TDA Research

Contact: Girish Srinivas

Location: Golden, CO

Email: gsrinivas@tda.com

Tel: (303) 940-2321

Website: http://www.TDA.com

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
Larta Institute

National Institutes of Health Commercialization Assistance Program (NIH-CAP)

Company Profile

Industry Sector: Pharmaceutical Manufacturing

Company Overview: TDA Research, Inc. develops materials and chemical processes that it can either manufacture of license. TDA has been in operation for 20 years, and employs 75 people, nearly all with degrees in either chemistry or engineering. TDA has 23 Ph.D.s on staff, developing novel materials and processes for the energy, chemical and pharmaceutical industries. In the past four years we have licensed and commercialized two major processes, the multi-ton manufacture of fullerenes and a partial oxidation process that removes sulfur form natural gas, both of which have multi-million dollar per year sales.

Target Market(s): Major pharmaceuticals and intermediates manufacturers worldwide.

Key Value Drivers

Technology: Chiral drugs and intermediates can be made using homogeneous ruthenium phosphine catalysts with very high selectivity, eliminating the need for expensive chiral separations. Unfortunately, these processes suffer problems. It is very difficult to remove the expensive catalyst from the reaction mixture and hydrogenations in the pharmaceutical industry have typically been carried out as batch reactions. We have developed an asymmetric hydrogenation process that allows the continual feed, reaction, separation and reuse of chiral ruthenium phosphine catalysts, resulting in dramatic saving in process costs.

Competitive Advantage: TDA's process allows easy catalyst recycle and removal from product. Switching from batch to continuous processing reduces the number of process steps, give more consistent product quality and can reduce operating expenses by more than 90% and capital expenses by more than 50%.

Plan & Strategy: Seeking a strategic partner for technical and business collaboration.

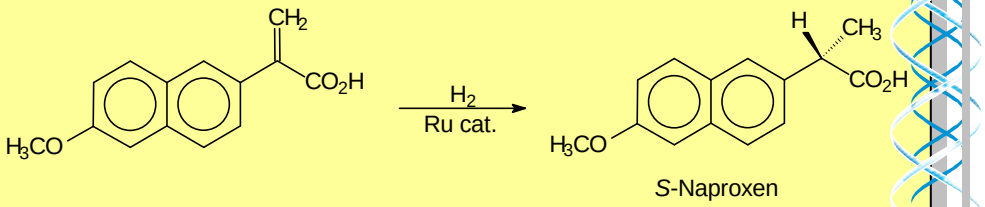
**Technology funded by NIGMS and being commercialized under the NIH-CAP.*

Management

Leadership:
Michael Karpuk, President
John Wright, Vice President
Girish Srinivas, Director, Business Development
Steven Dietz, Principal Scientis

Product Pipeline

To demonstrate our approach we are using a modified version of the popular ruthenium BINAP catalyst. TDA is demonstrating the process by making enantiomerically pure *S*-Naproxen (Aleve). We are testing the process in a continuous bench-scale reactor to study the long-term stability of the catalyst and measure any catalyst losses. The apparatus is fully automated and is designed to operate unattended. The process is not limited to Naproxen and can be used to produce numerous pharmaceuticals and intermediates.



S-Naproxen