

## Legend to *CYP2D6* Allelic Variation Summary Table (R2)

A literature search was performed using the following search terms: *CYP2D6*, ethnic, ethnicity, populations, cytochrome P450 2D6, names of countries and/or populations such as 'Spain, Spanish, Brazil, Brazilian, etc or a combination thereof. In addition, reports were also identified from citations by others or review articles.

Manuscripts published before 1995 were excluded due to the sparse amount of genotype information provided in these reports. Also, only reports describing cohorts  $\geq 50$  subjects were included, with few selected exceptions (i.e. smaller cohorts were part of larger studies).

'-' indicates that this allele has not been tested. N/a indicates that no average, minimum or maximum allele frequencies are available. Healthy subjects and patient cohorts are listed separately or were combined in some instances if 'no difference' was reported. The number of total subjects was not determined for each major ethnic group, because some reports utilized the same cohort(s), or a substantial number of subjects, in more than one study, e.g. to determine additional sequence variations/allelic variants.

A few studies did not report allele frequencies, but genotype counts/frequencies. In these instances, allele frequencies were calculated from the data provided.

In some instances allele frequency calculation errors were detected and are shown corrected. In some instances authors were contacted for additional information and verification. Hence, allele frequencies in this table do not always correspond with those in their original publications.

Some papers did not report the frequency of *CYP2D6\*1*; in such cases, its frequency was calculated as 100% - the sum of variants. *CYP2D6\*1* is indicated as '-', if a manuscript only reported on a particular rare allelic variant or few variants which would dramatically overestimate the frequency of *CYP2D6\*1*.

For some alleles, including *CYP2D6\*14* and *\*56*, manuscripts report an allele subtype. The reader is referred to the original article for further detail.

Note that frequencies tabulated for *CYP2D6\*36* refer to the 'single' *CYP2D6\*36* gene and not to the *CYP2D6\*36+\*10* tandem. This tandem is typically found in Asians and is often not discriminated from alleles carrying a 'single' *CYP2D6\*10* gene. Particularly in Asians, reported *CYP2D6\*10* allele frequencies comprise *CYP2D6\*10* and the *CYP2D6\*36+\*10* tandem.

*CYP2D6\*41* was tabulated as reported regardless of whether genotyping was performed using -1584C>G or 2988G>A. Note that the P450 AmpliChip Test determines *CYP2D6\*41* via -1584C>G, which may particularly impact the accurate determination of *CYP2D6\*2* and *\*41* in Africans and their descendants. *CYP2D6\*41* allele frequencies may dramatically differ depending on whether -1584C>G or 2988G>A was used for its detection.

*CYP2D6\*45* and *\*46* are shown separately and combined, because these alleles share a key SNP and are often not discriminated.

Note that some reports have used a re-sequencing approach. For some, only the alleles specifically reported on have been tabulated, while other alleles are shown as '-'. If absence of particular alleles could be inferred, their frequencies are shown as '0'. Please see original articles for specific information.

Many studies tested for the presence of ‘gene duplications’, but did not determine whether the duplication affected a *CYP2D6*\*1, \*2, \*4 or other gene. Often, duplications are defaulted to and reported as *CYP2D6*\*2xN. Unless duplications were clearly discriminated, they were tabulated in this summary table as ‘undefined/other duplications’. Sometimes it may be possible to infer the nature of a duplication allele from a genotype (e.g. *CYP2D6*\*2/\*2x2); this however, could not systematically be captured in this tabulation. Also, some manuscripts reported on the number of gene copies, e.g. x2, x3, etc. Since there are few reports, these were combined with their respective x2 group.

Some alleles, including *CYP2D6*\*1 and \*2, have a wide range of allele frequencies. These alleles are ‘default’ alleles, which means that if no sequence variations are detected or only a small number of variants are tested, an allele is assigned as (or defaulted to) *CYP2D6*\*1 or \*2. In such instances, *CYP2D6*\*1 and \*2 frequencies are likely over-estimated.

The nomenclature for *CYP2D7/2D6* hybrid alleles has recently been updated. All alleles carrying a gene composed of *CYP2D7* and *2D6* and have a T-insertion in exon 1, have been consolidated under the *CYP2D6*\*13 designation. This change affects *CYP2D6*\*13, \*16, \*66, \*67, \*79 and \*80; each is shown in its own respective column, but are also shown as ‘\*13 revised’. Note that *CYP2D6*\*76, \*77 and \*78 have only been reported in tandem arrangements to date. These are listed separately along their revised genotypes.

This *CYP2D6* allele frequency summary may not be complete. If you wish to have your paper and/or data included into this resource, or identify any errors, please contact Andrea Gaedigk, PhD at [agaedigk@cmh](mailto:agaedigk@cmh). This table will be periodically updated to include additional reports and *CYP2D6* allelic variants.

To access the *CYP2D6* allelic variation summary table in excel format please see [http://www.pharmgkb.org/download.action?filename=CYP2D6\\_allele\\_frequency\\_table\\_R2.xlsx](http://www.pharmgkb.org/download.action?filename=CYP2D6_allele_frequency_table_R2.xlsx). The excel table was last updated August 2013.

If this legend is reached through the *CPIC Guidelines for CYP2D6 Genotype and Codeine Therapy – Supplement v.1.0* published in 2012, please note the allele frequencies for some populations have changed in the excel table referred above.

Please see

[http://www.pharmgkb.org/download.action?filename=CYP2D6\\_allele\\_frequency\\_table.xlsx](http://www.pharmgkb.org/download.action?filename=CYP2D6_allele_frequency_table.xlsx) to access the previous version of *CYP2D6* allelic Variation Summary Table.

