gene in red: gene with a real "Immunity" signature or strongly induced (>3) or a function related to resistance to pathogens
gene * Genes found in several places

Drosophila genes potentially involved in responses to microbial infection

Last update : June 2013

name	Flybase link	Symbol	homology and biology	Expression pattern (Degregorio 2001,2002) Septic injury	B.bassiana	Key references (for useful tools with an emphasis on mutations)
I. Family of receptors that could be involved Microbial recognition (classified by gene family)						
CD36/croquemort (crq) family : 9 members						
croquemort	CG4280	crq	Genetic and molecular evidence exists for crq involvement in the phagocytos	-	-	Franc 1996; Franc 1999
CG31741	CG31741	CG31741	crq-like	-	-	
Santa-maria	CG12789	santa-maria	crq-like	-	-	
peste	CG7228	pes	Peste is required for entry of *Mycobacterium fortuitum* in S2 cells	-	-	Philips 2005
CG7227	CG7227	CG7227	crq-like	-	-	
emp	CG2727	emp	epithelial membrane protein; expressed in various embryonic tissues	-	-	
CG3829	CG3829	CG3829	emp-like	-	-	
CG1887	CG1887	CG1887	emp-like	-	-	
Sensory neuron membrane protein 1	CG7000	Snmp1	more related to sensory neuron membrane protein- involved in pherormon se	-	-	
CG2736	CG2736	CG2736	weakly related to emp	-	-	
BcDNA	CG10345	CG10345	weakly related to emp	-	-	
Peptidoglycan recognition protein (PGRP) family : 13 members						
Peptidoglycan recognition protein SA	CG11709	PGRP-SA	secreted PGRP required for Toll activation by Gram-Positive bateria in flies	9.5	-	Michel 2001
PGRP-SC2	CG14745	PGRP-SC2	PGRP with amidase activity-In vivo, may down-regulate the Imd pathway in	2.8	-	Bishoff 2006; Paredes 2011
PGRP-SC1b	CG8577	PGRP-SC1b	PGRP with amidase activity-In vivo, may down-regulate the Imd pathway in	-	-	Bishoff 2006; Paredes 2011 Costechareyre 2016
PGRP-SC1a	CG14746	PGRP-SC1a	PGRP with amidase activity-In vivo, may down-regulate the Imd pathway in	-	-	Bishoff 2006; Paredes 2011 Costechareyre 2016
Peptidoglycan recognition protein LE	CG8995	PGRP-LE	participates in sensing of Gram-negative bacteria upstream of the Imd pathw	-	-	Takehana 20(Takehana 20(Kaneko 2006; Yano 2008; Neyen 2012; Bosco-Drayon 2012
PGRP-SB1	CG9681	PGRP-SB1	PGRP with amidase activity- Deletion of PGRP-SB1/SB2 has not phenotype	21.7	-	Zaidman-Remy 2011
PGRP-SB2	CG9697	PGRP-SB2	PGRP with amidase activity- Deletion of PGRP-SB1/SB2 has not phenotype	-	-	Zaidman-Remy 2011
Peptidoglycan recognition protein LB	CG14704	PGRP-LB	PGRP-LB down-regulate the Imd pathwayby scavanging peptidoglycan	3.7	-	Zaidman-Ren Paredes 2011
PGRP-SD	CG7496	PGRP-SD	secreted PGRP required for Toll activation by DAP-type peptidoglycan	18.9	-	Bishchoff 2004
Peptidoglycan recognition protein LC	CG4432	PGRP-LC	Receptor of the Imd pathway, many isoform with distinct sensing and regula	3.4	-	Choe 2002; Gottar 2002; Ramet 2002; Kaneko 2006; Neyen 2012
Peptidoglycan recognition protein LA	CG4384	PGRP-LA	Modulate PGRP-LC sensing	-	-	Gendrin 2013
Peptidoglycan recognition protein LF	CG4437	PGRP-LF	Negative regulator of the Imd pathway	3.1	-	Maillet 2008
Peptidoglycan recognition protein LD	CG33717	PGRP-LD	related to prpg			
***Drosophila* scavenger receptor (dScR) family: 4 members**						
Scavenger receptor class C, type I	CG4099	Sr-CI	dScR-I is expressed in embryonic hemocytes and binds to various ligands, including dsRNA			Pearson 199 Ramet 2001 Ulvila, Parikka, et. al.
Scavenger receptor class C, type II	CG8856	Sr-CII	-	-	-	
Scavenger receptor class C, type III	CG31962	Sr-CIII	-	-	-	
Scavenger receptor class C, type IV	CG3212	Sr-CIV				
Gram Negative Binding Protein (GNBP) family: 5 members						
Gram-negative bacteria binding protein	CG5008	GNBP3	required for Toll activation by Glucan	-	-	Gottar 2006
Gram-negative bacteria binding protein	CG4144	GNBP2	-	-	-	
Gram-negative bacteria binding protein	CG6895	GNBP1	required for Toll activation by Gram positive bacteria	-	-	Gobert 2003 Pili-Floury 2004
CG12780	CG12780	CG12780	GNBP-like	2.8	-	
CG13422	CG13422	CG13422	GNBP-like	13.3	5.1	
Nimrod/Eater/Draper family of phagocytosis receptors with EGF repeats						
Nimrod A	CG42282	NimA				Kurucz 2007
Nimrod B1	CG33119	NimB1				Kurucz 2007
Nimrod B2	CG31839	NimB2				Kurucz 2007
Nimrod B3	CG34003	NimB3				Kurucz 2007
Nimrod B4	CG33115	NimB4				Kurucz 2007
Nimrod B5	CG16873	NimB5				Kurucz 2007
Nimrod C1	CG8942	NimC1	shown to be required for phagocytosis of bacteria			Kurucz 2007
Nimrod C2	CG18146	NimC2				Kurucz 2007
Nimrod C3	CG16880	NimC3				Kurucz 2007
Nimrod C4	CG16876	NimC4	required for the uptake of apoptotic cells			Kurucz 2007 Kurant 2008
draper	CG2086	drpr	required for the uptake of apoptotic cells			Manaka 2004 McDonald 2006
eater	CG6124	eater	encodes a trasmenbrane receptor with EGF repeats; required for phagocytos	-	-	Kocks 2005
Putative chitin-binding lectins						
Imaginal disc growth factor 1	CG4472	Idgf1	chitin binding and growth factor activity in cell culture	4.1	-	
Imaginal disc growth factor 2	CG4475	Idgf2	IDGF2 is a trophic factor promoting cellular and organismal survival	-	-	Broz 2017
Imaginal disc growth factor 3	CG4559	Idgf3	-	2.8	-	
Imaginal disc growth factor 4	CG1780	Idgf4	-	-	-	
Galactins						
Galactose-specific C-type lectin	CG9976	Lectin-galC1	induced by infection in larvae	-	-	Tanji et al., 2006
II. Phagocytosis						

