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Kinetic Resolution of Amino Acids in Natural and Modified Agarose Gels. Rositza Petrova, Rakesh Patel, Andrew Pogozielski, Jennifer Swift, Chemistry Dept., Georgetown Univ., Washington, DC 20057, USA.

Gel matrices have been successfully used as a growth media for inorganic and macromolecular crystals for many years but little is known about the molecular-level interactions between the crystal and gel during the crystallization process. Our goal is to develop gel crystallization methods as a means to affect chiral separations. Our “proof of concept” studies on the growth of sodium chlorate in agarose demonstrated that the gel matrix can affect the distribution of the enantiomorphous crystals.¹

For crystallization of true racemic mixtures, preferential interactions between the gel matrix and one of the enantiomeric forms can make the kinetic resolution of the enantiomers possible.

The crystallization of asparagine and threonine in agarose gel yields mixtures enriched to one of the enantiomers when the percentage of total crystal mass is low. The enantiomer in excess is influenced by the solvent and the gel concentration. Analogous crystallization experiments performed in modified agarose gels test whether the matrix effect can be enhanced.

1. Rositza I. Petrova and Jennifer A. Swift, *J. Am. Chem. Soc.* 2004, *126*, 1168 -1173.