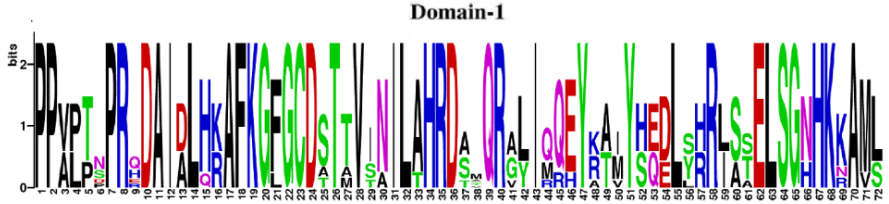
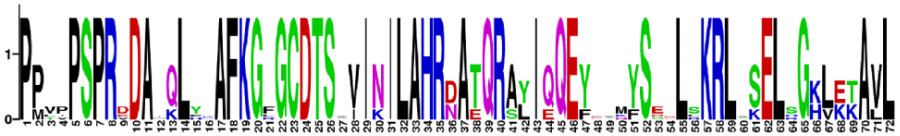
GXG T D/E

Domain-1

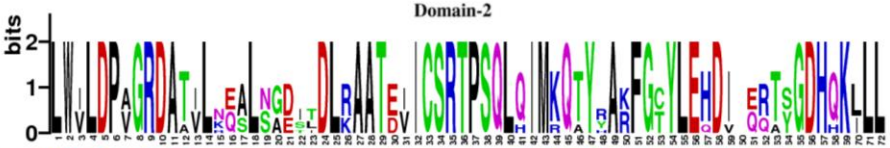


```
TaAnn6   PPVLTSPRHDAIALHRAFKGFGCDSTTVINILAHRDAVQRGLIMQEYRAIYHQDLYHRLSTELSGNHKKAML 72
HvAnn6   PPVLTSPRHDAIALHRAFKGFGCDSTTVINILAHRDATQRALIMQEYRAIYHQDLYHRLSTELSGNHKKAML 72
HvAnn1   PPVLTPPREDAIALHKAFKGLGCDTTMVINILAHRDTAQRVLIQQEYKAIYHEDLYHRLATELSGNHKNAML 72
OsAnn1   PPVPTDPRRDAIDLHRAFKGFGCDATAVTAILAHRDASQRALIRRHYAAVYHQDLLHRLAAELSGHHKRAVL 72   Monocots
TaAnn9   PPAPPNPRQDAIDLHKAFKGFGCDSTTVSNILAHRDSMQRGYIQQEYKTMYSEELSRRISSELSGNHKKAMS 72
HvAnn9   PPAPPNPRQDAIDLQKAFKGFGCDSTTVSNILAHRDSMQRGYIQQEYKTMYSEELSRRISSELSGNHKKAMS 72
OsAnn9   PPAPTNPRQDAIDLHKAFKGFGCDSTTVINILTHRDSMQRALIQQEYRTMYSEDLSRRISSELSGHHKKAML 72
         **. . **.*** *:;****:***:* *  **:***: **  * :.* ::* ::* :*::;****:**.*:
```

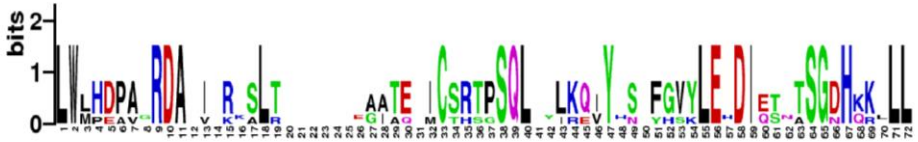


```
Gm07g12030 PPVPPSPRDDAMQLYRAFKGFGCDTSAVINILAHRDATQRAYIQQEYRSMYSEELSKRLASELSGKLETAVL 72
Gm09g30190 PPVPPSPRDDAMQLYRAFKGFGCDTSAVINILAHRDATQRAYIQQEYKAMYSEELSKRLASELSGKLETAVL 72
Gm08g06100 PPLPPSPRDDAIQLYAAFKGFGCDTSVVINILAHRDATQRAYIQQEYKAMYSGDLLKRLSSELSGKLETALL 72   Dicots
AtAnn5     PMTVPSPRVDADQLFKAFKGRGCDTSVIINILAHRNATQRALIEQEYETKFSDDLRKRLHSELHGHLKKAVL 72
Gm07g28080 PPVIPSPREDAIKLHKAFKGLGCDTSKVIKILAHRNAEQRSLIQQEFETNYSELLSKRLSKELRGHVKKAVL 72
           *   **** ** :*. **** ***** :*:*****:* **: *:**:.: :*  * *** .** *:::.*:*
```