Hemocyte receptors that have been linked to phagocytosis

*	Nimrod C1	CG8942	NimC1	shown to be required for phagocytosis of beads a,d together with Eater of Gram positve bacteria			Kurucz 2007	Melcarne 2019
*	draper	CG2086	drpr	required for the uptake of apoptotic cells			Manaka 2004	
*	eater	CG6124	eater	encodes a trasmenbrane receptor with EGF repeats; required for phagocytos	-	-	Kocks 2005	
*	Scavenger receptor class C, type I	CG4099	Sr-CI	dScR-I is expressed in embryonic hemocytes and binds to various ligands, including dsRNA			Pearson 199	Ramet 2001; Ulvila, Parikka, et. al.
*	croquemort	CG4280	crq	Genetic and molecular evidence exists for crq involvement in the phagocytos	-	-	Franc 1996;	Franc 1999
*	peste	CG7228	pes	Peste is required for entry of *Mycobacterium fortuitum* in S2 cells	-	-	Philips 2005	
	Down syndrome cell adhesion molecul	CG17800	Dscam	The Dscam locus encodes a large repertoire of Immunoglobulin domain proteins, some being secreted; promot			Watson FL Science 2005	

Complement-like Proteins (Thiol Ester Proteins)

Secreted proteins that may play a role in the opsonization of microorganisms

Thioester-containing protein 1	CG18096	Tep1	induced in larvae and adults	-	-	Lageux 2000	Bou Aoun 2010
Thioester-containing protein 2	CG7052	Tep2	induced in larvae and adults; required in cell culture for efficient phagocytosis	7.9	3.1	Lageux 2000	Bou Aoun 2010
Thioester-containing protein 3	CG7068	Tep3	required in cell culture for efficient phagocytosis of *S. aureus*	-	-	Lageux 2000	Bou Aoun 2010
Thioester-containing protein 4	CG10363	Tep4	induced in larvae and adults	3.4	2.5	Lageux 2000	Bou Aoun 2010
Thioester-containing protein 5	CG13079	Tep5					
Macroglobulin complement-related	CG7586	Mcr	required in cell culture for efficient phagocytosis of *C. albicans*			Stroschein-Stevenson 2006	

Complement-binding receptor

Lipophorin receptor 2	CG4823	LpR2	putative alpha2M-receptor-like	4.5	2.1		

Other genes involved in phagocytosis

Rac2		Rac2	rac2 is required for efficient phagocytosis			Avet-Rochex	Williams 2005
pretaporter	CG8556	prtp	Involved in phagocytosis			Kuraishi et al., 2009	
retinophilin	CG1837	rtp				Cuttelll 2008	
pallbearer	CG10233	pall	Pallbearer functions in an SCF-dependent manner for ubiquitylation and proteasomal degradation in phagocyto			Sylva 2007	
	CG3428						
Cytoskeloton component encoding genes							
TM9SF4	CG7364	TM9SF4	required for optimal phagocytosis of Gram-negative bacteria			Bergeret 2008	
scab	CG8095	scb	A loss of αPS3 integrin decreased phagocytosis of Staphylococcus aureus			Nonaka 2013	
Integrin betanu subunit	CG1762	Itgbetanu	loss of integrin βv reduced the phagocytosis of S. aureus			Shiratsuchi 2012	
SCAR	CG4636	SCAR	required for phagocytosis			Nonaka 2013	

Lysosomal enzymes

Ectoderm-expressed 3	CG3132	Ect3	-	4.7	-		
CG11459	CG11459	CG11459	encodes a Cathepsin L	6.5	3.7		
phagocyte signaling impaired	CG4845	psidin	psidin encodes a lysosomal protein required in the blood cells for both degradation of engulfed bacteria and acti			Brennan 2007	Recruitment of sessiles haemocytes upon immune challenge
Deoxyribonuclease II	CG7780	DNaseII	Dnase II is an enzyme involved in the degradation of DNA within phagolysos	4.9	2.2		

III. Encapsulation: Genes linked to encapsulation

lectin-24A	CG3410	lectin-24A	induced upon encapulation			Keebaugh 2012	
lectin-37Da	CG33532	lectin-37Da	lectin-galC1 like protein that enhance encapsulation	-	-	Ao, J 2007	
lectin-37Db	CG33533	lectin-37Db	lectin-galC1 like protein that enhance encapsulation			Ao, J 2007	
UDP-GlcNAc:a-3-D-mannoside-beta-1,2	CG13431	Mgat1	encodes a component of the N-Glycosylation machine involved in capsule formation			Mortimer 2012	
Hemese	CG31770	He	encodes a tranmembrane glycophorin-like that modulates the response to pa	-	-		

IV. Cytosleleton genes involved in hemocytes function (From Fauvarques and Williams JCS 2011)

Membrane proteins					
myospheroid	CG1560	mys	a □□Integrin involved in adhesion and encapsulation	Irving et al., 2005	
Neuroglian	CG1634	Nrg	a L1-CAM invovled in adhesion and encapsulation	Nardi et al., 2	Williams, 2009
TM9SF4	CG7364	TM9SF4	required for optimal phagocytosis of Gram-negative bacteria	Bergeret 2008	
Integrin betanu subunit	CG1762	Itgbetanu	loss of integrin βv reduced the phagocytosis of S. aureus	Shiratsuchi 2012	
scab	CG8095	scb	A loss of αPS3 integrin decreased phagocytosis of Staphylococcus aureus	Nonaka 2013	
RhoGTPases					
Rac1	CG2248	Rac1	Rac1 and Bsk are both required for the proper encapsulation of eggs from the parasitoid wasp, Recruitment of s	Williams 200	Williams 2007
* Rac2	CG8556	Rac2	rac2 is required for efficient phagocytosis en encapsulation	Avet-Rochex	Williams 2005
Cdc42	CG12530	Cdc42	Cdc42r is required for efficient phagocytosis en encapsulation	Samson CJ 2	Rogers 2003 Stramer 2005
Rho1	CG8416	Rho1	Tail retraction, Dynamic of cell cell contact	Stramer et al., 2005	
Other cytoskeleton regulatory molecules					
SCAR	CG4636	SCAR	required for phagocytosis and lamellipodia	Pearson et al	Rogers et al., 2003
Zizimin-related	CG11376	Zir	zir is required for efficient phagocytosis en encapsulation	Samson CJ 2012	
Actin-related protein 2	CG9901	Arp2	Phagocytosis, lamellipodia	Pearson 200	Rogers 2003
Actin-related protein 3	CG7558	Arp3	Phagocytosis, lamellipodia	Pearson 200	Rogers 2003
chickadee	CG9553	chic	A cofilin involved in lamellipoia, Spreading and phagocytosis	Pearson 200	Rogers 2003
diaphanous	CG1768	dia	Filopodia, Rho-dependnt signalling	Williams 2007	
Signalling molecules					
Rho1	CG8416	Rho1	Rac1 activation, actin stress fibers	Williams 2007	
slingshot	CG6238	ssh	Lamellipodia formation, F-actin distribution	Rogers 2003	

V. Signaling

Genes encoding canonic components of the Toll signaling pathway

These genes encode components of the Toll pathway and are required for the expression of a subset of antimicrobial peptide genes (Drs, Cec, Def, AttA). Some of these genes (Toll, pll, tub, cact) are also required during hemocyte proliferation.

