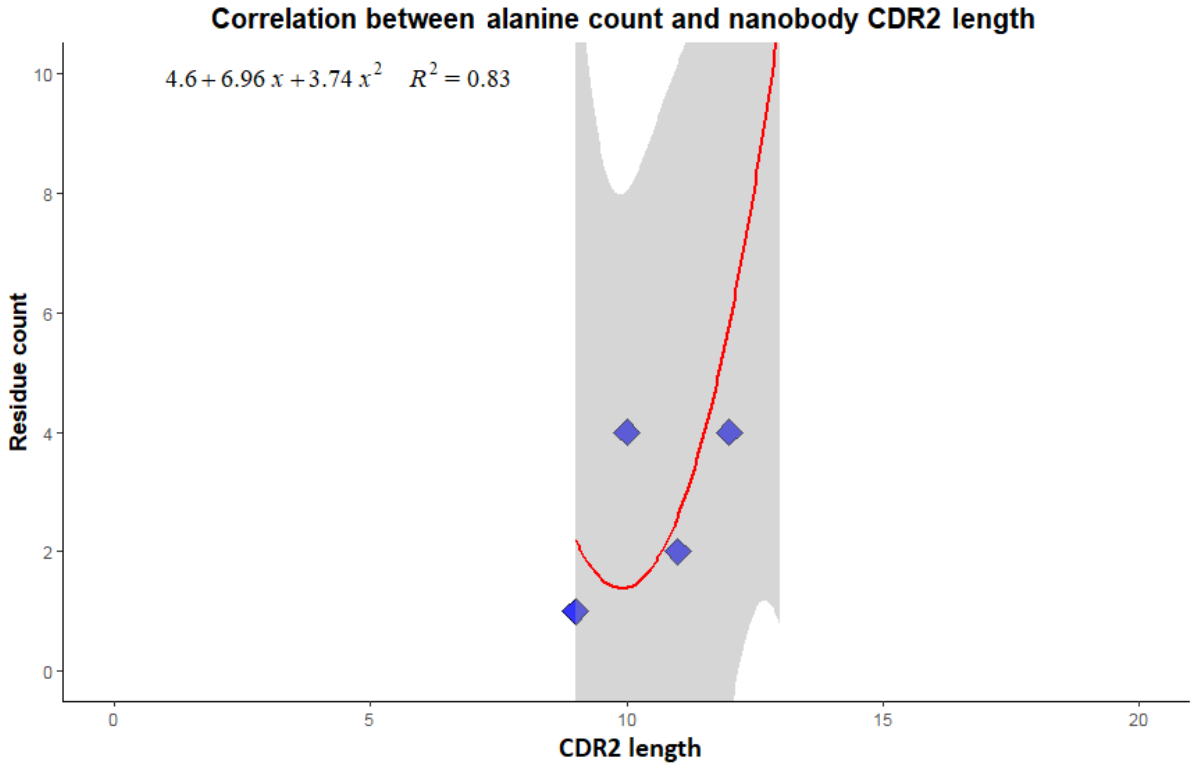
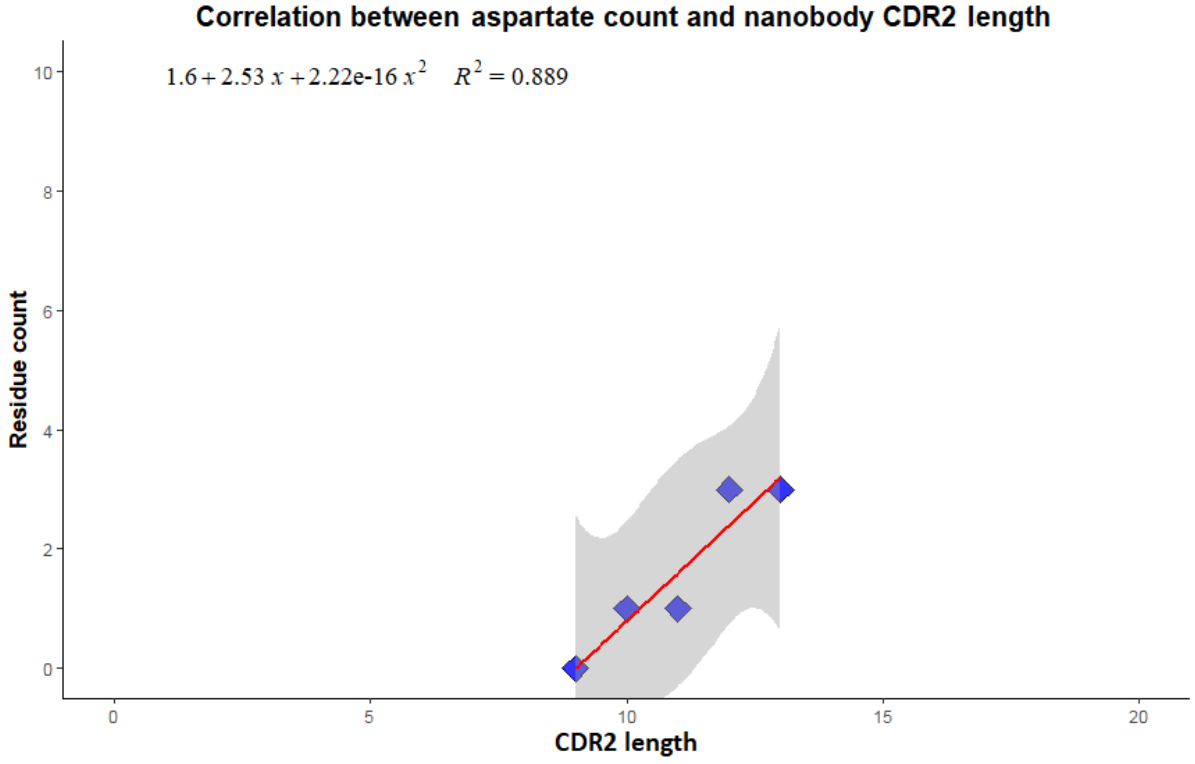
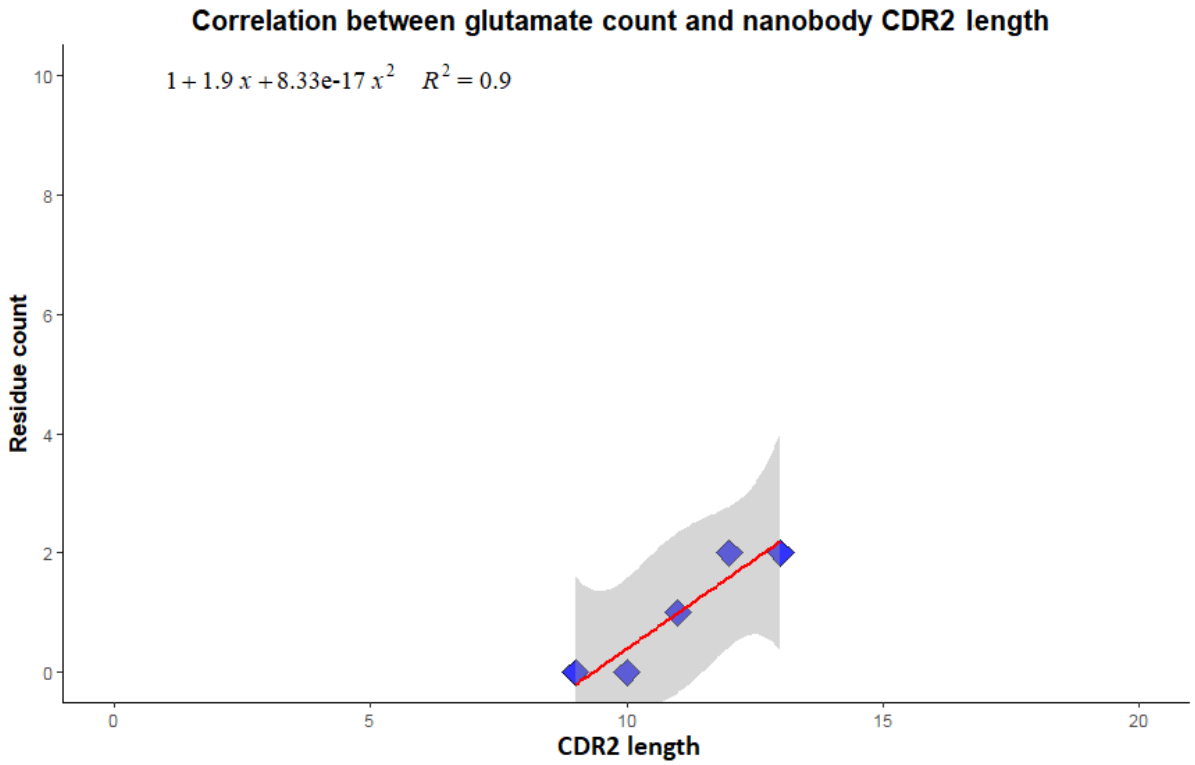
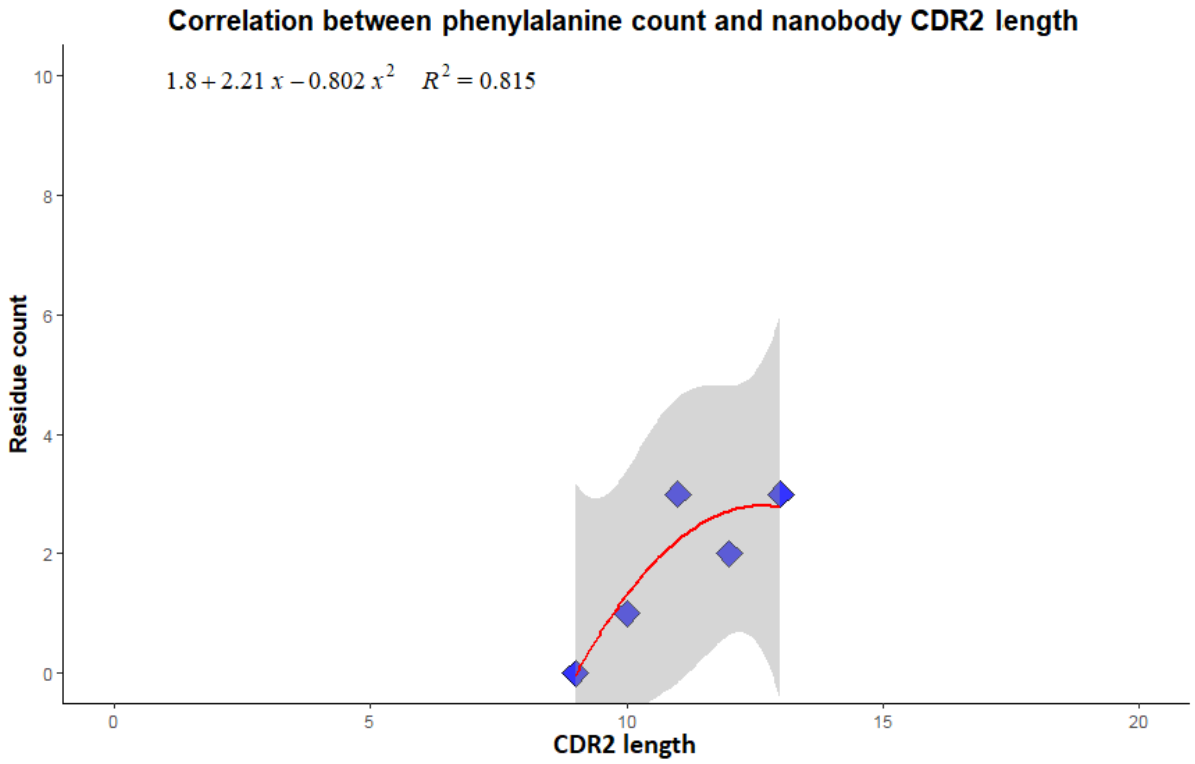
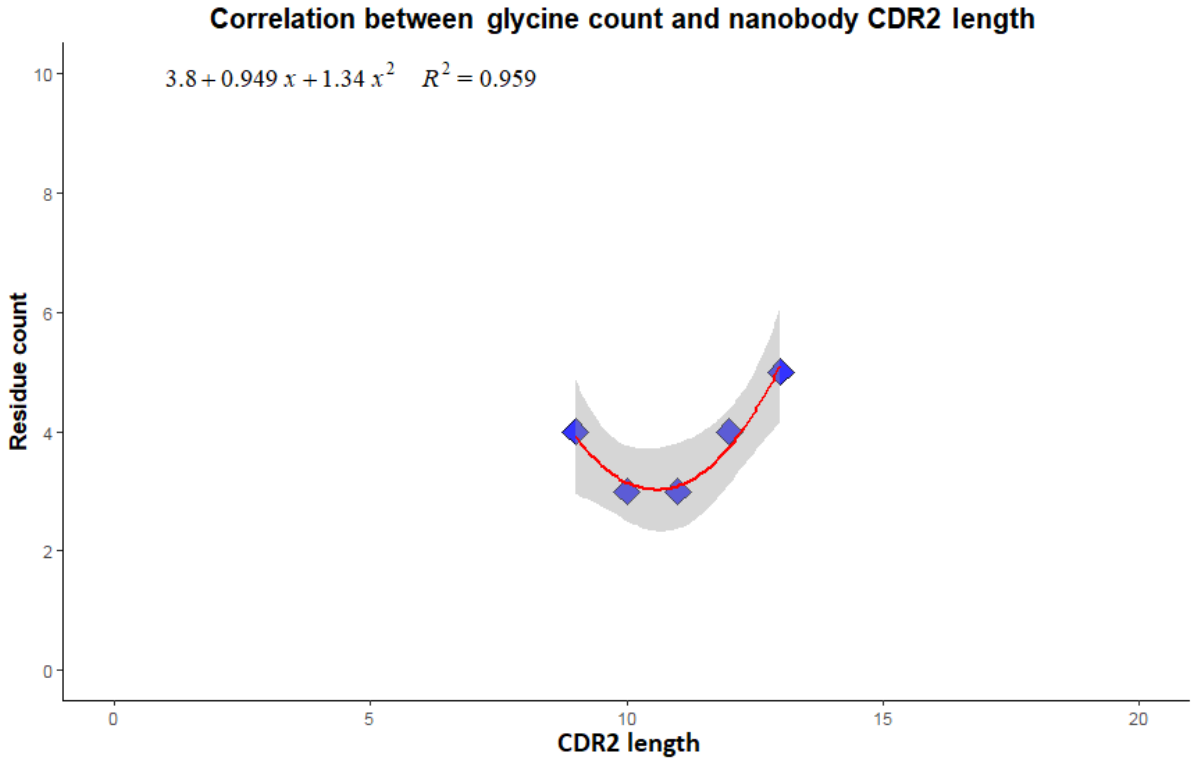
Supplement Figure 1