Authors	Major ethnicity	*1	*2	*3	*4	*5	*6	*7	*8	*9	*10	*14	*17	*41	*1xN	*2xN	*4xN
Daly et al	Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leathart et al	Africa	83.00	-	0.60	7.30	6.90	-	-	-	-	-	-	-	-	-	-	-
Leathart et al	Africa	-	-	-	-	-	0.00	-	-	0.70	5.00	-	26.00	-	-	-	-
Wan et al	Africa	34.70	26.90	0.30	7.80	6.20	-	-	-	-	7.50	-	14.60	-	-	-	-
Gaedigk et al	Africa	29.70	19.10	0.20	5.40	6.60	0.40	0.00	0.00	0.20	3.60	0.00	21.30	-	0.12	0.16	0.30
Gaedigk et al	Africa	29.70	19.10	0.20	5.40	6.60	0.40	0.00	0.00	0.20	3.60	0.00	21.30	-	1.20	1.60	0.30
Gaedigk et al	Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaedigk et al	Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaedigk et al	Africa	-	-	-	-	-	-	-	-	-	-	-	-	2.10	-	-	-
Cai et al	Africa	36.20	4.20	0.38	7.60	5.00	0.38	0.00	0.00	1.15	2.70	0.00	15.60	14.90	0.00	2.30	1.90
Cai et al	Africa	34.10	4.90	0.55	4.90	6.60	0.00	0.00	0.00	0.55	4.90	0.00	13.70	13.70	0.00	2.20	2.20
Cai et al	Africa	35.30	4.50	0.45	6.50	5.60	0.23	0.00	0.00	0.90	3.60	0.00	14.90	14.40	0.00	2.25	2.00
Gaedigk et al	Africa	-	-	-	-	-	-	-	-	-	6.63	-	-	-	-	-	-
Gaedigk et al	Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	1.20	2.40	2.00
Gaedigk et al	Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	0.71	1.42	2.68
Gaedigk et al	Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.68	4.11
Gaedigk et al	Africa	-	-	-	-	-	-	-	-	-	3.20	-	-	-	-	-	-
Gaedigk et al	Africa	32.90	13.98	0.18	3.86	6.43	0.55	0.00	0.00	0.18	2.94	-	19.12	1.84	0.37	1.84	2.76
de Leon et al	Africa	59.70	6.00	0.20	5.50	2.80	0.20	-	0.00	0.40	3.80	-	18.40	14.90	0.80	1.20	2.40
Gaedigk et al	Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yee et al	African	30.70	28.7	0	8	8.7	0	0	0	0	2.7	0	17.3	4	-	-	-
Average		40.60	14.15	0.31	6.23	6.14	0.24	0.00	0.00	0.48	4.18	0.00	18.22	9.41	0.44	1.61	2.07
Min		29.70	4.20	0.00	3.86	2.80	0.00	0.00	0.00	0.00	2.70	0.00	13.70	1.84	0.00	0.16	0.30
Max		83.00	28.70	0.60	8.00	8.70	0.55	0.00	0.00	1.15	7.50	0.00	26.00	14.90	1.20	2.40	4.11
Akiliu et al	Africa	61.90	-	0.00	1.20	3.30	-	-	-	-	8.60	-	9.00	-	-	-	-
Akiliu et al	Africa	21.50	13.60	0.00	4.10	3.30	-	-	-	-	8.60	-	11.30	21.60	-	-	-
Akiliu et al	Africa	18.50	14.20	0.00	5.90	3.10	0.00	-	-	-	8.00	-	14.90	25.30	-	-	-
Griese et al	Africa	43.70	10.60	0.00	7.00	6.00	0.00	0.00	0.00	0.00	3.10	0.00	27.70	-	-	-	-
Gaedigk et al	Africa	26.77	15.15	0.00	7.07	17.17	0.00	0.00	0.00	0.00	2.53	0.51	12.63	3.54	1.52	1.01	0.00
Sistonen et al	Africa	24.40	32.70	0.00	2.80	5.90	0.00	-	-	0.00	4.30	-	12.20	2.80	2.40	0.80	3.50
Bathum et al	Africa	87.00	-	0.00	4.00	-	27.47	-	-	-	-	-	-	-	-	-	-
Dandara et al	Africa	42.10	21.00	0.00	2.30	4.50	-	-	-	-	-	-	30.10	-	-	-	-
Dandara et al	Africa	56.10	18.40	0.50	1.40	3.30	-	-	-	-	-	-	20.30	-	-	-	-
Wennerholm et al	Africa	27.80	40.00	0.00	0.90	6.30	0.00	-	-	-	3.80	-	17.00	-	-	-	1.00
Wennerholm et al	Africa	27.80	20.30	0.00	0.90	6.10	0.00	-	-	-	3.80	-	17.00	-	-	-	0.09
Man et al	Africa	29.90	30.90	0.00	6.10	1.00	0.00	0.00	-	0.40	5.70	-	20.70	-	-	-	-
Dandara et al	Africa	50.00	17.80	0.00	3.30	4.60	-	-	-	-	-	-	24.00	-	-	-	-
Wright et al	Africa	24.04	13.94	0.00	1.44	16.35	0.00	-	0.00	-	19.23	-	14.90	1.44	0.48	2.88	2.40
Masimirembwa et al	Africa	-	-	-	-	-	-	-	-	-	-	-	34.00	-	-	-	-
Dandara et al	Africa	47.00	13.00	0.00	2.00	4.00	-	-	-	-	-	-	34.00	-	-	-	-
Average		39.23	20.12	0.03	3.36	6.07	3.05	0.00	0.00	0.10	6.77	0.26	19.98	10.94	1.47	1.56	1.40
Min		18.50	10.60	0.00	0.90	1.00	0.00	0.00	0.00	0.00	2.53	0.00	9.00	1.44	0.48	0.80	0.00
Max		87.00	40.00	0.50	7.07	17.17	27.47	0.00	0.00	0.40	19.23	0.51	34.00	25.30	2.40	2.88	3.50
Mendoza et al	Americas	10.29	45.60	0.57	20.63	4.58	-	-	-	-	14.90	-	1.43	-	-	-	-