Cellular components

	spatzle	CG6134	**spz**	ligand of the Toll receptor		3.9	-	Lemaitre 1996					
	Toll	CG5490	**Tl**	encodes a transmembrane receptor		3.1	-	Lemaitre 1996					
	Myd88	CG2078	**Myd88**	encodes an adaptor protein that functions downstream of Toll	-		-	Lemaitre 1996					
	tube	CG10520	**tub**	encodes an adaptor protein that functions downstream of Toll	-		-	Lemaitre 1996					
	pelle	CG5974	**pll**	encodes a kinase that functions downstream of Toll		2.9	-	Lemaitre 1996					
	cactus	CG5848	**cact**	encodes an ikB-like protein that functions downstream of Toll		7.8	2.4	Lemaitre 1996					
	Dorsal-related immunity factor	CG6794	**Dif**	DIF (Dorsal-related Immune Factor) encodes an NF-kB-like transcription fact		2.7	2	Rutschmann	Manfruelli 19	Meng 1999	Ip 1993	Matova 2006	Matova 2011	Pal 2008
	dorsal	CG6667	**dl**	encodes an NF-kB-like transcription factor regulated by the Toll pathway		2.9	-	Lemaitre 199	Han 1999	Pal 2008		Matova 2006	Matova 2011	

Pattern recogntion receptor

*	**Peptidoglycan recognition protein SA**	CG11709	**PGRP-SA**			9.5	-	Michel 2001					
*	**Gram-negative bacteria binding protein**	CG5008	**GNBP3**	required for Toll activation by Glucan	-		-	Gottar 2006					
*	**Gram-negative bacteria binding protein**	CG6895	**GNBP1**	required for Toll activation by Gram positive bacteria	-		-	Gobert 2003	Pili-Floury 2004				

extracellular components: the protease activity sensing branch

	Spatzle-Processing Enzyme	CG16705	**SPE**	**In vivo RNAi** and biochemical studies indicate a role of this Clip domain SP		4.8	3.3	Jang 2006	Kambris 2006				
	Serpin 42Dd	CG9456	**Spn42Dd**	Regulates the GNBP3-Dependent Toll Signaling Pathway				Fullaondo et al., 2011					
	modular serine protease	CG31217	**modSP**	ModSP is an apical serine protease that interates signals from pattern-recognition receptors (PGRP-SA/GNBP1				Buchon 2009					
	Gram-positive Specific Serine protease	CG5896	**grass**	A clip serine protease that functions upstream of SPE and downstream of ModSP				Kambris 200	El Chamy 2008				
	necrotic	CG1857	**nec**	belongs to the *necrotic* cluster and encodes a protease that functions upstre		5.9	3.4	Levashina 1999					
	persephone	CG6367	**psh**	encodes a Clip domain serine protease required for Toll activation by entomopathogenic fungi				Ligoxygakis 2002					
	Hayan	CG6361	**Hayan**	Hayan and Psh redundantly regulate SPE (Toll activation) and Melanization				Nam et al., 2	Dudzic 2019				

Other Serine Proteases/Serpins potentially acting upstream of the Toll pathway

	Serine Protease Immune Response Inte	CG2056	**spirit**	An in vivo RNAi study indicates a role of this Clip-domain SP in the activatic		6.7	-	Kambris 2006					
	spheroide	CG9675	**spheroide**	An in vivo RNAi study indicates a role of this serine protease homolof (SPH) in the activation of Spatzle during				Kambris 2006					
		http://flybase.bio.indiana.edu/reports/FBc		An in vivo RNAi study indicates a role of this serine protease homolof (SPH) in the activation of Spatzle during				Kambris 2006					
*	**Serpin 88Ea**	CG18525	**Spn88Ea**	serpin-like that negatively regulate the Toll pathway and melanization		3.4	-	Ahmad 2005					

Genes encoding canonic components of the Imd pathway

These genes encode proteins required for the expression of antibacterial peptide genes after infection.

	immune deficiency	CG5576	**imd**	protein with homology to the mammalian RIP adapter		2.1	-	Lemaitre 199	Georgel 2001				
	TGF-beta activated kinase 1	CG1388	**Tak1**	encodes a homolog of the mammalian MAPKKK TAK1	-		-	Vidal 2001					
	TAK1-associated binding protein 2	CG7417	**Tab2**	encodes a homolog of the mammalian TAK1 binding protein				Kleino 2005	Geselchen 2(	Zhuang 2006			
	Inhibitor of apoptosis 2	CG8293	**Iap2**	encodes a homolog of Inhibitor of apoptosis				Kleino 2005	Leulier 2006	Gesellchen 2005			
	Fas-associated death domain ortholog	CG12297	**Fadd**	homolog of mammalian FADD gene	-		-	Naitza 2002;;	Leulier 2002				
	Death related ced-3/Nedd2-like protein	CG7486	**Dredd**	encodes a **homolog of Caspase-8**	-		-	Leulier 2000					
	kenny	CG16910	**key**	encodes a homolog of mammalian ikkg, structural component of the IKK cor	-		-	Rutschmann	Silverman and Maniatis, 2001				
	immune response deficient 5	CG4201	**ird5**	encodes a homolog of mammalian ikkb, kinase component of the IKK compl	-		-	Lu et al., 200	Silverman and Maniatis, 2001				
	Relish	CG11992	**Rel**	encodes a P105-like transcription factor		17.2	2.1	Hendegren 1	Dushay 1996				
*	**Peptidoglycan recognition protein LC**	CG4432	**PGRP-LC**	Receptor of the Imd pathway, many isoform with distinct sensing and regula		3.4	-	Choe 2002;	Gottar 2002;	Ramet 2002;	Kaneko 2006		
*	**Peptidoglycan recognition protein LA**	CG4384	**PGRP-LA**	Modulate PGRP-LC sensing	-		-	Gendrin 2013					
*	**Peptidoglycan recognition protein LE**	CG8995	**PGRP-LE**	participates in sensing of Gram-negative bacteria upstream of the Imd pathw	-		-	Takehana 20(	Takehana 20(	Kaneko 2006;	Yano 2008;	Neyen 2012;	Bosco-Drayon 2012
	negative regulator												
	poor Imd response upon knock-in	CG15678	**pirk**	Negative regulator of the Imd pathway		3.8	-	Kleino 2008;	Lhocine 2008	Aggarwal 2008			
*	**Peptidoglycan recognition protein LF**	CG4437	**PGRP-LF**	Negative regulator of the Imd pathway		3.1	-	Maillet 2008					