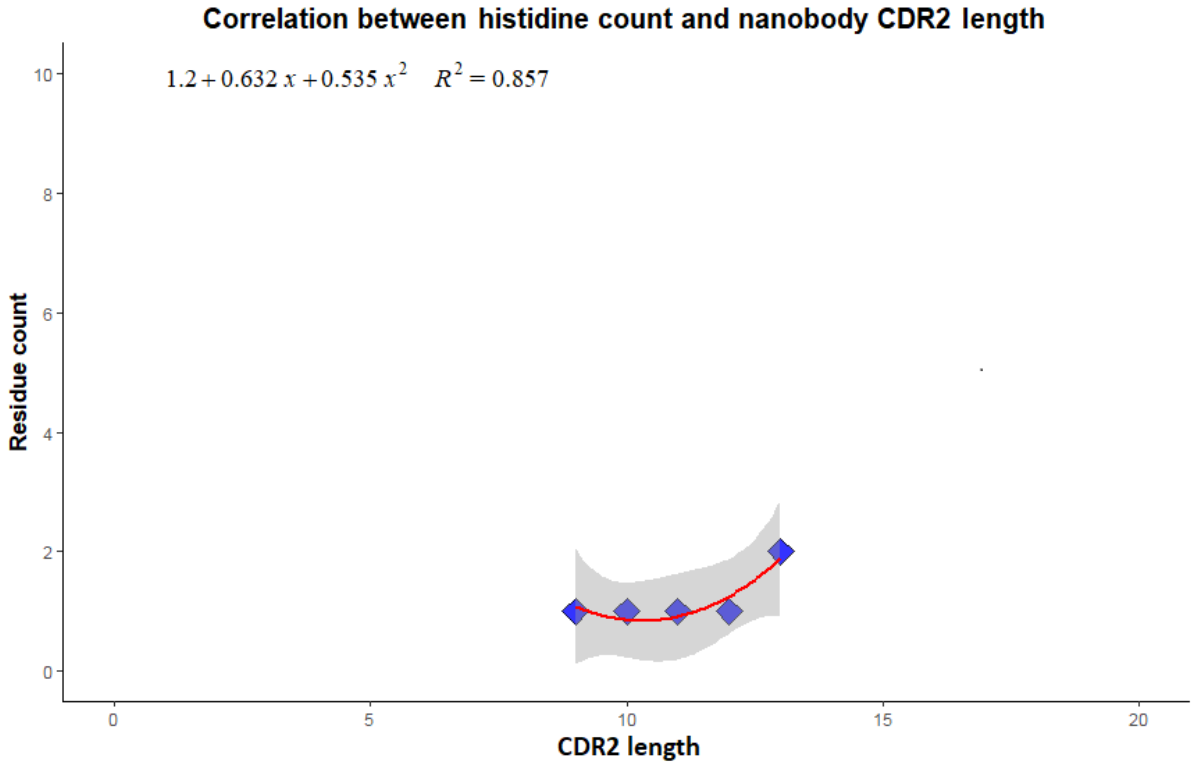


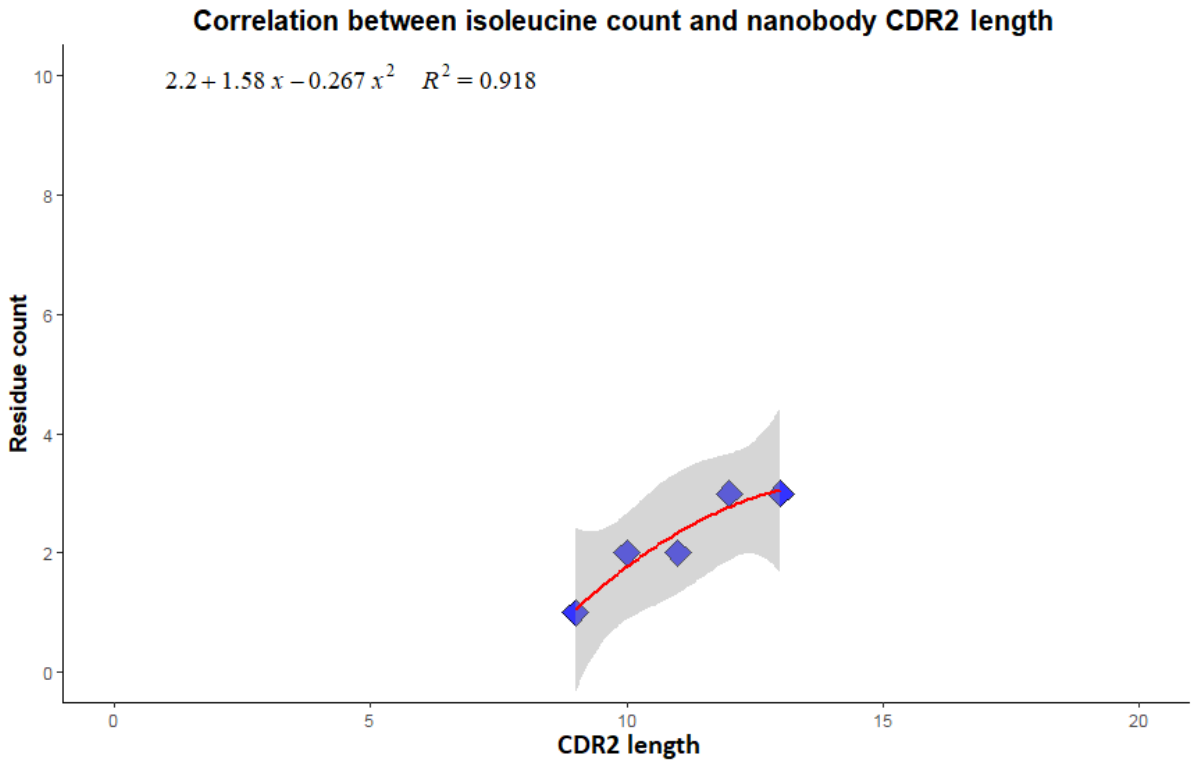


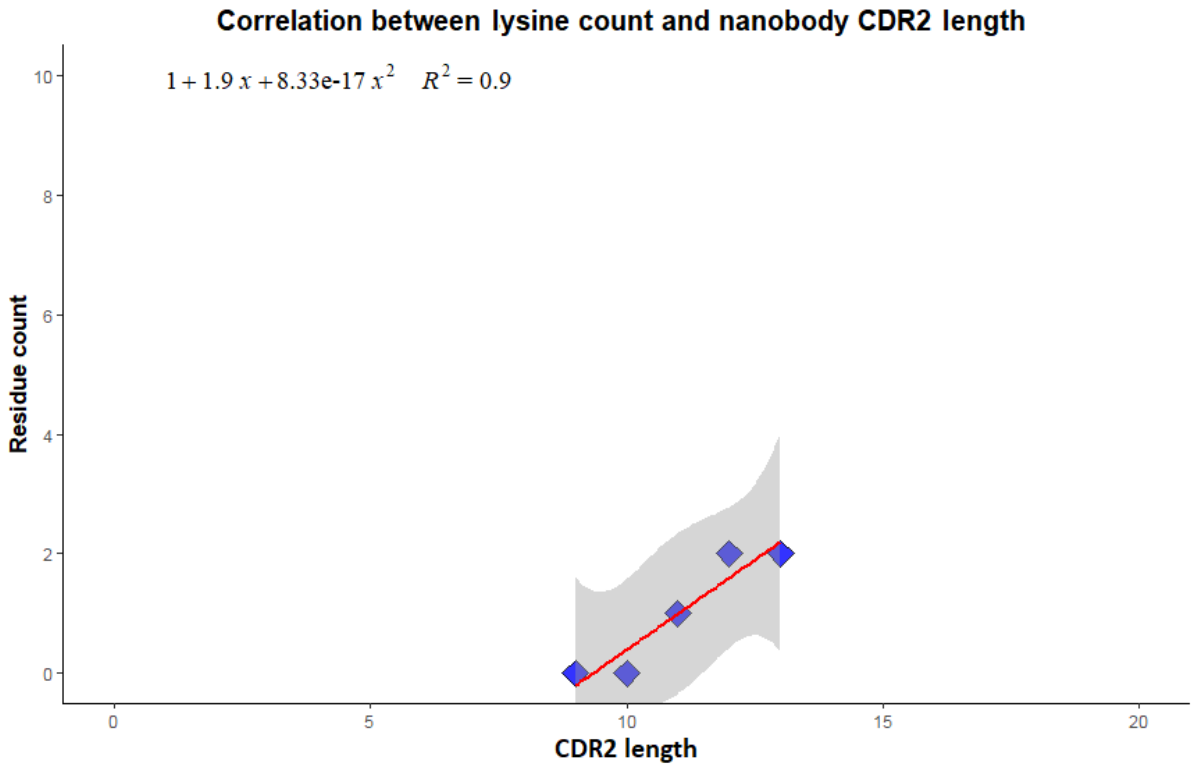

Correlation between glutamate count and nanobody CDR2 length
$1 + 1.9\,x + 8.33\text{e-}17\,x^2 \quad R^2 = 0.9$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20

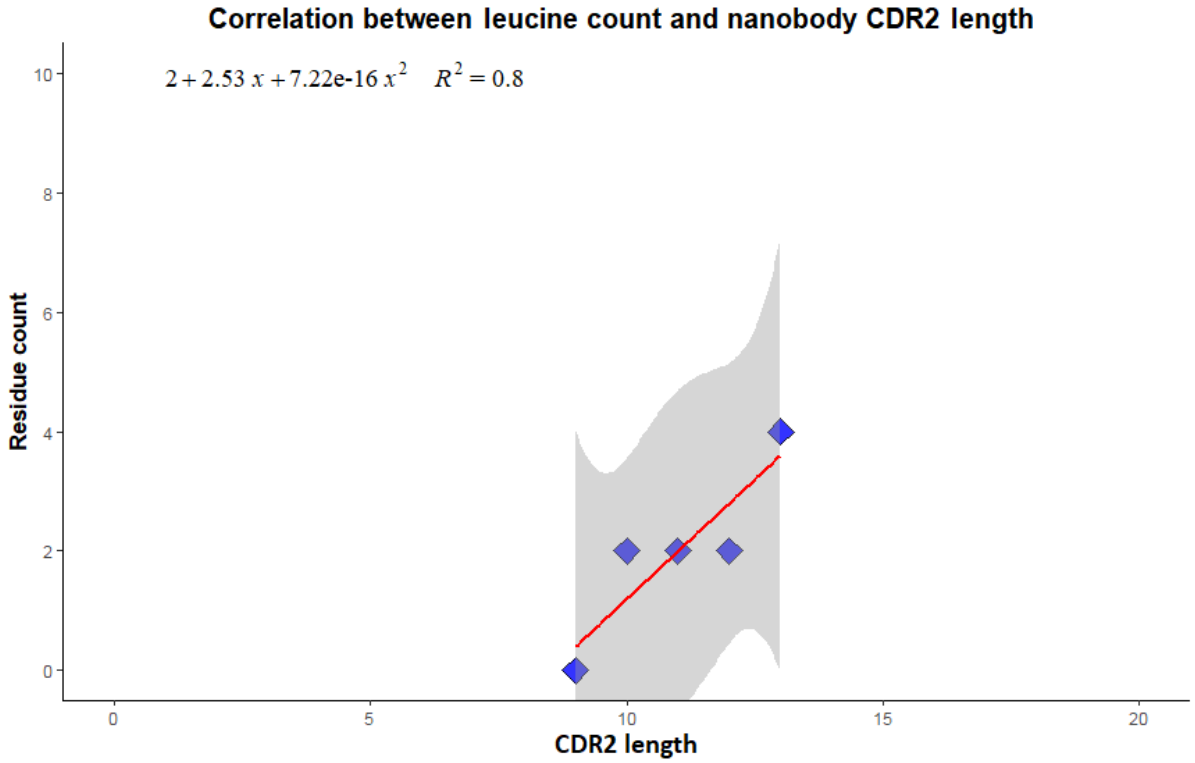

Correlation between phenylalanine count and nanobody CDR2 length
$1.8 + 2.21\,x - 0.802\,x^2 \quad R^2 = 0.815$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20

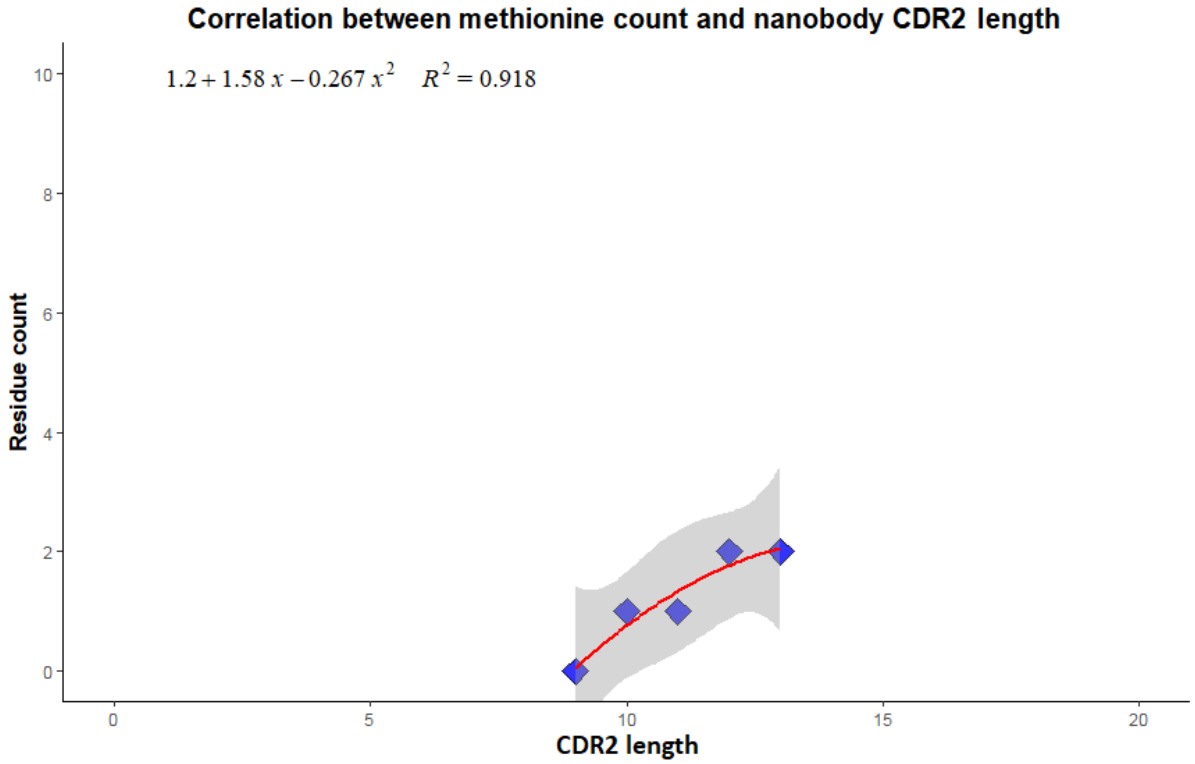

Correlation between glycine count and nanobody CDR2 length
$3.8 + 0.949\,x + 1.34\,x^2 \quad R^2 = 0.959$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20

