

**Supplemental Table S3: Region exchanged is highlighted in yellow and the 3xFLAG tag is shown in red**

Name	Primary Sequence
Hsh155 Hs1-5 3xFLAG	<p>MSHPIQFVNANNSDKSHQLGGQYSIPQDLRENLOKEAARIGENEKDVLOEKMETRTVQNREDSYHKRRFDMKFEPSDSTQTVTSSSENTQDAVVR                      KRKSRWDVKGYEPPDESSTAVKENSALSALVNVEGIDHLMFVKPSDHKYFADVISKPIDELNKDEQKERKIMKLLKIKNGTTPMRKAALRQITD                      KAREFGAGPLFNQILPLLMSPTLEDQERHLLVKVIDRILYKLDLVRPYPYHKLIVVIEPLIIDEDYARVEGREIISNLAKAAGLATMISMRPD                      IDNMDEYVRNNTARAFVAVSALGIPSLLPFLKAACKHSRKSWSKARHTGKIKVQQAIIILMGCAILPHLRSVVEIEHGLVDEQKQVRTISALAI                      LAEAATPYGIESFDSVLKPLWKGIRQHRGKGLAFLKAIGYLIPLMDAEYANYTREVMLILIREFQSPDEEMKIKVLKVKQCCGTGDVEANYI                      KTEILPPFFKHFQHRMALDRRNYRQLVDTTVELANKVGAAEISIRIVDDLKDEAEQYRKMVMETIEKIMGNLGAADIDHKLEEQLIDGILYAFQ                      EQTTEDSVMLNGFGTVVNALGKRVKPYLPQICGTVLWRLNNSAKVRQQAADLCAILIPVKNCHFEMLNKLNILYESLGEVYPEVLGSIINA                      MYCITSVMMDLKLQPPINQILPPTLTPILRNKHKRKEVNTIKFVGLIGKLAPTYAPKPEWMRICEFELLELLKSTNKEIRRSANATFGIAEAI                      GPHDVLVALLNLLKQVQERQLRVCATAVAIGIVAKVCGPYNVLVIMNEYTPPETNVQNGVLKAMSFMEYIGNMSKDYIYFITPPLLEDALDTRDLVHRQ                      TASNVIHTHALNCSGTGHEDAFIHLMNLLIPNIFETSPHAIMRILEGLEALSQALGPGLFMNYIWAGLFHPAKNVRKAFWRVYNNMYVMYQDAMV                      PFYPVTPDNNEEYIEELDLVLGGSGGS <b>DYKDHDGDYKDHDIDYKDDDDX</b></p>
Hsh155 Hs1-12 3xFLAG	<p>MSHPIQFVNANNSDKSHQLGGQYSIPQDLRENLOKEAARIGENEKDVLOEKMETRTVQNREDSYHKRRFDMKFEPSDSTQTVTSSSENTQDAVVR                      KRKSRWDVKGYEPPDESSTAVKENSALSALVNVEGIDHLMFVKPSDHKYFADVISKPIDELNKDEQKERKIMKLLKIKNGTTPMRKAALRQITD                      KAREFGAGPLFNQILPLLMSPTLEDQERHLLVKVIDRILYKLDLVRPYPYHKLIVVIEPLIIDEDYARVEGREIISNLAKAAGLATMISMRPD                      IDNMDEYVRNNTARAFVAVSALGIPSLLPFLKAACKHSKSWARHTGKIKVQQAIIILMGCAILPHLRSVVEIEHGLVDEQKQVRTISALAI                      LAEAATPYGIESFDSVLKPLWKGIRQHRGKGLAFLKAIGYLIPLMDAEYANYTREVMLILIREFQSPDEEMKIKVLKVKQCCGTGDVEANYI                      KTEILPPFFKHFQHRMALDRRNYRQLVDTTVELANKVGAAEISIRIVDDLKDEAEQYRKMVMETIEKIMGNLGAADIDHKLEEQLIDGILYAFQ                      EQTTEDSVMLNGFGTVVNALGKRVKPYLPQICGTVLWRLNNSAKVRQQAADLCAILIPVKNCHFEMLNKLNILYESLGEVYPEVLGSIINA                      