

**Supplementary Table 1. Immunophenotyping results on several occasions of the index patient bearing the homozygous *RASGRP1* stop gain mutation.**

| Patient/ Age  | 7 years old         | 8 years old         | 12 years old        | 12.5 years old      |
|---|---------------------|---------------------|---------------------|---------------------|
| ALC (cells/mm <sup>3</sup> )<br>(normal range)        | 4064<br>(1100-5900) | 3100<br>(1100-5900) | 2700<br>(1000-5300) | 2700<br>(1000-5300) |
| Immunoglobulins                                       |                     |                     |                     |                     |
| Ig A (g/dl)   | 660 (70-303)        | 680 (70-303)        | 640 (67-433)        | 766 (67-433)        |
| Ig G (g/dl)   | 2030 (764-2134)     | 3400 (764-2134)     | 1720 (835-2094)     | 1600 (835-2094)     |
| Ig M (g/dl)   | 188 (69-387)        | 346 (69-387)        | 218 (47-484)        | 306 (47-484)        |
| Lymphocyte subsets                                    |                     |                     |                     |                     |
| CD3 (%)   | 64 (55-78)          | 61                  | 75                  | 81                  |
| (cells/mm <sup>3</sup> )                              | 2600 (700-4200)     | 1891 (700-4200)     | 1125 (800-3500)     | 2187 (800-3500)     |
| CD4 (%)   | 13 (27-53)          | 10 (27-53)          | 13 (25-48)          | 8 (25-48)           |
| (cells/mm <sup>3</sup> )                              | 528 (300-2000)      | 310 (300-2000)      | 195 (400-2100)      | 216 (400-2100)      |
| CD8 (%)   | 55 (19-34)          | 52 (19-34)          | 58 (9-35)           | 70 (9-35)           |
| (cells/mm <sup>3</sup> )                              | 2235 (300-1800)     | 1612 (300-1800)     | 870 (200-1200)      | 1890 (200-1200)     |
| CD19 (%)  | 10 (10-31)          | 11 (10-31)          | 9 (8-24)            | 3 (8-24)            |
| (cells/mm <sup>3</sup> )                              | 406 (200-1600)      | 341 (200-1600)      | 135 (200-600)       | 81 (200-600)        |
| CD16+56 (%)   | 22 (4-26)           | 26 (4-26)           | 11 (6-27)           | 13 (6-27)           |
| (cells/mm <sup>3</sup> )                              | 894 (90-900)        | 806 (90-900)        | 165 (70-1200)       | 351 (70-1200)       |
| CD45RA  |                     |                     | 55                  |                     |
| CD45RO  |                     |                     | 51                  |                     |
| TCR $\alpha\beta$                                     |                     |                     | 62                  |                     |
| TCR $\gamma\delta$                                    |                     |                     | 17                  |                     |
| ALC, absolute lymphocyte count; TCR, T cell receptor. |                     |                     |                     |                     |

**Supplementary Table 2. Immunophenotyping of the healthy mother.**

| Value                              | Mother            |
|------------------------------------|-------------------|
| WBC (x10 <sup>3</sup> /μl)         | 5.9<br>(4.1-11.2) |
| ALC (x10 <sup>3</sup> /μl)         | 2.3<br>(1.0-2.8)  |
| ANC (x10 <sup>3</sup> /μl)         | 2.3<br>(1.8-6.4)  |
| Monocytes (x10 <sup>3</sup> /μl)   | 0.5<br>(0.3-0.9)  |
| Eosinophils (x10 <sup>3</sup> /μl) | 0.4<br>(0.1-0.5)  |
| Basophils (x10 <sup>3</sup> /μl)   | 0<br>(0-0.2)      |
| Immunoglobulins                    |                   |
| Ig A (g/dl)                        | 5.42<br>(0.9-4.5) |
| Ig G (g/dl)                        | 18.5<br>(8-18)    |
| Ig M (g/dl)                        | 3.29 (0.7-2.5)    |
| Lymphocyte subsets                 |                   |
| CD3 (%)                            | 68 (55-83)        |
| CD3 (1000/μl)                      | 1.5 (1.0-2.8)     |
| CD4 (%)                            | 42 (28-57)        |
| CD4 (1000/μl)                      | 1.0 (0.3-1.4)     |
| CD8 (%)                            | 25 (10-39)        |
| CD8 (1000/μl)                      | 0.7 (0.2-0.9)     |
| CD19 (%)                           | 9 (6-19)          |
| CD19 (1000/μl)                     | 0.2 (0.1-0.5)     |
| CD16+56 (%)                        | 14 (7-31)         |
| CD16+56 (1000/μl)                  | 0.3 (0.09-0.6)    |

**Supplementary Table 3. Relative immunophenotyping values of patient, mother brother and a healthy donor.**

| Subset (rel. proportions in %)                 | Healthy Donor | Mother | Brother | Patient |
|--|---------------|--------|---------|---------|
| CD3+   | 47.8          | 66.7   | 67.0    | 80.0    |
| CD3+CD4+                                       | 66.1          | 19.3   | 24.0    | 10.8    |
| CD3+CD8+                                       | 28.9          | 53.9   | 52.9    | 74.7    |
| CD19+  | 19.6          | 21.6   | 14.3    | 2.51    |
| <b>Gated on CD3+:</b>                          |               |        |         |         |
| iNKT cells (TCR $\alpha$ 24+TCR $\beta$ 11+)   | 0.25          | 0.89   | 0.25    | 0.03    |
| recent thymic emigrants (CD3+CD4+CD45RA+CD31+) | 17.2          | 17.4   | 12.2    | 5.92    |
| TCR $\alpha$ 7.2+CD161+ (MAIT)                 | 3.21          | 1.53   | 1.13    | 0.06    |
| <b>Gated on CD3+CD4+:</b>                      |               |        |         |         |
| CD45RA+CCR7-                                   | 2.2           | 1.0    | 1.9     | 0.33    |
| CD45RA+CCR7+                                   | 26.6          | 45.6   | 27.3    | 10.8    |
| CD45RA-CCR7+                                   | 68.9          | 52.7   | 69.7    | 51.9    |
| CD45RA-CCR7-                                   | 2.2           | 0.7    | 1.1     | 37.0    |
| CD3+CD4+FOXP3+                                 | 5.51          | n.d.   | n.d.    | 2.38    |
| CD45RA+CD27-                                   | 0.064         | n.d.   | n.d.    | 0.44    |
| CD45RA+CD27+                                   | 70.6          | n.d.   | n.d.    | 16.7    |
| CD45RA-CD27+                                   | 26.3          | n.d.   | n.d.    | 76.8    |
| CD45RA-CD27-                                   | 3.09          | n.d.   | n.d.    | 6.04    |
| CD45RA+CD28-                                   | 0.073         | n.d.   | n.d.    | 0.6     |
| CD45RA+CD28+                                   | 70.1          | n.d.   | n.d.    | 16.2    |
| CD45RA-CD28+                                   | 29.8          | n.d.   | n.d.    | 81.9    |
| CD45RA-CD28-                                   | 13.3          | n.d.   | n.d.    | 1.32    |
| <b>Gated on CD3+CD8+:</b>                      |               |        |         |         |
| CD45RA+CCR7-                                   | 18.2          | 5.6    | 6.6     | 17.4    |
| CD45RA+CCR7+                                   | 31.1          | 63.9   | 66.7    | 2.45    |
| CD45RA-CCR7+                                   | 35.1          | 27.0   | 23.1    | 1.16    |
| CD45RA-CCR7-                                   | 12.0          | 3.5    | 3.7     | 79.0    |
| CD45RA+CD27-                                   | 0.2           | n.d.   | n.d.    | 18.1    |
| CD45RA+CD27+                                   | 83.5          | n.d.   | n.d.    | 3.08    |
| CD45RA-CD27+                                   | 14.5          | n.d.   | n.d.    | 16.8    |
| CD45RA-CD27-                                   | 1.82          | n.d.   | n.d.    | 62      |
| CD45RA+CD28-                                   | 2.98          | n.d.   | n.d.    | 21.7    |
| CD45RA+CD28+                                   | 81.2          | n.d.   | n.d.    | 1.3     |
| CD45RA-CD28+                                   | 14.2          | n.d.   | n.d.    | 2.9     |
| CD45RA-CD28-                                   | 1.56          | n.d.   | n.d.    | 74.1    |
| <b>Gated on CD19+:</b>                         |               |        |         |         |
| IgD+CD27- (naïve)                              | 58.9          | 48.4   | 44.9    | 84.0    |
| IgD+CD27+(memory non-switched)                 | 7.0           | 16.3   | 22.1    | 7.09    |
| IgD-CD27+(memory)                              | 30.5          | 31.1   | 28.0    | 3.15    |
| IgD-CD27-                                      | 3.6           | 4.0    | 5.0     | 5.75    |
| CD21 <sup>low</sup> CD38-                      | 2.6           | 4.78   | 8.09    | 20.6    |
| CD21 <sup>low</sup> CD38+                      | 0.61          | 1.14   | 1.17    | 17.3    |

**Supplementary Table 4. Evaluation of the detected variant in *RASGRP1* (Chr15: 38805097: G>A; c. C726T, p. Arg246\*) in exome variant databases (last accessed July, 13, 2016).**

| Source   | Found |
|--|-------|
| dbSNP v142 <sup>1</sup>  | no    |
| 60,706 Exomes from the Exome Aggregation Consortium <sup>2</sup>   | no    |
| 6503 Exomes from NHLBI Exome Sequencing Project <sup>3</sup>   | no    |
| CBio Portal <sup>4</sup>   | no    |
| 108 Exomes Hacettepe Exome Project   | no    |
| In-house collection of 500 individuals<br>(219 Exomes including 96 PID patients, 12 Genomes and 269 target<br>enrichment screens on 229 PID patients and 40 SCID patients) | no    |

<sup>1</sup><http://www.ncbi.nlm.nih.gov/SNP/>; <sup>2</sup><http://exac.broadinstitute.org/>;

<sup>3</sup><http://evs.gs.washington.edu/EVS/>; <sup>4</sup>[http://www.cbioportal.org/data\\_sets.jsp](http://www.cbioportal.org/data_sets.jsp)

**Supplementary Table 5a. Evaluation of the estimated population frequency severe homozygous *RASGRP1* variants.** To date, no severe (stopgain, frameshift, splice-site) homozygous variants have been observed in *RASGRP1*. This table lists rare heterozygous variants in *RASGRP1* which have been identified and indicates an estimated population frequency of homozygous *RASGRP1* loss-of-function individuals based on heterozygous carrier frequency, as obtained from ExAC browser (accessed April 29, 2016).

