

## Supplementary Data

### scFv1

DIQMTQSPASLSASVGDSTITCRASQYISTYLNWYQQKPGEAPK  
LLVYAASTLQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQ  
SYSTPYTFGQGTKLEIKEGKSSGSGSESKASQVQLQSGLGLVKP  
SQTLSLTCAISGDSVFSNTAAWNWIRQSPSRGLEWLGRTYYRSRW  
YTDYAVSVKGRITINPDTSKNQFSLQLNSVTPEDTAVYYCARSL  
GDITIRNFFDPWGQGLVTVSS

### scFv7

QPVLTPPPSVSVAPGQTARITCGGNNIGSKSVHWYQQKPGQAPVL  
VVFDDSDRPSGIPERFSGSNGNTATLTISRVEAGDEADFYCQVW  
DINSDHVVFGGKLTVLGEGKSSGSGSESKASEVQLVQSGAEVK  
RPGASVKVSCKASGYTSTNYMHVWRQAPGQGLEWMGWINPNSGG  
TNYAQKFQGWVMTTRDTSISTAYMELSRLSDDTAVYYCAREGSH  
SSSWYWDAFDIWGQGLVTVSS

### scFv8

SYELTQPPPVSVSPGQTARITCSGDALPKQYAYWYQQKPGQAPVL  
VIYKDSERPSGIPERFSGSSSGTTVTLTISGVQAEDEADYYCQSA  
DSSDTWVFGGKLTVLGEGKSSGSGSESKASQVQLQSGAEVKKP  
GASVKVSCKASGYTFTSYMHVWRQAPGQGLEWMGIINPSGGSTS  
YAQKFQGRVMTTRDTSSTVYMESSLRSEDTAVYYCAREGGDGY  
NRAFDYWGQGLVTVSS

**SUPPLEMENTARY FIG. S1.** Amino acid sequences of scFv incorporated into the IL-12 fusion proteins. IL-12, interleukin-12; scFv, single-chain Fragment variable.