MYCITSVMMDLKLQPPINQILPPTLTPILRNKHKRKEVNTIKFVGLIGKLAPTYAPKPEWMRICEFELLELLKSTNKEIRRSANATFGIAEAI                      GPHDVLVALLNLLKQVQERQLRVCATAVAIGIVAKVCGPYNVLVIMNEYTPPETNVQNGVLKAMSFMEYIGNMSKDYIYFITPPLLEDALDTRDLVHRQ                      TASNVIHTHALNCSGTGHEDAFIHLMNLLIPNIFETSPHAIMRILEGLEALSQALGPGLFMNYIWAGLFHPAKNVRKAFWRVYNNMYVMYQDAMV                      PFYPVTPDNNEEYIEELDLVLGGSGGS <b>DYKDHDGDYKDHDIDYKDDDDX</b></p>
Hsh155 Hs1-16 3xFLAG	<p>MSHPIQFVNANNSDKSHQLGGQYSIPQDLRENLOKEAARIGENEKDVLOEKMETRTVQNREDSYHKRRFDMKFEPSDSTQTVTSSSENTQDAVVR                      KRKSRWDVKGYEPPDESSTAVKENSALSALVNVEGIDHLMFVKPSDHKYFADVISKPIDELNKDEQKERKIMKLLKIKNGTTPMRKAALRQITD                      KAREFGAGPLFNQILPLLMSPTLEDQERHLLVKVIDRILYKLDLVRPYPYHKLIVVIEPLIIDEDYARVEGREIISNLAKAAGLATMISMRPD                      IDNMDEYVRNNTARAFVAVSALGIPSLLPFLKAACKHSKSWARHTGKIKVQQAIIILMGCAILPHLRSVVEIEHGLVDEQKQVRTISALAI                      LAEAATPYGIESFDSVLKPLWKGIRQHRGKGLAFLKAIGYLIPLMDAEYANYTREVMLILIREFQSPDEEMKIKVLKVKQCCGTGDVEANYI                      KTEILPPFFKHFQHRMALDRRNYRQLVDTTVELANKVGAAEISIRIVDDLKDEAEQYRKMVMETIEKIMGNLGAADIDHKLEEQLIDGILYAFQ                      EQTTEDSVMLNGFGTVVNALGKRVKPYLPQICGTVLWRLNNSAKVRQQAADLCAILIPVKNCHFEMLNKLNILYESLGEVYPEVLGSIINA                      MYCITSVMMDLKLQPPINQILPPTLTPILRNKHKRKEVNTIKFVGLIGKLAPTYAPKPEWMRICEFELLELLKSTNKEIRRSANATFGIAEAI                      GPHDVLVALLNLLKQVQERQLRVCATAVAIGIVAKVCGPYNVLVIMNEYTPPETNVQNGVLKAMSFMEYIGNMSKDYIYFITPPLLEDALDTRDLVHRQ                      TASNVIHTHALNCSGTGHEDAFIHLMNLLIPNIFETSPHAIMRILEGLEALSQALGPGLFMNYIWAGLFHPAKNVRKAFWRVYNNMYVMYQDAMV                      PFYPVTPDNNEEYIEELDLVLGGSGGS <b>DYKDHDGDYKDHDIDYKDDDDX</b></p>
Hsh155 Hs5-12 3xFLAG	<p>MSHPIQFVNANNSDKSHQLGGQYSIPQDLRENLOKEAARIGENEKDVLOEKMETRTVQNREDSYHKRRFDMKFEPSDSTQTVTSSSENTQDAVVR                      KRKSRWDVKGYEPPDESSTAVKENSALSALVNVEGIDHLMFVKPSDHKYFADVISKPIDELNKDEKERTLSMLLLKIKNGTASRRTSMRILTD                      KAVTFGPEMIFNRLLPILLDRSLEDQERHLMIKTIDRVLYQLGDLTKPYVHKILVVAAPLLIDEDPMVRSTGQEIITNLSTVAGLKTILTVMRPD                      IENEDEYVRNNTSRAAAVAKALGVNQLLPPINAACKSKSWSQARHTGKIKVQQAIIILMGCAILPHLRSVVEIEHGLVDEQKQVRTISALAI                      LAEAATPYGIESFDSVLKPLWKGIRQHRGKGLAFLKAIGYLIPLMDAEYANYTREVMLILIREFQSPDEEMKIKVLKVKQCCGTGDVEANYI                      