Francis A Lewandowski

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Objective

Adding value to an organization and its shareholders by applying my experience to effectively direct, efficiently manage and strategically refine its infrastructure.

Areas of Expertise

Operational Process Analysis	Strategic Planning and Leadership	Design and Development
Productivity & Efficiency Improvements	Project Planning/Execution	Customer Satisfaction
Multi-Site Operations	Process Redesign	Total Quality Management
Change Management	Performance Management	Cross Functional Team Leadership
P&L Management	Revenue Goals	Growth Attainment
Financial Plan Development	Six-Sigma Methodology	Training and Service Contracts
Leadership Development	Problem Solving	Decision Making
Planning & Deployment of Assets	Negotiation, Persuasion, Communication	Operational Process Performance

Career Accomplishments

Founder & CEO of Breathe Thermae, Inc.
Vice President of R.R. Scientific
Twenty-One US & International Issued Patents
Automated SBDD & FBDD Platform Design, Development, and Implementation
Scientific Advisory Board Member for NASA & the US Space Shuttle Program
Identified/Determined Crystal Structures for 172 of 175 Structural Biology Target Protein Programs
International Scientific Advisor Board Member for the International Space Station

Professional Experience

President & CEO *Breathe Thermae, Inc.* – Palm Springs, CA 92262 2018 - Present

- **Founder and President of an innovative health and wellness company established to build synergistic and collaborative partnerships with multi-dimensional health & wellness industry sectors. Initial earnings forecast of $2M by 2020 and projected growth upwards of $50M over 10 years.**

- **Breathe Thermae is the incorporation and expansion of Domani Consulting & Healing Studios (DCHS).** Breathe Thermae was founded to broaden the scope of business and expand upon the subtle energy centric technology successfully integrated in the business model used at DCHS. It was further expanded to introduce energetic assessment & rebalancing tools currently absent from the health & wellness industries. Through strategic partnerships and collaborations, Breathe Thermae's innovative technology will provide the general population, alternative medicine practitioners, and the health & wellness industries the necessary skill sets & preventive tools to begin monitoring the subtle flow of energy on a cellular level throughout the human body and how they correlate with oxidative stress and cell signaling.

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- **Collaborations & Partnerships to encompass multi-dimensional energetic approaches, preventive wellness education & tools, product lines and integration of USPO issued process & service mark for Breathe℠.**

  Breathe℠ is a process developed to provide an energetic roadmap to customers seeking to identify and rebalance any observed energetic dysfunctions from the daily stresses of everyday living. Routine monthly biofield assessment scans are encouraged since they accurately measure in real-time the vitality and flow of energy through 46 reflex zones of the human body. Breathe Thermae's technology has over 40 years of applied scientific research & development from world renown scientists in their respective fields of Quantum Energetics and Electro-Magnetic Field Resonance.

- **Grand Opening scheduled for Spring 2019 www.breathethermae.com**

Vice-President *R.R. Scientific* – Los Angeles, CA 90004 2017 - 2019

- **Directing the global expansion of sales & marketing to include the European Union, Canada, United States** R. R. Scientific manufacture and distributes specialty chemicals and pharmaceutical intermediates.

- **Building synergistic relationships with multi-tier chemical distributors, chemical suppliers, R&D, and industry sectors bridging collaborative relationships to develop established partnerships**.

Senior Consultant & Proprietor *Domani Consulting Studios, LLC* – Palm Springs, CA 92121 2012 - Present

- **Provide consulting services to the pharmaceutical, and healthcare industries to address current business practices** and provide solutions that improve functionality and efficiency by restructuring programs and introducing the necessary process steps to ensure the seamless integration and distribution of products, services, and/or data within a company's internal business units and/or external partnerships.

