Fc regionまとめ

対象：

ヒトIgG1, IgG2, IgG3, IgG4

マウス IgG1, IgG2a, IgG2b, IgG3

ウサギ IgG

検索対象：Expasy

Hinge+CH2+CH3

**ヒトIgG1**

DKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK

**Molecular weight:** 25580.03

**Theoretical pI:** 7.18

フォームの始まり

**Amino acid composition:**
Ala (A) 7 3.1%

Arg (R) 6 2.6%

Asn (N) 11 4.8%

Asp (D) 10 4.4%

Cys (C) 6 2.6%

Gln (Q) 9 4.0%

Glu (E) 16 7.0%

Gly (G) 10 4.4%

His (H) 7 3.1%

Ile (I) 4 1.8%

Leu (L) 17 7.5%

Lys (K) 20 8.8%

Met (M) 3 1.3%

Phe (F) 7 3.1%

Pro (P) 22 9.7%

Ser (S) 20 8.8%

Thr (T) 16 7.0%

Trp (W) 4 1.8%

Tyr (Y) 9 4.0%

Val (V) 23 10.1%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

**Total number of negatively charged residues (Asp + Glu):** 26

**Total number of positively charged residues (Arg + Lys):** 26

**Atomic composition:**

Carbon C 1144

Hydrogen H 1773

Nitrogen N 303

Oxygen O 345

Sulfur S 9

**Formula:** C1144H1773N303O345S9

**Total number of atoms:** 3574

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 35785

Abs 0.1% (=1 g/l) 1.399, assuming all pairs of Cys residues form cystines

Ext. coefficient 35410

Abs 0.1% (=1 g/l) 1.384, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is D (Asp).

The estimated half-life is: 1.1 hours (mammalian reticulocytes, in vitro).

 3 min (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 45.66

This classifies the protein as unstable.

**Aliphatic index:** 68.55

**Grand average of hydropathicity (GRAVY):** -0.608

ヒトIgG2

VECPPCPAPPVAGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGMEVHNAKTKPREEQFNSTFRVVSVLTVVHQDWLNGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPMLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK

**Number of amino acids:** 223

**Molecular weight:** 25114.55

**Theoretical pI:** 6.65

フォームの始まり

**Amino acid composition:**
Ala (A) 6 2.7%

Arg (R) 6 2.7%

Asn (N) 11 4.9%

Asp (D) 9 4.0%

Cys (C) 6 2.7%

Gln (Q) 10 4.5%

Glu (E) 16 7.2%

Gly (G) 10 4.5%

His (H) 6 2.7%

Ile (I) 4 1.8%

Leu (L) 14 6.3%

Lys (K) 18 8.1%

Met (M) 5 2.2%

Phe (F) 9 4.0%

Pro (P) 23 10.3%

Ser (S) 20 9.0%

Thr (T) 15 6.7%

Trp (W) 4 1.8%

Tyr (Y) 7 3.1%

Val (V) 24 10.8%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 25

**Total number of positively charged residues (Arg + Lys):** 24

**Atomic composition:**

Carbon C 1122

Hydrogen H 1734

Nitrogen N 296

Oxygen O 337

Sulfur S 11

**Formula:** C1122H1734N296O337S11

**Total number of atoms:** 3500

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 32805

Abs 0.1% (=1 g/l) 1.306, assuming all pairs of Cys residues form cystines

Ext. coefficient 32430

Abs 0.1% (=1 g/l) 1.291, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is V (Val).

The estimated half-life is: 100 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 48.90

This classifies the protein as unstable.

**Aliphatic index:** 65.38

**Grand average of hydropathicity (GRAVY):** -0.560

ヒトIgG3

DTPPPCPRCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVQFKWYVDGVEVHNAKTKPREEQYNSTFRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTCLVKGFYPSDIAVEWESSGQPENNYNTTPPMLDSDGSFFLYSKLTVDKSRWQQGNIFSCSVMHEALHNRFTQKSLSLSPGK

**Number of amino acids:** 227

**Molecular weight:** 25600.12

**Theoretical pI:** 7.10

フォームの始まり

**Amino acid composition:**
Ala (A) 6 2.6%

Arg (R) 8 3.5%

Asn (N) 10 4.4%

Asp (D) 10 4.4%

Cys (C) 6 2.6%

Gln (Q) 10 4.4%

Glu (E) 16 7.0%

Gly (G) 10 4.4%

His (H) 5 2.2%

Ile (I) 5 2.2%

Leu (L) 17 7.5%

Lys (K) 18 7.9%

Met (M) 4 1.8%

Phe (F) 9 4.0%

Pro (P) 24 10.6%

Ser (S) 21 9.3%

Thr (T) 16 7.0%

Trp (W) 4 1.8%

Tyr (Y) 7 3.1%

Val (V) 21 9.3%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 26

**Total number of positively charged residues (Arg + Lys):** 26

**Atomic composition:**

Carbon C 1144

Hydrogen H 1777

Nitrogen N 303

Oxygen O 344

Sulfur S 10

**Formula:** C1144H1777N303O344S10

**Total number of atoms:** 3578

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 32805

Abs 0.1% (=1 g/l) 1.281, assuming all pairs of Cys residues form cystines

Ext. coefficient 32430

Abs 0.1% (=1 g/l) 1.267, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is D (Asp).

The estimated half-life is: 1.1 hours (mammalian reticulocytes, in vitro).

 3 min (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 47.42

This classifies the protein as unstable.

**Aliphatic index:** 67.27

**Grand average of hydropathicity (GRAVY):** -0.583

ヒトIgG４

PPCPSCPAPEFLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISKAKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSRLTVDKSRWQEGNVFSCSVMHEALHNHYTQKSLSLSLGK

**Number of amino acids:** 224

**Molecular weight:** 25199.49

**Theoretical pI:** 6.00

フォームの始まり

**Amino acid composition:**
Ala (A) 5 2.2%

Arg (R) 6 2.7%

Asn (N) 11 4.9%

Asp (D) 9 4.0%

Cys (C) 6 2.7%

Gln (Q) 11 4.9%

Glu (E) 17 7.6%

Gly (G) 11 4.9%

His (H) 5 2.2%

Ile (I) 4 1.8%

Leu (L) 17 7.6%

Lys (K) 17 7.6%

Met (M) 3 1.3%

Phe (F) 9 4.0%

Pro (P) 21 9.4%

Ser (S) 23 10.3%

Thr (T) 14 6.2%

Trp (W) 4 1.8%

Tyr (Y) 8 3.6%

Val (V) 23 10.3%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 26

**Total number of positively charged residues (Arg + Lys):** 23

**Atomic composition:**

Carbon C 1126

Hydrogen H 1737

Nitrogen N 295

Oxygen O 344

Sulfur S 9

**Formula:** C1126H1737N295O344S9

**Total number of atoms:** 3511

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 34295

Abs 0.1% (=1 g/l) 1.361, assuming all pairs of Cys residues form cystines

Ext. coefficient 33920

Abs 0.1% (=1 g/l) 1.346, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is P (Pro).

The estimated half-life is: >20 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 ? (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 50.43

This classifies the protein as unstable.

**Aliphatic index:** 68.57

**Grand average of hydropathicity (GRAVY):** -0.551

マウスIgG1

PRDCGCKPCICTVPEVSSVFIFPPKPKDVLTITLTPKVTCVVVDISKDDPEVQFSWFVDDVEVHTAQTQPREEQFNSTFRSVSELPIMHQDWLNGKEFKCRVNSAAFPAPIEKTISKTKGRPKAPQVYTIPPPKEQMAKDKVSLTCMITDFFPEDITVEWQWNGQPAENYKNTQPIMDTDGSYFVYSKLNVQKSNWEAGNTFTCSVLHEGLHNHHTEKSLSHSPGK

**Number of amino acids:** 226

**Molecular weight:** 25589.04

**Theoretical pI:** 5.99

フォームの始まり

**Amino acid composition:**
Ala (A) 8 3.5%

Arg (R) 5 2.2%

Asn (N) 10 4.4%

Asp (D) 13 5.8%

Cys (C) 8 3.5%

Gln (Q) 11 4.9%

Glu (E) 15 6.6%

Gly (G) 8 3.5%

His (H) 7 3.1%

Ile (I) 11 4.9%

Leu (L) 9 4.0%

Lys (K) 19 8.4%

Met (M) 4 1.8%

Phe (F) 12 5.3%

Pro (P) 21 9.3%

Ser (S) 17 7.5%

Thr (T) 19 8.4%

Trp (W) 5 2.2%

Tyr (Y) 4 1.8%

Val (V) 20 8.8%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 28

**Total number of positively charged residues (Arg + Lys):** 24

**Atomic composition:**

Carbon C 1143

Hydrogen H 1756

Nitrogen N 300

Oxygen O 344

Sulfur S 12

**Formula:** C1143H1756N300O344S12

**Total number of atoms:** 3555

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 33960

Abs 0.1% (=1 g/l) 1.327, assuming all pairs of Cys residues form cystines

Ext. coefficient 33460

Abs 0.1% (=1 g/l) 1.308, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is P (Pro).

The estimated half-life is: >20 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 ? (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 34.10

This classifies the protein as stable.

**Aliphatic index:** 63.72

**Grand average of hydropathicity (GRAVY):** -0.534

マウスIgG2a

PRGPTIKPCPPCKCPAPNLLGGPSVFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQTHREDYNSTLRVVSALPIQHQDWMSGKEFKCKVNNKDLPAPIERTISKPKGSVRAPQVYVLPPPEEEMTKKQVTLTCMVTDFMPEDIYVEWTNNGKTELNYKNTEPVLDSDGSYFMYSKLRVEKKNWVERNSYSCSVVHEGLHNHHTTKSFSRTPGK

**Number of amino acids:** 232

**Molecular weight:** 26257.04

**Theoretical pI:** 7.36

フォームの始まり

**Amino acid composition:**
Ala (A) 5 2.2%

Arg (R) 8 3.4%

Asn (N) 13 5.6%

Asp (D) 12 5.2%

Cys (C) 7 3.0%

Gln (Q) 7 3.0%

Glu (E) 15 6.5%

Gly (G) 9 3.9%

His (H) 7 3.0%

Ile (I) 10 4.3%

Leu (L) 13 5.6%

Lys (K) 19 8.2%

Met (M) 6 2.6%

Phe (F) 7 3.0%

Pro (P) 23 9.9%

Ser (S) 18 7.8%

Thr (T) 17 7.3%

Trp (W) 4 1.7%

Tyr (Y) 7 3.0%

Val (V) 25 10.8%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 27

**Total number of positively charged residues (Arg + Lys):** 27

**Atomic composition:**

Carbon C 1168

Hydrogen H 1829

Nitrogen N 313

Oxygen O 349

Sulfur S 13

**Formula:** C1168H1829N313O349S13

**Total number of atoms:** 3672

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 32805

Abs 0.1% (=1 g/l) 1.249, assuming all pairs of Cys residues form cystines

Ext. coefficient 32430

Abs 0.1% (=1 g/l) 1.235, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is P (Pro).

The estimated half-life is: >20 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 ? (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 40.86

This classifies the protein as unstable.

**Aliphatic index:** 72.07

**Grand average of hydropathicity (GRAVY):** -0.515

マウスIgG2b

PSGPISTINPCPPCKECHKCPAPNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQTHREDYNSTIRVVSTLPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVYILPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSKLDIKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK

**Number of amino acids:** 238

**Molecular weight:** 26603.28

**Theoretical pI:** 6.70

フォームの始まり

**Amino acid composition:**
Ala (A) 5 2.1%

Arg (R) 7 2.9%

Asn (N) 13 5.5%

Asp (D) 15 6.3%

Cys (C) 8 3.4%

Gln (Q) 7 2.9%

Glu (E) 13 5.5%

Gly (G) 11 4.6%

His (H) 6 2.5%

Ile (I) 16 6.7%

Leu (L) 14 5.9%

Lys (K) 20 8.4%

Met (M) 2 0.8%

Phe (F) 7 2.9%

Pro (P) 22 9.2%

Ser (S) 23 9.7%

Thr (T) 16 6.7%

Trp (W) 4 1.7%

Tyr (Y) 7 2.9%

Val (V) 22 9.2%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 28

**Total number of positively charged residues (Arg + Lys):** 27

**Atomic composition:**

Carbon C 1184

Hydrogen H 1859

Nitrogen N 315

Oxygen O 361

Sulfur S 10

**Formula:** C1184H1859N315O361S10

**Total number of atoms:** 3729

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 32930

Abs 0.1% (=1 g/l) 1.238, assuming all pairs of Cys residues form cystines

Ext. coefficient 32430

Abs 0.1% (=1 g/l) 1.219, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is P (Pro).

