

Contract Research Organization (CRO), Adesis, Inc. with tremendous expertise in transformations of novel heterocycles and natural products provides Chemistry Services for Life Science, Catalyst Science, Biomaterials and General Organic Synthesis Companies Worldwide

**Healthcare
CRO (Chemistry research
and development CRO)**

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**Ving J. Lee, Ph.D.
CEO & CSO**

BIO:

Dr. Lee received his BA and M.S.-Ph.D. from the Ohio State University and University of Illinois at Champaign-Urbana, respectively, and held postdoctoral fellowships at U. Illinois and Harvard University (NIH). He has held leadership and technical positions at Lederle Laboratories (Cyanamid), Microcide Pharmaceuticals, Iconix Pharmaceuticals (Iconix Biosciences), Anacor Pharmaceuticals, Limerick BioPharma, and CB Research and Development (currently Adesis Inc.).

For most of his career, Dr. Lee has been responsible for multi-disciplinary

programs in the life sciences with significant research components in discovery and preclinical technology. He is Chief Executive Officer and Chief Scientific Officer of Adesis Inc. since 2004. From 2001 to 2004, Dr. Lee was Chief Scientific Officer and Vice President, Discovery Research at Anacor Pharmaceuticals, Inc. where he directed research on boron-based therapeutics with support from a \$22.6M Defense Advance Research Projects Agency (DARPA) contract. At Microcide, Dr. Lee held various positions including Vice President, Chemistry and Pre-clinical Research; Research Operations and Technology Assessment; and Senior Research Advisor responsible for research in beta-lactams for problematic gram-positive pathogens, uridyl-peptide antibiotics for problematic gram-negative pathogens, and inhibitors of bacterial efflux pumps. While at Lederle, he was responsible for the discovery of new anti-infectives, including the glycylicyclines, carbapenems, enhanced third-generation cephalosporins, beta-lactamase inhibitors, and new oncology agents.

About Adesis, Inc.:

Adesis, Inc. is a contract research organization (CRO) that supports the pharmaceutical and biopharmaceutical industry, biomaterials and catalysts industry, academic research and research foundations.

**Interview conducted by:
Lynn Fosse, Senior Editor
CEOCFO Magazine**

CEOCFO: Dr Lee, what is your focus at Adesis?

Dr. Lee: Adesis provides chemistry services for various life science companies, catalyst science companies, biomaterials companies and general organic synthesis companies. Our services are provided to clients headquartered worldwide. Notably, Adesis is one of the few domestic-based companies, with no facilities overseas; all research and development services are performed in the United States in Delaware. From a moral and a political perspective, we aim to maintain jobs in the United States versus displacing jobs to overseas sites.

CEOCFO: Do you find that your customers pay attention to that?

Dr. Lee: Yes, a significant part of our portfolio of clients has explicit requirements to keep their intellectual property rights or their lead programs in North America. These requirements are driven by negative press about business and professional practices in some Asian locales. In some case, there have been direct sub-optimal experiences too. Key concerns include improprieties due to copying of intellectual property, and diversion and/or poor quality of materials provided to clients.

CEOCFO: Are there, competitively, many other companies or CRO's that can provide that kind of service, or are you rather unique in that area?

Dr. Lee: There are competitive vendors that can perform the chemistry, or some components of the chemistry

services. However few of us are solely located in North America.

CEO CFO: On the chemistry side, what is special at Adesis?

Dr. Lee: The first half of my career in chemistry was at a major US pharmaceutical, American Cyanamid-Lederle Labs, for fifteen years. Since then, I have been responsible for organizing and also been a senior level scientific technical manager for four different biotech companies before joining Adesis. In the biotech business, an important adage is "time is money". The sooner projects are turned around, the quicker scientists can determine efficiently whether their lead molecules are compelling for further development or not.

Analogously, Adesis scientists turn around projects very effectively with ultimate consideration on compound purity. There is a price incurred for such efficiencies, which clients are willing to pay. Mainly in North America, the labor charges are higher than overseas or even in Europe in some cases. However, clients appreciate that we turn projects around very quickly. We function twenty four / seven operationally. Therefore, we can finish a project and ship material within twenty four hours so the client can be testing them within twenty four to forty eight hours from receipt.

Being in North America, where there are three time zones, people in the West can talk to us early in the morning and their materials will arrive within 24 hrs of the conversation. We do many deals, with third party vendors, where clients want us to do technology transfer. Sometimes we send our key chemists to a third party GMP vendor to help guide technology transfer for GMP synthesis campaigns.