Casner	Americas	75.00	-	0.00	17.00	2.00	0.00	0.00	0.00	-	1.00	-	2.00	-	-	-	-
Luo et al	Americas	55.10	22.00	0.20	10.00	1.70	0.40	0.00	0.00	1.10	2.80	0.00	0.20	5.50	0.00	0.60	0.20
Gaedigk et al	Americas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Baillet et al	Americas	39.90	23.80	0.00	17.80	0.00	4.20	-	0.60	-	7.10	1.80	-	-	-	-	-
da Silva Silveira et al	Americas	78.91	-	7.89	13.16	-	-	-	-	-	-	-	-	-	-	-	-
da SilvaSilveira et al	Americas	87.88	-	3.03	9.09	-	-	-	-	-	-	-	-	-	-	-	-
da SilvaSilveira et al	Americas	82.87	-	3.09	14.04	-	-	-	-	-	-	-	-	-	-	-	-
da SilvaSilveira et al	Americas	88.76	-	1.69	9.55	-	-	-	-	-	-	-	-	-	-	-	-
Kohlrusch et al	Americas	41.38	12.65	1.15	6.32	4.02	0.00	-	-	0.00	4.02	0.00	9.20	10.92	0.00	1.72	0.00
Kohlrusch et al	Americas	42.93	12.50	0.00	10.33	1.09	2.17	-	-	2.17	2.72	0.54	2.17	7.07	0.54	4.35	1.62
Kohlrusch et al	Americas	38.44	18.28	1.07	13.18	2.15	0.54	-	-	1.61	2.15	0.00	1.34	8.33	0.54	2.96	0.54
Antunes et al	Americas	37.11	17.53	2.06	14.43	4.64	0.52	0.00	0.00	3.61	1.03	-	1.03	4.12	-	-	1.03
Jurima-Romet et al	Americas	89.10	-	0.00	8.62	-	-	-	-	-	2.30	-	-	-	-	-	-
Nowak et al	Americas	94.00	-	0.00	3.00	-	-	-	-	-	3.00	-	-	-	-	-	-
Nowak et al	Americas	68.00	-	0.00	24.00	-	-	-	-	-	8.00	-	-	-	-	-	-
Sistonen et al	Americas	60.20	30.10	0.00	3.20	0.90	0.00	-	-	0.00	0.00	-	0.50	0.00	2.30	2.80	0.00
Munoz et al	Americas	66.10	18.50	0.00	3.60	4.20	-	-	-	0.00	1.80	-	-	-	-	-	-
Roco et al	Americas	-	-	0.99	11.86	-	-	-	-	-	-	-	-	-	-	-	-
Isaza et al	Americas	38.80	37.00	1.20	19.40	0.80	0.00	0.00	0.00	-	-	-	1.60	-	-	-	-
Llerena et al	Americas	67.20	-	0.00	14.30	1.60	1.20	-	-	-	0.80	-	10.20	-	-	-	0.00
Llerena et al	Americas	76.48	-	0.00	14.60	1.90	0.08	-	-	-	0.40	-	2.70	-	-	-	0.04
Dorado et al	Americas	47.90	31.35	0.40	10.60	2.10	0.00	-	-	-	1.30	-	0.42	2.54	0.42	0.42	0.85
Lopez et al	Americas	43.42	19.34	1.44	11.21	2.67	-	-	-	-	12.45	-	1.65	-	1.65	3.29	-
Contreras et al	Americas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Contreras et al	Americas	50.00	25.50	0.00	14.00	2.00	-	-	-	-	2.60	-	0.00	-	-	-	-
Salazar-Flores	Americas	96.12	-	0	3.88	-	0	0	0	-	-	-	-	-	-	-	-
Salazar-Flores	Americas	93.20	-	1.2	5.6	-	0	0	0	-	-	-	-	-	-	-	-
Sosa-Macias et al	Americas	83.70	-	0.90	13.10	-	0.00	-	-	-	2.30	-	-	-	-	-	-
Sosa-Macias et al	Americas	99.40	-	0.00	0.60	-	0.00	-	-	-	0.00	-	-	-	-	-	-
Agundez et al	Americas	70.10	-	1.80	15.70	3.60	-	-	-	4.40	3.30	-	-	-	-	-	-
Llerena et al	Americas	76.10	-	0.00	14.20	4.60	0.00	-	-	-	3.10	-	0.00	-	-	-	0.00
Jorge et al	Americas	84.90	-	0.00	14.00	0.00	1.10	-	-	-	-	-	-	-	-	-	-
Jorge et al	Americas	82.40	-	0.00	17.10	0.00	0.50	-	-	-	-	-	-	-	-	-	-
Ruaño et al	Americas	-	-	-	0.20	-	-	-	-	-	-	-	-	-	-	-	-
Gaedigk et al	Americas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montane et al	Americas	36.89	13.59	0.49	1.94	5.34	0	0	0	0	2.91	0	16.5	1.46	0.49	4.37	2.91
Montane et al	Americas	44.61	17.37	0.6	11.68	2.69	0	0	0	0.3	5.09	0	0	13.47	0.6	0.9	0
Griman et al	Americas	62.80	22.10	0.00	12.30	0.00	0.00	-	-	-	2.80	-	-	-	-	-	-
Griman et al	Americas	39.90	11.30	0.00	42.50	0.00	0.00	-	-	-	6.30	-	-	-	-	-	-
Griman et al	Americas	59.80	31.50	0.00	5.40	0.00	0.00	-	-	-	3.30	-	-	-	-	-	-
Griman et al	Americas	81.20	15.00	0.00	2.50	0.00	0.00	-	-	-	1.30	-	-	-	-	-	-
Griman et al	Americas	63.80	32.80	0.00	1.70	0.00	0.00	-	-	-	1.70	-	-	-	-	-	-
Griman et al	Americas	75.00	20.80	0.00	4.20	0.00	0.00	-	-	-	0.00	-	-	-	-	-	-
Griman et al	Americas	41.50	37.90	0.00	13.40	2.00	1.20	-	-	-	4.00	-	-	-	-	-	-
Average		64.28	23.48	0.73	11.28	1.88	0.43	0.00	0.07	1.32	3.37	0.33	3.00	5.93	0.73	2.38	0.60