Genes encoding proteins that affect the Toll and/or the Imd pathway(s)

skpA	CG16983	**skpA**	This gene encodes a component of the SCF complex. High Diptericin expression is observed in a skpA mutant.		Khush 2002
bendless	CG18319	**ben**	RNAi in S2 cells indicates a role of Bendless in IKK activation / **Bendless mutant flies show reduced inductic**		Zhou 2005
Uev1A	CG10640	**Uev1A**	RNAi in S2 cells indicates a role of UEV1a in IKK activation		Zhou 2005
Helicase 89B	CG4261	**Hel89B**	required downstream of NF-kB for the activation of AMP genes		Yagi 2005
Plenty of SH3s	CG4909	**POSH**	Posh is a Ring-finger protein. JNK activation and Relish induction are delayed and sustained in POSH deficient		Tsuda 2005
caspar	CG8400	**casp**	encodes an homolog of the Fas-associating factor 1. Caspar represses the Imd pathway		Kim 2006
defense repressor 1	CG12489	**dnr1**	RING finger containing molecule. RNAi in S2 cells indicates an inhibitory role of DNR-1 on Dredd activity		Foley 2004
wnt inhibitor of Dorsal	CG8458	**wntD**	Negative regulator of the Toll pathway		Gordon et al., 2005
cylindromatosis	CG5603	**CYLD**	encodes a deubiquitylating enzyme that is a negative regulator of the NF-kB		Tsichritzis 2007
scrawny	CG5505	**scny**	negative regulator of the imd pathway		Thevenon 2009
Ring and YY1 Binding Protein	CG12190	**RYBP**	dRYBP Contributes to the Negative Regulation of the Drosophila Imd Pathway.		Aparicio 2013
Zn finger homeodomain 1	CG1322	**zfh1**	Transcription factor zfh1 downregulates Drosophila Imd pathway.		Myllymäki H
immune response deficient 1	CG9746	**ird1**	Ird1 is a Vps15 homologue important for antibacterial immune responses in Drosophila		Wu 2007
G protein-coupled receptor kinase 2	CG17998	**Gprk2**	affect Toll signaling		Valanne 2010
Pellino	CG5212	**Pli**	Pli nteracts with the Pelle kinase - negative regulator of Toll signaling accord -	-	Haghayeghi 2 Ji 2014
Deformed epidermal autoregulatory fac	CG8567	**Deaf1**	regulates antimicrobial peptide gene expression		Read 2008 Kuttenkeuler 2009
lesswright	CG3018	**lwr**	Ubc9 negatively regulates the expression of the antifungal peptide gene drosomycin		Chiu 2005
lesswright	CG3018	**lwr**	encodes an enzyme that conjugates a small ubiquitin-related modifier (SUMO).Mutations causes activation of T		Huang 2005
trabid	CG9448	**trbd**	A deubiquitinase that interacts with TAK1 and negatively regulate the Imd pathway		Dilan 2014

Transcritpion (Serpent, Caudal, Drifter….) and chromatin factors (Akirin) that pattern antimicrobial peptide genes in various tissues are not included (Moleskin)
Genes encoding components involved inthe ecdysone response and vesicle trafficking (deep orange) are not included althouth they have a strong impact on Imd pathway and antimicrobial peptide expression

Genes encoding homologs of mammalian components of the IL1-R/TLR or TNF signalling pathways but has not yet been implicated in the immune response

Toll-like (Tl) receptors

	Tehao	CG7121	**Tehao**	Tl-5 expression induces the drosomycin antifungal peptide gene in cell cultur	-		-						

Tollo	CG6890	**Tollo**	oll-8/Tollo negatively regulates antimicrobial response in the Drosophila resp	-	-	Akhouayri 2011		
Toll-6	CG7250	**Toll-6**	-	-	-			
* **Toll-7**	CG8595	**Toll-7**	Toll-7 would function as a pattern recognition receptor for some virus	-	-	Nakamoto 2012		
18 wheeler	CG8896	**18w**	No role of 18W in the Drosophila immune reponse	-	-	Ligoxygakis 2002		
Toll-4	CG18241	**Toll-4**	-	-	-			
MstProx	CG1149	**MstProx**	-	-	-			
Toll-9	CG5528	**Toll-9**	Toll-9 is neither required to maintain a basal anti-microbial response nor to n	-	-	Narbonne-Reveau 2011		

Others

IkappaB kinase-like 2	CG2615	**ik2**	homolog of the mammalian TANK/IKKe gene	-	-			
cactin	CG1676	**cactin**	encodes a conserved protein that interacts with cactus and modulates its act	-	-			
ECSIT	CG10610	**ECSIT**	homolog of the mammalian ECSIT gene	-	-			
TNF-receptor-associated factor 4	CG3048	**Traf4**	homolog of the mammalian TRAF4 and 2 genes	-	-	Cha 2003		
CG4393	CG4393	**CG4393**	weak homolog of the mammalian TRAF3 gene	-	-			
	CG10961	**0**	homolog of the mammalian TRAF6 gene	-	-	Cha 2003		
NFAT homolog	CG11172	**NFAT**	homology Rel domain tanscription factor NFAT5?	-	-			

Genes encoding components of the JAK/STAT pathway

Some components of the Drosophila JAK/STAT pathway are involved in hemocyte proliferation and differentiation and in the expression of Turandot and Tep genes in the fat body.
This pathway is induced upon damage where it could play a role in the systemic adaptation to injury. It also participate in the gut repair response.

outstretched	CG5993	**os**	ligand of Domeless, role in development and stem cell maintenance			Harrison 1998		
unpaired 2	CG5988	**upd2**	ligand of Domeless, induced by infection in the gut			Agaisse 2003	Osman 2012	
unpaired 3	CG33542	upd3	ligand of Domeless. Produced by hemocyte and invovled in the JAK-STAT activation in the fat-body.			Agaisse 2003	Osman 2012	
domeless	CG14226	**dome**	receptor of JAK-STAT Pathway					
Signal-transducer and activator of trans	CG4257	**Stat92E**	homolog of the mammalian STAT gene	-	-			
hopscotch	CG1594	**hop**	encodes the *Drosophila* homolog of mammalian JAK	-	-			
Suppressor of cytokine signaling at	CG15154	**Socs36E**	Negative regulator of the JAK-STAT pathway					
Diedel	CG11501	**Diedel**	putative negative regulator of the JAK-STAT pathway, found to be induced in S2					
						Boutros 2002	Muller 2005	Coste 2012

Genes encoding components of the MAPK pathways

Some components of the MAPK pathways have been implicated in *Drosophila* antimicrobial resonses.

