

Kalexsyn Overview 2017



Kalexsyn, Inc.
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What we are



- Experienced medicinal chemists
 - Conception and synthesis of new analogs for lead optimization, SAR expansion, hit to lead transition.
 - Extensive background in synthetic chemistry and working at the interface between chemistry and pharmacology, toxicology, drug metabolism, pharmacokinetics.
- Experienced process chemists
 - Innovative scalable solutions

Capabilities



- Medicinal Chemistry, SAR, IP creation
- Custom synthesis of challenging targets
- Stable label compounds (^2H , ^{13}C , ^{15}N , ^{18}O) with analytical capabilities for full characterization.
- Schedule II, III, IV, and V controlled substances
- Glucuronides, metabolites, process impurities
- High pressure reactor capability up to 2000psi
- Early API and process improvement chemistry
- Milligrams to hundreds of grams
- FTE Projects tailored to a project's scope
- Fixed Quote Projects

Some of our strengths

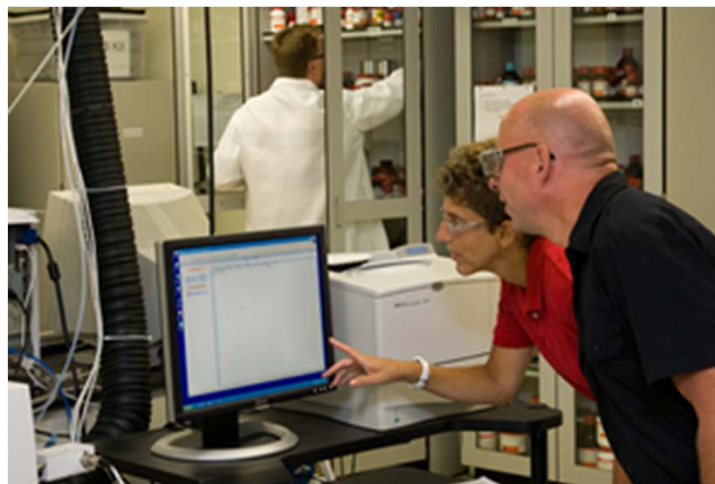
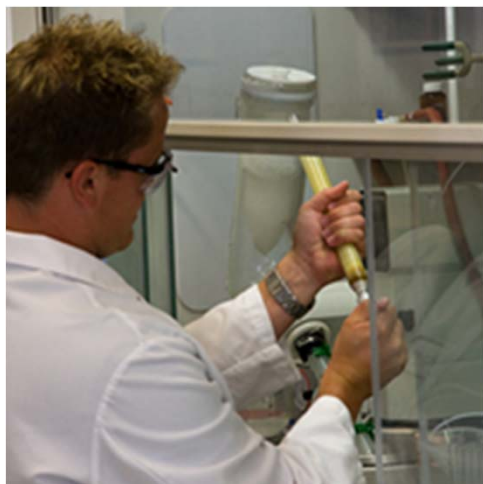


- Provide you with a turn-key, world class chemistry department.
- Understand the importance of protecting intellectual property.
- Provide you with a chemistry solution that does not need constant oversight.
- Provide novel and innovative solutions (patentable) to therapeutic programs.
- Team members with decades of experience working on therapeutic program teams.
- Communication - designed around your needs.
- A business designed from a customer's perspective

Kalexsyn Staff: Experienced Chemists



- Our chemists and senior advisors have a total of over 1000 publications and patents and have had key roles in the invention and development of several marketed drugs.
- 24 medicinal and process chemists at the bench. ~1:1 ratio of Ph.D. to MS/BS.



Early API Capabilities



- 50-500 gram syntheses using up to 50 L glass reactors
- Containment system for High Potency compounds.
- Process route optimization
- Process chemistry re-design
- Process impurity identification and synthesis

We Understand and Address Your Concerns



- We realize you have other duties. We offer complete communication and access to data on a timeframe that suits the customer.
- We will meet or exceed your in-house quality standards.
- We have the expertise to solve problems in conjunction with you.
- We provide timelines that are aggressive yet obtainable.
- All issues regarding your project are provided to you as soon as available.
- We don't conduct in-house research. You get our best scientists and our full attention. Your CRO shouldn't compete against you.