Authors	Major ethnicity	*1	*2	*3	*4	*5	*6	*7	*8	*9	*10	*14	*17	*41	*1xN	*2xN	*4xN
Min		10.29	11.30	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00
Max		99.40	37.90	3.09	42.50	5.34	2.17	0.00	0.00	4.40	12.45	0.54	16.50	13.47	2.30	4.37	2.91
Gaedigk et al	Asian	-	-	-	-	-	-	-	-	-	-	18.42	-	-	-	-	-
Man et al	Asian	31.00	11.20	0.00	0.40	3.20	0.00	0.00	-	0.00	49.40	0.60	0.00	-	-	-	-
Ji et al	East Asia	37.90	-	0.00	0.20	7.20	0.00	-	0.00	-	51.30	2.00	-	-	-	-	-
Ismail et al	East Asia	38.35	-	0.00	0.21	2.54	-	-	-	1.27	56.99	-	0.21	-	-	-	-
Cai et al	East Asia	-	-	-	-	-	-	-	-	-	55.80	1.80	-	-	-	-	-
Sheng et al	East Asia	-	-	-	-	-	-	-	-	-	-	-	-	-	0.41	0.00	0.00
Myrand et al	East Asia	21.60	16.00	0.00	0.00	6.40	0.00	0.00	0.00	-	53.00	0.50	-	-	-	-	-
Qin et al	East Asia	25.68	10.87	0.00	0.00	7.06	0.00	0.00	0.00	0.00	50.54	1.63	-	-	-	-	-
Qin et al	East Asia	24.72	15.73	0.00	0.56	3.67	0.00	0.00	0.00	0.00	46.63	1.12	-	-	-	-	-
Qin et al	East Asia	17.95	8.33	0.00	0.00	3.85	0.00	0.00	0.00	0.00	64.10	2.56	-	-	-	-	-
Zhou et al	East Asia	18.50	14.00	0.00	1.00	7.00	0.50	0.00	0.00	0.00	49.00	1.50	0.00	4.00	0.00	0.50	0.00
Kim et al	East Asia	27.50	13.50	-	-	9.60	-	-	-	-	43.80	1.10	-	2.20	-	-	-
Man et al	East Asia	28.10	11.00	0.00	1.10	6.10	0.00	0.00	-	0.00	48.40	1.10	0.00	-	-	-	-
Zuo et al	East Asia	-	-	-	-	-	-	-	-	-	57.35	-	-	-	-	-	-
Zuo et al	East Asia	-	-	-	-	-	-	-	-	-	22.43	-	-	-	-	-	-
Zuo et al	East Asia	-	-	-	-	-	-	-	-	-	39.72	-	-	-	-	-	-
Zuo et al	East Asia	-	-	-	-	-	-	-	-	-	46.52	-	-	-	-	-	-
Qin et al	East Asia	30.23	9.30	0.00	0.00	4.07	0.00	0.00	0.00	0.00	48.84	0.00	-	-	-	-	-
Yin et al	East Asia	-	-	-	-	-	-	-	-	-	48.72	-	-	-	-	-	-
Yin et al	East Asia	-	-	-	-	-	-	-	-	-	51.00	-	-	-	-	-	-
Yin et al	East Asia	-	-	-	-	-	-	-	-	-	25.22	-	-	-	-	-	-
Jin et al	East Asia	25.00	42.71	0	0	2.08	0	0	0	0	28.13	0	0	1.56	-	-	-
Sistonen et al	East Asia	30.90	16.40	0.00	2.70	5.80	0.00	-	-	0.00	39.40	-	0.00	2.30	0.40	0.60	0.00
Love et al	East Asia	30.00	12.40	0.00	0.00	2.40	0.00	-	-	-	52.40	-	-	2.80	-	-	-
Chida et al	East Asia	93.79	-	0.00	0.77	4.10	-	-	-	-	-	-	-	-	-	-	-
Tateishi et al	East Asia	42.30	9.20	0.00	0.50	6.10	-	-	-	-	40.80	-	-	-	-	-	-
Kubota et al	East Asia	40.20	12.96	0.00	0.00	6.17	-	-	-	-	38.58	2.16	0.00	-	-	-	-
Nishida et al	East Asia	43.00	12.30	-	0.20	4.50	-	-	-	-	38.10	0.70	-	-	0.50	0.50	-
Chida et al	East Asia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ishiguro et al	East Asia	39.80	12.30	-	0.00	6.20	-	-	-	-	37.00	2.20	-	-	0.30	0.30	-
Yamazaki et al	East Asia	41.10	9.20	0.00	0.50	6.10	0.00	0.00	0.00	0.00	40.80	0.00	0.00	-	-	-	-
Soyama et al	East Asia	-	-	-	0	3.52	-	-	-	-	31.22	0.7	-	-	-	-	-
Ebisawa et al	East Asia	42.66	11.36	-	0.17	7.17	-	-	-	-	36.19	-	-	-	-	-	-
Ikenaga et al	East Asia	-	10.20	-	-	-	-	-	-	-	-	-	-	2.60	-	-	-
Myrand et al	East Asia	27.00	15.50	0.00	0.50	7.00	0.00	0.00	0.00	-	43.00	0.50	-	-	-	-	-
Myrand et al	East Asia	32.30	14.40	0.00	0.50	7.10	0.00	0.00	0.00	-	42.80	0.00	-	-	-	-	-
Myrand et al	East Asia	33.50	18.30	0.00	0.00	4.80	0.00	0.00	0.00	-	37.30	0.00	-	-	-	-	-
Hosono et al	East Asia	43.40	12.80	0.00	0.40	5.70	0.00	0.00	0.00	0.00	8.60	0.30	0.00	-	0.50	0.40	0.00
Kiyotani et al	East Asia	38.78	7.65	0.00	0.51	7.14	0.00	0.00	0.00	0.00	8.67	0.00	0.00	1.53	0.51	0.00	0.00
Man et al	East Asia	44.50	10.00	0.00	0.10	5.10	0.00	0.00	-	0.00	37.80	0.10	0.00	-	-	-	-
Kiyotani et al	East Asia	47.45	-	-	0.00	4.59	0.00	-	-	-	45.92	0.00	-	0.51	-	-	-
Lee et al	East Asia	33.25	10.13	0.00	0.25	6.13	0.00	0.00	0.00	0.00	45.00	0.50	0.00	1.88	0.13	0.50	0.00