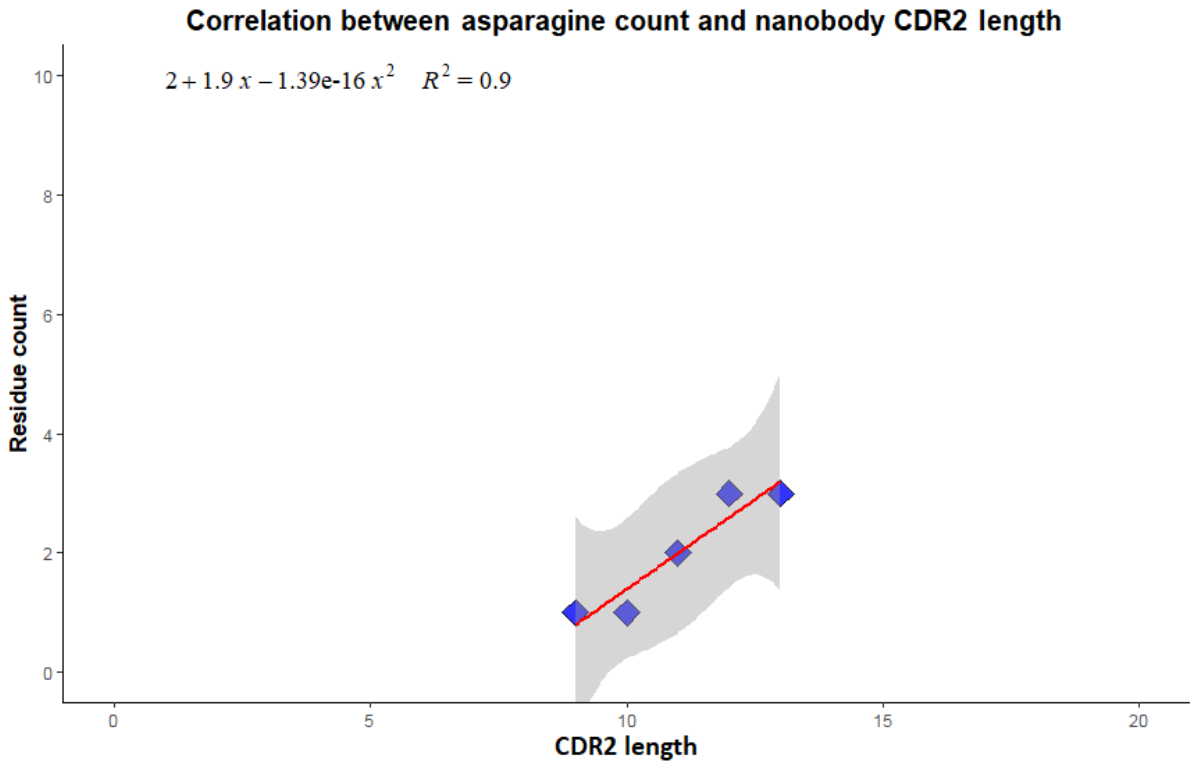

Correlation between histidine count and nanobody CDR2 length
$1.2 + 0.632\,x + 0.535\,x^2 \quad R^2 = 0.857$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20

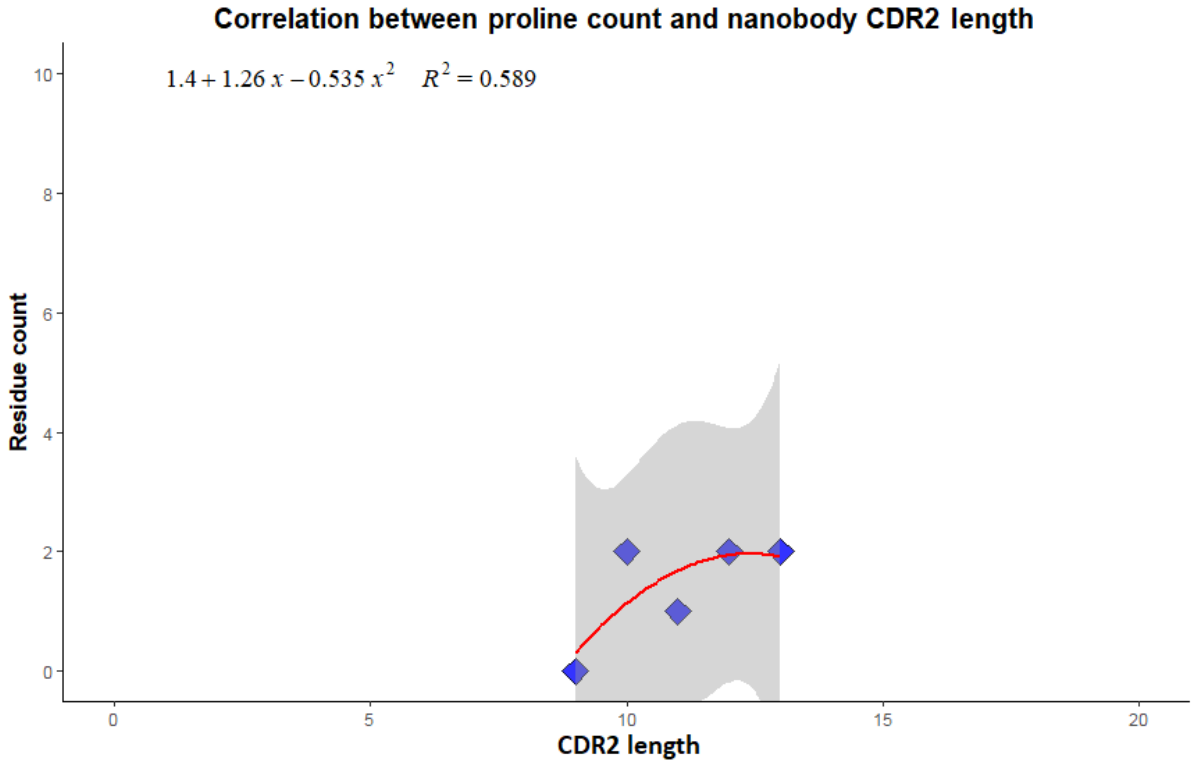

Correlation between isoleucine count and nanobody CDR2 length
$2.2 + 1.58\,x - 0.267\,x^2 \quad R^2 = 0.918$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20

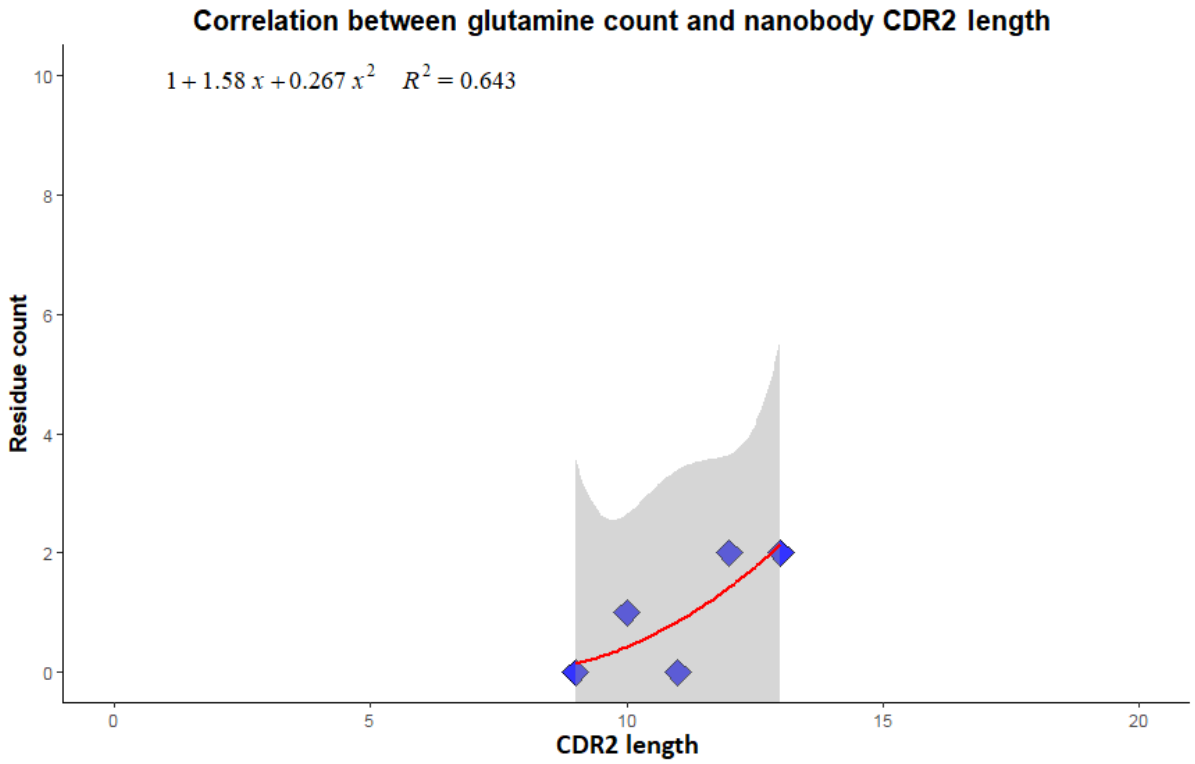

Correlation between lysine count and nanobody CDR2 length
$1 + 1.9\,x + 8.33\text{e-}17\,x^2 \quad R^2 = 0.9$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20

