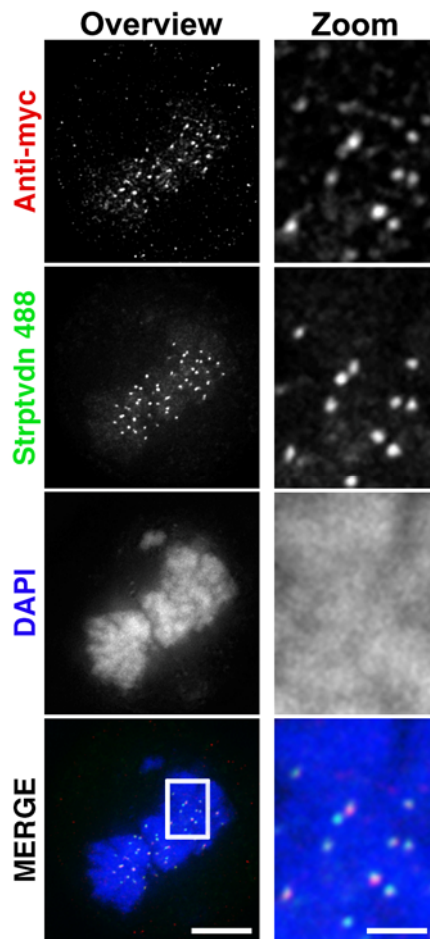


# Supplemental Materials

*Molecular Biology of the Cell*

Remnant et al.

## SUPPLEMENTARY MATERIALS



**Supplementary Figure 1 – *In vitro* Bioid of a dividing cell.** Cells expressing BirA\*-CENPA were seeded onto poly-l-lysine coated coverslips. The next day cells were treated with the ivBioid protocol before fixation and processing for light microscopy. Cells were stained with anti-myc (to detect the fusion protein), Streptavidin 488 (to detect biotinylation) and DAPI (to stain for DNA). Overview is shown in the left column and zooms in the right column. Bar – 5 μm (left) and 1 μm (right).

**Supplementary Table 1 – Raw hits for *in vivo* BirA\*-CENP-A.**

**Supplementary Table 2 – Raw hits for *in vivo*BirA\*-CENP-A minus control hits.**

**Supplementary Table 3 – Statistical analysis of g-Profiler output for Figure 6.**

| CenpA hits | prot_acc     | prot score | prot mass | prot matches | Protein Name  |
|------------|--------------|------------|-----------|--------------|---|
| 1          | IPI00019502  | 8786       | 227646    | 404          | MYH9 Isoform 1 of Myosin-9  |
| 2          | IPI00014898  | 5514       | 533462    | 289          | PLEC1 Isoform 1 of Plectin-1  |
| 3          | IPI00398779  | 5517       | 517822    | 288          | PLEC1 Isoform 4 of Plectin-1  |
| 4          | IPI00398002  | 5510       | 519655    | 287          | PLEC1 Isoform 3 of Plectin-1  |
| 5          | IPI00005614  | 4690       | 275237    | 200          | SPTBN1 Isoform Long of Spectrin beta chain, brain 1   |
| 6          | IPI00844215  | 4286       | 285163    | 195          | SPTAN1 Isoform 1 of Spectrin alpha chain, brain   |
| 7          | IPI00333015  | 4104       | 251925    | 185          | SPTBN1 Isoform 2 of Spectrin beta chain, brain 1  |
| 8          | IPI00004233  | 3286       | 360698    | 172          | MKI67 Isoform Long of Antigen KI-67   |
| 9          | IPI00011569  | 3417       | 267095    | 171          | ACACA Isoform 1 of Acetyl-CoA carboxylase 1   |
| 10         | IPI00413173  | 3197       | 321301    | 167          | MKI67 Isoform Short of Antigen KI-67  |
| 11         | IPI00302592  | 2794       | 282581    | 134          | FLNA Isoform 2 of Filamin-A   |
| 12         | IPI00786995  | 2577       | 470127    | 132          | LOC731751 similar to protein kinase, DNA-activated, catalytic polypeptide                             |
| 13         | IPI00296337  | 2643       | 473749    | 132          | PRKDC Isoform 1 of DNA-dependent protein kinase catalytic subunit                                     |
| 14         | IPI00218753  | 2628       | 179398    | 131          | TOP2A Isoform 3 of DNA topoisomerase 2-alpha  |
| 15         | IPI00553169  | 2282       | 248149    | 114          | FLNA Putative uncharacterized protein FLNA  |
| 16         | IPI00299402  | 2461       | 130293    | 109          | PC Pyruvate carboxylase, mitochondrial  |
| 17         | IPI00010951  | 2160       | 557674    | 108          | EPPK1 epiplakin 1   |
| 18         | IPI00289334  | 2165       | 280188    | 99           | FLNB Isoform 1 of Filamin-B   |
| 19         | IPI00397526  | 2090       | 229827    | 91           | MYH10 Isoform 1 of Myosin-10  |
| 20         | IPI00412650  | 2089       | 249417    | 90           | SVIL Isoform 1 of Supravillin   |
| 21         | IPI00009342  | 1714       | 189761    | 84           | IQGAP1 Ras GTPase-activating-like prote   |
| 22         | IPI00418471  | 1579       | 53676     | 82           | VIM Vimentin  |
| 23         | CON_IPI00554 | 1513       | 53671     | 81           | KRT8 Keratin, type II cytoskeletal 8  |
| 24         | IPI00879810  | 1620       | 285628    | 80           | SPTAN1 Putative uncharacterized protein SPTAN1  |
| 25         | IPI00013808  | 1736       | 105245    | 78           | ACTN4 Alpha-actinin-4   |
| 26         | IPI00026781  | 1621       | 275850    | 77           | FASN Fatty acid synthase  |
| 27         | IPI00291802  | 2105       | 154616    | 75           | LMO7 Isoform 3 of LIM domain only protein 7   |
| 28         | IPI00291916  | 1406       | 208285    | 75           | PHIP PH-interacting protein   |
| 29         | IPI00449049  | 1453       | 113811    | 74           | PARP1 Poly [ADP-ribose] polymerase 1  |
| 30         | IPI00743335  | 1165       | 122503    | 71           | MYO1C Isoform 1 of Myosin-Ic  |
| 31         | IPI00742682  | 1519       | 267530    | 69           | TPR Nucleoprotein TPR   |
| 32         | IPI00217709  | 1578       | 183518    | 68           | TOP2B Isoform Beta-1 of DNA topoisomerase 2-beta  |
| 33         | IPI00550021  | 1261       | 46365     | 64           | RPL3 60S ribosomal protein L3   |
| 34         | IPI00844172  | 1166       | 146293    | 62           | MYO6 Myosin   |
| 35         | IPI00021428  | 919        | 42366     | 59           | ACTA1 Actin, alpha skeletal muscle  |
| 36         | IPI00456969  | 1080       | 534809    | 56           | DYNC1H1 Cytoplasmic dynein 1 heavy chain 1  |
| 37         | IPI00069817  | 1073       | 172392    | 53           | BAZ1B Isoform 1 of Tyrosine-protein kinase BAZ1B  |
| 38         | IPI00414980  | 1313       | 125898    | 53           | MYO1B Isoform 2 of Myosin-Ib  |
| 39         | IPI00013508  | 1243       | 103563    | 52           | ACTN1 Alpha-actinin-1   |
| 40         | IPI00554788  | 1044       | 48029     | 51           | KRT18 Keratin, type I cytoskeletal 18   |
| 41         | IPI00008918  | 1177       | 85630     | 49           | LIMA1 Isoform Beta of LIM domain and actin-binding protein 1  |
| 42         | IPI00873959  | 1044       | 213835    | 48           | MYO5A myosin VA isoform 2   |
| 43         | CON_IPI00013 | 763        | 334021    | 45           | DSP Isoform DPI of Desmoplakin  |
| 44         | IPI00031023  | 836        | 146142    | 45           | FLII Protein flightless-1 homolog   |
| 45         | IPI00003269  | 648        | 42318     | 44           | ACTBL2 Beta-actin-like protein 2  |
| 46         | IPI00024067  | 907        | 193260    | 44           | CLTC Isoform 1 of Clathrin heavy chain 1  |
| 47         | IPI00003406  | 749        | 71842     | 44           | DBN1 Isoform 1 of Drebrin   |
| 48         | IPI00479217  | 853        | 89665     | 44           | HNRNPU Isoform Short of Heterogeneous nuclear ribonucleoprotein U                                     |
| 49         | IPI00760925  | 817        | 227690    | 44           | MYO18A Isoform 3 of Myosin-XVIIIa   |
| 50         | IPI0000846   | 645        | 219393    | 42           | CHD4 Isoform 1 of Chromodomain-helicase-DNA-binding protein 4   |
| 51         | CON_IPI00220 | 1168       | 66149     | 42           | KRT1 Keratin, type II cytoskeletal 1  |
| 52         | IPI00170548  | 781        | 159825    | 40           | ATAD2 Isoform 1 of ATPase family AAA domain-containing protein 2                                      |
| 53         | IPI00006196  | 1060       | 237456    | 39           | NUMA1 Isoform 2 of Nuclear mitotic apparatus protein 1  |
| 54         | IPI00007928  | 593        | 274738    | 38           | PRPF8 Pre-mRNA-processing-splicing factor 8   |
| 55         | IPI00007752  | 584        | 50255     | 38           | TUBB2C Tubulin beta-2C chain  |
| 56         | IPI00295857  | 744        | 139797    | 37           | COPA Isoform 1 of Coatamer subunit alpha  |
| 57         | IPI00011062  | 764        | 165975    | 37           | CPS1 Isoform 1 of Carbamoyl-phosphate synthase [ammonia], mitoc                                       |
| 58         | IPI00329672  | 845        | 127531    | 37           | MYO1E Myosin-Ie   |
| 59         | IPI00420014  | 912        | 246006    | 37           | SNRNP200 Isoform 1 of U5 small nuclear ribonucleoprotein  |
| 60         | IPI00792677  | 627        | 46797     | 36           | TUBA1B cDNA FLJ60097, highly similar to Tubulin alpha-ubiquitous chain                                |
| 61         | IPI00170594  | 602        | 255242    | 35           | AHCTF1;AHCTF1P Isoform 1 of Protein ELYS  |
| 62         | IPI00396634  | 590        | 197617    | 35           | KIAA1671 Isoform 1 of Uncharacterized protein KIAA1671  |
| 63         | IPI00018370  | 673        | 202262    | 35           | SVIL Isoform 2 of Supravillin   |
| 64         | IPI00180675  | 567        | 50788     | 33           | TUBA1A Tubulin alpha-1A chain   |
| 65         | IPI00007750  | 580        | 50634     | 33           | TUBA4A Tubulin alpha-4A chain   |
| 66         | IPI00844578  | 599        | 142181    | 32           | DHX9 ATP-dependent RNA helicase A   |
| 67         | IPI00016007  | 575        | 203978    | 31           | MYO5C Myosin-Vc   |
| 68         | IPI00217121  | 688        | 75482     | 30           | C19orf21 Uncharacterized protein C19orf21   |
| 69         | IPI00847342  | 587        | 51411     | 30           | KRT7 keratin 7  |
| 70         | IPI00005024  | 539        | 149731    | 30           | MYBBP1A Isoform 1 of Myb-binding protein 1A   |
| 71         | IPI00218343  | 502        | 50548     | 30           | TUBA1C Tubulin alpha-1C chain   |
| 72         | IPI00782992  | 514        | 300179    | 29           | SRRM2 Isoform 1 of Serine/arginine repetitive matrix protein 2  |
| 73         | IPI00217686  | 741        | 96972     | 28           | FTSJ3 Putative rRNA methyltransferase 3   |
| 74         | IPI00166518  | 693        | 114777    | 28           | MPRIP Isoform 3 of Myosin phosphatase Rho-interacting protein   |
| 75         | IPI00216587  | 650        | 24475     | 28           | RPS8 40S ribosomal protein S8   |
| 76         | IPI00026970  | 559        | 120409    | 28           | SUPT16H FACT complex subunit SPT16  |
| 77         | IPI00104050  | 529        | 108658    | 28           | THRAP3 Thyroid hormone receptor-associated protein 3  |
| 78         | IPI00218782  | 657        | 37858     | 27           | CAPZB cDNA FLJ60094, highly similar to F-actin capping protein subunit beta                           |
| 79         | IPI00414676  | 643        | 83554     | 27           | HSP90AB1  |
| 80         | IPI00297211  | 471        | 122513    | 27           | SMARCA5 SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A member 5 |
| 81         | IPI00297851  | 460        | 197707    | 26           | CHD1 chromodomain helicase DNA binding protein 1  |
| 82         | IPI00008756  | 689        | 636467    | 26           | DST dystonin isoform 3  |
| 83         | IPI00744115  | 590        | 80635     | 26           | PCCA propionyl-Coenzyme A carboxylase, alpha polypeptide isoform a precursor                          |
| 84         | IPI00013003  | 575        | 278375    | 25           | ACACB Isoform Long of Acetyl-CoA carboxylase 2  |
| 85         | IPI00935252  | 493        | 199828    | 25           | DDX60L DEAD (Asp-Glu-Ala-Asp) box polypeptide 60-like   |
| 86         | IPI00024279  | 462        | 244382    | 25           | HEATR1 HEAT repeat-containing protein 1   |
| 87         | IPI00003865  | 695        | 71082     | 25           | HSPA8 Isoform 1 of Heat shock cognate 71 kDa protein  |
| 88         | IPI00045550  | 402        | 89451     | 25           | PPP1R9B protein phosphatase 1, regulatory subunit 9B  |
| 89         | IPI00013683  | 389        | 50856     | 25           | TUBB3 Tubulin beta-3 chain  |
| 90         | IPI00006079  | 321        | 106173    | 24           | BCLAF1 Isoform 1 of Bcl-2-associated transcription factor 1   |
| 91         | IPI00479962  | 477        | 215218    | 24           | MYO5B Myosin-Vb   |