| Consequence  | Annotation   | Homozygous Alleles | Heterozygous Allele count |             |                        |                  |            |                 |             |              |
|--|--------------|--------------------|---------------------------|-------------|------------------------|------------------|------------|-----------------|-------------|--------------|
|  |              |                    | African                   | East Asian  | European (Non-Finnish) | Finnish          | Latino     | Other           | South Asian | Allele count |
| p.Gln793Ter  | stop gained  | 0                  | 0                         | 0           | 1                      | 0                | 0          | 0               | 0           | 1            |
| p.Leu788Phefs  | frameshift   | 0                  | 0                         | 0           | 1                      | 0                | 0          | 0               | 0           | 1            |
| p.His786Glnfs  | frameshift   | 0                  | 0                         | 0           | 1                      | 0                | 0          | 0               | 0           | 1            |
| c.2260-1G>A  | splice acc.  | 0                  | 0                         | 0           | 1                      | 0                | 0          | 0               | 0           | 1            |
| p.Arg98Thrfs   | frameshift   | 0                  | 0                         | 0           | 1                      | 0                | 0          | 0               | 0           | 1            |
| p.Gly92Ter*  | stop gained  | 0                  | 0                         | 0           | 0                      | 0                | 1          | 0               | 0           | 1            |
| p.Met76Valfs   | frameshift   | 0                  | 0                         | 23          | 2                      | 0                | 1          | 0               | 8           | 34           |
| p.Val55Ter   | frameshift   | 0                  | 0                         | 0           | 0                      | 0                | 2          | 0               | 0           | 2            |
| p.Gln545Ter  | stop gained  | 0                  | 0                         | 0           | 1                      | 0                | 0          | 0               | 0           | 1            |
| p.Thr201Ilefs  | frameshift   | 0                  | 1                         | 0           | 0                      | 0                | 0          | 0               | 0           | 1            |
| c.570-1G>A   | splice acc.  | 0                  | 0                         | 0           | 1                      | 0                | 0          | 0               | 0           | 1            |
| c.570-1G>T   | splice acc.  | 0                  | 0                         | 0           | 0                      | 0                | 0          | 0               | 1           | 1            |
| c.1428+1G>A  | splice donor | 0                  | 0                         | 1           | 0                      | 0                | 0          | 0               | 0           | 1            |
| p.Asp371Ilefs  | frameshift   | 0                  | 0                         | 0           | 1                      | 0                | 0          | 0               | 0           | 1            |
| p.Glu367Ter  | stop gained  | 0                  | 0                         | 0           | 1                      | 0                | 0          | 0               | 0           | 1            |
| p.Ile354Phefs  | frameshift   | 0                  | 0                         | 0           | 1                      | 0                | 0          | 0               | 0           | 1            |
| c.327-1C>G   | splice acc.  | 0                  | 0                         | 0           | 0                      | 0                | 0          | 0               | 3           | 3            |
| p.Arg48Ter   | stop gained  | 0                  | 0                         | 1           | 1                      | 0                | 0          | 0               | 0           | 2            |
| p.Glu27Argfs   | frameshift   | 0                  | 0                         | 0           | 0                      | 0                | 0          | 0               | 1           | 1            |
| p.Phe3_Serfs   | frameshift   | 0                  | 1                         | 0           | 4                      | 0                | 0          | 0               | 0           | 5            |
| p.Pro8Hisfs  | frameshift   | 0                  | 0                         | 0           | 1                      | 0                | 0          | 0               | 0           | 1            |
| SUM of putative loss-of-function population alleles                              |              |                    | <b>2</b>                  | <b>25</b>   | <b>18</b>              | <b>0</b>         | <b>4</b>   | <b>0</b>        | <b>13</b>   | <b>62</b>    |
| Total population alleles   |              |                    | 9802                      | 8622        | 66716                  | 6614             | 11574      | 898             | 16510       | 120736       |
| loss-of-function carrier frequency   |              |                    | 2.040E-04                 | 2.900E-03   | 2.698E-04              | 0.0001511        | 3.456E-04  | 0.00111         | 7.874E-04   | 5.135E-04    |
| Expected rate of nullizygous per million (1 in X non-consanguineous conceptions) |              |                    | <b>24</b>                 | <b>0.12</b> | <b>13.7</b>            | <b>&lt; 43.8</b> | <b>8.3</b> | <b>&lt;0.80</b> | <b>1.6</b>  | <b>3.8</b>   |

**Supplementary Table 5b. *RASGRP1* conservation evaluation.** CADD Score, RVIS Score and expected versus observed number of nonsense variants in *RASGRP1* are summarized below.

| <b>Performed Test</b>                                  | <b>Score</b>                   |
|--|--------------------------------|
| Chr15: 38805097: G>A variant CADD (v1.3) score         | 35                             |
| CCDS Size (including canonical splice) ENSG00000172575 | 5023                           |
| Number of unique protein-coding variants (ExAC)        | 594                            |
| RVIS Score Version 2 of RASGRP1                        | -0.82 (11.77% most intolerant) |
| CCDS ExAC 'Expected' number of nonsense variants       | 28.3                           |
| CCDS Observed nonsense variants (ExAC)                 | 7                              |
| <b>Binomial Exact test p-value</b>                     | 1.29619E-06                    |

**Supplementary Table 6. Comparison of human RASGRP1 deficiency with findings from *Rasgrp1*<sup>-/-</sup> knockout mice<sup>2,3,4,5</sup>.**

|                           | <b>Human RASGRP1<br/>Deficiency</b> | <b><i>Rasgrp1</i><sup>-/-</sup> mouse model</b> |
|---------------------------|-------------------------------------|---|
| <b>Peripheral T-cells</b> |                                     |   |
| CD3+ CD4+                 | ↓                                   | ↓ <sup>8</sup>                                  |
| CD3+CD8+                  | ↑                                   | ↓ <sup>8</sup>                                  |
| TCRαβ                     | ↓                                   | n.d.  |
| TCRγδ                     | ↑                                   | ↑ <sup>8</sup>                                  |
| Proliferation             | ↓                                   | ↓ <sup>8</sup>                                  |
| ERK signaling             | ↓                                   | ↓ <sup>8</sup>                                  |
| <b>iNKT cells</b>         | ↓                                   | ↓ <sup>18</sup>                                 |
| CD19+                     |                                     |   |
| <b>NK cells</b>           |                                     |   |
| CD16+CD56+                | normal                              | normal  |
| Cytotoxicity              | ↓                                   | n.d.  |
| <b>Peripheral B-cells</b> |                                     |   |
| CD19+                     | ↓                                   | normal <sup>8</sup>                             |
| CD19+IgD+                 | normal                              | n.d.  |
| CD19+IgM+                 | ↑                                   | ↑ <sup>8</sup>                                  |
| CD19+CD21 <sup>low</sup>  | ↑                                   | n.d.  |
| CD19+ CD38+               | ↑                                   | n.d.  |
| <b>Autoimmunity</b>       |                                     |   |
| Splenomegaly              | no                                  | yes, older mice <sup>24</sup>                   |
| Autoantibodies            | no                                  | Yes, ANCA <sup>24</sup>                         |
| <b>Immunodeficiency</b>   |                                     |   |
| Viral infections          | ↑                                   | n.d.  |
| Bacterial Infectios       | ↑                                   | n.d.  |

**Supplementary Table 7. Absence of all autoantibodies tested in index patient P1.**

|  |          |
|--|----------|
| <b>Nuclear Antibodies</b>              |          |
| Anti-nuclear antibody (ANA)            | negative |
| <b>Rheuma Serology</b>                 |          |
| Rheumatoid-factor IgG                  | negative |
| Rheumatoid -factor IgA                 | negative |
| Rheumatoid -factor IgM                 | negative |
| Rheumatoid factor latex test           | negative |
| Anti-streptolysine O                   | negative |
| Collagen type I                        | negative |
| Collagen type II                       | negative |
| Collagen type III                      | negative |
| Collagen type IV                       | negative |
| <b>Thyroid gland Antibodies</b>        |          |
| Thyreoglobulin antibody                | negative |
| <b>Vessel &amp; kidney Antibodies</b>  |          |
| Neutrophil cytoplasmic antibody (ANCA) | negative |
| Proteinase-3 antibody                  | negative |
| Myeloperoxidase                        | negative |
| <b>Phospholipid antibodies</b>         |          |
| Cardiolipin IgG                        | negative |
| Cardiolipin IgA                        | negative |
| Cardiolipin IgM                        | negative |
| B2-glycoprotein IgG                    | negative |
| B2-glycoprotein IgA                    | negative |
| b2-glycoprotein IgM                    | negative |
| <b>Intestinal Antibodies</b>           |          |
| Gliadin IgG                            | negative |
| Gliadin IgA                            | negative |
| Tissue transglutaminase IgG            | negative |
| Tissue Transglutaminase IgA            | negative |