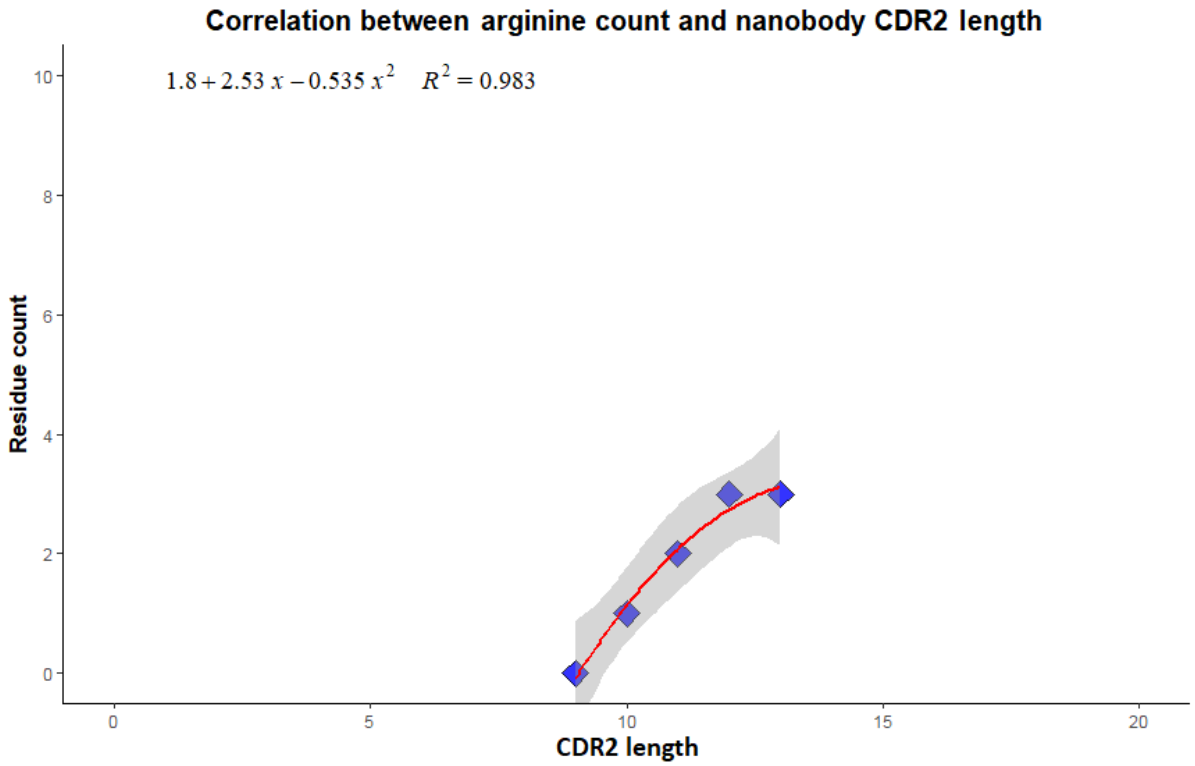

Correlation between leucine count and nanobody CDR2 length
$2 + 2.53\,x + 7.22\text{e-}16\,x^2 \quad R^2 = 0.8$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between methionine count and nanobody CDR2 length
$1.2 + 1.58\,x - 0.267\,x^2 \quad R^2 = 0.918$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between asparagine count and nanobody CDR2 length
$2 + 1.9\,x - 1.39\text{e-}16\,x^2 \quad R^2 = 0.9$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between proline count and nanobody CDR2 length
$1.4 + 1.26\,x - 0.535\,x^2 \quad R^2 = 0.589$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between glutamine count and nanobody CDR2 length
$1 + 1.58\,x + 0.267\,x^2 \quad R^2 = 0.643$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between arginine count and nanobody CDR2 length
$1.8 + 2.53\,x - 0.535\,x^2 \quad R^2 = 0.983$
Residue count
CDR2 length
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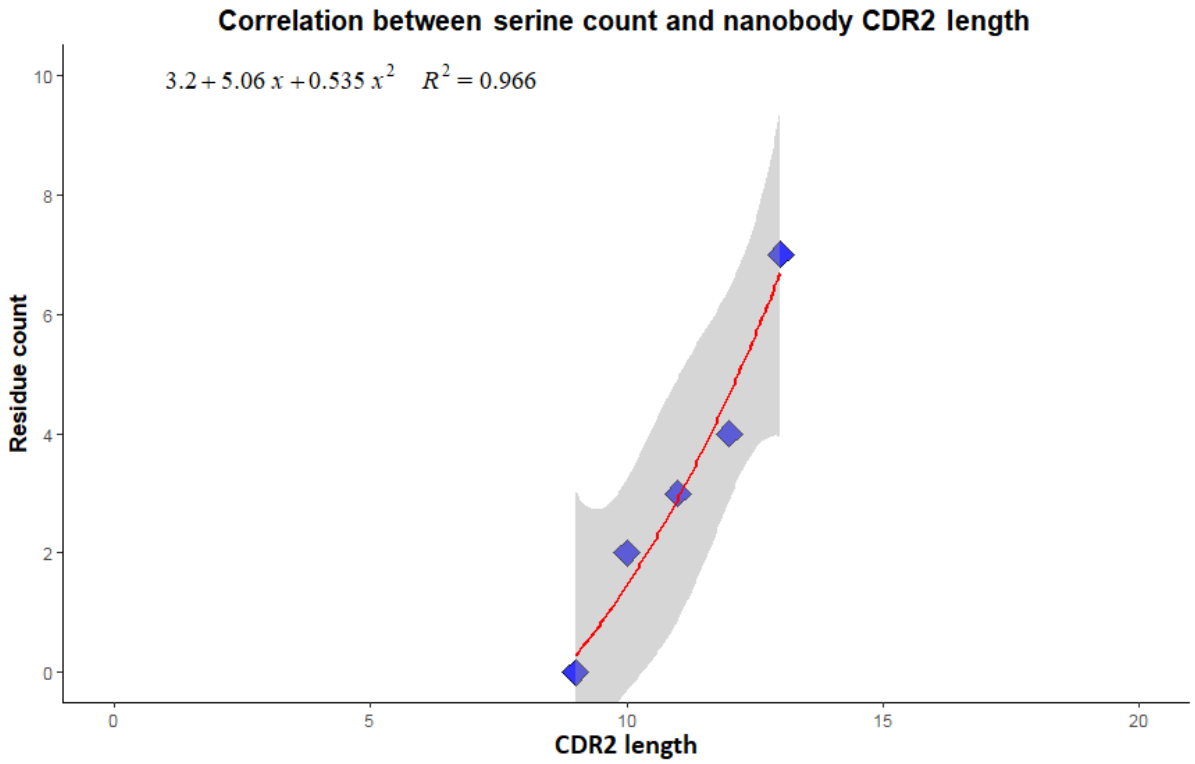
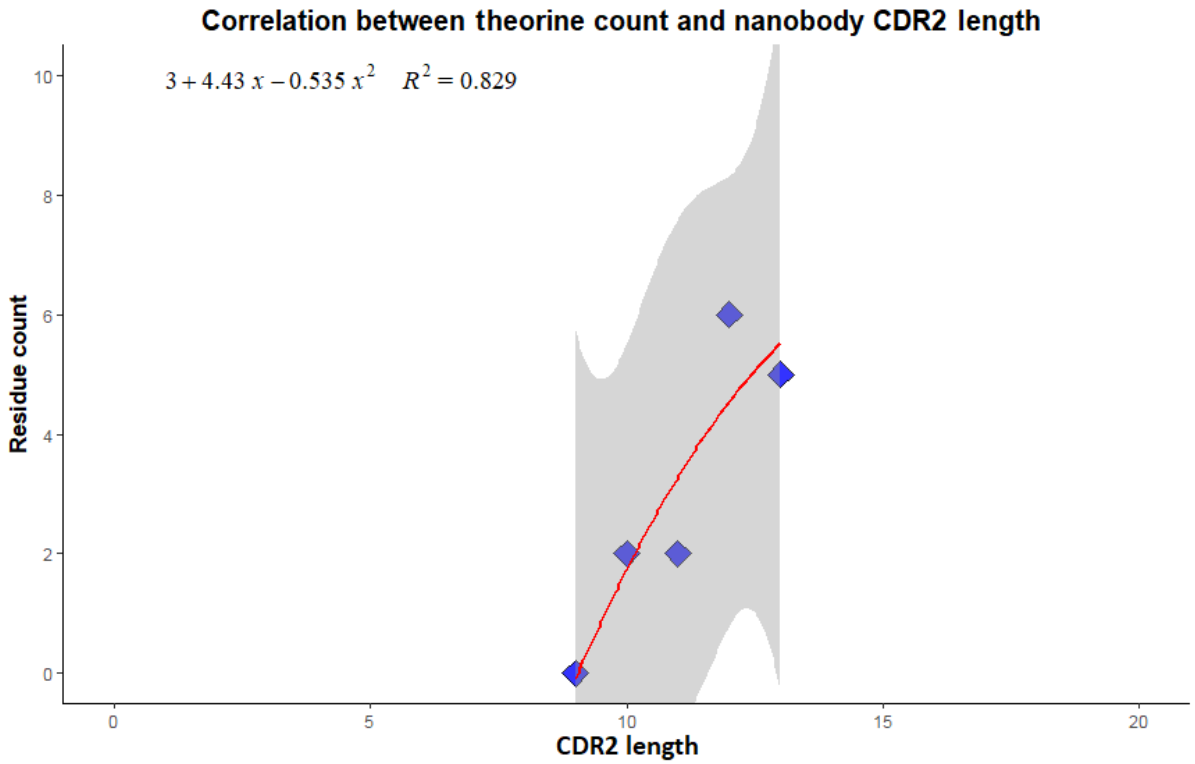
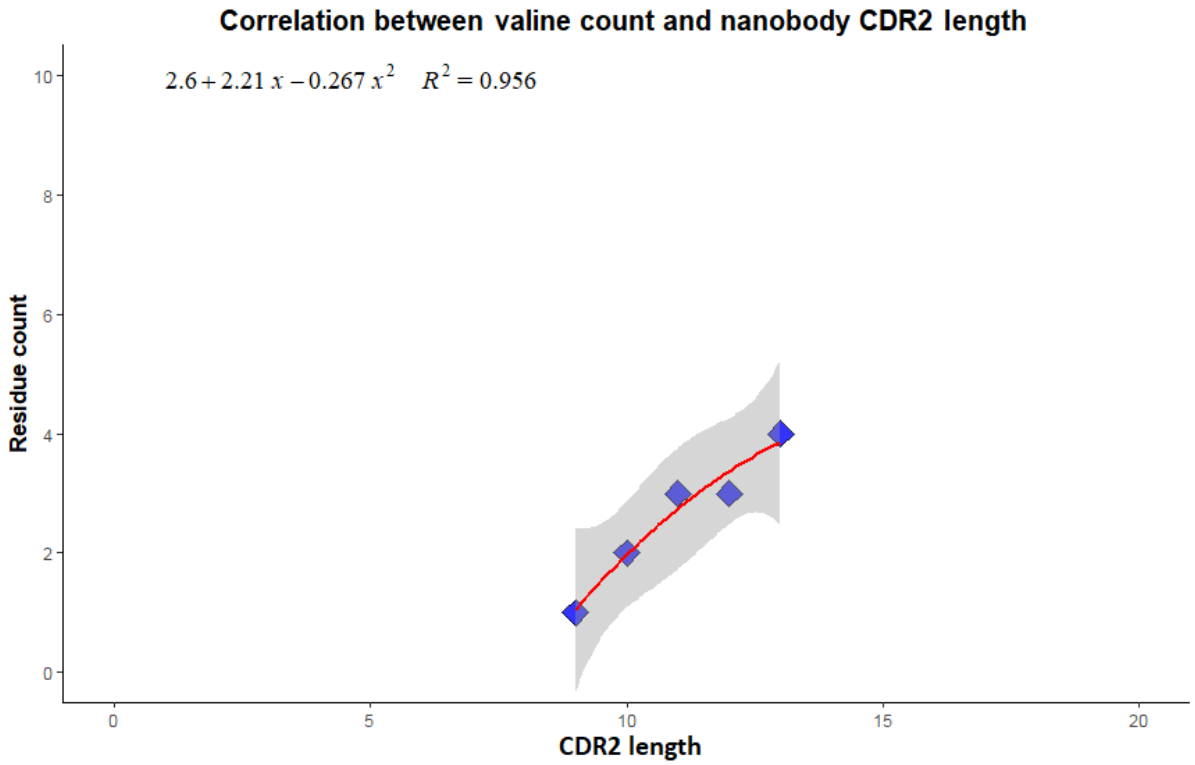
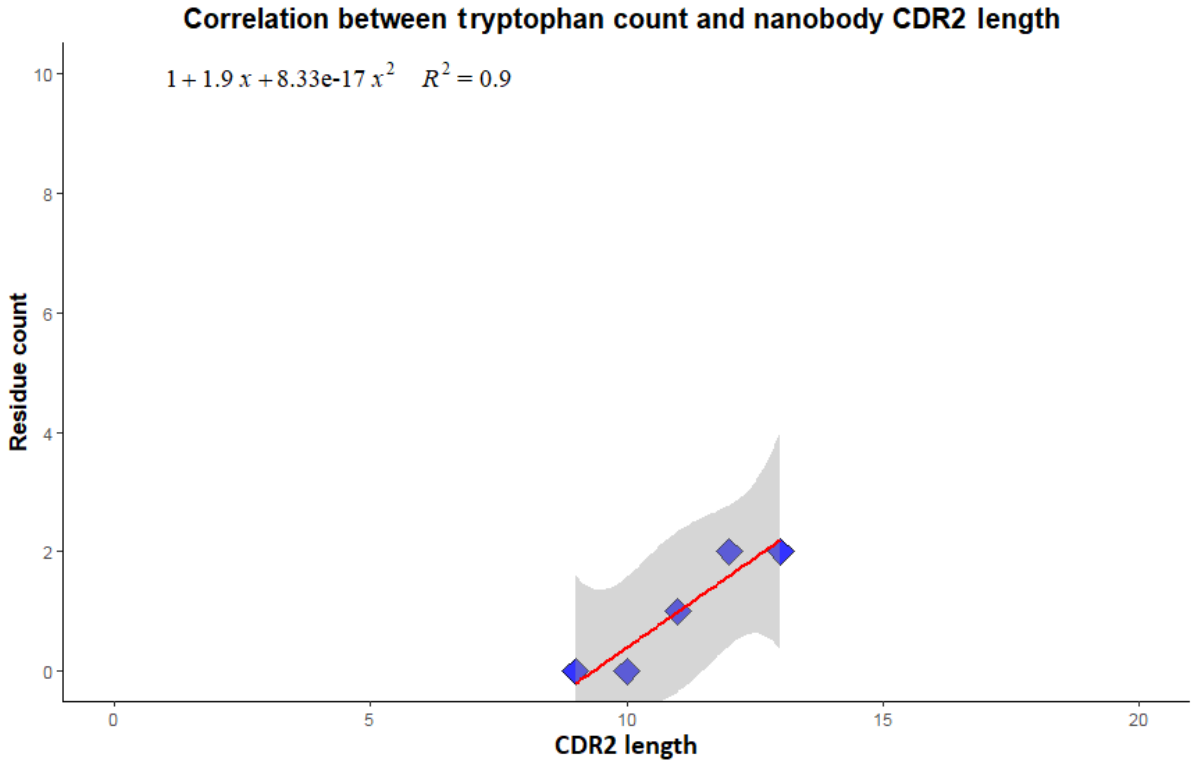
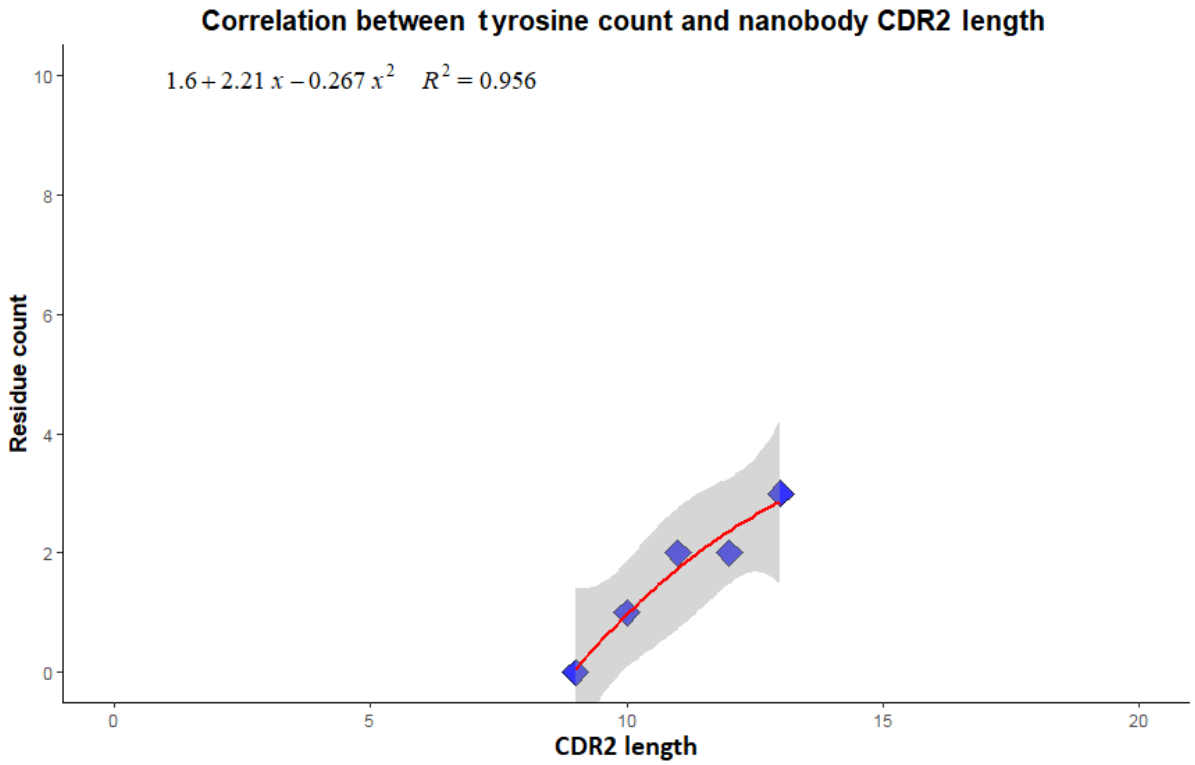
2
4
6
8
10
0
5
10
15
20


Correlation between serine count and nanobody CDR2 length
$3.2 + 5.06\,x + 0.535\,x^2 \quad R^2 = 0.966$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between theorine count and nanobody CDR2 length
$3 + 4.43\,x - 0.535\,x^2 \quad R^2 = 0.829$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20

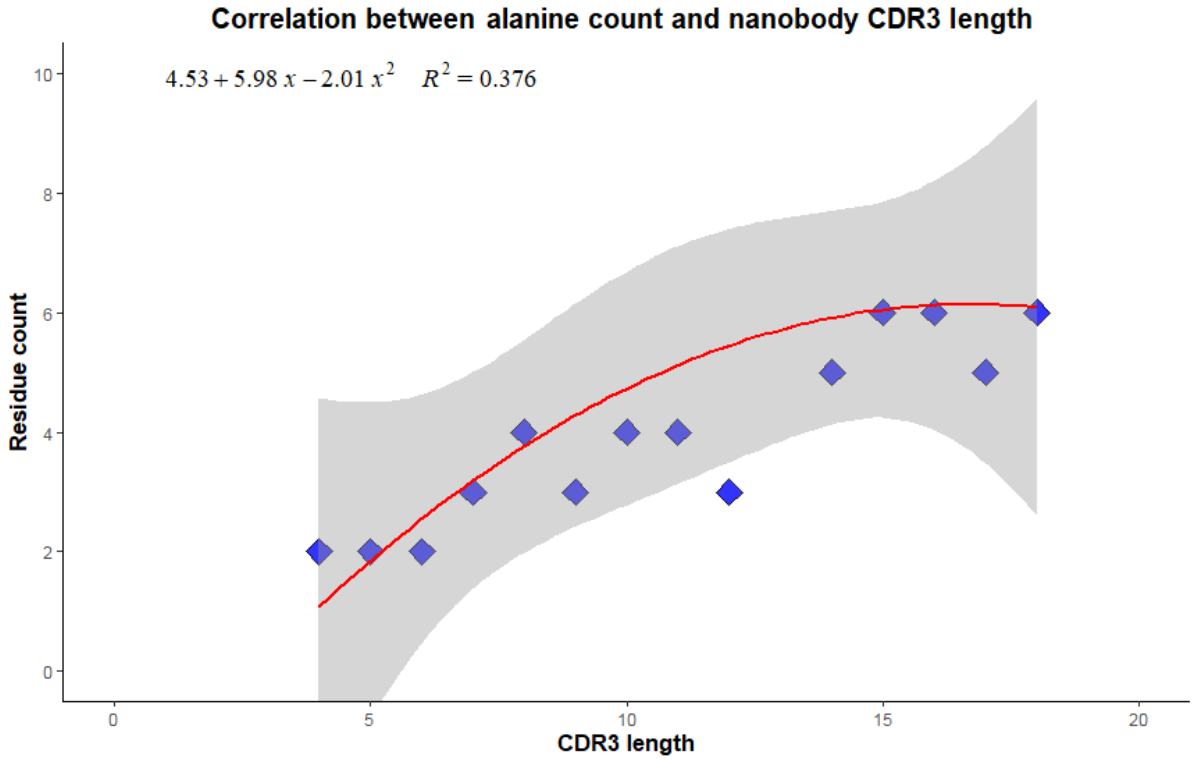

Correlation between valine count and nanobody CDR2 length
$2.6 + 2.21\,x - 0.267\,x^2 \quad R^2 = 0.956$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20