Mekk1	CG7717	**Mekk1**	regulates Turandot stress genes/regulate Duox activaition			Inoue 2000	Brun 2006	
p38a	CG5475	**Mpk2**	Overexpression of Mpk2 attenuates the expression of antimicrobial peptide g	-	-	chen 2010		
p38b	CG7393	**p38b**	participate in the stress response in the gut and phagocytic encapsulation	-	-	Shinzawa N 2	chen 2010	
p38c	CG33338	**p38c**	Regulate dopadecarboxylase at wound site			Davis2008		
MAP kinase kinase 4	CG9738	**Mkk4**				Geuking 2010		
licorne	CG12244	**lic**				Ha 2009		

Genes encoding components of the JNK pathway

The JNK pathway have been implicated in would-healing of epidermis. It is activated downstream of the Imd pathway at the level of TAK1 and regulates proteins involved in cytoskeleton remodeling.

hemipterous	CG4353	**hep**	Hemipterous encodes a MAPKKK required for JNK activation.			Boutros 2002	Delaney 2006	Kim 2006	Kallio 2005
basket	CG5680	**bsk**	basket encodes a MAPK activated by immune challenge in cultured cells.	-	-				
Jun-related antigen	CG2275	**Jra**	-	3.8	-				
puckered	CG7850	**puc**	negative regulator of the JNK pathway	2.5	-				

Genes encoding components of the Eiger/Wengen pathway

Eiger and Wengen are *Drosophila* proteins with similarities to mammalian TNF and TNF-R. There is contracdictory result concerning the role of this pathway in immunity

eiger	CG12919	**egr**	encodes a homologue of TNF. Enhances lethal effects of Salmonella infection			Schneider 20	Mabery 2010	Brandt 2004	Geuking 2009
Grindelwald	CG10176	**grnd**	encode the receptor of Eiger	-	-	Andersen 2005			

VI. Melanization

proPOphenoloxidase family: 3 members

PPO1	CG42639	**proPO-A1**	expressed in crystal cells	-	-	Rizki 1980,	Binggeli 2014	
PP02	CG8193	**proPO45**	expressed in crystal cells	-	-		Binggeli 2014	
PPO3	CG42640	**proPO59**	expressed in lamellocytes	-	-	Nam 2008	Dudzic 2017	

Serine Proteases/Serpins

Serpin 27A	CG11331	**Spn27A**	Serpin-like	6.5	2.1	Degregorio 2(	Ligoxygakis 2002		
Serine protease 7	CG3066	**Sp7**	required for proPo activation in the hemolymph	5.5	-	Tang et al., 2(	Castillejo-Lop	Leclerc et al., 2006	
Melanization Protease 1	CG1102	**MP1**	In vivo RNA indicates a role of MP1 for proPo activation in the hemolymph	3.9	-	Tang et al., 2006			
Serpin 28Dc	CG7219	**Spn28Dc**	serpin-like	21.2	-	Scherfer 2008			
Serpin 77Ba	CG6680	**Spn77Ba**	negatively regulate melanization in the trachae			Tang et al., 2008,			
Hayan	CG6361	**Hayan**	Terminal serine protease cleaving PPO in PO			Nam et al., 2012)			

Other melanization factors

The list includes only the immune-inducible genes encoding enzymes or strutural components putatively involved in the melanization reaction.

Dopa decarboxylase	CG10697	**Ddc**	Dopa decarboxylase	11.1	-		
pale	CG10118	**ple**	tyrosine hydroxylase	2.4	2.1		
Punch	CG9441	**Pu**	GTP cyclohydrolase	4.7	-		
Dihydropteridine reductase	CG4665	**Dhpr**	dihydropteridine reductase	3.2	-		
yellow-f	CG18550	**yellow-f**	dopachrome conversion enzyme	5.9	2		
Chorion protein 19	CG6524	**Cp19**	structural protein of the chorion	3.4	2.1		
Multicopper oxidase-1	CG3759	**Mco1**	laccase-like	2.2	-		
Odorant-binding protein 28a	CG6641	**Obp28a**	Required for melanization			Benoit 2017	

VII. Coagulation

Hemolectin	CG7002	**Hml**	encodes a homolog of silkworm hemocytin and contains domains similar to mammalian von Willebrand factor.				Goto 2001	Lesch 2007
fondue	CG15825	**fon**	Silencing of Fondue by in vivo RNAi induces clotting defects in larvae.	4.4	-		Scherfer 2006	
Transglutaminase	CG7356	**Tg**	transglutaminase, similar to vertebrate clotting factor XIII and clotting factors in crustaceans and horseshoe crabs, involved in clot cross-linking					
Ecdysone-induced gene 71Ee	CG7604	**Eig71Ee**	synonym l71-7; encodes a mucin required for bacteria entrapment in the clot					

Putative coagulation factors

The list includes only the immune inducible genes encoding components putatively involved in the clotting reaction.

CG5550	CG5550	**CG5550**	Fibrinogen-like	9.5	-			
Annexin B9	CG5730	**AnxB9**	Annexin V-like	2.5	-			
Retinoid- and fatty acid-binding glycopı	CG11064	**Rfabg**	Lipophorin; homologous to clotting proteins of other insects					
Cuticular protein 49Ac	CG8502	**Cpr49Ac**	mucin domain & constituent of larval cuticle; *Drosophila* clot component identified by proteomics					
CG11313	CG11313	**CG11313**	similar to PO-activating protease; *Drosophila* clot component identified by proteomics					
Gelsolin	CG1106	**Gel**	gelsolin; structural cytoskeleton component; *Drosophila* clot component identified by proteomics					

VIII. Hematopoesis and cellular response (Partial)

Hematopoeisis

lozenge	CG1689	**lz**	encodes an AML1 like transcription factor required for crystal cell differentiati	-	-			
serpent	CG3992	**srp**	GATA factor that regulates embryonic blood cell development and cecropin /	-	-			
glial cells missing	CG12245	**gcm**	encodes a DNA binding protein involved in plasmatocyte differentiation	-	-			
gcm2	CG3858	**gcm2**	participates with gcm in hemocyte differentiation					
u-shaped	CG2762	**ush**	U-shaped encodes a homolog of Friend of GATA that functions as a negativ	-	-			
Notch	CG3936	**N**	involved in the specification of crystal cells					
Serrate	CG6127	**Ser**	encodes a ligand of Notch; required for crystal cell specification					
domino	CG9696	**dom**	domino is a chromatin factor required for cell proliferation. Homozygous mut	-	-			
proliferation disrupter	CG18608	**prod**	proliferation disrupter is a chromatin factor required for cell proliferation. Hon	-	-			
knot	CG10197	**kn**	encodes an homolog of EBF; required for lamellocyte differentiation					
yantar	CG18426	**ytr**	mutation in Yantar induces defects in hemocyte proliferation and differentiation					
PDGF- and VEGF-receptor related	CG8222	**Pvr**	encode PDGF-receptor. Implicated in hemocyte proliferation					

Other genes causing blood cell proliferation are not listed here.