|     |              |     |        |    |  |
|-----|--------------|-----|--------|----|--|
| 92  | IPI00300127  | 455 | 116543 | 24 | NAT10 N-acetyltransferase 10   |
| 93  | IPI00218207  | 446 | 269709 | 24 | SPTBN2 Isoform 2 of Spectrin beta chain, brain 2   |
| 94  | IPI00015953  | 540 | 87804  | 23 | DDX21 Isoform 1 of Nucleolar RNA helicase 2  |
| 95  | IPI00024580  | 462 | 80935  | 20 | MCCC1 Methylcrotonoyl-CoA carboxylase subunit alpha, mitochondrial                         |
| 96  | IPI00021812  | 456 | 629213 | 23 | AHNAK Neuroblast differentiation-associated protein AHNAK                                  |
| 97  | IPI00018534  | 588 | 13944  | 22 | HIST1H2BL Histone H2B type 1-L   |
| 98  | CON_IPI00009 | 633 | 59703  | 22 | KRT10 Keratin, type I cytoskeletal 10  |
| 99  | IPI00784044  | 659 | 61808  | 22 | MCCC2 Isoform 1 of Methylcrotonoyl-CoA carboxylase beta chain, mitochondrial               |
| 100 | IPI00400922  | 386 | 209939 | 22 | PDCD11 Protein RRP5 homolog  |
| 101 | IPI00304589  | 538 | 182697 | 22 | TNKS1BP1 Isoform 1 of 182 kDa tankyrase-1-binding protein                                  |
| 102 | IPI00413672  | 308 | 100286 | 21 | BCLAF1 Isoform 3 of Bcl-2-associated transcription factor 1                                |
| 103 | IPI00217606  | 439 | 199680 | 21 | DDX60 Probable ATP-dependent RNA helicase DDX60  |
| 104 | IPI00003935  | 547 | 13912  | 21 | HIST2H2BE Histone H2B type 2-E   |
| 105 | IPI00025329  | 584 | 23565  | 21 | RPL19 60S ribosomal protein L19  |
| 106 | IPI00183572  | 382 | 243142 | 20 | DOCK7 Isoform 2 of Dedicator of cytokinesis protein 7                                      |
| 107 | IPI00102815  | 364 | 92946  | 20 | NOC3L Nucleolar complex protein 3 homolog  |
| 108 | IPI00219153  | 300 | 14835  | 20 | RPL22 60S ribosomal protein L22  |
| 109 | IPI00169325  | 458 | 106282 | 20 | WDR36 WD repeat-containing protein 36  |
| 110 | IPI00186290  | 435 | 96246  | 19 | EEF2 Elongation factor 2   |
| 111 | IPI00908582  | 370 | 136543 | 19 | FLII cDNA FLJ50164, highly similar to Protein flightless-1 homolog                         |
| 112 | IPI00003886  | 466 | 61016  | 19 | GNL3 Isoform 2 of Guanine nucleotide-binding protein-like 3                                |
| 113 | CON_IPI00019 | 465 | 62320  | 19 | KRT9 Keratin, type I cytoskeletal 9  |
| 114 | IPI00376344  | 431 | 132928 | 19 | MYO1B Isoform 1 of Myosin-Ib   |
| 115 | IPI00030179  | 217 | 29264  | 19 | RPL7;RPL7P32 60S ribosomal protein L7  |
| 116 | IPI00373870  | 294 | 227989 | 18 | CHD3;LOC732272 Isoform 1 of Chromodomain-helicase-DNA-binding protein                      |
| 117 | IPI00015838  | 379 | 44044  | 18 | LYAR Cell growth-regulating nucleolar protein  |
| 118 | IPI00183002  | 306 | 115610 | 18 | PPP1R12A Isoform 1 of Protein phosphatase 1 regulatory subunit 12A                         |
| 119 | IPI00291467  | 401 | 33073  | 18 | SLC25A6 ADP/ATP translocase 3  |
| 120 | IPI00477971  | 418 | 90347  | 18 | TBL3 Transducin beta-like protein 3  |
| 121 | IPI00332936  | 493 | 79336  | 18 | ZC3HAV1 Isoform 2 of Zinc finger CCCH-type antiviral protein 1                             |
| 122 | IPI00005969  | 396 | 33073  | 17 | CAPZA1 F-actin-capping protein subunit alpha-1   |
| 123 | IPI00293464  | 323 | 128142 | 17 | DDB1;LOC100290337 DNA damage-binding protein 1   |
| 124 | IPI00029631  | 257 | 12422  | 17 | ERH Enhancer of rudimentary homolog  |
| 125 | IPI00848226  | 400 | 35511  | 17 | GNB2L1 Guanine nucleotide-binding protein subunit beta-2-like 1                            |
| 126 | CON_IPI00021 | 346 | 66110  | 17 | KRT2 Keratin, type II cytoskeletal 2 epidermal   |
| 127 | IPI00465361  | 148 | 24304  | 17 | RPL  |
| 128 | IPI00217030  | 268 | 29807  | 17 | RPS4X 40S ribosomal protein S4, X isoform  |
| 129 | IPI00101186  | 330 | 145037 | 17 | RRP12 Isoform 1 of RRP12-like protein  |
| 130 | IPI00007188  | 392 | 33102  | 17 | SLC25A5 ADP/ATP translocase 2  |
| 131 | IPI00005087  | 387 | 39741  | 17 | TMOD3 Tropomodulin-3   |
| 132 | IPI00026272  | 213 | 14127  | 16 | HIST1H2AL;HIST1H2AM;HIST1H2AJ;HIST1  |
| 133 | IPI00081836  | 203 | 13898  | 16 | HIST1H2AL;HIST1H2AM;HIST1H2AJ;HIST1H2AI;HIST1H2AG;HIST1H2AK;HIST1H2AH Histone H2A type 1-H |
| 134 | IPI00760846  | 240 | 234168 | 16 | MYO18A Isoform 1 of Myosin-XVIIIa  |
| 135 | IPI00291711  | 381 | 135242 | 16 | PLEKHG3 Isoform 1 of Pleckstrin homology domain-containing family G member 3               |
| 136 | IPI00299573  | 431 | 30148  | 16 | RPL7A 60S ribosomal protein L7a  |
| 137 | IPI00419880  | 313 | 30154  | 16 | RPS3A 40S ribosomal protein S3a  |
| 138 | IPI00418169  | 302 | 40671  | 15 | ANXA2 Isoform 2 of Annexin A2  |
| 139 | IPI00456004  | 266 | 165794 | 15 | ATAD2B Isoform 2 of ATPase family AAA domain-containing protein 2B                         |
| 140 | IPI00006482  | 425 | 114135 | 15 | ATP1A1 Isoform Long of Sodium/potassium-transporting ATPase subunit alpha-1                |
| 141 | IPI00003362  | 377 | 72492  | 15 | HSPA5 HSPA5 protein  |
| 142 | IPI00642126  | 260 | 583031 | 15 | KIAA1618 Isoform 1 of Protein ALO17  |
| 143 | IPI00293665  | 276 | 60315  | 15 | KRT6B Keratin, type II cytoskeletal 6B   |
| 144 | IPI00220740  | 309 | 29617  | 15 | NPM1 Isoform 2 of Nucleophosmin  |
| 145 | IPI00018810  | 358 | 59702  | 15 | OASL Isoform p56 of 59 kDa 2--5-oligoadenylate synthetase-like protein                     |
| 146 | IPI00007247  | 412 | 58806  | 15 | PCCB Propionyl-CoA carboxylase beta chain, mitochondrial                                   |
| 147 | IPI00479186  | 205 | 58470  | 15 | PKM2 Isoform M2 of Pyruvate kinase isozymes M1/M2  |
| 148 | IPI00022891  | 313 | 33271  | 15 | SLC25A4 ADP/ATP translocase 1  |
| 149 | IPI00017617  | 313 | 69618  | 14 | DDX5 Probable ATP-dependent RNA helicase DDX5  |
| 150 | CON_IPI00747 | 402 | 40520  | 14 | KRT17 Radiated keratinocyte mRNA 266   |
| 151 | IPI00022256  | 388 | 49965  | 13 | AP2M1 Isoform 1 of AP-2 complex subunit mu   |
| 152 | IPI00220109  | 322 | 280508 | 13 | ATRX transcriptional regulator ATRX isoform 2  |
| 153 | IPI00301263  | 237 | 245167 | 13 | CAD CAD protein  |
| 154 | IPI00396435  | 222 | 91673  | 13 | DHX15 Putative pre-mRNA-splicing factor ATP-dependent RNA helicase DHX15                   |
| 155 | IPI00060181  | 116 | 26794  | 13 | EFHD2 EF-hand domain-containing protein D2   |
| 156 | IPI00013452  | 266 | 172094 | 13 | EPRS Bifunctional aminoacyl-tRNA synthetase  |
| 157 | IPI00059366  | 288 | 39635  | 13 | H2AFY H2A histone family, member Y isoform 2   |
| 158 | IPI00179298  | 229 | 485780 | 13 | HUWE1 482 kDa protein  |
| 159 | IPI00644127  | 209 | 145718 | 13 | IARS Isoleucyl-tRNA synthetase, cytoplasmic  |
| 160 | CON_IPI00384 | 303 | 51875  | 13 | KRT14 Keratin, type I cytoskeletal 14  |
| 161 | IPI00335168  | 164 | 17090  | 13 | MYL6;MYL6B Isoform Non-muscle of Myosin light polypeptide 6                                |
| 162 | IPI00737500  | 236 | 112544 | 13 | MYO5B cDNA: FLJ21683 fis, clone COL09335   |
| 163 | IPI00006379  | 354 | 60054  | 13 | NOP58 Nucleolar protein 58   |
| 164 | IPI00027270  | 163 | 17248  | 13 | RPL26 60S ribosomal protein L26  |
| 165 | IPI00003918  | 248 | 47953  | 13 | RPL4 60S ribosomal protein L4  |
| 166 | IPI00011253  | 221 | 26842  | 13 | RPS3 40S ribosomal protein S3  |
| 167 | IPI00376481  | 271 | 30168  | 12 | CENPV Isoform 3 of Centromere protein V  |
| 168 | IPI00141318  | 270 | 66097  | 12 | CKAP4 Isoform 1 of Cytoskeleton-associated protein 4                                       |
| 169 | IPI00215637  | 278 | 73597  | 12 | DDX3X ATP-dependent RNA helicase DDX3X   |
| 170 | IPI00217467  | 263 | 21852  | 12 | HIST1H1E Histone H1.4  |
| 171 | CON_IPI00306 | 167 | 51443  | 12 | KRT7 Keratin, type II cytoskeletal 7   |
| 172 | IPI00300078  | 239 | 103357 | 12 | PWP2 Periodic tryptophan protein 2 homolog   |
| 173 | IPI00221325  | 222 | 362365 | 12 | RANBP2 E3 SUMO-protein ligase RanBP2   |
| 174 | IPI00414860  | 240 | 10497  | 12 | RPL37A 60S ribosomal protein L37a  |
| 175 | IPI00013485  | 225 | 31590  | 12 | RPS2 40S ribosomal protein S2  |
| 176 | IPI00179330  | 313 | 18296  | 12 | UBC;UBB;RP   |
| 177 | IPI00376404  | 311 | 324755 | 11 | BPTF Isoform 4 of Nucleosome-remodeling factor subunit BPTF                                |
| 178 | IPI00250716  | 135 | 259742 | 11 | BRWD1 Isoform B of Bromodomain and WD repeat-containing protein 1                          |
| 179 | IPI00761082  | 250 | 30383  | 11 | CENPV Isoform 1 of Centromere protein V  |
| 180 | IPI00382470  | 319 | 98670  | 11 | HSP90AA1 Isoform 2 of Heat shock protein HSP 90-alpha                                      |
| 181 | IPI00003768  | 159 | 68359  | 11 | PES1 Isoform 1 of Pescadillo homolog   |
| 182 | IPI00554723  | 214 | 25044  | 11 | RPL10 60S ribosomal protein L10  |
| 183 | IPI00007144  | 157 | 17246  | 11 | RPL26L1 60S ribosomal protein L26-like 1   |
| 184 | IPI00220344  | 122 | 12718  | 11 | RPL36A;HNRNPH2;RPL36AP37 60S ribosomal protein L36a  |
| 185 | IPI00056494  | 128 | 12746  | 11 | RPL36AL 60S ribosomal protein L36a-like  |
| 186 | IPI00021840  | 235 | 28834  | 11 | RPS6 40S ribosomal protein S6  |

