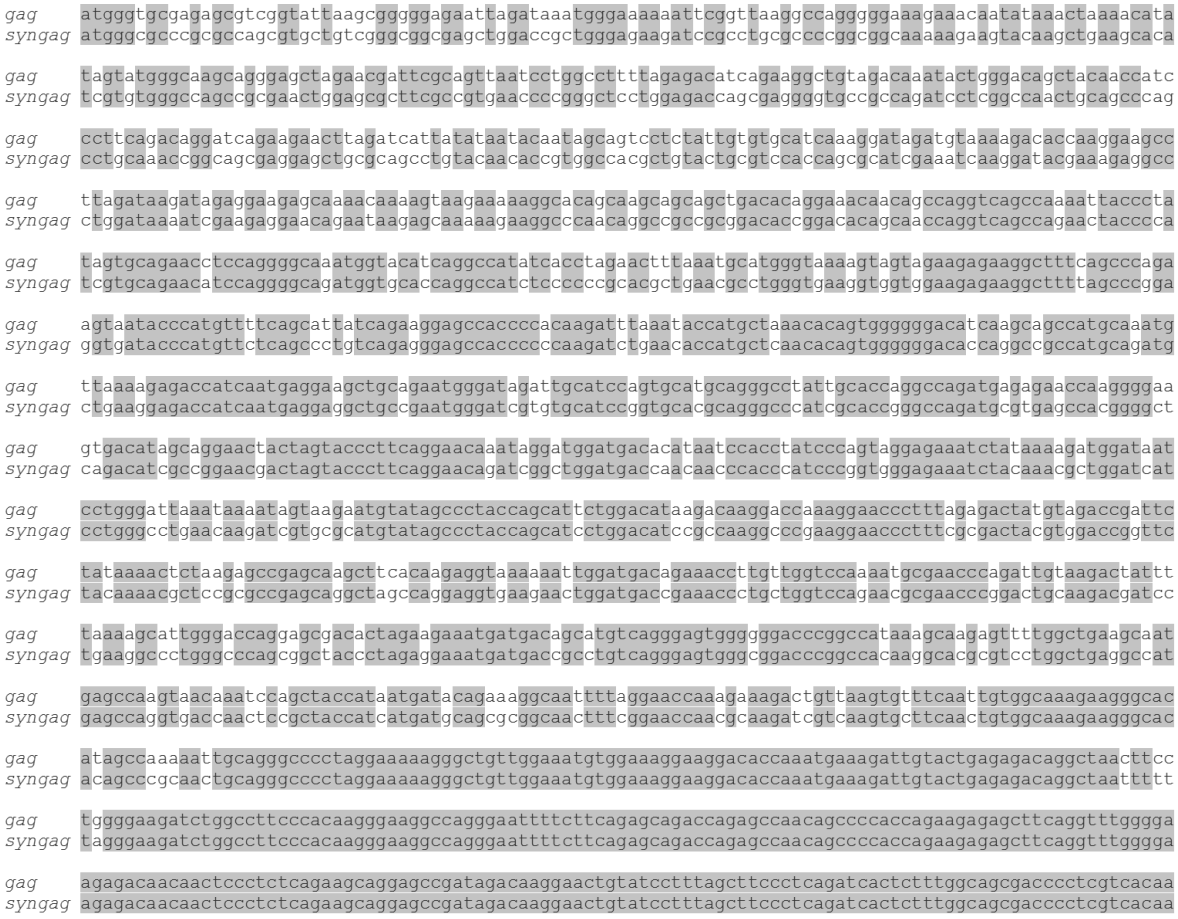
