Supplemental Materials for

Design of Beta-2 Microglobulin Adsorbent Protein Cages

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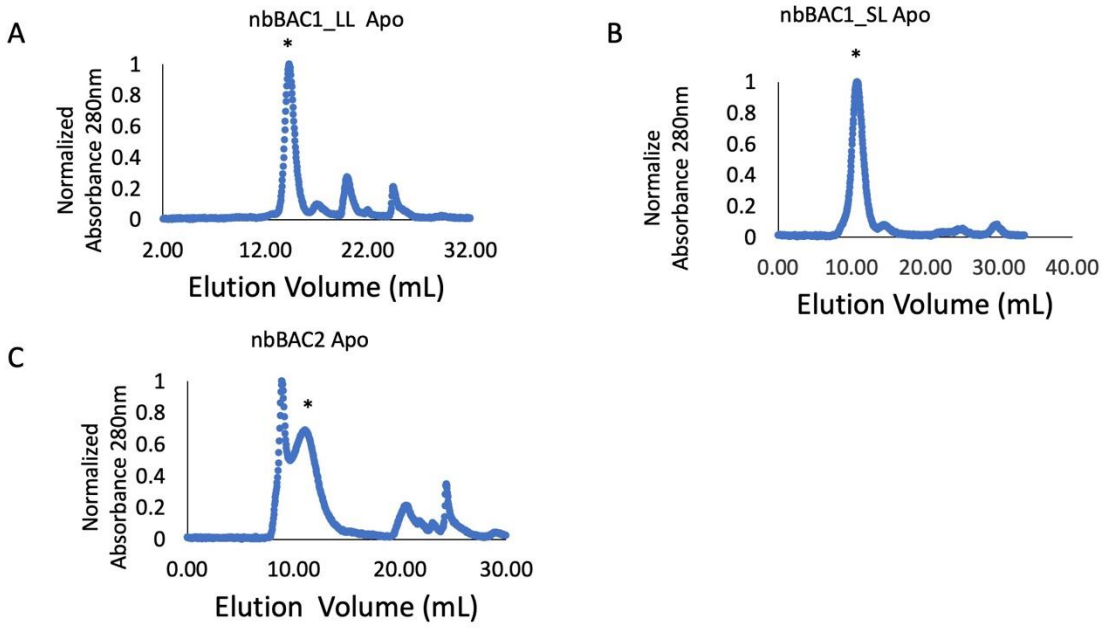
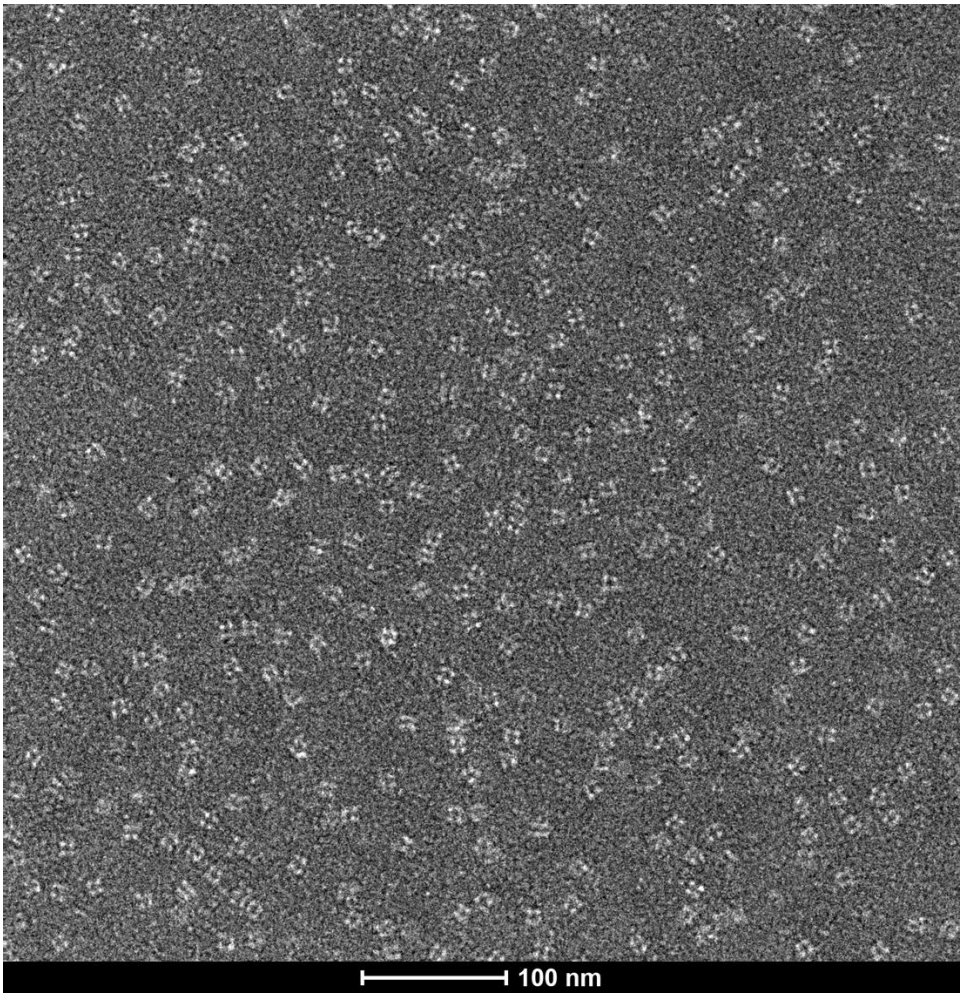
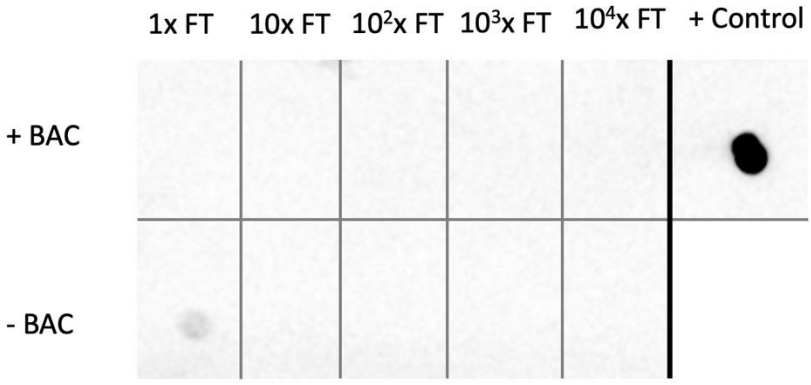