The estimated half-life is: >20 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 ? (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 45.84

This classifies the protein as unstable.

**Aliphatic index:** 78.07

**Grand average of hydropathicity (GRAVY):** -0.456

マウスIgG３

EPRIPKPSTPPGSSCPPGNILGGPSVFIFPPKPKDALMISLTPKVTCVVVDVSEDDPDVHVSWFVDNKEVHTAWTQPREAQYNSTFRVVSALPIQHQDWMRGKEFKCKVNNKALPAPIERTISKPKGRAQTPQVYTIPPPREQMSKKKVSLTCLVTNFFSEAISVEWERNGELEQDYKNTPPILDSDGTYFLYSKLTVDTDSWLQGEIFTCSVVHEALHNHHTQKNLSRSPGK

**Number of amino acids:** 233

**Molecular weight:** 26192.79

**Theoretical pI:** 7.86

フォームの始まり

**Amino acid composition:**
Ala (A) 9 3.9%

Arg (R) 9 3.9%

Asn (N) 10 4.3%

Asp (D) 12 5.2%

Cys (C) 5 2.1%

Gln (Q) 10 4.3%

Glu (E) 14 6.0%

Gly (G) 10 4.3%

His (H) 7 3.0%

Ile (I) 11 4.7%

Leu (L) 14 6.0%

Lys (K) 18 7.7%

Met (M) 3 1.3%

Phe (F) 9 3.9%

Pro (P) 25 10.7%

Ser (S) 20 8.6%

Thr (T) 17 7.3%

Trp (W) 5 2.1%

Tyr (Y) 5 2.1%

Val (V) 20 8.6%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 26

**Total number of positively charged residues (Arg + Lys):** 27

**Atomic composition:**

Carbon C 1173

Hydrogen H 1825

Nitrogen N 317

Oxygen O 348

Sulfur S 8

**Formula:** C1173H1825N317O348S8

**Total number of atoms:** 3671

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 35200

Abs 0.1% (=1 g/l) 1.344, assuming all pairs of Cys residues form cystines

Ext. coefficient 34950

Abs 0.1% (=1 g/l) 1.334, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is E (Glu).

The estimated half-life is: 1 hours (mammalian reticulocytes, in vitro).

 30 min (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 37.20

This classifies the protein as stable.

**Aliphatic index:** 70.60

**Grand average of hydropathicity (GRAVY):** -0.561

ウサギIgG

APSTCSKPTCPPPELLGGPSVFIFPPKPKDTLMISRTPEVTCVVVDVSQDDPEVQFTWYINNEQVRTARPPLREQQFNSTIRVVSTLPIAHQDWLRGKEFKCKVHNKALPAPIEKTISKARGQPLEPKVYTMGPPREELSSRSVSLTCMINGFYPSDISVEWEKNGKAEDNYKTTPAVLDSDGSYFLYSKLSVPTSEWQRGDVFTCSVMHEALHNHYTQKSISRSPGK

**Number of amino acids:** 228

**Molecular weight:** 25597.12

**Theoretical pI:** 8.22

フォームの始まり

**Amino acid composition:**
Ala (A) 9 3.9%

Arg (R) 11 4.8%

Asn (N) 8 3.5%

Asp (D) 10 4.4%

Cys (C) 6 2.6%

Gln (Q) 9 3.9%

Glu (E) 15 6.6%

Gly (G) 10 4.4%

His (H) 5 2.2%

Ile (I) 10 4.4%

Leu (L) 14 6.1%

Lys (K) 16 7.0%

Met (M) 4 1.8%

Phe (F) 8 3.5%

Pro (P) 24 10.5%

Ser (S) 23 10.1%

Thr (T) 17 7.5%

Trp (W) 4 1.8%

Tyr (Y) 7 3.1%

Val (V) 18 7.9%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 25

**Total number of positively charged residues (Arg + Lys):** 27

**Atomic composition:**

Carbon C 1139

Hydrogen H 1780

Nitrogen N 308

Oxygen O 343

Sulfur S 10

**Formula:** C1139H1780N308O343S10

**Total number of atoms:** 3580

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 32805

Abs 0.1% (=1 g/l) 1.282, assuming all pairs of Cys residues form cystines

Ext. coefficient 32430

Abs 0.1% (=1 g/l) 1.267, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 49.90

This classifies the protein as unstable.

**Aliphatic index:** 67.89

**Grand average of hydropathicity (GRAVY):** -0.550

アミノ酸相同性



Fc (Hinge-CH2-CH3)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Human IgG1 | 25580.03 | 7.18 | 45.66 | 68.55 | -0.608 |
| Human IgG2 | 25114.55 | 6.65 | 48.90 | 65.38 | -0.560 |
| Human IgG3 | 25600.12 | 7.10 | 47.42 | 67.27 | -0.583 |
| Human IgG4 | 25199.49 | 6.00 | 50.43 | 68.57 | -0.551 |
| Mouse IgG1 | 25589.04 | 5.99 | 34.10 | 63.72 | -0.534 |
| Mouse IgG2a | 26257.04 | 7.36 | 40.86 | 72.07 | -0.515 |
| Mouse IgG2b | 26603.28 | 6.70 | 45.84 | 78.07 | -0.456 |
| Mouse IgG3 | 26192.79 | 7.86 | 37.20 | 70.60 | -0.561 |
| Rabbit IgG | 25597.12 | 8.22 | 49.90 | 67.89 | -0.550 |
|  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Human IgG1 | 6 | 20 | 2620+6 | 2610+16 | 10 | 22 | 3620+16 | 444+17+23 | 207+4+9 |
| Human IgG2 | 6 | 18 | 2418+6 | 259+16 | 10 | 23 | 3520+15 | 424+14+24 | 209+4+7 |
| Human IgG3 | 6 | 18 | 2618+8 | 2610+16 | 10 | 24 | 3721+16 | 435+17+21 | 209+4+7 |
| Human IgG4 | 6 | 17 | 2317+6 | 269+17 | 11 | 21 | 3723+14 | 444+17+23 | 219+4+8 |
| Mouse IgG1 | 8 | 19 | 2419+5 | 2813+15 | 8 | 21 | 3617+19 | 4011+9+20 | 2112+5+4 |
| Mouse IgG2a | 7 | 19 | 2719+8 | 2712+15 | 9 | 23 | 3518+17 | 4810+13+25 | 187+4+7 |
| Mouse IgG2b | 8 | 20 | 2720+7 | 2815+13 | 11 | 22 | 3923+16 | 5216+14+22 | 187+4+7 |
| Mouse IgG3 | 5 | 18 | 2718+7 | 2612+14 | 10 | 25 | 3720+17 | 4511+14+20 | 199+5+5 |
| Rabbit IgG | 6 | 16 | 2716+11 | 2510+15 | 10 | 24 | 4023+17 | 4210+14+18 | 198+4+7 |
|  |  |  |  |  |  |  |  |  |  |

Hinge region

対象：

マウス IgG1, IgG2a, IgG2b, IgG3

ウサギ IgG

検索対象：Geneious

Mouse IgG1

PRDCGCKPCICT

Mouse IgG2a

PRGPTIKPCPPCKCP

Mouse IgG2b

PSGPISTINPCPPCKECHKCP

Mouse IgG3

PRIPKPSTPPGSSCP

Rabbit IgG

APSTCSKPTCPP

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | Length | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse IgG1 | 12 | 4 | 1 | 21+1 | 11+0 | 1 | 2 | 10+1 | 11+0+0 | 00+0+0 |
| Mouse IgG2a | 15 | 3 | 2 | 32+1 | 00+0 | 1 | 6 | 10+1 | 11+0+0 | 00+0+0 |
| Mouse IgG2b | 21 | 4 | 2 | 22+0 | 10+1 | 1 | 6 | 32+1 | 22+0+0 | 00+0+0 |
| Mouse IgG3 | 15 | 1 | 1 | 21+1 | 00+0 | 1 | 6 | 43+1 | 01+0+0 | 00+0+0 |
| Rabbit IgG | 12 | 2 | 1 | 11+0 | 00+0 | 0 | 4 | 42+2 | 00+0+0 | 00+0+0 |
|  |  |  |  |  |  |  |  |  |  |  |

CH1 region

対象：

マウス IgG1, IgG2a, IgG2b, IgG3

ウサギ IgG

検索対象：Geneious, Expaxy

Mouse IgG1

AKTTPPSVYPLAPGSAAQTNSMVTLGCLVKGYFPEPVTVTWNSGSLSSGVHTFPAVLQSDLYTLSSSVTVPSSTWPSETVTCNVAHPASSTKVDKKIV

**Number of amino acids:** 98

**Molecular weight:** 10169.52

**Theoretical pI:** 8.04

フォームの始まり

**Amino acid composition:**
Ala (A) 7 7.1%

Arg (R) 0 0.0%

Asn (N) 3 3.1%

Asp (D) 2 2.0%

Cys (C) 2 2.0%

Gln (Q) 2 2.0%

Glu (E) 2 2.0%

Gly (G) 5 5.1%

His (H) 2 2.0%

Ile (I) 1 1.0%

Leu (L) 7 7.1%

Lys (K) 5 5.1%

Met (M) 1 1.0%

Phe (F) 2 2.0%

Pro (P) 10 10.2%

Ser (S) 16 16.3%

Thr (T) 13 13.3%

Trp (W) 2 2.0%

Tyr (Y) 3 3.1%

Val (V) 13 13.3%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 4

**Total number of positively charged residues (Arg + Lys):** 5

**Atomic composition:**

Carbon C 454

Hydrogen H 714

Nitrogen N 114

Oxygen O 144

Sulfur S 3

**Formula:** C454H714N114O144S3

**Total number of atoms:** 1429

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 15595

Abs 0.1% (=1 g/l) 1.534, assuming all pairs of Cys residues form cystines

Ext. coefficient 15470

Abs 0.1% (=1 g/l) 1.521, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 41.08

This classifies the protein as unstable.

**Aliphatic index:** 77.45

**Grand average of hydropathicity (GRAVY):** 0.080

Mouse IgG2a

AKTTAPSVYPLAPVCGDTTGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGVHTFPAVLQSDLYTLSSSVTVTSSTWPSQSITCNVAHPASSTKVDKKIE

**Number of amino acids:** 98

**Molecular weight:** 10150.43

**Theoretical pI:** 6.93

フォームの始まり

**Amino acid composition:**
Ala (A) 6 6.1%

Arg (R) 0 0.0%

Asn (N) 2 2.0%

Asp (D) 3 3.1%

Cys (C) 3 3.1%

Gln (Q) 2 2.0%

Glu (E) 2 2.0%

Gly (G) 6 6.1%

His (H) 2 2.0%

Ile (I) 2 2.0%

Leu (L) 8 8.2%

Lys (K) 5 5.1%

Met (M) 0 0.0%

Phe (F) 2 2.0%

Pro (P) 8 8.2%

Ser (S) 17 17.3%

Thr (T) 14 14.3%

Trp (W) 2 2.0%

Tyr (Y) 3 3.1%

Val (V) 11 11.2%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 5

**Total number of positively charged residues (Arg + Lys):** 5

**Atomic composition:**

Carbon C 450

Hydrogen H 709

Nitrogen N 113

Oxygen O 147

Sulfur S 3

**Formula:** C450H709N113O147S3

**Total number of atoms:** 1422

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 15595

Abs 0.1% (=1 g/l) 1.536, assuming all pairs of Cys residues form cystines

Ext. coefficient 15470

Abs 0.1% (=1 g/l) 1.524, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 50.91

This classifies the protein as unstable.

**Aliphatic index:** 78.47

**Grand average of hydropathicity (GRAVY):** 0.080

Mouse IgG2b

AKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQSGLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLE

**Number of amino acids:** 98

**Molecular weight:** 10056.29

**Theoretical pI:** 6.93

フォームの始まり

**Amino acid composition:**
Ala (A) 5 5.1%

Arg (R) 0 0.0%

Asn (N) 1 1.0%

Asp (D) 2 2.0%

Cys (C) 3 3.1%

Gln (Q) 2 2.0%

Glu (E) 2 2.0%

Gly (G) 7 7.1%

His (H) 2 2.0%

Ile (I) 0 0.0%

Leu (L) 8 8.2%

Lys (K) 4 4.1%

Met (M) 1 1.0%

Phe (F) 2 2.0%

Pro (P) 9 9.2%

Ser (S) 19 19.4%

Thr (T) 15 15.3%

Trp (W) 2 2.0%

Tyr (Y) 3 3.1%

Val (V) 11 11.2%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 4

**Total number of positively charged residues (Arg + Lys):** 4

**Atomic composition:**

Carbon C 443

Hydrogen H 695

Nitrogen N 111

Oxygen O 147

Sulfur S 4

**Formula:** C443H695N111O147S4

**Total number of atoms:** 1400

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 15595

Abs 0.1% (=1 g/l) 1.551, assuming all pairs of Cys residues form cystines

Ext. coefficient 15470

Abs 0.1% (=1 g/l) 1.538, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 48.39

This classifies the protein as unstable.

