

**Figure 3S. Phylogenetic analysis of the CG7215/dPrx5 cluster.** **A** and **B**, alignment and phylograms of the deduced amino acid sequences of the orthologues of CG7215 (A) and dPrx5 (B) genes were generated using the ClustalW2 program. The conserved amino acids are indicated by asterisks. **C**, alignment of the nucleotide sequences and a phylogram of the intergenic regions between CG7215 and dPrx5 orthologues. The regions with the highest homology are highlighted.

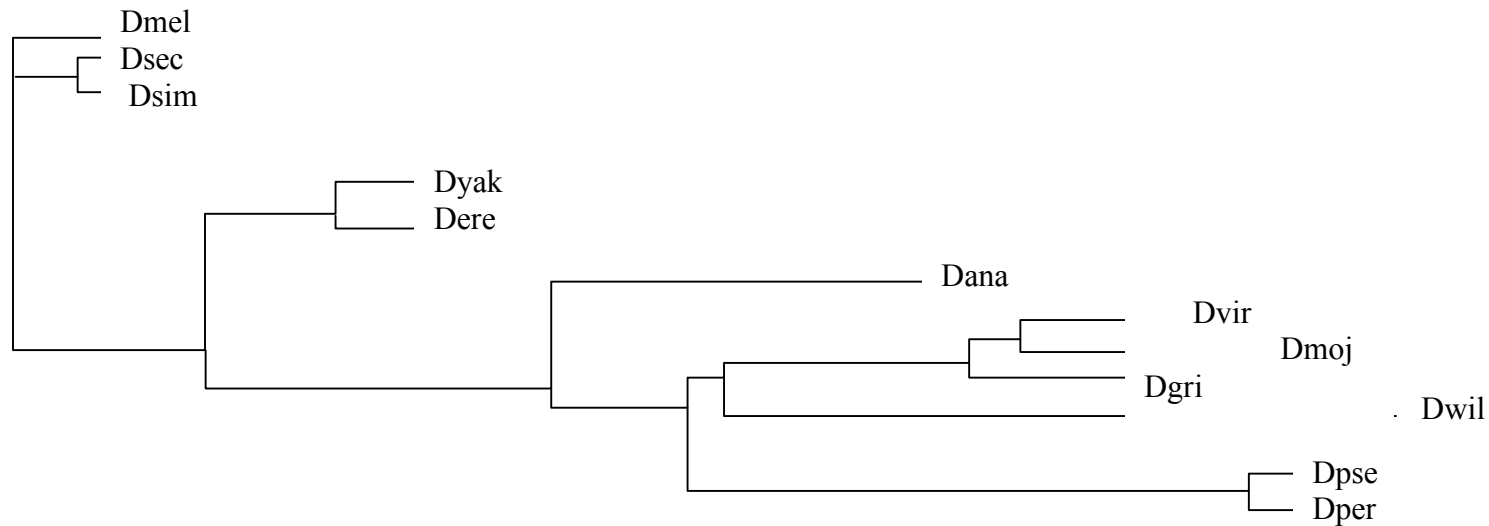
**A. Deduced amino acid sequences of CG7215 gene orthologues**

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D.melanogaster  MQITIKVLKGGKDCSTIEVAPTSTILEVKHQIEAELQISATNQKLLLLGRPLNNEQTIASYPNIKEGTKLNLVVIKPCRDSILRGFRKHY
D.virilis       MKITIKVLKGGKDCSTIEVSPTSTILEVKEQIEAALQIPATNQKLLLLGRPLNNDHTIASYPNIKEGTKINLVVMKPGLRDCIHRAFRKYY
D.mojavensis   MKIIIKVLKGGKDCSTIEVSPTSTIQELKEKIDVALQIPATNQKLLLLGRPLNNDQTIASYPNIKEGTKLILVVMKPGLRDCIHRAFRKYY
D.grimshawi    MQITIKVLKGTDCSTIEVSSTSTILEVKEKIDAALQIPASNQKLLLLGRPLNNDQTIASYPNIKEGTKINLVVMKPGLRDCIHRAFRKYY
D.yakuba       MQITIKVLKGGKDCSTIEVSPTSTILEVKHQIEAELQISAAHQKLLLLGRPLNNEQTIASYPNIKEGTKLNLVVIKPCRKDSILRGFRKHY
D.erecta       MQITIKVLKGGKDCSTIEVSPTSTILEVKHQIEAELQISAAHQKLLLLGRPLNNEQTIASYPNIKEGTKLNLVVIKPCRKDSILRGFRKHY
D.sechellia    MQITIKVLKGGKDCSTIEVAPTSTILEVKHQIEAELQISAAHQKLLLLGRPLNNEQTIASYPNIKEGTKLNLVVIKPCRDSILRGFRKHY
D.simulans     MQITIKVLKGGKDCSTIEVAPTSTILEVKHQIEAELQISATNQKLLLLGRPLNNEQTIASYPNIKEGTKLNLVVIKPCRDSILRGFRKHY
D.ananassae    MQITIKVLKGGKDCSTIEVAPTSTILEVKHQIEAELQISATNQKLLLLGRPLNNEQTIASYPNIKEGTKLNLVVIKPCRDSILRGFRKHY
D.pseudoobscura MQIIIKVLTKGKDCSTIEVLPNTILEVKQQIETALKITAAHQKLLLLMGRPLNNDLTISSYANIKEGTKINLVVMKPSLRDCILRGFRKFY
D.persimilis   MQIIIKVLTKGKDCSTIEVLPHTILEVKQQIETALKITAAHQKLLLLMGRPLNNDLTISSYANIKEGTKINLVVMKPSLRDCILRGFRKFY