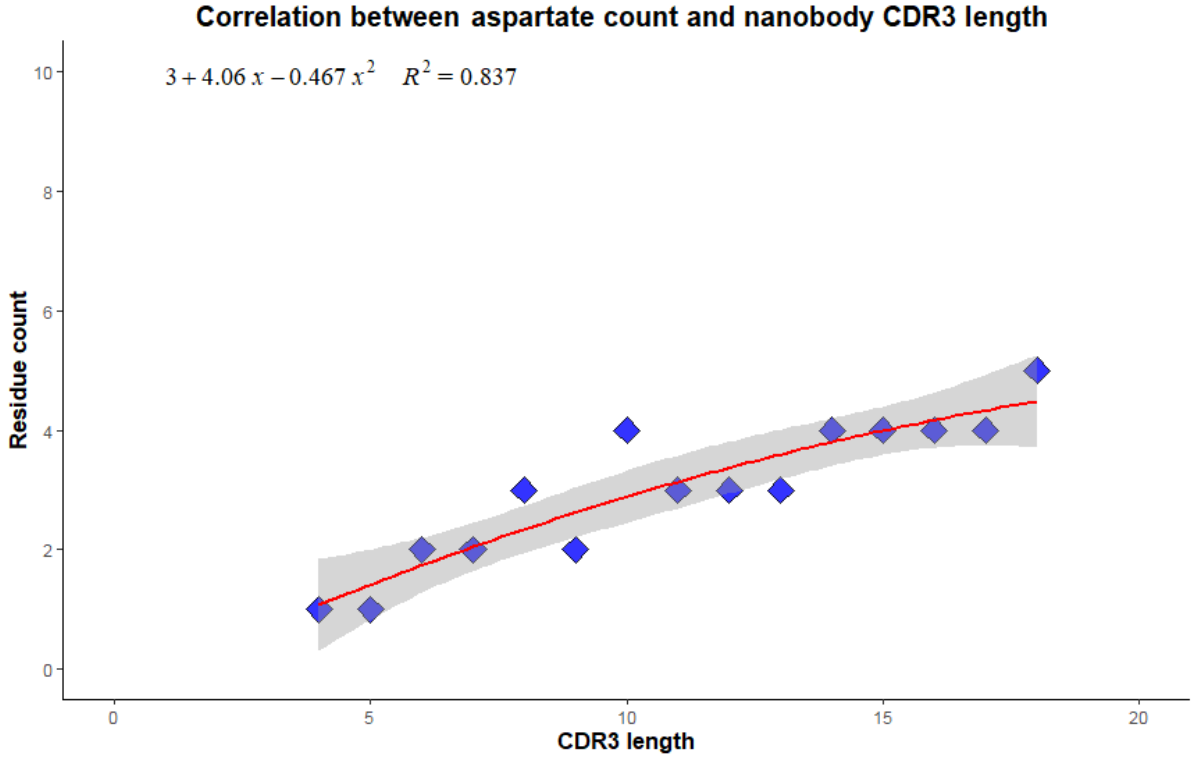

Correlation between tryptophan count and nanobody CDR2 length
$1 + 1.9\,x + 8.33\text{e-}17\,x^2 \quad R^2 = 0.9$
Residue count
CDR2 length
0
2
4
6
8
10
0
5
10
15
20

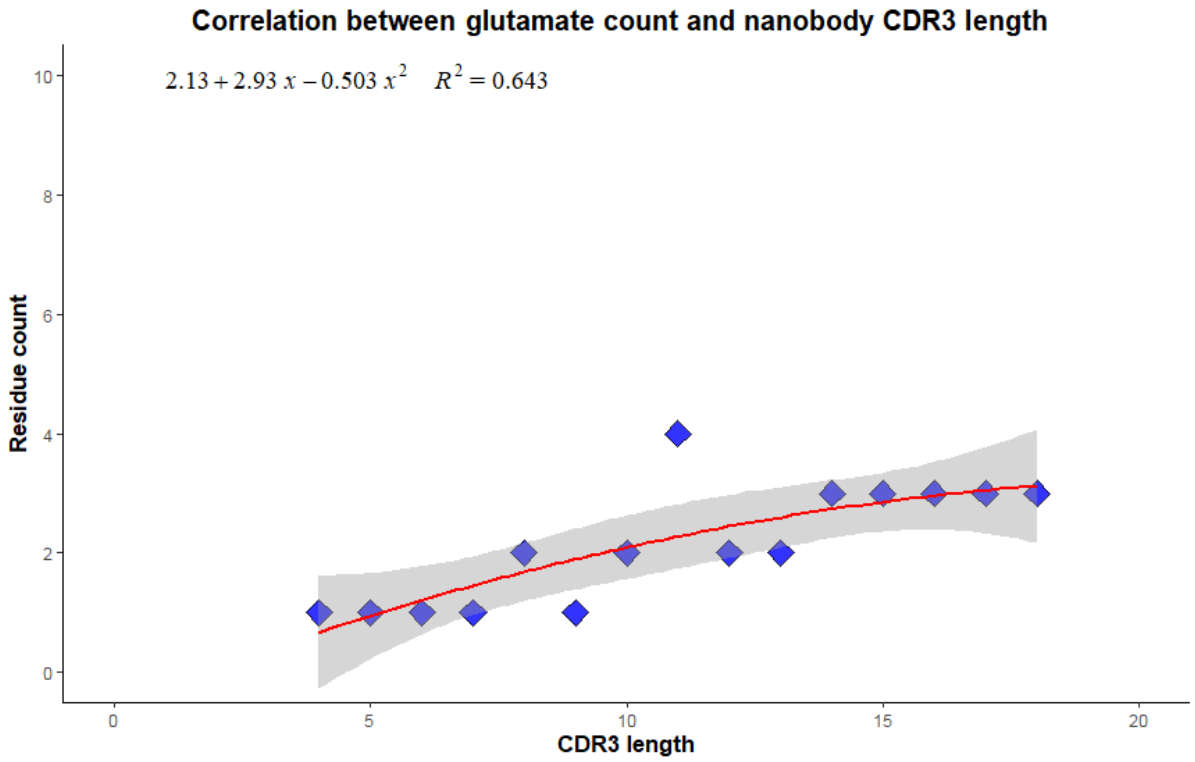


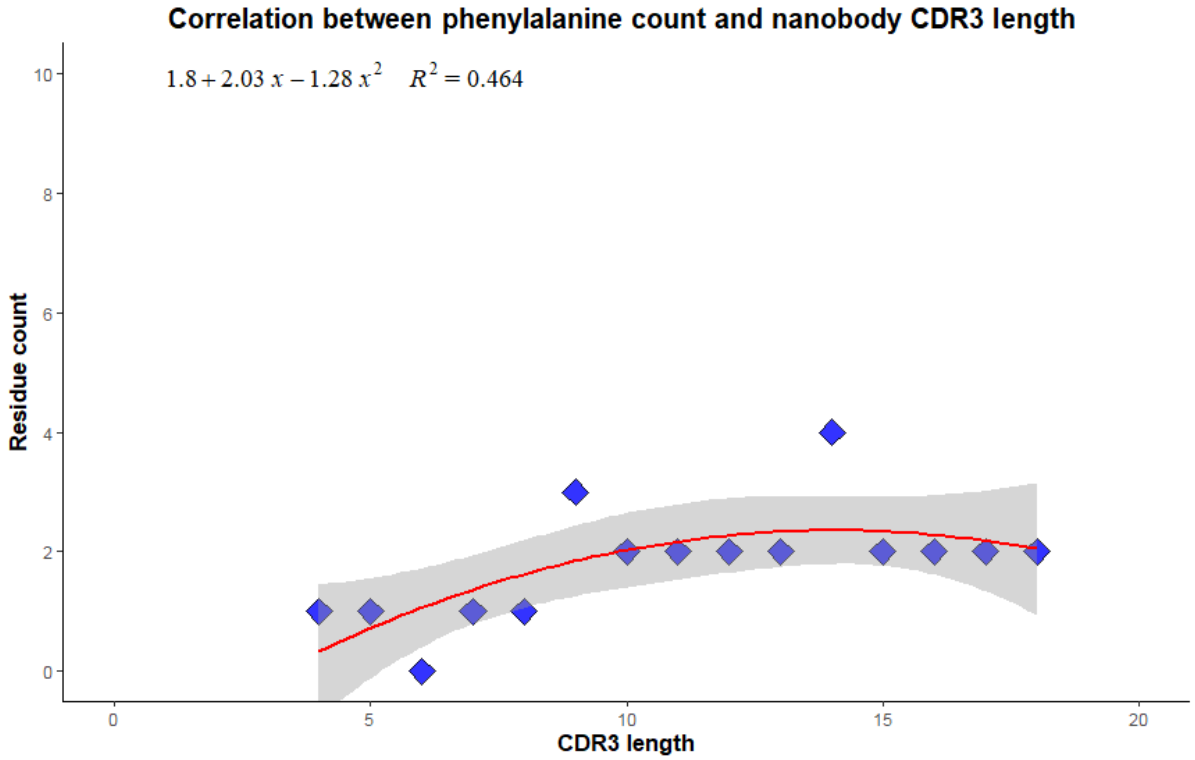
Supplement Figure 1. Correlation between the highest occurrence of amino acids and CDR2 lengths.

