CPIC™

Clinical Pharmacogenetics Implementation Consortium

PGRN

PharmGKB

St. Jude Children's Research Hospital

ALSAC • Danny Thomas, Founder

Finding cures. Saving children.

Agenda June 29, 2016

- 1. FDA/CPIC interactions (follow-up from last SAB meeting)
- 2. CPIC Table revisions: allele definition table, allele and diplotype frequency tables, diplotype “translation” implementation table
- 3. CPIC guideline implementers/resource page
- 4. CPIC calls: attendance, presentations from implementers
- 5. Engaging 3rd party payers
- 6. Term standardization manuscript in press
- 7. Requests to translate guidelines into foreign languages

FDA/CPIC

- Michael A. Pacanowski, Pharm.D., M.P.H.
  Associate Director for Genomics and Targeted Therapy
  Office of Clinical Pharmacology, Office of Translational Sciences
  Center for Drug Evaluation and Research
- E. David Litwack
  - Personalized Medicine Staff
  - OIR/CDRH/FDA
  - Review of variant databases

CPIC guideline tables

- Allele function assignment with citations
- Implementation tables
  - Possible diplotypes
  - Interpretation notes
  - Pre- and post-test alerts
- Allelle definition table
- Frequency tables
  - Allele frequency by “race” group
  - Diplotype frequency by “race”
  - Phenotype frequency by “race”
  - References
  - Change log

CPIC resources page: implementers

Implementation

The following is a list of PGx implementers who are using CPIC guidelines as part of a program to facilitate use of genetic tests to guide prescribing for patients in clinical care settings:

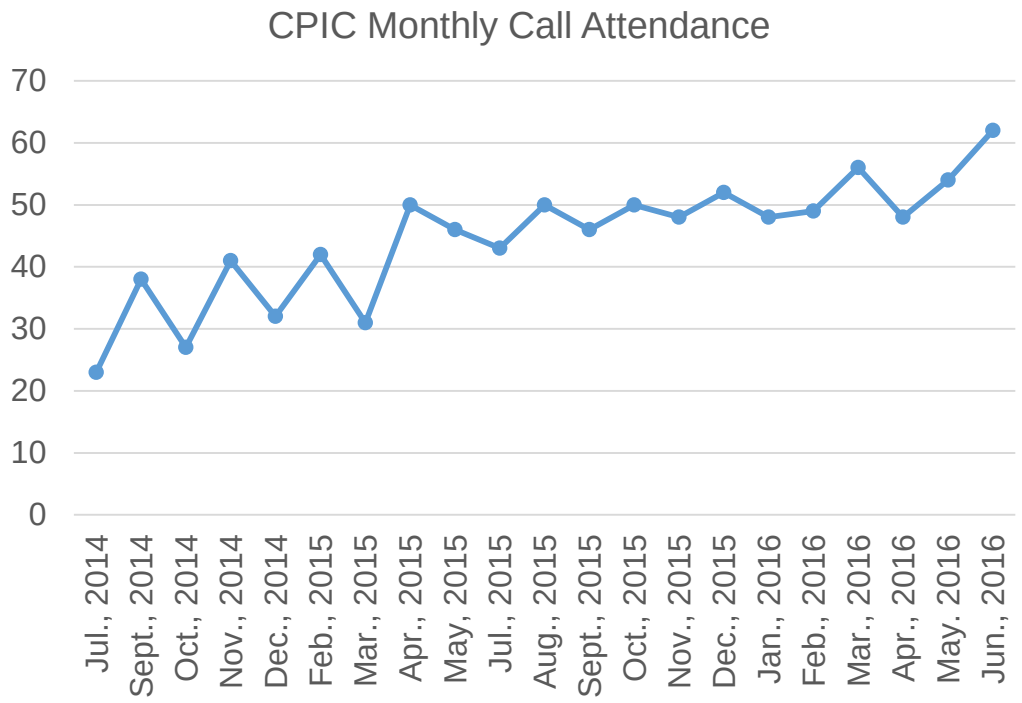
Institution	Website and/or Contact (if available)
BJC Healthcare	
Children's Hospital Minnesota	
Cincinnati Children's Hospital Medical Center	CCHMC Genetic Pharmacology Service
Clearview Cancer Institute	Emily K Pauli; emily.pauli@ccihsv.com
Dr. Margarete Fischer-Bosch-Institute of Clinical Pharmacology	Matthias Schwab; matthias.schwab@ikp-stuttgart.de
Erasmus MC	Ron van Schaik; r.vanschaik@erasmusmc.nl
Geisinger Health System	Geisinger Health System Genomic Medicine Institute
Icahn School of Medicine at Mount Sinai	Stuart Scott lab Aniwaa Owusu Obeng; aniwaa.owusu-obeng@mssm.edu
I.M.P. Institute of Predictive Medicine	I.M.P. Institute of Predictive Medicine, info@impredictiva.es

UPMC Presbyterian University Hospital	
University of South Florida College of Pharmacy	Teresa Vo; teresavo@health.usf.edu
Vanderbilt University	My Drug Genome Program Julie Field; Julie.field@Vanderbilt.edu
Washington University in St. Louis	