KTEILPPFFKHFQHRMALDRRNYRQLVDTTVELANKVGAAEISIRIVDDLKDEAEQYRKMVMETIEKIMGNLGAADIDHKLEEQLIDGILYAFQ                      EQTTEDSVMLNGFGTVVNALGKRVKPYLPQICGTVLWRLNNSAKVRQQAADLCAILIPVKNCHFEMLNKLNILYESLGEVYPEVLGSIINA                      MYCITSVMMDLKLQPPINQILPPTLTPILRNKHKRKEVNTIKFVGLIGKLAPTYAPKPEWMRICEFELLELLKSTNKEIRRSANATFGIAEAI                      GPHDVLVALLNLLKQVQERQLRVCATAVAIGIVAKVCGPYNVLVIMNEYTPPETNVQNGVLKAMSFMEYIGNMSKDYIYFITPPLLEDALDTRDLVHRQ                      TASNVIHTHALNCSGTGHEDAFIHLMNLLIPNIFETSPHAIMRILEGLEALSQALGPGLFMNYIWAGLFHPAKNVRKAFWRVYNNMYVMYQDAMV                      PFYPVTPDNNEEYIEELDLVLGGSGGS <b>DYKDHDGDYKDHDIDYKDDDDX</b></p>
Hsh155 Hs5-16 3xFLAG	<p>MSHPIQFVNANNSDKSHQLGGQYSIPQDLRENLOKEAARIGENEKDVLOEKMETRTVQNREDSYHKRRFDMKFEPSDSTQTVTSSSENTQDAVVR                      KRKSRWDVKGYEPPDESSTAVKENSALSALVNVEGIDHLMFVKPSDHKYFADVISKPIDELNKDEKERTLSMLLLKIKNGTASRRTSMRILTD                      KAVTFGPEMIFNRLLPILLDRSLEDQERHLMIKTIDRVLYQLGDLTKPYVHKILVVAAPLLIDEDPMVRSTGQEIITNLSTVAGLKTILTVMRPD                      IENEDEYVRNNTSRAAAVAKALGVNQLLPPINAACKSKSWSQARHTGKIKVQQAIIILMGCAILPHLRSVVEIEHGLVDEQKQVRTISALAI                      LAEAATPYGIESFDSVLKPLWKGIRQHRGKGLAFLKAIGYLIPLMDAEYANYTREVMLILIREFQSPDEEMKIKVLKVKQCCGTGDVEANYI                      KTEILPPFFKHFQHRMALDRRNYRQLVDTTVELANKVGAAEISIRIVDDLKDEAEQYRKMVMETIEKIMGNLGAADIDHKLEEQLIDGILYAFQ                      EQTTEDSVMLNGFGTVVNALGKRVKPYLPQICGTVLWRLNNSAKVRQQAADLCAILIPVKNCHFEMLNKLNILYESLGEVYPEVLGSIINA                      MYCITSVMMDLKLQPPINQILPPTLTPILRNKHKRKEVNTIKFVGLIGKLAPTYAPKPEWMRICEFELLELLKSTNKEIRRSANATFGIAEAI                      GPHDVLVALLNLLKQVQERQLRVCATAVAIGIVAKVCGPYNVLVIMNEYTPPETNVQNGVLKAMSFMEYIGNMSKDYIYFITPPLLEDALDTRDLVHRQ                      TASNVIHTHALNCSGTGHEDAFIHLMNLLIPNIFETSPHAIMRILEGLEALSQALGPGLFMNYIWAGLFHPAKNVRKAFWRVYNNMYVMYQDAMV                      PFYPVTPDNNEEYIEELDLVLGGSGGS <b>DYKDHDGDYKDHDIDYKDDDDX</b></p>