**Supplementary Table 8a. FCA, FCB and SAINT Score of identified RASGRP1 interactors in HEK293 cells.**

| BAIT    | PREY     | FC_A  | FC_B  | SAINT |
|---------|----------|-------|-------|-------|
| RASGRP1 | RASGRP1  | 81.83 | 68.16 | 1     |
| RASGRP1 | DYNLL1   | 34.49 | 34.49 | 1     |
| RASGRP1 | DYNLL2   | 31.78 | 31.78 | 1     |
| RASGRP1 | TUBA1A   | 25.44 | 25.44 | 1     |
| RASGRP1 | TUBA1C   | 25.14 | 25.14 | 1     |
| RASGRP1 | TUBB4B   | 15.18 | 15.18 | 1     |
| RASGRP1 | TUBB3    | 13.37 | 13.37 | 1     |
| RASGRP1 | TUBB     | 12.92 | 9.68  | 1     |
| RASGRP1 | TUBA8    | 12.16 | 12.16 | 1     |
| RASGRP1 | TUBB2B   | 11.56 | 11.56 | 1     |
| RASGRP1 | TUBA1B   | 8.6   | 5.12  | 1     |
| RASGRP1 | SLC25A5  | 6.43  | 6.43  | 1     |
| RASGRP1 | EMD      | 5.22  | 5.22  | 1     |
| RASGRP1 | HSPA1B   | 4.35  | 2.44  | 1     |
| RASGRP1 | RPS3     | 4.02  | 4.02  | 1     |
| RASGRP1 | SLC25A6  | 3.93  | 3.28  | 1     |
| RASGRP1 | ATP5A1   | 3.72  | 3.72  | 1     |
| RASGRP1 | CAD      | 3.11  | 3.11  | 1     |
| RASGRP1 | IRS4     | 3.03  | 2.73  | 1     |
| RASGRP1 | PPP6R3   | 2.81  | 2.81  | 1     |
| RASGRP1 | SLC25A13 | 2.51  | 2.51  | 1     |
| RASGRP1 | LGALS3BP | 2.51  | 2.51  | 1     |
| RASGRP1 | RHOT2    | 1.91  | 1.91  | 1     |
| RASGRP1 | HSPA1L   | 3.41  | 2.22  | 0.99  |
| RASGRP1 | HNRNPH1  | 2.81  | 2.81  | 0.99  |
| RASGRP1 | HNRNPF   | 2.51  | 2.51  | 0.99  |
| RASGRP1 | RPS27    | 2.21  | 2.21  | 0.99  |
| RASGRP1 | ATP1A1   | 1.91  | 1.91  | 0.99  |
| RASGRP1 | HSPD1    | 1.6   | 1.6   | 0.99  |
| RASGRP1 | TUFM     | 2.21  | 2.21  | 0.98  |
| RASGRP1 | ATP2A2   | 1.91  | 1.91  | 0.98  |
| RASGRP1 | DCAF7    | 1.91  | 1.91  | 0.98  |
| RASGRP1 | PPP6C    | 2.21  | 2.21  | 0.97  |
| RASGRP1 | RCN2     | 2.21  | 2.21  | 0.97  |
| RASGRP1 | SLC25A1  | 1.91  | 1.91  | 0.97  |
| RASGRP1 | SLC25A11 | 1.6   | 1.6   | 0.97  |
| RASGRP1 | RMDN3    | 1.6   | 1.6   | 0.97  |
| RASGRP1 | ACSL3    | 1.6   | 1.6   | 0.97  |
| RASGRP1 | HLA-B    | 1.91  | 1.91  | 0.96  |
| RASGRP1 | HSP90AA1 | 1.6   | 1.6   | 0.96  |
| RASGRP1 | HSPA8    | 2.54  | 1.42  | 0.91  |
| RASGRP1 | HSPA5    | 1.74  | 1.14  | 0.79  |

|         |          |      |      |      |
|---------|----------|------|------|------|
| RASGRP1 | CHUK     | 1.54 | 1.11 | 0.53 |
| RASGRP1 | RPL23    | 0.5  | 0.32 | 0.09 |
| RASGRP1 | EEF1A1   | 1.3  | 1.3  | 0    |
| RASGRP1 | RPLP2    | 1.3  | 1.3  | 0    |
| RASGRP1 | FASN     | 1.3  | 1.3  | 0    |
| RASGRP1 | ANKRD28  | 1.3  | 1.3  | 0    |
| RASGRP1 | BAG2     | 1.3  | 1.3  | 0    |
| RASGRP1 | SLC25A10 | 1.3  | 1.3  | 0    |
| RASGRP1 | ACTA2    | 0    | 0    | 0    |
| RASGRP1 | HMGB1P1  | 0    | 0    | 0    |
| RASGRP1 | HSPA9    | 0    | 0    | 0    |
| RASGRP1 | MYL6     | 0    | 0    | 0    |
| RASGRP1 | KRT1     | 0    | 0    | 0    |
| RASGRP1 | TBC1D4   | 0    | 0    | 0    |
| RASGRP1 | HNRNPU   | 0    | 0    | 0    |
| RASGRP1 | HSP90AB1 | 0    | 0    | 0    |
| RASGRP1 | GFP      | 0    | 0    | 0    |
| RASGRP1 | FBXO31   | 0    | 0    | 0    |
| RASGRP1 | UBB      | 0    | 0    | 0    |
| RASGRP1 | ACTB     | 0    | 0    | 0    |

**Supplementary Table 8b. FCA, FCB and SAINT Score of identified RASGRP1 interactors in Jurkat T cells.**

| BAIT    | PREY     | FC_A  | FC_B | SAINT |
|---------|----------|-------|------|-------|
| RASGRP1 | RASGRP1  | 41.6  | 41.6 | 1     |
| RASGRP1 | NA       | 13.57 | 3.39 | 0.3   |
| RASGRP1 | TUBB4B   | 9.99  | 5.92 | 0.94  |
| RASGRP1 | DYNLL1   | 9.81  | 9.81 | 0.47  |
| RASGRP1 | TUBB     | 7.09  | 4.28 | 0.5   |
| RASGRP1 | EIF3I    | 4.83  | 4.83 | 0.99  |
| RASGRP1 | EMD      | 4.04  | 4.04 | 0.87  |
| RASGRP1 | TUBA1B   | 4.01  | 2.73 | 0.05  |
| RASGRP1 | EEF2     | 3.86  | 2.44 | 0.5   |
| RASGRP1 | TUBB3    | 3.82  | 3.82 | 0.5   |
| RASGRP1 | HSPA9    | 3.41  | 2.18 | 0.99  |
| RASGRP1 | PDIA3    | 2.93  | 2.93 | 0.49  |
| RASGRP1 | TKT      | 2.91  | 1.23 | 0.5   |
| RASGRP1 | RPS19    | 2.82  | 1.28 | 0.98  |
| RASGRP1 | EEF1A1P5 | 2.73  | 2.73 | 0.49  |
| RASGRP1 | NME1     | 2.63  | 1.65 | 0.42  |
| RASGRP1 | ATP5A1   | 2.6   | 1.43 | 0.94  |
| RASGRP1 | SERBP1   | 2.56  | 2.01 | 0.5   |
| RASGRP1 | VCP      | 2.54  | 2.54 | 0.46  |
| RASGRP1 | HNRNPM   | 2.43  | 2.13 | 0.5   |

|         |          |      |      |      |
|---------|----------|------|------|------|
| RASGRP1 | MSN      | 2.38 | 1.43 | 0.5  |
| RASGRP1 | CCT2     | 2.34 | 2.34 | 0.49 |
| RASGRP1 | PGK1     | 2.33 | 0.98 | 0.5  |
| RASGRP1 | HSPA8    | 2.3  | 1.46 | 0.14 |
| RASGRP1 | SSBP1    | 2.29 | 2.29 | 0.49 |
| RASGRP1 | HSPD1    | 2.25 | 0.7  | 0.5  |
| RASGRP1 | RBBP4    | 2.24 | 2.24 | 0.49 |
| RASGRP1 | HMGB2    | 2.19 | 2.19 | 0.49 |
| RASGRP1 | CCT5     | 2.14 | 2.14 | 0.49 |
| RASGRP1 | TRMT112  | 2.14 | 2.14 | 0.49 |
| RASGRP1 | CCT3     | 2.13 | 1.74 | 0.5  |
| RASGRP1 | NME2     | 2.12 | 1.33 | 0.5  |
| RASGRP1 | CCT7     | 2.09 | 2.09 | 0.49 |
| RASGRP1 | SUB1     | 2.09 | 2.09 | 0.5  |
| RASGRP1 | PKM      | 2.09 | 0.88 | 0.81 |
| RASGRP1 | MDH2     | 2.08 | 1.06 | 0.5  |
| RASGRP1 | HINT1    | 2.04 | 2.04 | 0.5  |
| RASGRP1 | PAFAH1B3 | 2.04 | 2.04 | 0.5  |
| RASGRP1 | PGAM1    | 2.03 | 0.95 | 0.5  |
| RASGRP1 | DUT      | 1.99 | 1.19 | 0.5  |
| RASGRP1 | SFPQ     | 1.99 | 1.45 | 0.5  |
| RASGRP1 | PCNP     | 1.99 | 1.99 | 0.5  |
| RASGRP1 | SOD1     | 1.99 | 1.99 | 0.49 |
| RASGRP1 | CCT4     | 1.94 | 1.94 | 0.47 |
| RASGRP1 | EZR      | 1.94 | 1.94 | 0.46 |
| RASGRP1 | PRKCSH   | 1.89 | 1.89 | 0.48 |
| RASGRP1 | YWHAG    | 1.89 | 1.89 | 0.49 |
| RASGRP1 | RPL5     | 1.89 | 1.08 | 0.5  |
| RASGRP1 | LAP3     | 1.89 | 1.89 | 0.48 |
| RASGRP1 | ADA      | 1.89 | 1.89 | 0.5  |
| RASGRP1 | CCT8     | 1.85 | 1.06 | 0.5  |
| RASGRP1 | CCT6A    | 1.84 | 1.84 | 0.48 |
| RASGRP1 | RBBP7    | 1.84 | 1.84 | 0.48 |
| RASGRP1 | PPM1G    | 1.84 | 1.84 | 0.49 |
| RASGRP1 | PSMA5    | 1.84 | 1.84 | 0.49 |
| RASGRP1 | RPL8     | 1.84 | 1.84 | 0.49 |
| RASGRP1 | ATP5H    | 1.84 | 1.84 | 0.49 |
| RASGRP1 | PRDX5    | 1.81 | 1.32 | 0.5  |
| RASGRP1 | NPM1     | 1.8  | 1.03 | 0.5  |
| RASGRP1 | NUDC     | 1.79 | 1.79 | 0.49 |
| RASGRP1 | SF3A1    | 1.79 | 1.79 | 0.49 |
| RASGRP1 | STMN1    | 1.78 | 0.71 | 0.5  |
| RASGRP1 | PPIA     | 1.77 | 0.68 | 0.48 |