Myrand et al	East Asia	17.50	17.50	0.00	0.50	7.50	0.00	0.00	0.00	-	50.00	3.00	-	-	-	-	-
Lee et al	East Asia	32.32	10.88	0.00	0.00	5.61	-	-	-	-	45.58	0.33	-	2.24	0.07	0.99	0.00
Kim et al	East Asia	32.30	10.10	-	-	5.60	-	-	-	-	45.60	0.30	-	2.20	-	-	-
Man et al	East Asia	33.60	12.10	0.00	0.80	6.20	0.00	0.00	-	0.00	44.10	0.50	0.00	-	-	-	-
Kim et al	East Asia	34.69	12.24	0.00	0.00	9.18	0.00	0.00	0.00	0.00	17.35	0.00	0.00	0.00	-	-	-
Suwannasri et al	East Asia	21.00	9.70	-	0.70	4.30	0.00	-	-	-	44.60	1.04	-	-	-	-	-
Chamnannphon et al	East Asia	35.00	9.6	0	0.9	4.4	0	0	0	0	45.6	0.9	0	1.8	0	0	0
Veiga et al	East Asia	47.10	-	-	1.40	8.00	-	-	-	-	43.50	-	-	-	-	-	-
Kim et al	East Asia	24.60	7.80	-	-	6.10	-	-	-	-	57.00	1.20	-	2.90	-	-	-
Love et al	East Asia	24.00	11.00	0.00	0.50	5.00	0.00	-	-	-	58.50	-	-	1.00	-	-	-
Average		34.17	12.82	0.00	0.42	5.61	0.02	0.00	0.00	0.07	42.31	0.86	0.01	1.97	0.28	0.38	0.00
Min		17.50	7.65	0.00	0.00	2.08	0.00	0.00	0.00	0.00	8.60	0.00	0.00	0.00	0.00	0.00	0.00
Max		93.79	42.71	0.00	2.70	9.60	0.50	0.00	0.00	1.27	64.10	3.00	0.21	4.00	0.51	0.99	0.00
Daly et al	Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marez et al	Europe	33.50	32.70	1.70	17.20	6.90	1.20	0.10	0.10	2.70	1.50	0.00	0.10	-	-	-	-
Sachse et al	Europe	36.40	32.40	2.04	20.70	1.95	0.93	0.08	0.00	1.78	1.53	0.00	-	-	0.51	1.34	0.08
Leathart et al	Europe	76.00	-	1.20	18.00	2.90	-	-	-	-	-	-	-	-	-	-	-
Leathart et al	Europe	-	-	-	-	-	0.70	-	-	2.00	4.00	-	0.00	-	-	-	-
Griese et al	Europe	36.60	32.20	1.00	19.50	4.10	1.30	0.30	0.30	2.00	2.00	-	0.00	-	-	-	-
Gaedigk et al	Europe	37.00	33.70	1.00	17.50	3.80	1.00	0.00	0.00	2.90	1.90	-	0.20	-	0.20	0.70	0.20
Aynacioglu et al	Europe	37.10	35.30	0.00	11.30	1.49	0.74	0.50	0.00	0.62	6.06	0.00	1.11	-	3.59	1.98	0.25
Wan et al	Europe	40.60	26.20	1.40	19.90	2.10	-	-	-	-	8.00	-	0.30	-	-	-	-
Tamminga et al	Europe	79.30	-	1.80	18.40	-	0.40	0.10	0.00	-	-	-	-	-	-	-	-
Molden et al	Europe	71.08	-	0.00	21.08	6.02	1.81	-	-	-	-	-	-	-	-	-	-
Niewinski et al	Europe	75.70	-	1.30	23.00	-	-	-	-	-	-	-	-	-	-	-	-
Gaikovitch et al	Europe	70.86	-	1.03	17.07	2.41	1.21	-	-	-	4.14	-	-	-	1.72	0.52	0.00
Bozina et al	Europe	76.75	-	2.75	14.00	1.00	1.50	-	-	-	-	-	-	-	-	-	-
Gaedigk et al	Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Raimundo et al	Europe	36.40	17.50	-	-	-	-	-	-	2.10	1.80	-	-	8.40	0.00	1.10	-
Scordo et al	Europe	75.00	-	0.70	15.30	3.40	1.40	-	-	-	-	-	-	-	-	-	-
Fuselli et al	Europe	41.18	35.29	0.00	17.65	1.96	0.00	-	-	0.98	0.98	-	0.98	-	0.00	0.98	0.00
Fuselli et al	Europe	36.46	40.63	0.00	12.50	1.04	0.00	-	-	0.00	4.17	-	0.00	-	0.00	2.08	0.00
Zachrisson et al	Europe	36.70	32.40	1.40	24.40	4.30	0.09	-	-	-	-	-	-	-	-	-	-
Zachrisson et al	Europe	42.80	34.10	1.50	16.90	3.80	0.80	-	-	-	-	-	-	-	-	-	-
Gaedigk et al	Europe	-	-	-	-	-	-	-	-	-	-	-	-	7.60	-	-	-
Aydin et al	Europe	83.00	-	2.00	15.00	-	-	-	-	-	-	-	-	-	-	-	-
Halling et al	Europe	61.60	-	0.20	33.40	-	1.90	-	-	0.80	-	-	-	-	-	-	-
Pedersen et al	Europe	69.38	-	2.17	22.64	-	1.99	-	-	3.80	-	-	-	-	-	-	-
Li et al	Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toscano et al	Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaedigk et al	Europe	-	-	-	-	-	-	-	-	-	3.83	-	-	-	-	-	-
Menoyo et al	Europe	31.00	40.47	0.95	13.80	3.33	0.95	0.00	0.00	2.38	1.90	0.00	-	-	1.90	1.90	0.47
Rasmussen et al	Europe	36.90	22.40	3.10	19.10	2.90	1.60	0.00	0.00	3.60	0.90	-	0.00	6.90	0.20	1.80	0.00
Gaedigk et al	Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00	0.76	0.38
Gaedigk et al	Europe	-	-	-	-	-	-	-	-	-	1.47	-	-	-	-	-	-

