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  MQITIKVLKGKDCTIEVAPTSTILEVKHQIEAELQISATNQKLLLLGRPLNNEQTIASYPNIKEGTKLNLVVIKPCLRDSILRGFRKHY
D.virilis       MKITIKVLKGKDCTLEVSPTSTILEVKEQIEAALQIPATNQKLLLLGRPLNNDHTIASYPNIKEGTKINLVVMKPGLRDCIHRAFRKYY
D.mojavensis    MKIIIKVLKGKDCTLEVSPTSTIQELKEKIDVALQIPATNQKLLLLGRPLNNDQTIASYPNIKEGTKLILVVMKPGLRDCIHRAFRKYY
D.grimshawi     MQITIKVLKGTDCTLEVSSTSTILEVKEKIDAALQIPASNQKLLLLGRPLNNDQTIASYPNIKEGTKINLVVMKPGLRDCIHRAFRKYY
D.yakuba        MQITIKVLKGQDCTIEVSPTSTILEVKHQIEAELQISAANQKLLLLGRPLNNEQTIASYPNIKEGTKLNLVVIKPCLKDSILRGFRKHY
D.erecta        MQITIKVLKGQDCTIEVSPTSTILEVKHQIEAELQISAANQKLLLLGRPLNNEQTIASYPNIKEGTKLNLVVIKPCLKDSILRGFRRHY
D.sechellia     MQITIKVLKGKDCTIEVAPTSTILEVKHQIEAELQISAANQKLLLLGRPLNNEQTIASYPNIKEGTKLNLVVIKPCLRDSILRGFRKHY
D.simulans      MQITIKVLKGKDCTIEVAPTSTILEVKHQIEAELQISATNQKLLLLGRPLNNEQTIASYPNIKEGTKLNLVVIKPCLRDSILRGFRKHY
D.ananassae     MQITIKVLKGQDCLLEVLPTSTILEVKQQIEGELQISAANQKLLLMGRPLNNDQTIASYPNIKQGTKLNLVVMKPCLRDSILRGFRKHF
D.pseudoobscura MQIIIKVLTGKDCTLEVLPTNTILEVKQQIETALKITAANQKLLLMGRPLNNDLTISSYANIKEGTKINLVVMKPSLRDCILRGFRKFY
D.persimilis    MQIIIKVLTGKDCTLEVLPTHTILEVKQQIETALKITAANQKLLLMGRPLNNDLTISSYANIKEGTKINLVVMKPSLRDCILRGFRKFY
D.wilistoni     MQITIKVLKGQDCTLNVLPSSTILDVKKQIESALKIQASNQKLLLLGRPLNNEATVASYPNIKNGTKLNLVVMKPALRDCIHRAFRKYY
                *:* ****.* ** ::* .: ** ::*.:*:  *:* *:******:******: *::**.***:***: ***:** *:*.* *.**:.:

D.melanogaster  SEPLAERMTNEFMADFERKINEQSLDDLERLADSIVNRAAT
D.virilis       TEAQSERLTNEFMTDFEAKLKEQSLDDLERFADNCL-----
D.mojavensis    TEAQAERLTNEFMTDFEAKLKEQSLDDLERFADNCL-----
D.grimshawi     TEVQSERLTNEFMTDFEAKLKEQSLDDLERFADNSI-----
D.yakuba        PELQAERLTNEFMADFERKINEQSLDDLERLADSIVSRAGT
D.erecta        PELQAEHLTNEFMADFERKINEQSLDDLERLADSIVSRAGT
D.sechellia     SELLAERMTNEFMADFERKINELSLDDLERLSDSIINRAGT
D.simulans      SELLAERMTNEFMADFERKINDLSLDDLERLSDSILNRAGT
D.ananassae     PEQQSERLTNEFMADFERKLTEQSLDDLERFADSIVSRVPT
D.pseudoobscura NEQQSERLTNEFMADFERKLKEHSLDDLERFAESTIGKVET
D.persimilis    NEHQSERLTNEFMADFERKLKEHSLDDLERFAESTIGKVET
D.wilistoni     TEQQSELLTNHFIADFEKRTKELSLDDLERLADNITSA---
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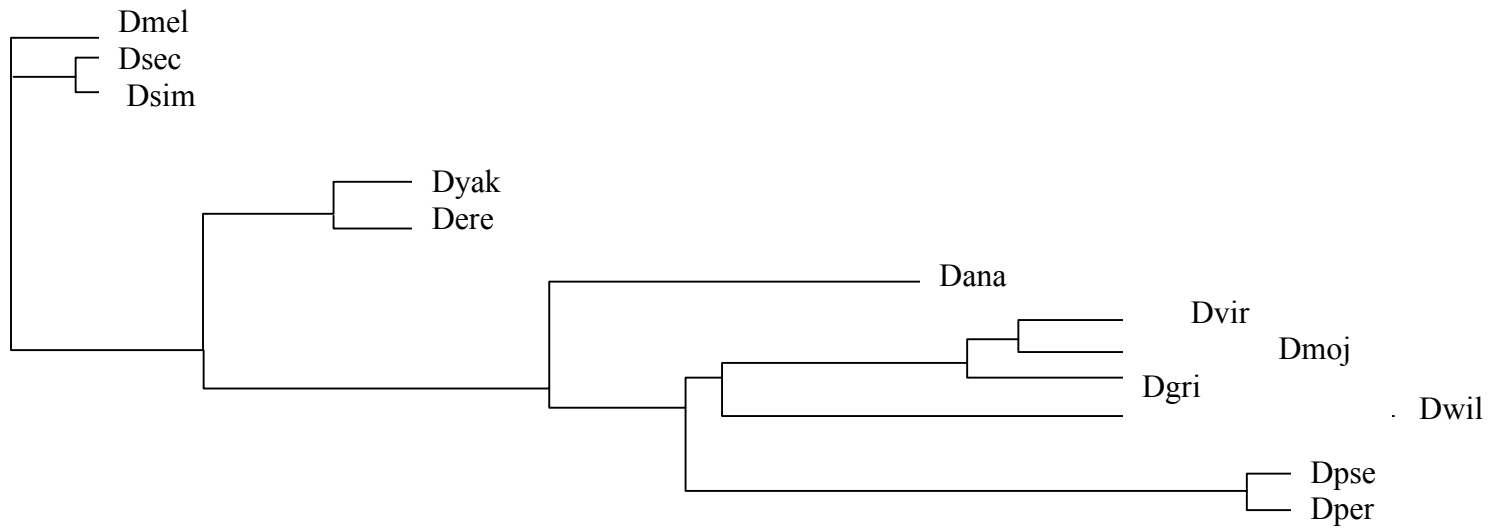

B. Deduced amino acid sequences of dPrx5 gene orthologues

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D.melanogaster  MRVLSCKFLGRVVNSALPQQIISLRSLSKTSAAMVKVGDSLPSVDLFEDSPANKINTGDLVNGKKVIIFGVPGAFTPGCSKTHLPGYVSS
D.persimilis    MRVLSCKILGRVVNSTLS-TVNPVRSFSRNLPAMVKVGDALPAVDLFEDSPANKINTGDLVNGKKVIIFGVPGAFTPGCSKTHLPGYVSS
D.pseudoobscura MRVLSCKILGRVVNSTLS-TVNPVRSFSRNLPAMVKVGDALPAVDLFEDSPANKINTGDLVNGKKVIIFGVPGAFTPGCSKTHLPGYVSS
D.ananassae     ---------------------------------MVKVGDALPSVDLFEDSPANKINTGDLVNGKKVIIFGVPGAFTPGCSKTHLPGYVSS
D.simulans      MRVLSCKFLGRVVNSALPQQIISLRSLSKTSAAMVKVGDSLPAVDLFEDSPANKINTGDLVNGKKVIIFGVPGAFTPGCSKTHLPGYVSS
