



DEPARTMENT OF STATISTICS

November 5, 2024

Dr. Xiaoling Chen
Department of Medicinal Chemistry and Molecular Pharmacology
Purdue University College of Pharmacy
207 South Martin Jischke Drive
West Lafayette, IN 47907

Dear Dr Chen,

I am writing to express Purdue's Statistical Consulting Service (SCS) strong support for your proposed K99/R00 application, which focuses on understanding the molecular and cellular mechanisms underlying *SCN2A* deficiency in the human organoids model, as well as detail our contributions to this research. The SCS has been fully supported by Purdue for over 55 years to provide statistical consulting expertise to our university system. This group is supported by two Department of Statistics faculty members (with teaching release) and roughly 10 graduate students. We provide both walk-in and one-on-one support regarding statistical software guidance, design of experiments, and assistance with analysis and conclusions. We also support a variety of statistical analysis packages including R, SAS, MATLAB, JMP, Minitab, SPSS and STATA but will work within other packages such as GraphPad. As Director of the SCS for 20+ years, I am confident that the statistical support we provide will significantly enhance the quality and impact of this research.

It has been a pleasure discussing this project with you and collaborating on revisions to your K99/R00 application. Our focus has primarily been on ensuring the studies are adequately powered, but this, in part, also meant that we discussed an analysis plan. Because each of the three aims involves several outcome variables, we shifted to a smaller significance level for each test to better balance the false positivity rate with the exploratory nature of the project. In addition we provided more detail around the choice of effect size (Cohen's *d*). We elected to focus on effect size because of the difficulty in defining what would be a "scientifically meaningful change." Good luck with the application. We look forward to working more with you in the future.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce A. Craig".

Bruce A. Craig
Professor, Department of Statistics
Director, Purdue Statistical Consulting Service
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