Authors	Major ethnicity	*1	*2	*3	*4	*5	*6	*7	*8	*9	*10	*14	*17	*41	*1xN	*2xN	*4xN
Sistonen et al	Europe	34.40	28.70	0.30	17.20	3.20	0.60	-	-	2.50	2.90	-	0.00	7.00	0.60	1.30	0.60
Scott et al	Europe	28.60	16.40	0.80	22.60	0.80	0.20	-	-	0.80	6.20	-	0.80	14.00	2.20	5.80	-
Arvanitidis et al	Europe	72.44	-	2.30	17.84	-	-	-	-	-	-	-	-	-	-	-	-
Rasmussen et al	Europe	38.50	18.40	1.60	19.70	5.30	1.30	0.00	0.00	2.90	1.60	-	0.00	9.80	0.00	0.80	0.00
Koseler et al	Europe	-	-	-	21.00	-	-	-	-	-	-	-	-	-	-	-	-
Crescenti et al	Europe	79.2	-	0.9	16.5	2.7	0.7	-	-	-	-	-	-	-	-	-	-
Crescenti et al	Europe	77	-	2	19	2	1	-	-	-	-	-	-	-	-	-	-
Crescenti et al	Europe	78	-	1	20	0	2	-	-	-	-	-	-	-	-	-	-
Gaedigk et al	Europe	36.46	21.90	1.01	19.74	3.31	1.01	0.14	0.00	3.03	2.16	-	0.43	8.07	0.29	0.58	0.43
Myrand et al	Europe	37.50	32.80	2.10	18.20	1.70	2.10	0.00	0.00	-	1.40	0.00	-	-	-	-	-
Gjerde et al	Europe	74.83	-	0.33	20.53	2.32	0.33	-	-	-	-	-	-	-	-	-	-
Buzková	Europe	69.50	-	1.10	22.90	3.10	0.20	-	-	-	-	-	-	-	-	-	-
de Leon et al	Europe	37.40	15.90	1.80	21.00	2.30	1.10	0.00	0.00	2.90	1.00	-	0.30	9.80	0.70	0.50	0.10
Gaedigk et al	Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rebsamen et al	Europe	35.50	15.50	0.60	20.60	2.40	1.20	0.30	0.00	2.70	2.70	0.00	0.30	7.30	0.60	1.50	0.30
Correia et al	Europe	74.60	-	1.40	13.30	2.80	1.87	-	-	-	-	-	-	-	-	-	-
Man et al	Europe	32.00	25.10	2.20	18.80	3.30	1.70	0.10	-	1.70	2.80	0.00	0.10	-	-	-	-
Gaedigk et al	Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaedigk et al	Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fernandez-Santander et al	Europe	81.30	-	0.90	15.90	1.90	0.00	0.00	0.00	-	-	-	-	-	-	-	-
Fernandez-Santander et al	Europe	78.20	-	1.60	18.50	1.00	0.50	0.20	0.00	-	-	-	-	-	-	-	-
De Luca et al	Europe	68.60	-	3.20	17.70	0.00	0.90	-	-	-	-	-	-	9.50	-	-	-
De Luca et al	Europe	68.30	-	0.90	16.10	1.80	0.90	-	-	-	-	-	-	11.90	-	-	-
Vangsted	Europe	70.90	-	1.30	21.90	3.80	0.60	-	-	-	-	-	-	-	-	-	-
Zachrisson et al	Europe	41.40	33.70	1.50	16.30	3.60	0.80	-	-	-	-	-	-	-	1.30	0.80	0.60
Zachrisson et al	Europe	41.30	29.70	3.10	18.50	3.10	0.80	-	-	-	-	-	-	-	1.00	1.80	0.60
Wesmler et al	Europe	33.48	29.46	0.45	19.64	0	-	-	-	2.23	1.79	-	-	-	-	-	-
Serin et al	Europe	69.00	-	1	10	3	2.5	-	-	-	14.5	-	-	-	-	-	-
Häber et al	Europe	28.20	20	2.7	29.1	0	1.8	0	0	1.8	1.8	0	0	6.4	0	0	0
Zafra-Ceres et al	Europe	35.00	20	0	18.89	5.6	0	0	0	5	3.89	0	1.11	6.11	2.22	0.56	0
Fernández_Santander et al	Europe	65.04	10.53	0.75	11.65	3.38	0.38	0	0	1.5	0.38	0	0.75	3.76	-	-	-
Zachrisson et al	Europe	40.70	31.50	2.40	19.30	3.90	0.70	-	-	-	-	-	-	-	0.50	0.00	1.00
Rideg et al	Europe	39.80	15.10	1.80	20.40	1.80	0.40	0.40	-	1.40	-	-	-	8.00	0.40	1.40	-
Beer et al	Europe	35.90	27.30	0.50	14.00	1.60	0.50	0.00	0.00	1.60	4.30	0.00	0.00	12.40	0.50	1.10	0.00
Sahin et al	Europe	-	-	-	12.00	-	-	-	-	-	-	-	-	-	-	-	-
Slanar et al	Europe	72.40	-	1.00	20.20	3.50	0.00	-	-	-	-	-	-	-	-	-	-
Average		53.63	26.91	1.32	18.50	2.69	0.95	0.11	0.02	2.14	3.16	0.00	0.32	8.56	0.80	1.27	0.25
Min		28.20	10.53	0.00	10.00	0.00	0.00	0.00	0.00	0.00	0.38	0.00	0.00	3.76	0.00	0.00	0.00
Max		83.00	40.63	3.20	33.40	6.90	2.50	0.50	0.30	5.00	14.50	0.00	1.11	14.00	3.59	5.80	1.00
McLellan et al	Middle East	89.50	-	-	3.50	1.00	-	-	-	-	3.00	-	3.00	-	-	-	-
Fuselli et al	Middle East	47.06	30.39	0.00	9.80	0.98	0.98	-	-	0.00	2.94	-	0.00	-	3.92	3.92	0.00
Luo et al	Middle East	49.00	9.00	0.00	4.00	3.00	-	-	-	-	2.00	-	2.00	29.00	-	-	-
Sistonen et al	Middle East	35.10	25.00	0.00	6.80	3.70	1.40	-	-	0.00	0.70	-	2.00	16.90	3.70	3.40	0.00
Kouhi et al	Middle East	56.50	32.00	-	12.50	3.00	-	-	-	-	9.00	-	0.00	-	-	-	-
Qumsieh et al	Middle East	39.1	12.2	0	9	-	0	0	0	0	3.3	0	2.5	15.2	1.6	4.3	-
Hashemi-Soteh et al	Middle East	90.00	-	0.50	9.00	-	0.50	-	-	-	-	-	-	-	-	-	-
Average		58.04	21.72	0.10	7.80	2.34	0.72	0.00	0.00	0.00	3.49	0.00	1.58	20.37	3.07	3.87	0.00
Min		35.10	9.00	0.00	3.50	0.98	0.00	n/a	n/a	0.00	0.70	n/a	0.00	15.20	1.60	3.40	0.00
Max		90.00	32.00	0.50	12.50	3.70	1.40	n/a	n/a	0.00	9.00	n/a	3.00	29.00	3.92	4.30	0.00
Griese et al	Oceania	85.80	3.80	0.00	1.50	7.50	0.00	0.00	0.00	0.00	0.80	-	0.20	-	-	-	-
Sistonen et al	Oceania	71.80	0.00	0.00	0.00	1.30	0.00	-	-	0.00	2.60	-	0.00	0.00	11.50	0.00	0.00
von Ahsen et al	Oceania	63.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.00	-	-
von Ahsen et al	Oceania	60.00	1.00	0.00	3.00	8.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	13.00	-	-
Average		70.15	1.20	0.00	1.13	4.95	0.00	0.00	0.00	0.00	1.60	0.00	0.05	0.00	11.83	0.00	0.00
Min		60.00	0.00	0.00	0.00	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.00	0.00	0.00
Max		85.80	3.80	0.00	FALSE	8.00	0.00	0.00	0.00	0.00	3.00	0.00	0.20	0.00	13.00	0.00	0.00
Ismail & The	South/Central Asia	69.00	-	0.00	8.00	1.00	-	-	-	1.00	15.00	-	1.00	-	-	-	-
Teh et al	South/Central Asia	37.90	-	0.00	2.80	5.10	-	-	-	3.30	49.50	-	0.50	-	-	-	-
Adithan et al	South/Central Asia	72.20	-	0.00	6.60	0.90	-	-	-	-	20.30	-	-	-	-	-	-
Naveen et al	South/Central Asia	46.10	34.80	0.00	7.30	1.90	-	-	-	-	10.20	0.00	0.00	-	-	-	-
Sistonen et al	Central/South Asians	43.30	29.00	0.00	8.10	3.80	0.00	-	-	0.00	3.80	-	0.00	10.50	0.50	0.50	0.00
Average		53.70	31.90	0.00	6.56	2.54	0.00	n/a	n/a	1.43	19.76	0.00	0.38	10.50	0.50	0.50	0.00
Min		37.90	29.00	0.00	2.80	0.90	0.00	n/a	n/a	0.00	3.80	0.00	0.00	10.50	0.50	0.50	0.00
Max		72.20	34.80	0.00	8.10	5.10	0.00	n/a	n/a	3.30	49.50	0.00	1.00	10.50	0.50	0.50	0.00

