

# Teaser Memorandum

## **Chiral C4 synthons**

Developed by EnzyTech Ltd.

January 2007

## Executive Summary

Established in October 2000, EnzyTech Ltd. (the "Company") has developed a unique fusion technology, combining biotransformation and organic synthesis, to manufacture chiral intermediates. In particular, the Company's chiral C4 synthons (the "Technology") can be isolated or synthesized using enzymes, as opposed to technology using chiral catalysts, resulting in optical purity of over 99%ee.

C4 synthons are chemical compounds with four carbons and are also identified as building blocks. They are critical in the manufacturing of pharmaceuticals but can also be used across a wide spectrum of applications. Chiral intermediates are a highly valued essential raw material for chiral drugs and also a number of electronic materials (dopants in display panels). When used in pharmaceutical products, optical purity of over 99%ee is typically demanded. Such high optical purity often comes at a high price.

Chiral C4 synthons with high optical purity cannot be manufactured without specialized technology. The level of optical purity of the product is the key competitive edge, also effecting its price competitiveness. Unlike chiral catalyst which lose optical purity with every reuse, EnzyTech's C4 synthons utilize immobilized biocatalysts which allow multiple use without losing any optical purity.

EnzyTech is seeking to enter into a technology transfer or licensing transaction with respect to its C4 synthons ('the Transaction'). Terms of the Transaction are not set, and interested parties may further discuss the parameters should they wish to enter into an agreement.

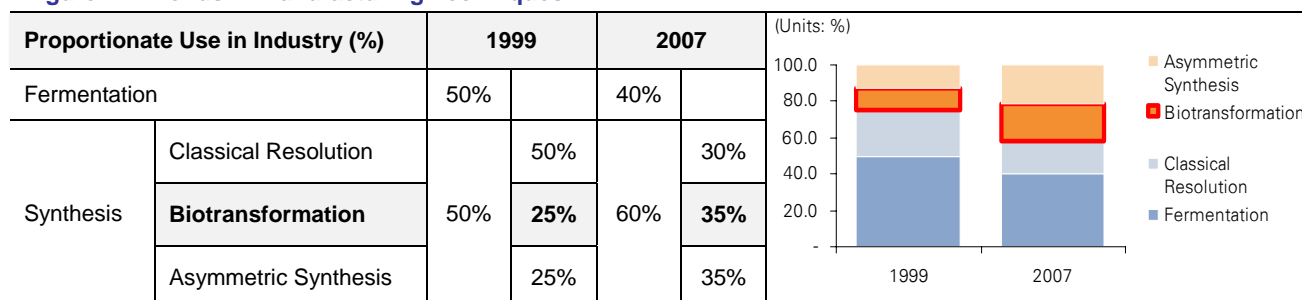
## Key Technology Highlights

### □ Low Cost, High Efficiency Manufacturing Technology

A variety of techniques have been developed for the manufacturing of chiral intermediates; the classical resolution technique, biotransformation technique, and asymmetric synthesis using chiral catalyst. However technology has created trends where the use of microbial fermentation and classical resolution is gradually decreasing, while biotransformation and asymmetric synthesis utilizing chiral salen catalysts is increasing.

Currently Korean chiral drugs, as well as those offered globally, utilize chiral intermediates with high optical purity acquired through asymmetric synthesis. However this technique involves costly chiral catalysts and chiral compounds with substandard levels of optical purity.

**Figure 1 – Trends in Manufacturing Techniques**



(Source: The Company)

EnzyTech has the core technology to manufacture biotransformation C4 synthons and other chiral intermediates with optical purity of over 99%ee. Since the Company's establishment in 2000, EnzyTech has emphasized research and development; the result is 16 registered patents, 16 filed patents and 8 PCT patents filed to date. With regards to its C4 synthons manufacturing capabilities, the Company has 2 registered patents in Korea. These patents are currently filed for PCT registration.