The following is a list of commercial laboratories and companies who are using CPIC guidelines to aid in the interpretation of genetic tests results (self-reported):

Company	**NIH's Genetic Testing Registry Link or company contact (if applicable)**
Aegis	http://www.ncbi.nlm.nih.gov/gtr/labs/505511/
Genelex	http://www.ncbi.nlm.nih.gov/gtr/labs/500170/
Translational Software	Houda Hachad; houda.hachad@translationalsoftware.com

If you would like your institution to be listed on this page, please send an email to cpic@pharmgkb.org requesting to be listed and provide one or both of the following: institution and website OR contact name and email. (Note: If you are a commercial genetic testing laboratory, you must first submit your information to the Genetic Testing Registry at http://www.ncbi.nlm.nih.gov/gtr/docs/submit/ and supply the GTR URL to be listed on the implementers site. Other companies may submit a contact email. Send email to cpic@pharmgkb.org with the GTR URL.)


CPIC Monthly Call Attendance
70
60
50
40
30
20
10
0
Jul., 2014
Sept., 2014
Oct., 2014
Nov., 2014
Dec., 2014
Feb., 2015
Mar., 2015
Apr., 2015
May, 2015
Jul., 2015
Aug., 2015
Sept., 2015
Oct., 2015
Nov., 2015
Dec., 2015
Jan., 2016
Feb., 2016
Mar., 2016
Apr., 2016
May. 2016
Jun., 2016

CPIC Conference Call Implementation Presentations

- Cleveland Clinic
- Northshore Hospital, Chicago
- Mt. Sinai
- Center for Addiction and Mental Health, Toronto
- University of Florida Health
- St. Jude Children's Research Hospital
- Vanderbilt University Medical Center

Engaging 3rd party payers

STANDARDIZING TERMS FOR CLINICAL PHARMACOGENETIC TEST RESULTS: CONSENUS TERMS FROM THE CLINICAL PHARMACOGENETICS IMPLEMENTATION CONSORTIUM (CPIC)

- Authors: Kelly E. Caudle, Pharm.D., Ph.D.1, Henry M. Dunnenberger, Pharm.D.2, Robert R. Freimuth, Ph.D. 3, Josh F. Peterson, M.D. 4, Jonathan D. Burlison, Ph.D.1, Michelle Whirl-Carrillo, Ph.D. 5, Stuart A. Scott, Ph.D. 6, Heidi L. Rehm, Ph.D. 7, Marc S. Williams, M.D. 8, Teri E. Klein, Ph.D. 5, Mary V. Relling, Pharm.D.1, James M. Hoffman, Pharm.D. M.S.1

- Genetics in Medicine July 2016

Final Terms-Allele function

Term/Gene Category	Final Term*	Functional Definition	Example diplotypes/alleles
Allele Functional Status-all genes	Increased Function	Function greater than normal function	*CYP2C19*17*
	Normal Function	Fully functional/wild-type	*CYP2C19*1*
	Decreased Function	Function less than normal function	*CYP2C19*9*
	No Function	Non-functional	*CYP2C19*2*
	Unknown Function	No literature describing function or the allele is novel	*CYP2C19*29*
	Uncertain Function	Literature supporting function is conflicting or weak	*CYP2C19*12*

Final Terms-Phenotype

Term/Gene Category	Final Term*	Functional Definition	Example diplotypes/alleles	Term/Gene Category
Phenotype-Drug Metabolizing Enzymes (CYP2C19, CYP2D6, CYP3A5, CYP2C9, TPMT, DPYD, UGT1A1)	Ultra-rapid Metabolizer	Increased enzyme activity compared to rapid metabolizers.	Two increased function alleles, or more than 2 normal function alleles	*CYP2C19*17/*17* *CYP2D6*1/*1XN*
	Rapid Metabolizer	Increased enzyme activity compared to normal metabolizers but less than ultra-rapid metabolizers.	Combinations of normal function and increased function alleles	*CYP2C19*1/*17*
	Normal Metabolizer	Fully functional enzyme activity	Combinations of normal function and decreased function alleles	*CYP2C19*1/*1*
	Intermediate Metabolizer	Decreased enzyme activity (activity between normal and poor metabolizer)	Combinations of normal function, decreased function, and/or no function alleles	*CYP2C19*1/*2*
	Poor Metabolizer	Little to no enzyme activity	Combination of no function alleles and/or decreased function alleles	*CYP2C19*2/*2*
Phenotype-Transporters (SLCO1B1)	Increased Function	Increased transporter function compared to normal function.	One or more increased function alleles	*SLCO1B1*1/*14*
	Normal Function	Fully functional transporter function	Combinations of normal function and/or decreased function alleles	*SLCO1B1*1/*1*
	Decreased Function	Decreased transporter function (function between normal and poor function)	Combinations of normal function, decreased function, and/or no function alleles	*SLCO1B1*1/*5*
	Poor Function	Little to no transporter function	Combination of no function alleles and/or decreased function alleles	*SLCO1B1*5/*5*
Phenotype-High risk genotype status (HLA-B)	Positive	Detection of high-risk allele	Homozygous or heterozygous for high-risk allele	*HLA-B*15:02*
	Negative	High risk-allele not detected	No copies of high-risk allele	