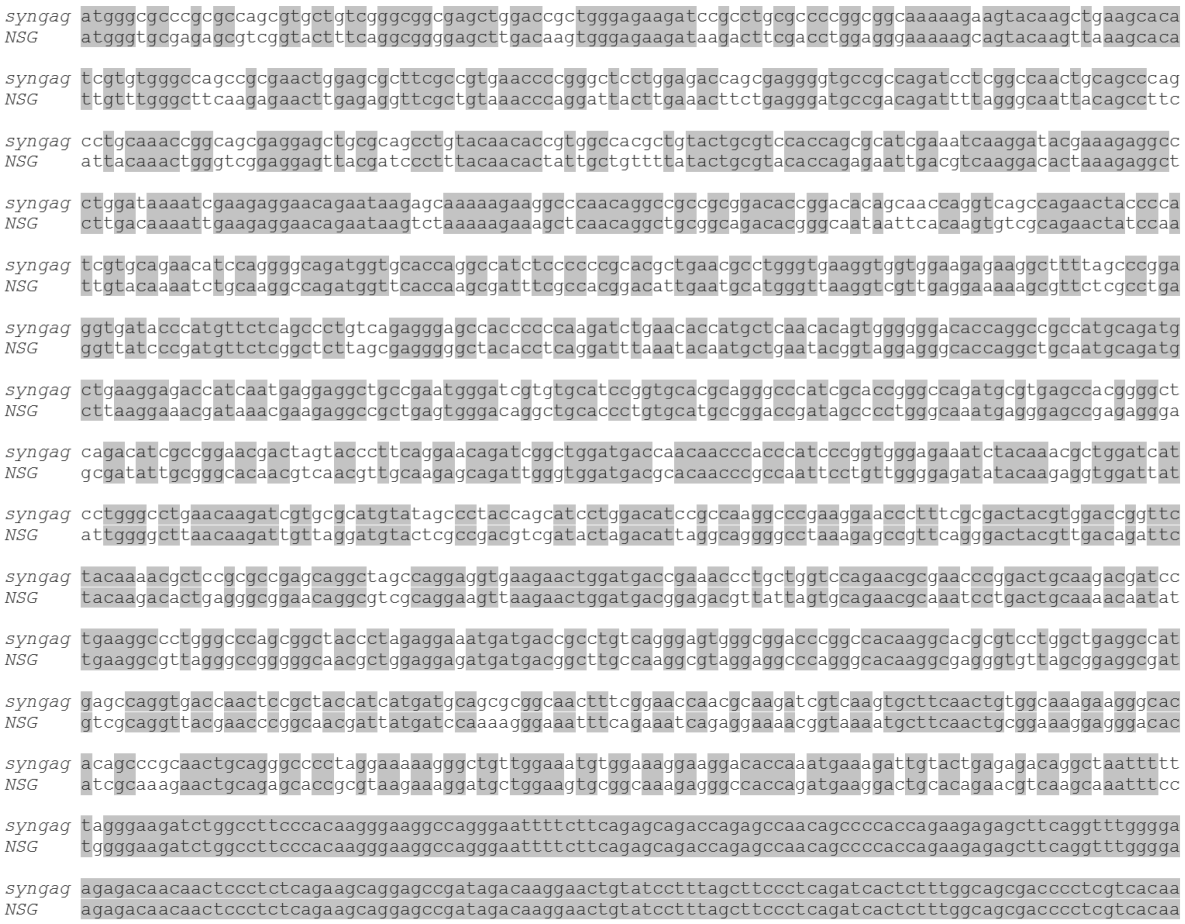
(a)