Domain-2



```
TaAnn6   LWVLDPVGRDATILNQSLNGDITDLRAATEVICSRTPSQLQIMKQTYRARFGCYLEQDITERTYGDHHKLLL 72
HvAnn6   LWVLDPVGRDAAILNQSLNGDITDLRAATEVICSRTPSQLHIMRQAYRARFGCYLEHDVAERTYGDHQKLLL 72
HvAnn1   LWVLDPVGRDATILNQALNGDITDLRAATEVICSRTPSQLQIMKQTYRARFGCYLEHDITERTYGDHQKLLL 72
TaAnn9   LWILDPAGRDATVLKEALSAESLDLKAATDIICSRTPSQLQIMKQTYYAKFGTYLEHDISQQASGDHQKILL 72   Monocots
HvAnn9   LWILDPAGRDATVLKEALSAESLDLKAATDIICSRTPSQLQIMKQTYYAKFGTYLEHDISQQTSGDHQKILL 72
OsAnn9   LWILDPAGRDATVLREALSGDTIDLRAATEIICSRTPSQLQIMKQTYHAKFGTYLEHDIGQRTSGDHQKLLL 72
         **:***.****::*.::*..:  **:****::*********:**:*:* *:** ***:*:  ::: ***:*:**
```



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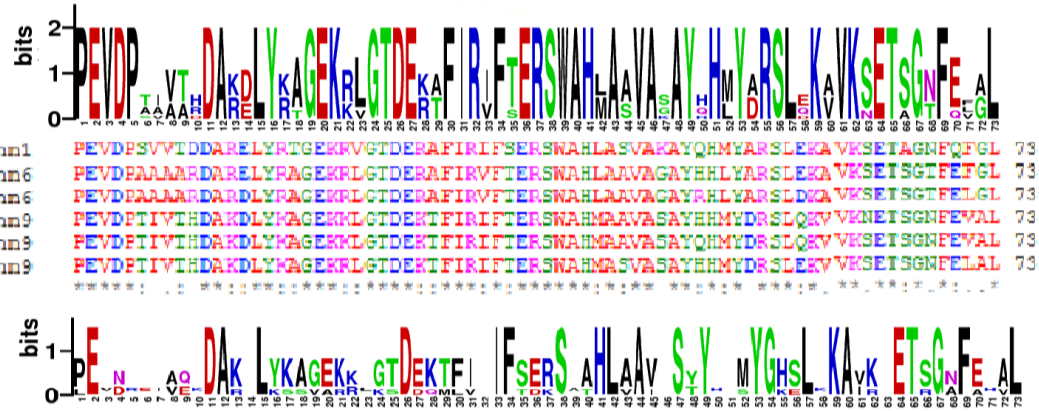
Gm07g12030 LWLHDPAGRDATIIRKSLTADNRSIEGAIEVICSHTPSQLQYLKQIYHSMFGVYLEHDIQTNTSGDHQKLLL 72
Gm09g30190 LWLHDPAGRDATIIRKSLTADNKTLEGATEVICSRTPSQLQYLKQIYHSMFGVYLEHDIQTNTSGDHQKLLL 72
Gm08g06100 LWMHDPAGRDAIILRQSLTLP-KNLEAATQLICSRTPSQLHYLRQIYHSKFGVYLEHDETNTSGDHKKILL 71
AtAnn5     LWMPEAVERDASILKRSLRGAVTDHKAIAEIMCTRSGSQLRQIKQVYSNTFGVKLEEDIESEASGNHKRLLL 72   Dicots
Gm07g28080 LWLHDPATRDAKVVRKALTISVVDNQAITEIICSRTPSQLRRLKEVYLSTYHSYLEQDIESKTSGDHKKVLL 72
           **: :.. *** :::::*        :. ::::*::: ***: ::::* . :    **.**:::***:*:::**