**Aliphatic index:** 69.49

**Grand average of hydropathicity (GRAVY):** 0.056

Mouse IgG3

ATTTAPSVYPLVPGCSDTSGSSVTLGCLVKGYFPEPVTVKWNYGALSSGVRTVSSVLQSGFYSLSSLVTVPSSTWPSQTVICNVAHPASKTELIKRIE

**Number of amino acids:** 98

**Molecular weight:** 10253.69

**Theoretical pI:** 8.57

フォームの始まり

**Amino acid composition:**
Ala (A) 5 5.1%

Arg (R) 2 2.0%

Asn (N) 2 2.0%

Asp (D) 1 1.0%

Cys (C) 3 3.1%

Gln (Q) 2 2.0%

Glu (E) 3 3.1%

Gly (G) 7 7.1%

His (H) 1 1.0%

Ile (I) 3 3.1%

Leu (L) 8 8.2%

Lys (K) 4 4.1%

Met (M) 0 0.0%

Phe (F) 2 2.0%

Pro (P) 8 8.2%

Ser (S) 17 17.3%

Thr (T) 11 11.2%

Trp (W) 2 2.0%

Tyr (Y) 4 4.1%

Val (V) 13 13.3%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 4

**Total number of positively charged residues (Arg + Lys):** 6

**Atomic composition:**

Carbon C 459

Hydrogen H 726

Nitrogen N 116

Oxygen O 143

Sulfur S 3

**Formula:** C459H726N116O143S3

**Total number of atoms:** 1447

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 17085

Abs 0.1% (=1 g/l) 1.666, assuming all pairs of Cys residues form cystines

Ext. coefficient 16960

Abs 0.1% (=1 g/l) 1.654, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 56.00

This classifies the protein as unstable.

**Aliphatic index:** 87.35

**Grand average of hydropathicity (GRAVY):** 0.213

Rabbit IgG

GQPKAPSVFPLAPCCGDTPSSTVTLGCLVKGYLPEPVTVTWNSGTLTNGVRTFPSVRQSSGLYSLSSVVSVTSSSQPVTCNVAHPATNTKVDKTV

**Number of amino acids:** 95

**Molecular weight:** 9768.08

**Theoretical pI:** 8.85

フォームの始まり

**Amino acid composition:**
Ala (A) 4 4.2%

Arg (R) 2 2.1%

Asn (N) 4 4.2%

Asp (D) 2 2.1%

Cys (C) 4 4.2%

Gln (Q) 3 3.2%

Glu (E) 1 1.1%

Gly (G) 7 7.4%

His (H) 1 1.1%

Ile (I) 0 0.0%

Leu (L) 7 7.4%

Lys (K) 4 4.2%

Met (M) 0 0.0%

Phe (F) 2 2.1%

Pro (P) 10 10.5%

Ser (S) 14 14.7%

Thr (T) 13 13.7%

Trp (W) 1 1.1%

Tyr (Y) 2 2.1%

Val (V) 14 14.7%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 3

**Total number of positively charged residues (Arg + Lys):** 6

**Atomic composition:**

Carbon C 427

Hydrogen H 687

Nitrogen N 115

Oxygen O 138

Sulfur S 4

**Formula:** C427H687N115O138S4

**Total number of atoms:** 1371

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 8730

Abs 0.1% (=1 g/l) 0.894, assuming all pairs of Cys residues form cystines

Ext. coefficient 8480

Abs 0.1% (=1 g/l) 0.868, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is G (Gly).

The estimated half-life is: 30 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 41.93

This classifies the protein as unstable.

**Aliphatic index:** 75.68

**Grand average of hydropathicity (GRAVY):** 0.029

Aminoacid homology



Expacy CH1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse IgG1 | 10169.52 | 8.04 | 41.08 | 77.45 | 0.080 |
| Mouse IgG2a | 10150.43 | 6.93 | 50.91 | 78.47 | 0.080 |
| Mouse IgG2b | 10056.29 | 6.93 | 48.39 | 69.49 | 0.056 |
| Mouse IgG3 | 10253.69 | 8.57 | 56.00 | 87.35 | 0.213 |
| Rabbit IgG | 9768.08 | 8.85 | 41.93 | 75.68 | 0.029 |
|  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse IgG1 | 2 | 5 | 55+0 | 42+2 | 5 | 10 | 2916+13 | 211+7+13 | 72+2+3 |
| Mouse IgG2a | 3 | 5 | 55+0 | 53+2 | 6 | 8 | 3117+14 | 212+8+11 | 72+2+3 |
| Mouse IgG2b | 3 | 4 | 44+0 | 42+2 | 7 | 9 | 3419+15 | 190+8+11 | 72+2+3 |
| Mouse IgG3 | 3 | 4 | 53+2 | 41+3 | 7 | 8 | 2817+11 | 243+8+13 | 82+2+4 |
| Rabbit IgG | 4 | 4 | 64+2 | 32+1 | 7 | 10 | 2714+13 | 210+7+14 | 52+1+2 |
|  |  |  |  |  |  |  |  |  |  |

Ckappa region

対象：

マウス Ck

ウサギ Cka, Ckb

検索対象：Geneious, Expaxy

Mouse Ck

ADAAPTVSIFPPSSEQLTSGGASVVCFLNNFYPKDINVKWKIDGSERQNGVLNSWTDQDSKDSTYSMSSTLTLTKDEYERHNSYTCEATHKTSTSPIVKSFNRNEC

**Number of amino acids:** 106

**Molecular weight:** 11777.88

**Theoretical pI:** 5.23

フォームの始まり

**Amino acid composition:**
Ala (A) 5 4.7%

Arg (R) 3 2.8%

Asn (N) 8 7.5%

Asp (D) 7 6.6%

Cys (C) 3 2.8%

Gln (Q) 3 2.8%

Glu (E) 6 5.7%

Gly (G) 4 3.8%

His (H) 2 1.9%

Ile (I) 4 3.8%

Leu (L) 5 4.7%

Lys (K) 7 6.6%

Met (M) 1 0.9%

Phe (F) 4 3.8%

Pro (P) 5 4.7%

Ser (S) 16 15.1%

Thr (T) 11 10.4%

Trp (W) 2 1.9%

Tyr (Y) 4 3.8%

Val (V) 6 5.7%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 13

**Total number of positively charged residues (Arg + Lys):** 10

**Atomic composition:**

Carbon C 509

Hydrogen H 783

Nitrogen N 139

Oxygen O 175

Sulfur S 4

**Formula:** C509H783N139O175S4

**Total number of atoms:** 1610

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 17085

Abs 0.1% (=1 g/l) 1.451, assuming all pairs of Cys residues form cystines

Ext. coefficient 16960

Abs 0.1% (=1 g/l) 1.440, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 49.30

This classifies the protein as unstable.

**Aliphatic index:** 54.25

**Grand average of hydropathicity (GRAVY):** -0.722

Rabbit Cka

RDPVAPTVLIFPPAADQVATGTVTIVCVANKYFPDVTVTWEVDGTTQTTGIENSKTPQNSADCTYNLSSTLTLTSTQYNSHKEYTCKVTQGTTSVVQSFNRGDC

**Number of amino acids:** 104

**Molecular weight:** 11199.38

**Theoretical pI:** 4.75

フォームの始まり

**Amino acid composition:**
Ala (A) 6 5.8%

Arg (R) 2 1.9%

Asn (N) 6 5.8%

Asp (D) 6 5.8%

Cys (C) 4 3.8%

Gln (Q) 6 5.8%

Glu (E) 3 2.9%

Gly (G) 5 4.8%

His (H) 1 1.0%

Ile (I) 3 2.9%

Leu (L) 4 3.8%

Lys (K) 4 3.8%

Met (M) 0 0.0%

Phe (F) 3 2.9%

Pro (P) 6 5.8%

Ser (S) 8 7.7%

Thr (T) 20 19.2%

Trp (W) 1 1.0%

Tyr (Y) 4 3.8%

Val (V) 12 11.5%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 9

**Total number of positively charged residues (Arg + Lys):** 6

**Atomic composition:**

Carbon C 485

Hydrogen H 761

Nitrogen N 129

Oxygen O 167

Sulfur S 4

**Formula:** C485H761N129O167S4

**Total number of atoms:** 1546

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 11710

Abs 0.1% (=1 g/l) 1.046, assuming all pairs of Cys residues form cystines

Ext. coefficient 11460

Abs 0.1% (=1 g/l) 1.023, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is R (Arg).

The estimated half-life is: 1 hours (mammalian reticulocytes, in vitro).

 2 min (yeast, in vivo).

 2 min (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 19.83

This classifies the protein as stable.

**Aliphatic index:** 65.48

**Grand average of hydropathicity (GRAVY):** -0.299

Rabbit Ckb

DPVAPSVLLFPPSKEELTTGTATIVCVANKFYPSDITVTWKVDGTTQQSGIENSKTPQSPEDNTYSLSSTLSLTSAQYNSHSVYTCEVVQGSASPIVQSFNRGDC

**Number of amino acids:** 105

**Molecular weight:** 11222.35

**Theoretical pI:** 4.45

フォームの始まり

**Amino acid composition:**
Ala (A) 5 4.8%

Arg (R) 1 1.0%

Asn (N) 5 4.8%

Asp (D) 5 4.8%

Cys (C) 3 2.9%

Gln (Q) 6 5.7%

Glu (E) 5 4.8%

Gly (G) 5 4.8%

His (H) 1 1.0%

Ile (I) 4 3.8%

Leu (L) 6 5.7%

Lys (K) 4 3.8%

Met (M) 0 0.0%

Phe (F) 3 2.9%

Pro (P) 8 7.6%

Ser (S) 16 15.2%

Thr (T) 13 12.4%

Trp (W) 1 1.0%

Tyr (Y) 4 3.8%

Val (V) 10 9.5%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 10

**Total number of positively charged residues (Arg + Lys):** 5

**Atomic composition:**

Carbon C 489

Hydrogen H 762

Nitrogen N 126

Oxygen O 170

Sulfur S 3

**Formula:** C489H762N126O170S3

**Total number of atoms:** 1550

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 11585

Abs 0.1% (=1 g/l) 1.032, assuming all pairs of Cys residues form cystines

Ext. coefficient 11460

Abs 0.1% (=1 g/l) 1.021, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is D (Asp).

The estimated half-life is: 1.1 hours (mammalian reticulocytes, in vitro).

 3 min (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 51.86

This classifies the protein as unstable.

**Aliphatic index:** 69.52

**Grand average of hydropathicity (GRAVY):** -0.304

Homology



Expacy Ck

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse Ck | 11777.88 | 5.23 | 49.30 | 54.25 | -0.722 |
| Rabbit Cka | 11199.38 | 4.75 | 19.83 | 65.48 | -0.299 |
| Rabbit Ckb | 11222.35 | 4.45 | 51.86 | 69.52 | -0.304 |
|  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse Ck | 3 | 7 | 107+3 | 137+6 | 4 | 5 | 2716+11 | 154+5+6 | 104+2+4 |
| Rabbit Cka | 4 | 4 | 64+2 | 96+3 | 5 | 6 | 288+20 | 193+4+12 | 83+1+4 |
| Rabbit Ckb | 3 | 4 | 54+1 | 105+5 | 5 | 8 | 2916+13 | 204+6+10 | 83+1+4 |
|  |  |  |  |  |  |  |  |  |  |

CH2 region

対象：

マウス IgG1, IgG2a, IgG2b, IgG3

ウサギ IgG

検索対象：Geneious, Expaxy

Mouse IgG1

VPEVSSVFIFPPKPKDVLTITLTPKVTCVVVDISKDDPEVQFSWFVDDVEVHTAQTQPREEQFNSTFRSVSELPIMHQDWLNGKEFKCRVNSAAFPAPIEKTISKTKG

**Number of amino acids:** 108

**Molecular weight:** 12205.93

**Theoretical pI:** 5.31

フォームの始まり

**Amino acid composition:**
Ala (A) 4 3.7%

Arg (R) 3 2.8%

Asn (N) 3 2.8%

Asp (D) 7 6.5%

Cys (C) 2 1.9%

Gln (Q) 5 4.6%

Glu (E) 8 7.4%

Gly (G) 2 1.9%

His (H) 2 1.9%

Ile (I) 6 5.6%

Leu (L) 4 3.7%

Lys (K) 9 8.3%

Met (M) 1 0.9%

Phe (F) 8 7.4%

Pro (P) 10 9.3%

Ser (S) 9 8.3%

Thr (T) 9 8.3%

Trp (W) 2 1.9%

Tyr (Y) 0 0.0%

Val (V) 14 13.0%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 15

**Total number of positively charged residues (Arg + Lys):** 12

**Atomic composition:**

Carbon C 553

Hydrogen H 860

Nitrogen N 140

Oxygen O 165

Sulfur S 3

**Formula:** C553H860N140O165S3

**Total number of atoms:** 1721

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 11125

Abs 0.1% (=1 g/l) 0.911, assuming all pairs of Cys residues form cystines

Ext. coefficient 11000

Abs 0.1% (=1 g/l) 0.901, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is V (Val).