|         |          |      |      |      |
|---------|----------|------|------|------|
| RASGRP1 | PAICS    | 1.74 | 1.74 | 0.49 |
| RASGRP1 | HMGB1    | 1.74 | 1.1  | 0.5  |
| RASGRP1 | CNPY2    | 1.74 | 1.74 | 0.49 |
| RASGRP1 | MTHFD1   | 1.74 | 1.74 | 0.44 |
| RASGRP1 | PSME2    | 1.74 | 1.74 | 0.5  |
| RASGRP1 | LUC7L2   | 1.74 | 1.74 | 0.49 |
| RASGRP1 | P4HB     | 1.74 | 1.74 | 0.47 |
| RASGRP1 | PA2G4    | 1.74 | 1.74 | 0.49 |
| RASGRP1 | ENO2     | 1.73 | 1.27 | 0.5  |
| RASGRP1 | PRSS1    | 1.73 | 1.73 | 0    |
| RASGRP1 | TPM3     | 1.71 | 1.16 | 0.5  |
| RASGRP1 | SHMT2    | 1.69 | 1.69 | 0.48 |
| RASGRP1 | NAP1L4   | 1.69 | 1.69 | 0.47 |
| RASGRP1 | SRRM2    | 1.69 | 1.69 | 0.24 |
| RASGRP1 | PFDN2    | 1.69 | 1.69 | 0.5  |
| RASGRP1 | RANBP1   | 1.67 | 1.47 | 0.5  |
| RASGRP1 | TPI1     | 1.67 | 0.57 | 0.5  |
| RASGRP1 | CAPZB    | 1.64 | 1.64 | 0.47 |
| RASGRP1 | GDI2     | 1.64 | 1.64 | 0.48 |
| RASGRP1 | AIP      | 1.64 | 1.64 | 0.49 |
| RASGRP1 | IDH2     | 1.64 | 1.64 | 0.46 |
| RASGRP1 | TALDO1   | 1.64 | 1.64 | 0.47 |
| RASGRP1 | RPS29    | 1.64 | 1.37 | 0.5  |
| RASGRP1 | PFDN1    | 1.64 | 1.64 | 0.49 |
| RASGRP1 | YWHAB    | 1.62 | 1.09 | 0.49 |
| RASGRP1 | HSPE1    | 1.6  | 0.55 | 0.48 |
| RASGRP1 | RNASEH2C | 1.59 | 1.59 | 0.49 |
| RASGRP1 | LCP1     | 1.59 | 1.1  | 0.5  |
| RASGRP1 | THYN1    | 1.59 | 1.59 | 0.5  |
| RASGRP1 | MYL6     | 1.59 | 1.59 | 0.5  |
| RASGRP1 | PARK7    | 1.59 | 0.75 | 0.5  |
| RASGRP1 | RPS20    | 1.59 | 1.59 | 0.49 |
| RASGRP1 | ATP5B    | 1.59 | 0.65 | 0.5  |
| RASGRP1 | NONO     | 1.57 | 1.11 | 0.5  |
| RASGRP1 | PSMA1    | 1.55 | 1.29 | 0.5  |
| RASGRP1 | MANF     | 1.54 | 1.54 | 0.5  |
| RASGRP1 | COX4I1   | 1.54 | 1.54 | 0.49 |
| RASGRP1 | DPYSL2   | 1.54 | 1.54 | 0.46 |
| RASGRP1 | PSME1    | 1.54 | 1.54 | 0.47 |
| RASGRP1 | SARNP    | 1.54 | 1.54 | 0.48 |
| RASGRP1 | SEP6     | 1.54 | 1.54 | 0.46 |
| RASGRP1 | ANXA6    | 1.54 | 1.54 | 0.43 |
| RASGRP1 | EEF1D    | 1.54 | 0.85 | 0.5  |

|         |         |      |      |      |
|---------|---------|------|------|------|
| RASGRP1 | DSTN    | 1.54 | 1.54 | 0.49 |
| RASGRP1 | EIF4A1  | 1.53 | 1.25 | 0.5  |
| RASGRP1 | CALR    | 1.53 | 1.34 | 0.5  |
| RASGRP1 | SET     | 1.53 | 1.15 | 0.5  |
| RASGRP1 | NEDD8   | 1.5  | 1.5  | 0.49 |
| RASGRP1 | LASP1   | 1.5  | 1.5  | 0.49 |
| RASGRP1 | TBCA    | 1.5  | 1.5  | 0.5  |
| RASGRP1 | EIF3A   | 1.5  | 1.5  | 0.35 |
| RASGRP1 | PHGDH   | 1.5  | 1.5  | 0.44 |
| RASGRP1 | PAK2    | 1.5  | 1.5  | 0.47 |
| RASGRP1 | KHDRBS1 | 1.5  | 1.5  | 0.45 |
| RASGRP1 | SF3B2   | 1.5  | 1.5  | 0.41 |
| RASGRP1 | YWHAH   | 1.5  | 1.5  | 0.5  |
| RASGRP1 | ATIC    | 1.5  | 1.5  | 0.48 |
| RASGRP1 | MCM7    | 1.5  | 1.5  | 0.46 |
| RASGRP1 | ATP5I   | 1.5  | 1.5  | 0.49 |
| RASGRP1 | PDIA4   | 1.5  | 1.5  | 0.47 |
| RASGRP1 | G3BP1   | 1.5  | 1.5  | 0.44 |
| RASGRP1 | PCNA    | 1.49 | 0.71 | 0.5  |
| RASGRP1 | HNRNPK  | 1.48 | 0.86 | 0.47 |
| RASGRP1 | PRDX6   | 1.47 | 1.09 | 0.5  |
| RASGRP1 | ILF3    | 1.47 | 1.16 | 0.5  |
| RASGRP1 | RPS21   | 1.46 | 0.69 | 0.5  |
| RASGRP1 | TCEB2   | 1.45 | 1.45 | 0.49 |
| RASGRP1 | CCDC58  | 1.45 | 1.45 | 0.49 |
| RASGRP1 | FLNA    | 1.45 | 1.45 | 0.23 |
| RASGRP1 | ACAT2   | 1.45 | 1.45 | 0.47 |
| RASGRP1 | COX5B   | 1.45 | 1.45 | 0.5  |
| RASGRP1 | PSMC3   | 1.45 | 1.45 | 0.47 |
| RASGRP1 | LRRC47  | 1.45 | 1.45 | 0.44 |
| RASGRP1 | TLN1    | 1.45 | 1.45 | 0.19 |
| RASGRP1 | MDH1    | 1.45 | 1.45 | 0.49 |
| RASGRP1 | KHSRP   | 1.45 | 1.45 | 0.42 |
| RASGRP1 | MYH9    | 1.45 | 1.45 | 0.26 |
| RASGRP1 | TFG     | 1.45 | 1.45 | 0.47 |
| RASGRP1 | NSFL1C  | 1.45 | 1.45 | 0.47 |
| RASGRP1 | GPI     | 1.45 | 1.45 | 0.46 |
| RASGRP1 | SMAP    | 1.45 | 1.45 | 0.49 |
| RASGRP1 | HN1     | 1.45 | 1.21 | 0.5  |
| RASGRP1 | FAM136A | 1.45 | 1.45 | 0.49 |
| RASGRP1 | CDV3    | 1.45 | 1.45 | 0.49 |
| RASGRP1 | PSMB6   | 1.45 | 1.45 | 0.48 |
| RASGRP1 | CACYBP  | 1.45 | 1.45 | 0.49 |

|         |          |      |      |      |
|---------|----------|------|------|------|
| RASGRP1 | YWHAQ    | 1.42 | 1.03 | 0.5  |
| RASGRP1 | EIF5A2   | 1.4  | 1.4  | 0.48 |
| RASGRP1 | ACP1     | 1.4  | 1.4  | 0.48 |
| RASGRP1 | COX5A    | 1.4  | 1.4  | 0.49 |
| RASGRP1 | NAP1L1   | 1.4  | 1.4  | 0.45 |
| RASGRP1 | PPA1     | 1.4  | 1.4  | 0.49 |
| RASGRP1 | EIF5A    | 1.4  | 1.4  | 0.49 |
| RASGRP1 | LSM7     | 1.4  | 1.4  | 0.5  |
| RASGRP1 | GLO1     | 1.4  | 1.4  | 0.48 |
| RASGRP1 | FARSA    | 1.4  | 1.4  | 0.43 |
| RASGRP1 | MCM2     | 1.4  | 1.4  | 0.41 |
| RASGRP1 | STMN2    | 1.4  | 1.4  | 0.47 |
| RASGRP1 | PFDN6    | 1.4  | 1.4  | 0.49 |
| RASGRP1 | PSMB7    | 1.4  | 1.4  | 0.48 |
| RASGRP1 | HIST1H1A | 1.39 | 0.68 | 0.26 |
| RASGRP1 | RPS12    | 1.39 | 1.22 | 0.49 |
| RASGRP1 | GSTP1    | 1.37 | 1    | 0.49 |
| RASGRP1 | MZB1     | 1.37 | 1    | 0.49 |
| RASGRP1 | RPS3A    | 1.36 | 1.12 | 0.5  |
| RASGRP1 | TCOF1    | 1.35 | 1.35 | 0.32 |
| RASGRP1 | WDR1     | 1.35 | 1.35 | 0.45 |
| RASGRP1 | DBNL     | 1.35 | 1.35 | 0.44 |
| RASGRP1 | GART     | 1.35 | 1.35 | 0.41 |
| RASGRP1 | PSAP     | 1.35 | 1.35 | 0.43 |
| RASGRP1 | HINT2    | 1.35 | 1.35 | 0.49 |
| RASGRP1 | PGD      | 1.35 | 1.35 | 0.42 |
| RASGRP1 | RUVBL1   | 1.35 | 1.35 | 0.46 |
| RASGRP1 | EIF4H    | 1.35 | 1.35 | 0.48 |
| RASGRP1 | TCP1     | 1.35 | 1.35 | 0.44 |
| RASGRP1 | TCEB1    | 1.35 | 1.35 | 0.47 |
| RASGRP1 | HCLS1    | 1.35 | 1.35 | 0.45 |
| RASGRP1 | YWHAE    | 1.35 | 1.35 | 0.47 |
| RASGRP1 | MAT2A    | 1.35 | 1.35 | 0.46 |
| RASGRP1 | H2BFS    | 1.35 | 1.35 | 0.35 |
| RASGRP1 | PHB      | 1.35 | 1.35 | 0.48 |
| RASGRP1 | PSMA7    | 1.35 | 1.35 | 0.47 |
| RASGRP1 | FEN1     | 1.35 | 1.35 | 0.47 |
| RASGRP1 | SRP14    | 1.35 | 1.35 | 0.48 |
| RASGRP1 | HNRNPUL1 | 1.35 | 1.35 | 0.34 |
| RASGRP1 | SNRPG    | 1.35 | 1.35 | 0.49 |
| RASGRP1 | EIF5     | 1.35 | 1.35 | 0.46 |
| RASGRP1 | EEF1G    | 1.34 | 1.18 | 0.49 |
| RASGRP1 | ENO3     | 1.32 | 0.83 | 0.49 |