```

I R I

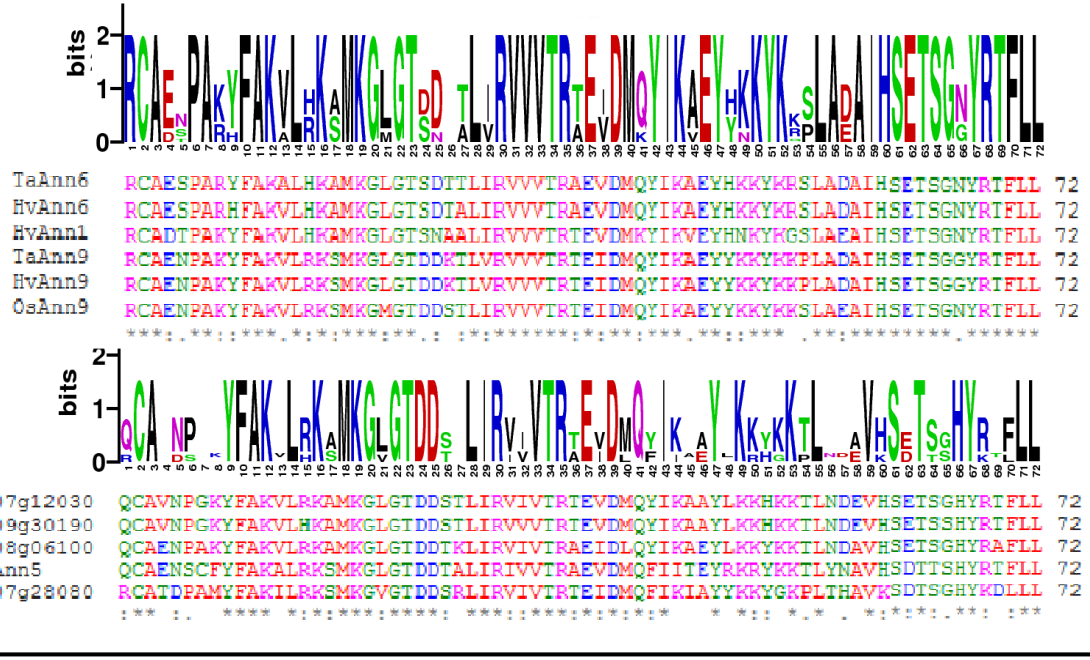
Domain-3



GXG T

DXXG
D/E

Domain-4



Additional file 9: Figure S4. Sequence aligment and logos of four annexin domains in the dicots and monocots. The four domain of the 11 plant annexins from IV subfamily of three monocots (wheat, barley and rice) and two dicots (*Arabidopsis* and *Glycine max*) were performed based on the structural alignment obtained through Clustal W, The sequence logos were generated by amino acid alignment of individual domains from 11 annexin gene in IV subfamily using WebLogo. The taxon-specific indels were removed to optimize the alignments. The height of letter designating the amino acid residue at each position represents the degree of conservation. The GXGT and D/E, IRI and DXXG motifs are represented on the top of each plot. The conserved His residue in the heme motif is indicated by an arrow . The residues thought to be involved in ion channel activity are represented as diamonds. Asterisks (*) indicated the conserved residues observed in the alignment of 11 annexins. The numbers on the x-axis represent the sequence positions in annexin domains. The y-axis represents the information content measured in bits.