The estimated half-life is: 100 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 39.67

This classifies the protein as stable.

**Aliphatic index:** 77.41

**Grand average of hydropathicity (GRAVY):** -0.279

Mouse IgG2a

APNLLGGPSVFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQTHREDYNSTLRVVSALPIQHQDWMSGKEFKCKVNNKDLPAPIERTISKPKG

**Number of amino acids:** 111

**Molecular weight:** 12367.20

**Theoretical pI:** 5.86

フォームの始まり

**Amino acid composition:**
Ala (A) 4 3.6%

Arg (R) 3 2.7%

Asn (N) 6 5.4%

Asp (D) 8 7.2%

Cys (C) 2 1.8%

Gln (Q) 5 4.5%

Glu (E) 5 4.5%

Gly (G) 4 3.6%

His (H) 3 2.7%

Ile (I) 8 7.2%

Leu (L) 7 6.3%

Lys (K) 8 7.2%

Met (M) 2 1.8%

Phe (F) 4 3.6%

Pro (P) 10 9.0%

Ser (S) 9 8.1%

Thr (T) 6 5.4%

Trp (W) 2 1.8%

Tyr (Y) 1 0.9%

Val (V) 14 12.6%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 13

**Total number of positively charged residues (Arg + Lys):** 11

**Atomic composition:**

Carbon C 554

Hydrogen H 879

Nitrogen N 147

Oxygen O 165

Sulfur S 4

**Formula:** C554H879N147O165S4

**Total number of atoms:** 1749

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 12615

Abs 0.1% (=1 g/l) 1.020, assuming all pairs of Cys residues form cystines

Ext. coefficient 12490

Abs 0.1% (=1 g/l) 1.010, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 38.26

This classifies the protein as stable.

**Aliphatic index:** 92.88

**Grand average of hydropathicity (GRAVY):** -0.196

Mouse IgG2b

APNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVRISWFVNNVEVHTAQTQTHREDYNSTIRVVSALPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKG

**Number of amino acids:** 111

**Molecular weight:** 12458.23

**Theoretical pI:** 5.87

フォームの始まり

**Amino acid composition:**
Ala (A) 3 2.7%

Arg (R) 4 3.6%

Asn (N) 7 6.3%

Asp (D) 8 7.2%

Cys (C) 2 1.8%

Gln (Q) 4 3.6%

Glu (E) 6 5.4%

Gly (G) 4 3.6%

His (H) 3 2.7%

Ile (I) 9 8.1%

Leu (L) 5 4.5%

Lys (K) 8 7.2%

Met (M) 2 1.8%

Phe (F) 4 3.6%

Pro (P) 9 8.1%

Ser (S) 9 8.1%

Thr (T) 7 6.3%

Trp (W) 2 1.8%

Tyr (Y) 1 0.9%

Val (V) 14 12.6%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 14

**Total number of positively charged residues (Arg + Lys):** 12

**Atomic composition:**

Carbon C 554

Hydrogen H 880

Nitrogen N 150

Oxygen O 168

Sulfur S 4

**Formula:** C554H880N150O168S4

**Total number of atoms:** 1756

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 12615

Abs 0.1% (=1 g/l) 1.013, assuming all pairs of Cys residues form cystines

Ext. coefficient 12490

Abs 0.1% (=1 g/l) 1.003, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 38.66

This classifies the protein as stable.

**Aliphatic index:** 88.47

**Grand average of hydropathicity (GRAVY):** -0.305

Mouse IgG3

PGNILGGPSVFIFPPKPKDALMISLTPKVTCVVVDVSEDDPDVHVSWFVDNKEVHTAWTQPREAQYNSTFRVVSALPIQHQDWMRGKEFKCKVNNKALPAPIERTISKPKG

**Number of amino acids:** 111

**Molecular weight:** 12423.32

**Theoretical pI:** 8.75

フォームの始まり

**Amino acid composition:**
Ala (A) 6 5.4%

Arg (R) 4 3.6%

Asn (N) 5 4.5%

Asp (D) 7 6.3%

Cys (C) 2 1.8%

Gln (Q) 4 3.6%

Glu (E) 5 4.5%

Gly (G) 5 4.5%

His (H) 3 2.7%

Ile (I) 6 5.4%

Leu (L) 5 4.5%

Lys (K) 10 9.0%

Met (M) 2 1.8%

Phe (F) 5 4.5%

Pro (P) 12 10.8%

Ser (S) 7 6.3%

Thr (T) 6 5.4%

Trp (W) 3 2.7%

Tyr (Y) 1 0.9%

Val (V) 13 11.7%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 12

**Total number of positively charged residues (Arg + Lys):** 14

**Atomic composition:**

Carbon C 562

Hydrogen H 879

Nitrogen N 151

Oxygen O 159

Sulfur S 4

**Formula:** C562H879N151O159S4

**Total number of atoms:** 1755

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 18115

Abs 0.1% (=1 g/l) 1.458, assuming all pairs of Cys residues form cystines

Ext. coefficient 17990

Abs 0.1% (=1 g/l) 1.448, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is P (Pro).

The estimated half-life is: >20 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 ? (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 30.39

This classifies the protein as stable.

**Aliphatic index:** 78.02

**Grand average of hydropathicity (GRAVY):** -0.368

Rabbit IgG

PELLGGPSVFIFPPKPKDTLMISRTPEVTCVVVDVSQDDPEVQFTWYINNEQVRTARPPLREQQFNSTIRVVSTLPIAHQDWLRGKEFKCKVHNKALPAPIEKTISKAR

**Number of amino acids:** 109

**Molecular weight:** 12422.36

**Theoretical pI:** 9.11

フォームの始まり

**Amino acid composition:**
Ala (A) 5 4.6%

Arg (R) 7 6.4%

Asn (N) 4 3.7%

Asp (D) 5 4.6%

Cys (C) 2 1.8%

Gln (Q) 6 5.5%

Glu (E) 7 6.4%

Gly (G) 3 2.8%

His (H) 2 1.8%

Ile (I) 7 6.4%

Leu (L) 7 6.4%

Lys (K) 8 7.3%

Met (M) 1 0.9%

Phe (F) 5 4.6%

Pro (P) 12 11.0%

Ser (S) 6 5.5%

Thr (T) 8 7.3%

Trp (W) 2 1.8%

Tyr (Y) 1 0.9%

Val (V) 11 10.1%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 12

**Total number of positively charged residues (Arg + Lys):** 15

**Atomic composition:**

Carbon C 560

Hydrogen H 892

Nitrogen N 154

Oxygen O 159

Sulfur S 3

**Formula:** C560H892N154O159S3

**Total number of atoms:** 1768

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 12615

Abs 0.1% (=1 g/l) 1.016, assuming all pairs of Cys residues form cystines

Ext. coefficient 12490

Abs 0.1% (=1 g/l) 1.005, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is P (Pro).

The estimated half-life is: >20 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 ? (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 44.27

This classifies the protein as unstable.

**Aliphatic index:** 83.94

**Grand average of hydropathicity (GRAVY):** -0.420

Homology



Expacy CH2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse IgG1 | 12205.93 | 5.31 | 39.67 | 77.41 | -0.279 |
| Mouse IgG2a | 12367.20 | 5.86 | 38.26 | 92.88 | -0.196 |
| Mouse IgG2b | 12458.23 | 5.87 | 38.66 | 88.47 | -0.305 |
| Mouse IgG3 | 12423.32 | 8.75 | 30.39 | 78.02 | -0.368 |
| Rabbit IgG | 12422.36 | 9.11 | 44.27 | 83.94 | -0.420 |
|  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse IgG1 | 2 | 9 | 129+3 | 157+8 | 2 | 10 | 189+9 | 246+4+14 | 108+2+0 |
| Mouse IgG2a | 2 | 8 | 118+3 | 138+5 | 4 | 10 | 159+6 | 298+7+14 | 74+2+1 |
| Mouse IgG2b | 2 | 8 | 128+4 | 148+6 | 4 | 9 | 169+7 | 289+5+14 | 74+2+1 |
| Mouse IgG3 | 2 | 10 | 1410+4 | 127+5 | 5 | 12 | 137+6 | 246+5+13 | 95+3+1 |
| Rabbit IgG | 2 | 8 | 158+7 | 125+7 | 3 | 12 | 146+8 | 257+7+11 | 85+2+1 |
|  |  |  |  |  |  |  |  |  |  |

CH3 region

対象：

マウス IgG1, IgG2a, IgG2b, IgG3

ウサギ IgG

検索対象：Geneious, Expaxy

Mouse IgG1

RPKAPQVYTIPPPKEQMAKDKVSLTCMITDFFPEDITVEWQWNGQPAENYKNTQPIMDTDGSYFVYSKLNVQKSNWEAGNTFTCSVLHEGLHNHHTEKSLSHSPGK

**Number of amino acids:** 106

**Molecular weight:** 12123.57

**Theoretical pI:** 6.20

フォームの始まり

**Amino acid composition:**
Ala (A) 4 3.8%

Arg (R) 1 0.9%

Asn (N) 7 6.6%

Asp (D) 5 4.7%

Cys (C) 2 1.9%

Gln (Q) 6 5.7%

Glu (E) 7 6.6%

Gly (G) 5 4.7%

His (H) 5 4.7%

Ile (I) 4 3.8%

Leu (L) 5 4.7%

Lys (K) 9 8.5%

Met (M) 3 2.8%

Phe (F) 4 3.8%

Pro (P) 9 8.5%

Ser (S) 8 7.5%

Thr (T) 9 8.5%

Trp (W) 3 2.8%

Tyr (Y) 4 3.8%

Val (V) 6 5.7%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 12

**Total number of positively charged residues (Arg + Lys):** 10

**Atomic composition:**

Carbon C 540

Hydrogen H 814

Nitrogen N 144

Oxygen O 165

Sulfur S 5

**Formula:** C540H814N144O165S5

**Total number of atoms:** 1668

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 22585

Abs 0.1% (=1 g/l) 1.863, assuming all pairs of Cys residues form cystines

Ext. coefficient 22460

Abs 0.1% (=1 g/l) 1.853, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is R (Arg).

The estimated half-life is: 1 hours (mammalian reticulocytes, in vitro).

 2 min (yeast, in vivo).

 2 min (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 30.12

This classifies the protein as stable.

**Aliphatic index:** 53.30

**Grand average of hydropathicity (GRAVY):** -0.838

Mouse IgG2a

SVRAPQVYVLPPPEEEMTKKQVTLTCMVTDFMPEDIYVEWTNNGKTELNYKNTEPVLDSDGSYFMYSKLRVEKKNWVERNSYSCSVVHEGLHNHHTTKSFSRTPGK

**Number of amino acids:** 106

**Molecular weight:** 12331.89

**Theoretical pI:** 6.40

フォームの始まり

**Amino acid composition:**
Ala (A) 1 0.9%

Arg (R) 4 3.8%

Asn (N) 7 6.6%

Asp (D) 4 3.8%

Cys (C) 2 1.9%

Gln (Q) 2 1.9%

Glu (E) 10 9.4%

Gly (G) 4 3.8%

His (H) 4 3.8%

Ile (I) 1 0.9%

Leu (L) 6 5.7%

Lys (K) 9 8.5%

Met (M) 4 3.8%

Phe (F) 3 2.8%

Pro (P) 7 6.6%

Ser (S) 9 8.5%

Thr (T) 10 9.4%

Trp (W) 2 1.9%

Tyr (Y) 6 5.7%

Val (V) 11 10.4%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 14

**Total number of positively charged residues (Arg + Lys):** 13

**Atomic composition:**

Carbon C 545

Hydrogen H 838

Nitrogen N 146

Oxygen O 169

Sulfur S 6

**Formula:** C545H838N146O169S6

**Total number of atoms:** 1704

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 20065

Abs 0.1% (=1 g/l) 1.627, assuming all pairs of Cys residues form cystines

Ext. coefficient 19940

Abs 0.1% (=1 g/l) 1.617, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is S (Ser).