|     |               |     |        |    |  |
|-----|---------------|-----|--------|----|--|
| 187 | IPI00009471   | 240 | 107115 | 11 | WDR3 WD repeat-containing protein 3  |
| 188 | IPI00020632   | 145 | 51184  | 10 | ASS1   |
| 189 | IPI00177817   | 315 | 111103 | 10 | ATP2A2 Isoform SERCA2A of Sarcoplasmic/endoplasmic reticulum calcium ATPase 2                        |
| 190 | IPI004440493  | 240 | 59828  | 10 | ATP5A1 ATP synthase subunit alpha, mitochondrial   |
| 191 | IPI00026182   | 187 | 33157  | 10 | CAPZA2 F-actin-capping protein subunit alpha-2   |
| 192 | IPI00290142   | 192 | 67332  | 10 | CTPS CTP synthase 1  |
| 193 | IPI00651653   | 251 | 73138  | 10 | DDX17 Isoform 3 of Probable ATP-dependent RNA helicase DDX17   |
| 194 | IPI00290410   | 233 | 91128  | 10 | DNTTIP2 Deoxynucleotidyltransferase terminal-interacting protein 2                                   |
| 195 | IPI00216456   | 186 | 14097  | 10 | HIST1H2AC Histone H2A type 1-C   |
| 196 | IPI00921922   | 151 | 68670  | 10 | KIAA1598 Isoform 6 of Shootin-1  |
| 197 | IPI00789428   | 224 | 57939  | 10 | MCCC2 Isoform 2 of Methylcrotonoyl-CoA carboxylase beta chain, mitochondrial                         |
| 198 | IPI00940399   | 228 | 240363 | 10 | MYO10 Myosin-X   |
| 199 | IPI00411937   | 167 | 66408  | 10 | NOP56 Nucleolar protein 56   |
| 200 | IPI00748807   | 236 | 164355 | 10 | NUP160 Isoform 1 of Nuclear pore complex protein Nup160  |
| 201 | IPI00215793   | 147 | 145544 | 10 | PPP1R9A protein phosphatase 1 regulatory subunit 9A isoform 2  |
| 202 | IPI00004968   | 244 | 55603  | 10 | PRPF19 Pre-mRNA-processing factor 19   |
| 203 | IPI00000494   | 216 | 34569  | 10 | RPL5 60S ribosomal protein L5  |
| 204 | IPI00329389   | 181 | 32765  | 10 | RPL6 60S ribosomal protein L6  |
| 205 | IPI00017448   | 68  | 9220   | 10 | RPS21:LOC100291837 40S ribosomal protein S21   |
| 206 | IPI00025491   | 288 | 46353  | 10 | SNORA67:EIF4A1 Eukaryotic initiation fac   |
| 207 | IPI00027107   | 208 | 50185  | 10 | TUFM Tu translation elongation factor, mitochondrial precursor                                       |
| 208 | IPI00025057   | 209 | 134289 | 9  | ADAR Isoform 2 of Double-stranded RNA-specific adenosine deaminase                                   |
| 209 | IPI00239815   | 144 | 77526  | 9  | CIRH1A Isoform 1 of Cirhin   |
| 210 | IPI00301323   | 163 | 75702  | 9  | DDX18 ATP-dependent RNA helicase DDX18   |
| 211 | IPI00003519   | 162 | 110336 | 9  | EFTUD2 116 kDa U5 small nuclear ribonucleoprotein component  |
| 212 | IPI00009328   | 237 | 47126  | 9  | EIF4A3 Eukaryotic initiation factor 4A-III   |
| 213 | IPI00217468   | 223 | 22566  | 9  | HIST1H1B Histone H1.5  |
| 214 | IPI00216592   | 219 | 32375  | 9  | HNRNPC Isoform C1 of Heterogeneous nuclear ribonucleoproteins C1/C2                                  |
| 215 | IPI00013881   | 176 | 49484  | 9  | HNRNPH1 Heterogeneous nuclear ribonucleoprotein H  |
| 216 | IPI00007765   | 250 | 73920  | 9  | HSPA9 Stress-70 protein, mitochondrial   |
| 217 | CON_IPI000009 | 128 | 62568  | 9  | KRT5 Keratin, type II cytoskeletal 5   |
| 218 | IPI00741894   | 158 | 312134 | 9  | LOC730429 similar to ubiquitin protein ligase E3 component n-recognin 5 isoform 1                    |
| 219 | IPI00256861   | 214 | 623626 | 9  | MACF1 Isoform 2 of Microtubule-actin cross-linking factor 1, isoforms 1/2/3/5                        |
| 220 | IPI00017297   | 135 | 95078  | 9  | MATR3 Matrin-3   |
| 221 | IPI00444262   | 102 | 65979  | 9  | NCL cDNA FLJ45706 fis, clone FEBRA2028457, highly similar to Nucleolin                               |
| 222 | IPI00654555   | 200 | 93202  | 9  | NOP2 NOP2 protein  |
| 223 | IPI00549540   | 168 | 44506  | 9  | PAK1IP1 p21-activated protein kinase-interacting protein 1   |
| 224 | IPI00009790   | 152 | 86454  | 9  | PFKP 6-phosphofructokinase type C  |
| 225 | IPI00005705   | 98  | 37701  | 9  | PPP1CC Isoform Gamma-1 of Serine/threonine-protein phosphatase PP1-gamma catalytic subunit           |
| 226 | IPI00413324   | 147 | 21611  | 9  | RPL17 60S ribosomal protein L17  |
| 227 | IPI00010153   | 273 | 14970  | 9  | RPL23 60S ribosomal protein L23  |
| 228 | IPI00021266   | 121 | 17684  | 9  | RPL23A 60S ribosomal protein L23a  |
| 229 | IPI00025874   | 113 | 72847  | 9  | RPN1 Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 1 precursor              |
| 230 | IPI00300371   | 252 | 136575 | 9  | SF3B3 Isoform 1 of Splicing factor 3B subunit 3  |
| 231 | IPI00022202   | 235 | 40525  | 9  | SLC25A3 Isoform A of Phosphate carrier protein, mitochondrial  |
| 232 | IPI00004970   | 133 | 320820 | 9  | UTP20:LOC653877 Small subunit processome component 20 homolog  |
| 233 | IPI00217240   | 238 | 95921  | 9  | WDR75 WD repeat-containing protein 75  |
| 234 | IPI00430472   | 92  | 252898 | 8  | ASCC3 Activating signal cointegrator 1 complex subunit 3   |
| 235 | IPI00026087   | 53  | 10280  | 8  | BANF1 Barrier-to-autointegration factor  |
| 236 | IPI00784320   | 225 | 127536 | 8  | FAM83H Protein FAM83H  |
| 237 | IPI00025039   | 150 | 33877  | 8  | FBL rRNA 2--O-methyltransferase fibrillar  |
| 238 | IPI00216049   | 184 | 51230  | 8  | HNRNPK Isoform 1 of Heterogeneous nuclear ribonucleoprotein K  |
| 239 | IPI00009866   | 163 | 49898  | 8  | KRT13 Isoform 1 of Keratin, type I cytoskeletal 13   |
| 240 | IPI00021405   | 132 | 74380  | 8  | LMNA Isoform A of Lamin-A/C  |
| 241 | IPI00296830   | 144 | 120772 | 8  | LUZP1 Isoform 1 of Leucine zipper protein 1  |
| 242 | IPI00783781   | 185 | 230170 | 8  | NUP205 Nuclear pore complex protein Nup205   |
| 243 | IPI00332371   | 149 | 85762  | 8  | PFKL Isoform 1 of 6-phosphofructokinase, liver type  |
| 244 | IPI00789041   | 118 | 81679  | 8  | PNN Isoform 1 of Pinin   |
| 245 | IPI00218236   | 83  | 37961  | 8  | PPP1CB Serine/threonine-protein phosphatase  |
| 246 | IPI00013174   | 186 | 69620  | 8  | RBM14:RBM4 Isoform 1 of RNA-binding protein 14   |
| 247 | IPI00304612   | 93  | 23619  | 8  | RPL13A 60S ribosomal protein L13a  |
| 248 | IPI00215719   | 178 | 21735  | 8  | RPL18 60S ribosomal protein L18  |
| 249 | IPI00306332   | 103 | 17882  | 8  | RPL24 60S ribosomal protein L24  |
| 250 | IPI00219155   | 121 | 15788  | 8  | RPL27 60S ribosomal protein L27  |
| 251 | IPI00216237   | 132 | 12303  | 8  | RPL36 60S ribosomal protein L36  |
| 252 | IPI00025091   | 159 | 18590  | 8  | RPS11 40S ribosomal protein S11  |
| 253 | IPI00221091   | 173 | 14944  | 8  | RPS15A 40S ribosomal protein S15a  |
| 254 | IPI00218606   | 193 | 15969  | 8  | RPS23 40S ribosomal protein S23  |
| 255 | IPI00029750   | 210 | 15413  | 8  | RPS24 Isoform 1 of 40S ribosomal protein S24   |
| 256 | IPI00465022   | 169 | 217206 | 8  | SMCHD1 Isoform 2 of Structural maintenance of chromosomes flexible hinge domain-containing protein 1 |
| 257 | IPI00298696   | 191 | 144553 | 8  | TCOF1 Isoform 2 of Treacle protein   |
| 258 | IPI00640981   | 116 | 580483 | 8  | UBR4 Isoform 4 of E3 ubiquitin-protein ligase UBR4   |
| 259 | IPI00031195   | 208 | 60222  | 8  | VANGL1 Isoform 1 of Vang-like protein 1  |
| 260 | IPI00022215   | 108 | 124854 | 7  | ADNP   |
| 261 | IPI00477330   | 139 | 114879 | 7  | ARHGAP11A Rho GTPase-activating protein 11A  |
| 262 | IPI00152007   | 166 | 223645 | 7  | ARHGEF17 Rho guanine nucleotide exchange factor 17   |
| 263 | IPI00297579   | 195 | 20969  | 7  | CBX3 Chromobox protein homolog 3   |
| 264 | IPI00220219   | 97  | 103278 | 7  | COPB2 Coatomer subunit beta~   |
| 265 | IPI00411733   | 132 | 134938 | 7  | DHX30 Isoform 1 of Putative ATP-dependent RNA helicase DHX30   |
| 266 | IPI00385042   | 177 | 74317  | 7  | GTPBP4 Nucleolar GTP-binding protein 1   |
| 267 | IPI00896511   | 98  | 118203 | 7  | HERC5 hect domain and RLD 5  |
| 268 | IPI00217465   | 180 | 21352  | 7  | HIST1H1C Histone H1.2  |
| 269 | IPI00171611   | 48  | 15436  | 7  | HIST2H3D:HIST2H3C:HIST2H3A Histone H3.2  |
| 270 | IPI00396378   | 133 | 37464  | 7  | HNRNPA2B1 Isoform B1 of Heterogeneous nuclear ribonucleoproteins A2/B1                               |
| 271 | IPI00219330   | 143 | 74959  | 7  | ILF3 Isoform 5 of Interleukin enhancer-binding factor 3  |
| 272 | IPI00448751   | 69  | 74020  | 7  | KIAA1598 Isoform 3 of Shootin-1  |
| 273 | IPI00291579   | 120 | 111016 | 7  | KIF23 Isoform 1 of Kinesin-like protein KIF23  |
| 274 | CON_IPI00450  | 107 | 48361  | 7  | KRT17 Keratin, type I cytoskeletal 17  |
| 275 | IPI00031615   | 155 | 15329  | 7  | LLPH Protein LLP homolog   |
| 276 | IPI00029513   | 93  | 80822  | 7  | NOL10 Isoform 1 of Nucleolar protein 10  |
| 277 | IPI00026625   | 221 | 156697 | 7  | NUP155 Isoform 1 of Nuclear pore complex protein Nup155  |
| 278 | IPI00008524   | 135 | 70854  | 7  | PABPC1 Isoform 1 of Polyadenylate-binding protein 1  |
| 279 | IPI00002649   | 99  | 67079  | 7  | PNN Isoform 2 of Pinin   |
| 280 | IPI00008144   | 210 | 123552 | 7  | PPP1R9A Isoform 1 of Neurabin-1  |
| 281 | IPI00247583   | 106 | 18610  | 7  | RP   |