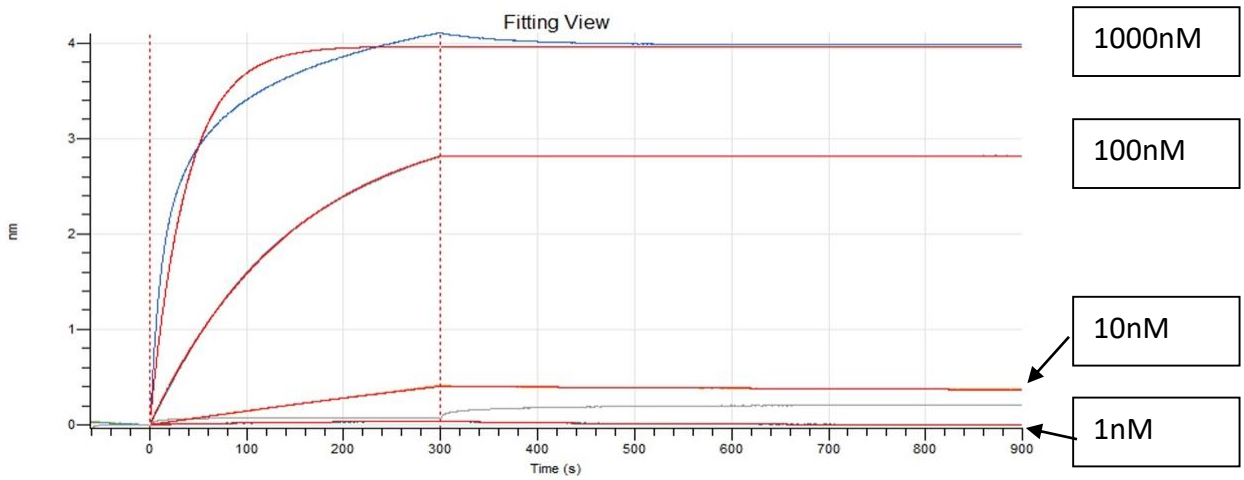
Supplemental Data Figure 1. SEC elution profiles of BAC nanoparticles. SEC chromatograms for nbBAC1_LL (A), nbBAC1_SL (B), and nbBAC2_SL (C). Assembled BAC nanoparticles are denoted with asterisks.