The estimated half-life is: 1.9 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 45.03

This classifies the protein as unstable.

**Aliphatic index:** 56.79

**Grand average of hydropathicity (GRAVY):** -0.818

Mouse IgG2b

LVRAPQVYILPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSKLDIKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK

**Number of amino acids:** 106

**Molecular weight:** 11970.50

**Theoretical pI:** 7.93

フォームの始まり

**Amino acid composition:**
Ala (A) 3 2.8%

Arg (R) 4 3.8%

Asn (N) 5 4.7%

Asp (D) 7 6.6%

Cys (C) 2 1.9%

Gln (Q) 2 1.9%

Glu (E) 6 5.7%

Gly (G) 6 5.7%

His (H) 2 1.9%

Ile (I) 5 4.7%

Leu (L) 9 8.5%

Lys (K) 10 9.4%

Met (M) 0 0.0%

Phe (F) 3 2.8%

Pro (P) 7 6.6%

Ser (S) 12 11.3%

Thr (T) 7 6.6%

Trp (W) 2 1.9%

Tyr (Y) 6 5.7%

Val (V) 8 7.5%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 13

**Total number of positively charged residues (Arg + Lys):** 14

**Atomic composition:**

Carbon C 537

Hydrogen H 835

Nitrogen N 141

Oxygen O 165

Sulfur S 2

**Formula:** C537H835N141O165S2

**Total number of atoms:** 1680

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 20065

Abs 0.1% (=1 g/l) 1.676, assuming all pairs of Cys residues form cystines

Ext. coefficient 19940

Abs 0.1% (=1 g/l) 1.666, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is L (Leu).

The estimated half-life is: 5.5 hours (mammalian reticulocytes, in vitro).

 3 min (yeast, in vivo).

 2 min (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 43.52

This classifies the protein as unstable.

**Aliphatic index:** 76.23

**Grand average of hydropathicity (GRAVY):** -0.585

Mouse IgG3

RAQTPQVYTIPPPREQMSKKKVSLTCLVTNFFSEAISVEWERNGELEQDYKNTPPILDSDGTYFLYSKLTVDTDSWLQGEIFTCSVVHEALHNHHTQKNLSRSPGK

**Number of amino acids:** 106

**Molecular weight:** 12155.62

**Theoretical pI:** 6.07

フォームの始まり

**Amino acid composition:**
Ala (A) 3 2.8%

Arg (R) 4 3.8%

Asn (N) 5 4.7%

Asp (D) 5 4.7%

Cys (C) 2 1.9%

Gln (Q) 6 5.7%

Glu (E) 8 7.5%

Gly (G) 4 3.8%

His (H) 4 3.8%

Ile (I) 4 3.8%

Leu (L) 9 8.5%

Lys (K) 7 6.6%

Met (M) 1 0.9%

Phe (F) 4 3.8%

Pro (P) 7 6.6%

Ser (S) 10 9.4%

Thr (T) 10 9.4%

Trp (W) 2 1.9%

Tyr (Y) 4 3.8%

Val (V) 7 6.6%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 13

**Total number of positively charged residues (Arg + Lys):** 11

**Atomic composition:**

Carbon C 540

Hydrogen H 834

Nitrogen N 146

Oxygen O 168

Sulfur S 3

**Formula:** C540H834N146O168S3

**Total number of atoms:** 1691

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 17085

Abs 0.1% (=1 g/l) 1.406, assuming all pairs of Cys residues form cystines

Ext. coefficient 16960

Abs 0.1% (=1 g/l) 1.395, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is R (Arg).

The estimated half-life is: 1 hours (mammalian reticulocytes, in vitro).

 2 min (yeast, in vivo).

 2 min (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 36.05

This classifies the protein as stable.

**Aliphatic index:** 69.81

**Grand average of hydropathicity (GRAVY):** -0.677

Rabbit IgG

GQPLEPKVYTMGPPREELSSRSVSLTCMINGFYPSDISVEWEKNGKAEDNYKTTPAVLDSDGSYFLYSKLSVPTSEWQRGDVFTCSVMHEALHNHYTQKSISRSPGK

**Number of amino acids:** 107

**Molecular weight:** 12022.41

**Theoretical pI:** 5.88

フォームの始まり

**Amino acid composition:**
Ala (A) 3 2.8%

Arg (R) 4 3.7%

Asn (N) 4 3.7%

Asp (D) 5 4.7%

Cys (C) 2 1.9%

Gln (Q) 3 2.8%

Glu (E) 8 7.5%

Gly (G) 7 6.5%

His (H) 3 2.8%

Ile (I) 3 2.8%

Leu (L) 7 6.5%

Lys (K) 7 6.5%

Met (M) 3 2.8%

Phe (F) 3 2.8%

Pro (P) 8 7.5%

Ser (S) 15 14.0%

Thr (T) 7 6.5%

Trp (W) 2 1.9%

Tyr (Y) 6 5.6%

Val (V) 7 6.5%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 13

**Total number of positively charged residues (Arg + Lys):** 11

**Atomic composition:**

Carbon C 530

Hydrogen H 811

Nitrogen N 141

Oxygen O 169

Sulfur S 5

**Formula:** C530H811N141O169S5

**Total number of atoms:** 1656

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 20065

Abs 0.1% (=1 g/l) 1.669, assuming all pairs of Cys residues form cystines

Ext. coefficient 19940

Abs 0.1% (=1 g/l) 1.659, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is G (Gly).

The estimated half-life is: 30 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 52.51

This classifies the protein as unstable.

**Aliphatic index:** 58.22

**Grand average of hydropathicity (GRAVY):** -0.682

Homology CH3



Expacy CH3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse IgG1 | 12123.57 | 6.20 | 30.12 | 53.30 | -0.838 |
| Mouse IgG2a | 12331.89 | 6.40 | 45.03 | 56.79 | -0.818 |
| Mouse IgG2b | 11970.50 | 7.93 | 43.52 | 76.23 | -0.585 |
| Mouse IgG3 | 12155.62 | 6.07 | 36.05 | 69.81 | -0.677 |
| Rabbit IgG | 12022.41 | 5.88 | 52.51 | 58.22 | -0.682 |
|  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse IgG1 | 2 | 9 | 109+1 | 125+7 | 5 | 9 | 178+9 | 154+5+6 | 114+3+4 |
| Mouse IgG2a | 2 | 9 | 139+4 | 144+10 | 4 | 7 | 199+10 | 181+6+11 | 113+2+6 |
| Mouse IgG2b | 2 | 10 | 1410+4 | 137+6 | 6 | 7 | 1912+7 | 225+9+8 | 113+2+6 |
| Mouse IgG3 | 2 | 7 | 117+4 | 135+8 | 4 | 7 | 2010+10 | 204+9+7 | 124+2+4 |
| Rabbit IgG | 2 | 7 | 117+4 | 135+8 | 7 | 8 | 2215+7 | 173+7+7 | 113+2+6 |
|  |  |  |  |  |  |  |  |  |  |

CH1-Hinge-CH2-CH3の解析

対象：

マウス IgG1, IgG2a, IgG2b, IgG3

ウサギ IgG

検索対象：Geneious, Expaxy

Mouse IgG1

AKTTPPSVYPLAPGSAAQTNSMVTLGCLVKGYFPEPVTVTWNSGSLSSGVHTFPAVLQSDLYTLSSSVTVPSSTWPSETVTCNVAHPASSTKVDKKIVPRDCGCKPCICTVPEVSSVFIFPPKPKDVLTITLTPKVTCVVVDISKDDPEVQFSWFVDDVEVHTAQTQPREEQFNSTFRSVSELPIMHQDWLNGKEFKCRVNSAAFPAPIEKTISKTKGRPKAPQVYTIPPPKEQMAKDKVSLTCMITDFFPEDITVEWQWNGQPAENYKNTQPIMDTDGSYFVYSKLNVQKSNWEAGNTFTCSVLHEGLHNHHTEKSLSHSPGK

**Number of amino acids:** 324

**Molecular weight:** 35740.55

**Theoretical pI:** 6.33

フォームの始まり

**Amino acid composition:**
Ala (A) 15 4.6%

Arg (R) 5 1.5%

Asn (N) 13 4.0%

Asp (D) 15 4.6%

Cys (C) 10 3.1%

Gln (Q) 13 4.0%

Glu (E) 17 5.2%

Gly (G) 13 4.0%

His (H) 9 2.8%

Ile (I) 12 3.7%

Leu (L) 16 4.9%

Lys (K) 24 7.4%

Met (M) 5 1.5%

Phe (F) 14 4.3%

Pro (P) 31 9.6%

Ser (S) 33 10.2%

Thr (T) 32 9.9%

Trp (W) 7 2.2%

Tyr (Y) 7 2.2%

Val (V) 33 10.2%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 32

**Total number of positively charged residues (Arg + Lys):** 29

**Atomic composition:**

Carbon C 1597

Hydrogen H 2468

Nitrogen N 414

Oxygen O 487

Sulfur S 15

**Formula:** C1597H2468N414O487S15

**Total number of atoms:** 4981

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 49555

Abs 0.1% (=1 g/l) 1.387, assuming all pairs of Cys residues form cystines

Ext. coefficient 48930

Abs 0.1% (=1 g/l) 1.369, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 36.84

This classifies the protein as stable.

**Aliphatic index:** 67.87

**Grand average of hydropathicity (GRAVY):** -0.348

Mouse IgG2a

AKTTAPSVYPLAPVCGDTTGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGVHTFPAVLQSDLYTLSSSVTVTSSTWPSQSITCNVAHPASSTKVDKKIEEPRGPTIKPCPPCKCPAPNLLGGPSVFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQTHREDYNSTLRVVSALPIQHQDWMSGKEFKCKVNNKDLPAPIERTISKPKGSVRAPQVYVLPPPEEEMTKKQVTLTCMVTDFMPEDIYVEWTNNGKTELNYKNTEPVLDSDGSYFMYSKLRVEKKNWVERNSYSCSVVHEGLHNHHTTKSFSRTPGK

**Number of amino acids:** 331

**Molecular weight:** 36518.57

**Theoretical pI:** 6.82

フォームの始まり

**Amino acid composition:**
Ala (A) 11 3.3%

Arg (R) 8 2.4%

Asn (N) 15 4.5%

Asp (D) 15 4.5%

Cys (C) 10 3.0%

Gln (Q) 9 2.7%

Glu (E) 18 5.4%

Gly (G) 15 4.5%

His (H) 9 2.7%

Ile (I) 12 3.6%

Leu (L) 21 6.3%

Lys (K) 24 7.3%

Met (M) 6 1.8%

Phe (F) 9 2.7%

Pro (P) 31 9.4%

Ser (S) 35 10.6%

Thr (T) 31 9.4%

Trp (W) 6 1.8%

Tyr (Y) 10 3.0%

Val (V) 36 10.9%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 33

**Total number of positively charged residues (Arg + Lys):** 32

**Atomic composition:**

Carbon C 1623

Hydrogen H 2543

Nitrogen N 427

Oxygen O 498

Sulfur S 16

**Formula:** C1623H2543N427O498S16

**Total number of atoms:** 5107

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 48525

Abs 0.1% (=1 g/l) 1.329, assuming all pairs of Cys residues form cystines

Ext. coefficient 47900

Abs 0.1% (=1 g/l) 1.312, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 45.34

This classifies the protein as unstable.

**Aliphatic index:** 73.75

**Grand average of hydropathicity (GRAVY):** -0.348

Mouse IgG2b

AKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQSGLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKCPAPNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVRISWFVNNVEVHTAQTQTHREDYNSTIRVVSALPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVYILPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSKLDIKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK

**Number of amino acids:** 336

**Molecular weight:** 36639.58

**Theoretical pI:** 7.19

フォームの始まり

**Amino acid composition:**
Ala (A) 11 3.3%

Arg (R) 8 2.4%

Asn (N) 14 4.2%

Asp (D) 17 5.1%

Cys (C) 11 3.3%

Gln (Q) 8 2.4%

Glu (E) 15 4.5%

Gly (G) 18 5.4%

His (H) 8 2.4%

Ile (I) 16 4.8%

Leu (L) 22 6.5%

Lys (K) 24 7.1%

Met (M) 3 0.9%

Phe (F) 9 2.7%

Pro (P) 31 9.2%

Ser (S) 42 12.5%

Thr (T) 30 8.9%

Trp (W) 6 1.8%

Tyr (Y) 10 3.0%

Val (V) 33 9.8%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 32

**Total number of positively charged residues (Arg + Lys):** 32

**Atomic composition:**

Carbon C 1627

Hydrogen H 2554

Nitrogen N 428

Oxygen O 505

Sulfur S 14

**Formula:** C1627H2554N428O505S14

**Total number of atoms:** 5128

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 48525

Abs 0.1% (=1 g/l) 1.324, assuming all pairs of Cys residues form cystines

Ext. coefficient 47900

Abs 0.1% (=1 g/l) 1.307, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 47.19

This classifies the protein as unstable.