IX. Antimicrobial agents: AMPs, ROS, NO, Iron sequestration and others

Lysozyme (lys) family: 13 members including 1 gene encoding a protein with 4 lysozyme domains.): probably involved in digestion

Lysozyme X	CG9120	**LysX**	expressed in the midgut and may aid digestion.	-	-		Daffre 1994	
Lysozyme B	CG1179	**LysB**	expressed in the midgut and may aid digestion.	-	-		Daffre 1994	
Lysozyme D	CG9118	**LysD**	expressed in the midgut and may aid digestion.	-	-		Daffre 1994	
Lysozyme S	CG1165	**LysS**	expressed in the midgut and may aid digestion.	-	-		Daffre 1994	
Lysozyme E	CG1180	**LysE**	expressed in the midgut and may aid digestion.	-	-		Daffre 1994	
Lysozyme P	CG9116	**LysP**	expressed in the midgut and may aid digestion.	-	-		Daffre 1994	
Lysozyme C	CG9111	**LysC**	expressed in the midgut and may aid digestion.	-	-		Daffre 1994	
CG7798	CG7798	**CG7798**	-	-	-			
CG8492	CG8492	**CG8492**	encodes a large protein with 4 lysozyme domains	-	-			
CG11159	CG11159	**CG11159**	-	-	-			
CG16799	CG16799	**CG16799**	-	-	-			
CG16756	CG16756	**CG16756**	-	-	-			
CG30062	CG30062	**CG30062**	-					
CG6429	CG6429	**CG6429**	Lysozyme (3.2.1.17)	9.4	-			

Inducible Antimicrobial peptides

Attacins: 4 members

Attacin-A	CG10146	**AttA**	encodes an antibacterial peptide and is induced by infection	18.4		4.2	Asling 1995	Hendengren 2000
Attacin-B	CG18372	**AttB**	encodes an antibacterial peptide and is induced by infection	13.2		3.1		Hendengren 2000
Cecropin A1	CG4740	**CecA1**	encodes an antibacterial peptide and is induced by infection	31.7		2.5		Hendengren 2000
Attacin-D	CG7629	**AttD**	encodes an antibacterial peptide and is induced by infection	36.5	-			Hendengren 2000

Diptericin (dpt) family: 2 members

Diptericin	CG12763	**Dpt**	encodes an antibacterial peptide and is induced by infection	-	-		Wicker 1990	Reichart 1992
Diptericin B	CG10794	**DptB**	encodes an antibacterial peptide and is induced by infection	16.7	-		Hendengren 2000	
				7.6	-			

Cecropin (cec) family: 4 member

Cecropin A2	CG1367	**CecA2**	encodes a peptide with both antibacterial and antifungal peptide and is induc	25.8	-		Kylsten 1990	
Cecropin A1	CG1365	**CecA1**	encodes a peptide with both antibacterial and antifungal peptide and is induc	10.8	-		Kylsten 1991	
Cecropin C	CG1373	**CecC**	encodes a peptide with both antibacterial and antifungal peptide and is induc	110	-		Kylsten 1992	
Cecropin B	CG1878	**CecB**	encodes a peptide with both antibacterial and antifungal peptide and is induc	44.5	-		Kylsten 1990	

Drosomycin (drs) family: 6 memt

Drosomycin	CG10810	**Drs**	encodes an antifungal peptide and is induced by infection	8.3		7	Felhbaum 1994	
Drosomycin-like 2	CG32279	**Drsl2**	drs-like					
Drosomycin-like 3	CG32283	**Drsl3**	drs-like					
Drosomycin-like 4	CG32282	**Drsl4**	drs-like					
Drosomycin-like 5	CG10812	**Drsl5**	drs-like	3.2		3.7		
Drosomycin-like 6	CG32268	**Drsl6**	drs-like	-	-			

other AMPs								
Drosocin	CG10816	**Dro**	encodes an antibacterial peptide and is induced by infection	16.4		2.3	Bulet 1993	
Metchnikowin	CG8175	**Mtk**	encodes a peptide with both antifungal and antibacterial activity and is induc	7.4		7.1	Levashina 1995	
Defensin	CG1385	**Def**	encodes an antibacterial peptide and is induced by infection	27.6		3.2	Dimarq 1994	
Andropin	CG1361	**Anp**	encodes an antibacterial peptide in the male genital tract	-	-		Samaklovis 1991	
Listericin	CG9080	**Listericin**	encodes an antimicrobial peptide (regulated by Imd in Degregorio 2002 or by	12.5		3.2	Goto et al., 2010.	
Iron sequestration								
Transferrin 1	CG6186	**Tsf1**	induced by infection, encodes a protein that mediates iron transport	2		2.3		
Transferrin 3	CG3666	**Tsf3**	-	10.8	-			
Zinc/iron regulated transporter-related	CG6898	**Zip3**	iron-zinc transporter	3.4	-			
ROS Production by Duox in epit								
Dual oxidase	CG3131	**Duox**	In vivo RNAi indicates a role of duox in the production of ROS during oral bacterial infection.				Ha 2005	
Immune-regulated catalase	CG8913	**Irc**	In vivo RNAi indicates a role of IRC in ROS homeostasis during oral bacteria	9		2.9	Ha 2005	
Duox is regulated at the transcriptional level by Mekk1, P38 and ATF2								
Duox activity is regulated by Gαq and PLCß (Ha 2009)								
Nitric oxide synthase	CG6713	**Nos**	Has been involved in immune signaling between gut and fat body. Th	-	-		Foley 2003	Chakrabarti 2012
Other								
Edin	CG32185		induced in S2 cell, RNAi flies showed modestly impaired resistance to E. faecalis infection				Vanha-Aho 2(	Gordon 2008

X. Antiviral defense

RNAi pathway

Components of the RNAi pathway provides an antiviral defense

Argonaute 2	CG7439		**AGO2**					
Dicer-2	CG6493		**Dcr-2**					
r2d2	CG7138		**r2d2**					
* **Toll-7**	CG8595		**Toll-7**	Toll-7 would function as a pattern recognition receptor for some virus	-	-	Nakamoto 2012	
Methyltransferase 2	CG10692	Mt2		The RNA methyltransferase Dnmt2 is required for efficient innate immune responses			Durdevic 2013	
Other								
Ejaculatory bulb protein III	CG11390		**PebIII**	induced at the post-transcriptional level upon *Drosophila* C Virus infection				
Pherokine 3	CG9358		**Phk-3**	induced at the post-transcriptional level upon *Drosophila* C Virus infection				
virus-induced RNA 1	CG31764		**vir-1**	induced by the JAK-STAT pathway upon *Drosophila* C virus infection	3	-		
refractory to sigma P	CG10360		**ref(2)P**	polymorphism at the ref(2P) locus affects Sigma virus replication				
Vago	CG2081		**Vago**	Vago gene product controlled viral load in the fat body after infection with wit	3.4	-	Deddouche 2008	
Adenosine deaminase acting on RN	CG12598		**Adar**	ADARs is an RNA editing enzyme that target double stranded RNA and may play a role in antiviral defense			Carpenter 2009	
pastrel	CG8588		**pst**	the pastrel is associated with DCV-resistance by genome association studies and RNAi			Magwire 2012	

XI. Miscellaneous

Stress factors

Turandot A	CG31509		**TotA**	induced after various stress conditions including infection	NT	NT	Ekengren 20(	Ekengren 2001
Turandot B	CG5609		**TotB**	-	-	-	Ekengren 20(	Ekengren 2001
Turandot C	CG31508		**TotC**	-	NT	NT	Ekengren 20(	Ekengren 2001
Turandot F	CG31691		**TotF**	-	NT	NT	Ekengren 20(	Ekengren 2001
Turandot M	CG14027		**TotM**	-	31.2	3.6	Ekengren 20(	Ekengren 2001
Turandot X	CG31193		**TotX**	-	NT	NT	Ekengren 20(	Ekengren 2001
Turandot Z	CG31507		**TotZ**	-	NT	NT	Ekengren 20(	Ekengren 2001
Victoria	CG33117		**Victoria**	-	-	-	Ekengren 20(	Ekengren 2001
					-	-		
Other								
Thor	CG8846		**Thor**	induced by infection; encodes a homolog of mammalian translation initiation	2.4	-		

