

Ri_Redulysin1	PKVPKPPKVPKPPKPGSSWKDKMKLKEQMKEKMKKAEMLNMGVKINMMQCE-EKTC
Ri_Redulysin2	---GKFGDWIKGRWA---SMKAKMKKVGGKCKEFFKKGKEILKKKGKIKVDPLNCN-GNVC
Ri_Redulysin3	---FKWGKIAGKIGK---GAKKAWKKMKPALKNVKKGAKLLKKHVKVTPFECD-DKTC
Ri_Redulysin4	---IKWGKIGKNILK---GAKKAWKKMKPALKS AVKKGAKLLKKNAVKTPLECE-EKTC
Pr_Redulysin1	---GFLGKLGKGLKK---VGKKFVKKMSSAMKAGVKKGMKMLKDNAIKVNPLECE-GKFC
Pr_Redulysin3	----GFGDWAQGVWN---DAKNVFKKLKKAIKQKCKEGREYLNKGKGFKEPVICEGGKKC
Pr_Redulysin5	---KGLKKFGKAVVQ---KGKKFIKKVKGPMKNIMKKGAALLKNLGVKINPLQCE-EKTC
Pr_Redulysin6	AE-LGLKKFGGQLAKGGKKFVKAMKKMKPEIKKLAKQGLEILKKFGVKIIPHLHCE-GKTC
Pr_Redulysin7	SKNKGNKVTSKDPSPKPKKKKFSLKGIKESIKKWTKKGMELLKNAGVKVNPFECA-EKRC
Pr_Redulysin8	---GKVGDLKNKWD---KMKNSWKKVGKLLKAAFNGREYLNKGKIKVDVLSCQ-GSKC
Pr_Redulysin9	---GKGLDWLKKQWG---KLKNSFKKVGAKVTATFNKGRDYLNKGKIKVDPLNCQ-GNKC
Pr_Redulysin10	---GKVGDFWFKQWK---DFKNVMQKLSKEIKEACNKGREFLKKNTLKVDKIMCN-EGTC
Pp_Redulysin1	----GFKDWWNNQVA---SAKNKFKKVKAIVDTIKKGKKYLKEKGVTMDFIVCEGGKQC
Pp_Redulysin2	----SFSEWAKHQWD---GAKNQYKKVKAIVATIKKGKQYLKEKGVQMDPLVCEGGNQC
Pp_Redulysin3	---FSWGNV---IGK---FVKKAWKKLPALKKAVKKGADILKKNAVKTVPFECD-DKTC
Pp_Redulysin4	---IK---WIKNAWA---SMKSKMKKVGGKCKEFFKKGKEILKKKGKIKIDPLSCT-GNTC
Pp_Redulysin5	PKVPKAPKLPAKPKKPGKSMKDRLLKLEQMKEKMKKAEMLNMGVKINMMECE-EKTC
Pp_Redulysin6	---INWGKIGKGILK---GAKKAWKKMKPALKS AVKKGAKLLKKNAVKTVPFECE-EKSC
Pp_Redulysin7	---IKWGKIGKNIMK---GAKKAWKKMKPALKNVKKGGNLLRRNSVKVTPLECD-DKTC
Pp_Redulysin8	PKQPKLPKPPKPPKPGSSFKDKMKLKDMMKEKMKKAEMLNMGVKINMMECE-EKTC
Pp_Redulysin9	---IK---WIKNAWA---SMKSKMKKVGGKCKEFFKKGKEILKKKGKIKIDPLSCT-GNTC
Ti_Trialysin1	---IKPGKVLDFGKIVGVKVLKQLKKVSAVAKVAMKKGAALLKKMGVKISPLKCE-EKTC
Ti_Trialysin2	---IKPGKVDFDKVGKVVGVKVLKQLKKVSLVAKLAMKKGAALLKKMGVKISPLKCE-EKTC
Ti_Trialysin3	---IKPGKVLDFGKIVSKVLKQLKKVSAVAKVAMKKGAALLKKMGVKISPLKCE-ENTC
Rp_Trialysin1	-----AFWD---KAFNLLKKV-----LHVSPLTCN-GANC
Rp_Trialysin2	-----AFWD---KLFNFKKKT-----LSVEPLNCQ-GANC

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Ri_Redulysin1	KTCISFSIPGFEKTYCISMRFMRTNKNNTYVIFGIGKEGSPA-----VEQKLKLG-DLPS
Ri_Redulysin2	KSCVDFTLKK--RKFCVEAKFQSTS----IQMSLTQKQDDQEPKAVIGPFTINIG-NVPT
