


Caroline Thorn

Scientific Data Curator 2, Biomedical Data Science

 NIH Biosketch available Online

SUPERVISORS

- Michelle Carrillo
- Teri Klein

Bio

CURRENT ROLE AT STANFORD

Scientific curator at ClinPGx

EDUCATION AND CERTIFICATIONS

- BScHons, University of Bath, UK , Biochemistry
- Ph.D., Trinity College, University of Dublin, Republic of Ireland , Genetics

PROJECTS

- PharmGKB

Publications

PUBLICATIONS

- **PharmGKB summary: disulfiram pathway.** *Pharmacogenetics and genomics*
Gonzalez-Suarez, A. D., Thorn, C. F., Whirl-Carrillo, M., Klein, T. E.
2023
- **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
- **Response to: Unveiling the guidance heterogeneity for genome-informed drug treatment interventions among regulatory bodies and research consortia.** *Pharmacological research*
Huddart, R. n., Li, G. n., Sangkuhl, K. n., Thorn, C. F., Whirl-Carrillo, M. n., Caudle, K. E., Relling, M. V., Klein, T. E.
2020: 104838
- **Essential Characteristics of Pharmacogenomics Study Publications** *CLINICAL PHARMACOLOGY & THERAPEUTICS*
Thorn, C. F., Whirl-Carrillo, M., Hachad, H., Johnson, J. A., McDonagh, E. M., Ratain, M. J., Relling, M. V., Scott, S. A., Altman, R. B., Klein, T. E.
2019; 105 (1): 86–91
- **Essential characteristics of pharmacogenomics study publications.** *Clinical pharmacology and therapeutics*
Thorn, C. F., Whirl-Carrillo, M., Hachad, H., Johnson, J. A., McDonagh, E. M., Ratain, M. J., Relling, M. V., Scott, S. A., Altman, R. B., Klein, T. E.
2018
- **PharmGKB summary: clozapine pathway, pharmacokinetics** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Mueller, D. J., Altman, R. B., Klein, T. E.

2018; 28 (9): 214–22

- **PharmGKB summary: pazopanib pathway, pharmacokinetics** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Sharma, M. R., Altman, R. B., Klein, T. E.
2017; 27 (8): 307–12
- **PharmGKB summary: isoniazid pathway, pharmacokinetics.** *Pharmacogenetics and genomics*
Klein, D. J., Boukouvala, S., McDonagh, E. M., Shuldiner, S. R., Laurieri, N., Thorn, C. F., Altman, R. B., Klein, T. E.
2016; 26 (9): 436-444
- **PharmGKB summary: pathways of acetaminophen metabolism at the therapeutic versus toxic doses** *PHARMACOGENETICS AND GENOMICS*
Mazaleuskaya, L. L., Sangkuhl, K., Thorn, C. F., FitzGerald, G. A., Altman, R. B., Klein, T. E.
2015; 25 (8): 416-426
- **PharmGKB summary: ibuprofen pathways** *PHARMACOGENETICS AND GENOMICS*
Mazaleuskaya, L. L., Theken, K. N., Gong, L., Thorn, C. F., FitzGerald, G. A., Altman, R. B., Klein, T. E.
2015; 25 (2): 96-106
- **PharmGKB summary: gemcitabine pathway** *PHARMACOGENETICS AND GENOMICS*
Alvarellos, M. L., Lamba, J., Sangkuhl, K., Thorn, C. F., Wang, L., Klein, D. J., Altman, R. B., Klein, T. E.
2014; 24 (11): 564-574
- **PharmGKB summary: uric acid-lowering drugs pathway, pharmacodynamics.** *Pharmacogenetics and genomics*
McDonagh, E. M., Thorn, C. F., Callaghan, J. T., Altman, R. B., Klein, T. E.
2014; 24 (9): 464-476
- **PharmGKB summary: ifosfamide pathways, pharmacokinetics and pharmacodynamics.** *Pharmacogenetics and genomics*
Lowenberg, D., Thorn, C. F., Desta, Z., Flockhart, D. A., Altman, R. B., Klein, T. E.
2014; 24 (2): 133-138
- **Incorporation of Pharmacogenomics into Routine Clinical Practice: the Clinical Pharmacogenetics Implementation Consortium (CPIC) Guideline Development Process.** *Current drug metabolism*
Caudle, K. E., Klein, T. E., Hoffman, J. M., Muller, D. J., Whirl-Carrillo, M., Gong, L., McDonagh, E. M., Sangkuhl, K., Thorn, C. F., Schwab, M., Agundez, J. A., Freimuth, R. R., Huser, et al
2014; 15 (2): 209-217
- **Clinical Pharmacogenetics Implementation Consortium Guidelines for Dihydropyrimidine Dehydrogenase Genotype and Fluoropyrimidine Dosing** *CLINICAL PHARMACOLOGY & THERAPEUTICS*
Caudle, K. E., Thorn, C. F., Klein, T. E., Swen, J. J., McLeod, H. L., Diasio, R. B., Schwab, M.
2013; 94 (6): 640-645
- **PharmGKB summary: tamoxifen pathway, pharmacokinetics.** *Pharmacogenetics and genomics*
Klein, D. J., Thorn, C. F., Desta, Z., Flockhart, D. A., Altman, R. B., Klein, T. E.
2013; 23 (11): 643-647
- **PharmGKB summary: diuretics pathway, pharmacodynamics** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Ellison, D. H., Turner, S. T., Altman, R. B., Klein, T. E.
2013; 23 (8): 449-453
- **Clinical Pharmacogenetics Implementation Consortium Guideline for CYP2D6 and CYP2C19 Genotypes and Dosing of Tricyclic Antidepressants** *CLINICAL PHARMACOLOGY & THERAPEUTICS*
Hicks, J. K., Swen, J. J., Thorn, C. F., Sangkuhl, K., Kharasch, E. D., Ellingrod, V. L., Skaar, T. C., Mueller, D. J., Gaedigk, A., Stingl, J. C.
2013; 93 (5): 402-408
- **Valproic acid pathway: pharmacokinetics and pharmacodynamics** *PHARMACOGENETICS AND GENOMICS*
Ghodke-Puranik, Y., Thorn, C. F., Lamba, J. K., Leeder, J. S., Song, W., Birnbaum, A. K., Altman, R. B., Klein, T. E.
2013; 23 (4): 236-241
- **Clinical Pharmacogenetics Implementation Consortium Guidelines for Human Leukocyte Antigen-B Genotype and Allopurinol Dosing** *CLINICAL PHARMACOLOGY & THERAPEUTICS*