D.wilistoni    MQITIKVLKGGKDCSTLNVLPSSTILDVKKQIESALKIQASNQKLLLLGRPLNNEATVASYPNIKNGTKLNLVVMKPALRDCIHRAFRKYY
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D.melanogaster  SEPLAERMTNEFMADFERKINEQSLDDLERLADSIVNRAAT
D.virilis       TEAQSERLTNEFMDFEAKLKEQSLDDLERFADNCL-----
D.mojavensis   TEAQSERLTNEFMDFEAKLKEQSLDDLERFADNCL-----
D.grimshawi    TEVQSERLTNEFMDFEAKLKEQSLDDLERFADNSI-----
D.yakuba       PELQAERLTNEFMADFERKINEQSLDDLERLADSIVSRAGT
D.erecta       PELQAERLTNEFMADFERKINEQSLDDLERLADSIVSRAGT
D.sechellia    SELLAERMTNEFMADFERKINELSLDDLERLSDSIINRAGT
D.simulans     SELLAERMTNEFMADFERKINDLSLDDLERLSDSILNRAGT
D.ananassae    PEQQSERLTNEFMADFERKLTEQSLDDLERFADSIVSRVPT
D.pseudoobscura NEQQSERLTNEFMADFERKLKEHSLDDLERFAESTIGKVET
D.persimilis   NEHQSERLTNEFMADFERKLKEHSLDDLERFAESTIGKVET
D.wilistoni    TEQQSELLTNHFIADEFKRTKELSLDDLERLADNITSA---
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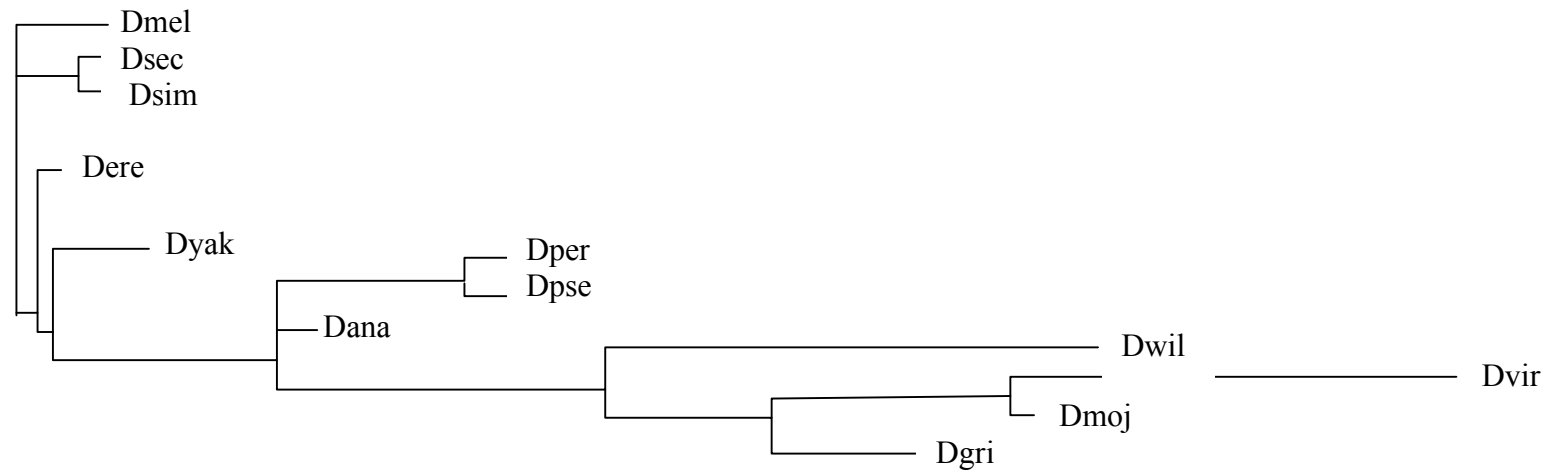


## B. Deduced amino acid sequences of dPrx5 gene orthologues

D.melanogaster	MRVLSCKFLGRVVNSALPQQIISLRSLSKTSAAMVKVGDSLPSVDLFEDSPANKINTGDLVNGKKVIFGVPGAFTPGCSKTHLPGYVSS
D.persimilis	MRVLSCKILGRVVNSTLS-TVNPFVRSFNRNLPAAMVKVGDALPAVDLFEDSPANKINTGDLVNGKKVIFGVPGAFTPGCSKTHLPGYVSS
D.pseudoobscura	MRVLSCKILGRVVNSTLS-TVNPFVRSFNRNLPAAMVKVGDALPAVDLFEDSPANKINTGDLVNGKKVIFGVPGAFTPGCSKTHLPGYVSS
D.ananassae	-----MVKVGDALPSVDLFEDSPANKINTGDLVNGKKVIFGVPGAFTPGCSKTHLPGYVSS
D.simulans	MRVLSCKFLGRVVNSALPQQIISLRSLSKTSAAMVKVGDSLPAVDLFEDSPANKINTGDLVNGKKVIFGVPGAFTPGCSKTHLPGYVSS
D.sechellia	MRVLSCKFLGRVVNSALPRQIISLRSLSKTSAAMVKVGDSLPAVDLFEDSPANKINTGDLVNGKKVIFGVPGAFTPGCSKTHLPGYVSS
D.erecta	MRVLSCKFLGRVVNSALPQQIISLRSLSRSTSAAMVKVGDSLPAVDLFEDSPANKINTGDLVNGKKVIFGVPGAFTPGCSKTHLPGYVSS