Ri_Redulysin3	KTCINLVFLG--VSACLKATISREDKVTYFTIAGLVNDSPQ-----FEEKIKLG-AVPR
Ri_Redulysin4	KTCIKLTFLG--MSACLRYTITRTNKNNTYFTIAGEVNGNTQ-----FEEKIRLG-DMPR
Pr_Redulysin1	KSCISML---TKTVCIKGTAERINKVAYILINPTIDGENK-----GEIKLKVG-DVPR
Pr_Redulysin3	KSCIFLPSMK--KKFCLELTFYQENKIKFIKVACIRERDDKEPKEVFPMPNIALG-KPST
Pr_Redulysin5	KTCIIMKIPT-EKSFCLQMTIMRTNKASYLKIALTKDDVSK-----FEQNIKLG-DVPR
Pr_Redulysin6	KSCIIFTIPA-EISLCVQVTFRLRTNKATYLI IALT KDDATL-----FEKRITMG-DVSN
Pr_Redulysin7	KSCIKINLGK-EYSACAHIRFLNTNKGTYIVWGIGTGDKAA-----FEKKMKLG-SLTD
Pr_Redulysin8	RSCLIFTLKK--KQFCLEFEFSNTG---LKISLTQKQDDQEPKIMLGPFNKTG-NVPQ
Pr_Redulysin9	RSCVIFTLPK--KKFCIEYVFSTSA---ITVSLIKEKDDEE-KVLLGPFTIKTG-NIPK
Pr_Redulysin10	KSCVKIPLMP---SVCFEGDLSLDEG---FKFSVYFFKDGKILNYIVSKYFVKYG-DTLK
Pp_Redulysin1	KTCLVFLKMK--KKFCMELKFFSKDKVKYINVKLIRERDDKEPKELLKPIDIPIS-KAST
Pp_Redulysin2	KTCLSFLKMK--KKFCMEVKKFFSKGELRFANVKLIRERDDKEPKELFKPLDIPMG-KESN
Pp_Redulysin3	KTCINLVFLG--MSACMRATISREDKITYFTIAGEVNDSPQ-----FEEKIKLG-DVPR
Pp_Redulysin4	KSCIDFTMKK--RKFCIEALFQSSA----IQVSLTKQKAEQEPKAIIGPFSINIG-DIPK
Pp_Redulysin5	RTCISFSLPGFERTYCISMRFMRTNKNNTYVIFGMGLKDKPS-----KEIKLTLG-NLPS
Pp_Redulysin6	KTCINLVFLG--LSACLKATITRTNKNNTYFTISGEVNGNTQ-----FEEKIRLG-DLPR
Pp_Redulysin7	KTCINLVFLG--LSACLKATISREDKVTYFTIAGDVNGSPQ-----FQEKIKLG-DVPR
Pp_Redulysin8	KTCISFSLPGFERTYCISMRFMRTNKNNTYVIFGMGLKDKPS-----KEIKLTLG-NLPS
Pp_Redulysin9	KSCIDFTMKK--RKFCIEALFQSSA----IQVSLTKQKAEQEPKAIIGPFSINIG-DIPK
Ti_Trialysin1	KSCVIFKIPT-ENSFCLTIRFMKTNIATYLVVAGEINRKS-----FEEKLKLKLG-NMPR
Ti_Trialysin2	KSCVIFKIPT-ENSFCLTIRFMKTNIATYLVVAGEINRKS-----FEEKLKLKLG-NMPR
Ti_Trialysin3	KSCVIFKIPT-ENSFCLTIRFMKTNIATYLVVAGEINRKS-----FEEKLKLKLG-NMPR
Rp_Trialysin1	KTCLSA--FG--KGGCVTVNYNKQAGAN---AAIQVNVQSNSGRNI-WNGSINAGRVPVS
Rp_Trialysin2	RTCVKV--LG--KGGCIGIGYNKQGGAN---AAIQVSVQSGSGRNI-WNGNINAGRVPVS

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Ri_Redulysin1	CFSLG-ELLGKVCVKVEGRAKTSQGQGNVNFCLGLLAEKFSLGAKFCATYQDKK-LKIR
Ri_Redulysin2	CKSLG-KVIGPVCLQGVEGRAKSSKGQAHNVFCAAALLKNYGIGAKFCIGYVDGK-FTGS
Ri_Redulysin3	CVNAG-SVIGKICIKGMEGKGKSSQGKAQNVNFCGLGLAEQHNIGVKVCATYENKK-FKIK
Ri_Redulysin4	CVNAG-SVIGKLCCLKGLEGKGKSSQGKAQNVNFCGLGLAEKHNVGKVCASYE-----