- Hershfield, M. S., Callaghan, J. T., Tassaneeyakul, W., Mushiroda, T., Thorn, C. F., Klein, T. E., Lee, M. T.
2013; 93 (2): 153-158
- **PharmGKB: the Pharmacogenomics Knowledge Base.** *Methods in molecular biology (Clifton, N.J.)*
Thorn, C. F., Klein, T. E., Altman, R. B.
2013; 1015: 311-320
 - **Pharmacogenomics Knowledge for Personalized Medicine** *CLINICAL PHARMACOLOGY & THERAPEUTICS*
Whirl-Carrillo, M., MCDONAGH, E. M., Hebert, J. M., Gong, L., Sangkuhl, K., Thorn, C. F., Altman, R. B., Klein, T. E.
2012; 92 (4): 414-417
 - **PharmGKB summary: very important pharmacogene information for GSTT1** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Ji, Y., Weinshilboum, R. M., Altman, R. B., Klein, T. E.
2012; 22 (8): 646-651
 - **PharmGKB summary: phenytoin pathway** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Whirl-Carrillo, M., Leeder, J. S., Klein, T. E., Altman, R. B.
2012; 22 (6): 466-470
 - **PharmGKB summary: caffeine pathway** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Aklillu, E., McDonagh, E. M., Klein, T. E., Altman, R. B.
2012; 22 (5): 389-395
 - **Using ODIN for a PharmGKB revalidation experiment** *DATABASE-THE JOURNAL OF BIOLOGICAL DATABASES AND CURATION*
Rinaldi, F., Clematide, S., Garten, Y., Whirl-Carrillo, M., Gong, L., Hebert, J. M., Sangkuhl, K., Thorn, C. F., Klein, T. E., Altman, R. B.
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 - **Celecoxib pathways: pharmacokinetics and pharmacodynamics** *PHARMACOGENETICS AND GENOMICS*
Gong, L., Thorn, C. F., Bertagnolli, M. M., Grosser, T., Altman, R. B., Klein, T. E.
2012; 22 (4): 310-318
 - **PharmGKB summary: very important pharmacogene information for G6PD** *PHARMACOGENETICS AND GENOMICS*
McDonagh, E. M., Thorn, C. F., Bautista, J. M., Youngster, I., Altman, R. B., Klein, T. E.
2012; 22 (3): 219-228
 - **PharmGKB summary: very important pharmacogene information for cytochrome P450, family 2, subfamily C, polypeptide 19** *PHARMACOGENETICS AND GENOMICS*
Scott, S. A., Sangkuhl, K., Shuldiner, A. R., Hulot, J., Thorn, C. F., Altman, R. B., Klein, T. E.
2012; 22 (2): 159-165
 - **PharmGKB summary: very important pharmacogene information for CYP1A2** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Aklillu, E., Klein, T. E., Altman, R. B.
2012; 22 (1): 73-77
 - **PharmGKB summary: carbamazepine pathway** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Leckband, S. G., Kelsoe, J., Leeder, J. S., Mueller, D. J., Klein, T. E., Altman, R. B.
2011; 21 (12): 906-910
 - **PharmGKB summary: methotrexate pathway** *PHARMACOGENETICS AND GENOMICS*
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 - **PharmGKB summary: very important pharmacogene information for PTGS2** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Grosser, T., Klein, T. E., Altman, R. B.
2011; 21 (9): 607-613
 - **Phased Whole-Genome Genetic Risk in a Family Quartet Using a Major Allele Reference Sequence** *PLOS GENETICS*
Dewey, F. E., Chen, R., Cordero, S. P., Ormond, K. E., Caleshu, C., Karczewski, K. J., Whirl-Carrillo, M., Wheeler, M. T., Dudley, J. T., Byrnes, J. K., Cornejo, O. E., Knowles, J. W., Woon, et al
2011; 7 (9)

