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From the Editor,

Enzymes have unique features that make them ideal for selecting optical isomers.

Compounds that have identical physical and chemical properties but differ in configuration- mirror images, like our right hand and left hand- are optical isomers and exist in two forms, D-isomer and L-isomer. Chemical synthesis yields equal amounts of each isomer (called a racemic mixture) because chemical synthesis is not capable of distinguishing between two optical isomers. Enzymes, because of their intricate structure, are capable of distinguishing optical isomers; because of this the chemical reactions that occur in the human body catalyzed by enzymes are capable of distinguishing optical isomers- indeed, it is not uncommon that one optical isomer of a drug is beneficial to the human body, while the other optical isomer is inactive or even possibly harmful. The manufacture of pharmaceutical drugs and agricultural chemicals must now be carried out by methods that are selective for optical purity; and enzymes, because of their ability to distinguish between optical isomers have become a very important tool in the production of modern drugs and optically pure chemicals.

Recent research by Dr. Ryoji Noyori, Nagoya University, has been instrumental in developing artificial catalysts that mimic enzymes in their ability to distinguish optical isomers. Dr. Noyori was awarded the 2001 Nobel Prize for this ground breaking work and is the tenth Japanese to be awarded a Nobel Prize in science. Amano Enzyme Inc. has great respect for his accomplishments and takes great pride in the fact that Dr. Noyori's research and enzyme research at Amano Enzyme Inc., with headquarters in Nagoya, is being carried out in the same Aichi prefecture in Japan.

The understanding of the catalytic function of enzymes has unlimited potential in the industrial applications of not only enzymes but of future novel enzyme mimic catalysts useful for the large scale production of optically pure substances as a result of Dr. Noyori's research.