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Synthesis of a Chiral Amino Aldehyde from Serine

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Poster Presentation 5

SYNTHESIS OF A CHIRAL AMINO ALDEHYDE FROM SERINE

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The overall goal of this project is to synthesize the antibiotic (+)-obafluorin, a β-lactone drug with unusual characteristics. It was found to pass tests indicating the presence of a β-lactam group, the functional group in penicillin. The false positive that obafluorin produced has drawn much attention to it, although its antibacterial activity is relatively low. With the growing resistance of bacterial strains to today's antibiotics becoming a highly publicized issue in the media over the past few months, one can see the importance of a project seeking to develop effective alternative antibiotics. Through the novel synthesis of obafluorin, this project proposes to find not only an easier synthesis than the one found in current literature, but one that will afford more flexibility in the search for analogs.

Specifically, my focus has been on the synthesis of an amino aldeyde intermediate from L-serine. This synthesis converts serine to its lactone ring, which is then converted to the amino aldehyde. The proposed synthesis consists of seven reactions, and our progress will be reported.