Next Steps

- Endorsed by Association of Molecular Pathology
- Used in IOM's DiGITIZE Action Collaborative implementation guides
- LOINC-Terms accepted December 2015
- Using in CPIC guidelines

CPIC guidelines in Foreign Languages

Pharmacogenes for ACMG list

- TPMT

Acknowledgements

- PGRN
- PharmGKB
  - Teri Klein
  - Russ Altman
  - Michelle Whirl-Carrillo
  - PharmGKB curators
- CPIC members/observers
- CPIC informatics working group
  - James Hoffman
  - Michelle Whirl-Carrillo
  - Bob Freimuth
- CPIC Steering Committee
  - Mary Relling
  - Julie Johnson
  - Teri Klein
  - Dan Roden
  - Rachel Tyndale

CPIC issues to discuss

- How best to assess usage of CPIC guidelines?
- How to improve interactions with external groups?
- How to prioritize given limited resources?
- Plan for sustainability over time
- How to interact with SAB?
- Timeline: grant renewal application likely due summer of 2017

Guidelines.gov

Number of CPIC guideline page views reported by guidelines.gov (through July 2015)		
Title	Date Posted	Page Views
Clinical Pharmacogenetics Implementation Consortium guidelines for HLA-B genotype and abacavir dosing.	7/26/2013	10159
Clinical Pharmacogenetics Implementation Consortium guidelines for human leukocyte antigen-B genotype and allopurinol dosing.	7/26/2013	10253
Clinical Pharmacogenetics Implementation Consortium guideline for CYP2D6 and CYP2C19 genotypes and dosing of tricyclic antidepressants.	7/26/2013	14623
Clinical Pharmacogenetics Implementation Consortium guidelines for thiopurine methyltransferase genotype and thiopurine dosing.	7/26/2013	10171
Clinical Pharmacogenetics Implementation Consortium guidelines for CYP2C19 genotype and clopidogrel therapy: 2013 update.	2/14/2014	7648
Clinical Pharmacogenetics Implementation Consortium guidelines for HLA-B genotype and carbamazepine dosing.	2/14/2014	6961
Clinical Pharmacogenetics Implementation Consortium guidelines for cytochrome P450 2D6 genotype and codeine therapy: 2014 update.	8/29/2014	12543
Clinical Pharmacogenetics Implementation Consortium guidelines for dihydropyrimidine dehydrogenase genotype and fluoropyrimidine dosing.	8/29/2014	1842
Clinical Pharmacogenetics Implementation Consortium (CPIC) guidelines for IFNL3 (IL28B) genotype and PEG interferon-α–based regimens.	8/29/2014	2054
Clinical Pharmacogenetics Implementation Consortium (CPIC) guidelines for ivacaftor therapy in the context of CFTR genotype.	12/5/2014	1738
The Clinical Pharmacogenetics Implementation Consortium guideline for SLCO1B1 and simvastatin-induced myopathy: 2014 update.	3/13/2015	11874
Clinical Pharmacogenetics Implementation Consortium (CPIC) guidelines for rasburicase therapy in the context of G6PD deficiency genotype.	3/13/2015	1223

New Results

Previous Next

Relative Citation Ratio (RCR): A new metric that uses citation rates to measure influence at the article level

Bruce Ian Hutchins, Xin Yuan, James M Anderson, George M Santangelo

doi: http://dx.doi.org/10.1101/029629

Posted October 22, 2015.

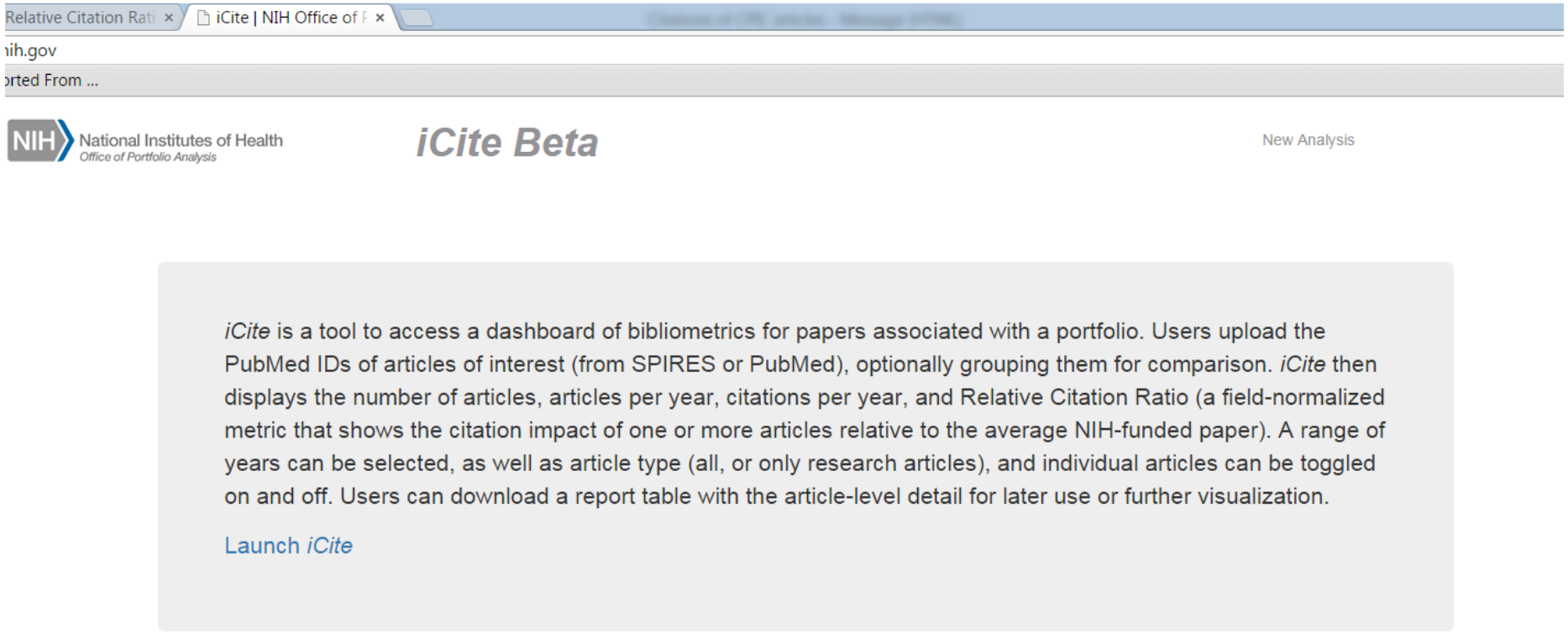
Abstract | Info/History | Metrics | Preview PDF