D.yakuba	MRVLSCKFLGRVVNSALPQIIISLRSLSRSTSAAMVKVGDSLPAVDLFEDSPANKINTGDLVNGKKVIFGVPGAFTPGCSKTHLPGYVSS
D.wilistoni	---MSYKLLCRAV--AKSNHFNSKRLFSTTAAMVKVGDKLPVVDLFEDSPANKINTGDLVNGKKVIFGVPGAFTPGCSKTHLPGYIST
D.virilis	--MQACNFFNRVVNSTKT----NARFSRSLGAMVKVGDKLPVVDLFEDSPANKINTGELTNGKKVIFGVPGAFTPGCSKTHLPGYVTL
D.mojavensis	-----MVKVGDKVPVVDLFEDSPANKINTGELTNGKKVIFGVPGAFTPGCSKTHLPGYVSG
D.grimshawi	-----MVKVGDKLPVVDLFEDSPANKINTADLTNGKKVIFGVPGAFTPGCSKTHLPGYVSS
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D.melanogaster ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAAGKVRLLADPAGGFTKALDVTIDLPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS  
 D.persimilis ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAGGKVRLLADPAGGFTKALDVSIDLPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS  
 D.pseudoobscura ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAGGKVRLLADPAGGFTKALDVSIDLPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS  
 D.ananassae AEELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAAGKVRLLADPAGGFTKALDVTIDLPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS  
 D.simulans ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAAGKVRLLADPAGGFTKALDVTIDLPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS  
 D.sechellia ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAAGKVRLLADPAGGFTKALDVTIDLPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS  
 D.erecta ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAAGKVRLLADPAGGFTKALDVTIDLPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS  
 D.yakuba ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGASGKVRLLADPAGGFTKALDVTIDLPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS  
 D.wilistoni SDQLKSQQGVDEIVCVSVNDPFVMSAWGKEHGANGKVRLLADPAGAFKALDVTIDLPLGGVRSKRYSLVVENGSVTELNVEPDGTGLS  