|     |                    |           |              |   |  |
|-----|--------------------|-----------|--------------|---|--|
| 282 | IPI00024933        | 240       | 17979        | 7 | RPL12 Isoform 1 of 60S ribosomal protein L12   |
| 283 | IPI00221093        | 171       | 15597        | 7 | RPS17 40S ribosomal protein S17  |
| 284 | IPI00952908        | 134       | 9797         | 7 | RPS27 40S ribosomal protein S27  |
| 285 | IPI00290952        | 121       | 84758        | 7 | RRP1B Isoform 1 of Ribosomal RNA processing protein 1 homolog B                            |
| 286 | IPI00410666        | 133       | 178555       | 7 | SCRIB Isoform 3 of Protein scribble homolog  |
| 287 | IPI00221106        | 171       | 100279       | 7 | SF3B2 splicing factor 3B subunit 2   |
| 288 | IPI00007084        | 176       | 74528        | 7 | SLC25A13 Calcium-binding mitochondrial carrier protein Aralar2                             |
| 289 | IPI00005154        | 134       | 81367        | 7 | SSRP1 FACT complex subunit SSRP1   |
| 290 | IPI00152377        | 123       | 94241        | 7 | STT3B Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit STT3B         |
| 291 | IPI00027258        | 120       | 96736        | 7 | SYNPO Isoform 2 of Synaptopodin  |
| 292 | IPI00290566        | 94        | 60819        | 7 | TCP1 T-complex protein 1 subunit alpha   |
| 293 | IPI00218319        | 117       | 29243        | 7 | TPM3 Isoform 2 of Tropomyosin alpha-3 chain  |
| 294 | IPI00008477        | 130       | 86227        | 7 | TPX2 Targeting protein for Xklp2   |
| 295 | IPI00411453        | 189       | 131159       | 6 | AP3D1 Isoform 1 of AP-3 complex subunit delta-1  |
| 296 | IPI00296388        | 173       | 213004       | 6 | BAZ2A Isoform 2 of Bromodomain adjacent to zinc finger domain protein 2A                   |
| 297 | IPI00181728        | 89        | 41660        | 6 | BRIX1 Brix domain-containing protein 2   |
| 298 | <b>IPI00027152</b> | <b>99</b> | <b>16038</b> | 6 | <b>CENPA Isoform 1 of Histone H3-like centromeric protein A</b>                            |
| 299 | IPI00023109        | 106       | 201522       | 6 | CHD2 Isoform 2 of Chromodomain-helicase-DNA-binding protein 2                              |
| 300 | IPI00794880        | 143       | 337542       | 6 | CHD7 Isoform 1 of Chromodomain-helicase-DNA-binding protein 7                              |
| 301 | IPI00398992        | 123       | 292161       | 6 | CHD8 Isoform 1 of Chromodomain-helicase-DNA-binding protein 8                              |
| 302 | IPI00477468        | 118       | 134332       | 6 | CTR9 RNA polymerase-associated protein CTR9 homolog  |
| 303 | IPI00178072        | 163       | 124915       | 6 | CYTA Cytospin-A  |
| 304 | IPI00293078        | 119       | 90292        | 6 | DDX27 Probable ATP-dependent RNA helicase DDX27  |
| 305 | IPI00015808        | 75        | 83831        | 6 | GNL2 Nucleolar GTP-binding protein 2   |
| 306 | IPI00027834        | 96        | 64720        | 6 | HNRNPL Heterogeneous nuclear ribonucleoprotein L   |
| 307 | IPI00171903        | 116       | 77749        | 6 | HNRNPM Isoform 1 of Heterogeneous nuclear ribonucleoprotein M                              |
| 308 | IPI00216952        | 132       | 65153        | 6 | LMNA Isoform C of Lamin-A/C  |
| 309 | IPI00886911        | 121       | 51513        | 6 | LOC646048 similar to actin alpha 1 skeletal muscle protein                                 |
| 310 | IPI00018349        | 72        | 97068        | 6 | MCM4 DNA replication licensing factor MCM4   |
| 311 | IPI00218342        | 98        | 102180       | 6 | MTHFD1 C-1-tetrahydrofolate synthase, cytoplasmic  |
| 312 | IPI00306369        | 114       | 87214        | 6 | NSUN2 tRNA (cytosine-5-)-methyltransferase NSUN2   |
| 313 | IPI00552419        | 85        | 75583        | 6 | PCCA cDNA FLJ56469, highly similar to Propionyl-CoA carboxylase alpha chain, mitochondrial |
| 314 | IPI00410717        | 99        | 157355       | 6 | POGZ Isoform 1 of Pogo transposable element with ZNF domain                                |
| 315 | IPI00031627        | 182       | 218438       | 6 | POLR2A DNA-directed RNA polymerase II subunit RPB1   |
| 316 | IPI00026202        | 87        | 21034        | 6 | RPL18A 60S ribosomal protein L18a  |
| 317 | IPI00182533        | 52        | 15795        | 6 | RPL28 60S ribosomal protein L28  |
| 318 | IPI00219156        | 164       | 12947        | 6 | RPL30 60S ribosomal protein L30  |
| 319 | IPI00412607        | 127       | 14543        | 6 | RPL35 60S ribosomal protein L35  |
| 320 | IPI00221092        | 105       | 16549        | 6 | RPS16 40S ribosomal protein S16  |
| 321 | IPI00514399        | 73        | 7523         | 6 | RPS27 Putative uncharacterized protein RPS27   |
| 322 | IPI00032374        | 124       | 82451        | 6 | RRP1B Isoform 2 of Ribosomal RNA processing protein 1 homolog B                            |
| 323 | IPI00290652        | 130       | 165260       | 6 | RSF1 Isoform 1 of Remodeling and spacing factor 1  |
| 324 | IPI00008708        | 135       | 55167        | 6 | RSL1D1 Ribosomal L1 domain-containing protein 1  |
| 325 | IPI00413362        | 118       | 201102       | 6 | SIPA1L1 Isoform 1 of Signal-induced proliferation-associated 1-like protein 1              |
| 326 | IPI00246842        | 167       | 96183        | 6 | TAF1C Isoform 1 of TATA box-binding protein-associated factor RNA polymerase I subunit C   |
| 327 | IPI00384556        | 100       | 76120        | 6 | UBTF Ribosomal RNA upstream binding transcription factor (Fragment)                        |
| 328 | IPI00220834        | 92        | 83222        | 6 | XRCC5 ATP-dependent DNA helicase 2 subunit 2   |
| 329 | IPI00893179        | 119       | 64263        | 6 | XRCC6 X-ray repair complementing defective repair in Chinese hamster cells 6               |
| 330 | IPI00176574        | 62        | 12615        | 5 | - 12 kDa protein   |
| 331 | IPI00872901        | 138       | 17842        | 5 | - 18 kDa protein   |
| 332 | IPI00845465        | 66        | 59827        | 5 | ACTN4 Actinin alpha4 isoform   |
| 333 | IPI00171217        | 169       | 95002        | 5 | AKAP2 Isoform 1 of A-kinase anchor protein 2   |
| 334 | IPI00005160        | 161       | 41722        | 5 | ARPC1B Actin-related protein 2/3 complex subunit 1B  |
| 335 | IPI00027448        | 74        | 11421        | 5 | ATP5L ATP synthase subunit g, mitochondrial  |
| 336 | IPI00012199        | 42        | 40325        | 5 | CCDC86 Coiled-coil domain-containing protein 86  |
| 337 | IPI00297779        | 99        | 57794        | 5 | CCT2 T-complex protein 1 subunit beta  |
| 338 | IPI00018465        | 76        | 59842        | 5 | CCT7 T-complex protein 1 subunit eta   |
| 339 | IPI00465294        | 80        | 92422        | 5 | CDC5L Cell division cycle 5-like protein   |
| 340 | IPI00306723        | 68        | 121540       | 5 | CEBPZ CCAAT/enhancer-binding protein zeta  |
| 341 | IPI00329791        | 105       | 117803       | 5 | DDX46 Probable ATP-dependent RNA helicase DDX46  |
| 342 | IPI00023972        | 66        | 50900        | 5 | DDX47 Probable ATP-dependent RNA helicase DDX47  |
| 343 | IPI00019329        | 104       | 10530        | 5 | DYNLL1 Dynein light chain 1, c   |
| 344 | IPI00019770        | 76        | 14438        | 5 | FAU ubiquitin-like protein fubi and ribosomal protein S30 precursor                        |
| 345 | IPI00001159        | 92        | 294953       | 5 | GCN1L1 Translational activator GCN1  |
| 346 | IPI00050402        | 89        | 112859       | 5 | GTF2I Isoform 1 of General transcription factor II-I                                       |
| 347 | IPI00414482        | 93        | 243390       | 5 | GTF3C1 Isoform 1 of General transcription factor 3C polypeptide 1                          |
| 348 | IPI00018278        | 62        | 13501        | 5 | H2AFV Histone H2A.V  |
| 349 | IPI00024719        | 135       | 49880        | 5 | HAT1 Histone acetyltransferase type B catalytic subunit                                    |
| 350 | IPI00008821        | 121       | 118199       | 5 | HERC5 Probable E3 ubiquitin-protein ligase HERC5   |
| 351 | IPI00045109        | 80        | 14225        | 5 | HIST1H2AA Histone H2A type 1-A   |
| 352 | IPI00007402        | 145       | 120751       | 5 | IPO7 Importin-7  |
| 353 | IPI00789324        | 84        | 62862        | 5 | JUP cDNA FLJ60424, highly similar to Junction plakoglobin                                  |
| 354 | CON_IPI00290       | 141       | 64442        | 5 | KRT4 keratin 4   |
| 355 | IPI00069309        | 120       | 81069        | 5 | LRWD1 Leucine-rich repeat and WD repeat-containing protein 1                               |
| 356 | IPI00006752        | 44        | 142754       | 5 | MAP4K4 Isoform 1 of Mitogen-activated protein kinase kinase kinase kinase 4                |
| 357 | IPI00470805        | 107       | 198448       | 5 | MDC1 Isoform 2 of Mediator of DNA damage checkpoint protein 1                              |
| 358 | IPI00604620        | 90        | 76625        | 5 | NCL Nucleolin  |
| 359 | IPI00855737        | 63        | 73311        | 5 | NEXN Isoform 3 of Nexilin  |
| 360 | IPI00303813        | 76        | 82041        | 5 | NOL11 Nucleolar protein 11   |
| 361 | IPI00152890        | 87        | 128368       | 5 | NOL6 Isoform 1 of Nucleolar protein 6  |
| 362 | IPI00291200        | 94        | 129924       | 5 | NUP133 Nuclear pore complex protein Nup133   |
| 363 | IPI00397904        | 133       | 93943        | 5 | NUP93 Nuclear pore complex protein Nup93   |
| 364 | IPI00012726        | 124       | 71080        | 5 | PABPC4 Isoform 1 of Polyadenylate-binding protein 4  |
| 365 | IPI00002624        | 141       | 57500        | 5 | PLRG1 Isoform 1 of Pleiotropic regulator 1   |
| 366 | IPI00298738        | 98        | 141950       | 5 | POLRMT DNA-directed RNA polymerase, mitochondrial precursor                                |
| 367 | IPI00000874        | 93        | 22324        | 5 | PRDX1 Peroxiredoxin-1  |
| 368 | IPI00395865        | 135       | 48132        | 5 | RBBP7 Histone-binding protein RBBP7  |
| 369 | IPI00375358        | 88        | 128688       | 5 | RFC1 Isoform 1 of Replication factor C subunit 1   |
| 370 | IPI00412579        | 125       | 24987        | 5 | RPL10A 60S ribosomal protein L10a  |
| 371 | IPI00456758        | 91        | 16665        | 5 | RPL27A 60S ribosomal protein L27a  |
| 372 | IPI00877787        | 88        | 31452        | 5 | RPL3 Putative uncharacterized protein RPL3   |
| 373 | IPI00026302        | 104       | 14454        | 5 | RPL31 60S ribosomal protein L31  |
| 374 | IPI00219160        | 69        | 13513        | 5 | RPL34 60S ribosomal protein L3   |
| 375 | IPI00012772        | 147       | 28235        | 5 | RPL8 60S ribosomal protein L8  |
| 376 | IPI00026271        | 128       | 16434        | 5 | RPS14 40S ribosomal protein S14  |

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|-----|--------------|-----|--------|---|--|
| 377 | IPI00012750  | 85  | 13791  | 5 | RPS25 40S ribosomal protein S25  |
| 378 | IPI00656650  | 76  | 13292  | 5 | RPS26 40S ribosomal protein S26  |
| 379 | IPI00181359  | 148 | 129767 | 5 | SFRS2IP Isoform 2 of SFRS2-interacting protein   |
| 380 | IPI00024650  | 77  | 54607  | 5 | SLC16A1 Monocarboxylate transporter 1  |
| 381 | IPI00006666  | 58  | 50064  | 5 | SLC16A3 Monocarboxylate transporter 4  |
| 382 | IPI00017964  | 107 | 14021  | 5 | SNRPD3 Small nuclear ribonucleoprotein   |
| 383 | IPI00843765  | 91  | 282906 | 5 | SPTAN1 Isoform 3 of Spectrin alpha chain, brain  |
| 384 | IPI00010779  | 70  | 28619  | 5 | TPM4 Isoform 1 of Tropomyosin alpha-4 chain  |
| 385 | IPI00438229  | 118 | 90261  | 5 | TRIM28 Isoform 1 of Transcription intermediary factor 1-beta                                     |
| 386 | IPI00793930  | 79  | 37707  | 5 | TUBA1B TUBA1B protein  |
| 387 | IPI00216298  | 75  | 12015  | 5 | TXN Thioredoxin  |
| 388 | IPI00001786  | 162 | 124143 | 5 | USP36 Isoform 2 of Ubiquitin carboxyl-terminal hydrolase 36                                      |
| 389 | IPI00107113  | 66  | 88095  | 5 | UTP14A Isoform 1 of U3 small nucleolar RNA-associated protein 14 homolog A                       |
| 390 | IPI00024128  | 52  | 11188  | 4 | - 11 kDa protein   |
| 391 | IPI00069693  | 129 | 23500  | 4 | - Putative uncharacterized protein RPL14P1   |
| 392 | IPI00007334  | 92  | 152196 | 4 | ACIN1 Isoform 1 of Apoptotic chromatin condensation inducer in the nucleus                       |
| 393 | IPI00021290  | 64  | 121674 | 4 | ACLY ATP-citrate synthase  |
| 394 | IPI00028955  | 62  | 84261  | 4 | BOP1 Ribosome biogenesis protein BOP1  |
| 395 | IPI00298007  | 135 | 59462  | 4 | C6orf150 Isoform 1 of Uncharacterized protein C6orf150   |
| 396 | IPI00026185  | 89  | 31616  | 4 | CAPZB Isoform 1 of F-actin-capping protein subunit beta  |
| 397 | IPI00010320  | 76  | 21519  | 4 | CBX1 Chromobox protein   |
| 398 | IPI00024662  | 108 | 22382  | 4 | CBX5 Chromobox protein homolog   |
| 399 | IPI00010720  | 58  | 60089  | 4 | CCT5 T-complex protein 1 subunit epsilon   |
| 400 | IPI00384529  | 54  | 136446 | 4 | COBL Isoform 1 of Protein cordon-bleu  |
| 401 | IPI00026570  | 97  | 12950  | 4 | COX7A2 cytochrome c oxidase subunit VIIa polypeptide 2 (   |
| 402 | IPI00513791  | 67  | 244289 | 4 | DOCK7 Isoform 1 of Dedicator of cytokinesis protein 7  |
| 403 | IPI00025447  | 64  | 48181  | 4 | EEF1A1 Elongation factor 1-alpha   |
| 404 | IPI00029012  | 63  | 166867 | 4 | EIF3A Eukaryotic translation initiation factor 3 subunit A                                       |
| 405 | IPI00396370  | 96  | 92823  | 4 | EIF3B Isoform 1 of Eukaryotic  |
| 406 | IPI00759806  | 177 | 37247  | 4 | ENO1 Isoform MBP-1 of Alpha-enolase  |
| 407 | IPI00550239  | 100 | 20850  | 4 | H1F0 Histone H1.0  |
| 408 | IPI00026230  | 67  | 49517  | 4 | HNRNP2;RPL36AP37 Heterogeneous nuclear ribonucleoprotein H2                                      |
| 409 | IPI00784154  | 82  | 61187  | 4 | HSPD1 60 kDa heat shock protein, mitochondrial   |
| 410 | IPI00024254  | 50  | 56691  | 4 | IFIT3 Interferon-induced protein with tetratricopept   |
| 411 | IPI00293735  | 119 | 151813 | 4 | IKBKAP Elongator complex protein 1   |
| 412 | IPI00299554  | 54  | 187743 | 4 | KIF14 Kinesin-like protein KIF14   |
| 413 | CON_IPI00293 | 48  | 60274  | 4 | KRT6B Keratin, type II cytoskeletal 6B   |
| 414 | IPI00553043  | 113 | 122788 | 4 | LIMCH1 Isoform 1 of LIM and calponin homology domains-containing protein 1                       |
| 415 | IPI00301202  | 129 | 41961  | 4 | MAGT1 magnesium transporter 1  |
| 416 | IPI00299904  | 85  | 81884  | 4 | MCM7 Isoform 1 of DNA replication licensing factor MCM7  |
| 417 | IPI00376143  | 57  | 61175  | 4 | MCM7 minichromosome maintenance complex component 7 isoform 2                                    |
| 418 | IPI00444452  | 145 | 114512 | 4 | MOV10 Isoform 1 of P   |
| 419 | IPI00012149  | 53  | 78930  | 4 | MPHOSPH10 U3 small nucleolar ribonucleoprotein protein MPP10                                     |
| 420 | IPI00171798  | 57  | 75717  | 4 | MTA2 Metastasis-associated protein MTA2  |
| 421 | IPI00010418  | 55  | 118674 | 4 | MYO1C Isoform 2 of Myosin-1c   |
| 422 | IPI00514825  | 76  | 56457  | 4 | NOS1AP Carboxyl-terminal PDZ ligand of neuronal nitric oxide synthase protein                    |
| 423 | IPI00006197  | 87  | 96017  | 4 | NVL Isoform 1 of Nuclear valosin-containing protein-like   |
| 424 | IPI00012066  | 118 | 38597  | 4 | PCBP2 poly(rC) binding protein 2 isoform b   |
| 425 | IPI00004534  | 79  | 146286 | 4 | PFAS Phosphoribosylformylglycinamide synthase  |
| 426 | IPI004465179 | 101 | 94073  | 4 | PFKM cDNA FLJ44241 fis, clone THYMU3008436, highly similar to 6-phosphofructokinase, muscle type |
| 427 | IPI00011200  | 97  | 57356  | 4 | PHGDH D-3-phosphoglycerate dehydrogenase   |
| 428 | IPI00333825  | 64  | 57077  | 4 | PHLDB2 PHLDB2 protein  |
| 429 | IPI00179964  | 88  | 57357  | 4 | PTBP1 Isoform 1 of Polypyrimidine tract-binding protein 1  |
| 430 | IPI00376798  | 47  | 20468  | 4 | RPL11 Isoform 1 of 60S ribosomal protein L11   |
| 431 | IPI00031691  | 117 | 21964  | 4 | RPL9 60S ribosomal protein   |
| 432 | IPI00221089  | 64  | 17212  | 4 | RPS13 40S ribosomal protein S13  |
| 433 | IPI00479058  | 84  | 17029  | 4 | RPS15 40S ribosomal protein S15  |
| 434 | IPI00182289  | 86  | 6900   | 4 | RPS29 40S ribosomal protein S29  |
| 435 | IPI00006025  | 124 | 110721 | 4 | SART3 Isoform 1 of Squamous cell carcinoma antigen recognized by T-cells 3                       |
| 436 | IPI00646311  | 83  | 38038  | 4 | SCML2 cDNA FLJ60333, highly similar to Sex comb on midleg-like protein 2                         |
| 437 | IPI00444572  | 117 | 192371 | 4 | SIPA1L2 Isoform 1 of Signal-induced proliferation-associated 1-like protein 2                    |
| 438 | IPI00219729  | 109 | 34211  | 4 | SLC25A11 Mitochondrial 2-oxoglutarate/malate carrier protein                                     |
| 439 | IPI00029822  | 85  | 188571 | 4 | SMARCA4 SWI/SNF-related matrix-associated actin-dependent regulator of chromatin a4 isoform D    |
| 440 | IPI00297477  | 43  | 28512  | 4 | SNRPA1 U2 small nuclear ribonucleoprotein A~   |
| 441 | IPI00000192  | 103 | 264079 | 4 | SON Isoform F of Protein SON   |
| 442 | IPI00020194  | 83  | 61749  | 4 | TAF15 Isoform Short of TATA-binding protein-associated factor 2N                                 |
| 443 | IPI00329633  | 63  | 84294  | 4 | TARS Threonyl-tRNA synthetase, cytoplasmic   |
| 444 | IPI00299084  | 135 | 28302  | 4 | TMEM33 Transmembrane protein 33  |
| 445 | IPI00216134  | 55  | 28730  | 4 | TPM1 tropomyosin 1 alpha chain isoform 7   |
| 446 | IPI00003505  | 84  | 48863  | 4 | TRIP13 Isoform 1 of Thyroid receptor-interacting protein 13                                      |
| 447 | IPI00152708  | 134 | 58661  | 4 | UTP15 U3 small nucleolar RNA-associated protein 15 homolog                                       |
| 448 | IPI00013953  | 72  | 123585 | 4 | WDR6 WD repeat-containing protein 6  |
| 449 | IPI00644712  | 84  | 70084  | 4 | XRCC6 ATP-dependen   |
| 450 | IPI00100151  | 56  | 109426 | 4 | XRN2 Isoform 1 of 5~-3~ exoribonuclease 2  |
| 451 | IPI00782966  | 162 | 210693 | 4 | ZFP106 Zinc finger protein 106 homolog   |
| 452 | IPI00173589  | 69  | 17380  | 3 | - 17 kDa protein   |
| 453 | IPI00029468  | 59  | 42701  | 3 | ACTR1A Alpha-centractin  |
| 454 | IPI00394665  | 46  | 137079 | 3 | ADAR Isoform 1 of Double-stranded RNA-specific adenosine deaminase                               |
| 455 | IPI00000690  | 59  | 67144  | 3 | AIFM1 Isoform 1 of Apoptosis-inducing factor 1, mitochondrial                                    |
| 456 | IPI00215918  | 41  | 20612  | 3 | ARF4 ADP-ribosylation factor 4   |
| 457 | IPI00395769  | 63  | 32917  | 3 | ATP5C1 Isoform Heart of ATP synthase subunit gamma, mitochondrial                                |
| 458 | IPI00383565  | 65  | 176930 | 3 | BAZ1A Isoform 2 of Bromodomain adjacent to zinc finger domain protein 1A                         |
| 459 | IPI00006099  | 90  | 146571 | 3 | BMS1 Ribosome biogenesis protein BMS1 homolog  |
| 460 | IPI00412224  | 50  | 138423 | 3 | BRWD2 Bromodomain and WD repeat-containing protein 2   |
| 461 | IPI00293746  | 68  | 29679  | 3 | C1orf35 Isoform 1 of Multiple myeloma tumor-associated protein 2                                 |
| 462 | IPI00290770  | 103 | 60994  | 3 | CCT3 chaperonin containing TCP1, subunit 3 isoform b   |
| 463 | IPI00302925  | 44  | 60011  | 3 | CCT8 59 kDa protein  |
| 464 | IPI00151358  | 42  | 62531  | 3 | CLPTM1L Isoform 1 of Clef lip and palate transmembrane protein 1-like protein                    |
| 465 | IPI00295851  | 58  | 108214 | 3 | COPB1 Coatomer subunit beta  |
| 466 | IPI00419273  | 92  | 88138  | 3 | CUL4A Isoform 1 of Cullin-4A   |
| 467 | IPI00744837  | 74  | 101795 | 3 | CYTSA Putative uncharacterized protein CYTSA   |
| 468 | IPI00152510  | 45  | 98890  | 3 | DDX54 DEAD (Asp-Glu-Ala-Asp) box polypeptide 54 isoform 1  |
| 469 | IPI00302281  | 44  | 62007  | 3 | DDX56 Probable ATP-dependent RNA helicase DDX56  |
| 470 | IPI00027415  | 69  | 115673 | 3 | DHX36 Isoform 1 of Probable ATP-dependent RNA helicase DHX36                                     |
| 471 | IPI00004459  | 52  | 35499  | 3 | DIMT1L Probable dimethyladenosine transferase  |