|         |          |      |      |      |
|---------|----------|------|------|------|
| RASGRP1 | ANXA1    | 1.32 | 0.89 | 0.5  |
| RASGRP1 | ALDOA    | 1.32 | 0.64 | 0.49 |
| RASGRP1 | RPS16    | 1.32 | 0.95 | 0.48 |
| RASGRP1 | PSMA6    | 1.31 | 1.1  | 0.5  |
| RASGRP1 | SUMF2    | 1.3  | 1.3  | 0.47 |
| RASGRP1 | TUBB4A   | 1.3  | 0.68 | 0.47 |
| RASGRP1 | STIP1    | 1.3  | 1.3  | 0.45 |
| RASGRP1 | GDI1     | 1.3  | 1.3  | 0.43 |
| RASGRP1 | ACAT1    | 1.3  | 1.3  | 0.44 |
| RASGRP1 | EIF3C    | 1.3  | 1.3  | 0.3  |
| RASGRP1 | BTF3L4   | 1.3  | 1.3  | 0.48 |
| RASGRP1 | CCDC124  | 1.3  | 1.3  | 0.47 |
| RASGRP1 | RANBP3   | 1.3  | 1.3  | 0.42 |
| RASGRP1 | PFKP     | 1.3  | 1.3  | 0.34 |
| RASGRP1 | EDF1     | 1.3  | 1.3  | 0.48 |
| RASGRP1 | SRSF5    | 1.3  | 1.3  | 0.48 |
| RASGRP1 | HSPH1    | 1.3  | 1.3  | 0.33 |
| RASGRP1 | ARPP19   | 1.3  | 1.3  | 0.48 |
| RASGRP1 | C9orf78  | 1.3  | 1.3  | 0.37 |
| RASGRP1 | MAP4     | 1.3  | 1.3  | 0.44 |
| RASGRP1 | CHORDC1  | 1.3  | 1.3  | 0.47 |
| RASGRP1 | CRIP1    | 1.3  | 1.3  | 0.49 |
| RASGRP1 | CANX     | 1.3  | 1.3  | 0.39 |
| RASGRP1 | ACTR3    | 1.3  | 1.3  | 0.43 |
| RASGRP1 | VBP1     | 1.3  | 1.3  | 0.48 |
| RASGRP1 | USP14    | 1.3  | 1.3  | 0.44 |
| RASGRP1 | RPSA     | 1.29 | 1.13 | 0.49 |
| RASGRP1 | RPS5     | 1.28 | 1.01 | 0.5  |
| RASGRP1 | DDX41    | 1.27 | 1.06 | 0.49 |
| RASGRP1 | YWHAZ    | 1.27 | 0.63 | 0.47 |
| RASGRP1 | RPS28    | 1.27 | 0.66 | 0.49 |
| RASGRP1 | SNRPGP15 | 1.27 | 1.06 | 0.49 |
| RASGRP1 | LDHB     | 1.27 | 0.8  | 0.44 |
| RASGRP1 | ANP32E   | 1.25 | 1.25 | 0.44 |
| RASGRP1 | ANP32B   | 1.25 | 1.25 | 0.45 |
| RASGRP1 | APRT     | 1.25 | 1.25 | 0.47 |
| RASGRP1 | ANP32A   | 1.25 | 1.25 | 0.46 |
| RASGRP1 | GANAB    | 1.25 | 1.25 | 0.29 |
| RASGRP1 | AK2      | 1.25 | 1.25 | 0.47 |
| RASGRP1 | PSMC1    | 1.25 | 1.25 | 0.44 |
| RASGRP1 | COA6     | 1.25 | 1.25 | 0.48 |
| RASGRP1 | REXO2    | 1.25 | 1.25 | 0.48 |
| RASGRP1 | CBFB     | 1.25 | 1.25 | 0.48 |

|         |          |      |      |      |
|---------|----------|------|------|------|
| RASGRP1 | EIF4B    | 1.25 | 1.25 | 0.36 |
| RASGRP1 | MTHFD2   | 1.25 | 1.25 | 0.45 |
| RASGRP1 | ADSS     | 1.25 | 1.25 | 0.4  |
| RASGRP1 | IFI16    | 1.25 | 1.25 | 0.33 |
| RASGRP1 | RTCB     | 1.25 | 1.25 | 0.44 |
| RASGRP1 | ST13P5   | 1.25 | 1.25 | 0.33 |
| RASGRP1 | MAT2B    | 1.25 | 1.25 | 0.45 |
| RASGRP1 | HN1L     | 1.25 | 1.25 | 0.47 |
| RASGRP1 | TPD52    | 1.25 | 1.25 | 0.47 |
| RASGRP1 | SF1      | 1.25 | 1.25 | 0.36 |
| RASGRP1 | SRSF6    | 1.25 | 1.25 | 0.44 |
| RASGRP1 | SEP6     | 1.25 | 1.25 | 0.32 |
| RASGRP1 | PSMA2    | 1.25 | 1.25 | 0.47 |
| RASGRP1 | TIMM9    | 1.25 | 1.25 | 0.48 |
| RASGRP1 | DPP3     | 1.25 | 1.25 | 0.36 |
| RASGRP1 | ANXA5    | 1.25 | 1.25 | 0.46 |
| RASGRP1 | MCM3     | 1.25 | 1.25 | 0.32 |
| RASGRP1 | EIF1AX   | 1.25 | 1.25 | 0.48 |
| RASGRP1 | EIF1AY   | 1.25 | 1.25 | 0.48 |
| RASGRP1 | PFAS     | 1.25 | 1.25 | 0.23 |
| RASGRP1 | CIAPIN1  | 1.25 | 1.25 | 0.46 |
| RASGRP1 | PPP2CA   | 1.25 | 1.25 | 0.45 |
| RASGRP1 | PPP2CB   | 1.25 | 1.25 | 0.45 |
| RASGRP1 | CHTF8    | 1.25 | 1.25 | 0.48 |
| RASGRP1 | ST13     | 1.25 | 1.25 | 0.4  |
| RASGRP1 | CAP1     | 1.25 | 1.25 | 0.42 |
| RASGRP1 | POLDIP3  | 1.25 | 1.25 | 0.39 |
| RASGRP1 | HIST1H1E | 1.25 | 0.65 | 0.22 |
| RASGRP1 | THRAP3   | 1.25 | 1.25 | 0.3  |
| RASGRP1 | HCFC1    | 1.25 | 1.25 | 0.16 |
| RASGRP1 | PRPF19   | 1.25 | 1.25 | 0.38 |
| RASGRP1 | DNASE2   | 1.25 | 1.25 | 0.45 |
| RASGRP1 | LRRC59   | 1.25 | 1.25 | 0.45 |
| RASGRP1 | G3BP2    | 1.25 | 1.25 | 0.42 |
| RASGRP1 | MIF      | 1.24 | 1.09 | 0.48 |
| RASGRP1 | RAN      | 1.24 | 1.09 | 0.49 |
| RASGRP1 | HAGH     | 1.24 | 0.68 | 0.49 |
| RASGRP1 | RPS10    | 1.24 | 0.84 | 0.48 |
| RASGRP1 | RPL26    | 1.23 | 0.67 | 0.48 |
| RASGRP1 | TAGLN2   | 1.21 | 0.98 | 0.47 |
| RASGRP1 | CFL1     | 1.21 | 0.46 | 0.48 |
| RASGRP1 | HSPA4    | 1.2  | 1.2  | 0.29 |
| RASGRP1 | ZC3H15   | 1.2  | 1.2  | 0.38 |



|         |          |     |      |      |
|---------|----------|-----|------|------|
| RASGRP1 | LARP1    | 1.2 | 1.2  | 0.25 |
| RASGRP1 | PCBP1    | 1.2 | 1.05 | 0.47 |
| RASGRP1 | RPS17L   | 1.2 | 1.2  | 0.46 |
| RASGRP1 | TIMM10   | 1.2 | 1.2  | 0.47 |
| RASGRP1 | PDLIM1   | 1.2 | 1.2  | 0.44 |
| RASGRP1 | FLNB     | 1.2 | 1.2  | 0.13 |
| RASGRP1 | SMS      | 1.2 | 1.2  | 0.41 |
| RASGRP1 | RAP1B    | 1.2 | 1.2  | 0.45 |
| RASGRP1 | RAP1A    | 1.2 | 1.2  | 0.45 |
| RASGRP1 | DCTN6    | 1.2 | 1.2  | 0.46 |
| RASGRP1 | CDC37    | 1.2 | 1.2  | 0.4  |
| RASGRP1 | PBK      | 1.2 | 1.2  | 0.43 |
| RASGRP1 | RBM3     | 1.2 | 1.2  | 0.48 |
| RASGRP1 | PSMD7    | 1.2 | 1.2  | 0.43 |
| RASGRP1 | IMPDH2   | 1.2 | 1.2  | 0.36 |
| RASGRP1 | RPL22    | 1.2 | 1.2  | 0.47 |
| RASGRP1 | PSMC2    | 1.2 | 1.2  | 0.45 |
| RASGRP1 | CLTA     | 1.2 | 1.2  | 0.45 |
| RASGRP1 | PSMD4    | 1.2 | 1.2  | 0.42 |
| RASGRP1 | EIF3G    | 1.2 | 1.2  | 0.43 |
| RASGRP1 | THOC3    | 1.2 | 1.2  | 0.4  |
| RASGRP1 | GTF2F1   | 1.2 | 1.2  | 0.35 |
| RASGRP1 | COPS3    | 1.2 | 1.2  | 0.37 |
| RASGRP1 | RNASEH2A | 1.2 | 1.2  | 0.43 |
| RASGRP1 | RPS26P11 | 1.2 | 1.2  | 0.28 |
| RASGRP1 | RCSD1    | 1.2 | 1.2  | 0.41 |
| RASGRP1 | ARHGDI1A | 1.2 | 0.87 | 0.48 |
| RASGRP1 | LSM4     | 1.2 | 1.2  | 0.47 |
| RASGRP1 | TXNDC5   | 1.2 | 1.2  | 0.42 |
| RASGRP1 | PPP1R2   | 1.2 | 1.2  | 0.47 |
| RASGRP1 | EPB41    | 1.2 | 1.2  | 0.28 |
| RASGRP1 | MRPS28   | 1.2 | 1.2  | 0.45 |
| RASGRP1 | BTF3     | 1.2 | 1.2  | 0.47 |
| RASGRP1 | RPS7     | 1.2 | 0.73 | 0.46 |
| RASGRP1 | RBM8A    | 1.2 | 1.2  | 0.47 |
| RASGRP1 | RPS26    | 1.2 | 1.2  | 0.48 |
| RASGRP1 | PPIH     | 1.2 | 1.2  | 0.46 |
| RASGRP1 | PPIF     | 1.2 | 1.2  | 0.46 |
| RASGRP1 | PNPT1    | 1.2 | 1.2  | 0.31 |
| RASGRP1 | SUCLG1   | 1.2 | 1.2  | 0.42 |
| RASGRP1 | NDUFS8   | 1.2 | 1.2  | 0.46 |
| RASGRP1 | DHX15    | 1.2 | 1.2  | 0.29 |
| RASGRP1 | APEH     | 1.2 | 1.2  | 0.34 |