- **Doxorubicin pathways: pharmacodynamics and adverse effects** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Oshiro, C., Marsh, S., Hernandez-Boussard, T., McLeod, H., Klein, T. E., Altman, R. B.
2011; 21 (7): 440-446
- **PharmGKB summary: fluoropyrimidine pathways** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Marsh, S., Carrillo, M. W., McLeod, H. L., Klein, T. E., Altman, R. B.
2011; 21 (4): 237-242
- **KCNH2 pharmacogenomics summary** *PHARMACOGENETICS AND GENOMICS*
Oshiro, C., Thorn, C. F., Roden, D. M., Klein, T. E., Altman, R. B.
2010; 20 (12): 775-777
- **Thiopurine pathway** *PHARMACOGENETICS AND GENOMICS*
Zaza, G., Cheok, M., Krynetskaia, N., Thorn, C., Stocco, G., Hebert, J. M., McLeod, H., Weinshilboum, R. M., Relling, M. V., Evans, W. E., Klein, T. E., Altman, R. B.
2010; 20 (9): 573-574
- **PharmGKB summary: very important pharmacogene information for CYP2B6** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Lamba, J. K., Lamba, V., Klein, T. E., Altman, R. B.
2010; 20 (8): 520-523
- **Clinical assessment incorporating a personal genome** *LANCET*
Ashley, E. A., Butte, A. J., Wheeler, M. T., Chen, R., Klein, T. E., Dewey, F. E., Dudley, J. T., Ormond, K. E., Pavlovic, A., Morgan, A. A., Pushkarev, D., Neff, N. F., Hudgins, et al
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- **Pharmacogenomics and bioinformatics: PharmGKB** *PHARMACOGENOMICS*
Thorn, C. F., Klein, T. E., Altman, R. B.
2010; 11 (4): 501-505
- **PharmGKB summary: very important pharmacogene information for angiotensin-converting enzyme** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Klein, T. E., Altman, R. B.
2010; 20 (2): 143-146
- **Codeine and morphine pathway** *PHARMACOGENETICS AND GENOMICS*
Thorn, C. F., Klein, T. E., Altman, R. B.
2009; 19 (7): 556-558
- **Etoposide pathway** *PHARMACOGENETICS AND GENOMICS*
Yang, J., Bogni, A., Schuetz, E. G., Ratain, M., Dolan, M. E., McLeod, H., Gong, L., Thorn, C., Relling, M. V., Klein, T. E., Altman, R. B.
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- **Dosing algorithms to predict warfarin maintenance dose in Caucasians and African Americans** *CLINICAL PHARMACOLOGY & THERAPEUTICS*
Schelleman, H., Chen, J., Chen, Z., Christie, J., Newcomb, C. W., Brensinger, C. M., Price, M., Whitehead, A. S., Kealey, C., Thorn, C. F., Samaha, F. F., Kimmel, S. E.
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- **An XML-based interchange format for genotype-phenotype data** *HUMAN MUTATION*
Whirl-Carrillo, M., Woon, M., Thorn, C. E., Klein, T. E., Altman, R. B.
2008; 29 (2): 212-219
- **Apolipoprotein E genotype and warfarin dosing among Caucasians and African Americans** *PHARMACOGENOMICS JOURNAL*
Kimmel, S. E., Christie, J., Kealey, C., Chen, Z., Price, M., Thorn, C. F., Brensinger, C. M., Newcomb, C. W., Whitehead, A. S.
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- **Warfarin response and vitamin K epoxide reductase complex 1 in African Americans and Caucasians** *CLINICAL PHARMACOLOGY & THERAPEUTICS*
Schelleman, H., Chen, Z., Kealey, C., Whitehead, A. S., Christie, J., Price, M., Brensinger, C. M., Newcomb, C. W., Thorn, C. F., Samaha, F. F., Kimmel, S. E.