Abstract

Despite their recognized limitations, bibliometric assessments of scientific productivity have been widely adopted. We describe here an improved method that makes novel use of the co-citation network of each article to field-normalize the number of citations it has received. The resulting Relative Citation Ratio is article-level and field-independent, and provides an alternative to the invalid practice of using Journal Impact Factors to identify influential papers. To illustrate one application of our method, we analyzed 88,835 articles published between 2003 and 2010, and found that the National Institutes of Health awardees who authored those papers occupy relatively stable positions of influence across all disciplines. We demonstrate that the values generated by this method strongly correlate with the opinions of subject matter experts in biomedical research, and suggest that the same approach should be generally applicable to articles published in all areas of science. A beta version of iCite, our web tool for calculating Relative Citation Ratios of articles listed in PubMed, is available at https://icite.od.nih.gov .

Subject Area

Scientific Communication



cites/year of each paper, normalized to the citations per year received by NIH-funded papers in the same field and year. A paper with an RCR of 1.0 has received the same number of cites/year as the average NIH-funded paper in its field, while a paper with an RCR of 2.0 has received twice as many cites/year as the average NIH-funded paper in its field. (Average high-impact Nature article ~ 4).

Year	Title	Authors	RCR
2013	Clinical Pharmacogenetics Implementation Consortium guidelines for dihydropyrimidine dehydrogenase genotype and fluoropyrimidine dosing.	Caudle, K E; Thorn, C F; Klein, T E; Swen, J J; McLeod, H L; Diasio, R B; Schwab, M	4.44
2013	Clinical Pharmacogenetics Implementation Consortium guidelines for CYP2C19 genotype and clopidogrel therapy: 2013 update.	Scott, S A; Sangkuhl, K; Stein, C M; Hulot, J-S; Mega, J L; Roden, D M; Klein, T E; Sabatine, M S; Johnson, J A; Shuldiner, A R;	8.97
2013	Clinical Pharmacogenetics Implementation Consortium guidelines for HLA-B genotype and carbamazepine dosing.	Leckband, S G; Kelsoe, J R; Dunnenberger, H M; George, A L; Tran, E; Berger, R; Müller, D J; Whirl-Carrillo, M; Caudle, K E; Pirmohamed, M;	4.92
2013	Clinical Pharmacogenetics Implementation Consortium guideline for CYP2D6 and CYP2C19 genotypes and dosing of tricyclic antidepressants.	Hicks, J K; Swen, J J; Thorn, C F; Sangkuhl, K; Kharasch, E D; Ellingrod, V L; Skaar, T C; Müller, D J; Gaedigk, A; Stingl, J C;	10.66
2013	Clinical pharmacogenetics implementation consortium guidelines for thiopurine methyltransferase genotype and thiopurine dosing: 2013 update.	Relling, M V; Gardner, E E; Sandborn, W J; Schmiegelow, K; Pui, C-H; Yee, S W; Stein, C M; Carrillo, M; Evans, W E; Hicks, J K; Schwab, M; Klein, T E	9.59
2013	Clinical Pharmacogenetics Implementation Consortium guidelines for human leukocyte antigen-B genotype and allopurinol dosing.	Hershfield, M S; Callaghan, J T; Tassaneeyakul, W; Mushiroda, T; Thorn, C F; Klein, T E; Lee, M T M	6.19
2012	The clinical pharmacogenomics implementation consortium: CPIC guideline for SLCO1B1 and simvastatin-induced myopathy.	Wilke, R A; Ramsey, L B; Johnson, S G; Maxwell, W D; McLeod, H L; Voora, D; Krauss, R M; Roden, D M; Feng, Q; Cooper-Dehoff, R M; Gong, L; Klein, T E; Wadelius, M; Niemi, M;	7.69
2012	Clinical pharmacogenetics implementation consortium guidelines for HLA-B genotype and abacavir dosing.	Martin, M A; Klein, T E; Dong, B J; Pirmohamed, M; Haas, D W; Kroetz, D L;	4.52
2012	Clinical Pharmacogenetics Implementation Consortium (CPIC) guidelines for codeine therapy in the context of cytochrome P450 2D6 (CYP2D6) genotype.	Crews, K R; Gaedigk, A; Dunnenberger, H M; Klein, T E; Shen, D D; Callaghan, J T; Kharasch, E D; Skaar, T C;	13.47
2011	Clinical Pharmacogenetics Implementation Consortium Guidelines for CYP2C9 and VKORC1 genotypes and warfarin dosing.	Johnson, J A; Gong, L; Whirl-Carrillo, M; Gage, B F; Scott, S A; Stein, C M; Anderson, J L; Kimmel, S E; Lee, M T M; Pirmohamed, M; Wadelius, M; Klein, T E; Altman, R B;	9.68
2011	Clinical Pharmacogenetics Implementation Consortium guidelines for cytochrome P450-2C19 (CYP2C19) genotype and clopidogrel therapy.	Scott, S A; Sangkuhl, K; Gardner, E E; Stein, C M; Hulot, J-S; Johnson, J A; Roden, D M; Klein, T E; Shuldiner, A R;	8.86
2011	Clinical Pharmacogenetics Implementation Consortium guidelines for thiopurine methyltransferase genotype and thiopurine dosing.	Relling, M V; Gardner, E E; Sandborn, W J; Schmiegelow, K; Pui, C-H; Yee, S W; Stein, C M; Carrillo, M; Evans, W E; Klein, T E;	11.04
	CPIC: Clinical Pharmacogenetics Implementation		9.61