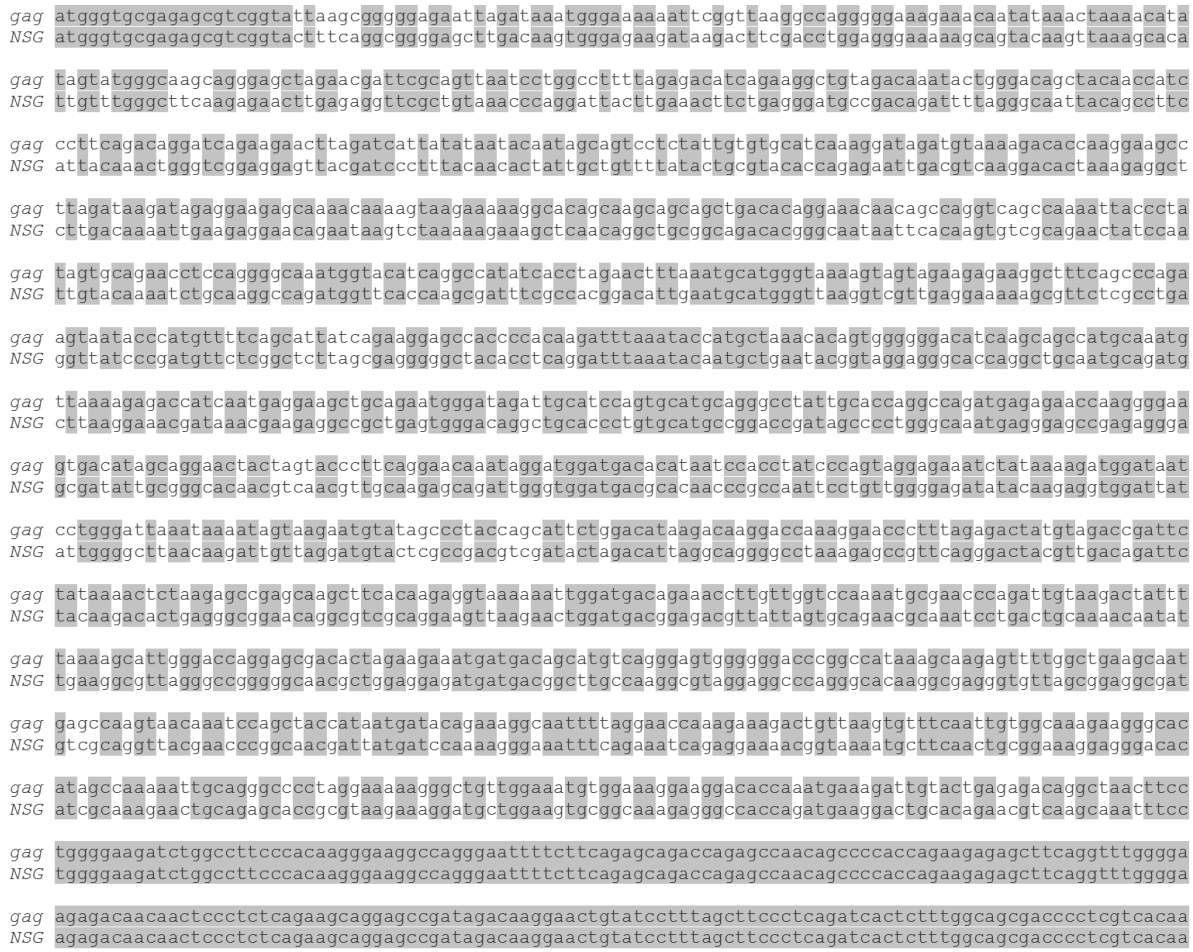
Liu et al Supplemental Fig. 1a
Nucleotide sequence alignment of the HIV-1 NL4-3 *gag* gene and a previously described codon-optimized *syngag*