|         |          |      |      |      |
|---------|----------|------|------|------|
| RASGRP1 | HIST1H1B | 1.2  | 0.7  | 0.5  |
| RASGRP1 | RBM26    | 1.2  | 1.2  | 0.27 |
| RASGRP1 | RBM14    | 1.2  | 1.2  | 0.41 |
| RASGRP1 | RCC2     | 1.2  | 1.2  | 0.37 |
| RASGRP1 | PSMB1    | 1.2  | 1.2  | 0.43 |
| RASGRP1 | PPP1R2P3 | 1.2  | 1.2  | 0.35 |
| RASGRP1 | SLC9A3R1 | 1.2  | 1.2  | 0.44 |
| RASGRP1 | WBP11    | 1.2  | 1.2  | 0.3  |
| RASGRP1 | LDHA     | 1.19 | 0.62 | 0.45 |
| RASGRP1 | XRCC5    | 1.18 | 0.78 | 0.46 |
| RASGRP1 | FAU      | 1.18 | 0.77 | 0.45 |
| RASGRP1 | DDX39B   | 1.17 | 0.88 | 0.46 |
| RASGRP1 | DDX39A   | 1.17 | 0.88 | 0.45 |
| RASGRP1 | XRCC6    | 1.17 | 0.72 | 0.46 |
| RASGRP1 | ATP5O    | 1.17 | 0.98 | 0.47 |
| RASGRP1 | MFAP1    | 1.15 | 1.15 | 0.33 |
| RASGRP1 | CNDP2    | 1.15 | 1.15 | 0.31 |
| RASGRP1 | SNAP29   | 1.15 | 1.15 | 0.4  |
| RASGRP1 | CSNK2B   | 1.15 | 1.15 | 0.45 |
| RASGRP1 | PSMD9    | 1.15 | 1.15 | 0.43 |
| RASGRP1 | DDB1     | 1.15 | 1.15 | 0.22 |
| RASGRP1 | ENSA     | 1.15 | 1.15 | 0.46 |
| RASGRP1 | CPOX     | 1.15 | 1.15 | 0.32 |
| RASGRP1 | EIF6     | 1.15 | 1.15 | 0.42 |
| RASGRP1 | AK6      | 1.15 | 1.15 | 0.28 |
| RASGRP1 | EWSR1    | 1.15 | 1.15 | 0.28 |
| RASGRP1 | NUDT21   | 1.15 | 1.15 | 0.43 |
| RASGRP1 | TOR1AIP1 | 1.15 | 1.15 | 0.31 |
| RASGRP1 | FKBP3    | 1.15 | 1.15 | 0.43 |
| RASGRP1 | FUBP1    | 1.15 | 1.15 | 0.26 |
| RASGRP1 | COX17    | 1.15 | 1.15 | 0.48 |
| RASGRP1 | CNBP     | 1.15 | 1.15 | 0.44 |
| RASGRP1 | HYPK     | 1.15 | 1.15 | 0.48 |
| RASGRP1 | ETFB     | 1.15 | 1.15 | 0.42 |
| RASGRP1 | CDK1     | 1.15 | 1.15 | 0.44 |
| RASGRP1 | SLIRP    | 1.15 | 1.15 | 0.47 |
| RASGRP1 | CSTF2    | 1.15 | 1.15 | 0.31 |
| RASGRP1 | TARS     | 1.15 | 1.15 | 0.27 |
| RASGRP1 | CAPRIN1  | 1.15 | 1.15 | 0.28 |
| RASGRP1 | MAPRE1   | 1.15 | 1.15 | 0.43 |
| RASGRP1 | MARCKSL1 | 1.15 | 1.15 | 0.43 |
| RASGRP1 | ANXA11   | 1.15 | 1.15 | 0.31 |
| RASGRP1 | HSPA4L   | 1.15 | 1.15 | 0.26 |

|         |         |      |      |      |
|---------|---------|------|------|------|
| RASGRP1 | ACTN1   | 1.15 | 1.15 | 0.23 |
| RASGRP1 | RPA3    | 1.15 | 1.15 | 0.46 |
| RASGRP1 | PSAT1   | 1.15 | 1.15 | 0.42 |
| RASGRP1 | MGMT    | 1.15 | 1.15 | 0.44 |
| RASGRP1 | EIF4G1  | 1.15 | 1.15 | 0.15 |
| RASGRP1 | CTPS1   | 1.15 | 1.15 | 0.28 |
| RASGRP1 | TXNL1   | 1.15 | 1.15 | 0.41 |
| RASGRP1 | NPM3    | 1.15 | 1.15 | 0.45 |
| RASGRP1 | SNRPE   | 1.15 | 1.15 | 0.47 |
| RASGRP1 | RPL17   | 1.13 | 0.71 | 0.43 |
| RASGRP1 | ENO1    | 1.11 | 0.42 | 0.48 |
| RASGRP1 | EEF1B2  | 1.11 | 0.75 | 0.45 |
| RASGRP1 | NELFE   | 1.1  | 1.1  | 0.31 |
| RASGRP1 | GTF2F2  | 1.1  | 1.1  | 0.37 |
| RASGRP1 | DDX46   | 1.1  | 1.1  | 0.14 |
| RASGRP1 | SRSF11  | 1.1  | 1.1  | 0.27 |
| RASGRP1 | FDX1    | 1.1  | 1.1  | 0.42 |
| RASGRP1 | HMG5    | 1.1  | 1.1  | 0.34 |
| RASGRP1 | FKBP2   | 1.1  | 1.1  | 0.44 |
| RASGRP1 | LSM14A  | 1.1  | 1.1  | 0.29 |
| RASGRP1 | TBCB    | 1.1  | 1.1  | 0.35 |
| RASGRP1 | PSMG4   | 1.1  | 1.1  | 0.44 |
| RASGRP1 | TIMM13  | 1.1  | 1.1  | 0.45 |
| RASGRP1 | PDAP1   | 1.1  | 1.1  | 0.41 |
| RASGRP1 | DNAJC8  | 1.1  | 1.1  | 0.37 |
| RASGRP1 | DCTN2   | 1.1  | 1.1  | 0.28 |
| RASGRP1 | PHAX    | 1.1  | 1.1  | 0.28 |
| RASGRP1 | PSMD2   | 1.1  | 1.1  | 0.19 |
| RASGRP1 | EIF2S3  | 1.1  | 1.1  | 0.26 |
| RASGRP1 | DYNLRB2 | 1.1  | 1.1  | 0.45 |
| RASGRP1 | NOLC1   | 1.1  | 1.1  | 0.2  |
| RASGRP1 | EIF1AD  | 1.1  | 1.1  | 0.43 |
| RASGRP1 | PNP     | 1.1  | 1.1  | 0.33 |
| RASGRP1 | HDAC1   | 1.1  | 1.1  | 0.27 |
| RASGRP1 | COTL1   | 1.1  | 1.1  | 0.43 |
| RASGRP1 | POLR2C  | 1.1  | 1.1  | 0.34 |
| RASGRP1 | FIP1L1  | 1.1  | 1.1  | 0.23 |
| RASGRP1 | NTPCR   | 1.1  | 1.1  | 0.41 |
| RASGRP1 | VAT1    | 1.1  | 1.1  | 0.27 |
| RASGRP1 | DYNLRB1 | 1.1  | 1.1  | 0.45 |
| RASGRP1 | SNX3    | 1.1  | 1.1  | 0.44 |
| RASGRP1 | NASP    | 1.1  | 1.1  | 0.23 |
| RASGRP1 | PPP5C   | 1.1  | 1.1  | 0.24 |

|         |         |     |     |      |
|---------|---------|-----|-----|------|
| RASGRP1 | NUDCD2  | 1.1 | 1.1 | 0.42 |
| RASGRP1 | APIP    | 1.1 | 1.1 | 0.37 |
| RASGRP1 | CIRBP   | 1.1 | 1.1 | 0.42 |
| RASGRP1 | ATP6V1F | 1.1 | 1.1 | 0.44 |
| RASGRP1 | RAB10   | 1.1 | 1.1 | 0.42 |
| RASGRP1 | CLIC1   | 1.1 | 1.1 | 0.36 |
| RASGRP1 | CDK6    | 1.1 | 1.1 | 0.37 |
| RASGRP1 | SF3B5   | 1.1 | 1.1 | 0.46 |
| RASGRP1 | PRDX3   | 1.1 | 1.1 | 0.39 |
| RASGRP1 | MRPS14  | 1.1 | 1.1 | 0.44 |
| RASGRP1 | BID     | 1.1 | 1.1 | 0.43 |
| RASGRP1 | PSME3   | 1.1 | 1.1 | 0.36 |
| RASGRP1 | TUFM    | 1.1 | 1.1 | 0.26 |
| RASGRP1 | MLEC    | 1.1 | 1.1 | 0.35 |
| RASGRP1 | PPP4R2  | 1.1 | 1.1 | 0.27 |
| RASGRP1 | UQCRH   | 1.1 | 1.1 | 0.46 |
| RASGRP1 | TOMM6   | 1.1 | 1.1 | 0.45 |
| RASGRP1 | RHOA    | 1.1 | 1.1 | 0.4  |
| RASGRP1 | PPP1R8  | 1.1 | 1.1 | 0.38 |
| RASGRP1 | HDAC2   | 1.1 | 1.1 | 0.29 |
| RASGRP1 | ZNF207  | 1.1 | 1.1 | 0.26 |
| RASGRP1 | ACOT7   | 1.1 | 1.1 | 0.3  |
| RASGRP1 | ARCN1   | 1.1 | 1.1 | 0.27 |
| RASGRP1 | PPM1A   | 1.1 | 1.1 | 0.28 |
| RASGRP1 | PARP1   | 1.1 | 1.1 | 0.13 |
| RASGRP1 | PHF5A   | 1.1 | 1.1 | 0.43 |
| RASGRP1 | UBE2S   | 1.1 | 1.1 | 0.39 |
| RASGRP1 | BAG2    | 1.1 | 1.1 | 0.4  |
| RASGRP1 | UBA1    | 1.1 | 1.1 | 0.15 |
| RASGRP1 | HP1BP3  | 1.1 | 1.1 | 0.25 |
| RASGRP1 | ADI1    | 1.1 | 1.1 | 0.42 |
| RASGRP1 | SEP7    | 1.1 | 1.1 | 0.24 |
| RASGRP1 | BCL7A   | 1.1 | 1.1 | 0.39 |
| RASGRP1 | PPIE    | 1.1 | 1.1 | 0.34 |
| RASGRP1 | PPID    | 1.1 | 1.1 | 0.31 |
| RASGRP1 | AIMP1   | 1.1 | 1.1 | 0.33 |
| RASGRP1 | ELF1    | 1.1 | 1.1 | 0.24 |
| RASGRP1 | SOD2    | 1.1 | 1.1 | 0.4  |
| RASGRP1 | APEX1   | 1.1 | 1.1 | 0.29 |
| RASGRP1 | ALDOC   | 1.1 | 1.1 | 0.29 |
| RASGRP1 | ZC3HAV1 | 1.1 | 1.1 | 0.2  |
| RASGRP1 | BPNT1   | 1.1 | 1.1 | 0.34 |
| RASGRP1 | MEA1    | 1.1 | 1.1 | 0.4  |