Hsh155 Hs5-20 3xFLAG	<p>MSHPIQFVNANNSDKSHQLGGQYSIPQDLRENLOKEAARIGENEKDVLOEKMETRTVQNREDSYHKRRFDMKFEPSDSTQTVTSSSENTQDAVVR                      KRKSRWDVKGYEPPDESSTAVKENSALSALVNVEGIDHLMFVKPSDHKYFADVISKPIDELNKDEKERTLSMLLLKIKNGTASRRTSMRILTD                      KAVTFGPEMIFNRLLPILLDRSLEDQERHLMIKTIDRVLYQLGDLTKPYVHKILVVAAPLLIDEDPMVRSTGQEIITNLSTVAGLKTILTVMRPD                      IENEDEYVRNNTSRAAAVAKALGVNQLLPPINAACKSKSWSQARHTGKIKVQQAIIILMGCAILPHLRSVVEIEHGLVDEQKQVRTISALAI                      LAEAATPYGIESFDSVLKPLWKGIRQHRGKGLAFLKAIGYLIPLMDAEYANYTREVMLILIREFQSPDEEMKIKVLKVKQCCGTGDVEANYI                      KTEILPPFFKHFQHRMALDRRNYRQLVDTTVELANKVGAAEISIRIVDDLKDEAEQYRKMVMETIEKIMGNLGAADIDHKLEEQLIDGILYAFQ                      EQTTEDSVMLNGFGTVVNALGKRVKPYLPQICGTVLWRLNNSAKVRQQAADLCAILIPVKNCHFEMLNKLNILYESLGEVYPEVLGSIINA                      MYCITSVMMDLKLQPPINQILPPTLTPILRNKHKRKEVNTIKFVGLIGKLAPTYAPKPEWMRICEFELLELLKSTNKEIRRSANATFGIAEAI                      GPHDVLVALLNLLKQVQERQLRVCATAVAIGIVAKVCGPYNVLVIMNEYTPPETNVQNGVLKAMSFMEYIGNMSKDYIYFITPPLLEDALDTRDLVHRQ                      TASNVIHTHALNCSGTGHEDAFIHLMNLLIPNIFETSPHAIMRILEGLEALSQALGPGLFMNYIWAGLFHPAKNVRKAFWRVYNNMYVMYQDAMV                      PFYPVTPDNNEEYIEELDLVLGGSGGS <b>DYKDHDGDYKDHDIDYKDDDDX</b></p>
Hsh155 Hs12-20 3xFLAG	<p>MSHPIQFVNANNSDKSHQLGGQYSIPQDLRENLOKEAARIGENEKDVLOEKMETRTVQNREDSYHKRRFDMKFEPSDSTQTVTSSSENTQDAVVR                      KRKSRWDVKGYEPPDESSTAVKENSALSALVNVEGIDHLMFVKPSDHKYFADVISKPIDELNKDEKERTLSMLLLKIKNGTASRRTSMRILTD                      KAVTFGPEMIFNRLLPILLDRSLEDQERHLMIKTIDRVLYQLGDLTKPYVHKILVVAAPLLIDEDPMVRSTGQEIITNLSTVAGLKTILTVMRPD                      IENEDEYVRNNTSRAAAVAKALGVNQLLPPINAACKSKSWSKARHTGKIKVQQAIIILMGCAILPHLRSVVEIEHGLVDEQKQVRTISALAI                      LAEAATPYGIESFDSVLKPLWKGIRQHRGKGLAFLKAIGYLIPLMDAEYANYTREVMLILIREFQSPDEEMKIKVLKVKQCCGTGDVEANYI                      KTEILPPFFKHFQHRMALDRRNYRQLVDTTVELANKVGAAEISIRIVDDLKDEAEQYRKMVMETIEKIMGNLGAADIDHKLEEQLIDGILYAFQ                      EQTTEDSVMLNGFGTVVNALGKRVKPYLPQICGTVLWRLNNSAKVRQQAADLCAILIPVKNCHFEMLNKLNILYESLGEVYPEVLGSIINA                      MYCITSVMMDLKLQPPINQILPPTLTPILRNKHKRKEVNTIKFVGLIGKLAPTYAPKPEWMRICEFELLELLKSTNKEIRRSANATFGIAEAI                      GPHDVLVALLNLLKQVQERQLRVCATAVAIGIVAKVCGPYNVLVIMNEYTPPETNVQNGVLKAMSFMEYIGNMSKDYIYFITPPLLEDALDTRDLVHRQ                      TASNVIHTHALNCSGTGHEDAFIHLMNLLIPNIFETSPHAIMRILEGLEALSQALGPGLFMNYIWAGLFHPAKNVRKAFWRVYNNMYVMYQDAMV                      PFYPVTPDNNEEYIEELDLVLGGSGGS <b>DYKDHDGDYKDHDIDYKDDDDX</b></p>