(b)



Liu et al Supplemental Fig. 1b
Nucleotide sequence alignment of two codon optimized sequences *syngag* and *NSG* that encode HIV-1 Gag

(c)



Liu et al Supplemental Fig. 1c
Nucleotide sequence alignment of the HIV-1 NL4-3 *gag* gene and codon-optimized *NSG*

(d)

```
Gag         MGARASVLSGGELDKWEKIRLRPGGKKQYKLKHIVWASRELERFAVNPGLLETSEGCRQI
NSG         MGARASVLSGGELDKWEKIRLRPGGKKQYKLKHIVWASRELERFAVNPGLLETSEGCRQI
synGag      MGARASVLSGGELDRWEKIRLRPGGKKKYKLKHIVWASRELERFAVNPGLLETSEGCRQI
            ************** ************ ********************************

Gag         LGQLQPSLQTGSEELRSLYNTIAVLYCVHQRIDVKDTKEALDKIEEEQNKSKKKAQQAAA
NSG         LGQLQPSLQTGSEELRSLYNTIAVLYCVHQRIDVKDTKEALDKIEEEQNKSKKKAQQAAA
synGag      LGQLQPSLQTGSEELRSLYNTVATLYCVHQRIEIKDTKEALDKIEEEQNKSKKKAQQAAA
            ********************* * ********  *************************

Gag         DTGNNSQVSQNYPIVQNLQGQMVHQAISPRTLNAWVKVVEEKAFSPEVIPMFSALSEGAT
NSG         DTGNNSQVSQNYPIVQNLQGQMVHQAISPRTLNAWVKVVEEKAFSPEVIPMFSALSEGAT
synGag      DTGHSNQVSQNYPIVQNIQGQMVHQAISPRTLNAWVKVVEEKAFSPEVIPMFSALSEGAT
            ***   *********** ****************************************

Gag         PQDLNTMLNTVGGHQAAMQMLKETINEEAAEWDRLHPVHAGPIAPGQMREPRGSDIAGTT
NSG         PQDLNTMLNTVGGHQAAMQMLKETINEEAAEWDRLHPVHAGPIAPGQMREPRGSDIAGTT
synGag      PQDLNTMLNTVGGHQAAMQMLKETINEEAAEWDRVHPVHAGPIAPGQMREPRGSDIAGTT
            ********************************* ************************

Gag         STLQEQIGWMTHNPPIPVGEIYKRWIILGLNKIVRMYSPTSILDIRQGPKEPFRDYVDRF
NSG         STLQEQIGWMTHNPPIPVGEIYKRWIILGLNKIVRMYSPTSILDIRQGPKEPFRDYVDRF
synGag      STLQEQIGWMTNNPPIPVGEIYKRWIILGLNKIVRMYSPTSILDIRQGPKEPFRDYVDRF
            *********** ************************************************

Gag         YKTLRAEQASQEVKNWMTETLLVQNANPDCKTILKALGPGATLEEMMTACQGVGGPGHKA
NSG         YKTLRAEQASQEVKNWMTETLLVQNANPDCKTILKALGPGATLEEMMTACQGVGGPGHKA
synGag      YKTLRAEQASQEVKNWMTETLLVQNANPDCKTILKALGPAATLEEMMTACQGVGGPGHKA
            ************************************ ********************

Gag         RVLAEAMSQVTNPATIMIQKGNFRNQRKTVKCFNCGKEGHIAKNCRAPRKKGCWKCGKEG
NSG         RVLAEAMSQVTNPATIMIQKGNFRNQRKTVKCFNCGKEGHIAKNCRAPRKKGCWKCGKEG
synGag      RVLAEAMSQVTNSATIMMQRGNFRNQRKIVKCFNCGKEGHTARNCRAPRKKGCWKCGKEG
            ************ **** * ******** *********** * *****************

Gag         HQMKDCTERQANFLGKIWPSHKGRPGNFLQSRPEPTAPPEESFRFGEETTTPSQKQEPID
NSG         HQMKDCTERQANFLGKIWPSHKGRPGNFLQSRPEPTAPPEESFRFGEETTTPSQKQEPID
synGag      HQMKDCTERQANFLGKIWPSHKGRPGNFLQSRPEPTAPPEESFRFGEETTTPSQKQEPID
            ************************************************************

Gag         KELYPLASLRSLFGSDPSSQ
NSG         KELYPLASLRSLFGSDPSSQ
synGag      KELYPLASLRSLFGSDPSSQ
            ********************
```

Liu et al Supplemental Fig. 1d
Amino acid sequence alignment of the Gag proteins encoded by NL4-3 *gag*, *NSG* and *syngag*. Asterisks indicate amino acid residues that are identical in these three proteins.