**Aliphatic index:** 75.86

**Grand average of hydropathicity (GRAVY):** -0.302

Mouse IgG3

ATTTAPSVYPLVPGCSDTSGSSVTLGCLVKGYFPEPVTVKWNYGALSSGVRTVSSVLQSGFYSLSSLVTVPSSTWPSQTVICNVAHPASKTELIKRIEEPRIPKPSTPPGSSCPPGNILGGPSVFIFPPKPKDALMISLTPKVTCVVVDVSEDDPDVHVSWFVDNKEVHTAWTQPREAQYNSTFRVVSALPIQHQDWMRGKEFKCKVNNKALPAPIERTISKPKGRAQTPQVYTIPPPREQMSKKKVSLTCLVTNFFSEAISVEWERNGELEQDYKNTPPILDSDGTYFLYSKLTVDTDSWLQGEIFTCSVVHEALHNHHTQKNLSRSPGK

**Number of amino acids:** 331

**Molecular weight:** 36428.46

**Theoretical pI:** 8.36

フォームの始まり

**Amino acid composition:**
Ala (A) 14 4.2%

Arg (R) 11 3.3%

Asn (N) 12 3.6%

Asp (D) 13 3.9%

Cys (C) 8 2.4%

Gln (Q) 12 3.6%

Glu (E) 17 5.1%

Gly (G) 17 5.1%

His (H) 8 2.4%

Ile (I) 14 4.2%

Leu (L) 22 6.6%

Lys (K) 22 6.6%

Met (M) 3 0.9%

Phe (F) 11 3.3%

Pro (P) 33 10.0%

Ser (S) 37 11.2%

Thr (T) 28 8.5%

Trp (W) 7 2.1%

Tyr (Y) 9 2.7%

Val (V) 33 10.0%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 30

**Total number of positively charged residues (Arg + Lys):** 33

**Atomic composition:**

Carbon C 1632

Hydrogen H 2549

Nitrogen N 433

Oxygen O 490

Sulfur S 11

**Formula:** C1632H2549N433O490S11

**Total number of atoms:** 5115

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 52410

Abs 0.1% (=1 g/l) 1.439, assuming all pairs of Cys residues form cystines

Ext. coefficient 51910

Abs 0.1% (=1 g/l) 1.425, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 43.78

This classifies the protein as unstable.

**Aliphatic index:** 75.56

**Grand average of hydropathicity (GRAVY):** -0.332

Rabbit IgG

GQPKAPSVFPLAPCCGDTPSSTVTLGCLVKGYLPEPVTVTWNSGTLTNGVRTFPSVRQSSGLYSLSSVVSVTSSSQPVTCNVAHPATNTKVDKTVAPSTCSKPTCPPPELLGGPSVFIFPPKPKDTLMISRTPEVTCVVVDVSQDDPEVQFTWYINNEQVRTARPPLREQQFNSTIRVVSTLPIAHQDWLRGKEFKCKVHNKALPAPIEKTISKARGQPLEPKVYTMGPPREELSSRSVSLTCMINGFYPSDISVEWEKNGKAEDNYKTTPAVLDSDGSYFLYSKLSVPTSEWQRGDVFTCSVMHEALHNHYTQKSISRSPGK

**Number of amino acids:** 323

**Molecular weight:** 35347.19

**Theoretical pI:** 8.62

フォームの始まり

**Amino acid composition:**
Ala (A) 13 4.0%

Arg (R) 13 4.0%

Asn (N) 12 3.7%

Asp (D) 12 3.7%

Cys (C) 10 3.1%

Gln (Q) 12 3.7%

Glu (E) 16 5.0%

Gly (G) 17 5.3%

His (H) 6 1.9%

Ile (I) 10 3.1%

Leu (L) 21 6.5%

Lys (K) 20 6.2%

Met (M) 4 1.2%

Phe (F) 10 3.1%

Pro (P) 34 10.5%

Ser (S) 37 11.5%

Thr (T) 30 9.3%

Trp (W) 5 1.5%

Tyr (Y) 9 2.8%

Val (V) 32 9.9%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 28

**Total number of positively charged residues (Arg + Lys):** 33

**Atomic composition:**

Carbon C 1566

Hydrogen H 2465

Nitrogen N 423

Oxygen O 480

Sulfur S 14

**Formula:** C1566H2465N423O480S14

**Total number of atoms:** 4948

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 41535

Abs 0.1% (=1 g/l) 1.175, assuming all pairs of Cys residues form cystines

Ext. coefficient 40910

Abs 0.1% (=1 g/l) 1.157, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is G (Gly).

The estimated half-life is: 30 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 47.58

This classifies the protein as unstable.

**Aliphatic index:** 70.19

**Grand average of hydropathicity (GRAVY):** -0.379

CH1-Hinge-CH2-CH3まとめ

Homology



CH1-Hinge-CH2-CH3

Expasy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse IgG1 | 35740.55 | 6.33 | 36.84 | 67.87 | -0.348 |
| Mouse IgG2a | 36518.57 | 6.82 | 45.34 | 73.75 | -0.348 |
| Mouse IgG2b | 36639.58 | 7.19 | 47.19 | 75.86 | -0.302 |
| Mouse IgG3 | 36428.46 | 8.36 | 43.78 | 75.56 | -0.332 |
| Rabbit IgG | 35347.19 | 8.62 | 47.58 | 70.19 | -0.379 |
|  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse IgG1 | 10 | 24 | 2924+5 | 3215+17 | 13 | 31 | 6533+32 | 6112+16+33 | 2814+7+7 |
| Mouse IgG2a | 10 | 24 | 3224+8 | 3315+18 | 15 | 31 | 6635+31 | 6912+21+36 | 259+6+10 |
| Mouse IgG2b | 11 | 24 | 3224+8 | 3217+15 | 18 | 31 | 7242+30 | 7116+22+33 | 259+6+10 |
| Mouse IgG3 | 8 | 22 | 3322+11 | 3013+17 | 17 | 33 | 6537+28 | 6914+22+33 | 2711+7+9 |
| Rabbit IgG | 10 | 20 | 3320+13 | 2812+16 | 17 | 34 | 6737+30 | 6310+21+32 | 2410+5+9 |
|  |  |  |  |  |  |  |  |  |  |

Ck-CH1-Hinge-CH2-CH3の解析

対象：

マウス IgG1, IgG2a, IgG2b, IgG3

ウサギ IgG

検索対象：Geneious, Expaxy

Mouse Ck-IgG1

ADAAPTVSIFPPSSEQLTSGGASVVCFLNNFYPKDINVKWKIDGSERQNGVLNSWTDQDSKDSTYSMSSTLTLTKDEYERHNSYTCEATHKTSTSPIVKSFNRNECAKTTPPSVYPLAPGSAAQTNSMVTLGCLVKGYFPEPVTVTWNSGSLSSGVHTFPAVLQSDLYTLSSSVTVPSSTWPSETVTCNVAHPASSTKVDKKIVPRDCGCKPCICTVPEVSSVFIFPPKPKDVLTITLTPKVTCVVVDISKDDPEVQFSWFVDDVEVHTAQTQPREEQFNSTFRSVSELPIMHQDWLNGKEFKCRVNSAAFPAPIEKTISKTKGRPKAPQVYTIPPPKEQMAKDKVSLTCMITDFFPEDITVEWQWNGQPAENYKNTQPIMDTDGSYFVYSKLNVQKSNWEAGNTFTCSVLHEGLHNHHTEKSLSHSPGK

**Number of amino acids:** 430

**Molecular weight:** 47500.41

**Theoretical pI:** 6.03

フォームの始まり

**Amino acid composition:**
Ala (A) 20 4.7%

Arg (R) 8 1.9%

Asn (N) 21 4.9%

Asp (D) 22 5.1%

Cys (C) 13 3.0%

Gln (Q) 16 3.7%

Glu (E) 23 5.3%

Gly (G) 17 4.0%

His (H) 11 2.6%

Ile (I) 16 3.7%

Leu (L) 21 4.9%

Lys (K) 31 7.2%

Met (M) 6 1.4%

Phe (F) 18 4.2%

Pro (P) 36 8.4%

Ser (S) 49 11.4%

Thr (T) 43 10.0%

Trp (W) 9 2.1%

Tyr (Y) 11 2.6%

Val (V) 39 9.1%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 45

**Total number of positively charged residues (Arg + Lys):** 39

**Atomic composition:**

Carbon C 2106

Hydrogen H 3249

Nitrogen N 553

Oxygen O 661

Sulfur S 19

**Formula:** C2106H3249N553O661S19

**Total number of atoms:** 6588

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 66640

Abs 0.1% (=1 g/l) 1.403, assuming all pairs of Cys residues form cystines

Ext. coefficient 65890

Abs 0.1% (=1 g/l) 1.387, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 39.93

This classifies the protein as stable.

**Aliphatic index:** 64.51

**Grand average of hydropathicity (GRAVY):** -0.440

Mouse Ck-IgG2a

ADAAPTVSIFPPSSEQLTSGGASVVCFLNNFYPKDINVKWKIDGSERQNGVLNSWTDQDSKDSTYSMSSTLTLTKDEYERHNSYTCEATHKTSTSPIVKSFNRNECAKTTAPSVYPLAPVCGDTTGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGVHTFPAVLQSDLYTLSSSVTVTSSTWPSQSITCNVAHPASSTKVDKKIEEPRGPTIKPCPPCKCPAPNLLGGPSVFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQTHREDYNSTLRVVSALPIQHQDWMSGKEFKCKVNNKDLPAPIERTISKPKGSVRAPQVYVLPPPEEEMTKKQVTLTCMVTDFMPEDIYVEWTNNGKTELNYKNTEPVLDSDGSYFMYSKLRVEKKNWVERNSYSCSVVHEGLHNHHTTKSFSRTPGK

**Number of amino acids:** 437

**Molecular weight:** 48278.44

**Theoretical pI:** 6.29

フォームの始まり

**Amino acid composition:**
Ala (A) 16 3.7%

Arg (R) 11 2.5%

Asn (N) 23 5.3%

Asp (D) 22 5.0%

Cys (C) 13 3.0%

Gln (Q) 12 2.7%

Glu (E) 24 5.5%

Gly (G) 19 4.3%

His (H) 11 2.5%

Ile (I) 16 3.7%

Leu (L) 26 5.9%

Lys (K) 31 7.1%

Met (M) 7 1.6%

Phe (F) 13 3.0%

Pro (P) 36 8.2%

Ser (S) 51 11.7%

Thr (T) 42 9.6%

Trp (W) 8 1.8%

Tyr (Y) 14 3.2%

Val (V) 42 9.6%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 46

**Total number of positively charged residues (Arg + Lys):** 42

**Atomic composition:**

Carbon C 2132

Hydrogen H 3324

Nitrogen N 566

Oxygen O 672

Sulfur S 20

**Formula:** C2132H3324N566O672S20

**Total number of atoms:** 6714

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 65610

Abs 0.1% (=1 g/l) 1.359, assuming all pairs of Cys residues form cystines

Ext. coefficient 64860

Abs 0.1% (=1 g/l) 1.343, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 46.32

This classifies the protein as unstable.