Authors	Year	PMID	Major ethnicity	Population	ADFT population info	Subjects	Subject type	N Subjects enrolled	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Chen et al.	1998	8873418	Africa	African Americans		healthy subjects		409																																			
Leibman et al.	1998	9918137	Africa	African Americans		healthy subjects		246	83.00	-	0.60	7.30	0.90																														
Leibman et al.	1998	9918137	Africa	African Americans		healthy subjects		196										0.70	5.00																								
Wang et al.	2001	11959219	Africa	African Americans	Southern CA	healthy subjects		154	34.70	26.80	0.30	7.80	6.20																														
Geetha et al.	2002	12152006	Africa	African Americans		healthy subjects		251	20.70	19.10	0.20	5.40	6.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Geetha et al.	2002	12152006	Africa	African Americans	Atlanta	healthy subjects		251	20.70	19.10	0.20	5.40	6.60	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Geetha et al.	2003	12811867	Africa	African Americans		healthy subjects		183																																			
Geetha et al.	2005	15766022	Africa	African Americans		healthy subjects		251																																			
Geetha et al.	2005	15766022	Africa	African Americans		healthy subjects		251																																			
Cui et al.	2006	16859211	Africa	African Americans		controls		131	36.20	4.20	0.38	7.60	5.00	0.38	0.00	0.00	1.15	2.70	0.00																							0.38	
Cui et al.	2006	16859211	Africa	African Americans		psychiatric		31	34.70	4.80					0.00	0.00	0.35	4.30	0.00																						1.10		
Cui et al.	2006	16859211	Africa	African Americans		controls/psychiatric patients		222	35.30	4.50	0.45	8.50	6.00	0.23	0.00	0.00	0.00	3.80	0.00																						0.68		
Geetha et al.	2008	16418111	Africa	African Americans		healthy subjects/psychiatric patients		497																																			
Geetha et al.	2007	17209847	Africa	African Americans	Kansas City	strokes and patients		176																																			
Geetha et al.	2007	17209847	Africa	African Americans	Atlanta	healthy subjects		280																																			
Geetha et al.	2007	17209847	Africa	African Americans	Milwaukee	healthy subjects/psychiatric patients		422																																			
Geetha et al.	2007	17209847	Africa	African Americans		healthy subjects/psychiatric patients		422																																			
Geetha et al.	2008	17271818	Africa	African Americans		healthy subjects, or with unrelated disease		272	32.00	13.00	0.18	3.88	6.43	0.86	0.00	0.00	0.18	2.04	0.00	0.00																						7.84	
Geetha et al.	2009	19168105	Africa	African Americans	Madrasky	patients & patients		450	59.70	6.00	0.20	5.00	2.80	0.00	0.00	0.00	0.40	3.00	0.00																							0.90	
Geetha et al.	2010	20473689	Africa	African Americans	Kansas City	strokes and patients		154																																			
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		75.00	20.35	28.1																																	
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		409	40.00	14.10	0.31	8.23	6.14	0.24	0.00	0.00	0.48	4.18	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77		
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		2570	4.50	0.00	3.88	2.80	0.00	0.00	0.00	0.00	0.00	2.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		83.00	28.70	2.60	8.00	3.70	0.95	0.00	0.00	1.15	7.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10		
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		81.00	0.00	0.00	1.20	3.30																															
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		122	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		69	18.50	14.20	0.00	5.00	3.10	0.00																													
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		193	43.70	10.60	0.00	7.60	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00																							
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		99	28.77	15.15	0.00	7.07	17.17	0.00	0.00	0.00	0.00	2.53	0.00																								
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		127	24.40	10.70	0.00	2.80	5.00																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		195	87.00	0.00	0.00	0.00	0.00																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		109	56.10	18.40	0.00	1.40	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10	3.30																														
Yan et al.	2013	23819116	African	African American	Atlanta	strokes and patients		106	21.50	13.60	0.00	4.10</																															