2007; 81 (5): 742-747

- **Warfarin and cytochrome P450C9 genotype: possible ethnic variation in warfarin sensitivity** *PHARMACOGENOMICS*
Kealey, C., Chen, Z., Christie, J., Thorn, C. F., Whitehead, A. S., Price, M., Samaha, F. F., Kimmel, S. E.
2007; 8 (3): 217-225
- **Vitamin K epoxide reductase complex 1 variant influences warfarin response in African Americans**
Schelleman, H., Chen, Z., Whitehead, A. S., Christie, J., Price, M., Kealey, C., Brensinger, C. M., Newcomb, C. W., Thorn, C. F., Kimmel, S. E.
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- **Cytotoxic doses of ketoconazole affect expression of a subset of hepatic genes** *JOURNAL OF TOXICOLOGY AND ENVIRONMENTAL HEALTH-PART A-CURRENT ISSUES*
Casley, W. L., Ogradowczyk, C., Larocque, L., Jaentschke, B., LeBlanc-Westwood, C., Menzies, J., Whitehouse, L., Hefford, M., Aubin, R. A., Thorn, C. F., Whitehead, A. S., Li, X.
2007; 70 (22): 1946-1955
- **Comparison of health status between the United States and England** *JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*
Thorn, C. F.
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- **Clinical implications of pharmacogenomics of statin treatment** *PHARMACOGENOMICS JOURNAL*
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- **A statistical approach to scanning the biomedical literature for pharmacogenetics knowledge** *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*
Rubin, D. L., Thorn, C. F., Klein, T. E., Altman, R. B.
2005; 12 (2): 121-129
- **PharmGKB: the pharmacogenetics and pharmacogenomics knowledge base.** *Methods in molecular biology (Clifton, N.J.)*
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- **A common *ABCC2* promoter polymorphism is not a determinant of the risk of spina bifida** *BIRTH DEFECTS RESEARCH PART A-CLINICAL AND MOLECULAR TERATOLOGY*
Jensen, L. E., Wall, A. M., Cook, M., Hoess, K., Thorn, C. F., Whitehead, A. S., Mitchell, L. E.
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- **TGF- β down-regulates IL-1 α -induced TLR2 expression in murine hepatocytes** *JOURNAL OF LEUKOCYTE BIOLOGY*
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- **Phase I trial of UFT/leucovorin and irinotecan in patients with advanced cancer** *EUROPEAN JOURNAL OF CANCER*
Veronese, M. L., Stevenson, J. P., Sun, W., Redlinger, M., Algazy, K., Giantonio, B., Hahn, S., Vaughn, D., Thorn, C., Whitehead, A. S., Haller, D. G., O'Dwyer, P. J.
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- **Regulation of the human acute phase serum amyloid A genes by tumour necrosis factor- α , interleukin-6 and glucocorticoids in hepatic and epithelial cell lines** *SCANDINAVIAN JOURNAL OF IMMUNOLOGY*
Thorn, C. F., Lu, Z. Y., Whitehead, A. S.
2004; 59 (2): 152-158
- **Tissue-specific regulation of the human acute-phase serum amyloid A genes, *SAA1* and *SAA2*, by glucocorticoids in hepatic and epithelial cells** *EUROPEAN JOURNAL OF IMMUNOLOGY*
Thorn, C. F., Lu, Z. Y., Whitehead, A. S.
2003; 33 (9): 2630-2639
- **Differential transcription of the mouse acute phase serum amyloid A genes in response to pro-inflammatory cytokines** *AMYLOID-JOURNAL OF PROTEIN FOLDING DISORDERS*
Thorn, C. F., Whitehead, A. S.
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- **Differential glucocorticoid enhancement of the cytokine-driven transcriptional activation of the human acute phase serum amyloid a genes, *SAA1* and *SAA2*** *JOURNAL OF IMMUNOLOGY*
Thorn, C. F., Whitehead, A. S.
2002; 169 (1): 399-406
- ***In vitro* evaluation of an enhanced human serum amyloid a (*SAA2*) promoter-regulated soluble TNF receptor fusion protein for anti-inflammatory gene therapy** *SCANDINAVIAN JOURNAL OF IMMUNOLOGY*
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