Executive Director of Operations & Technologies *Zenobia Therapeutics, Inc.* – San Diego, CA 92121 2015-2016

- **Directed the manufacturing and commercial distribution of consumable products and services** including all product development projects with a team of 7 employees.
  - **1MM increase during 2015. Expected growth of 75%/year in gross revenue**
  - **Projected market share in 5 years – 20% of a 50MM**

- **Directed the diversification and expansion of the Zenobia's fixed-price product**, a fragment library collection of compounds, by incorporating Six-Sigma and Critical Component Paradigm principles to create, develop, manufacture and **successfully launch the first commercially available consumable fragment screen, ZEN-CORE 288™, in a $50MM drug discovery research market**.

- **Created, directed, managed, and implemented methodologies to eliminate bottlenecks during manufacturing and production of consumable products**, resulting in the reduction of a 30-day manual process to 30 minutes semi-automated process creating immediate inventory and same day shipment.
  - **Expanded the product line to include the first commercially available fragment reagent line, Fradditives™, All services were recalculated at a cost per well per experiment enabling rapid contract proposal turnaround.**

  - **Additional services included membrane protein crystallization, thermal melt analysis, protein crystallization screening** and crystal optimization for SBDD or FBDD analysi

- created to introduce fragments even earlier in the drug discovery process to identify fragment compounds that favorably interact and further stabilize proteins increasing protein yields and long-term storage.

- **Directed the reconstruction and expansion of Zenobia's core structural biology services** to provide researchers a means to outsource their research to highly skilled Zenobia employees and enter at multiple stages of the structural biology process adding both efficiency and value to their drug discovery programs.

- **Negotiated and secured the third-party, global distribution of Zenobia products** with LabNetwork-Wuxi Global Operations. Contract signed with sales of products commencing 2Q 2016.

- **Directed and managed all customer relationships** including sales, marketing, customer service, and customer support divisions for 1000+ clients using CRM software.

Manager / Senior Scientist *Jannsen Pharmaceutica* - Spring House, PA - 1996 to 2012

- **Orchestrated the integration into a new 200M research facility and relocation of 3-Dimensional Pharmaceuticals** including employees, labs, equipment, experiments, and offices when acquired by Johnson & Johnson during 2001 – 2003
- Deployed **Six Sigma DMAIC** method successfully created and aligned a novel automated process for Fragment Based Drug Discovery FBDD.

- **Communicated results with all levels of both organizations** to ensure adherence to timelines and flawless execution of experiments and data integrity for all active internal and external programs.

- **Directed project resources, progress, delivery timelines, and budget for High Throughput Crystallization Screening** within the envelope of Johnson & Johnson and its 100 subsidiary companies while exceeding performance goals for 8 consecutive years including:

  - **Govern protein construct design, expression & purification, crystallization, HTC screening** and optimization for 173 protein targets from 7 therapeutic groups in Drug Discovery
  - **Directed and managed HTC screening group** consisting of 26 employees, ongoing operational performance evaluation, and employee development
  - **Lead the efforts to identify suppliers for outsourcing, in-licensing, crystal production facilities to for Structure Based Drug Design (SBDD) and Fragment Based Drug Discovery (FBDD) pathways**.
  - **Reviewed, summarized and communicated protein:ligand crystal structures and HTC screening to Drug Discovery Management** including crystal identification, stabilization, manipulation & storage, including cryo-crystallography and cryogenics.
  - **Directed and negotiated contracts for data collection using Synchrotron Radiation Facilities Worldwide**

USRA Scientific Advisory Board Member *Jannsen Pharmaceutica* – Huntsville, AL 2005 to 2006

- Universities Space Research Association (USRA) Board appointed **advisory member for the development and implementation of an Iterative Biological Crystallization system for the International Space Station**.

NASA Scientific Advisory Board Member Jannsen Pharmaceutica – Cocoa Beach, FL 2001 to 2005

- National Aeronautics and Space Administration (NASA) Board appointed industry **advisory member for the development and implementation of microgravity crystal instrumentation and experimentation** for 18 shuttle missions aboard the Space Shuttle

Scientist *Jannsen Pharmaceutica* - Exton, PA - 1996 to 1998

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- **Managed the crystallization lab and automated crystallization process**, evaluation, and optimization of all programs to determine protein structures used to assist researchers in drug discovery.
- **Nominated and supported internal structural programs** producing several hundred protein crystals and structures to support medicinal chemistry and the design of potent inhibitors for all internal programs.
- **Managed and conducted expression, purification, and crystallization of recombinant proteins including membranes**.
- **Identified novel conditional parameters for each protein entering Structural Biology to protect IP and generate structures for Drug Discovery**. Several issued patents resulted from the identification of novel crystal forms and conditional parameters.

