

## Katrin Sangkuhl

Scientific Data Curator, Biomedical Data Science

### Bio

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#### BIO

I am a senior scientific curator in the Department of Biomedical Data Science at Stanford University with over 15 years of experience in pharmacogenomics. My interests center around PGx data/knowledge curation, standardization, and implementation towards clinical practice.

#### CURRENT ROLE AT STANFORD

Senior Scientific Curator

#### EDUCATION AND CERTIFICATIONS

- PhD, University Leipzig
- MS, Free University Berlin

#### LINKS

- NIH Biosketch: <https://www.ncbi.nlm.nih.gov/myncbi/1VyNv9OKhCZ5l/cv/581369/>

### Publications

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#### PUBLICATIONS

- **PGxQA: A Resource for Evaluating LLM Performance for Pharmacogenomic QA Tasks.** *Pacific Symposium on Biocomputing. Pacific Symposium on Biocomputing*  
Keat, K., Venkatesh, R., Huang, Y., Kumar, R., Tuteja, S., Sangkuhl, K., Li, B., Gong, L., Whirl-Carrillo, M., Klein, T. E., Ritchie, M. D., Kim, D.  
2025; 30: 229-246
- **PharmVar Tutorial on CYP2D6 Structural Variation Testing and Recommendations on Reporting.** *Clinical pharmacology and therapeutics*  
Turner, A. J., Nofziger, C., Ramey, B. E., Ly, R. C., Bousman, C. A., Agúndez, J. A., Sangkuhl, K., Whirl-Carrillo, M., Vanoni, S., Dunnenberger, H. M., Ruano, G., Kennedy, M. A., Phillips, et al  
2023
- **Clinical Pharmacogenetics Implementation Consortium (CPIC) Guideline for CYP2D6, CYP2C19, CYP2B6, SLC6A4, and HTR2A Genotypes and Serotonin Reuptake Inhibitor Antidepressants.** *Clinical pharmacology and therapeutics*  
Bousman, C. A., Stevenson, J. M., Ramsey, L. B., Sangkuhl, K., Hicks, J. K., Strawn, J. R., Singh, A. B., Rúaño, G., Mueller, D. J., Tsermpini, E. E., Brown, J. T., Bell, G. C., Leeder, et al  
2023
- **How to Run the Pharmacogenomics Clinical Annotation Tool (PharmCAT).** *Clinical pharmacology and therapeutics*  
Li, B., Sangkuhl, K., Keat, K., Whaley, R. M., Woon, M., Verma, S., Dudek, S., Tuteja, S., Verma, A., Whirl-Carrillo, M., Ritchie, M. D., Klein, T. E.  
2022
- **Clinical Pharmacogenetics Implementation Consortium Guideline for CYP2C19 Genotype and Clopidogrel Therapy: 2022 Update.** *Clinical pharmacology and therapeutics*  
Lee, C. R., Luzum, J. A., Sangkuhl, K., Gammal, R. S., Sabatine, M. S., Stein, C. M., Kisor, D. F., Limdi, N. A., Lee, Y. M., Scott, S. A., Hulot, J. S., Roden, D. M., Gaedigk, et al  
2022