|         |          |      |      |      |
|---------|----------|------|------|------|
| RASGRP1 | CFDP1    | 1.1  | 1.1  | 0.37 |
| RASGRP1 | AHCY     | 1.1  | 1.1  | 0.29 |
| RASGRP1 | NMT1     | 1.1  | 1.1  | 0.24 |
| RASGRP1 | LYRM7    | 1.1  | 1.1  | 0.43 |
| RASGRP1 | PITRM1   | 1.1  | 1.1  | 0.15 |
| RASGRP1 | CSNK2A3  | 1.1  | 1.1  | 0.22 |
| RASGRP1 | CSNK2A1  | 1.1  | 1.1  | 0.32 |
| RASGRP1 | FDPS     | 1.1  | 1.1  | 0.3  |
| RASGRP1 | CD2AP    | 1.1  | 1.1  | 0.22 |
| RASGRP1 | NIT2     | 1.1  | 1.1  | 0.35 |
| RASGRP1 | PCBP2    | 1.1  | 0.97 | 0.45 |
| RASGRP1 | NACA     | 1.1  | 0.97 | 0.42 |
| RASGRP1 | RAB5C    | 1.1  | 1.1  | 0.4  |
| RASGRP1 | HADH     | 1.1  | 1.1  | 0.35 |
| RASGRP1 | CD2BP2   | 1.1  | 1.1  | 0.31 |
| RASGRP1 | RPL35A   | 1.1  | 1.1  | 0.44 |
| RASGRP1 | SNRPB    | 1.1  | 1.1  | 0.38 |
| RASGRP1 | TAL1     | 1.1  | 1.1  | 0.32 |
| RASGRP1 | SNRPA    | 1.1  | 1.1  | 0.35 |
| RASGRP1 | MRPS36   | 1.1  | 1.1  | 0.45 |
| RASGRP1 | SNRNP70  | 1.1  | 1.1  | 0.27 |
| RASGRP1 | POMP     | 1.1  | 1.1  | 0.42 |
| RASGRP1 | GLUD1    | 1.1  | 1.1  | 0.25 |
| RASGRP1 | BCL7B    | 1.1  | 1.1  | 0.4  |
| RASGRP1 | EPB41L2  | 1.1  | 1.1  | 0.16 |
| RASGRP1 | PRPS2    | 1.1  | 1.1  | 0.33 |
| RASGRP1 | CMPK1    | 1.1  | 1.1  | 0.39 |
| RASGRP1 | GCLC     | 1.1  | 1.1  | 0.24 |
| RASGRP1 | ESD      | 1.1  | 1.1  | 0.35 |
| RASGRP1 | SNRPN    | 1.1  | 1.1  | 0.36 |
| RASGRP1 | CAT      | 1.09 | 0.84 | 0.45 |
| RASGRP1 | DDX17    | 1.08 | 0.71 | 0.44 |
| RASGRP1 | CORO1A   | 1.07 | 0.48 | 0.42 |
| RASGRP1 | TUBB2A   | 1.06 | 0.68 | 0.37 |
| RASGRP1 | RPS4X    | 1.06 | 0.65 | 0.39 |
| RASGRP1 | ATP6V1B1 | 1.05 | 1.05 | 0    |
| RASGRP1 | SMARCC1  | 1.05 | 1.05 | 0    |
| RASGRP1 | C21orf33 | 1.05 | 1.05 | 0    |
| RASGRP1 | B2M      | 1.05 | 1.05 | 0    |
| RASGRP1 | MZT2A    | 1.05 | 1.05 | 0    |
| RASGRP1 | DBN1     | 1.05 | 1.05 | 0    |
| RASGRP1 | ZNF706   | 1.05 | 1.05 | 0    |
| RASGRP1 | DRAP1    | 1.05 | 1.05 | 0    |

|         |          |      |      |      |
|---------|----------|------|------|------|
| RASGRP1 | OSGEP    | 1.05 | 1.05 | 0    |
| RASGRP1 | DIAPH1   | 1.05 | 1.05 | 0    |
| RASGRP1 | FKBP4    | 1.05 | 1.05 | 0    |
| RASGRP1 | GRAP2    | 1.05 | 1.05 | 0    |
| RASGRP1 | PDRG1    | 1.05 | 1.05 | 0    |
| RASGRP1 | EPDR1    | 1.05 | 1.05 | 0    |
| RASGRP1 | MYH10    | 1.05 | 1.05 | 0    |
| RASGRP1 | ACO2     | 1.05 | 1.05 | 0    |
| RASGRP1 | MRPL53   | 1.05 | 1.05 | 0    |
| RASGRP1 | NDE1     | 1.05 | 1.05 | 0    |
| RASGRP1 | SNW1     | 1.05 | 1.05 | 0    |
| RASGRP1 | USP39    | 1.05 | 1.05 | 0    |
| RASGRP1 | CYB5B    | 1.05 | 1.05 | 0    |
| RASGRP1 | ACTR1B   | 1.05 | 1.05 | 0    |
| RASGRP1 | ACTR1A   | 1.05 | 1.05 | 0    |
| RASGRP1 | DHRS4    | 1.05 | 1.05 | 0    |
| RASGRP1 | DPY30    | 1.05 | 1.05 | 0    |
| RASGRP1 | ATP6V1B2 | 1.05 | 1.05 | 0    |
| RASGRP1 | H1FX     | 1.05 | 1.05 | 0    |
| RASGRP1 | UQCRC2   | 1.05 | 1.05 | 0    |
| RASGRP1 | XPNPEP1  | 1.05 | 1.05 | 0    |
| RASGRP1 | FTSJ3    | 1.05 | 1.05 | 0    |
| RASGRP1 | SDF2L1   | 1.05 | 1.05 | 0    |
| RASGRP1 | TCF7     | 1.05 | 1.05 | 0    |
| RASGRP1 | TPT1     | 1.05 | 1.05 | 0    |
| RASGRP1 | MLLT11   | 1.05 | 1.05 | 0    |
| RASGRP1 | C1orf52  | 1.05 | 1.05 | 0    |
| RASGRP1 | LARS     | 1.05 | 1.05 | 0    |
| RASGRP1 | MCM4     | 1.05 | 1.05 | 0    |
| RASGRP1 | PROSC    | 1.05 | 1.05 | 0    |
| RASGRP1 | TPM4     | 1.05 | 0.71 | 0.37 |
| RASGRP1 | RPLP1    | 1.05 | 0.58 | 0.45 |
| RASGRP1 | ADSL     | 1.05 | 1.05 | 0    |
| RASGRP1 | WDR82    | 1.05 | 1.05 | 0    |
| RASGRP1 | RAB14    | 1.05 | 1.05 | 0    |
| RASGRP1 | RAB1C    | 1.05 | 1.05 | 0    |
| RASGRP1 | UNG      | 1.05 | 1.05 | 0    |
| RASGRP1 | BOLA2B   | 1.05 | 1.05 | 0    |
| RASGRP1 | OGFR     | 1.05 | 1.05 | 0    |
| RASGRP1 | RAB1B    | 1.05 | 1.05 | 0    |
| RASGRP1 | BDH2     | 1.05 | 1.05 | 0    |
| RASGRP1 | UBAP2L   | 1.05 | 1.05 | 0    |
| RASGRP1 | WIBG     | 1.05 | 1.05 | 0    |

|         |          |      |      |      |
|---------|----------|------|------|------|
| RASGRP1 | MYEOV2   | 1.05 | 1.05 | 0    |
| RASGRP1 | NT5C     | 1.05 | 1.05 | 0    |
| RASGRP1 | ADD1     | 1.05 | 1.05 | 0    |
| RASGRP1 | DNAJA1   | 1.05 | 1.05 | 0    |
| RASGRP1 | API5     | 1.05 | 1.05 | 0    |
| RASGRP1 | TMEM109  | 1.05 | 1.05 | 0    |
| RASGRP1 | LSM14B   | 1.05 | 1.05 | 0    |
| RASGRP1 | ARMC1    | 1.05 | 1.05 | 0    |
| RASGRP1 | SAE1     | 1.05 | 1.05 | 0    |
| RASGRP1 | SLC3A2   | 1.05 | 1.05 | 0    |
| RASGRP1 | ZPR1     | 1.05 | 1.05 | 0    |
| RASGRP1 | POLE3    | 1.05 | 1.05 | 0    |
| RASGRP1 | ATP6V1G1 | 1.05 | 1.05 | 0    |
| RASGRP1 | TP53RK   | 1.05 | 1.05 | 0    |
| RASGRP1 | DUS3L    | 1.05 | 1.05 | 0    |
| RASGRP1 | SRI      | 1.05 | 1.05 | 0    |
| RASGRP1 | RRM2     | 1.05 | 1.05 | 0    |
| RASGRP1 | EFHD2    | 1.05 | 1.05 | 0    |
| RASGRP1 | GNS      | 1.05 | 1.05 | 0    |
| RASGRP1 | MAGOHB   | 1.05 | 1.05 | 0    |
| RASGRP1 | PIN1     | 1.05 | 1.05 | 0    |
| RASGRP1 | PRRC2A   | 1.05 | 1.05 | 0    |
| RASGRP1 | LAMTOR5  | 1.05 | 1.05 | 0    |
| RASGRP1 | CPNE1    | 1.05 | 1.05 | 0    |
| RASGRP1 | ZRANB2   | 1.05 | 1.05 | 0    |
| RASGRP1 | GOT1     | 1.05 | 1.05 | 0    |
| RASGRP1 | MAGOH    | 1.05 | 1.05 | 0    |
| RASGRP1 | UPF1     | 1.05 | 1.05 | 0    |
| RASGRP1 | GLUL     | 1.05 | 1.05 | 0    |
| RASGRP1 | COPA     | 1.05 | 1.05 | 0    |
| RASGRP1 | MZT2B    | 1.05 | 1.05 | 0    |
| RASGRP1 | SSNA1    | 1.05 | 1.05 | 0    |
| RASGRP1 | NPC2     | 1.05 | 1.05 | 0    |
| RASGRP1 | HMBS     | 1.05 | 1.05 | 0    |
| RASGRP1 | RAB7A    | 1.05 | 1.05 | 0    |
| RASGRP1 | ARPC5    | 1.05 | 1.05 | 0    |
| RASGRP1 | C1orf122 | 1.05 | 1.05 | 0    |
| RASGRP1 | DNAJB1   | 1.05 | 1.05 | 0    |
| RASGRP1 | HNRNPF   | 1.05 | 0.92 | 0.41 |
| RASGRP1 | CLPP     | 1.05 | 1.05 | 0    |
| RASGRP1 | IGBP1    | 1.05 | 1.05 | 0    |
| RASGRP1 | HADHA    | 1.05 | 1.05 | 0    |
| RASGRP1 | MAP7D1   | 1.05 | 1.05 | 0    |

