**Respective Author Contributions**

KK led this project and developed most of the automated question generation methods.

YH and RV took over leadership of the project while KK was away at an internship.

KK, RV, and RK contributed significantly to the writing.

RV performed literature review and data analysis.

YH deployed a platform for human annotation of answers and contributed technical expertise on LLMs to this project.

RK created data visualizations for the results.

ST and KS contributed external PGx questions.

KK, BL, LG, KS, TEK, and MDR provided expert scores for model evaluation.

ST, KS, BL, MWC, and TEK provided PGx expertise.

MDR and DK supervised the project and provided technical guidance and mentorship.

All authors have contributed to, reviewed, and approved of submission of this manuscript.