|     |              |     |        |   |  |
|-----|--------------|-----|--------|---|--|
| 472 | IPI00031091  | 54  | 27025  | 3 | EFHD1 EF-hand domain-containing protein D1   |
| 473 | IPI00297982  | 94  | 51647  | 3 | EIF2S3 Eukaryotic translation initiation factor 2 subunit 3                        |
| 474 | IPI00006181  | 43  | 64560  | 3 | EIF3D Eukaryotic translation initiation  |
| 475 | IPI00001466  | 43  | 109919 | 3 | EML4 Echinoderm microtubule-associated protein-like 4                              |
| 476 | IPI00217841  | 54  | 58306  | 3 | EPB41L5 Isoform 2 of Band 4.1-like protein 5                                       |
| 477 | IPI00009464  | 50  | 101566 | 3 | EXOSC10 Isoform 1 of Exosome component 10  |
| 478 | IPI00304527  | 79  | 115185 | 3 | FAM83B Protein FAM83B  |
| 479 | IPI00221354  | 60  | 53551  | 3 | FUS Isoform Short of RNA-binding protein FUS                                       |
| 480 | IPI00027717  | 59  | 121681 | 3 | GEMIN4 Component of gems 4   |
| 481 | IPI00215965  | 133 | 38936  | 3 | HNRNPA1 Isoform A1-B of Heterogeneous nuclear ribonucleoprotein A1                 |
| 482 | IPI00402391  | 74  | 84903  | 3 | HNRNPUL1 Isoform 3 of Heterogeneous nuclear ribonucleoprotein U-like protein 1     |
| 483 | IPI00456887  | 107 | 85622  | 3 | HNRNPUL2 Heterogeneous nuclear ribonucleoprotein U-like protein 2                  |
| 484 | IPI00302927  | 71  | 58401  | 3 | ILK-2;CCT4 T-complex protein 1 subunit delta                                       |
| 485 | IPI00036742  | 58  | 203552 | 3 | KIAA1429 Isoform 1 of Protein virilizer homolog                                    |
| 486 | IPI00029422  | 63  | 101242 | 3 | KIF20A Kinesin-like protein KIF20A   |
| 487 | IPI00002214  | 55  | 58168  | 3 | KPNA2 Importin subunit alpha-2   |
| 488 | CON_IPI00217 | 61  | 51578  | 3 | KRT16 Keratin, type I cytoskeletal 16  |
| 489 | IPI00292135  | 79  | 71057  | 3 | LBR Lamin-B receptor   |
| 490 | IPI00103090  | 75  | 75473  | 3 | LEO1 Isoform 1 of RNA polymerase-associated protein LEO1                           |
| 491 | IPI00219219  | 49  | 15048  | 3 | LGALS1 Galectin-1  |
| 492 | IPI00556231  | 41  | 25129  | 3 | LOC644936 Actin/actin-like family protein  |
| 493 | CON_IPI00787 | 107 | 190911 | 3 | LOC730839 similar to Hornerin  |
| 494 | IPI00783271  | 76  | 159003 | 3 | LRPPRC Leucine-rich PPR motif-containing protein, mitochondrial                    |
| 495 | IPI00014843  | 73  | 152717 | 3 | LRRC16A Isoform 1 of Leucine-rich repeat-containing protein 16A                    |
| 496 | IPI00013214  | 50  | 96476  | 3 | MCM3 MCM3 minichromosome maintenance deficient 3 (S. cerevisiae), isoform CRA_b    |
| 497 | IPI00009286  | 43  | 436058 | 3 | MLL Isoform 1 of Histone-lysine N-methyltransferase HRX                            |
| 498 | IPI00030408  | 83  | 97636  | 3 | MPHOSPH8 Isoform 1 of M-phase phosphoprotein 8                                     |
| 499 | IPI00012773  | 83  | 81420  | 3 | MTA1 Isoform Long of Metastasis-associated protein MTA1                            |
| 500 | IPI00216070  | 42  | 21189  | 3 | MYL1 Myosin light chain 1, skeletal muscle isoform                                 |
| 501 | IPI00032849  | 66  | 21232  | 3 | NOP16 Nucleolar protein 16   |
| 502 | IPI00385001  | 74  | 184400 | 3 | NUP188 Isoform 2 of Nucleoporin NUP188 homolog                                     |
| 503 | IPI00216688  | 85  | 188166 | 3 | NUP98 nucleoporin 98kD isoform 4   |
| 504 | IPI00016610  | 94  | 37987  | 3 | PCBP1 Poly(rC)-binding protein 1   |
| 505 | IPI00021700  | 74  | 29092  | 3 | PCNA Proliferating cell nuc  |
| 506 | IPI00063242  | 64  | 28217  | 3 | PGAM5 Isoform 2 of Phosphoglycerate mutase family member 5                         |
| 507 | IPI00220644  | 70  | 58538  | 3 | PKM2 Isoform M1 of Pyruvate kinase isozymes M1/M2                                  |
| 508 | IPI00027808  | 47  | 135236 | 3 | POLR2B DNA-directed RNA polymerase II subunit RPB2                                 |
| 509 | IPI00293331  | 85  | 116346 | 3 | POP1 Ribonucleases P/MRP protein subunit POP1                                      |
| 510 | IPI00011937  | 69  | 30749  | 3 | PRDX4 Peroxiredoxin-4  |
| 511 | IPI00016639  | 96  | 69188  | 3 | PRKCI Protein kinase C iota type   |
| 512 | IPI00005861  | 62  | 77652  | 3 | PRPF3 Isoform 1 of U4/U6 small nuclear ribonucleoprotein Prp3                      |
| 513 | IPI00013721  | 50  | 117244 | 3 | PRPF4B Serine/threonine-protein kinase PRP4 homolog                                |
| 514 | IPI00163505  | 84  | 59628  | 3 | RBM39 Isoform 1 of RNA-binding protein 39  |
| 515 | IPI00061178  | 94  | 42173  | 3 | RBMXL1 RNA binding motif protein, X-linked-like 1                                  |
| 516 | IPI00215790  | 54  | 8270   | 3 | RPL38 60S ribosomal p  |
| 517 | IPI00008433  | 67  | 23033  | 3 | RPS5 40S ribosomal protein S5  |
| 518 | IPI00013415  | 47  | 22113  | 3 | RPS7 40S ribosomal protein S7  |
| 519 | IPI00300631  | 50  | 103036 | 3 | SAFB Scaffold attachment factor B1   |
| 520 | CON_IPI00010 | 71  | 76216  | 3 | SFPQ Isoform Long of Splicing factor, proline- and glutamine-rich                  |
| 521 | IPI00019996  | 75  | 115625 | 3 | SLTM modulator of estrogen induced transcription isoform b                         |
| 522 | IPI00291939  | 98  | 143771 | 3 | SMC1A Structural maintenance of chromosomes protein 1A                             |
| 523 | IPI00219420  | 46  | 141853 | 3 | SMC3 Structural maintenance of chromosomes protein 3                               |
| 524 | IPI00328293  | 94  | 103792 | 3 | SRRM1 cDNA FLJ61739, highly similar to Serine/arginine repetitive matrix protein 1 |
| 525 | IPI00165041  | 54  | 148393 | 3 | TCOF1 Treacher Collins-Franceschetti syndrome 1 isoform a                          |
| 526 | IPI00100656  | 51  | 36410  | 3 | TECR Isoform 1 of Trans-2,3-enoyl-CoA reductase                                    |
| 527 | IPI00024097  | 95  | 49789  | 3 | TES Isoform 1 of Testin  |
| 528 | IPI00022462  | 86  | 85274  | 3 | TFRC Transferr   |
| 529 | IPI00158615  | 81  | 171128 | 3 | THOC2 THO complex subunit 2  |
| 530 | IPI00413611  | 57  | 91125  | 3 | TOP1 DNA topoisomerase 1   |
| 531 | IPI00797279  | 47  | 92582  | 3 | UHRF1 ubiquitin-like with PHD and ring finger domains 1 isoform 2                  |
| 532 | IPI00297241  | 69  | 256522 | 3 | URB1 Nucleolar pre-ribosomal-associated protein 1                                  |
| 533 | IPI00003965  | 63  | 129304 | 3 | USP7 Ubiquitin carboxyl-terminal hydrolase 7                                       |
| 534 | IPI00006900  | 47  | 54639  | 3 | UTP3 Something about silencing protein 10  |
| 535 | IPI00024145  | 50  | 30849  | 3 | VDAC2 Isoform 2 of Voltage-dependent anion-selective channel protein 2             |
| 536 | IPI00295400  | 88  | 53474  | 3 | WARS Isoform 1 of Tryptophanyl-tRNA synthetase, cytoplasmic                        |
| 537 | IPI00298961  | 44  | 124447 | 3 | XPO1 Exportin-1  |
| 538 | IPI00018146  | 51  | 28032  | 3 | YWHAQ 14-3-3 protein theta   |