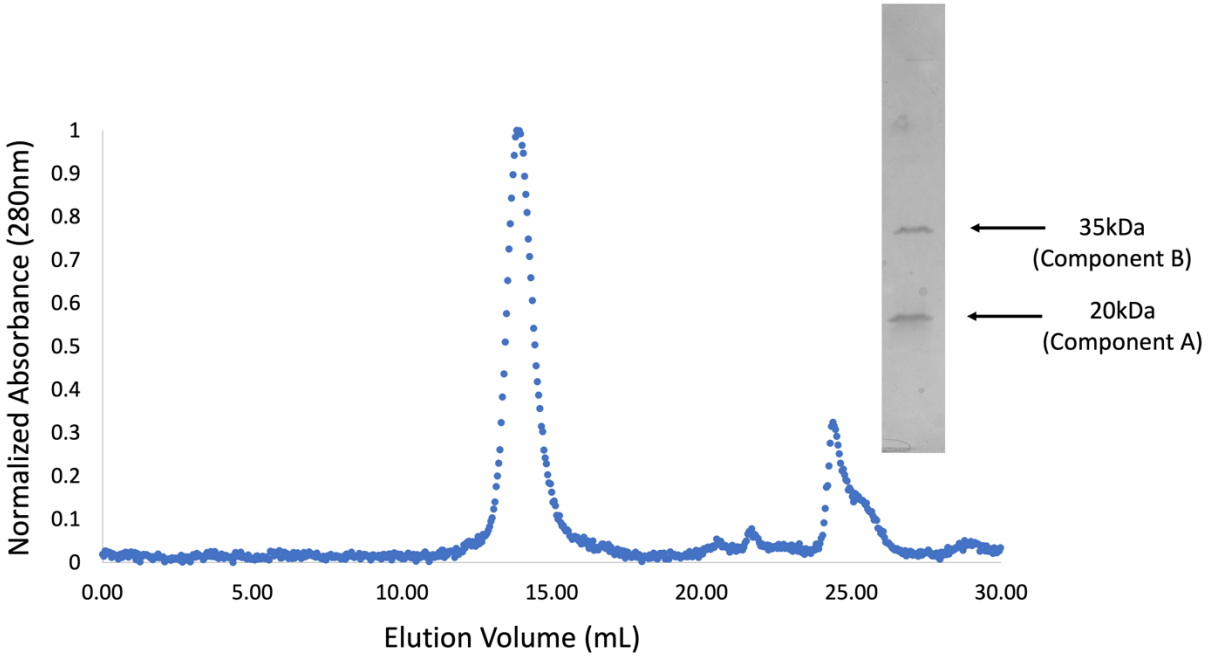
Supplemental Data Figure 2. Negatively stained TEM image of nbBAC1_LL mixed with B2M cargo at a ratio of 2:1 (B2M:cage).



Supplemental Data Figure 3. Immunoblot analysis of flowthrough from the B2M retention assay. Serial dilutions of flow through from the size-filtration retention assay either with (top) or without (bottom) nbBAC1_LL added to supernatant were analyzed for B2M via immunoblot. A positive control (1uM B2M) is depicted in top right.



Supplemental Data Figure 4. Measurement of binding affinity of B2M to nbBAC1_LL. Biolayer interferometry was used to estimate the equilibrium dissociation constant of nbBAC for B2M. Based on experiments with BAC concentrations between 1 nm and 100 nM, the estimated Kd value is 4.2 nM (+/- 8 nM). Curves corresponding to BAC concentrations of 1000nM, 100nM, 10nM, and 1nM are shown.



Supplemental Data figure 5. nbBAC1_LL is stable in human serum. nbBAC1_LL incubated in serum is purified and analyzed by SDS-PAGE and by SEC using Superose-6 column indicating nbBAC1_LL maintains correct assembly geometry in dialysis conditions.

