Antibiotics are some of the most widely known and widely used medications in the world. In fact, in 2009 people in the United States spent some $10.7 billion on antibiotics.1 Since their discovery, antibiotics have transformed the way bacterial infections are treated. However, due to overuse, the effectiveness of these life-saving drugs is being reduced and antibiotic resistant infections are becoming a more pressing problem.1 The main fighting antibiotic is penicillin or penicillin-like, with ring-like structures called β-lactams. These β-lactams attack bacterial enzymes present in the cell wall. β-lactams target the penicillin-binding proteins in the bacterial cell wall, and mimic the dipeptide in peptidoglycan structure so that it is blocked from further acyl transfer. Recent resistant strains contain and enzyme called β-lactamase, which destroys the ring structure of penicillin. The goal of this research was to insert a Boc (beta-lactam group) onto an amino acid that would potentially limit the resistant tendencies. We are interested in developing novel solid-phase methodologies to synthesize these new antibiotics. The primary goal is to develop solid-phase synthesis of oxamazin derivative from the amino acid L-threonine.

**Bibliography**

1. Centers for Disease Control and Prevention: Know When Antibiotics Work. <https://www.cdc.gov/getsmart/community/about/fast-facts.html> (accessed Feb 17, 2017)