XII. Other Genes induced by infection upon systemic infection (microarray)

This list includes all the other genes selected as Drosophila Immune Regulated Genes described in De Gregorio et al. 2001

Other Induced serine proteases

CG30087	CG30087	**CG30087**	serine protease-like	7	6
CG6639	CG6639	**CG6639**	serine protease-like	49.8	18.7
CG9649	CG9649	**CG9649**	serine protease-like	4.6	2.5
CG18563	CG18563	**CG18563**	serine protease-like	9.9	3.1
CG11842	CG11842	**CG11842**	serine protease-like	6.4	2.1
CG11841	CG11841	**CG11841**	serine protease-like	2.8	3.9
Hayan	CG6361	**Hayan**	serine protease-like	3.2	-

CG9631	CG9631	**CG9631**	serine protease-like		3.3	-	
CG15046	CG15046	**CG15046**	serine protease-like		5.6	-	
Jonah 65Aiv	CG6467	**Jon65Aiv**	serine protease-like		2.4	2.5	
CG5909	CG5909	**CG5909**	serine protease-like		5.2	2.8	
CG31326	CG31326	**CG31326**	serine protease-like		3.1	2.5	
Ser7	CG2045	**Ser7**	serine protease-like		2.7	2.6	
CG9733	CG9733	**CG9733**	close homolog of the proPAE gene		8.1	-	
CG3505	CG3505	**CG3505**	close homolog of the proPAE gene		5.9	2.5	
Other Induced serpins							
Serpin 42Da	CG9453	**Spn42Da**	serpin-like		2.3	-	
Serpin 88Eb	CG6687	**Spn88Eb**	serpin-like		11.5	4.4	
* **Serpin 88Ea**	CG18525	**Spn88Ea**	serpin-like		3.4	-	
Induced Kunitz ser-protease inhi							
CG16713	CG16713	**CG16713**	Kunitz ser-protease inhibitors		7.2	2.7	
CG3604	CG3604	**CG3604**	Kunitz ser-protease inhibitors		4.5	-	
Bomanins			Required for survival to Gram positve bacteria and fungi				Clemmons 2015
Immune induced molecule 1	CG18108	**IM1**	Bom		11.3	7.6	
CG18107			Bom				
Immune induced molecule 2	CG18106	**IM2**	Bom		6.9	4.1	
CG15065	CG15065	**CG15065**	Bom		3.3	2.7	
CG15068							
CG43202							
CG16836							
CG5778							
Immune induced molecule 23	CG15066	**IM23**	-		10.3	10	
CG15067	CG15067	**CG15067**	-		3.7	3	
CG5791	CG5791	**CG5791**	-		7.7	7.5	
Induced small peptides (40-134a							
CG30080	CG30080	**CG30080**	-		22.5	6.9	
CG4250	CG4250	**CG4250**	-		7.3	3.1	
CG14957	CG14957	**CG14957**	chitin-binding?		7.2	-	
CG13324	CG13324	**CG13324**	-		6.7	-	
CG15126	CG15126	**CG15126**	-		6.1	-	
CG4269	CG4269	**CG4269**	-		5.3	-	
CG16836	CG16836	**CG16836**	-		4.9	3.5	
Acbp6	CG15829	**CG15829**	Acyl-CoA binding protein 6		4.9	-	
CG9928	CG9928	**CG9928**	-		4.2	1.9	
CG12494	CG12494	**CG12494**	Withdrawn from Flybase		4.2	-	
CG17107	CG17107	**CG17107**	-		3.9	-	
CG5773	CG5773	**CG5773**			3.8	-	
CG7738	CG7738	**CG7738**	Withdrawn from Flybase		3.8	3.8	
CG17278	CG17278	**CG17278**	kazal serine protease inhibitor		3.4	-	
CG13323	CG13323	**CG13323**	-		3.1	-	
CG8157	CG8157	**CG8157**	-		2.9	-	
CG9616	CG9616	**CG9616**	-		2.8	-	
Metallothionein C	CG5097	**MtnC**	metallothionein		2.7	2.9	
CG14599	CG14599	**CG14599**	Withdrawn from Flybase	-		3.4	
Induced genes encoding a protein with an homolog in other species							
Ninjurin A	CG6449	**NijA**	Ninjurin family is inducing nonapoptotic cell death		11.7	-	Broderick 2012
Charged multivesicular body protein 2b	CG4618	**CHMP2B**	4e-26 human BC2		5.5	-	
CG1358	CG1358	**CG1358**	1e-109 AF002196 (*C. elegans*)		5.1	2	
CG4199	CG4199	**CG4199**	1e-102 Nfr1 (Xenopus laevis) Ferredoxin reductase like		5	-	
Ady43A	CG1851	**Ady43A**	1e-23 human adenosine kinase (U33936)		5	-	
CG15829	CG15829	**CG15829**	4e-08 mouse Acyl coA binding site (ACBP)		4.9	-	
CG34349	CG11819	**CG34349**	4e-40 human BAI1-associated 3		4.9	-	
CG8791	CG8791	**CG8791**	6e-30 mouse renal sodimum-dependent phosphare transporter NTP1		4.8	2.7	
CG10641	CG10641	**CG10641**	5e-8 mouse caltractin CATR		4.4	-	
CG5493	CG5493	**CG5493**	5e-55 human cysteine dioxygenase pCDO		4.3	-	
CG9701	CG9701	**CG9701**	9e-68 mouse glycosyl hydrolase klotho		4.1	2.2	
CG12116	CG12116	**CG12116**	1e-10 mouse sepiapterin reductase		4	-	
Urate oxidase	CG7171	**Uro**	3e-65 mouse urate oxydase		3.9	2.8	
CG32413	CG10487	**CG32413**	9e-58 human glutaminyl peptide cyclotransferase precursor (QC)		3.8	-	
Keap1	CG3962	**Keap1**	1e-154 mouse Keap1		3.3	-	
Gadd45	CG11086	**Gadd45**	4e-09 human growth arrest and DNA-damage-inducible protein GADD45gam		3.1	-	
astray	CG3705	**aay**	1e-48 3-phophoserine phosphatase (*Arabidopsis thaliana*)		3	-	
Death resistor Adh domain containing t	CG1600	**Drat**	3e-53 *C. elegans* CAA98080		3	-	
CG42797	CG3099	**CG42797**	6e-89 mouse ubiquitin ligase NED4		3	2.3	
Pabp2	CG2163	**Pabp2**	PolyA binding protein		3	2.1	
rhomboid-4	CG1697	**rho-4**	3e-20 Rattus norvegicus Romboid related protein		2.9	-	
lethal (1) G0232	CG3101	**l(1)G0232**	2e-98 *Xenopus laevis* tyrosine phosphatases (A53978)		2.9	-	

