. Also responsible for routine maintenance of the NMR instruments including cryogenic fills, shimming, probe and decoupler tuning. Also skilled at quantification of analytes in complex mixtures by NMR. Perform GMP and GLP analytical projects including GMP NMR structural confirmation and characterization of pharmaceutical compounds (API's) and pharmaceutical intermediates. My group has consistently been the company's top producer with billings of between $200,000 and $270,000 per month.

2001 - 2002 **Reliable Biopharmaceutical Corp. – St. Louis, Missouri**
*Senior Scientist/Production Supervisor*

Large scale GLP production of modified and DMT-protected nucleosides and deoxynucleosides. Production and process development of nucleosides and deoxynucleosides at the 5-50Kg level. Followed and prepared SOP's and PBR's. Scale-up was accomplished by first using multigram-scale (research scale) reactions and then scale-up to 22L flasks. Final scale-up was accomplished using 50 and 75 gallon glass-lined Pfaudler reactors.

2000 - 2001 **Fortune Personnel Consultants of Bergen County – Rochelle Park, New Jersey**
*Placement Consultant*

Recruited top flight candidates in the Pharmaceutical R&D and Biotechnology industries. Placed candidates at levels ranging from Scientist to Vice President. Recruited in areas such as protein biochemistry, drug discovery, medicinal and combinatorial chemistry, molecular biology, bioinformatics, proteomics and genomics.

1998 - 2000 **Synaptic Pharmaceutical Corporation - Paramus, New Jersey**
*Scientist*

Synthesized over 150 compounds as part of a lead optimization strategy for the Neuropeptide Y and Galanin programs. Employed parallel synthetic techniques to maximize the number of compounds to be tested for receptor binding assays. Synthesized a diverse variety of compounds to identify new leads for the various receptor subtypes of the NPY and Galanin receptors. Conducted scientific literature and patent searches to find more efficient and alternative synthetic routes for the preparation of key lead compounds. Purified all compounds by flash column chromatography or by preparative TLC and characterized compounds by NMR and MS. Utilized Suzuki coupling and palladium amination reactions for many of the parallel synthetic routes. Utilized numerous air and moisture sensitive reagents such as organolithiums, Grignards, organo-zincs, etc. Prepared many organolithium reagents at -78°C using n-butyl-lithium, t-butyllithium, lithium diisopropylamide (LDA), etc. Used $OsO_4$ for the preparation of a cis-diol for the Galanin project. Used reagents such as $Pd_2(dba)_3$, BINAP and tetra-kis-triphenylphosphine Pd(0) [$Pd(F_3P)_4$]. Performed many halogen-lithium exchange reactions at -78°C utilizing a variety of organolithium reagents and aryl and heterocyclic bromides such as bromofurans, bromothiophenes, aryl-bromides, naphthyl-bromides, etc. Also prepared many stilbenes utilizing Wittig and Wittig-Horner reactions.

1996 - 1998 **Celgro Corporation – Annandale, New Jersey**
*Temporary Assignment*

Synthesized a number of enantiomerically pure herbicides and fungicides for a study designed to determine the active or most active enantiomer. Synthesized (R), (S) and racemic versions of Esprocarb, Butralin, Imazalil, Dimethametrin and Propineb. Employed enantiospecific transaminases for the chiral syntheses of (R) and (S)-Esprocarb and employed the use of (+), (-)-DIPCl (Brown's reagent) for the enantioselective syntheses of (R) and (S)-Imazalil. Used Mosher's acid to determine optical purity of various intermediates and final products.

1993 - 1996 **Virginia State University - Petersburg, Virginia**
*Assistant Research Professor*

Initiated a program to synthesize a new class of Mesoionic Xanthine Acyclonucleosides as potential antiviral and anti-neoplastic agents. Discovered a facile synthetic route for the synthesis

of these Mesoionic Xanthines. Managed three undergraduate students to prepare various analogs of these new compounds. Wrote and published a paper detailing the synthesis, purification and characterization of all compounds. Taught undergraduate courses in Organic Chemistry and General Chemistry Laboratory.