| CenpA hits | prot acc     | prot score | prot mass | prot matches | Protein Name  |
|------------|--------------|------------|-----------|--------------|---|
| 1          | IP100398779  | 5517       | 517822    | 288          | PLEC1 Isoform 4 of Plectin-1  |
| 2          | IP100333015  | 4104       | 251925    | 185          | SPTBN1 Isoform 2 of Spectrin beta chain, brain 1  |
| 3          | IP100786995  | 2577       | 470127    | 132          | LOC731751 similar to protein kinase, DNA-activated, catalytic polypeptide                             |
| 4          | IP100412650  | 2089       | 249417    | 90           | SVIL Isoform 1 of Supervillin   |
| 5          | IP100879810  | 1620       | 285628    | 80           | SPTAN1 Putative uncharacterized protein SPTAN1  |
| 6          | IP100742682  | 1519       | 267530    | 69           | TPR Nucleoprotein TPR   |
| 7          | IP100217709  | 1578       | 183518    | 68           | TOP2B Isoform Beta-1 of DNA topoisomerase 2-beta  |
| 8          | IP100456969  | 1080       | 534809    | 56           | DYNC1H1 Cytoplasmic dynein 1 heavy chain 1  |
| 9          | IP100414980  | 1313       | 125898    | 53           | MYO1B Isoform 2 of Myosin-Ib  |
| 10         | IP100873959  | 1044       | 213835    | 48           | MYO5A myosin VA isoform 2   |
| 11         | IP100003269  | 648        | 42318     | 44           | ACTBL2 Beta-actin-like protein 2  |
| 12         | IP100000846  | 645        | 219393    | 42           | CHD4 Isoform 1 of Chromodomain-helicase-DNA-binding protein 4   |
| 13         | IP100295857  | 744        | 139797    | 37           | COPA Isoform 1 of Coatomer subunit alpha  |
| 14         | IP100170594  | 602        | 255242    | 35           | AHCTF1;AHCTF1P Isoform 1 of Protein ELYS  |
| 15         | IP100297211  | 471        | 122513    | 27           | SMARCA5 SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A member 5 |
| 16         | IP100297851  | 460        | 197707    | 26           | CHD1 chromodomain helicase DNA binding protein 1  |
| 17         | IP100008756  | 689        | 636467    | 26           | DST dystonin isoform 3  |
| 18         | IP100744115  | 590        | 80635     | 26           | PCCA propionyl-Coenzyme A carboxylase, alpha polypeptide isoform a precursor                          |
| 19         | IP100013003  | 575        | 278375    | 25           | ACACB Isoform Long of Acetyl-CoA carboxylase 2  |
| 20         | IP100935252  | 493        | 199828    | 25           | DDX60L DEAD (Asp-Glu-Ala-Asp) box polypeptide 60-like   |
| 21         | IP100013683  | 389        | 50856     | 25           | TUBB3 Tubulin beta-3 chain  |
| 22         | IP100218207  | 446        | 269709    | 24           | SPTBN2 Isoform 2 of Spectrin beta chain, brain 2  |
| 23         | IP100021812  | 456        | 629213    | 22           | AHNAK Neuroblast differentiation-associated protein AHNAK   |
| 24         | IP100413672  | 308        | 100286    | 21           | BCLAF1 Isoform 3 of Bcl-2-associated transcription factor 1   |
| 25         | IP100217606  | 439        | 199680    | 21           | DDX60 Probable ATP-dependent RNA helicase DDX60   |
| 26         | IP100169325  | 458        | 106282    | 20           | WDR36 WD repeat-containing protein 36   |
| 27         | IP100373870  | 294        | 227989    | 18           | CHD3;LOC732272 Isoform 1 of Chromodomain-helicase-DNA-binding protein                                 |
| 28         | IP100291467  | 401        | 33073     | 18           | SLC25A6 ADP/ATP translocase 3   |
| 29         | IP100332936  | 493        | 79336     | 18           | ZC3HAV1 Isoform 2 of Zinc finger CCCH-type antiviral protein 1  |
| 30         | IP100760846  | 240        | 234168    | 16           | MYO18A Isoform 1 of Myosin-XVIIIa   |
| 31         | IP100291711  | 381        | 135242    | 16           | PLEKHG3 Isoform 1 of Pleckstrin homology domain-containing family G member 3                          |
| 32         | IP100418169  | 302        | 40671     | 15           | ANXA2 Isoform 2 of Annexin A2   |
| 33         | IP100456004  | 266        | 165794    | 15           | ATAD2B Isoform 2 of ATPase family AAA domain-containing protein 2B                                    |
| 34         | IP100006482  | 425        | 114135    | 15           | ATP1A1 Isoform Long of Sodium/potassium-transporting ATPase subunit alpha-1                           |
| 35         | IP100642126  | 260        | 583031    | 15           | KIAA1618 Isoform 1 of Protein ALO17   |
| 36         | IP100220740  | 309        | 29617     | 15           | NPM1 Isoform 2 of Nucleophosmin   |
| 37         | IP100018810  | 358        | 59702     | 15           | OASL Isoform p56 of 59 kDa 2--5--oligoadenylate synthetase-like protein                               |
| 38         | IP100479186  | 205        | 58470     | 15           | PKM2 Isoform M2 of Pyruvate kinase isozymes M1/M2   |
| 39         | IP100022891  | 313        | 33271     | 15           | SLC25A4 ADP/ATP translocase 1   |
| 40         | CON_IP100747 | 402        | 40520     | 14           | KRT17 Radiated keratinocyte mRNA 266  |
| 41         | IP100022256  | 388        | 49965     | 13           | AP2M1 Isoform 1 of AP-2 complex subunit mu  |
| 42         | IP100220109  | 322        | 280508    | 13           | ATRX transcriptional regulator ATRX isoform 2   |
| 43         | IP100301263  | 237        | 245167    | 13           | CAD CAD protein   |
| 44         | IP100013452  | 266        | 172094    | 13           | EPRS Bifunctional aminoacyl-tRNA synthetase   |
| 45         | IP100179298  | 229        | 485780    | 13           | HUWE1 482 kDa protein   |
| 46         | IP100644127  | 209        | 145718    | 13           | IARS Isoleucyl-tRNA synthetase, cytoplasmic   |
| 47         | IP100737500  | 236        | 112544    | 13           | MYO5B cDNA: FLJ21683 fis, clone COL09335  |
| 48         | IP100300078  | 239        | 103357    | 12           | PWP2 Periodic tryptophan protein 2 homolog  |
| 49         | IP100221325  | 222        | 362365    | 12           | RANBP2 E3 SUMO-protein ligase RanBP2  |
| 50         | IP100376404  | 311        | 324755    | 11           | BPTF Isoform 4 of Nucleosome-remodeling factor subunit BPTF   |
| 51         | IP100250716  | 135        | 259742    | 11           | BRWD1 Isoform B of Bromodomain and WD repeat-containing protein 1                                     |
| 52         | IP100382470  | 319        | 98670     | 11           | HSP90AA1 Isoform 2 of Heat shock protein HSP 90-alpha   |
| 53         | IP100554723  | 214        | 25044     | 11           | RPL10 60S ribosomal protein L10   |
| 54         | IP100009471  | 240        | 107115    | 11           | WDR3 WD repeat-containing protein 3   |
| 55         | IP100177817  | 315        | 111103    | 10           | ATP2A2 Isoform SERCA2A of Sarcoplasmic/endoplasmic reticulum calcium ATPase 2                         |
| 56         | IP100789428  | 224        | 57939     | 10           | MCCC2 Isoform 2 of Methylcrotonoyl-CoA carboxylase beta chain, mitochondrial                          |
| 57         | IP100940399  | 228        | 240363    | 10           | MYO10 Myosin-X  |
| 58         | IP100748807  | 236        | 164355    | 10           | NUP160 Isoform 1 of Nuclear pore complex protein Nup160   |
| 59         | IP100215793  | 147        | 145544    | 10           | PPP1R9A protein phosphatase 1 regulatory subunit 9A isoform 2   |
| 60         | IP100004968  | 244        | 55603     | 10           | PRPF19 Pre-mRNA-processing factor 19  |
| 61         | IP100000494  | 216        | 34569     | 10           | RPL5 60S ribosomal protein L5   |
| 62         | IP100329389  | 181        | 32765     | 10           | RPL6 60S ribosomal protein L6   |
| 63         | IP100025057  | 209        | 134289    | 9            | ADAR Isoform 2 of Double-stranded RNA-specific adenosine deaminase                                    |
| 64         | IP100239815  | 144        | 77526     | 9            | CIRH1A Isoform 1 of Cirhin  |
| 65         | IP100301323  | 163        | 75702     | 9            | DDX18 ATP-dependent RNA helicase DDX18  |
| 66         | CON_IP100009 | 128        | 62568     | 9            | KRT5 Keratin, type II cytoskeletal 5  |
| 67         | IP100741894  | 158        | 312134    | 9            | LOC730429 similar to ubiquitin protein ligase E3 component n-recognin 5 isoform 1                     |
| 68         | IP100256861  | 214        | 623626    | 9            | MACF1 Isoform 2 of Microtubule-actin cross-linking factor 1, isoforms 1/2/3/5                         |
| 69         | IP100444262  | 102        | 65979     | 9            | NCL cDNA FLJ45706 fis, clone FEBRA2028457, highly similar to Nucleolin                                |
| 70         | IP100654555  | 200        | 93202     | 9            | NOP2 NOP2 protein   |
| 71         | IP100549540  | 168        | 44506     | 9            | PAK1IP1 p21-activated protein kinase-interacting protein 1  |
| 72         | IP100009790  | 152        | 86454     | 9            | PFKP 6-phosphofructokinase type C   |
| 73         | IP100025874  | 113        | 72847     | 9            | RPN1 Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 1 precursor               |
| 74         | IP100022202  | 235        | 40525     | 9            | SLC25A3 Isoform A of Phosphate carrier protein, mitochondrial   |
| 75         | IP100004970  | 133        | 320820    | 9            | UTP20;LOC653877 Small subunit processome component 20 homolog   |
| 76         | IP100217240  | 238        | 95921     | 9            | WDR75 WD repeat-containing protein 75   |
| 77         | IP100430472  | 92         | 252898    | 8            | ASCC3 Activating signal cointegrator 1 complex subunit 3  |
| 78         | IP100784320  | 225        | 127536    | 8            | FAM83H Protein FAM83H   |
| 79         | IP100009866  | 163        | 49898     | 8            | KRT13 Isoform 1 of Keratin, type I cytoskeletal 13  |
| 80         | IP100783781  | 185        | 230170    | 8            | NUP205 Nuclear pore complex protein Nup205  |
| 81         | IP100332371  | 149        | 85762     | 8            | PFKL Isoform 1 of 6-phosphofructokinase, liver type   |
| 82         | IP100789041  | 118        | 81679     | 8            | PNN Isoform 1 of Pinin  |
| 83         | IP100304612  | 93         | 23619     | 8            | RPL13A 60S ribosomal protein L13a   |
| 84         | IP100215719  | 178        | 21735     | 8            | RPL18 60S ribosomal protein L18   |
| 85         | IP100465022  | 169        | 217206    | 8            | SMCHD1 Isoform 2 of Structural maintenance of chromosomes flexible hinge domain-containing protein 1  |
| 86         | IP100298696  | 191        | 144553    | 8            | TCOF1 Isoform 2 of Treacle protein  |