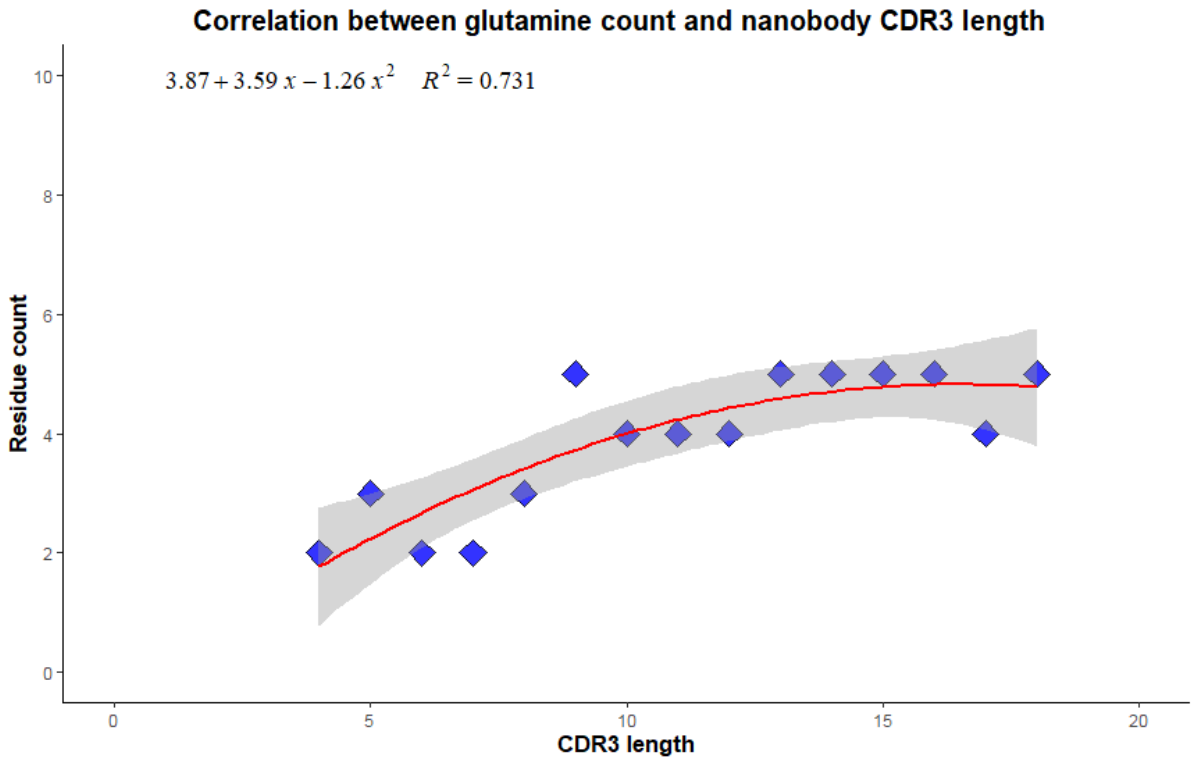
Supplement Figure 2

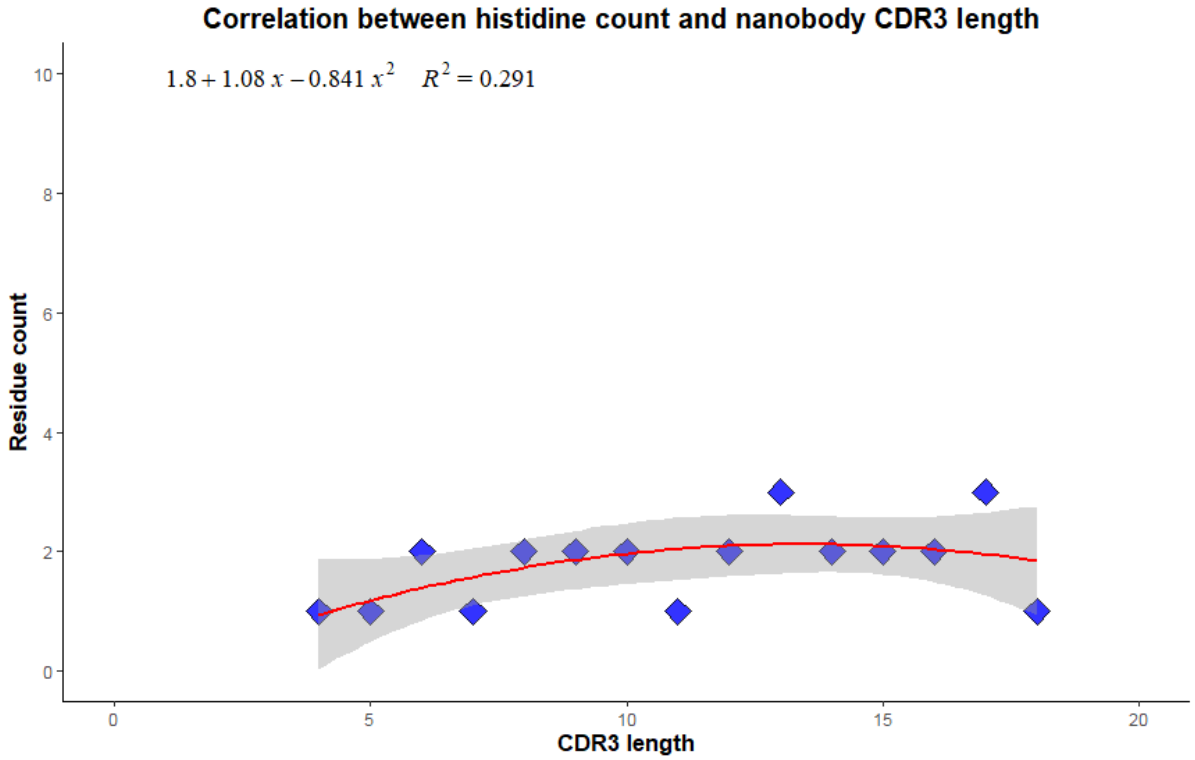





Correlation between glutamate count and nanobody CDR3 length
$2.13 + 2.93\ x - 0.503\ x^2 \quad R^2 = 0.643$
Residue count
CDR3 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between phenylalanine count and nanobody CDR3 length
$1.8 + 2.03\ x - 1.28\ x^2 \quad R^2 = 0.464$
Residue count
CDR3 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between glutamine count and nanobody CDR3 length
$3.87 + 3.59\,x - 1.26\,x^2 \quad R^2 = 0.731$
Residue count
CDR3 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between histidine count and nanobody CDR3 length
$1.8 + 1.08\,x - 0.841\,x^2 \quad R^2 = 0.291$
Residue count
CDR3 length
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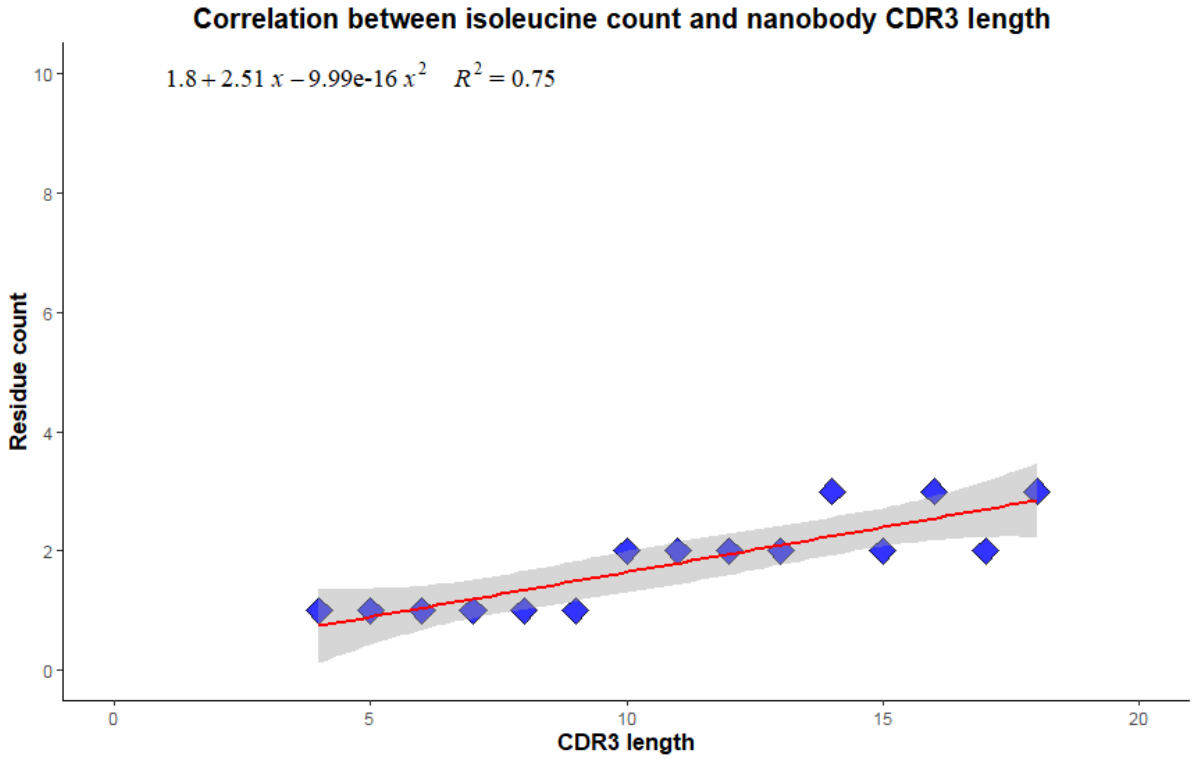
2
4
6
8
10
0
5
10
15
20


Correlation between isoleucine count and nanobody CDR3 length
$1.8 + 2.51\ x - 9.99\text{e-}16\ x^2 \quad R^2 = 0.75$
Residue count
CDR3 length
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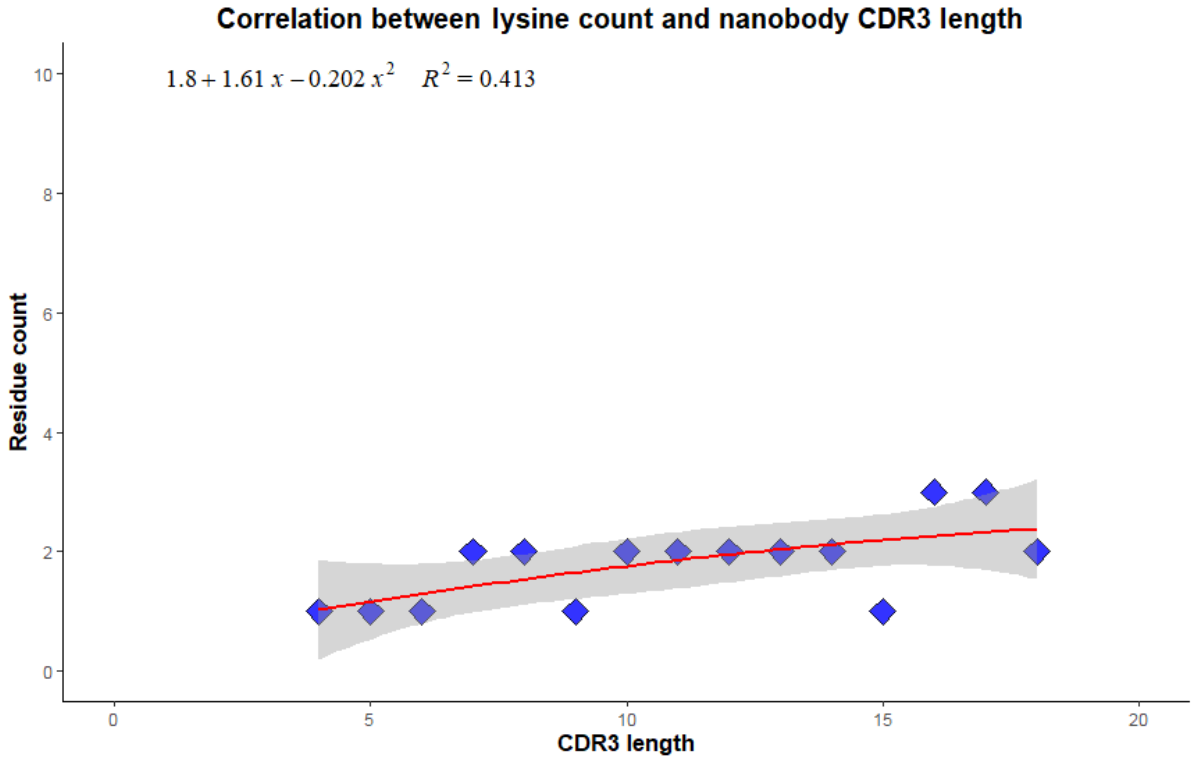
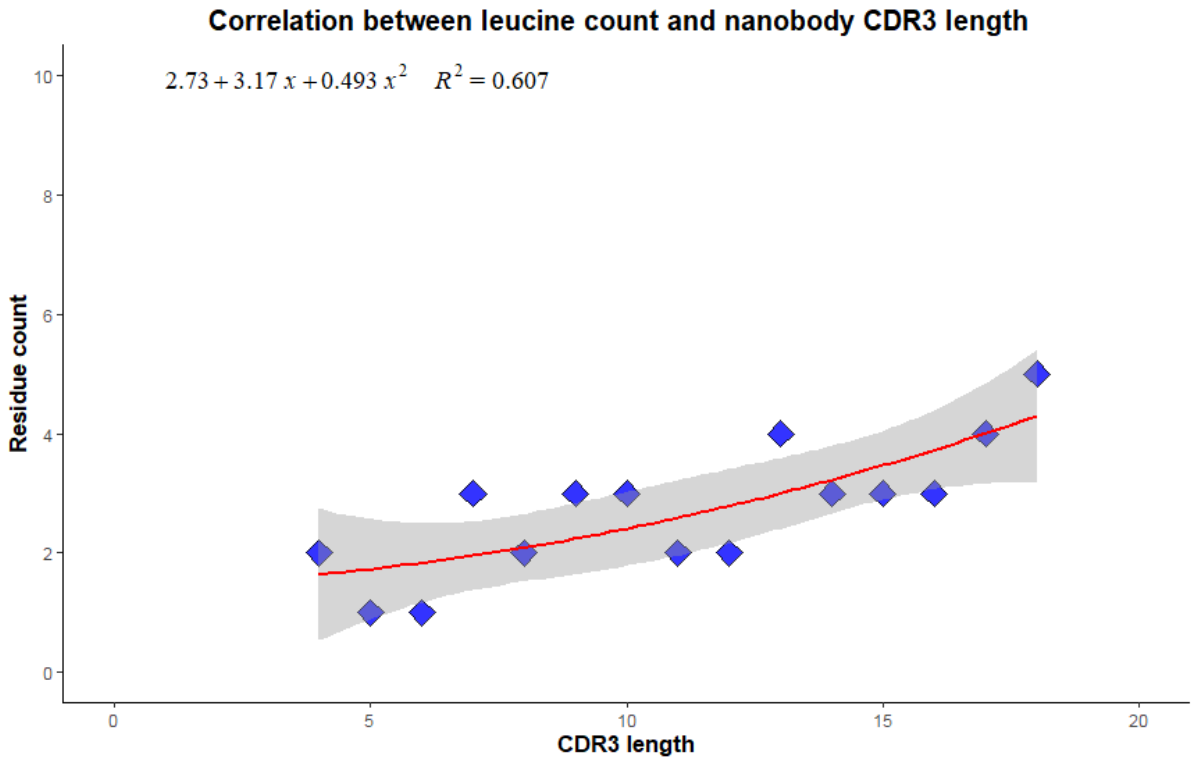
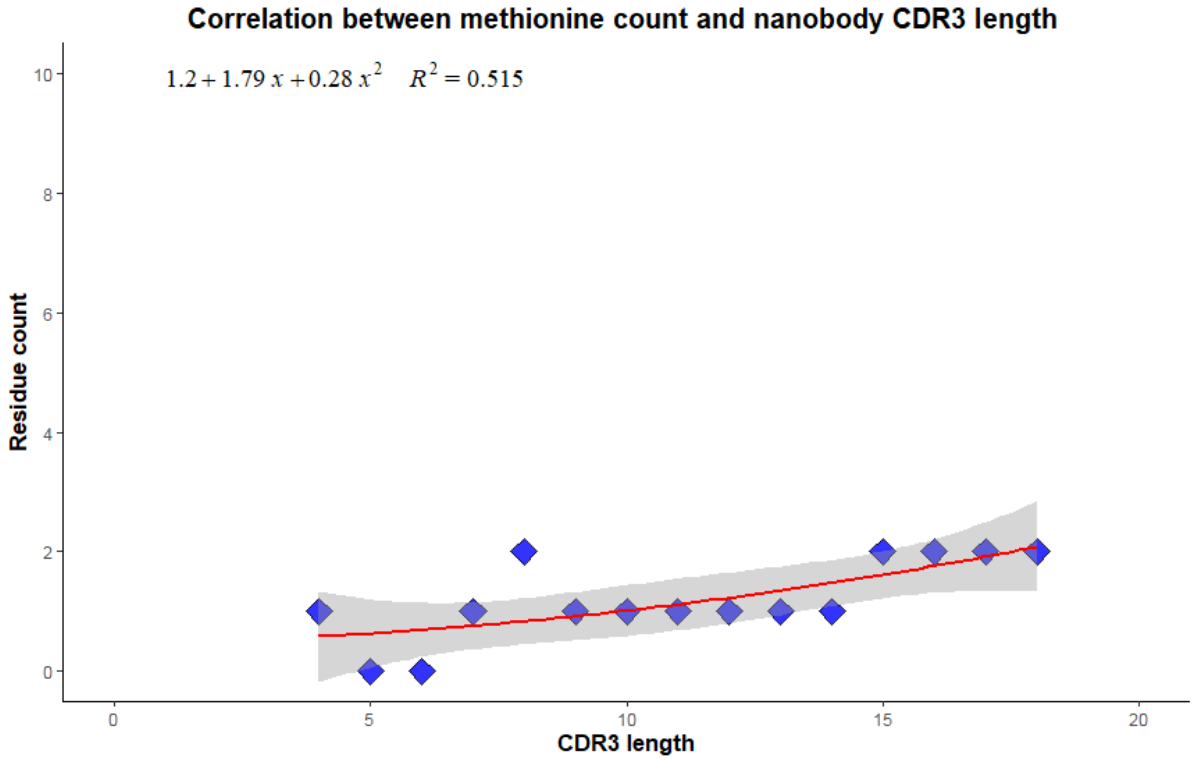
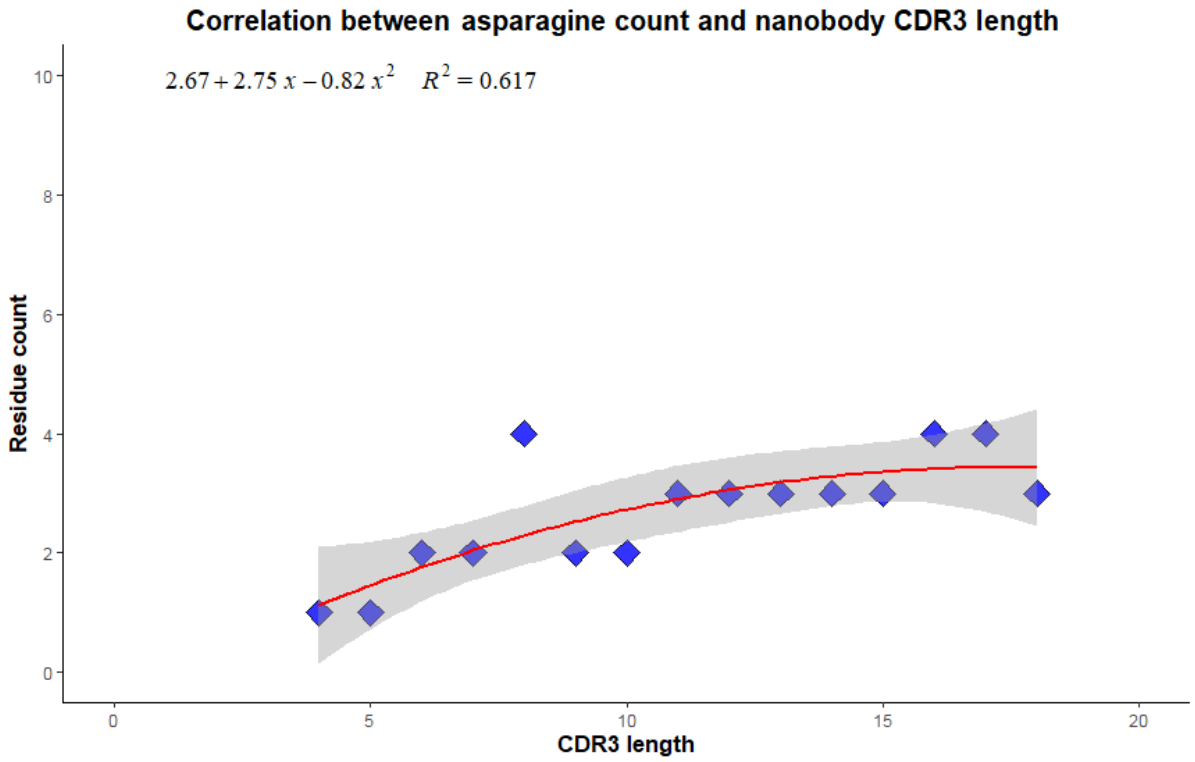
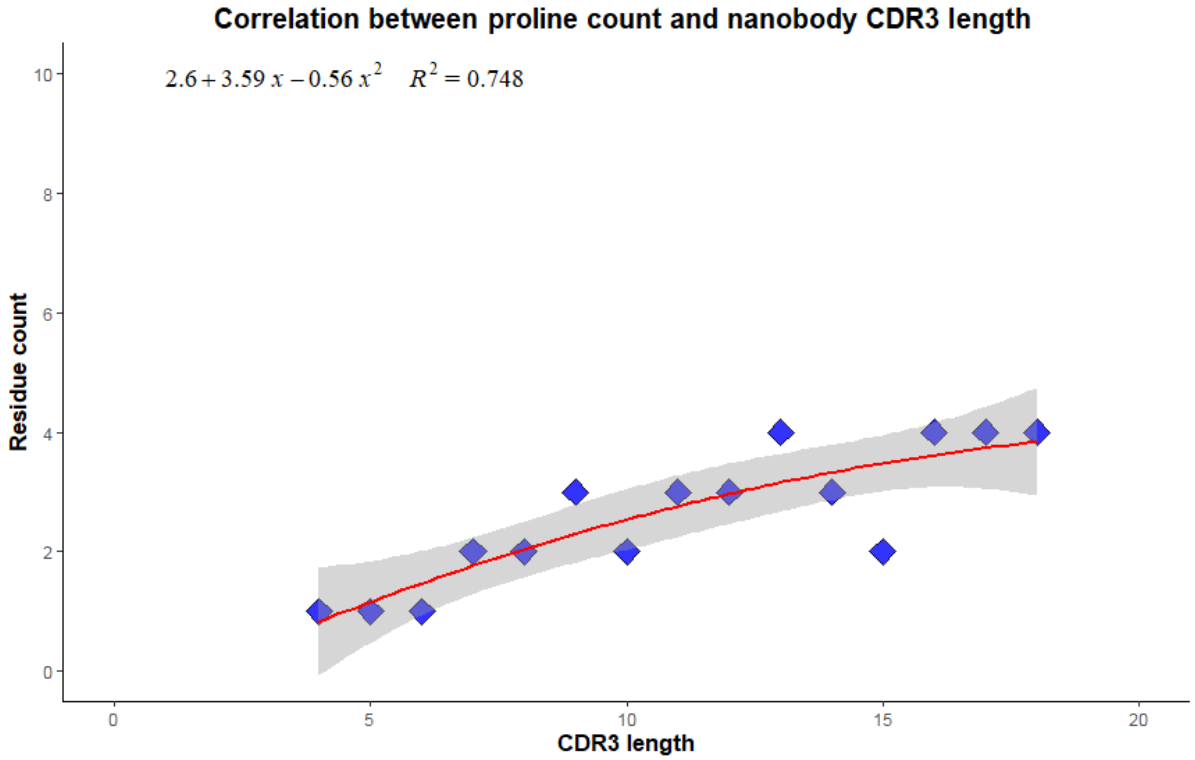
2
4
6
8
10
0
5
10
15
20