Director of Business & Application Development *Protein Solutions, Inc* - Charlottesville, VA - 1994 to 1996

- Directed the research the identification of novel applications for Dynamic Light Scattering and the further **developed and manufactured the first commercially available 96 well simultaneous experimental screening system used for high throughput applications**.
- Excellent **International Government and Corporate Policies skills** relating to **in-licensing, outsourcing, and establishing collaborative ventures.**
- **Directed the call center operations** and fostered relationships with over 1,000 clients managing the budget and expenses, salary, servicing, resolution dispute, data interpretation, and equipment installation & customer training
- Researched core technology and **developed a new simultaneous sampling using a 96 well plate**.

--- REFERENCES AVAILABLE UPON REQUEST ---

Education

Advanced Biofeedback Analyst Certification *Colour Energy Corporation- Vancouver, B.C.*

Advanced Energy Healing Certification *Energy Healing Institute- Portland, OR*

Therapeutic Massage & Physical Therapy Diploma; *Lansdale School of Business - Lansdale, PA*

Usui Reiki Level I, II Certification ; *Lansdale School of Business - Lansdale, PA*

Cranio-Sacral Therapy Certification; *Lansdale School of Business - Lansdale, PA*

Myo-Facial Release Certification; *Lansdale School of Business - Lansdale, PA*

Reflexology Certification; *Lansdale School of Business - Lansdale, PA*

Aromatherapy Certification; *Lansdale School of Business - Lansdale, PA*

B.S. Business Information Systems; *Goldey Beacom College - Hockessin, DE*

B.S. Biochemistry; *University of Delaware - Newark, DE*

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Online Profiles & Memberships

LinkedIn ***https://www.linkedin.com/in/frank-lewandowski-17025710***

ResearchGate ***https://www.researchgate.net/profile/Francis_Lewandowski***

National Association of Pharmaceutical Sales ***(NAPSRx)***

American Crystallography Association ***(ACA)***

Hospice Volunteer

Awards

Silver Encore Award: ***Solving the Crystal Structure of MGL and Inhibitor*** *- Using custom designed high throughput protein crystallization reagent screens, I identified the crystallization conditions and optimization of MGL:inhibitor crystals leading to the first high-resolution protein crystal structure to use in drug discovery and subsequently an issued US patent of the MGL crystal structure. 2005*

Johnson & Johnson Vice-President's Research Award for Outstanding Technical Achievement - ***Design and Implementation of the High Throughput Crystallization Platform Process*** *- Designed, Implemented and managed a novel 1000 solution crystallization reagent screen and automated crystallization process that reduced a 40-hour manual setup time to a 4-minute automated revolutionizing vapor diffusion crystallography. 2003*

President's Award: ***Exceptional Contributions to the PAI 1 Team's Initial Success*** *- Identified the protein crystallization conditions for PAI 1 leading to the first in class crystal structure of the native protein. 2000*

President's Award: ***Crystallographic Analysis of Thrombin Inhibitors*** *- Produced and analyzed 100 + 1.6A to 2.2A protein crystal inhibitor complexes of thrombin to enable drug discovery 1998*

President's Award: ***Outstanding contributions to Thrombin Program*** *1997*

DuPont Merck Performance Award: ***Outstanding Scientific Contribution Towards Therapeutics*** *1993*

DuPont Merck Accomplishment Award: ***Thrombin Crystallization Optimization*** *1991*

National Aeronautics and Space Administration (NASA) Space Shuttle Program: ***Crystallization in Microgravity aboard Space Shuttle Flights*** *(18 missions total) 1989 - 1993*