D.sechellia     MRVLSCKFLGRVVNSALPRQIISLRSLSKTSAAMVKVGDSLPAVDLFEDSPANKINTGDLVNGKKVIIFGVPGAFTPGCSKTHLPGYVSS
D.erecta        MRVLSCKFLGRVVNSALPQQIISLRSLSRTSAAMVKVGDSLPAVDLFEDSPANKINTGDLVNGKKVIIFGVPGAFTPGCSKTHLPGYVSS
D.yakuba        MRVLSCKFLGRVVNSALPQIIISLRSLSRTSAAMVKVGDSLPAVDLFEDSPANKINTGDLVNGKKVIIFGVPGAFTPGCSKTHLPGYVSS
D.wilistoni     ---MSYKLLCRAV--AKSNHFNSKRLFSRTTAAMVKVGDKLPSVDLFEDSPANKINTGDLVNGKKVIIFGVPGAFTPGCSKTHLPGYIST
D.virilis       --MQACNFFNRVVNSTKT----NARSFSRTLGAMVKVGDKLPSVDLFEDSPANKINTGELTNGKKVIFFGVPGAFTPGCSKTHLPGYVTL
D.mojavensis    ---------------------------------MVKVGDKVPSVDLFEDSPANKINTGELTNGKKVIFFGVPGAFTPGCSKTHLPGYVSG
D.grimshawi     ---------------------------------MVKVGDKLPSVDLFEDSPANKINTADLTNGKKVIIFGVPGAFTPGCSKTHLPGYVSS
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D.melanogaster  ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAAGKVRLLADPAGGFTKALDVTIDLPPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS
D.persimilis    ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAGGKVRLLADPAGGFTKALDVSIDLPPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS
D.pseudoobscura ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAGGKVRLLADPAGGFTKALDVSIDLPPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS
D.ananassae     AEELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAAGKVRLLADPAGGFTKALDVTIDLPPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS
D.simulans      ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAAGKVRLLADPAGGFTKALDVTIDLPPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS
D.sechellia     ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAAGKVRLLADPAGGFTKALDVTIDLPPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS
D.erecta        ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGAAGKVRLLADPAGGFTKALDVTIDLPPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS
D.yakuba        ADELKSKQGVDEIVCVSVNDPFVMSAWGKEHGASGKVRLLADPAGGFTKALDVTIDLPPLGGVRSKRYSLVVENGKVTELNVEPDGTGLS
D.wilistoni     SDQLKSQQGVDEIVCVSVNDPFVMSAWGKEHGANGKVRLLADPAGAFTKALDVTIDLPPLGGVRSKRYSLVVENGSVTELNVEPDGTGLS
D.virilis       ADSLKAEQGIDEIVCVSVNDPFVMSAWGKEHGAAGKVRMLADPAGIFASALDVNIDLPPLGGVRSKRYSMVVQNGEVKELNIEPDGTGLS
D.mojavensis    ADSLKAEQGVDEIVCVSVNDPFVMSAWGKEHGATGKVRMLADPAGLFASALDVNIDLPPLGGVRSKRYSMVVENGEVKELNIEPDGTGLS
D.grimshawi     ADSLKGEQGVDEIVCVSVNDPFVMSAWGKQHGADGKVRMLADPSGALATALDVNIDLPPLGGVRSKRYSMVVQNGEVKELNVEPDGTGLS
                ::.**.:**:********************:*** ****:****:* ::.****.****************:**:**.*.***:********

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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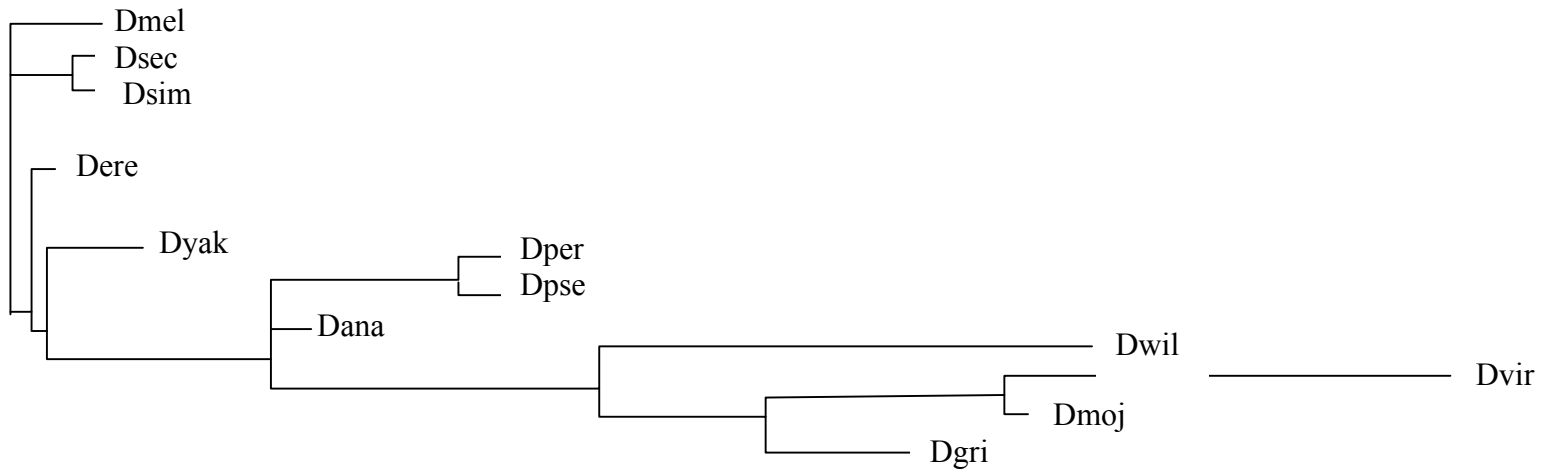
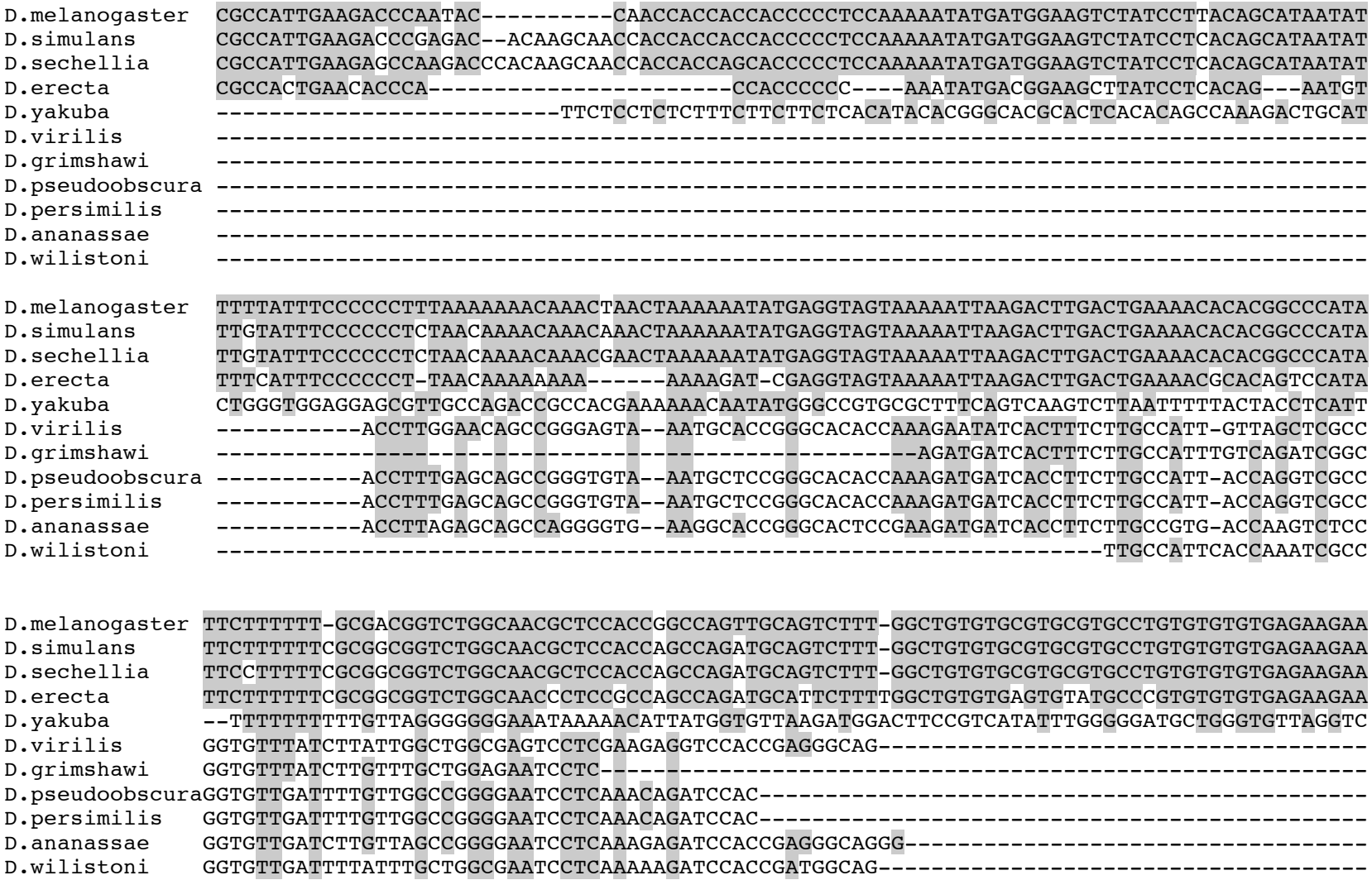


C. Intergenic region between CG7215 and dPrx5 gene orthologues



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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
```