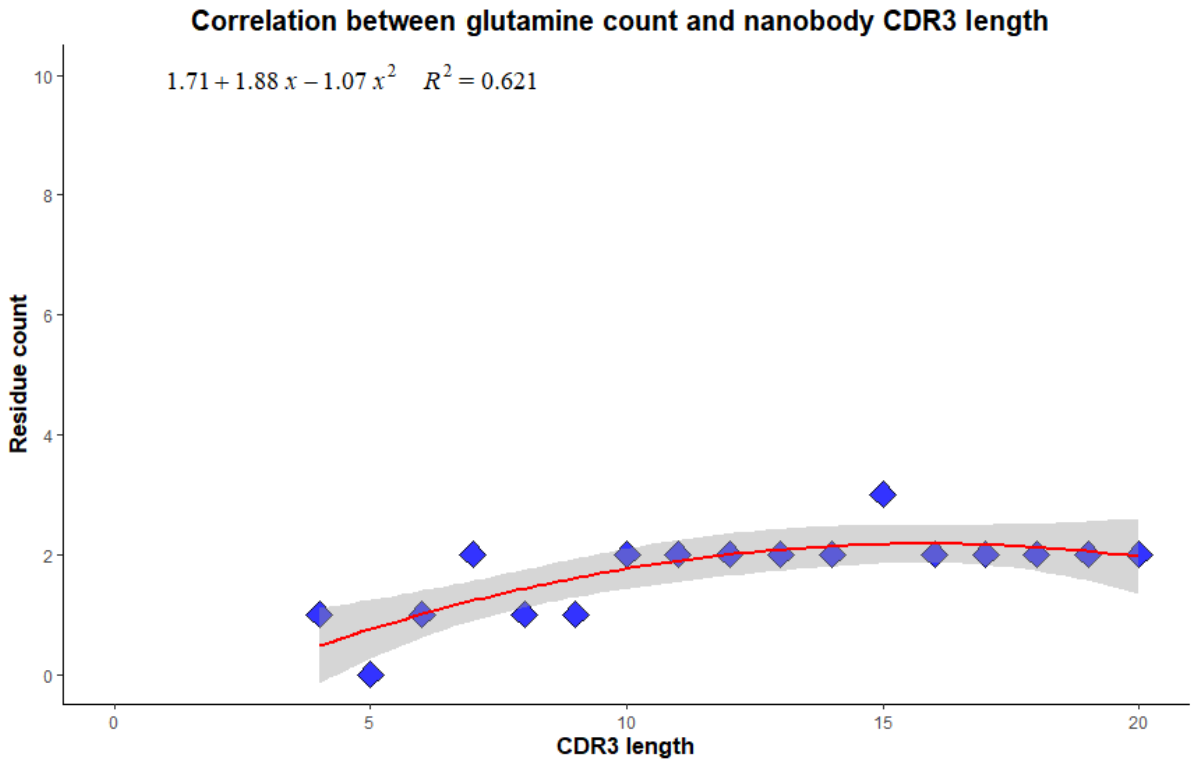

Correlation between lysine count and nanobody CDR3 length
$1.8 + 1.61\ x - 0.202\ x^2 \quad R^2 = 0.413$
Residue count
CDR3 length
0
2
4
6
8
10
0
5
10
15
20