- **An evidence-based framework for evaluating pharmacogenomics knowledge for personalized medicine.** *Clinical pharmacology and therapeutics*  
Whirl-Carrillo, M., Huddart, R., Gong, L., Sangkuhl, K., Thorn, C. F., Whaley, R., Klein, T. E.  
2021
- **PharmVar GeneFocus: CYP2C9.** *Clinical pharmacology and therapeutics*  
Sangkuhl, K., Claudio-Campos, K., Cavallari, L. H., Agundez, J., Whirl-Carrillo, M., Duconge, J., Del Tredici, A. L., Wadelius, M., Botton, M. R., Woodahl, E. L., Scott, S. A., Klein, T. E., Pratt, et al  
2021
- **Transfer learning enables prediction of CYP2D6 haplotype function.** *PLoS computational biology*  
McInnes, G., Dalton, R., Sangkuhl, K., Whirl-Carrillo, M., Lee, S., Tsao, P. S., Gaedigk, A., Altman, R. B., Woodahl, E. L.  
2020; 16 (11): e1008399
- **Review and Consensus on Pharmacogenomic Testing in Psychiatry.** *Pharmacopsychiatry*  
Bousman, C. A., Bengesser, S. A., Aitchison, K. J., Amare, A. T., Aschauer, H. n., Baune, B. T., Asl, B. B., Bishop, J. R., Burmeister, M. n., Chaumette, B. n., Chen, L. S., Cordner, Z. A., Deckert, et al  
2020
- **Standardizing CYP2D6 Genotype to Phenotype Translation: Consensus Recommendations from the Clinical Pharmacogenetics Implementation Consortium and Dutch Pharmacogenetics Working Group.** *Clinical and translational science*  
Caudle, K. E., Sangkuhl, K. n., Whirl-Carrillo, M. n., Swen, J. J., Haidar, C. E., Klein, T. E., Gammal, R. S., Relling, M. V., Scott, S. A., Hertz, D. L., Guchelaar, H. J., Gaedigk, A. n.  
2019
- **The Evolution of PharmVar.** *Clinical pharmacology and therapeutics*  
Gaedigk, A., Sangkuhl, K., Whirl-Carrillo, M., Twist, G. P., Klein, T. E., Miller, N. A., PharmVar Steering Committee  
2018
- **Clinical Pharmacogenetics Implementation Consortium (CPIC) guideline for the use of potent volatile anesthetic agents and succinylcholine in the context of RYR1 or CACNA1S genotypes.** *Clinical pharmacology and therapeutics*  
Gonsalves, S. G., Dirksen, R. T., Sangkuhl, K., Pulk, R., Alvarelllos, M., Vo, T., Hikino, K., Roden, D., Klein, T., Mark Poler, S., Patel, S., Caudle, K. E., Gordon, et al  
2018
- **The International SSRI Pharmacogenomics Consortium (ISPC): a genome-wide association study of antidepressant treatment response.** *Translational psychiatry*  
Biemacka, J. M., Sangkuhl, K., Jenkins, G., WHALEY, R. M., Barman, P., Batzler, A., Altman, R. B., Arolt, V., Brockmüller, J., Chen, C. H., Domschke, K., Hall-Flavin, D. K., Hong, et al  
2016; 6 (11)
- **Pharmacogenetic allele nomenclature: International workgroup recommendations for test result reporting.** *Clinical pharmacology & therapeutics*  
Kalman, L. V., Agúndez, J., Appell, M. L., Black, J. L., Bell, G. C., Boukouvala, S., Bruckner, C., Bruford, E., Caudle, K., Coulthard, S. A., Daly, A. K., Tredici, A. D., den Dunnen, et al  
2016; 99 (2): 172-185
- **PharmGKB summary: venlafaxine pathway PHARMACOGENETICS AND GENOMICS**  
Sangkuhl, K., Stingl, J. C., Turpeinen, M., Altman, R. B., Klein, T. E.  
2014; 24 (1): 62-72
- **PharmGKB: UNDERSTANDING THE EFFECTS OF INDIVIDUAL GENETIC VARIANTS DRUG METABOLISM REVIEWS**  
Sangkuhl, K., Berlin, D. S., Altman, R. B., Klein, T. E.  
2008; 40 (4): 539-551
- **Identification of receptors and signaling pathways for orphan bone morphogenetic protein/growth differentiation factor ligands based on genomic analyses** *JOURNAL OF BIOLOGICAL CHEMISTRY*  
Mazerbourg, S., Sangkuhl, K., Luo, C. W., Sudo, S., Klein, C., Hsueh, A. J.  
2005; 280 (37): 32122-32132