



April 29, 2025

Dear Drs., Floren and Shoichet, and Members of the Steering Committee: Drs. Savic, Chun, and Dean Giacomini,

Re: Proposal for a PharmD/Doctor of Philosophy in Pharmaceutical Sciences and Pharmaceutical Sciences and Pharmacogenomics Dual Degree Program

We are writing to express Graduate Division's support for the proposed PharmD/PhD Dual Degree Program in Pharmaceutical Sciences and Pharmacogenomics at UCSF. This program represents a substantial advancement in pharmacy education through combining clinical training of the PharmD with scientific research training of the PhD in pharmaceutical sciences and pharmacogenomics.

Potential Strengths of the Dual Degree Program

Based on the initial review of the proposal, noteworthy strengths include the program's mission to fulfill the critical need for the next generation of clinician-scientists to address increasing patient complexity, advancements in drug discovery and development, and the integration of precision medicine. The proposal highlights the importance of pharmacogenomics, computational models, and artificial intelligence in improving drug development success rates and reducing costs. The program aims to train future clinician-scientists through a multidisciplinary approach, combining clinical practice with advanced research training in fields such as functional genomics, computational genomics, systems pharmacology, PK/PD modeling, molecular biology, cancer biology, and real-world data analyses. Architects of the program makes the argument that this integration is essential for bridging the gap between clinical practice and scientific advancements, leading to transformational changes in precision medicine, drug discovery, and individualized patient care. Personalized medicine also has the potential to decrease overall healthcare costs, by minimizing unnecessary treatments and cutting the need for further medical interventions due to decreased drug side effects and complications.

The curriculum is designed to cover foundational and advanced knowledge in areas including pharmaceutical sciences, patient care skills, pharmacogenomics, drug development, and precision medicine. According to the proposal, students will gain hands-on experience through Introductory Pharmacy Practice Experiences (IPPEs) and Advanced Pharmacy Practice Experiences (APPEs), complemented by mentored research projects and teaching experience. Program leadership asserts that this combination will equip the next generation of clinical scientists with a unique skill set that is highly sought after in academia, industry, and government sectors.

The program leverages UCSF's prominent faculty with extensive experience in pharmacy practice, clinical research, and pharmacogenomics from the School of Pharmacy and the Department of Bioengineering and Therapeutic Sciences. The PhD portion of the program includes courses on systems pharmacology, computational genomics, and advanced biostatistical methods. Students will learn to conduct rigorous research and translate findings into clinical practice. The curriculum emphasizes the use of real-world data (RWD) and decentralized clinical trials, preparing students to navigate the complexities of modern clinical research and drug development.

Program leadership has expressed their dedication to fostering a diverse and inclusive community and will follow guidance and best practices of the UCSF Office of Diversity and Outreach to identify, recruit, and retain diverse students, faculty, and staff. The proposal outlines several strategies to support underrepresented groups. The admissions committee will employ a holistic review approach, evaluating a range of applicant attributes, experiences, and academic metrics to ensure a diverse student body.

The proposal also outlined recruitment strategies and financial support to attract a diverse and highly qualified pool of applicants. Direct recruitment efforts include internal advertising through the School of Pharmacy's listserv and indirect strategies involve creating a dedicated webpage for the program and promoting it at regional and national scientific meetings. The admissions committee will employ a holistic review approach to evaluate a range of applicant attributes, experiences, and academic metrics. Dedicated recruitment efforts will target programs promoting diversity in pharmaceutical and biological sciences, focusing on institutions serving underrepresented groups and women.

A major highlight of the proposal is the direct pipeline programs mentioned including Pharmacy Post-Baccalaureate Program, Pharm Tech to PharmD Pathway, and UC Merced – UCSF BS to PharmD Program that will be leveraged to attract underrepresented candidates. Scholarships such as the Justice, Equity, Diversity, and Inclusion (JEDI) Scholarship and the Champion of Diversity Scholarship will support students who have demonstrated their commitment to diversity and addressing healthcare disparities. The Diversity Committee will review integration of training on health equity, systemic racism, ethics, and health disparities in the curriculum, and solicit feedback from students and faculty to ensure a supportive environment.

Potential Challenges to Keep in Mind

The program's structure allows students to complete both degrees in 6.75 years, providing a potential streamlined path to dual qualifications. This may be challenging for students who need to balance other responsibilities or work commitments. Thinking through strategies to support students in managing this commitment could be further developed. The program's success depends on the availability of sufficient resources, including faculty resources and administrative support from other programs, institutes and centers at UCSF (e.g., IHG, CTSI, CZ Biohub Network, UCSF-Stanford CERSI, PGRN, CEB, BCHSI,



Hellen Diller, UCSF Health). Ensuring these resources are consistently available will require ongoing attention and adjustment. Recruitment may pose a significant challenge due to the lengthy and demanding nature of the program; however, the potential significance and timeliness of this dual degree may mitigate these concerns and attract highly motivated candidates. Providing adequate financial support for students throughout the extended training period is crucial. The proposal provides examples of potential resources, but we suggest continuing to explore additional funding sources and partnerships to continually ease this challenge. Despite the challenges, the program has strong potential to innovate clinician-scientist training in pharmacy.

The PharmD/PhD Dual Degree Program is a transformative initiative that aligns with UCSF's mission and goals of excellence in education, research, and public service. This advanced dual degree will not only enhance the educational offerings at UCSF but also contribute significantly to the fields of pharmacy and clinical and scientific research.

Sincerely,

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