EnzyTech is currently manufacturing prototypes employing its core technology and is marketing its products in the Korean market. The fusion technology, which applies the advantages of biotransformation and organic synthesis, creates high quality chiral compounds with high optical purity through higher technical and manufacturing efficiency. Accordingly, manufacturing costs can be reduced and result in pricing competitiveness more attractive than those of competitors.

**Table 1 – Technical & Quality Comparison**

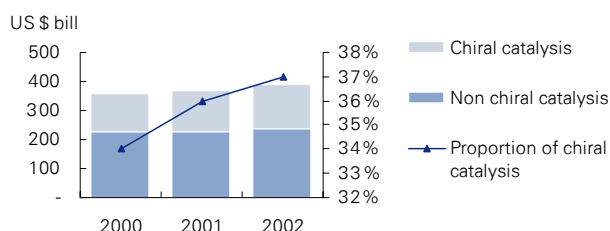
Company		Manufacturing Technique	Product	Quality (Optical Purity / Chemical Purity)	Comments
Domestic	RS Tech	Chiral catalysis	- C3 Synthons - C4 Synthons	99%ee/98% 98%ee/97%	Technology for C3 infringes on US patents; roundabout trade/export through India
International	Chirex-Rodia	Chiral catalysis	- C4 Synthons		
	Daiso	Biotransformation	- C4 Synthons - C4 Synthons		
	Chinese competitors	Chiral catalysis and fermentation	C4 Synthons	Low optical purity	Pricing is low but quality is also low, resulting in little sales; reliability is questionable as products that were described to have 98%ee were analyzed to be 88%ee
EnzyTech		Biotransformation	- C4 Synthons - C4 Synthons - Chiral Intermediates - L-carnitine	99%ee/98% (all products)	High quality products offered at competitive prices

(Source: The Company)

#### □ Market Potential

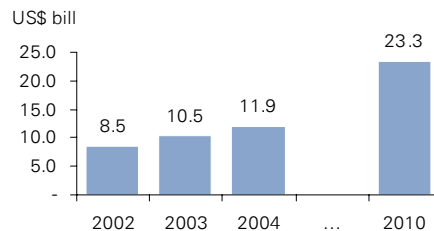
The global pharmaceutical market in 2005 was estimated at approximately US\$602 billion and has been increasing at an annual rate of over 7%. The global market for active pharmaceutical ingredients has been increasing at a similar rate. As depicted in Figure 3 below, chiral drugs comprise 37% of the total pharmaceuticals market and is increasing in size.

**Figure 2 – Market Trend for Chiral Catalysis Drugs**



(Source: C&EN, Vol.81(18), p.45-55, 2003)

**Figure 3 – Worldwide Chiral Intermediates Market**



(Source: Korea Economy Daily, Sep 3<sup>rd</sup>, 2002)

The development of chiral drugs is expected to increase globally due to its abilities to generally decrease side effects and increase efficacy. Over 60% of the pharmaceutical market is anticipated to be comprised of enantiomers. Chiral technology is forecasted to create a market that will increase in size by a minimum of 11% each year over the next 10 years.

With patents continuously coming off patent and most of them being converted to generic chiral drugs, it is assumed that the pharmaceutical market will gradually be made up of chiral drugs. As chiral drugs require chiral intermediates with high optical purity as ingredients, it is anticipated that the demand for chiral intermediates will grow in relation to the overall drug market.

## Patent & Thesis

The Company has international/overseas patents registered or filed for application in the U.S. and India with regards to its C4 synthon technology.

**Table 2 – List of international/overseas patents**

Application Number	Country	Status	Description
PCT KR 2005/001213	U.S./Europe/ India/China	Filed	The method of making optically active ester derivatives and their acids from racemic esters
PCT KR 2004/001313	U.S./India	Filed	The enzymatic method of making 1,2-diol derivatives and their esters with succinic anhydride

(Source: The Company)

## Contact Point

Samjong KPMG FAS Inc. is currently receiving inquiries from potential investors interested in this transaction. Interested parties should contact the following for more information:

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