

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Very Good

Explanation to Applicant

Applicant has a good academic record including being in the Dean's list for three consecutive years at Winthrop University. The applicant has an excellent research experience including 3 years of undergraduate research that resulted in a 1st place poster presentation at a National Undergraduate Research Symposium. Further research experience includes work in two biotech companies. Although applicant has no publications, contributions to his present lab resulted in a publication that is in preparation. The proposed research project will study the role of Setd8 methyltransferase and monomethylation of H4 lysine 20 in formation of heterochromatin. This work is a continuation of studies by the Steiner lab to delineate the function of Setd8 in erythroid maturation. Aim2 needs to be expanded with help of structural information that is available. In addition, interaction with other cofactors needs to be addressed. The reference letters suggest applicant is highly motivated and prepared to tackle the proposal.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Very Good

Explanation to Applicant

The applicant has been very active in mentoring, leadership and outreach as a president of student affiliates of the ACS during undergraduate studies. These activities continued during his time working in biotech companies. Applicant seems committed to continue these broader impact activities during graduate school. Results from proposed study have the potential to increase our knowledge about the mechanism that regulate heterochromatin formation.

Summary Comments

This is a very good application with strong academic and broader impact components. The potential of the applicant has been directly put in display in his contribution to the Steiner Lab during his rotation.

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Excellent

Explanation to Applicant

Tyler is an incredibly talented individual, excelling in his research experiences and earning the recognition of his faculty mentors. He writes very knowledgeably and maturely of his research experiences, and has put together a very comprehensive, high-content and high-depth research proposal on the role of histone modifications in erythropoiesis. Tyler has a refreshing balance of both academic and industrial research experience, and I am able to draw from those experiences, developing his research techniques and making significant contributions in all his efforts. His efforts have led to various academic awards, conference presentations, and potential publications.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Excellent

Explanation to Applicant

Tyler has shown great leadership qualities, both in his scientific work and in his extracurricular service activities. For example, he has served as president of his local SAACS club where he led various outreach and career development activities. He has noted his interest in the role of science policy and political engagement, and has served in many capacities advocating for STEM education and career development opportunities.

Summary Comments

Tyler Couch's application is impressive, with excellent research experience and intellectual merit, and a strong commitment to the broader impacts criteria. All 3 recommendations letters are strong endorsements of Tyler's aptitude and potential, and work ethic. The writing in the essays is compelling and has content and depth. This application is highly worthy of receiving an NSF award.

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Excellent

Explanation to Applicant

The applicant has an outstanding GPA from undergraduate and graduate school along with academic honors. The honors include a SC LIFE Scholarship and Dean's List at Winthrop University. Strong letters of reference highlight the applicant's potential as a researcher and a future career in research. The research plan was well written. It could have been strengthened by sharing alternative experiments that could have been done in the event that the proposed efforts do not work as planned.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Excellent

Explanation to Applicant

The applicant has been involved in a number of broader impacts activities which include serving as the ACS President at Winthrop and as a mentor to younger undergrads in his undergraduate research lab. Most impressive is the fact that the applicant shares his passion for the sciences by mentoring younger scientists and is seeking opportunities to highlight his career in industry as well as his perspective on pursuing graduate studies. Broader impacts was integrated throughout the personal statement and at the end of the research statement.

Summary Comments

The applicant has presented a very good application showing intellectual merit through his solid academic background, strong letters of reference, personal and research plans. Broader impacts are also highlighted through service in mentoring, outreach to public schools, and leadership as president of the SAACS as an undergraduate as well as future plans to interest students at all levels in the sciences.