**Supplementary File 4a. Antibody variable region sequences**

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| **Antibody** | **Region** | **Amino Acid Sequence** |
| 3A3 | VL | DIVMTQSAPSVPVTPGESVSISCRSSKSLLHSNGNTYLYWFLQRPGQSPQLLIYRMSNLASGVPDRFSGSGSGTAFTLRISRVEAEDVGVYYCMQYLEYPLTFGAGTKLELK |
| VH | QVQLQQSGAELLKPGASVKLSCTASGFNIKDTYIHWLKQRPEQGLEWIGRIGPAIGNTIYAPKFQGKATITTDTSSNTAYLQLSSLTSEDTAVYYCARYYGSSYYYFDYWGQGTTLTVSS |
| RAY53 | VL | DIVMTQSPLSVPVTPGEPVSISCRSSKSLLHSNGNTYLYWFLQKPGQSPQLLIARMSTLASGVPDRFSGSGSGTAFTLKISRVEAEDVGVYYCMQYLEYPLTFGAGTKLEIK |
| VH | QVQLVQSGAVVLKPGASVKLSCKASGFNIKNTYIHWLKQAPGQRLEWIGRIGPAIGNTIYAPKFQGKATITTDTSASTAYLELSSLRSEDTAVYYCARYYGSSYYYLDYWGQGTTVTVSS |
| 3E11 | VL | DIVMTQSTSSLSASLGDRVTISCRASQGINNYLNWYQQKPDGTVKLLIYHTSRLHSGVPSRFSGSGSGTDYSLTISNLEQEDIATYFCQQGDTLPYTFGGGTKLEIK |
| VH | EVQLQQSGTVLARPGASVKMSCKASGYSFTNYWVHWVKQRPGQGLEWIGAIYPGNGDTTYNQKFKDKAKLTAVTSTSSAYMDLSSLTSEDSAVYYCTRRANYGSRYDYWGQGTTLTVSS |