Kalexsyn Founders:



David C. Zimmermann, Chief Executive Officer

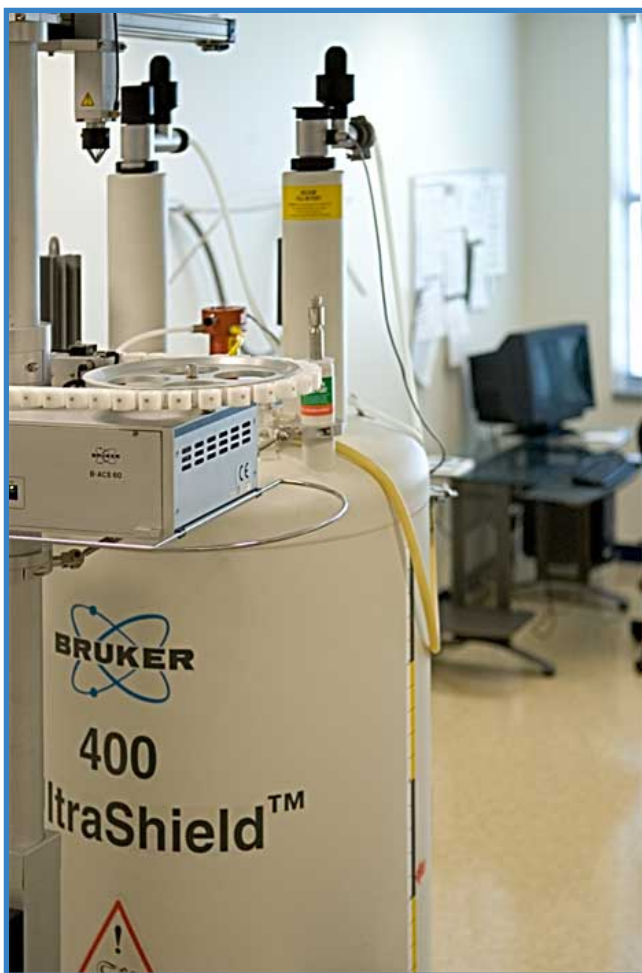
- 23 years experience in the pharmaceutical industry (Upjohn, Pharmacia & Upjohn, and Pharmacia).
- 12 years as a medicinal chemist in various therapeutic areas.
- Research Manager in Medicinal Chemistry at Pharmacia.
- Responsible for negotiations and management of external chemistry CROs.
- Responsible for \$16.4 million Pharmacia chemistry budget for Kalamazoo site.
- Developed web and database technologies for chemistry departments.



Robert C. Gadwood, Ph.D., President & CSO

- 17 years experience in the pharmaceutical industry (Upjohn, Pharmacia & Upjohn, and Pharmacia).
- Associate Director of Medicinal Chemistry at Pharmacia with direct responsibility for a group of PhD & non-PhD scientists.
- Chemistry team leader of the Oxazolidinone Antibacterial Team (largest chemistry effort in Pharmacia history).
- Experience in multiple therapeutic areas including infectious diseases, cardiovascular, oncology and dermatology.
- Assistant Professor of Chemistry, Northwestern University.
- Numerous publications and patents.

Full In-House Analytical Capabilities



400 and 300 MHz NMRs, with auto-samplers and variable temperature

Multiple ion probe H, F, C, N, P etc.

Multiple Agilent 1100 HPLC units

Four CombiFlash Rf systems including ELSD and reverse-phase prep capability.

Polarimeter

FT-IR

Two walk-up LC/MS spectrometers

GC system

KF Titrator

Access to CHN, ROI, LOD, Exact Mass

Cheminformatics Capabilities



- **Symyx Discovery Notebook Software**
 - Electronic Notebook
 - Reaction Database
- **SciFinder**
 - Unlimited searching for every chemist.
- **Access to journals**
 - Access to reprints of all journals through reprint providers.
- **Secure, dedicated Oracle server platforms**
 - Allows creation of proprietary databases.
 - SQL programming capability.
- **Work directly with molecular modeling provider**
 - Former head of computational chemistry at Novartis.
 - In house tools for molecular modeling (PyMol, Autodock)

Experimental Data Preparation



- Symyx electronic notebook software allows rapid creation of experimental procedures in PDF form directly from the notebook.
- Facile patent preparation.
- Consistent notebook format from scientist to scientist.
- Analytical data generated in PDF form can be incorporated into notebook.

Kalexsyn Laboratories



- Over 20,000 sq ft of lab space.
- Custom designed medicinal chemistry research facility with open lab plan.
- Designed to eliminate exposure (zero-exposure) to scientists.
- 13 linear feet of hood space per chemist.

