

Table S1 A priori identified Candidate Genes

Carboplatin				
Human Gene	Polymorphism¹	Ortholog Type²	Fly Gene(s)²	References
ALDH1A1	A1*2	1:Many	Aldh-III	Ekhart <i>et al.</i> 2008
ALDH3A1	A1*2	Possible	CG31075	Ekhart, <i>et al.</i> 2008
ERCC1	C8092A	1:1	Ercc1	Li <i>et al.</i> 2010
	T118C			Li <i>et al.</i> 2010; Steffensen <i>et al.</i> 2009
ERCC2	A35931C	1:1	Xpd	Li <i>et al.</i> 2010
GSTp1	A342G	No Ortholog		Sun <i>et al.</i> 2010
hMSH2	T6C	1:1	spel1	Cheng <i>et al.</i> 2010
hMLH1	T1151A	1:1	Mlh1	Cheng <i>et al.</i> 2010
MRP2	C24T	Possible	DI	Sun <i>et al.</i> 2010
SLC31A1	Pathway	1:1	Ctr1A	Marsh <i>et al.</i> 2009
ABCG2	Pathway	Possible	bw	Marsh <i>et al.</i> 2009
		Possible	st	
		Possible	w	
ABCC2	Pathway	1:Many	MRP	Marsh <i>et al.</i> 2009
MT1A	Pathway	No Ortholog		Marsh <i>et al.</i> 2009
MPO	Pathway	Possible	Pxd	Marsh <i>et al.</i> 2009
		Possible	CG10211	
		Possible	Irc	
		Possible	CG4009	
		Possible	CG5873	
		Possible	CG6969	
		Possible	CG42331	
		Possible	Pxt	
GSPT1	Pathway	No Ortholog		Marsh <i>et al.</i> 2009
NQO1	Pathway	No Ortholog		Marsh <i>et al.</i> 2009
GSTT1	Pathway	Many:Many	CG1681	Marsh <i>et al.</i> 2009
		Many:Many	CG1702	
		Many:Many	CG30000	
		Many:Many	CG30005	
		Possible	CG16936	
		Possible	CG11784	
		Possible	CG4688	
		Possible	CG5224	
		Possible	CG17639	
		Possible	gfzf	
		Function	GstD1-10 ³	
		Function	GstE1-10 ³	
MT2A	Pathway	No Ortholog		Marsh <i>et al.</i> 2009
SOD1	Pathway	No Ortholog		Marsh <i>et al.</i> 2009
GSTM1	Pathway	No Ortholog		Marsh <i>et al.</i> 2009
ATP7A	Pathway	1:Many	ATP7	Marsh <i>et al.</i> 2009
ATP7B	Pathway	1:Many	ATP7	Marsh <i>et al.</i> 2009
HMGB1	Pathway	No Ortholog		Marsh <i>et al.</i> 2009
POLH	Pathway	1:1	DNApol-eta	Marsh <i>et al.</i> 2009
POLM	Pathway	No Ortholog		Marsh <i>et al.</i> 2009
POLB	Pathway	NoOrtholog		Marsh <i>et al.</i> 2009
REV3L	Pathway	1:Many	Mus205	Marsh <i>et al.</i> 2009
MSH2	Pathway	1:1	spel1	Marsh <i>et al.</i> 2009
MLH1	Pathway	1:1	Mlh1	Marsh <i>et al.</i> 2009
MSH6	Pathway	1:1	Msh6	Marsh <i>et al.</i> 2009
PMS2	Pathway	1:1	Pms2	Marsh <i>et al.</i> 2009
ERCC1	Pathway	1:1	Ercc1	Marsh <i>et al.</i> 2009
ERCC2	Pathway	1:1	Xpd	Marsh <i>et al.</i> 2009
ERCC3	Pathway	1:1	Hay	Marsh <i>et al.</i> 2009
ERCC4	Pathway	1:1	Mei-9	Marsh <i>et al.</i> 2009
ERCC6	Pathway	No Ortholog		Marsh <i>et al.</i> 2009
XRCC1	Pathway	1:Many	XRCC1	Marsh <i>et al.</i> 2009, Gurubhagavatula <i>et al.</i> 2004
XPA	Pathway	1:1	Xpac	Marsh <i>et al.</i> 2009
SNF	Pathway	1:1	CG8485	Marsh <i>et al.</i> 2009
SWI	Pathway	1:Many	Iswi	Marsh <i>et al.</i> 2009
Gemcitabine				
Human Gene	Polymorphism¹	Ortholog Type²	Fly Gene(s)²	References
CDA	A76C	1:Many	CG8353	Tanaka <i>et al.</i> 2010