DuPont Merck Accomplishment Award: ***Crystallization of Isocitrate Lyase in Microgravity*** *1989*

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21 Issued US & International Patents

Seven of Twenty-One Selected US and International Patents For Review

DEVICE AND METHOD FOR HIGH THROUGHPUT SCREENING OF CRYSTALLIZATION CONDITIONS IN A VAPOR DIFFUSION ENVIRONMENT (#20090111711) May 2001 A high-density high-throughput microplate and methods for simultaneously screening a plurality of protein crystallization solutions and for producing diffraction quality protein crystals in a vapor-diffusion environment are disclosed. The microplate has defined side-by-side paired chambers of equal size, wherein the side-byside paired chambers have a maximum volume of about 8 µl, and wherein the paired chambers have a vapor channel, therein providing vapor exchange between the side-by-side paired chambers. The microplate further includes a membrane to seal the surface of the microplate. The microplate is adapted to receive a crystallization solution in one of the side-by-side paired chambers and a protein solution in the other of the side-by-side paired chambers, wherein the protein solution and the crystallization solution interact via a vapor diffusion process, which enables the formation of protein crystals within the chamber that contains the protein solution.

CRYSTAL STRUCTURE OF THE CARBOXYL TRANSFERASE DOMAIN OF HUMAN ACETYL-COA CARBOXYLASE 2 PROTEIN (ACC2 CT) AND USES THEREOF (#20090155815) June 2009 A crystallized human ACC2 CT protein as well as a description of the X-ray diffraction pattern of the crystal are disclosed. The diffraction pattern allows the three dimensional structure of human ACC2 CT to be determined at atomic resolution so that ligand binding sites on human ACC2 CT can be identified and the interactions of ligands with human ACC2 CT amino acid residues can be modeled. Models prepared using such maps permit the design of ligands which can function as active agents which include, but are not limited to, those that function as inhibitors of human ACC2 and human ACC1 proteins.

PROTEIN ENGINEERING OF MONOACYLGLYCEROL LIPASE (MGLL) (#20090269784) October 2009 A number of soluble engineered forms of MGLL that are suitable for high-throughput screening and protein crystallization, as well as a crystallized form of monoacylglycerol lipase protein (MGLL) and descriptions of the X-ray diffraction patterns are disclosed. The engineered constructs of MGLL permit the expression and purification of protein suitable for crystallography or high-throughput screening and identification of ligands, which can function as active agents to MGLL. The X-ray diffraction patterns allow the three dimensional structure of MGLL to be determined at atomic resolution so that ligand binding sites on MGLL can be identified and the interactions of ligands with MGLL amino acid residues can be modeled. Models prepared using such maps permit the design of ligands which can function as active agents which include, but are not limited to, those that function as inhibitors of MGLL.

CRYSTAL STRUCTURE OF MONOACYLGLYCEROL LIPASE (MGLL) (#20090269785) October 2009 A number of soluble engineered forms of MGLL that are suitable for high-throughput screening and protein crystallization, as well as a crystallized form of monoacylglycerol lipase protein (MGLL) and descriptions of the X-ray diffraction patterns are disclosed. The engineered constructs of MGLL permit the expression and purification of protein suitable for crystallography or high-throughput screening and identification of ligands, which can function as active agents to MGLL. The X-ray diffraction patterns allow the three dimensional structure of MGLL to be determined at atomic resolution so that ligand binding sites on MGLL can be identified and the interactions of ligands with MGLL amino acid residues can be modeled. Models prepared using such maps permit the design of ligands which can function as active agents which include, but are not limited to, those that function as inhibitors of MGLL.