Working with clients

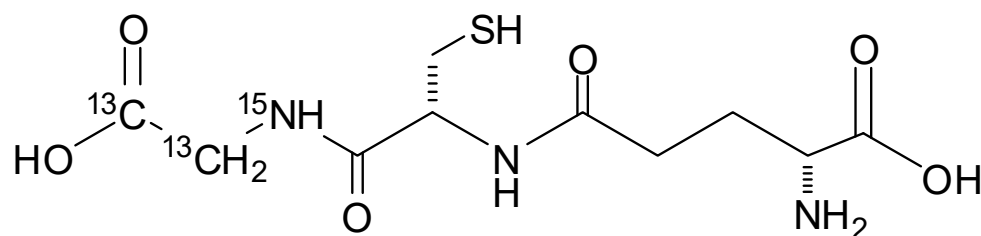


- Confidential Disclosure Agreement (CDA) and Master Service Agreement (MSA) executed prior to start of work.
- Review Request For Proposal (RFP) and provide you with cost, timetable, decision points, critical issues, options.
 - Provide each RFP with the attention it deserves.
 - Reasonable yet aggressive timelines.
- Quotes on project basis or FTE basis.
 - Complexity of the chemistry
 - Precedence of the chemistry
 - SAR, IP enabling projects on FTE only
 - FTE available on short-term basis

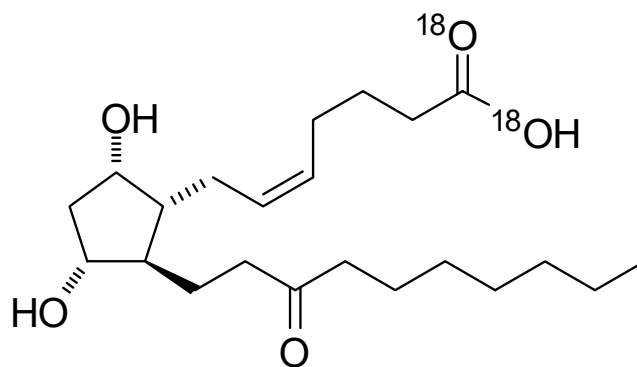
Examples of Kalexsyn Projects



Stable Label Products:



Glutathione

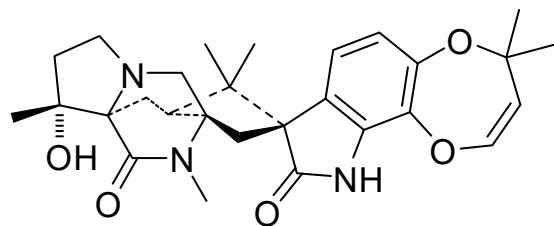


$^{18}\text{O}_2$ -Unoprostone

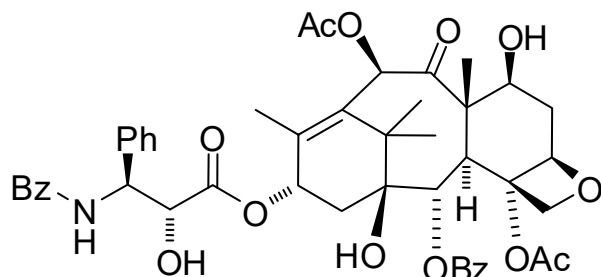
Examples of Kalexsyn Projects—Continued



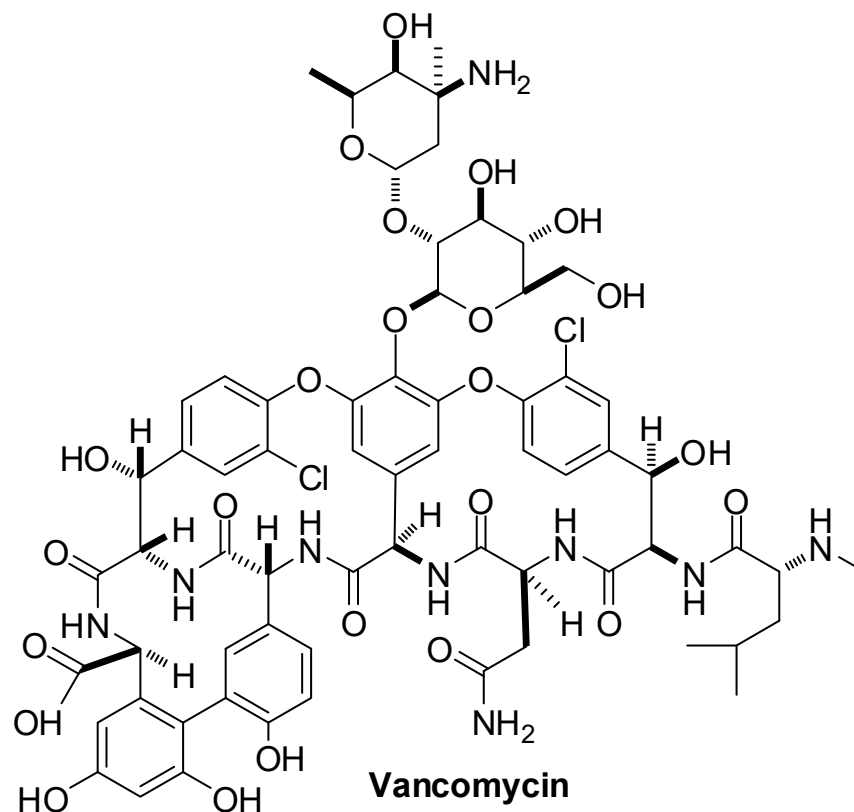
Chemistry Developed for Synthesis and Modification of
Complex Natural Products Such As:



Paraherquamide



Paclitaxel

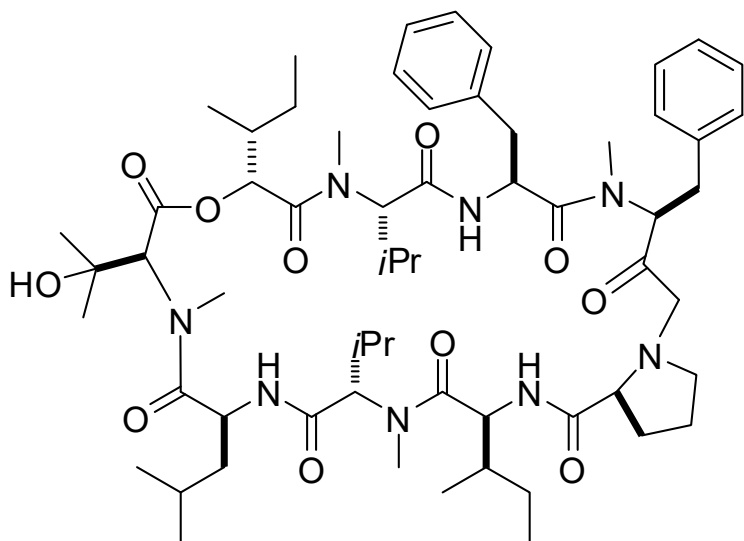


Vancomycin

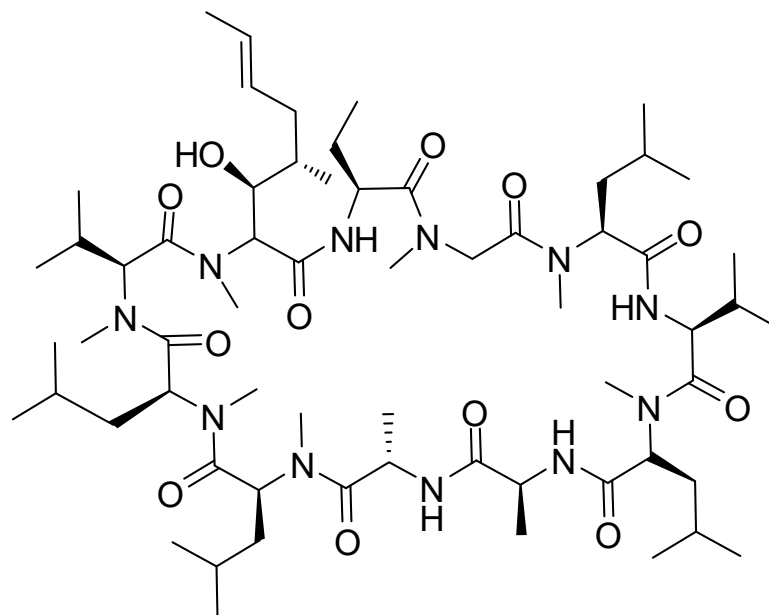
Examples of Kalexsyn Projects—Continued



Experience With the Chemistry of Macrocyclic Peptide
Starting Materials Such As:



Aureobasidin A



Cyclosporin A

Kalexsyn is Stable and Growing



- Operational for over 10 years
- Financially stable
- 100% equity owned by Founders
- Operating from a new state-of-the-art custom designed laboratory facility
- Broad customer base
 - Projects carried out for more than 85 pharmaceutical customers.

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