|            |                    |           |              |          |  |
|------------|--------------------|-----------|--------------|----------|--|
| 87         | IP100640981        | 116       | 580483       | 8        | UBR4 Isoform 4 of E3 ubiquitin-protein ligase UBR4                                       |
| 88         | IP100022215        | 108       | 124854       | 7        | ADNP   |
| 89         | IP100152007        | 166       | 223645       | 7        | ARHGEF17 Rho guanine nucleotide exchange factor 17                                       |
| 90         | IP100220219        | 97        | 103278       | 7        | COPB2 Coatomer subunit beta-   |
| 91         | IP100411733        | 132       | 134938       | 7        | DHX30 Isoform 1 of Putative ATP-dependent RNA helicase DHX30                             |
| 92         | IP100896511        | 98        | 118203       | 7        | HERC5 hect domain and RLD 5  |
| 93         | IP100291579        | 120       | 111016       | 7        | KIF23 Isoform 1 of Kinesin-like protein KIF23  |
| 94         | CON_IP100450       | 107       | 48361        | 7        | KRT17 Keratin, type I cytoskeletal 17  |
| 95         | IP100029513        | 93        | 80822        | 7        | NOL10 Isoform 1 of Nucleolar protein 10  |
| 96         | IP100026625        | 221       | 156697       | 7        | NUP155 Isoform 1 of Nuclear pore complex protein Nup155                                  |
| 97         | IP100952908        | 134       | 9797         | 7        | RPS27 40S ribosomal protein S27  |
| 98         | IP100290952        | 121       | 84758        | 7        | RRP1B Isoform 1 of Ribosomal RNA processing protein 1 homolog B                          |
| 99         | IP100221106        | 171       | 100279       | 7        | SF3B2 splicing factor 3B subunit 2   |
| 100        | IP100007084        | 176       | 74528        | 7        | SLC25A13 Calcium-binding mitochondrial carrier protein Aralar2                           |
| 101        | IP100005154        | 134       | 81367        | 7        | SSRP1 FACT complex subunit SSRP1   |
| 102        | IP100152377        | 123       | 94241        | 7        | STT3B Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit STT3B       |
| 103        | IP100027258        | 120       | 96736        | 7        | SYNPO Isoform 2 of Synaptopodin  |
| 104        | IP100290566        | 94        | 60819        | 7        | TCP1 T-complex protein 1 subunit alpha   |
| 105        | IP100008477        | 130       | 86227        | 7        | TPX2 Targeting protein for Xklp2   |
| 106        | IP100411453        | 189       | 131159       | 6        | AP3D1 Isoform 1 of AP-3 complex subunit delta-1  |
| 107        | IP100296388        | 173       | 213004       | 6        | BAZ2A Isoform 2 of Bromodomain adjacent to zinc finger domain protein 2A                 |
| 108        | IP100181728        | 89        | 41660        | 6        | BRIX1 Brix domain-containing protein 2   |
| <b>109</b> | <b>IP100027152</b> | <b>99</b> | <b>16038</b> | <b>6</b> | <b>CENPA Isoform 1 of Histone H3-like centromeric protein A</b>                          |
| 110        | IP100023109        | 106       | 201522       | 6        | CHD2 Isoform 2 of Chromodomain-helicase-DNA-binding protein 2                            |
| 111        | IP100794880        | 143       | 337542       | 6        | CHD7 Isoform 1 of Chromodomain-helicase-DNA-binding protein 7                            |
| 112        | IP100398992        | 123       | 292161       | 6        | CHD8 Isoform 1 of Chromodomain-helicase-DNA-binding protein 8                            |
| 113        | IP100477468        | 118       | 134332       | 6        | CTR9 RNA polymerase-associated protein CTR9 homolog                                      |
| 114        | IP100015808        | 75        | 83831        | 6        | GNL2 Nucleolar GTP-binding protein 2   |
| 115        | IP100216952        | 132       | 65153        | 6        | LMNA Isoform C of Lamin-A/C  |
| 116        | IP100886911        | 121       | 51513        | 6        | LOC646048 similar to actin alpha 1 skeletal muscle protein                               |
| 117        | IP100018349        | 72        | 97068        | 6        | MCM4 DNA replication licensing factor MCM4   |
| 118        | IP100218342        | 98        | 102180       | 6        | MTHFD1 C-1-tetrahydrofolate synthase, cytoplasmic  |
| 119        | IP100306369        | 114       | 87214        | 6        | NSUN2 tRNA (cytosine-5-)-methyltransferase NSUN2   |
| 120        | IP100410717        | 99        | 157355       | 6        | POGZ Isoform 1 of Pogo transposable element with ZNF domain                              |
| 121        | IP100031627        | 182       | 218438       | 6        | POLR2A DNA-directed RNA polymerase II subunit RPB1                                       |
| 122        | IP100026202        | 87        | 21034        | 6        | RPL18A 60S ribosomal protein L18a  |
| 123        | IP100514399        | 73        | 7523         | 6        | RPS27 Putative uncharacterized protein RPS27   |
| 124        | IP100413362        | 118       | 201102       | 6        | SIPA1L1 Isoform 1 of Signal-induced proliferation-associated 1-like protein 1            |
| 125        | IP100246842        | 167       | 96183        | 6        | TAF1C Isoform 1 of TATA box-binding protein-associated factor RNA polymerase I subunit C |
| 126        | IP100220834        | 92        | 83222        | 6        | XRCC5 ATP-dependent DNA helicase 2 subunit 2   |
| 127        | IP100893179        | 119       | 64263        | 6        | XRCC6 X-ray repair complementing defective repair in Chinese hamster cells 6             |
| 128        | IP100176574        | 62        | 12615        | 5        | - 12 kDa protein   |
| 129        | IP100872901        | 138       | 17842        | 5        | - 18 kDa protein   |
| 130        | IP100845465        | 66        | 59827        | 5        | ACTN4 Actinin alpha4 isoform   |
| 131        | IP100027448        | 74        | 11421        | 5        | ATP5L ATP synthase subunit g, mitochondrial  |
| 132        | IP100297779        | 99        | 57794        | 5        | CCT2 T-complex protein 1 subunit beta  |
| 133        | IP100018465        | 76        | 59842        | 5        | CCT7 T-complex protein 1 subunit eta   |
| 134        | IP100465294        | 80        | 92422        | 5        | CDC5L Cell division cycle 5-like protein   |
| 135        | IP100306723        | 68        | 121540       | 5        | CEBPZ CCAAT/enhancer-binding protein zeta  |
| 136        | IP100329791        | 105       | 117803       | 5        | DDX46 Probable ATP-dependent RNA helicase DDX46  |
| 137        | IP100023972        | 66        | 50900        | 5        | DDX47 Probable ATP-dependent RNA helicase DDX47  |
| 138        | IP100019329        | 104       | 10530        | 5        | DYNLL1 Dynein light chain 1, c   |
| 139        | IP100001159        | 92        | 294953       | 5        | GCN1L1 Translational activator GCN1  |
| 140        | IP100054042        | 89        | 112859       | 5        | GTF2I Isoform 1 of General transcription factor II-I                                     |
| 141        | IP100414482        | 93        | 243390       | 5        | GTF3C1 Isoform 1 of General transcription factor 3C polypeptide 1                        |
| 142        | IP100024719        | 135       | 49880        | 5        | HAT1 Histone acetyltransferase type B catalytic subunit                                  |
| 143        | IP100008821        | 121       | 118199       | 5        | HERC5 Probable E3 ubiquitin-protein ligase HERC5   |
| 144        | IP100007402        | 145       | 120751       | 5        | IPO7 Importin-7  |
| 145        | IP100789324        | 84        | 62862        | 5        | JUP cDNA FLJ60424, highly similar to Junction plakoglobin                                |
| 146        | CON_IP100290       | 141       | 64442        | 5        | KRT4 keratin 4   |
| 147        | IP100069309        | 120       | 81069        | 5        | LRWD1 Leucine-rich repeat and WD repeat-containing protein 1                             |
| 148        | IP100006752        | 44        | 142754       | 5        | MAP4K4 Isoform 1 of Mitogen-activated protein kinase kinase kinase 4                     |
| 149        | IP100470805        | 107       | 198448       | 5        | MDC1 Isoform 2 of Mediator of DNA damage checkpoint protein 1                            |
| 150        | IP100604620        | 90        | 76625        | 5        | NCL Nucleolin  |
| 151        | IP100855737        | 63        | 73311        | 5        | NEXN Isoform 3 of Nexilin  |
| 152        | IP100303813        | 76        | 82041        | 5        | NOL11 Nucleolar protein 11   |
| 153        | IP100152890        | 87        | 128368       | 5        | NOL6 Isoform 1 of Nucleolar protein 6  |
| 154        | IP100291200        | 94        | 129924       | 5        | NUP133 Nuclear pore complex protein Nup133   |
| 155        | IP100397904        | 133       | 93943        | 5        | NUP93 Nuclear pore complex protein Nup93   |
| 156        | IP100002624        | 141       | 57500        | 5        | PLRG1 Isoform 1 of Pleiotropic regulator 1   |
| 157        | IP100298738        | 98        | 141950       | 5        | POLRMT DNA-directed RNA polymerase, mitochondrial precursor                              |
| 158        | IP100395865        | 135       | 48132        | 5        | RBBP7 Histone-binding protein RBBP7  |
| 159        | IP100375358        | 88        | 128688       | 5        | RFC1 Isoform 1 of Replication factor C subunit 1   |
| 160        | IP100412579        | 125       | 24987        | 5        | RPL10A 60S ribosomal protein L10a  |
| 161        | IP100877787        | 88        | 31452        | 5        | RPL3 Putative uncharacterized protein RPL3   |
| 162        | IP100026302        | 104       | 14454        | 5        | RPL31 60S ribosomal protein L31  |
| 163        | IP100219160        | 69        | 13513        | 5        | RPL34 60S ribosomal protein L3   |
| 164        | IP100012772        | 147       | 28235        | 5        | RPL8 60S ribosomal protein L8  |
| 165        | IP100012750        | 85        | 13791        | 5        | RPS25 40S ribosomal protein S25  |
| 166        | IP100655650        | 76        | 13292        | 5        | RPS26 40S ribosomal protein S26  |
| 167        | IP100181359        | 148       | 129767       | 5        | SFRS2IP Isoform 2 of SFRS2-interacting protein   |
| 168        | IP100024650        | 77        | 54607        | 5        | SLC16A1 Monocarboxylate transporter 1  |
| 169        | IP100006666        | 58        | 50064        | 5        | SLC16A3 Monocarboxylate transporter 4  |
| 170        | IP100438229        | 118       | 90261        | 5        | TRIM28 Isoform 1 of Transcription intermediary factor 1-beta                             |
| 171        | IP100001786        | 162       | 124143       | 5        | USP36 Isoform 2 of Ubiquitin carboxyl-terminal hydrolase 36                              |
| 172        | IP100107113        | 66        | 88095        | 5        | UTP14A Isoform 1 of U3 small nucleolar RNA-associated protein 14 homolog A               |
| 173        | IP100024128        | 52        | 11188        | 4        | - 11 kDa protein   |
| 174        | IP100069693        | 129       | 23500        | 4        | - Putative uncharacterized protein RPL14P1   |
| 175        | IP100007334        | 92        | 152196       | 4        | ACIN1 Isoform 1 of Apoptotic chromatin condensation inducer in the nucleus               |

|     |              |     |        |   |  |
|-----|--------------|-----|--------|---|--|
| 176 | IP100021290  | 64  | 121674 | 4 | ACLY ATP-citrate synthase  |
| 177 | IP100028955  | 62  | 84261  | 4 | BOP1 Ribosome biogenesis protein BOP1  |
| 178 | IP100298007  | 135 | 59462  | 4 | C6orf150 Isoform 1 of Uncharacterized protein C6orf150   |
| 179 | IP100010720  | 58  | 60089  | 4 | CCT5 T-complex protein 1 subunit epsilon   |
| 180 | IP100384529  | 54  | 136446 | 4 | COBL Isoform 1 of Protein cordon-bleu  |
| 181 | IP100026570  | 97  | 12950  | 4 | COX7A2 cytochrome c oxidase subunit VIIa polypeptide 2 (   |
| 182 | IP100513791  | 67  | 244289 | 4 | DOCK7 Isoform 1 of Dedicator of cytokinesis protein 7  |
| 183 | IP100025447  | 64  | 48181  | 4 | EEF1A1 Elongation factor 1-alpha   |
| 184 | IP100029012  | 63  | 166867 | 4 | EIF3A Eukaryotic translation initiation factor 3 subunit A                                       |
| 185 | IP100396370  | 96  | 92823  | 4 | EIF3B Isoform 1 of Eukaryotic  |
| 186 | IP100759806  | 177 | 37247  | 4 | ENO1 Isoform MBP-1 of Alpha-enolase  |
| 187 | IP100550239  | 100 | 20850  | 4 | H1F0 Histone H1.0  |
| 188 | IP100026230  | 67  | 49517  | 4 | HNRNP2;RPL36AP37 Heterogeneous nuclear ribonucleoprotein H2                                      |
| 189 | IP100024254  | 50  | 56691  | 4 | IFIT3 Interferon-induced protein with tetratricopept   |
| 190 | IP100293735  | 119 | 151813 | 4 | IKBKAP Elongator complex protein 1   |
| 191 | IP100299554  | 54  | 187743 | 4 | KIF14 Kinesin-like protein KIF14   |
| 192 | CON_IP100293 | 48  | 60274  | 4 | KRT6B Keratin, type II cytoskeletal 6B   |
| 193 | IP100553043  | 113 | 122788 | 4 | LIMCH1 Isoform 1 of LIM and calponin homology domains-containing protein 1                       |
| 194 | IP100301202  | 129 | 41961  | 4 | MAGT1 magnesium transporter 1  |
| 195 | IP100376143  | 57  | 61175  | 4 | MCM7 minichromosome maintenance complex component 7 isoform 2                                    |
| 196 | IP100444452  | 145 | 114512 | 4 | MOV10 Isoform 1 of P   |
| 197 | IP100012149  | 53  | 78930  | 4 | MPHOSPH10 U3 small nucleolar ribonucleoprotein protein MPP10                                     |
| 198 | IP100171798  | 57  | 75717  | 4 | MTA2 Metastasis-associated protein MTA2  |
| 199 | IP100010418  | 55  | 118674 | 4 | MYO1C Isoform 2 of Myosin-Ic   |
| 200 | IP100514825  | 76  | 56457  | 4 | NOS1AP Carboxyl-terminal PDZ ligand of neuronal nitric oxide synthase protein                    |
| 201 | IP100006197  | 87  | 96017  | 4 | NVL Isoform 1 of Nuclear valosin-containing protein-like   |
| 202 | IP100012066  | 118 | 38597  | 4 | PCBP2 poly(rC) binding protein 2 isoform b   |
| 203 | IP100004534  | 79  | 146286 | 4 | PFAS Phosphoribosylformylglycinamide synthase  |
| 204 | IP100465179  | 101 | 94073  | 4 | PFKM cDNA FLJ44241 fis, clone THYMU3008436, highly similar to 6-phosphofructokinase, muscle type |
| 205 | IP100333825  | 64  | 57077  | 4 | PHLDB2 PHLDB2 protein  |
| 206 | IP100031691  | 117 | 21964  | 4 | RPL9 60S ribosomal protein   |
| 207 | IP100221089  | 64  | 17212  | 4 | RPS13 40S ribosomal protein S13  |
| 208 | IP100479058  | 84  | 17029  | 4 | RPS15 40S ribosomal protein S15  |
| 209 | IP100006025  | 124 | 110721 | 4 | SART3 Isoform 1 of Squamous cell carcinoma antigen recognized by T-cells 3                       |
| 210 | IP100646311  | 83  | 38038  | 4 | SCML2 cDNA FLJ60333, highly similar to Sex comb on midleg-like protein 2                         |
| 211 | IP100444572  | 117 | 192371 | 4 | SIPA1L2 Isoform 1 of Signal-induced proliferation-associated 1-like protein 2                    |
| 212 | IP100219729  | 109 | 34211  | 4 | SLC25A11 Mitochondrial 2-oxoglutarate/malate carrier protein                                     |
| 213 | IP100029822  | 85  | 188571 | 4 | SMARCA4 SWI/SNF-related matrix-associated actin-dependent regulator of chromatin a4 isoform D    |
| 214 | IP100297477  | 43  | 28512  | 4 | SNRPA1 U2 small nuclear ribonucleoprotein A~   |
| 215 | IP100000192  | 103 | 264079 | 4 | SON Isoform F of Protein SON   |
| 216 | IP100020194  | 83  | 61749  | 4 | TAF15 Isoform Short of TATA-binding protein-associated factor 2N                                 |
| 217 | IP100329633  | 63  | 84294  | 4 | TARS Threonyl-tRNA synthetase, cytoplasmic   |
| 218 | IP100299084  | 135 | 28302  | 4 | TMEM33 Transmembrane protein 33  |
| 219 | IP100216134  | 55  | 28730  | 4 | TPM1 tropomyosin 1 alpha chain isoform 7   |
| 220 | IP100003505  | 84  | 48863  | 4 | TRIP13 Isoform 1 of Thyroid receptor-interacting protein 13                                      |
| 221 | IP100152708  | 134 | 58661  | 4 | UTP15 U3 small nucleolar RNA-associated protein 15 homolog                                       |
| 222 | IP100013953  | 72  | 123585 | 4 | WDR6 WD repeat-containing protein 6  |
| 223 | IP100644712  | 84  | 70084  | 4 | XRCC6 ATP-dependen   |
| 224 | IP100100151  | 56  | 109426 | 4 | XRN2 Isoform 1 of 5--3~ exoribonuclease 2  |
| 225 | IP100782966  | 162 | 210693 | 4 | ZFP106 Zinc finger protein 106 homolog   |
| 226 | IP100173589  | 69  | 17380  | 3 | - 17 kDa protein   |
| 227 | IP100029468  | 59  | 42701  | 3 | ACTR1A Alpha-centractin  |
| 228 | IP100394665  | 46  | 137079 | 3 | ADAR Isoform 1 of Double-stranded RNA-specific adenosine deaminase                               |
| 229 | IP100000690  | 59  | 67144  | 3 | AIFM1 Isoform 1 of Apoptosis-inducing factor 1, mitochondrial                                    |
| 230 | IP100215918  | 41  | 20612  | 3 | ARF4 ADP-ribosylation factor 4   |
| 231 | IP100395769  | 63  | 32917  | 3 | ATP5C1 Isoform Heart of ATP synthase subunit gamma, mitochondrial                                |
| 232 | IP100383565  | 65  | 176930 | 3 | BAZ1A Isoform 2 of Bromodomain adjacent to zinc finger domain protein 1A                         |
| 233 | IP100006099  | 90  | 146571 | 3 | BMS1 Ribosome biogenesis protein BMS1 homolog  |
| 234 | IP100412224  | 50  | 138423 | 3 | BRWD2 Bromodomain and WD repeat-containing protein 2   |
| 235 | IP100293746  | 68  | 29679  | 3 | C1orf35 Isoform 1 of Multiple myeloma tumor-associated protein 2                                 |
| 236 | IP100290770  | 103 | 60994  | 3 | CCT3 chaperonin containing TCP1, subunit 3 isoform b   |
| 237 | IP100302925  | 44  | 60011  | 3 | CCT8 59 kDa protein  |
| 238 | IP100151358  | 42  | 62531  | 3 | CLPTM1L Isoform 1 of Clef lip and palate transmembrane protein 1-like protein                    |
| 239 | IP100295851  | 58  | 108214 | 3 | COPB1 Coatomeer subunit beta   |
| 240 | IP100419273  | 92  | 88138  | 3 | CUL4A Isoform 1 of Cullin-4A   |
| 241 | IP100744837  | 74  | 101795 | 3 | CY TSA Putative uncharacterized protein CY TSA   |
| 242 | IP100152510  | 45  | 98890  | 3 | DDX54 DEAD (Asp-Glu-Ala-Asp) box polypeptide 54 isoform 1  |
| 243 | IP100302281  | 44  | 62007  | 3 | DDX56 Probable ATP-dependent RNA helicase DDX56  |
| 244 | IP100027415  | 69  | 115673 | 3 | DHX36 Isoform 1 of Probable ATP-dependent RNA helicase DHX36                                     |
| 245 | IP100004459  | 52  | 35499  | 3 | DIMT1L Probable dimethyladenosine transferase  |
| 246 | IP100031091  | 54  | 27025  | 3 | EFHD1 EF-hand domain-containing protein D1   |
| 247 | IP100297982  | 94  | 51647  | 3 | EIF2S3 Eukaryotic translation initiation factor 2 subunit 3                                      |
| 248 | IP100006181  | 43  | 64560  | 3 | EIF3D Eukaryotic translation initiation  |
| 249 | IP100001466  | 43  | 109919 | 3 | EML4 Echinoderm microtubule-associated protein-like 4  |
| 250 | IP100217841  | 54  | 58306  | 3 | EPB41L5 Isoform 2 of Band 4.1-like protein 5   |
| 251 | IP100009464  | 50  | 101566 | 3 | EXOSC10 Isoform 1 of Exosome component 10  |
| 252 | IP100304527  | 79  | 115185 | 3 | FAM83B Protein FAM83B  |
| 253 | IP100221354  | 60  | 53551  | 3 | FUS Isoform Short of RNA-binding protein FUS   |
| 254 | IP100027717  | 59  | 121681 | 3 | GEMIN4 Component of gems 4   |
| 255 | IP100402391  | 74  | 84903  | 3 | HNRNPUL1 Isoform 3 of Heterogeneous nuclear ribonucleoprotein U-like protein 1                   |
| 256 | IP100456887  | 107 | 85622  | 3 | HNRNPUL2 Heterogeneous nuclear ribonucleoprotein U-like protein 2                                |
| 257 | IP100302927  | 71  | 58401  | 3 | ILK-2;CCT4 T-complex protein 1 subunit delta   |
| 258 | IP100036742  | 58  | 203552 | 3 | KIAA1429 Isoform 1 of Protein virilizer homolog  |
| 259 | IP100029422  | 63  | 101242 | 3 | KIF20A Kinesin-like protein KIF20A   |
| 260 | IP100002214  | 55  | 58168  | 3 | KPNA2 Importin subunit alpha-2   |
| 261 | CON_IP100217 | 61  | 51578  | 3 | KRT16 Keratin, type I cytoskeletal 16  |
| 262 | IP100292135  | 79  | 71057  | 3 | LBR Lamin-B receptor   |
| 263 | IP100103090  | 75  | 75473  | 3 | LEO1 Isoform 1 of RNA polymerase-associated protein LEO1   |
| 264 | IP100556231  | 41  | 25129  | 3 | LOC644936 Actin/actin-like family protein  |