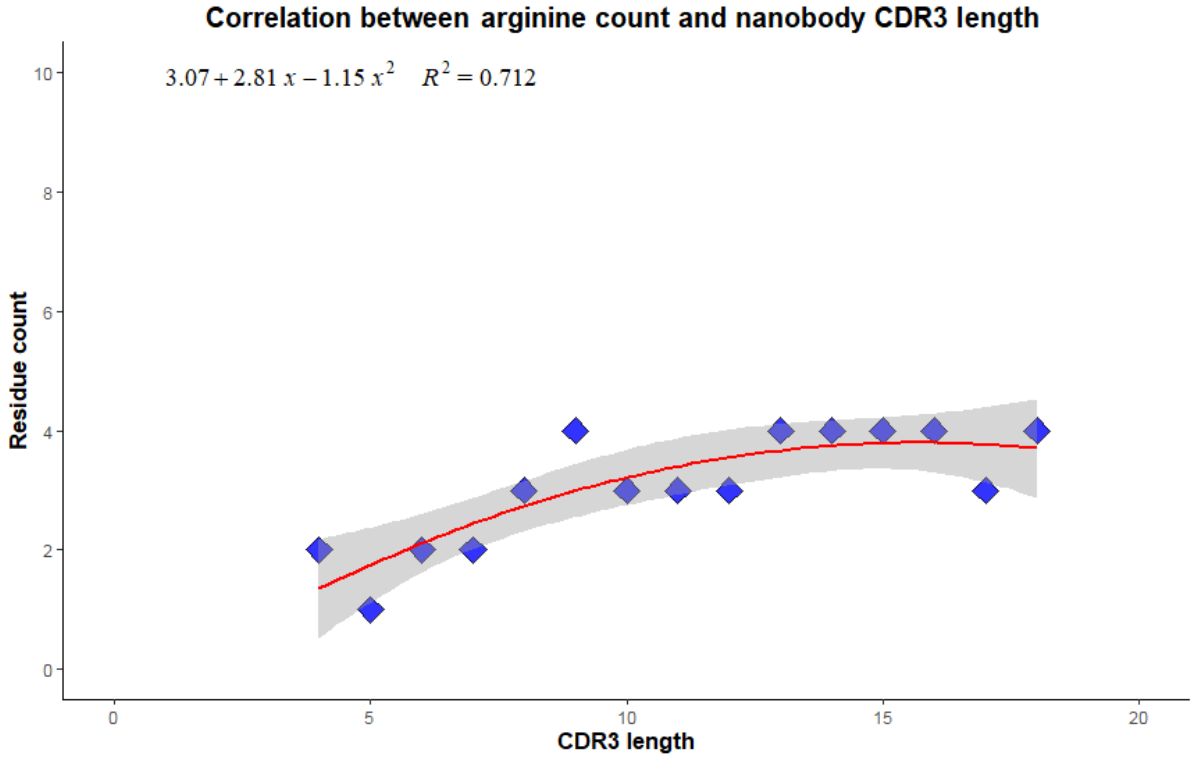

Correlation between leucine count and nanobody CDR3 length
$2.73 + 3.17\,x + 0.493\,x^2 \quad R^2 = 0.607$
Residue count
CDR3 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between methionine count and nanobody CDR3 length
$1.2 + 1.79\,x + 0.28\,x^2 \quad R^2 = 0.515$
Residue count
CDR3 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between asparagine count and nanobody CDR3 length
$2.67 + 2.75\,x - 0.82\,x^2 \quad R^2 = 0.617$
Residue count
CDR3 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between proline count and nanobody CDR3 length
$2.6 + 3.59\,x - 0.56\,x^2 \quad R^2 = 0.748$
Residue count
CDR3 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between glutamine count and nanobody CDR3 length
$1.71 + 1.88\,x - 1.07\,x^2 \quad R^2 = 0.621$
Residue count
CDR3 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between arginine count and nanobody CDR3 length
$3.07 + 2.81\,x - 1.15\,x^2 \quad R^2 = 0.712$
Residue count
CDR3 length
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2
4
6
8
10
0
5
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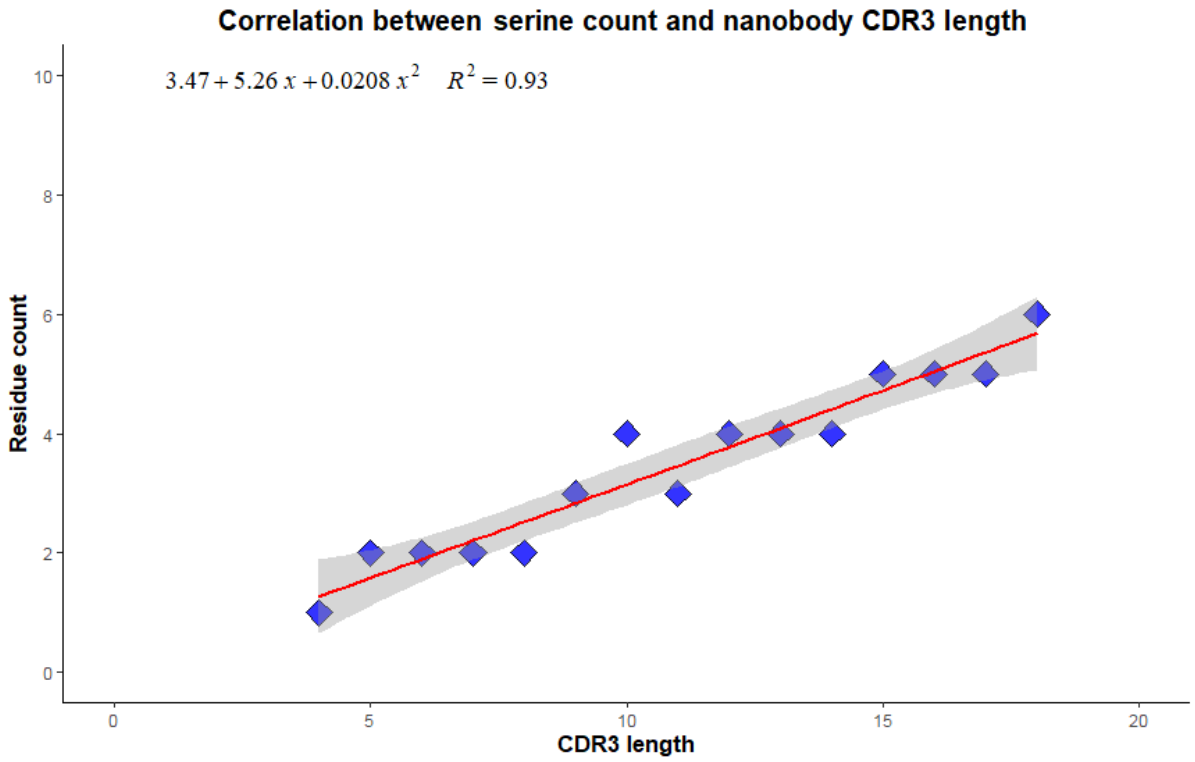
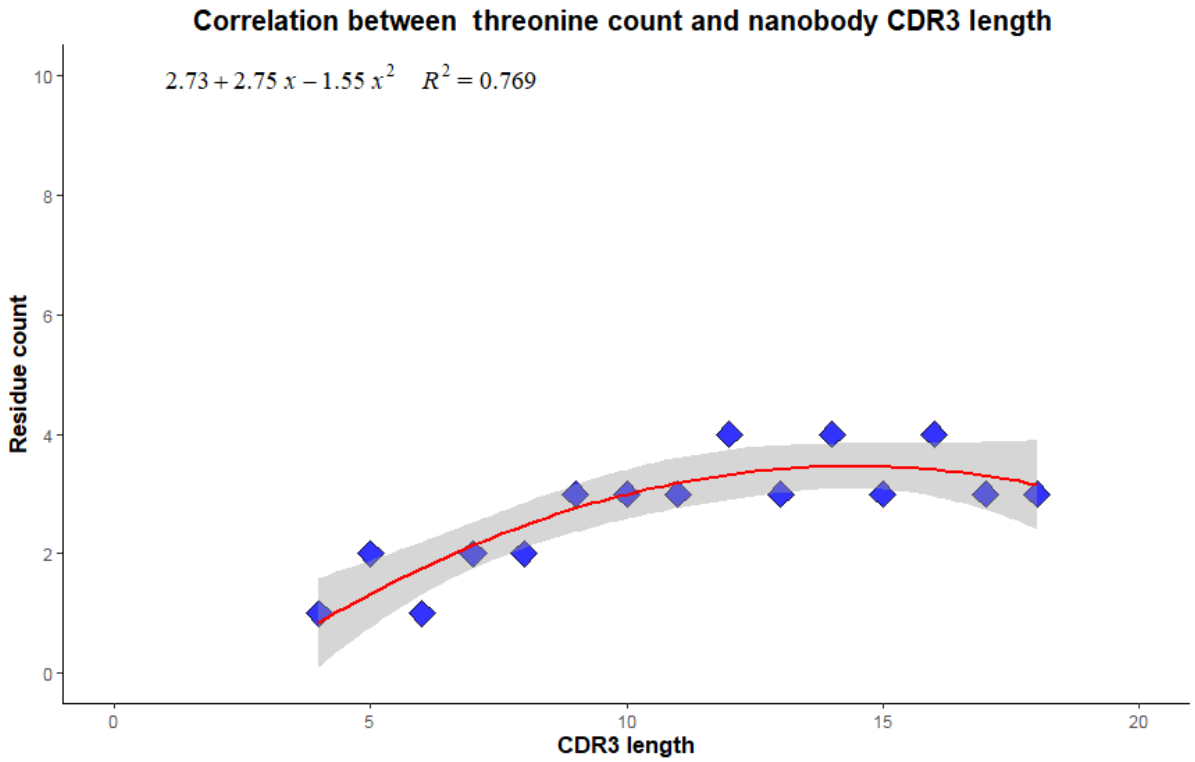
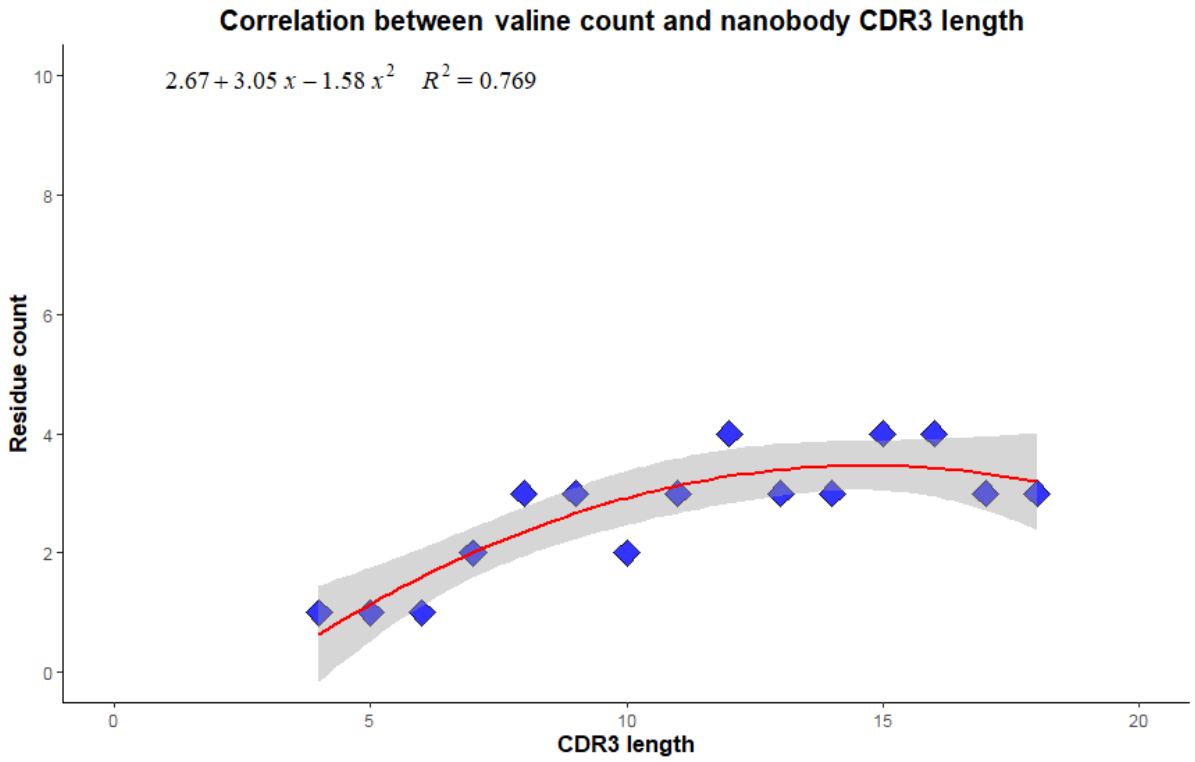
15
20


Correlation between serine count and nanobody CDR3 length
$3.47 + 5.26\,x + 0.0208\,x^2 \quad R^2 = 0.93$
Residue count
CDR3 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between threonine count and nanobody CDR3 length
$2.73 + 2.75\,x - 1.55\,x^2 \quad R^2 = 0.769$
Residue count
CDR3 length
0
2
4
6
8
10
0
5
10
15
20


Correlation between valine count and nanobody CDR3 length
$2.67 + 3.05\,x - 1.58\,x^2 \quad R^2 = 0.769$
Residue count
CDR3 length
0
2
4
6
8
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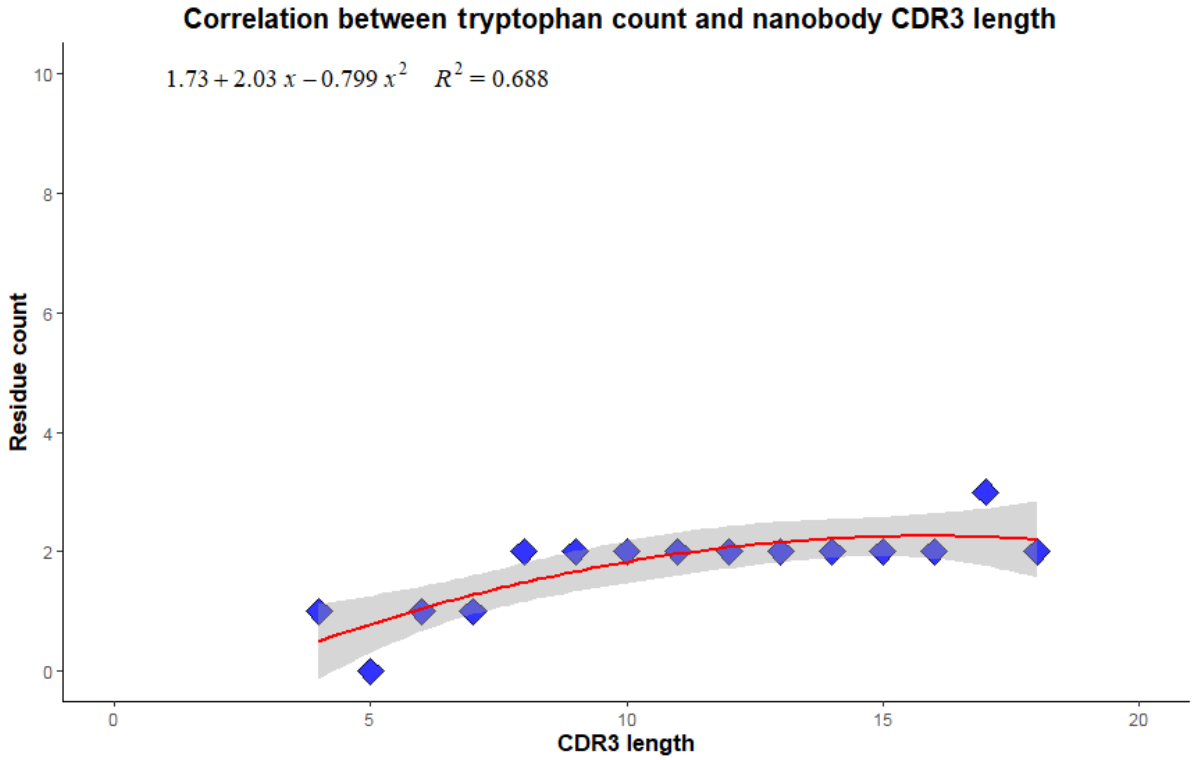
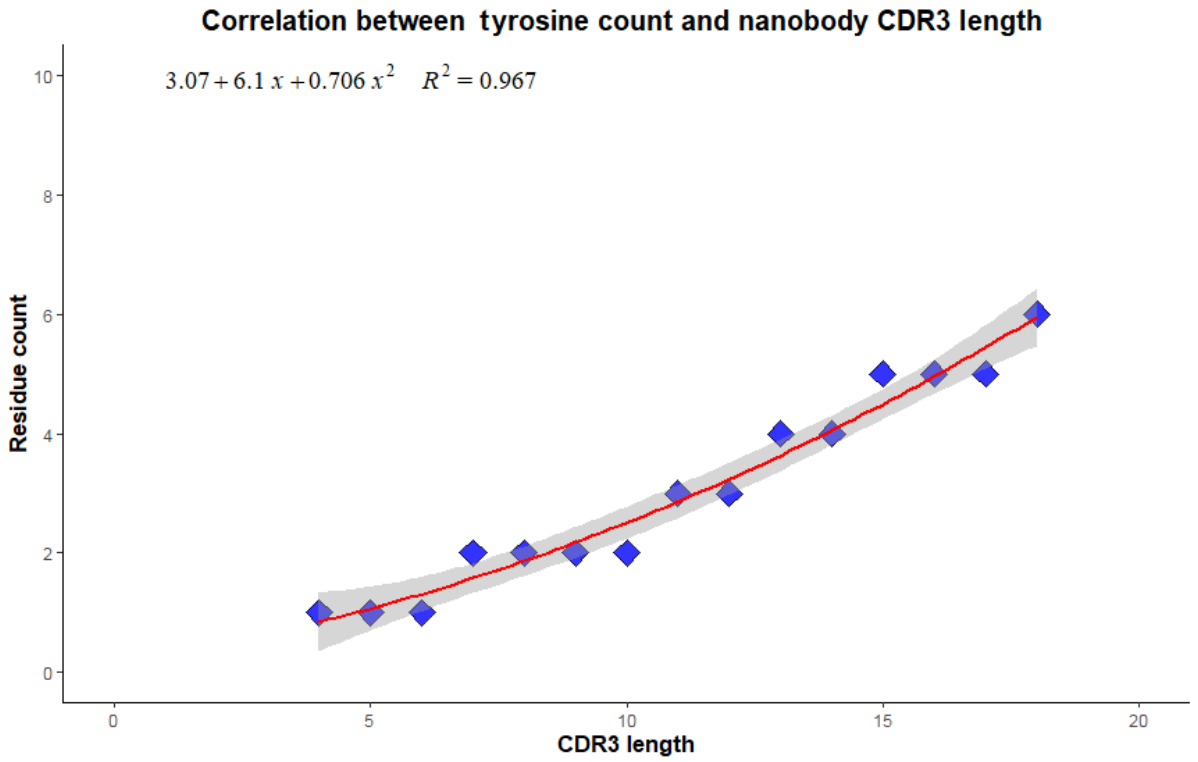
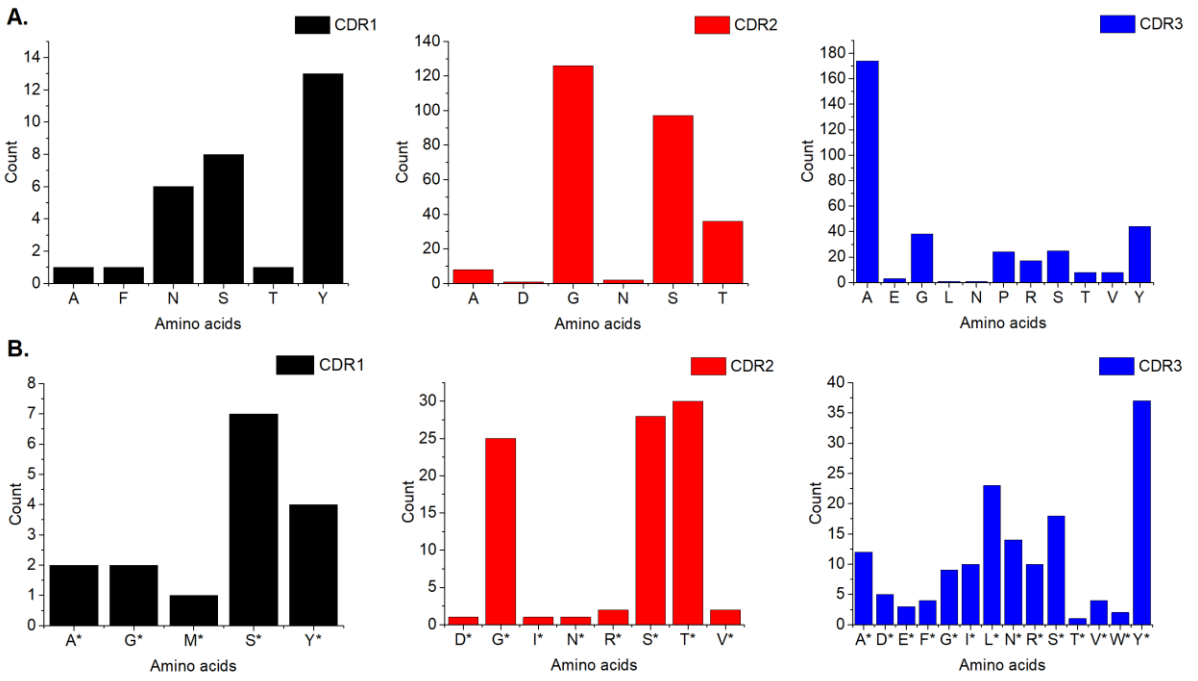
0
5
10
15
20


Correlation between tryptophan count and nanobody CDR3 length
$1.73 + 2.03\,x - 0.799\,x^2 \quad R^2 = 0.688$
Residue count
CDR3 length
0
2
4
6
8
10
0
5
10
15
20



Supplement Figure 2. Correlation between the highest occurrence of amino acids and CDR3 lengths.

Supplement Figure 3



Supplement Figure 3. Occurrence of repeat motifs formed by corresponding amino acids in each CDR region. (A) poly amino acid repeats, (B) oligo repeats.