 D.virilis ADSLKAEQGVDEIVCVSVNDPFVMSAWGKEHGAAGKVRMLADPAGIFASALDVNIDLPLGGVRSKRYSMVVQNGEVKELNIEPDGTGLS  
 D.mojavensis ADSLKAEQGVDEIVCVSVNDPFVMSAWGKEHGATGKVRMLADPAGLFASALDVNIDLPLGGVRSKRYSMVVENGEVKELNIEPDGTGLS  
 D.grimshawi ADSLKGEQGVDEIVCVSVNDPFVMSAWGKQHGADGKVRMLADPSGALATALDVNIDLPLGGVRSKRYSMVVQNGEVKELNVEPDGTGLS  
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D.melanogaster CSLANNIGKK 190  
 D.persimilis CSLANNIGKK 189  
 D.pseudoobscura CSLANNIGKK 189  
 D.ananassae CSLANNIGKK 157  
 D.simulans CSLANNIGKK 190  
 D.sechellia CSLANNIGKK 190  
 D.erecta CSLANNIGKK 190  
 D.yakuba CSLANNIGKK 190  
 D.wilistoni CSLANNIGKK 185  
 D.virilis CSLANKIGKK 184  
 D.mojavensis CSLANNIGKK 157  
 D.grimshawi CSLANNIGKK 157  
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### C. Intergenic region between CG7215 and dPrx5 gene orthologues

D.melanogaster	CGCCATTGAAGACCCAATAC-----CAACCACCACCACCCCTCCAAAAATATGATGGAAGTCTATCCTTACAGCATAATAT
D.simulans	CGCCATTGAAGACCCGAGAC--ACAAGCAACCACCACCACCCCTCCAAAAATATGATGGAAGTCTATCCTCACAGCATAATAT
D.sechellia	CGCCATTGAAGAGCCAAGACCCACAAGCAACCACCACCAGCACCCCTCCAAAAATATGATGGAAGTCTATCCTCACAGCATAATAT
D.erecta	CGCCACTGAACACCCA-----CCACCCCTCC-----AAATATGACGGAAGCTTATCCTCACAG---AATGT
D.yakuba	-----TTCTCCTCTCTTTCTTCTTCTCACATACACGGGCACGCACTCACACAGCCAAAGACTGCAT
D.virilis	-----
D.grimshawi	-----
D.pseudoobscura	-----
D.persimilis	-----
D.ananassae	-----
D.wilistoni	-----
D.melanogaster	TTTTATTTCCCCCTTTAAAAAAACAAACTAACTAAAAAATATGAGGTAGTAAAAATTAAGACTTGACTGAAAACACACGGCCATA
D.simulans	TTGTATTTCCCCCTCTAACAAAACAAACAAACTAAAAAATATGAGGTAGTAAAAATTAAGACTTGACTGAAAACACACGGCCATA
D.sechellia	TTGTATTTCCCCCTCTAACAAAACAAACGAACTAAAAAATATGAGGTAGTAAAAATTAAGACTTGACTGAAAACACACGGCCATA
D.erecta	TTTCATTTCCCCCT-TAACAAAAAAA-----AAAAGAT-CGAGGTAGTAAAAATTAAGACTTGACTGAAAACGCACAGTCCATA
