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## Phosphorus, Sulfur, and Silicon and the Related Elements

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### Enzymatic Approach to the Synthesis of Non-Racemic, P-Chiral Hydroxymethylphosphonates and Phosphinates

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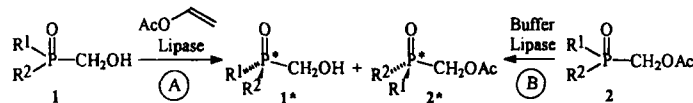
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## Enzymatic Approach to the Synthesis of Non-Racemic, P-Chiral Hydroxymethylphosphonates and Phosphinates

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$\alpha$ -Hydroxyalkanephosphonates and phosphinates exhibit interesting biological activity which is highly dependent on their absolute configuration.<sup>1</sup> Therefore, a search for efficient and general methods of the synthesis of enantiopure title compounds continues. As part of our studies on the use of enzymes in preparation of non-racemic heteroorganic compounds,<sup>2</sup> we have developed a lipase-mediated kinetic resolution of racemic hydroxymethylphosphonates and phosphinates, which is based on either acetylation of the substrates **1**, or hydrolysis of their O-acetyl derivatives **2**. The absolute configuration of the products has been determined by means of CD and chemical correlation.



R <sup>1</sup>	R <sup>2</sup>	Lipase	Proc.	1*			2*		
				Yield [%]	ee [%]	Abs. conf.	Yield [%]	ee [%]	Abs. conf.
Ph	OMe	AMANO PS	A	34	92	R	34	86	S
Ph	OEt	PFL	A	37	48	R	30	53	S
Ph	OPr <sup>i</sup>	PFL	A	36	80	R	47	21	S
OPr <sup>i</sup>	OMe	PFL	B	55	16	S	45	34	R

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