|         |          |      |      |      |
|---------|----------|------|------|------|
| RASGRP1 | NDEL1    | 1.05 | 1.05 | 0    |
| RASGRP1 | SNRPC    | 1.05 | 1.05 | 0    |
| RASGRP1 | RCC1     | 1.05 | 1.05 | 0    |
| RASGRP1 | RUVBL2   | 1.05 | 1.05 | 0    |
| RASGRP1 | RPL32    | 1.05 | 1.05 | 0    |
| RASGRP1 | PDCD6IP  | 1.05 | 1.05 | 0    |
| RASGRP1 | ACTA1    | 1.04 | 0.48 | 0.48 |
| RASGRP1 | ACTC1    | 1.04 | 0.48 | 0.48 |
| RASGRP1 | HSP90B1  | 1.03 | 0.65 | 0.43 |
| RASGRP1 | NIPSNAP1 | 1.03 | 0.86 | 0.42 |
| RASGRP1 | RPS25    | 1.03 | 0.55 | 0.44 |
| RASGRP1 | RPS14    | 1.03 | 0.58 | 0.36 |
| RASGRP1 | SNRPD3   | 1.02 | 0.82 | 0.35 |
| RASGRP1 | GAPDH    | 1.02 | 0.56 | 0.47 |
| RASGRP1 | PRDX2    | 1.01 | 0.72 | 0.33 |
| RASGRP1 | RPS24    | 1.01 | 0.79 | 0.36 |
| RASGRP1 | HIST1H1D | 1    | 0.58 | 0.38 |
| RASGRP1 | HIST1H1C | 1    | 0.58 | 0.38 |
| RASGRP1 | CAPZA1   | 0.99 | 0.83 | 0    |
| RASGRP1 | HNRNPH1  | 0.99 | 0.74 | 0.38 |
| RASGRP1 | TRAP1    | 0.99 | 0.83 | 0    |
| RASGRP1 | RBMX     | 0.98 | 0.61 | 0.33 |
| RASGRP1 | RPL21    | 0.98 | 0.67 | 0.29 |
| RASGRP1 | ILF2     | 0.97 | 0.76 | 0    |
| RASGRP1 | RPS17    | 0.96 | 0.57 | 0.3  |
| RASGRP1 | RPS3     | 0.94 | 0.6  | 0.18 |
| RASGRP1 | RPS11    | 0.94 | 0.64 | 0.24 |
| RASGRP1 | TUBB6    | 0.93 | 0.47 | 0.33 |
| RASGRP1 | HNRNPR   | 0.9  | 0.56 | 0.27 |
| RASGRP1 | HSPA5    | 0.89 | 0.45 | 0.46 |
| RASGRP1 | NCL      | 0.89 | 0.38 | 0.37 |
| RASGRP1 | SPTBN1   | 0.89 | 0.51 | 0.22 |
| RASGRP1 | ALYREF   | 0.88 | 0.45 | 0.25 |
| RASGRP1 | RPL24    | 0.88 | 0.52 | 0.27 |
| RASGRP1 | EEF1A2   | 0.87 | 0.51 | 0.41 |
| RASGRP1 | RPL10L   | 0.87 | 0.59 | 0.09 |
| RASGRP1 | RPL10    | 0.87 | 0.59 | 0.07 |
| RASGRP1 | HNRNPD   | 0.87 | 0.58 | 0.12 |
| RASGRP1 | DDX21    | 0.85 | 0.55 | 0.24 |
| RASGRP1 | RPL3     | 0.85 | 0.43 | 0.25 |
| RASGRP1 | RPL23A   | 0.84 | 0.52 | 0.08 |
| RASGRP1 | SNAP23   | 0.84 | 0.5  | 0    |
| RASGRP1 | PFN1     | 0.84 | 0.5  | 0.23 |



|         |            |      |      |      |
|---------|------------|------|------|------|
| RASGRP1 | RPL31      | 0.83 | 0.45 | 0.2  |
| RASGRP1 | RPL15      | 0.82 | 0.39 | 0.3  |
| RASGRP1 | ACACA      | 0.82 | 0.24 | 0.09 |
| RASGRP1 | DDX5       | 0.81 | 0.53 | 0.22 |
| RASGRP1 | PRDX1      | 0.8  | 0.53 | 0.18 |
| RASGRP1 | ARHGDIB    | 0.79 | 0.38 | 0.3  |
| RASGRP1 | RPS6       | 0.79 | 0.35 | 0.25 |
| RASGRP1 | RPL36A     | 0.77 | 0.39 | 0.13 |
| RASGRP1 | ACTG1      | 0.77 | 0.41 | 0.46 |
| RASGRP1 | RPL36AL    | 0.77 | 0.39 | 0.18 |
| RASGRP1 | YBX3       | 0.76 | 0.5  | 0    |
| RASGRP1 | RPL11      | 0.76 | 0.45 | 0.07 |
| RASGRP1 | VIM        | 0.74 | 0.26 | 0.32 |
| RASGRP1 | RPS18      | 0.72 | 0.31 | 0.14 |
| RASGRP1 | RPL7A      | 0.71 | 0.32 | 0.13 |
| RASGRP1 | GRPEL1     | 0.7  | 0.28 | 0.35 |
| RASGRP1 | SPTAN1     | 0.69 | 0.33 | 0    |
| RASGRP1 | HNRNPA1    | 0.67 | 0.41 | 0.18 |
| RASGRP1 | EEF1A1     | 0.66 | 0.32 | 0.17 |
| RASGRP1 | ACTB       | 0.63 | 0.32 | 0.44 |
| RASGRP1 | HSP90AB1   | 0.63 | 0.4  | 0.27 |
| RASGRP1 | HNRNPA2B1  | 0.61 | 0.36 | 0.11 |
| RASGRP1 | RPL7       | 0.61 | 0.34 | 0.08 |
| RASGRP1 | RPL18      | 0.6  | 0.31 | 0.13 |
| RASGRP1 | RPL13      | 0.56 | 0.28 | 0.07 |
| RASGRP1 | RPL6       | 0.56 | 0.23 | 0.08 |
| RASGRP1 | RPL12      | 0.54 | 0.24 | 0.06 |
| RASGRP1 | HSP90AA1   | 0.54 | 0.35 | 0.17 |
| RASGRP1 | TUBA1C     | 0.54 | 0.36 | 0.06 |
| RASGRP1 | YBX1       | 0.51 | 0.27 | 0    |
| RASGRP1 | HNRNPU     | 0.51 | 0.28 | 0.02 |
| RASGRP1 | RPL4       | 0.5  | 0.2  | 0.08 |
| RASGRP1 | LMNB1      | 0.49 | 0.18 | 0.03 |
| RASGRP1 | HIST3H2A   | 0.48 | 0.34 | 0    |
| RASGRP1 | HSPA1B     | 0.48 | 0.29 | 0.03 |
| RASGRP1 | HSPA1A     | 0.48 | 0.29 | 0.04 |
| RASGRP1 | HIST1H2AC  | 0.48 | 0.34 | 0    |
| RASGRP1 | HIST1H2AB  | 0.48 | 0.34 | 0    |
| RASGRP1 | HIST2H2AC  | 0.46 | 0.33 | 0.01 |
| RASGRP1 | HIST2H2AA3 | 0.46 | 0.33 | 0.01 |
| RASGRP1 | H2AFJ      | 0.46 | 0.33 | 0.01 |
| RASGRP1 | HIST1H2AM  | 0.46 | 0.33 | 0    |
| RASGRP1 | HIST1H2AH  | 0.46 | 0.33 | 0.01 |

|         |           |      |      |      |
|---------|-----------|------|------|------|
| RASGRP1 | HIST1H2AJ | 0.46 | 0.33 | 0.01 |
| RASGRP1 | HIST1H2AD | 0.46 | 0.33 | 0.01 |
| RASGRP1 | HIST1H2BB | 0.43 | 0.29 | 0.01 |
| RASGRP1 | HIST1H2BO | 0.43 | 0.29 | 0.01 |
| RASGRP1 | HIST1H2BJ | 0.43 | 0.29 | 0.01 |
| RASGRP1 | HIST2H2BE | 0.43 | 0.29 | 0.01 |
| RASGRP1 | HIST2H2BF | 0.39 | 0.27 | 0    |
| RASGRP1 | HIST1H2BD | 0.39 | 0.27 | 0    |
| RASGRP1 | HIST1H2BF | 0.39 | 0.27 | 0.01 |
| RASGRP1 | HIST1H2BL | 0.39 | 0.27 | 0    |
| RASGRP1 | HIST1H2BM | 0.39 | 0.27 | 0    |
| RASGRP1 | HIST1H2BN | 0.39 | 0.27 | 0    |
| RASGRP1 | HIST1H2BH | 0.39 | 0.27 | 0    |
| RASGRP1 | HIST1H2BK | 0.39 | 0.27 | 0    |
| RASGRP1 | ATXN2L    | 0.18 | 0.08 | 0    |
| RASGRP1 | PCCB      | 0.17 | 0.06 | 0.02 |
| RASGRP1 | KRT1      | 0.12 | 0.08 | 0    |
| RASGRP1 | KRT9      | 0.12 | 0.08 | 0    |
| RASGRP1 | KRT5      | 0.11 | 0.07 | 0    |
| RASGRP1 | KRT2      | 0.09 | 0.05 | 0    |
| RASGRP1 | KRT10     | 0.02 | 0.01 | 0    |
| RASGRP1 | SNRPF     | 0    | 0    | 0    |
| RASGRP1 | SH        | 0    | 0    | 0    |
| RASGRP1 | Trypsin   | 0    | 0    | 0    |
| RASGRP1 | GFP       | 0    | 0    | 0    |

## Supplementary References

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