Aspartyl-tRNA synthetase	CG3821	**Aats-asp**	1e-144 yeast aspartyl tRNA synthetase	2.8	-	
CG17119	CG17119	**CG17119**	5e-76 human cystinosis	2.8	-	
Pak3	CG14895	**Pak3**	1e-99 human PAK3	2.8	-	
CG5527	CG5527	**CG5527**	2e-58 human KIAA0604	2.7	-	
Cyp4p3	CG10843	**Cyp4p3**	4e-37 human cytochromeP450 4B1	2.7		2.4
N-methyl-D-aspartate receptor-associat	CG3798	**Nmda1**	4e-49 human protein KIAA0950	2.6	-	
Arc2	CG13941	**Arc2**	5e-06 mouse growth factor ARC	2.6	-	
CG5188	CG5188	**CG5188**	5e-57 human methiomine aminopeptidase AMP1	2.5	-	
CG8358	CG8358	**CG8358**	1e-43 NEP mouse neprilysin	2.5	-	
Mec2	CG7635	**Mec2**	5e-76 human stomatin	2.5		2
glaikit	CG8826	**gkt**	Tyrosyl-DNA phosophodiesterase 1	2.5		2.1
CG1607	CG1607	**CG1607**	e-126 4F2/CD98 light chain [*Mus musculus*]	2.4	-	
CG1607	CG1607	**CG1607**	1e-126 mouse 4F2/CD98	2.4	-	
Surfeit 4	CG6202	**Surf4**	3e-88 mouse surfeit protein SUR4	2.4	-	
Cyp6w1	CG8345	**Cyp6w1**	8e-66 human cytochrome P450 nifedipine oxidase	2.4	-	
CG7033	CG7033	**CG7033**	1e-169 human chaperonin containing t-complex CCT beta	2.3	-	
yin	CG44402	**yin**	1e-122 human oligopeptide transporter PET2	2.2	-	
ergic53	CG6822	**ergic53**	1e-104 human mannose specific lectin (U09716)	2.2	-	
Purine-rich binding protein-alpha	CG1507	**Pur-alpha**	3e-35 human transcriptional activator PUR-alpha	2.1		2.2
amnesiac	CG11937	**amn**		2.1		2.2

Induced unknown proteins

Some of the following genes encode proteins with a characterized domain.

Frost	CG9434	**Fst**	involved in the cold response	13.2		2.6
CG13905	CG13905	**CG13905**	-	13.1	-	
CG14567	CG14567	**CG14567**	-	12.7		2.8
CG13077	CG13077	**CG13077**	-	10.3	-	
CG13325	CG13325	**CG13325**	-	7.9	-	
Diuretic hormone 44	CG8348	**Dh44**	-	5.8	-	
CG15043	CG15043	**CG15043**	-	5.7		2.4
CG14219	CG14219	**CG14219**	-	5.7	-	
CG16772	CG16772	**CG16772**	-	5.6		4.7
Immune induced molecule 10	CG18279	**IM10**	-	5.6		5
CG9989	CG9989	**CG9989**	-	5.2		2.2
CG16718	CG16718	**CG16718**	-	5.2	-	
CG2217	CG2217	**CG2217**	-	5		2.2
CG15745	CG15745	**CG15745**	-	4.6	-	
CG5778	CG5778	**CG5778**	-	4.4		3
CG10420	CG10420	**CG10420**	-	4.4	-	
CG18067	CG18067	**CG18067**	-	4.3		3.4
CG5118	CG5118	**CG5118**	-	4	-	
CG10912	CG10912	**CG10912**	-	4	-	
CG7296	CG7296	**CG7296**	-	3.7	-	
tamo	CG4057	**tamo**	Tamo selectively modulates nuclear import in	3.6	-	Minakhina 2003
CG7778	CG7778	**CG7778**	-	3.6	-	
CG10680	CG10680	**CG10680**	-	3.4	-	
Nimrod A	CG8855	**NimA**	-	3.3	-	
Activity-regulated cytoskeleton associa	CG12505	**Arc1**	-	3.3		2.3
CG8965	CG8965	**CG8965**	-	3.2	-	
CG13311	CG13311	**CG13311**	-	3.2	-	
CG13618	CG13618	**CG13618**	-	3.2	-	
CG13641	CG13641	**CG13641**	-	3.2	-	
Cuticular protein 67Fb	CG18348	**Cpr67Fb**	-	3.1	-	
Sclp	CG2471	**Sclp**	-	3.1	-	
CG7016	CG7016	**CG7016**	-	3	-	
CG6426	CG6426	**CG6426**	-	3	-	
CG13795	CG13795	**CG13795**	-	3	-	
CG15293	CG15293	**CG15293**	-	3	-	
CG11413	CG11413	**CG11413**	-	3	-	
Nucleoporin 205kD	CG11943	**Nup205**	-	3		2.2
CG33307	CG16887	**CG33307**	-	2.9	-	
Na[+]/H[+] hydrogen antiporter 2	CG4693	**Nha2**	-	2.9	-	
CG14762	CG14762	**CG14762**	-	2.8	-	
CG16743	CG16743	**CG16743**	-	2.8	-	
CG6357	CG6357	**CG6357**	-	2.8	-	
CG15784	CG15784	**CG15784**	-	2.8	-	
CG42807	CG6183	**CG42807**	-	2.8	-	
CG17560	CG17560	**CG17560**	-	2.7		2.1
CG34370	CG13497	**CG34370**	-	2.7		2.3
CG14841	CG14841	**CG14841**	-	2.7		2
CG12502	CG12502	**CG12502**	-	2.7		2.7
CG15282	CG15282	**CG15282**	-	2.6	-	
TRAM	CG11642	**TRAM**	-	2.5	-	
CG7695	CG7695	**CG7695**	-	2.5		3.2
CG10383	CG10383	**CG10383**	-	2.5	-	
CG10910	CG10910	**CG10910**	-	2.5	-	
CG9186	CG9186	**CG9186**	-	2.4	-	

CG5059	CG5059	**CG5059**	-	2.4	-
CG14661	CG14661	**CG14661**	-	2.4	2.2
CG10332	CG10332	**CG10332**	-	2.4	-
CG13193	CG13193	**CG13193**	-	2.4	2
CG11417	CG11417	**CG11417**	-	2.4	2.3
CG34347	CG15566	**CG34347**	-	2.4	2.2
CG6672	CG6672	**CG6672**	-	2.3	-
CG14907	CG14907	**CG14907**	-	2.3	-
Mucin 55B	CG5765	**Muc55B**	-	2.3	-
CG18467	CG18467	**CG18467**	-	2.3	2.4
CG2875	CG2875	**CG2875**	-	2.3	-
DNApol-iota	CG7602	**DNApol-iota**	-	2.2	-
CG14401	CG14401	**CG14401**	-	2.2	-
CG6073	CG6073	**CG6073**	-	2.2	2.1
CG17019	CG17019	**CG17019**	-	2.2	-
CG14625	CG14625	**CG14625**	-	2.1	2.3