created by A. Gaedigk, PhD 2





12/9/14

12/9/14

#### CYP2D6 Allele Frequencies



	136	137	138	139	140	141	142	143	144	145	146	146 or 146	147	148	149	150	151	152	153	154	155	155A-B	157	158	159	160	161	162	164	165	166	167	169	170	171	173	174	179	180	182	184	185	186	188	189	190	191	192	193	194	195	196	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452	1453	1454	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469	1470	1471	1472	1473	1474	1475	1476	1477	1478	1479	1480	1481	1482	1483	1484	1485	1486	1487	1488	1489	1490	1491	1492	1493	1494	1495	1496	1497	1498	1499	1500	1501	1502	1503	1504	1505	1506	1507	1508	1509	1510	1511	1512	1513	1514	1515	1516	1517	1518	1519	1520	1521	1522	1523	1524	1525	1526	1527	1528	1529	1530	1531	1532	1533	1534	1535	1536	1537	1538	1539	1540	1541	1542	1543	1544	1545	1546	1547	1548	1549	1550	1551	1552	1553	1554	1555	1556	1557	1558	1559	1560	1561	1562	1563	1564	1565	1566	1567	1568	1569	1570	1571	1572	1573	1574	1575	1576	1577	1578	1579	1580	1581	1582	1583	1584	1585	1586	1587	1588	1589	1590	1591	1592	1593	1594	1595	1596	1597	1598	1599	1600	1601	1602	1603	1604	1605	1606	1607	1608	1609	1610	1611	161
--	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------------	-----	-----	-----	-----	-----	-----	-----	-----	-----	--------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	-----

Authors	*1a	*2a	*4a	*6a	*10a	*17a	*20a	*26a	*36a	*45a	*48a	Undefined/ other duplications	All duplications combined a1	*28a*10	*36a*10a	*28a*2*10	*36a*2*10	*78a*2 *70a*2a	*77a*2 *70a*2a	*78a*2 *70a*2a	Other rearrange- ments
Motani et al												Undefined/ other duplications 10.40	10.40								
Furetti et al	3.92	3.92	0.00	-	-	-	-	-	-	-	-	-	7.84	-	-	-	-	-	-	-	-
Lee et al	-	-	-	-	-	-	-	-	-	-	-	2.00	2.00	-	-	-	-	-	-	-	-
Stanton et al	3.79	3.40	0.00	-	0.00	-	-	-	-	0.00	-	-	7.59	-	-	-	-	-	-	-	-
Koulu et al	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chen et al	1.8	4.3	-	-	-	-	-	-	-	-	-	-	6.20	-	0.00	12.40	-	-	-	-	-
Hopkins-Schell et al	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average	3.07	3.97	0.00	n/a	0.15	n/a	n/a	n/a	n/a	0.00	n/a	0.20	6.71	n/a	0.00	12.40	-	n/a	n/a	n/a	n/a
Min	1.69	3.40	0.00	n/a	0.00	n/a	n/a	n/a	n/a	0.00	n/a	2.00	2.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Max	3.92	4.30	0.00	n/a	0.30	n/a	n/a	n/a	n/a	0.00	n/a	10.40	10.40	n/a	n/a	n/a	-	n/a	n/a	n/a	n/a
Greiss et al	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	-	-	-	-	-	-	-	-
Stanton et al	11.00	0.00	0.00	-	0.00	-	-	-	-	0.00	-	-	11.00	-	-	-	-	-	-	-	-
van Alphen et al	11.00	-	-	-	-	-	-	-	-	-	-	-	11.00	-	-	-	-	-	-	-	-
van Alphen et al	11.00	-	-	-	-	-	-	-	-	-	-	-	11.00	-	-	-	-	-	-	-	-
Average	11.81	0.00	0.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.0	8.88	n/a	n/a	n/a	-	n/a	n/a	n/a	n/a
Min	11.00	0.00	0.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.00	0.00	n/a	n/a	n/a	-	n/a	n/a	n/a	n/a
Max	13.00	0.00	0.00	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.00	13.00	n/a	n/a	n/a	-	n/a	n/a	n/a	n/a
Wong & Troy	-	-	-	-	-	-	-	-	-	-	-	2.00	2.00	-	-	-	-	-	-	-	-
Tan et al	-	-	-	-	-	-	-	-	-	-	-	0.00	0.00	-	-	-	-	-	-	-	-
Auligan et al	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stanton et al	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stanton et al	0.00	0.00	0.00	-	0.00	-	-	-	-	0.00	-	-	1.00	-	-	-	-	-	-	-	-
Average	0.00	0.00	0.00	n/a	0.00	n/a	n/a	n/a	n/a	0.00	n/a	1.45	1.30	n/a	n/a	n/a	-	n/a	n/a	n/a	n/a
Min	0.00	0.00	0.00	n/a	0.00	n/a	n/a	n/a	n/a	0.00	n/a	0.00	0.00	n/a	n/a	n/a	-	n/a	n/a	n/a	n/a
Max	0.00	0.00	0.00	n/a	0.00	n/a	n/a	n/a	n/a	0.00	n/a	2.00	2.00	n/a	n/a	n/a	-	n/a	n/a	n/a	n/a
Geordak et al	1.80	3.30	3.20	0.00	0.10	0.10	0.00	0.10	0.00	0.10	0.10	0.00	8.80	0.00	-	-	-	0.10	0.20	0.10	0.00
Geordak et al	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.30
Shukla et al	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geordak et al	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.00

CYP2D6 Allele Frequencies

date	for R2	Change Note
8/13/13	X	corrected spelling of von Ahsen
8/16/13	X	added number of subjects for Yin et al. and updated year of publication
8/16/13	X	added number of subjects for Ebisawa et al.
8/16/13	X	corrected entries for *13 'revised' for all ethnicities (0 was incorrect for most)
8/17/13	X	corrected *76+*2 to *76+*1
8/16/13	X	added columns for *61, *62, *84, *85, *86, *100, *101, *36x3+*10 and *1x2+*83
8/16/13	X	revised/updated ethnicities and populations for Americas
8/16/13	X	added 5 papers (6 line entires) for East Asia
8/16/13	X	added 5 papers (5 line entries) for Europe
8/16/13	X	added 4 papers (6 line entires) for Americas
8/16/13	X	added 2 papers (2 line entries) for Africa
8/16/13	X	added 1 paper with 'unspecified' ethnicity and approximate frequency
8/16/13	X	added 1 paper with approxomate frequency
8/16/13	X	sorted ethnicities by 1) major ethnicity, 2) population, 3) year and 4) author
8/28/13	X	excluded Zihlif et al. *10 incorrectly called; corresponded with author revealing this mishap
8/29/13	X	correponded with Antunes; mistake in paper re some freq;
8/30/13	X	have not heard back from Zafra-Ceres to confirm allele freq
9/9/13	X	Added data for *1, *2 and *35 received from Ana Santander for PMID 23922954