We have tremendous expertise in the functionalization and transformations of novel heterocycles. We also do a lot of work in the areas of: 1) semi-synthetic natural product modifications and total synthesis, 2) metabolite syntheses, and 3) stable-isotope labelling.

CEO CFO: Your website, www.adesisinc.com, shows "Always pure, always in stock, always advanced, always innovative." Would you tell us a little bit about the innova-

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tive side?

Dr. Lee: What you see on the website are comments on one initiative of our business, the unique building block initiative. However, before I launch into the discussion on this initiative, I should provide an overview of the three components to our business.

Two components of our business are termed "chemistry services", while the third business component involves creating unique building blocks. The chemistry services are either "fee for

service" or "project specific" research. If a client comes to Adesis for synthesis of a specific target, irrespective of quantity using a reliable process, that is called "fee for service". In contrast, "Full Time Equivalent" (FTE) projects tend to be multi-faceted "discovery-oriented" research programs, with significant risks. The risks are mainly where the science has not been worked out (or "fleshed out") or unreliable. Often clients hire the services of three to twelve Adesis chemists for FTE projects.

The building block initiative aims to design new nitrogenous heterocycles (mostly pyridines, pyrimidines and bicyclic permutations) with a balance of pharmacological, physicochemical and chemistry properties. This is a very comprehensive collection of building blocks of 1800+ intermediates, with various substituent permutations. Our goal is approximately 2400 to 2500 intermediates within another year. Once we have completed that research initiative, we have other initiatives coming on.

Numerous pharmaceuticals have pyridine and pyrimidine moieties. Often, in a synthetic process, these moieties are incorporated early in the synthetic sequence. When substituents are varied on these moieties, the chemists often have to initiate these changes at the beginning of

a synthetic sequence. Further, toxicological profiling often reveals sub-optimal properties which emphasize the need to synthesize newer analogs to define structure-toxicity relationships.

By providing these unique building blocks, with different functionalities, scientists can actually use the building block as a lynch-pin where they can append other substituents quickly. This allows medicinal chemists to attain better structure-activity relation-

ships (SAR) and structure-toxicity relationships (STR) rapidly and also generate more analogs.

Another important aspect to selling building blocks is ready availability. Many companies list building blocks in their catalogs, but they actually have few in stock. These companies are trolling for business, so they put Purchase Order Accepted (POA) on their website or their data bases. This is a disservice to the science community.

A potential client will place an order and sometimes not hear for six weeks to two months later, or even six months later, if that order has been filled. A scientist may have an idea today, but can not wait two months for results. Other times a program has evolved significantly to the point that the value-added by a wayward intermediate is minuscule. We maintain inventories of all building blocks that are listed on the Adesis website. Orders placed by two o'clock (Eastern) one day, will be delivered the following morning. Thus a scientist can possibly do their chemistry and have corresponding biological data the same week.

We are also very high sensitivity about eliminating impurities in these building blocks. Trace impurities can have deleterious effect, either retard-

ing subsequent chemistries or complicating purification of the products. Impurities can manifest themselves in giving a false positive in toxicity profiling of the end products. Therefore, we are diligent in ensuring these building blocks are highly purified and that they are readily available to enable the medicinal chemists or process chemists.

CEO CFO: Are your potential customers aware? Does everyone know about you or do people still need to be educated on your company and your services?

Dr. Lee: The latter is always true. There are always new companies needing to learn about new CRO services. Many life science companies know us by reputation or have worked with us; others have purchased some of our unique building blocks.

CEO CFO: How is business?

Dr. Lee: It has been difficult for many chemistry services companies in North America, because of the Asia outsourcing rush. However, we are seeing the pendulum shifting back in favor of domestic-based companies. The "perceived" savings overseas are not realized as hoped. Other hidden operational issues add unforeseen costs to the basic Asian costs of doing business. This reduces the cost differential between outsourcing in Asia

vs. North America. However, critical for most of our clients is the importance of projects being done in N. America as substantial protection for their intellectual property rights.

CEO CFO: Why should investors and people in the business community pay attention to Adesis?

Dr. Lee: First, we are one of the few domestically sited CRO's in North America. Second, we have always provided good services, with over 99% collective success rates. We have always adapted to changes in the business environment, irrespective of the pharmaceutical industry or other chemistry related businesses. As evident, we have steadfastly maintained head count through the last four or five years of an extremely bad economy. We have done substantially well economically, to the point that we see increases in head count in subsequent years. Third, we are one of the few privately held companies with twenty-plus years of experience. In addition to funding from services and the sale of building blocks, we do have a loan to the bank. We are not at behest to any venture capital or any other "angel" investors. We own all of our equipment. Thus, we are very well poised for the next level of growth, because everything is self generated.



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