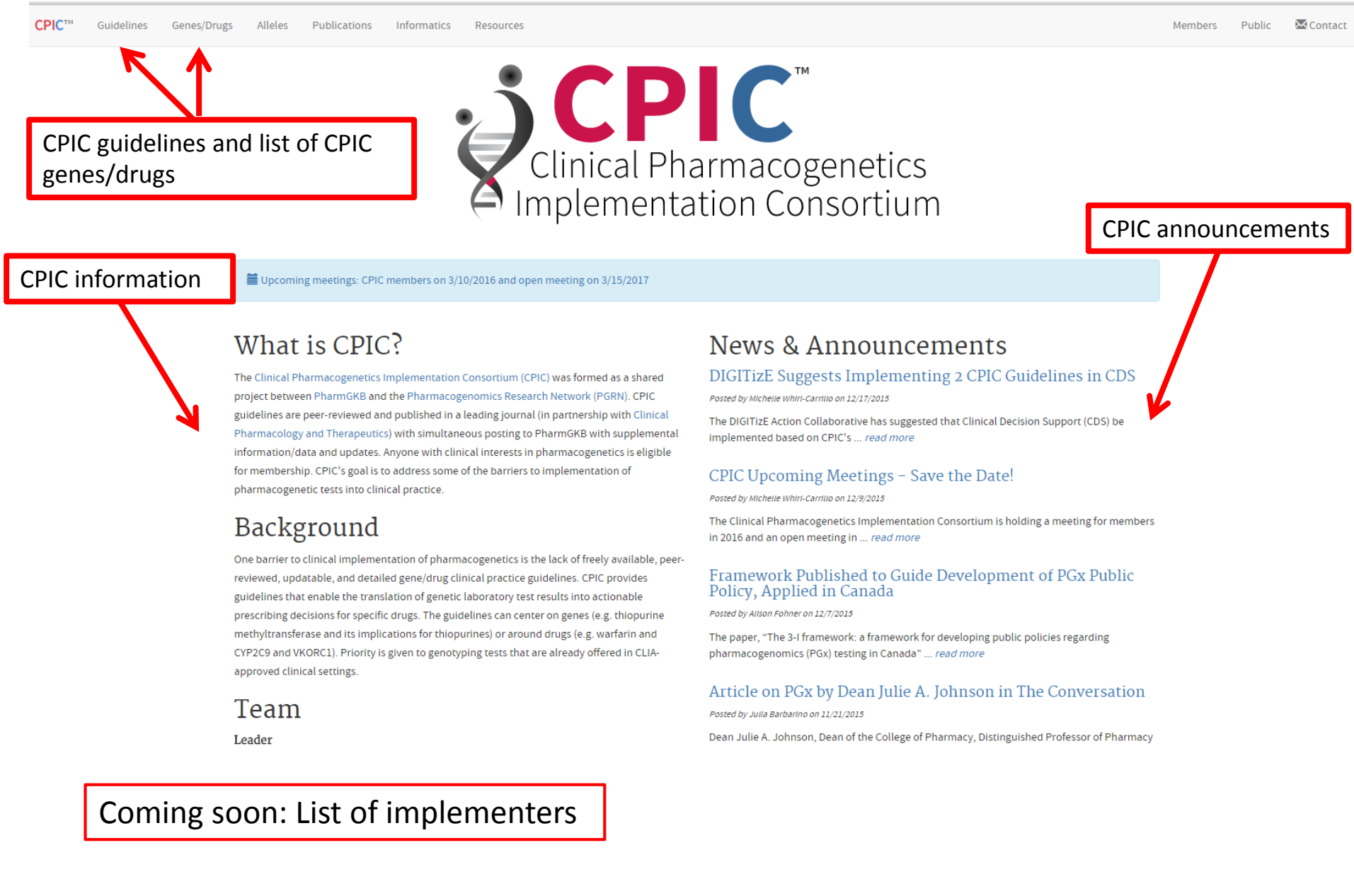
CPIC meetings

- **CPIC luncheon meeting**—open to CPIC members
  - Thursday March 10th, 2016 Noon-1:30 PM
  - Hilton Bayfront Hotel, San Diego, CA
  - Email: kelly.caudle@stjude.org to attend

- **CPIC Meeting** (a specialty meeting of the PGRN)
  - Wednesday March 15th, 2017
  - Marriott Wardman Park Hotel, Washington DC
  - Further details pending.

- To standardize phenotype terms in the CPIC guidelines and harmonize terms with external groups (e.g., ClinGen, IOM, etc.) to facilitate use in Electronic Health Records
  - Allele functional status terms (Table 1 in guideline)
    - Low, absent, high, intermediate
  - Phenotype (i.e. from diplotypes; Table 2 in guideline)
    - UM, EM, IM, PM

CPIC website: www.cpicpgx.org



Coming soon: List of implementers

CPIC Resources

CPIC information available at cpicpgx.org

CPIC slides

CPIC projects

CPIC logo

Overview Presentation

This presentation describes CPIC, the underlying assumptions of CPIC guidelines, the guideline development process and how the guidelines can be implemented in a clinical setting.

Overview Presentation (.pptx)

Term Standardization for Clinical Pharmacogenetic Test Results

CPIC is leading an effort to standardize terms for clinical pharmacogenetic tests. The goal of the project is to create standardized terms to be used in CPIC guidelines (specifically Tables 1 and 2) and in the larger pharmacogenetics community. A list of phenotype term options based on an extensive literature review and scanning of sample laboratory reports is being developed. Refinement of the terms will be performed using a modified Delphi method in the context of expert opinions.

- **Brief overview** of the project and final results (.pptx)
- **Proposal** for Term Standardization for Clinical Pharmacogenetic Test Results: alleles and phenotypes (.pdf)
- Delphi 1 survey results by question (.pdf)
- Delphi 2 survey results (.pdf)
- Delphi 3 survey results (.pdf)
- Delphi 4 survey results (.pdf)
- **Final terms** for the CPIC Term Standardization Project (.pdf)

CPIC Logo Graphics

Logo image files that you can use for referring to CPIC. The images are in PNG and SVG format.

logo without full name	200px width PNG	400px width PNG	600px width PNG	SVG
logo with full name	200px width PNG	400px width PNG	600px width PNG	SVG
logo source (& other logos)	Adobe Illustrator (.ai)			

CPIC Dosing Guideline for simvastatin and SLCO1B1

last updated 06/30/2014

Summary

The FDA recommends against 80mg daily simvastatin dosage. In patients with the C allele at SLCO1B1 rs4149056, there are modest increases in myopathy risk even at lower simvastatin doses (40mg daily); if optimal efficacy is not achieved with a lower dose, alternate agents should be considered.