**Aliphatic index:** 69.02

**Grand average of hydropathicity (GRAVY):** -0.439

Mouse Ck-IgG2b

ADAAPTVSIFPPSSEQLTSGGASVVCFLNNFYPKDINVKWKIDGSERQNGVLNSWTDQDSKDSTYSMSSTLTLTKDEYERHNSYTCEATHKTSTSPIVKSFNRNECAKTTPPSVYPLAPGCGDTTGSSVTLGCLVKGYFPESVTVTWNSGSLSSSVHTFPALLQSGLYTMSSSVTVPSSTWPSQTVTCSVAHPASSTTVDKKLEPSGPISTINPCPPCKECHKCPAPNLEGGPSVFIFPPNIKDVLMISLTPKVTCVVVDVSEDDPDVRISWFVNNVEVHTAQTQTHREDYNSTIRVVSALPIQHQDWMSGKEFKCKVNNKDLPSPIERTISKIKGLVRAPQVYILPPPAEQLSRKDVSLTCLVVGFNPGDISVEWTSNGHTEENYKDTAPVLDSDGSYFIYSKLDIKTSKWEKTDSFSCNVRHEGLKNYYLKKTISRSPGK

**Number of amino acids:** 442

**Molecular weight:** 48399.45

**Theoretical pI:** 6.40

フォームの始まり

**Amino acid composition:**
Ala (A) 16 3.6%

Arg (R) 11 2.5%

Asn (N) 22 5.0%

Asp (D) 24 5.4%

Cys (C) 14 3.2%

Gln (Q) 11 2.5%

Glu (E) 21 4.8%

Gly (G) 22 5.0%

His (H) 10 2.3%

Ile (I) 20 4.5%

Leu (L) 27 6.1%

Lys (K) 31 7.0%

Met (M) 4 0.9%

Phe (F) 13 2.9%

Pro (P) 36 8.1%

Ser (S) 58 13.1%

Thr (T) 41 9.3%

Trp (W) 8 1.8%

Tyr (Y) 14 3.2%

Val (V) 39 8.8%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 45

**Total number of positively charged residues (Arg + Lys):** 42

**Atomic composition:**

Carbon C 2136

Hydrogen H 3335

Nitrogen N 567

Oxygen O 679

Sulfur S 18

**Formula:** C2136H3335N567O679S18

**Total number of atoms:** 6735

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 65735

Abs 0.1% (=1 g/l) 1.358, assuming all pairs of Cys residues form cystines

Ext. coefficient 64860

Abs 0.1% (=1 g/l) 1.340, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 47.72

This classifies the protein as unstable.

**Aliphatic index:** 70.68

**Grand average of hydropathicity (GRAVY):** -0.403

Mouse Ck-IgG3

ADAAPTVSIFPPSSEQLTSGGASVVCFLNNFYPKDINVKWKIDGSERQNGVLNSWTDQDSKDSTYSMSSTLTLTKDEYERHNSYTCEATHKTSTSPIVKSFNRNECATTTAPSVYPLVPGCSDTSGSSVTLGCLVKGYFPEPVTVKWNYGALSSGVRTVSSVLQSGFYSLSSLVTVPSSTWPSQTVICNVAHPASKTELIKRIEEPRIPKPSTPPGSSCPPGNILGGPSVFIFPPKPKDALMISLTPKVTCVVVDVSEDDPDVHVSWFVDNKEVHTAWTQPREAQYNSTFRVVSALPIQHQDWMRGKEFKCKVNNKALPAPIERTISKPKGRAQTPQVYTIPPPREQMSKKKVSLTCLVTNFFSEAISVEWERNGELEQDYKNTPPILDSDGTYFLYSKLTVDTDSWLQGEIFTCSVVHEALHNHHTQKNLSRSPGK

**Number of amino acids:** 437

**Molecular weight:** 48188.33

**Theoretical pI:** 7.24

フォームの始まり

**Amino acid composition:**
Ala (A) 19 4.3%

Arg (R) 14 3.2%

Asn (N) 20 4.6%

Asp (D) 20 4.6%

Cys (C) 11 2.5%

Gln (Q) 15 3.4%

Glu (E) 23 5.3%

Gly (G) 21 4.8%

His (H) 10 2.3%

Ile (I) 18 4.1%

Leu (L) 27 6.2%

Lys (K) 29 6.6%

Met (M) 4 0.9%

Phe (F) 15 3.4%

Pro (P) 38 8.7%

Ser (S) 53 12.1%

Thr (T) 39 8.9%

Trp (W) 9 2.1%

Tyr (Y) 13 3.0%

Val (V) 39 8.9%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 43

**Total number of positively charged residues (Arg + Lys):** 43

**Atomic composition:**

Carbon C 2141

Hydrogen H 3330

Nitrogen N 572

Oxygen O 664

Sulfur S 15

**Formula:** C2141H3330N572O664S15

**Total number of atoms:** 6722

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 69495

Abs 0.1% (=1 g/l) 1.442, assuming all pairs of Cys residues form cystines

Ext. coefficient 68870

Abs 0.1% (=1 g/l) 1.429, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is A (Ala).

The estimated half-life is: 4.4 hours (mammalian reticulocytes, in vitro).

 >20 hours (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 45.14

This classifies the protein as unstable.

**Aliphatic index:** 70.39

**Grand average of hydropathicity (GRAVY):** -0.426

Rabbit Cka-IgG

RDPVAPTVLIFPPAADQVATGTVTIVCVANKYFPDVTVTWEVDGTTQTTGIENSKTPQNSADCTYNLSSTLTLTSTQYNSHKEYTCKVTQGTTSVVQSFNRGDCGQPKAPSVFPLAPCCGDTPSSTVTLGCLVKGYLPEPVTVTWNSGTLTNGVRTFPSVRQSSGLYSLSSVVSVTSSSQPVTCNVAHPATNTKVDKTVAPSTCSKPTCPPPELLGGPSVFIFPPKPKDTLMISRTPEVTCVVVDVSQDDPEVQFTWYINNEQVRTARPPLREQQFNSTIRVVSTLPIAHQDWLRGKEFKCKVHNKALPAPIEKTISKARGQPLEPKVYTMGPPREELSSRSVSLTCMINGFYPSDISVEWEKNGKAEDNYKTTPAVLDSDGSYFLYSKLSVPTSEWQRGDVFTCSVMHEALHNHYTQKSISRSPGK

**Number of amino acids:** 427

**Molecular weight:** 46528.55

**Theoretical pI:** 7.92

フォームの始まり

**Amino acid composition:**
Ala (A) 19 4.4%

Arg (R) 15 3.5%

Asn (N) 18 4.2%

Asp (D) 18 4.2%

Cys (C) 14 3.3%

Gln (Q) 18 4.2%

Glu (E) 19 4.4%

Gly (G) 22 5.2%

His (H) 7 1.6%

Ile (I) 13 3.0%

Leu (L) 25 5.9%

Lys (K) 24 5.6%

Met (M) 4 0.9%

Phe (F) 13 3.0%

Pro (P) 40 9.4%

Ser (S) 45 10.5%

Thr (T) 50 11.7%

Trp (W) 6 1.4%

Tyr (Y) 13 3.0%

Val (V) 44 10.3%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 37

**Total number of positively charged residues (Arg + Lys):** 39

**Atomic composition:**

Carbon C 2051

Hydrogen H 3224

Nitrogen N 552

Oxygen O 646

Sulfur S 18

**Formula:** C2051H3224N552O646S18

**Total number of atoms:** 6491

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 53245

Abs 0.1% (=1 g/l) 1.144, assuming all pairs of Cys residues form cystines

Ext. coefficient 52370

Abs 0.1% (=1 g/l) 1.126, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is R (Arg).

The estimated half-life is: 1 hours (mammalian reticulocytes, in vitro).

 2 min (yeast, in vivo).

 2 min (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 40.85

This classifies the protein as unstable.

**Aliphatic index:** 69.04

**Grand average of hydropathicity (GRAVY):** -0.360

Rabbit Ckb-IgG

DPVAPSVLLFPPSKEELTTGTATIVCVANKFYPSDITVTWKVDGTTQQSGIENSKTPQSPEDNTYSLSSTLSLTSAQYNSHSVYTCEVVQGSASPIVQSFNRGDCGQPKAPSVFPLAPCCGDTPSSTVTLGCLVKGYLPEPVTVTWNSGTLTNGVRTFPSVRQSSGLYSLSSVVSVTSSSQPVTCNVAHPATNTKVDKTVAPSTCSKPTCPPPELLGGPSVFIFPPKPKDTLMISRTPEVTCVVVDVSQDDPEVQFTWYINNEQVRTARPPLREQQFNSTIRVVSTLPIAHQDWLRGKEFKCKVHNKALPAPIEKTISKARGQPLEPKVYTMGPPREELSSRSVSLTCMINGFYPSDISVEWEKNGKAEDNYKTTPAVLDSDGSYFLYSKLSVPTSEWQRGDVFTCSVMHEALHNHYTQKSISRSPGK

**Number of amino acids:** 428

**Molecular weight:** 46551.52

**Theoretical pI:** 7.13

フォームの始まり

**Amino acid composition:**
Ala (A) 18 4.2%

Arg (R) 14 3.3%

Asn (N) 17 4.0%

Asp (D) 17 4.0%

Cys (C) 13 3.0%

Gln (Q) 18 4.2%

Glu (E) 21 4.9%

Gly (G) 22 5.1%

His (H) 7 1.6%

Ile (I) 14 3.3%

Leu (L) 27 6.3%

Lys (K) 24 5.6%

Met (M) 4 0.9%

Phe (F) 13 3.0%

Pro (P) 42 9.8%

Ser (S) 53 12.4%

Thr (T) 43 10.0%

Trp (W) 6 1.4%

Tyr (Y) 13 3.0%

Val (V) 42 9.8%

Pyl (O) 0 0.0%

Sec (U) 0 0.0%

 (B) 0 0.0%

 (Z) 0 0.0%

 (X) 0 0.0%

フォームの終わり

**Total number of negatively charged residues (Asp + Glu):** 38

**Total number of positively charged residues (Arg + Lys):** 38

**Atomic composition:**

Carbon C 2055

Hydrogen H 3225

Nitrogen N 549

Oxygen O 649

Sulfur S 17

**Formula:** C2055H3225N549O649S17

**Total number of atoms:** 6495

**Extinction coefficients:**

Extinction coefficients are in units of M-1 cm-1, at 280 nm measured in water.

Ext. coefficient 53120

Abs 0.1% (=1 g/l) 1.141, assuming all pairs of Cys residues form cystines

Ext. coefficient 52370

Abs 0.1% (=1 g/l) 1.125, assuming all Cys residues are reduced

**Estimated half-life:**

The N-terminal of the sequence considered is D (Asp).

The estimated half-life is: 1.1 hours (mammalian reticulocytes, in vitro).

 3 min (yeast, in vivo).

 >10 hours (Escherichia coli, in vivo).

**Instability index:**

The instability index (II) is computed to be 48.66

This classifies the protein as unstable.

**Aliphatic index:** 70.02

**Grand average of hydropathicity (GRAVY):** -0.361

Ck-CH1-Hinge-CH2-CH3まとめ

Expasy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse Ck-IgG1 | 47500.41 | 6.03 | ­39.93 | 64.51 | -0.440 |
| Mouse Ck-IgG2a | 48278.44 | 6.29 | 46.32 | 69.02 | -0.439 |
| Mouse Ck-IgG2b | 48399.45 | 6.40 | 47.72 | 70.68 | -0.403 |
| Mouse Ck-IgG3 | 48188.33 | 7.24 | 45.14 | 70.39 | -0.426 |
| Rabbit Cka-IgG | 46528.55 | 7.92 | 40.85 | 69.04 | -0.360 |
| Rabbit Ckb-IgG | 46551.52 | 7.13 | 48.66 | 70.02 | -0.361 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse Ck-IgG1 | 13 | 31 | 3931+8 | 4522+23 | 17 | 36 | 9249+43 | 7616+21+39 | 3818+9+11 |
| Mouse Ck-IgG2a | 13 | 31 | 4231+11 | 4622+24 | 19 | 36 | 9351+42 | 8416+26+42 | 3513+8+14 |
| Mouse Ck-IgG2b | 14 | 31 | 4231+11 | 4524+21 | 22 | 36 | 9958+41 | 8620+27+39 | 3513+8+14 |
| Mouse Ck-IgG3 | 11 | 29 | 4329+14 | 4320+23 | 21 | 38 | 9253+39 | 8418+27+39 | 3715+9+13 |
| Rabbit Cka-IgG | 14 | 24 | 3924+15 | 3718+19 | 22 | 40 | 9545+50 | 8213+25+44 | 3213+6+13 |
| Rabbit Ckb-IgG | 13 | 24 | 3824+14 | 3817+21 | 22 | 42 | 9653+43 | 8314+27+42 | 3213+6+13 |

まとめ

Expasyの比較

Ck-CH1-Hinge-Ch2-CH3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse Ck-IgG1 | 47500.41 | 6.03 | ­39.93 | 64.51 | -0.440 |
| Mouse Ck-IgG2a | 48278.44 | 6.29 | 46.32 | 69.02 | -0.439 |
| Mouse Ck-IgG2b | 48399.45 | 6.40 | 47.72 | 70.68 | -0.403 |
| Mouse Ck-IgG3 | 48188.33 | 7.24 | 45.14 | 70.39 | -0.426 |
| Rabbit Cka-IgG | 46528.55 | 7.92 | 40.85 | 69.04 | -0.360 |
| Rabbit Ckb-IgG | 46551.52 | 7.13 | 48.66 | 70.02 | -0.361 |