ALTERNATIVE CRYSTAL FORM OF MONOACYLGLYCEROL LIPASE (MGLL) (#20100093009) Apr-15-2010 - A number of soluble engineered forms of MGLL that are suitable for high-throughput screening and protein crystallization, as well as a crystallized forms of monoacylglycerol lipase protein (MGLL) and descriptions of the X-ray diffraction patterns are disclosed. The engineered constructs of MGLL permit the expression and purification of protein suitable for crystallography or high-throughput screening and identification of ligands, which can function as active agents to MGLL. The X-ray diffraction patterns allow the three dimensional structure of MGLL to be determined at atomic resolution so that ligand binding sites on MGLL can be identified and the interactions of ligands with MGLL amino acid residues can be modeled. Models prepared using such maps permit the design of ligands which can function as active agents which include, but are not limited to, those that function as inhibitors of MGLL

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METHODS TO MEASURE DISSOCIATION RATES FOR LIGANDS THAT FORM REVERSIBLE COVALENT BONDS (#20110039352) February 2011 The crystal structure of the ligand binding domain of ERR-α in complex with a ligand that forms a reversible thio-ether bond to Cys325 of ERR-α, methods to measure dissociation rates for ligands that form reversible covalent bonds, and methods to design ligands that form reversible covalent bonds for use as modulators of ERR-α activity are disclosed. The crystal structure and methods provide a novel molecular mechanism for modulation of the activity of ERR-α and provide the basis for rational drug design to obtain potent specific ligands for use as modulators of the activity of this new drug target.

CO-CRYSTALLIZATION OF ERR-alpha WITH A LIGAND THAT FORMS A REVERSIBLE COVALENT BOND (#2011004689) February 2011 The crystal structure of the ligand binding domain of ERR-α in complex with a ligand that forms a reversible thioether bond to Cys325 of ERR-α, methods to measure dissociation rates for ligands that form reversible covalent bonds, and methods to design ligands that form reversible covalent bonds for use as modulators of ERR-α activity are disclosed. The crystal structure and methods provide a novel molecular mechanism for modulation of the activity of ERR-α and provide the basis for rational drug design to obtain potent specific ligands for use as modulators of the activity of this new drug target.

Selected Publications

Eight of Thirty-Seven Peer Reviewed Journal Publications

* Crystallization and Structural Analysis of Bullfrog Red Cell L-Subunit Ferritins, *J. Trikha, G. S. Waldo, F. A. Lewandowski, H. Ila, E. C. Theil, P. C. Weber, and N. M. Allewell, PROTEINS, vol 18, number 2, 1994 (107 - 118)*

* Recent Results and New Hardware Developments for Protein Crystal Growth in Microgravity, *L. J. DeLucas, F. A. Lewandowski, , and C. E. Bugg, Journal of Crystal Growth 135, 1994 (183-195)*

* Kinetic and Crystallographic Structures of Thromibin with Ac-(D)Phe-Pro-boroArg-OH and Its Lysine, Amidine, Homolysine, adn Ornithine Analogs, *P. C. Weber, S. Lee, F. A. Lewandowski, M. C. Schadt, C.-H. Chang, and C. A. Kettner, Biochemistry, Vol 34, No. 11 (1995)*

* Binding and Structural Studies of Thrombin Inhibitors Having Systematically Varying P1 Substituents, *P. C. Weber, S. L. Lee, F. A. Lewandowski, L. Mersinger, M. C. Schadt, C. H. Chang, and C. A. Kettner (1996)*

* Molecular Recognition of Cyclic Urea HIV-1 Protease Inhibitors, *Paul J. Ala, Frank A. Lewandowski, et al., Journal of Biological Chemistry, Vol. 273, No.20 pp. 12325-12331*

* Microplate Thermal Stability Assays for High Throughput Protein Characterization: Applications for Protein Crystallization and Functional Classification, *Michael W. Pantoliano, Frank A. Lewandowski, submitted 2000*

* Synthesis of Thiophene-2-carboxamidines Containing 2-Amino-thiazoles and their Biological Evaluation as Urokinase Inhibitors, *Wilson, KJ, Lewandowski, FA, et. al., Bioorganic & Medicinal Chemistry Letters, 11 (2001) 915-918*

* Design and Synthesis of 4,5-Disubstituted-Thiophene-2-Amidines as Potent Urokinase Inhibitors, *M. J. Rudolf, Frank A. Lewandowski, et al, submitted 2000*