Find genotype-based dosing recommendation

Pick rs4149056 alleles: No selection | No selection

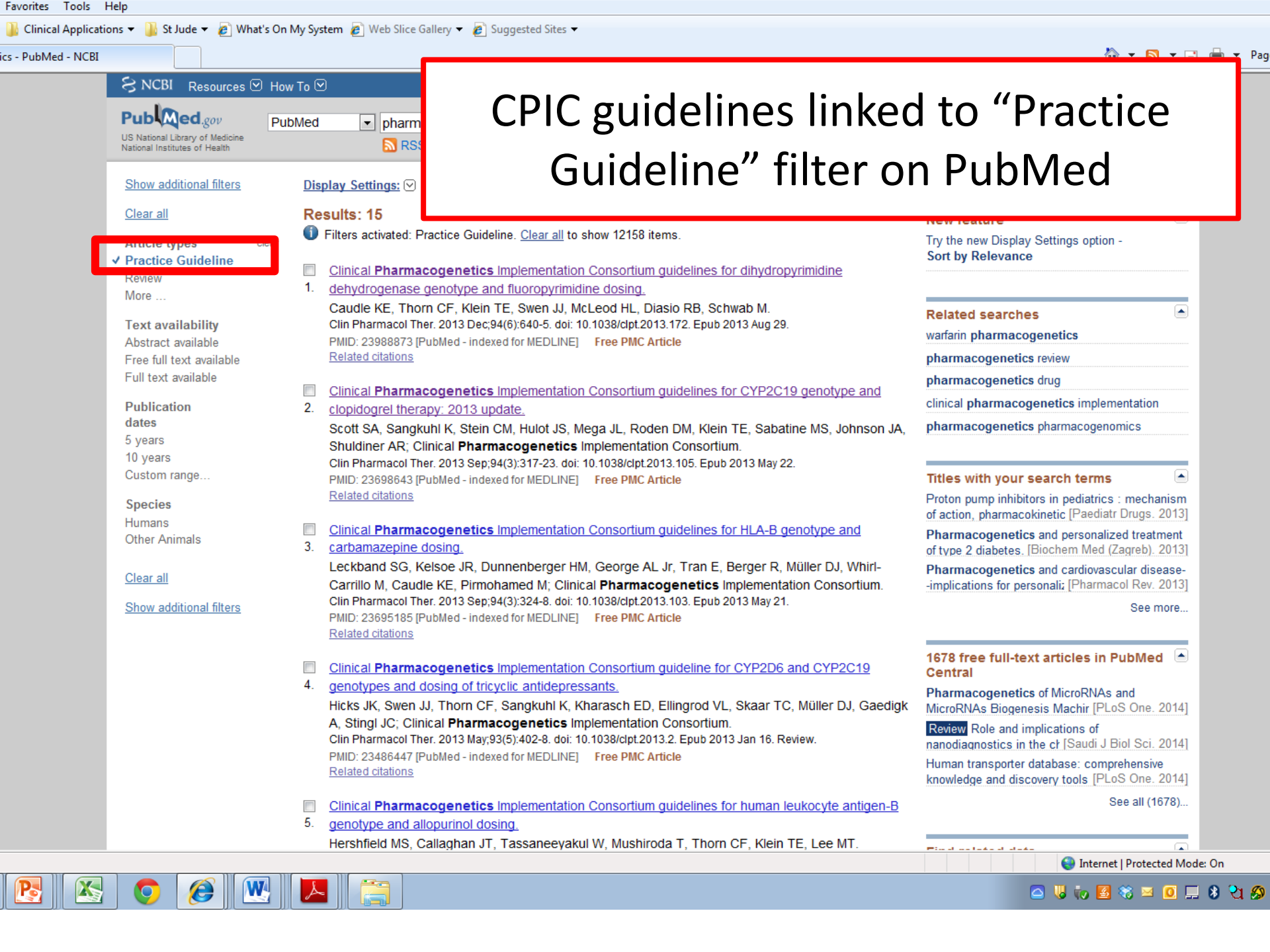
Annotation

June 2014 Update

Advance online publication 9 July 2014.

- The 2014 update of CPIC guideline regarding SLCO1B1 and simvastatin-induced myopathy, has been published in Clinical Pharmacology and Therapeutics. CPIC extensively reviewed the literature from February 2011 to December 2013 and concluded the dosing recommendations provided in the 2012 CPIC guideline for SLCO1B1 and simvastatin-induced myopathy have not changed. However, this updated guideline also provides a brief review regarding SLCO1B1 genotype and risk of myopathy for other statins. Furthermore, comprehensive translation tables mapping SLCO1B1 genotypes to coded genotype/phenotype summaries, EHR priority result notation and interpretation (consultation) text were created to facilitate incorporation of SLCO1B1 pharmacogenetics into an electronic health record with clinical decision support.*
- This guideline is applicable to:
  - adult patients
  - pediatric patients
- Excerpt from the 2014 simvastatin dosing guideline:
  - "For simvastatin, the evidence linking myopathy to rs4149056 in SLCO1B1 is of high quality, and this association has been reproduced in randomized trials and clinical practice-based cohorts. Conversely, the association of rs4149056 with myopathy has been less compelling for other statins. We therefore focus this guideline on simvastatin."
    "In 2011 and updated in 2013, the FDA added warnings to the simvastatin product label to direct providers away from initiating at the 80 mg simvastatin dose. "