CH1-Hinge-CH2-CH3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse IgG1 | 35740.55 | 6.33 | 36.84 | 67.87 | -0.348 |
| Mouse IgG2a | 36518.57 | 6.82 | 45.34 | 73.75 | -0.348 |
| Mouse IgG2b | 36639.58 | 7.19 | 47.19 | 75.86 | -0.302 |
| Mouse IgG3 | 36428.46 | 8.36 | 43.78 | 75.56 | -0.332 |
| Rabbit IgG | 35347.19 | 8.62 | 47.58 | 70.19 | -0.379 |
|  |  |  |  |  |  |

Ck

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse Ck | 11777.88 | 5.23 | 49.30 | 54.25 | -0.722 |
| Rabbit Ck1 | 11199.38 | 4.75 | 19.83 | 65.48 | -0.299 |
| Rabbit Ck2 | 11222.35 | 4.45 | 51.86 | 69.52 | -0.304 |
|  |  |  |  |  |  |

Fc (Hinge-CH2-CH3)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse IgG1 | 25589.04 | 5.99 | 34.10 | 63.72 | -0.534 |
| Mouse IgG2a | 26257.04 | 7.36 | 40.86 | 72.07 | -0.515 |
| Mouse IgG2b | 26603.28 | 6.70 | 45.84 | 78.07 | -0.456 |
| Mouse IgG3 | 26192.79 | 7.86 | 37.20 | 70.60 | -0.561 |
| Rabbit IgG | 25597.12 | 8.22 | 49.90 | 67.89 | -0.550 |
|  |  |  |  |  |  |

CH1

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse IgG1 | 10169.52 | 8.04 | 41.08 | 77.45 | 0.080 |
| Mouse IgG2a | 10150.43 | 6.93 | 50.91 | 78.47 | 0.080 |
| Mouse IgG2b | 10056.29 | 6.93 | 48.39 | 69.49 | 0.056 |
| Mouse IgG3 | 10253.69 | 8.57 | 56.00 | 87.35 | 0.213 |
| Rabbit IgG | 9768.08 | 8.85 | 41.93 | 75.68 | 0.029 |
|  |  |  |  |  |  |

CH2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse IgG1 | 12205.93 | 5.31 | 39.67 | 77.41 | -0.279 |
| Mouse IgG2a | 12367.20 | 5.86 | 38.26 | 92.88 | -0.196 |
| Mouse IgG2b | 12458.23 | 5.87 | 38.66 | 88.47 | -0.305 |
| Mouse IgG3 | 12423.32 | 8.75 | 30.39 | 78.02 | -0.368 |
| Rabbit IgG | 12422.36 | 9.11 | 44.27 | 83.94 | -0.420 |
|  |  |  |  |  |  |

CH3

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Class Subclass | MW | pI | Instability index | Aliphatic index | GRAVY |
| Mouse IgG1 | 12123.57 | 6.20 | 30.12 | 53.30 | -0.838 |
| Mouse IgG2a | 12331.89 | 6.40 | 45.03 | 56.79 | -0.818 |
| Mouse IgG2b | 11970.50 | 7.93 | 43.52 | 76.23 | -0.585 |
| Mouse IgG3 | 12155.62 | 6.07 | 36.05 | 69.81 | -0.677 |
| Rabbit IgG | 12022.41 | 5.88 | 52.51 | 58.22 | -0.682 |
|  |  |  |  |  |  |

まとめ

アミノ酸組成の比較

Ck-CH1-Hinge-CH2-CH3

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse Ck-IgG1 | 13 | 31 | 3931+8 | 4522+23 | 17 | 36 | 9249+43 | 7616+21+39 | 3818+9+11 |
| Mouse Ck-IgG2a | 13 | 31 | 4231+11 | 4622+24 | 19 | 36 | 9351+42 | 8416+26+42 | 3513+8+14 |
| Mouse Ck-IgG2b | 14 | 31 | 4231+11 | 4524+21 | 22 | 36 | 9958+41 | 8620+27+39 | 3513+8+14 |
| Mouse Ck-IgG3 | 11 | 29 | 4329+14 | 4320+23 | 21 | 38 | 9253+39 | 8418+27+39 | 3715+9+13 |
| Rabbit Cka-IgG | 14 | 24 | 3924+15 | 3718+19 | 22 | 40 | 9545+50 | 8213+25+44 | 3213+6+13 |
| Rabbit Ckb-IgG | 13 | 24 | 3824+14 | 3817+21 | 22 | 42 | 9653+43 | 8314+27+42 | 3213+6+13 |

CH1-Hinge-CH2-CH3

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse IgG1 | 10 | 24 | 2924+5 | 3215+17 | 13 | 31 | 6533+32 | 6112+16+33 | 2814+7+7 |
| Mouse IgG2a | 10 | 24 | 3224+8 | 3315+18 | 15 | 31 | 6635+31 | 6912+21+36 | 259+6+10 |
| Mouse IgG2b | 11 | 24 | 3224+8 | 3217+15 | 18 | 31 | 7242+30 | 7116+22+33 | 259+6+10 |
| Mouse IgG3 | 8 | 22 | 3322+11 | 3013+17 | 17 | 33 | 6537+28 | 6914+22+33 | 2711+7+9 |
| Rabbit IgG | 10 | 20 | 3320+13 | 2812+16 | 17 | 34 | 6737+30 | 6310+21+32 | 2410+5+9 |
|  |  |  |  |  |  |  |  |  |  |

Ck

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse Ck | 3 | 7 | 107+3 | 137+6 | 4 | 5 | 2716+11 | 154+5+6 | 104+2+4 |
| Rabbit Ck1 | 4 | 4 | 64+2 | 96+3 | 5 | 6 | 288+20 | 193+4+12 | 83+1+4 |
| Rabbit Ck2 | 3 | 4 | 54+1 | 105+5 | 5 | 8 | 2916+13 | 204+6+10 | 83+1+4 |
|  |  |  |  |  |  |  |  |  |  |

Fc (Hinge-CH2-CH3)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse IgG1 | 8 | 19 | 2419+5 | 2813+15 | 8 | 21 | 3617+19 | 4011+9+20 | 2112+5+4 |
| Mouse IgG2a | 7 | 19 | 2719+8 | 2712+15 | 9 | 23 | 3518+17 | 4810+13+25 | 187+4+7 |
| Mouse IgG2b | 8 | 20 | 2720+7 | 2815+13 | 11 | 22 | 3923+16 | 5216+14+22 | 187+4+7 |
| Mouse IgG3 | 5 | 18 | 2718+7 | 2612+14 | 10 | 25 | 3720+17 | 4511+14+20 | 199+5+5 |
| Rabbit IgG | 6 | 16 | 2716+11 | 2510+15 | 10 | 24 | 4023+17 | 4210+14+18 | 198+4+7 |
|  |  |  |  |  |  |  |  |  |  |

VH/VL

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Rabbit VH | 2 | 4 | 84+4 | 72+5 | 15 | 5 | 3216+16 | 184+9+5 | 154+5+6 |
| Rabbit VL | 4 | 3 | 54+1 | 74+3 | 14 | 4 | 2613+13 | 246+10+8 | 113+1+7 |
|  |  |  |  |  |  |  |  |  |  |

CH1

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse IgG1 | 2 | 5 | 55+0 | 42+2 | 5 | 10 | 2916+13 | 211+7+13 | 72+2+3 |
| Mouse IgG2a | 3 | 5 | 55+0 | 53+2 | 6 | 8 | 3117+14 | 212+8+11 | 72+2+3 |
| Mouse IgG2b | 3 | 4 | 44+0 | 42+2 | 7 | 9 | 3419+15 | 190+8+11 | 72+2+3 |
| Mouse IgG3 | 3 | 4 | 53+2 | 41+3 | 7 | 8 | 2817+11 | 243+8+13 | 82+2+4 |
| Rabbit IgG | 4 | 4 | 64+2 | 32+1 | 7 | 10 | 2714+13 | 210+7+14 | 52+1+2 |
|  |  |  |  |  |  |  |  |  |  |

Hinge

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | Length | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse IgG1 | 12 | 4 | 1 | 21+1 | 11+0 | 1 | 2 | 10+1 | 11+0+0 | 00+0+0 |
| Mouse IgG2a | 15 | 3 | 2 | 32+1 | 00+0 | 1 | 6 | 10+1 | 11+0+0 | 00+0+0 |
| Mouse IgG2b | 21 | 4 | 2 | 22+0 | 10+1 | 1 | 6 | 32+1 | 22+0+0 | 00+0+0 |
| Mouse IgG3 | 15 | 1 | 1 | 21+1 | 00+0 | 1 | 6 | 43+1 | 01+0+0 | 00+0+0 |
| Rabbit IgG | 12 | 2 | 1 | 11+0 | 00+0 | 0 | 4 | 42+2 | 00+0+0 | 00+0+0 |
|  |  |  |  |  |  |  |  |  |  |  |

CH2

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse IgG1 | 2 | 9 | 129+3 | 157+8 | 2 | 10 | 189+9 | 246+4+14 | 108+2+0 |
| Mouse IgG2a | 2 | 8 | 118+3 | 138+5 | 4 | 10 | 159+6 | 298+7+14 | 74+2+1 |
| Mouse IgG2b | 2 | 8 | 128+4 | 148+6 | 4 | 9 | 169+7 | 289+5+14 | 74+2+1 |
| Mouse IgG3 | 2 | 10 | 1410+4 | 127+5 | 5 | 12 | 137+6 | 246+5+13 | 95+3+1 |
| Rabbit IgG | 2 | 8 | 158+7 | 125+7 | 3 | 12 | 146+8 | 257+7+11 | 85+2+1 |
|  |  |  |  |  |  |  |  |  |  |

CH3

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Mouse IgG1 | 2 | 9 | 109+1 | 125+7 | 5 | 9 | 178+9 | 154+5+6 | 114+3+4 |
| Mouse IgG2a | 2 | 9 | 139+4 | 144+10 | 4 | 7 | 199+10 | 181+6+11 | 113+2+6 |
| Mouse IgG2b | 2 | 10 | 1410+4 | 137+6 | 6 | 7 | 1912+7 | 225+9+8 | 113+2+6 |
| Mouse IgG3 | 2 | 7 | 117+4 | 135+8 | 4 | 7 | 2010+10 | 204+9+7 | 124+2+4 |
| Rabbit IgG | 2 | 7 | 117+4 | 135+8 | 7 | 8 | 2215+7 | 173+7+7 | 113+2+6 |
|  |  |  |  |  |  |  |  |  |  |

Hopp & Woods Hydrophobicity

Mouse IgG1

CH1



Mouse IgG1 CH2



Mouse IgG1 CH3



Mouse IgG1 CH1-Hinge-CH2-CH3



Mouse IgG2a

CH1



Mouse IgG2a CH2



Mouse IgG2a CH3



Mouse IgG2a CH1-Hinge-CH2-CH3



Mouse IgG2b

CH1



Mouse IgG2b CH2



Mouse IgG2b CH3



Mouse IgG2b CH1-Hinge-CH2-CH3



Mouse IgG3

CH1



Mouse IgG3 CH2



Mouse IgG3 CH3



Mouse IgG3 CH1-Hinge-CH2-CH3



Rabbit IgG

CH1



Rabbit IgG CH2



Rabbit IgG CH3



Rabbit IgG CH1-Hinge-CH2-CH3



Mouse Ck



Rabbit Ck1



Rabbit Ck2



Mouse IgG1 Mouse IgG2a



Mouse IgG2b Mouse IgG3



Rabbit IgG



Rabbit VH / VLの解析

Rabbit scFv 690 clone配列の平均

|  |  |  |
| --- | --- | --- |
|  | VH | VL |
|  | 115 | 112  |
| A | 8 | 10  |
| C | 2 | 4  |
| D | 2 | 3  |
| E | 5 | 4  |
| F | 4 | 3  |
| G | 15 | 14  |
| H | 0 | 0  |
| I | 4 | 6  |
| K | 4 | 3  |
| L | 9 | 10  |
| M | 1 | 0  |
| N | 2 | 0  |
| P | 5 | 4  |
| Q | 2 | 8  |
| R | 4 | 1  |
| S | 16 | 13  |
| T | 16 | 13  |
| V | 5 | 8  |
| W | 5 | 1  |
| Y | 6 | 7  |
|  | 115 | 113  |

VH / VL

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Class Subclass | C | K | K+R | D+E | G | P | S+T | I+L+V | F+W+Y |
| Rabbit VH | 2 | 4 | 84+4 | 72+5 | 15 | 5 | 3216+16 | 184+9+5 | 154+5+6 |
| Rabbit VL | 4 | 3 | 54+1 | 74+3 | 14 | 4 | 2613+13 | 246+10+8 | 113+1+7 |
|  |  |  |  |  |  |  |  |  |  |