nbBAC1_SL	>A component MFTRRGDQGETDLANRARVGKDSPVVEVQGTIDELNSFIGYALVLSR WDDIRNDLFRIQNDLFVLGEDVSTGGKGRTVTMDMIIYLIKRSVEMKA EIGKIELFVVPGGSVESASLHMARAVSRRLERRIKAASELTEINANVLL YANMLSNILFMHALISNKRLNIPEKIWSIHRVSLE >B component MRITTKVGDKGSTRLFGGEEVWKDDPIIEANGTLDELTSFIGEAKHYV DEEMKGILEEIQNDIYKIMGEIGSKGKIEGISEERIKWLAGLIERYSEMV NKLSFVLPGGTLESAKLDVCRTIARRAERKVATVLREFGIGTLAAIYLA LLSRLLFLLARVIEIEKNKLKEVRSGGSQVQLQESGGGSVQAGGSLRL SCAASGYTDSRYCMAWFRQAPGKEREWVARINSGRDITYYADSVKG RFTFSQDNAKNTVYLQMDSLEPEDTATYYCATDIPLRCRDIVAKGGD GFRYWGQGTQVTVSSHHHHHH
nbBAC1_LL	>A component MFTRRGDQGETDLANRARVGKDSPVVEVQGTIDELNSFIGYALVLSR WDDIRNDLFRIQNDLFVLGEDVSTGGKGRTVTMDMIIYLIKRSVEMKA EIGKIELFVVPGGSVESASLHMARAVSRRLERRIKAASELTEINANVLL YANMLSNILFMHALISNKRLNIPEKIWSIHRVSLE >B component MRITTKVGDKGSTRLFGGEEVWKDDPIIEANGTLDELTSFIGEAKHYV DEEMKGILEEIQNDIYKIMGEIGSKGKIEGISEERIKWLAGLIERYSEMV NKLSFVLPGGTLESAKLDVCRTIARRAERKVATVLREFGIGTLAAIYLA LLSRLLFLLARVIEIEKNKLKEVRSGGSGGGSGGGGSQVQLQESGGG SVQAGGSLRLSCAASGYTDSRYCMAWFRQAPGKEREWVARINSGR DITYYADSVKGRFTFSQDNAKNTVYLQMDSLEPEDTATYYCATDIPLR CRDIVAKGGDGFRYWGQGTQVTVSSHHHHHH
nbBAC2	>A component MKMEELFKKHKIVAVLRANSVEEAIEKAVAVFAGGVHLIEITFTVPDAD TVIKALSVLKEKGAIIGAGTVTSVEQCRKAVESGAEFIVSPHLDEEISQF CKEKGVFYMPGVMTPTELVKAMKLGHDILKLFPGEVVGPQFVKAMK GPFPNVKFVPTGGVNLDNVCKWFKAGVLAVGVGKALVKGKPDEVRE KAKKFVKKIRGCTE >B component MNQHSHKDHETVRIAVVRARWHAEIVDACVSAFEAAMRDIGGDRFA VDVFDVPGAYEIPLHARTLAETGRYGAVLGTAFVVNGGIYRHEFVASA VINGMMNVQLNTGVPVLSAVLTPHNYDKSKAHTLLFLALFAVKGMEA ARACVEILAAREKIAAGSGGSGGSGGSQVQLQESGGGSVQAGGSLR LSCAASGYTDSRYCMAWFRQAPGKEREWVARINSGRDITYYADSVK

	GRFTFSQDNAKNTVYLQMDSLEPEDTATYYCATDIPLRCRDIVAKGG DGFRYWGQGTQVTVSSAHHSEDPHHHHHH
nbBAC2N	>A component MKMEELFKKHKIVAVLRANSVEEAIEKAVAVFAGGVHLIEITFTVPDAD TVIKALSVLKEKGAIIGAGTVTSVEQCRKAVESGAEFIVSPHLDEEISQF CKEKGVFYMPGVMTPTELVKAMKLGHDILKLFPGEVVGPQFVKAMK GPFPNVKFVPTGGVNLDNVCKWFKAGVLAVGVGKALVKGKPDEVRE KAKKFVKKIRGCTE >B component MQVQLQESGGGSVQAGGSLRLSCAASGYTDSRYCMAWFRQAPGK EREWVARINSGRDITYYADSVKGRFTFSQDNAKNTVYLQMDSLEPED TATYYCATDIPLRCRDIVAKGGDGFRYWGQGTQVTVSSGGSGGSGG SNQHSHKDHETVRIAVVRARWHAEIVDACVSAFEAAMRDIGGDRFAV DVFDVPGAYEIPLHARTLAETGRYGAVLGTAFVVNGGIYRHEFVASAV INGMMNVQLNTGVPVLSAVLTPHNYDKSKAHTLLFLALFAVKGMEAA RACVEILAAREKIAAGSHHHHHH

Supplemental Data Table 1 BAC sequences.