```
p_1xiza_006    1 VSQNDIIKALASPLINDGMVVSDFADHVITREQNAPTGLPVEPVGVAIPHTDSKYVRQNA   60
                 VSQNDIIKALASPLINDGMVVSDFADHVITREQN PTGLPVEPVGVAIPHTD KYVRQNA
1xiz          20 VSQNDIIKALASPLINDGMVVSDFADHVITREQNFPTGLPVEPVGVAIPHTDHKYVRQNA   79


p_1xiza_006   61 ISVGILAEPVNFED-AGAPDPVPVRVVFMLALGNWFDITNVLWWIMDVIQDADFMQQLLV  119
                 ISVGILAEPVNFED  G PDPVPVRVVFMLALG     NVL WIMDVIQD DFMQQLLV
1xiz          80 ISVGILAEPVNFEDMGGEPDPVPVRVVFMLALGESNKQLNVLGWIMDVIQDEDFMQQLLV  139


p_1xiza_006  118 MNDDEIYQSIYTRISE   135
                 MNDDEIYQSIYTRISE
1xiz         140 MNDDEIYQSIYTRISE   155


p_1xiza_006  138 GMAGIHFRRHYVRHLP   153
                  M  IHFRRHYVRHLP
1xiz           2 AMQDIHFRRHYVRHLP   17
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Figure S1. As expected the naturally occurring 1xiz sequence was identified by Blast as a homologue of the permuted variant. The resulting sequence alignment shows the N-terminus of the permuted variant matched to the C-terminus of 1xiz and the C-terminus of the permuted variant matched to the N-terminus of 1xiz. Similar sequence alignments were observed for the multiple homologues of 1xiz, but no full alignments to the contiguous sequence of the permuted variant were found.