Pr_Redulysin1	CVNFG-GLLGKICCLKGLEGKAKSSSGQANVKFCLAMLAEKYNVGCKFCAIYANKK-FK-I
Pr_Redulysin3	CIKLG-SILGKLCCLKGVEGKAKSSKGQANINFCLAFVLKNFVGAKLCGSYEQGM-MNFK
Pr_Redulysin5	CLNLG-GFIGIKCLKGIEGRAKSSQGQGNVNFCLGIVAEKFGFGCKFCATYENKK-LKVK
Pr_Redulysin6	CFKTNIDVIGDICKLGIEAHESSGQANVNFCLGLVLAQKLGIGVKFCIVYANKQ-LSVK
Pr_Redulysin7	CKDCG-GFLGEVCIQSFEGRAKSSKGQANINFCLGILVKNLGFGIKGCFSYENKK-LSFK
Pr_Redulysin8	CCKLG-SFIGQLCLQGVEGRIKSSNGKPHVNLCAVALLKRFVGAKICIGLEDGK-FKFK
Pr_Redulysin9	CCKLG-SFIGELCLQGVEGRLKSSNGKPHVNLGVLLLLKFGCGAKICVSYVDGK-FSVS
Pr_Redulysin10	CLPPV-KVLGTPCVQAKAGVIKSSDGKSYLNMCAIAMLKANACIKYCVTLENHK-IFK
Pp_Redulysin1	CVKLG-SWFGKCCCLQGVEGKITPK----SVNFCIAAVLKSYGVAKLCLTHEDGK-TKVR
Pp_Redulysin2	CIKLG-SWFGKCCIQGVEGTIKAN----NINFCAAVLKEYGVGAKICLNHENGK-LKVR
Pp_Redulysin3	CVNAG-SVIGKLCIKGVEGKGKSSQGQAQNVNFCGLGLAEQHNVGAKVCATYENKK-FKIK
Pp_Redulysin4	CKNLG-KVLGDICLQGVEGRAKSSKGKPHINFCAVALLKTYGVGAKLCIGVEDGK-FKMR
Pp_Redulysin5	CLSLG-ELLGKVCVKVEGRAKTSQGQGNVNFCLGLLAEKFSIGAKFCATYQDKK-LKIR
Pp_Redulysin6	CVNAG-SVIGKLCIKGMEGKGKSSQGKANVNFCLGLAEKHNVGKVCATYENKK-FKIK
Pp_Redulysin7	CLNAG-SVIGKICVKGVEGKGKSSQGKANVNFCLGLGLAEKHNVGKVCATYENKK-FKVK
Pp_Redulysin8	CLSLG-ELLGKVCVKVEGRAKTSQGQGNVNFCLGLLAEKFSIGAKFCATYQDKK-LKIR
Pp_Redulysin9	CKNLG-KVLGDICLQGVEGRAKSSKGKPHINFCAVALLKTYGVGAKLCIGVEDGK-MKMR
Ti_Trialysin1	CVNVE-GFIGKVCМКGIEGHAKSSSGQANVNFCLGLVAEKFGVGAKLCGIYANKK-VRVK
Ti_Trialysin2	CVNVE-GFIGKVCМКGIEGHAKSSSGQANVNFCLGLVAEKFGVGAKLCGIYANKK-VRVK
Ti_Trialysin3	CVNVE-GFIGKVCМКGIEGHAKSSSGQANVNFCLGLVAEKFGVGAKLCGIYANKK-VRVK
Rp_Trialysin1	CVNLP-KPIKEVCIQDVW--VSVGQNGPNGDVCFTINFKSYSLGAKFCAGFNAASGFVPQ
Rp_Trialysin2	CVNLP-KPIKEVICQNFV--VTVGQNGQNGDVCFTINFKSYSTGIKFCAGYTAQGGFAPH

**Supplementary Data 1. Amino acid sequence alignment of assassin bug redulysins together with homolog from kissing bug trialysins by MAFFT.** Alignment of *R. iracundus* redulysin, together with African assassin bug *Platymeris rhadamanthus* (Pr\_Redulysin), Australian assassin bug *Pristhesancus plagipennis* redulysin (Pp\_Redulysin) and homolog toxin Trialysin from blood feeding *Triatoma infectans*, vector of *Trypanosoma cruzi*. Eight conserved cysteine residues are shown with asterisk (\*).