

|    |            |                                                          |     |
|----|------------|----------------------------------------------------------|-----|
| 5  |            | 1                                                        | 50  |
|    | 131AVH6    | (1) E IQLVQSGAEVKKPGASVKVSCKASGYTF TNYGMNHWKQAPGQGLKMMGW |     |
|    | 131AVH7    | (1) E IQLVQSGAEVKKPGASVKISCKASGYTF TNYGMNHWKQAPGQGLKMMGW |     |
|    | parentalVH | (1) QIQLVQSGPELKKPGETVKISCKASGYTF TNYGMNHWKQAPGQGLKMMGW  |     |
| 10 | 131AVH8    | (1) E IQLVQSGAEVKKPGASVKVSCKASGYTF TNYGMNHWKQAPGQGLKMMGW |     |
|    | 131AVH9    | (1) E IQLVQSGAEVKKPGASVKVSCKASGYTF TNYGMNHWKQAPGQGLKMMGW |     |
|    | VH1-102    | (1) QVQLVQSGAEVKKPGASVKVSCKASGYTF T-----WVRQAPGQGLEWMG-  |     |
|    | VH1-146    | (1) QVQLVQSGAEVKKPGASVKVSCKASGYTF T-----WVRQAPGQGLEWMG-  |     |
| 15 |            | 51                                                       | 100 |
|    | 131AVH6    | (51) INTNTGEPTYAEEFKGRF TFTLDTSISTAYMELSSLRSEDTAVYYCAREG |     |
|    | 131AVH7    | (51) INTNTGEPTYAEEFKGRF TFTLDTSATTAYLEISSLRSEDTAVYYCAREG |     |
|    | parentalVH | (51) INTNTGEPTYAEEFKGRF AFSLETSATTAYLQINNLKNETATYFCAREG  |     |
|    | 131AVH8    | (51) INTNTGEPTYAEEFKGRF TFTLDTSISTAYMELSSLRNEDTAVYYCAREG |     |
| 20 | 131AVH9    | (51) INTNTGEPTYAEEFKGRF TFTLDTSASTAYMELSSLRSEDTAVYYCAREG |     |
|    | VH1-102    | (45) -----RVMTTRDTSISTAYMELSSLRSDDTAVYYCAR--             |     |
|    | VH1-146    | (45) -----RVMTTRDTSTSTVYMELSSLRSEDTAVYYCAR--             |     |
| 25 |            | 101                                                      | 116 |
|    | 131AVH6    | (101) DANDYWGQGTITVTVSS                                  |     |
|    | 131AVH7    | (101) DANDYWGQGTITVTVSS                                  |     |
|    | parentalVH | (101) DANDYWGQGTSTVTVSS                                  |     |
|    | 131AVH8    | (101) DANDYWGQGTITVTVSS                                  |     |
|    | 131AVH9    | (101) DANDYWGQGTITVTVSS                                  |     |
| 30 | VH1-102    | (77) -----                                               |     |
|    | VH1-146    | (77) -----                                               |     |
| 35 |            | 1                                                        | 50  |
|    | 131AVL6    | (1) EIVLTQSPATLSLSPGERATLSCSASSSVSYMHYQQKPGQAPKRWIYDT    |     |
|    | 131AVL7    | (1) EIVLTQSPATLSLSPGERATLSCSASSSVSYMHYQQKPGQAPKRWIYDT    |     |
|    | 131AVL8    | (1) EIVLTQSPATLSASPGERVTLSCSASSSVSYMHYQQKPGQAPKRWIYDT    |     |
|    | 131AVL9    | (1) DIQLTQSPSTLSASVGDRTITCSASSSVSYMHYQQKPGKAPKRWIYDT     |     |
|    | VK1-02     | (1) DIQMTQSPSSLASVGDRTITC-----WYQQKPGKAPKLLIY--          |     |
|    | parentalVL | (1) QIVLTQSPAISASPGKVTMTCSASSSVSYMHYQQKSGTSPKRWIYDT      |     |
| 40 | VK3-L6     | (1) EIVLTQSPATLSLSPGERATLSC-----WYQQKPGQAPRLLIY--        |     |
| 45 |            | 51                                                       | 100 |
|    | 131AVL6    | (51) SKLASGVPARFSGSGSGTDYSLTISSELEPDAFYQCQQMNSYPFTFGQG   |     |
|    | 131AVL7    | (51) SKLASGVPARFSGSGSGTYSLTISSELEPDAFYQCQQMNSYPFTFGQG    |     |
|    | 131AVL8    | (51) SKLASGVPARFSGSGSGTDYSLTISSELEPDAFYQCQQMNSYPFTFGQG   |     |
|    | 131AVL9    | (51) SKLASGVPARFSGSGSGTDYTLTISSELEPDAFYQCQQMNSYPFTFGQG   |     |
|    | VK1-02     | (39) -----GVPSRFSGSGSGTDFTLTISSELEPDAFYTC-----           |     |
|    | parentalVL | (51) SKLASGVPARFSGSGSGTYSLTISSELEDAATYQCQQMNSYPFTFGSG    |     |
|    | VK3-L6     | (39) -----GIPARFSGSGSGTDFTLTISSELEPDAFYTC-----           |     |

FIG. 3A