1992 - 1993 **Pharm-Eco Laboratories, Inc. - Lexington, Massachusetts**
*Principal Assistant Investigator*

Synthesized highly lipophilic quinoline anti-malarial compounds under cGMP procedures for the Walter Reed Army Institute of Research (WRAIR). Managed one MS level chemist. Wrote monthly, Quarterly and Annual reports for WRAIR. Purified compounds by flash column chromatography and characterized compounds by NMR, IR and MS.

1991 - 1992 **Ansys Diagnostics, Inc. - Irvine, California**
*Senior Scientist*

Initiated a program to synthesize 19 different bonded phases on novel chromatographic media to be used for the detection and analysis of drugs and substances of abuse in urine. These bonded phases were evaluated by utilizing various dyes and analytical techniques including UV spectroscopy. The new bonded phases were launched as new products by the company only six months after inception of the program.

1990 - 1991 **ICN Biomedicals, Inc. - Irvine, California**
*Senior Research Chemist*

Synthesized a number of C-14 labeled compounds for production purposes. Discovered a simpler and more efficient route for the synthesis of [1-$^{14}$C]-Oleic acid. Developed a facile synthesis of [1-$^{14}$C]-Arachidonic acid as a new product. Discovered and developed a one-pot synthesis of [1,2-$^{3}$H]-Myo-inositol as a new product. These difficult projects were facilitated by an intensive scientific literature and patent search at the University of California, Irvine Chemistry Library. Prepared many Grignard reagents for the syntheses of radiolabelled organic acids using $^{14}CO_2$.

1988 - 1990 **Advanced Immunotherapeutics, Inc. - Irvine, California**
*Senior Scientist*

Conceived, initiated and successfully completed an entire technology platform designed to produce drug candidates for the treatment of neurological disorders including Alzheimer's Disease, Parkinson's Disease and Schizophrenia. As a key employee of this start-up biopharmaceutical company, I conducted a thorough review of both the scientific and patent literature and developed a viable technology platform that resulted in a highly successful research program and a key 26 page patent. The patent detailed the new technology and its prior art including the synthetic procedures and structures of over 75 purine nucleosides. Several of these compounds are currently in various phases of clinical trials with the company's lead compound, AIT-082 (Neotrofin$^{TM}$) scheduled to enter Phase III clinical trials for the treatment of Alzheimer's Disease in late 2002.

## PUBLICATIONS

**1.)** *Okamoto, Y., Giandinoto, S.* "High Pressure [4+2] Cycloaddition of Dichloromaleic Anhydride and Furan," **Journal of Organic Chemistry** 48, 3830 (1983).

**2.)** *Vlasse, M., Giandinoto, S., Attarwala, S.T., Okamoto, Y., Emge, T.J.,* "Structural Characterization and Synthesis of 7-Thia-1,5-diazatricyclo[7.4.1.0]tetradec-9-(14)ene-6,8-dithione," **Acta Crystallographica** C42, (4) 487 (1986).

**3.)** *Schlecht, M., Giandinoto, S.,* "Bicycloannulation of 3-Indolylenamines with Cyclohexenone: A Facile Preparation of Potential Neurotransmitter Analogs," **Heterocycles** 25, 485 (1987).

**4.)** *Ehrenkaufer, R.L.E., Giandinoto, S., Klam, S., Makoroff, K., Morton, T.,* "Internal-Surface Reverse-Phase Chromatography for Metabolite Analysis of Radiopharmaceuticals," **Journal of Nuclear Medicine** 30, 920 (1989).

**5.)** *Ehrenkaufer, R.L.E., Klam, S., Makoroff, K., Giandinoto, S., Morton, T., Moroney, D., and Nowak, P.,* "Internal-Surface Reversed-Phase Chromatography for Plasma Metabolite Analysis of Radiopharmaceuticals," **Nucl. Med. Biol.** Vol. 19, No. 6, pp. 651-657 (1992).

**6.)** *Giandinoto, S., Mbagwu, G.O., Robinson, T.A.,* "A Facile Preparation of Some Novel Class II Mesoionic Xanthine Acyclonucleosides," **The Journal of Heterocyclic Chemistry** 33, 1839 (1996).

## Honors and Awards

2004 Honored Member of Empire's Who's Who among Professionals and Executives
1985 Sigma Xi Research Society

***REFERENCES FURNISHED UPON REQUEST***