    "At lower simvastatin doses (e.g., 40 mg daily), it is our position that SLCO1B1 genotype (if available) could be used to warn providers about modest increases in myopathy risk for patients with a C allele at rs4149056. In these circumstances, we recommend a lower dose of simvastatin or use an alternative statin (e.g. pravastatin or rosuvastatin) and we also highlight the potential utility of routine CK surveillance (Table 2). If patients with a C allele at rs4149056 do not achieve optimal LDL cholesterol-lowering efficacy with a lower dose (e.g. 20 mg) of simvastatin, we recommend the prescribing physician consider an alternate statin based on (i) potency differences (i.e., use a lower dose of a higher potency statin such as atorvastatin, rosuvastatin, or pitavastatin), (ii) drug-drug interactions (e.g., boceprevir, clarithromycin, cyclosporine, strong CYP3A4 inhibitors, etc.), and (iii) relevant co-morbidities (e.g., trauma, significant renal impairment, post-solid organ transplant, thyroid disease etc.)."
    "At the time of this writing, there are no data available regarding SLCO1B1 genotype effects on simvastatin response or myopathy in pediatric patient populations, although there is no reason to suspect that the polymorphisms in SLCO1B1 will affect simvastatin's metabolism differently in children compared to adults."
- Download and read:
  - The Clinical Pharmacogenetics Implementation Consortium (CPIC) guideline for SLCO1B1 and simvastatin-induced myopathy: 2014 update
  - 2014 supplement
  - 2014 SLCO1B1 translation table