D.yakuba	CTGGGTGGAGGAGCGTTGCCAGACCGCCACGAAAAACAATATGGGCCGTGCGCTTTCAGTCAAGTCTTAATTTTTACTACCTCATT
D.virilis	-----ACCTTGGAACAGCCGGGAGTA--AATGCACCGGGCACACCAAAGAATATCACTTTCTTGCCATT-GTTAGCTCGCC
D.grimshawi	-----AGATGATCACTTTCTTGCCATTTGTCAGATCGGC
D.pseudoobscura	-----ACCTTTGAGCAGCCGGGTGTA--AATGCTCCGGGCACACCAAAGATGATCACCTTCTTGCCATT-ACCAGGTCGCC
D.persimilis	-----ACCTTTGAGCAGCCGGGTGTA--AATGCTCCGGGCACACCAAAGATGATCACCTTCTTGCCATT-ACCAGGTCGCC
D.ananassae	-----ACCTTAGAGCAGCCAGGGGTG--AAGGCACCGGGCACTCCGAAGATGATCACCTTCTTGCCGTG-ACCAAGTCTCC
D.wilistoni	-----TTGCCATTACCAAATCGCC
D.melanogaster	TTCTTTTTT-GCGACGGTCTGGCAACGCTCCACCGCCAGTTGCAGTCTTT-GGCTGTGTGCGTGCGTGCCTGTGTGTGTGAGAAGAA
D.simulans	TTCTTTTTTTCGCGGCGGTCTGGCAACGCTCCACCAGCCAGATGCAGTCTTT-GGCTGTGTGCGTGCGTGCCTGTGTGTGTGAGAAGAA
D.sechellia	TTCTTTTTTTCGCGGCGGTCTGGCAACGCTCCACCAGCCAGATGCAGTCTTT-GGCTGTGTGCGTGCGTGCCTGTGTGTGTGAGAAGAA
D.erecta	TTCTTTTTTTCGCGGCGGTCTGGCAACCTCCGCCAGCCAGATGCATTCTTTGGCTGTGTGAGTGTATGCCCGTGTGTGTGAGAAGAA
D.yakuba	--TTTTTTTTTTGTTAGGGGGGAAATAAAAAACATTATGGTGTAAAGATGGACTTCCGTGCATATTTGGGGGATGCTGGGTGTTAGGTC
D.virilis	GGTGTTTATCTTATTGGCTGGCAGTCTCGAAGAGGTCCACCGAGGGCAG-----
D.grimshawi	GGTGTTTATCTTGTGTTGCTGGAGAATCCTC-----
D.pseudoobscura	GGTGTGATTTTTGTTGGCCGGGAATCCTCAAACAGATCCAC-----
D.persimilis	GGTGTGATTTTTGTTGGCCGGGAATCCTCAAACAGATCCAC-----
D.ananassae	GGTGTGATCTTGTAGCCGGGAATCCTCAAAGAGATCCACCGAGGGCAGGG-----
D.wilistoni	GGTGTGATTTTTATTTGCTGGCGAATCCTCAAAAAGATCCACCGATGGCAG-----

D.melanogaster	GAAAGAGAGGAGAA-	286
D.simulans	GAAAGAGAGGAGAA-	293
D.sechellia	GAAAGAGAGGAGAA-	295
D.erecta	GAAAGAGAGGAGAA-	261
D.yakuba	TTCAGTGGCGCTATG	249
D.virilis	-----	124
D.grimshawi	-----	
D.pseudoobscura	-----	
D.persimilis	-----	
D.ananassae	-----	126
D.wilistoni	-----	71