	A79C		CG8349	Metharom <i>et al.</i> 2011; Maring <i>et al.</i> 2010 ; Xu <i>et al.</i> 2012 Sugiyama <i>et al.</i> 2009; Yonemori <i>et al.</i> 2005; Ueno <i>et al.</i> 2009; Xu <i>et al.</i> 2012
	G208A			Tanaka <i>et al.</i> 2010 Si <i>et al.</i> 2011
dCK	C(-1205)T A9846G	1:Many	dnk	Tanaka <i>et al.</i> 2010 Gusella <i>et al.</i> 2011
hCNT1	G565A	Many:Many	CG8083 CNT1	Tanaka <i>et al.</i> 2010 Tanaka <i>et al.</i> 2010 Gusella <i>et al.</i> 2010
hENT1	A(-201)G C913T G(-706)C	1:Many Possible	Ent1 Ent2	Tanaka <i>et al.</i> 2010 Tanaka <i>et al.</i> 2010 Gusella <i>et al.</i> 2010
MRP2	G40A	Possible	DI	Tanaka <i>et al.</i> 2011
MTHFR	C677T	No Ortholog		Alberola <i>et al.</i> 2004; Hong 2013
RRM1	A33G	1:1	RnrL	Tanaka <i>et al.</i> 2010
SMYD3	Knock-down	1:Many	Bzd	Kalari <i>et al.</i> 2010
SLC29A1	Pathway	1:Many Possible	Ent1 Ent2	Whirl-Carrillo <i>et al.</i> 2012
SLC28A1	Pathway	Many:Many Many:Many	CG8083 CNT1	Whirl-Carrillo <i>et al.</i> 2012
SLC28A3	Pathway	Many:Many Many:Many	CG8083 CNT1	Whirl-Carrillo <i>et al.</i> 2012
CDA	Pathway	1:Many	CG8353 CG8349	Whirl-Carrillo <i>et al.</i> 2012
dCK	Pathway	1:Many	dnk	Whirl-Carrillo <i>et al.</i> 2012
NT5C	Pathway	No Ortholog		Whirl-Carrillo <i>et al.</i> 2012
CMPK1	Pathway	1:1	Dak1	Whirl-Carrillo <i>et al.</i> 2012
RRM1	Pathway	1:1	RnrL	Whirl-Carrillo <i>et al.</i> 2012, Kwon <i>et al.</i> 2006
RRM2	Pathway	1:Many	RnrS	Whirl-Carrillo <i>et al.</i> 2012
RRM2B	Pathway	1:Many	RnrS	Whirl-Carrillo <i>et al.</i> 2012

Mitomycin C				
Human Gene	Polymorphism¹	Ortholog Type²	Fly Gene(s)²	References
FANCL	Pathway	1:1	Fancl	Zhang <i>et al.</i> 2006
FANCD2	Pathway	1:1	Fancd2	Roques <i>et al.</i> 2009, Ho <i>et al.</i> 2006
Rad51	Pathway	1:1	spn-A	Ko <i>et al.</i> 2011
Mre11A	Pathway	1:1	Mre11	Roques <i>et al.</i> 2009
Rad50	Pathway	1:1	rad50	Roques <i>et al.</i> 2009, Kim <i>et al.</i> 2002
Nibrin	Pathway	1:1	nbs	Roques <i>et al.</i> 2009
CHK1	Pathway	1:1	grp	Boamah <i>et al.</i> 2010

1. Polymorphism refers either to a SNP within a gene (SNP resulting in amino acid substitution given) or "pathway" indicates that the gene is in the drug's cellular pathway based on the literature (but that gene does not harbor a germ-line SNP impacting toxicity).
2. Ortholog types and gene names are represented as on the ensembl.org genome browser (Birney *et al.* 2004)
3. Gene family. The orthology prediction is based on both human and fly GST gene families having the same apparent biochemical function