CPIC guidelines are posted on PharmGKB (www.pharmgkb.org)


CPIC guidelines linked to “Practice Guideline” filter on PubMed
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Full text available
Publication dates
5 years
10 years
Custom range...
Species
Humans
Other Animals
Clear all
Show additional filters
Display Settings:
Results: 15
Filters activated: Practice Guideline. Clear all to show 12158 items.
1. Clinical Pharmacogenetics Implementation Consortium guidelines for dihydropyrimidine dehydrogenase genotype and fluoropyrimidine dosing.
Caudle KE, Thorn CF, Klein TE, Swen JJ, McLeod HL, Diasio RB, Schwab M.
Clin Pharmacol Ther. 2013 Dec;94(6):640-5. doi: 10.1038/clpt.2013.172. Epub 2013 Aug 29.
PMID: 23988873 [PubMed - indexed for MEDLINE] Free PMC Article
Related citations
2. Clinical Pharmacogenetics Implementation Consortium guidelines for CYP2C19 genotype and clopidogrel therapy: 2013 update.
Scott SA, Sangkuhl K, Stein CM, Hulot JS, Mega JL, Roden DM, Klein TE, Sabatine MS, Johnson JA, Shuldiner AR; Clinical Pharmacogenetics Implementation Consortium.
Clin Pharmacol Ther. 2013 Sep;94(3):317-23. doi: 10.1038/clpt.2013.105. Epub 2013 May 22.
PMID: 23698643 [PubMed - indexed for MEDLINE] Free PMC Article
Related citations
3. Clinical Pharmacogenetics Implementation Consortium guidelines for HLA-B genotype and carbamazepine dosing.
Leckband SG, Kelsoe JR, Dunnenberger HM, George AL Jr, Tran E, Berger R, Müller DJ, Whirl-Carrillo M, Caudle KE, Pirmohamed M; Clinical Pharmacogenetics Implementation Consortium.
Clin Pharmacol Ther. 2013 Sep;94(3):324-8. doi: 10.1038/clpt.2013.103. Epub 2013 May 21.
PMID: 23695185 [PubMed - indexed for MEDLINE] Free PMC Article
Related citations
4. Clinical Pharmacogenetics Implementation Consortium guideline for CYP2D6 and CYP2C19 genotypes and dosing of tricyclic antidepressants.
Hicks JK, Swen JJ, Thorn CF, Sangkuhl K, Kharasch ED, Ellingrod VL, Skaar TC, Müller DJ, Gaedigk A, Stingl JC; Clinical Pharmacogenetics Implementation Consortium.
Clin Pharmacol Ther. 2013 May;93(5):402-8. doi: 10.1038/clpt.2013.2. Epub 2013 Jan 16. Review.
PMID: 23486447 [PubMed - indexed for MEDLINE] Free PMC Article
Related citations
5. Clinical Pharmacogenetics Implementation Consortium guidelines for human leukocyte antigen-B genotype and allopurinol dosing.
Hershfield MS, Callaghan JT, Tassaneeyakul W, Mushiroda T, Thorn CF, Klein TE, Lee MT.
Try the new Display Settings option - Sort by Relevance
Related searches
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pharmacogenetics review
pharmacogenetics drug
clinical pharmacogenetics implementation
pharmacogenetics pharmacogenomics
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Proton pump inhibitors in pediatrics : mechanism of action, pharmacokinetic [Paediatr Drugs. 2013]
Pharmacogenetics and personalized treatment of type 2 diabetes. [Biochem Med (Zagreb). 2013]
Pharmacogenetics and cardiovascular disease--implications for personali: [Pharmacol Rev. 2013]
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1678 free full-text articles in PubMed Central
Pharmacogenetics of MicroRNAs and MicroRNAs Biogenesis Machir [PLoS One. 2014]
Review Role and implications of nanodiagnostics in the cl [Saudi J Biol Sci. 2014]
Human transporter database: comprehensive knowledge and discovery tools [PLoS One. 2014]
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Clin Pharmacol Ther. 2013 Dec;94(6):640-5. doi: 10.1038/clpt.2013.172. Epub 2013 Aug 29.

Clinical Pharmacogenetics Implementation Consortium guidelines for dihydropyrimidine dehydrogenase genotype and fluoropyrimidine dosing.

Caudle KE[1], Thorn CF, Klein TE, Swen JJ, McLeod HL, Diasio RB, Schwab M.

Author information

Abstract

The fluoropyrimidines are the mainstay chemotherapeutic agents for the treatment of many types of cancers. Detoxifying metabolism of fluoropyrimidines requires dihydropyrimidine dehydrogenase (DPD, encoded by the DPYD gene), and reduced or absent activity of this enzyme can result in severe, and sometimes fatal, toxicity. We summarize evidence from the published literature supporting this association and provide dosing recommendations for fluoropyrimidines based on DPYD genotype (updates at http://www.pharmgkb.org).

PMID: 23988873 [PubMed - indexed for MEDLINE] PMCID: PMC3831181 Free PMC Article

CPIC is cited in NIH's Genetic Test Registry (GTR) for clinical pharmacogenetic tests