|     |              |     |        |   |  |
|-----|--------------|-----|--------|---|--|
| 265 | CON_IP100787 | 107 | 190911 | 3 | LOC730839 similar to Hornerin  |
| 266 | IP100783271  | 76  | 159003 | 3 | LRPPRC Leucine-rich PPR motif-containing protein, mitochondrial                          |
| 267 | IP100014843  | 73  | 152717 | 3 | LRRC16A Isoform 1 of Leucine-rich repeat-containing protein 16A                          |
| 268 | IP100013214  | 50  | 96476  | 3 | MCM3 MCM3 minichromosome maintenance deficient 3 ( <i>S. cerevisiae</i> ), isoform CRA_b |
| 269 | IP100009286  | 43  | 436058 | 3 | MLL Isoform 1 of Histone-lysine N-methyltransferase HRX                                  |
| 270 | IP100030408  | 83  | 97636  | 3 | MPHOSPH8 Isoform 1 of M-phase phosphoprotein 8   |
| 271 | IP100012773  | 83  | 81420  | 3 | MTA1 Isoform Long of Metastasis-associated protein MTA1                                  |
| 272 | IP100216070  | 42  | 21189  | 3 | MYL1 Myosin light chain 1, skeletal muscle isoform                                       |
| 273 | IP100032849  | 66  | 21232  | 3 | NOP16 Nucleolar protein 16   |
| 274 | IP100385001  | 74  | 184400 | 3 | NUP188 Isoform 2 of Nucleoporin NUP188 homolog   |
| 275 | IP100216688  | 85  | 188166 | 3 | NUP98 nucleoporin 98kD isoform 4   |
| 276 | IP100016610  | 94  | 37987  | 3 | PCBP1 Poly(rC)-binding protein 1   |
| 277 | IP100021700  | 74  | 29092  | 3 | PCNA Proliferating cell nuc  |
| 278 | IP100063242  | 64  | 28217  | 3 | PGAM5 Isoform 2 of Phosphoglycerate mutase family member 5                               |
| 279 | IP100220644  | 70  | 58538  | 3 | PKM2 Isoform M1 of Pyruvate kinase isozymes M1/M2  |
| 280 | IP100027808  | 47  | 135236 | 3 | POLR2B DNA-directed RNA polymerase II subunit RPB2                                       |
| 281 | IP100293331  | 85  | 116346 | 3 | POP1 Ribonucleases P/MRP protein subunit POP1  |
| 282 | IP100011937  | 69  | 30749  | 3 | PRDX4 Peroxiredoxin-4  |
| 283 | IP100016639  | 96  | 69188  | 3 | PRKCI Protein kinase C iota type   |
| 284 | IP100005861  | 62  | 77652  | 3 | PRPF3 Isoform 1 of U4/U6 small nuclear ribonucleoprotein Prp3                            |
| 285 | IP100013721  | 50  | 117244 | 3 | PRPF4B Serine/threonine-protein kinase PRP4 homolog                                      |
| 286 | IP100163505  | 84  | 59628  | 3 | RBM39 Isoform 1 of RNA-binding protein 39  |
| 287 | IP100013415  | 47  | 22113  | 3 | RPS7 40S ribosomal protein S7  |
| 288 | IP100300631  | 50  | 103036 | 3 | SAFB Scaffold attachment factor B1   |
| 289 | CON_IP100010 | 71  | 76216  | 3 | SFPQ Isoform Long of Splicing factor, proline- and glutamine-rich                        |
| 290 | IP100019996  | 75  | 115625 | 3 | SLTM modulator of estrogen induced transcription isoform b                               |
| 291 | IP100291939  | 98  | 143771 | 3 | SMC1A Structural maintenance of chromosomes protein 1A                                   |
| 292 | IP100219420  | 46  | 141853 | 3 | SMC3 Structural maintenance of chromosomes protein 3                                     |
| 293 | IP100328293  | 94  | 103792 | 3 | SRRM1 cDNA FLJ61739, highly similar to Serine/arginine repetitive matrix protein 1       |
| 294 | IP100100656  | 51  | 36410  | 3 | TECR Isoform 1 of Trans-2,3-enoyl-CoA reductase  |
| 295 | IP100024097  | 95  | 49789  | 3 | TES Isoform 1 of Testin  |
| 296 | IP100022462  | 86  | 85274  | 3 | TFRC Transferr   |
| 297 | IP100158615  | 81  | 171128 | 3 | THOC2 THO complex subunit 2  |
| 298 | IP100413611  | 57  | 91125  | 3 | TOP1 DNA topoisomerase 1   |
| 299 | IP100797279  | 47  | 92582  | 3 | UHRF1 ubiquitin-like with PHD and ring finger domains 1 isoform 2                        |
| 300 | IP100297241  | 69  | 256522 | 3 | URB1 Nucleolar pre-ribosomal-associated protein 1  |
| 301 | IP100003965  | 63  | 129304 | 3 | USP7 Ubiquitin carboxyl-terminal hydrolase 7   |
| 302 | IP100024145  | 50  | 30849  | 3 | VDAC2 Isoform 2 of Voltage-dependent anion-selective channel protein 2                   |
| 303 | IP100295400  | 88  | 53474  | 3 | WARS Isoform 1 of Tryptophanyl-tRNA synthetase, cytoplasmic                              |
| 304 | IP100298961  | 44  | 124447 | 3 | XPO1 Exportin-1  |

g-Profiler output

#INFO:Version: r1741\_e90\_eg37

#INFO:Effective domain size for GO: 19334, threshold 3e-05

# BP = Biological Process, CC = cellular component

| Sample   | Domain | p-value  | T    | Q  | Q&T | Q&T/Q | Q&T/T | term ID    | t type | t group | t name                       | t depth | Q&T list   |
|----------|--------|----------|------|----|-----|-------|-------|------------|--------|---------|------------------------------|---------|--|
| Mitosis  | BP     | 0.000178 | 22   | 9  | 3   | 0.333 | 0.136 | GO:0000780 | CC     | 14      | condensed nuclear chromo     | 1       | ENSG00000115163,ENSG00000125817,ENSG00000145241<br>ENSG00000063177,ENSG00000092199,ENSG00000107937,ENSG0<br>0000108654,ENSG00000115163,ENSG00000125817,ENSG0000013   |
| Mitosis  | BP     | 0.00104  | 3954 | 9  | 9   | 1     | 0.002 | GO:0031981 | CC     | 10      | nuclear lumen                | 1       | 1051,ENSG00000145241,ENSG00000215021<br>ENSG00000063177,ENSG00000092199,ENSG00000107937,ENSG0<br>0000108654,ENSG00000115163,ENSG00000125817,ENSG0000013  |
| Mitosis  | BP     | 0.0428   | 4024 | 9  | 8   | 0.889 | 0.002 | GO:0043232 | CC     | 2       | intracellular non-membran    | 1       | 1051,ENSG00000145241   |
| Mitosis  | BP     | 1.39E-05 | 10   | 9  | 3   | 0.333 | 0.3   | GO:0031618 | CC     | 8       | nuclear pericentric hetero   | 1       | ENSG00000115163,ENSG00000125817,ENSG00000145241  |
| Mitosis  | CC     | 0.00903  | 79   | 9  | 3   | 0.333 | 0.038 | GO:0043044 | BP     | 3       | ATP-dependent chromatin      | 1       | ENSG00000092199,ENSG00000115163,ENSG00000145241  |
| Mitosis  | CC     | 0.0432   | 133  | 9  | 3   | 0.333 | 0.023 | GO:0007062 | BP     | 12      | sister chromatid cohesion    | 1       | ENSG00000115163,ENSG00000145241,ENSG00000215021  |
| Mitosis  | CC     | 0.0336   | 15   | 9  | 2   | 0.222 | 0.133 | GO:0051382 | BP     | 4       | kinetochore assembly         | 1       | ENSG00000115163,ENSG00000145241  |
| Interpha | BP     | 0.001    | 60   | 21 | 4   | 0.19  | 0.067 | GO:1904356 | BP     | 55      | regulation of telomere mai   | 1       | ENSG00000079246,ENSG00000143799,ENSG00000153187,ENSG0<br>0000178999<br>ENSG00000075624,ENSG00000079246,ENSG00000100201,ENSG0<br>0000105202,ENSG00000109971,ENSG00000115163,ENSG0000012<br>3485,ENSG00000143799,ENSG00000145241,ENSG00000167986,E<br>NSG00000178999,ENSG00000181163,ENSG00000198000,ENSG00<br>000215301 |
| Interpha | BP     | 0.000493 | 3066 | 21 | 14  | 0.667 | 0.005 | GO:0044085 | BP     | 48      | cellular component biogen    | 1       | ENSG00000075624,ENSG00000092201,ENSG00000100201,ENSG0<br>0000109971,ENSG00000143799,ENSG00000146247,ENSG0000015<br>3187,ENSG00000181163,ENSG00000215301,ENSG00000253729<br>ENSG00000092201,ENSG00000115163,ENSG00000123485,ENSG0<br>0000145241,ENSG00000181163   |
| Interpha | BP     | 0.0152   | 1825 | 21 | 10  | 0.476 | 0.005 | GO:0010628 | BP     | 104     | positive regulation of gene  | 1       | ENSG00000092201,ENSG00000115163,ENSG00000123485,ENSG0<br>0000145241,ENSG00000181163  |
| Interpha | BP     | 5.76E-06 | 54   | 21 | 5   | 0.238 | 0.093 | GO:0034724 | BP     | 19      | DNA replication-independe    | 1       | ENSG00000079246,ENSG00000109971,ENSG00000115163,ENSG0<br>0000161960,ENSG00000167986,ENSG00000181163,ENSG0000021<br>5301  |
| Interpha | BP     | 0.022    | 765  | 21 | 7   | 0.333 | 0.009 | GO:0016032 | BP     | 71      | viral process                | 1       | ENSG00000079246,ENSG00000109971,ENSG00000115163,ENSG0<br>0000143799,ENSG00000178999,ENSG00000181163,ENSG0000019<br>8000,ENSG00000215301  |
| Interpha | BP     | 0.00695  | 934  | 21 | 8   | 0.381 | 0.009 | GO:0033365 | BP     | 65      | protein localization to org: | 1       | ENSG00000087087,ENSG00000100201,ENSG00000109971,ENSG0<br>0000153187,ENSG00000181163  |
| Interpha | BP     | 0.0442   | 325  | 21 | 5   | 0.238 | 0.015 | GO:0000377 | BP     | 17      | RNA splicing, via transte    | 1       | ENSG00000115163,ENSG00000145241,ENSG00000146247,ENSG0<br>0000167986,ENSG00000178999,ENSG00000181163,ENSG0000021<br>5301,ENSG00000253729  |
| Interpha | BP     | 0.00257  | 818  | 21 | 8   | 0.381 | 0.01  | GO:1903047 | BP     | 89      | mitotic cell cycle process   | 1       | ENSG00000109971,ENSG00000167986,ENSG00000215301  |
| Interpha | BP     | 0.0123   | 33   | 21 | 3   | 0.143 | 0.091 | GO:0045070 | BP     | 64      | positive regulation of vira  | 1       | ENSG00000079246,ENSG00000143799,ENSG00000167986,ENSG0<br>0000178999,ENSG00000181163,ENSG00000253729  |
| Interpha | BP     | 0.0111   | 438  | 21 | 6   | 0.286 | 0.014 | GO:0009314 | BP     | 107     | response to radiation        | 1       | ENSG00000115163,ENSG00000145241,ENSG00000146247,ENSG0<br>0000167986,ENSG00000178999,ENSG00000181163,ENSG0000021<br>5301,ENSG00000253729  |

g-Profiler output

|              |          |      |    |    |       |       |            |    |     |                             |   |
|--------------|----------|------|----|----|-------|-------|------------|----|-----|-----------------------------|---|
| InterphaseBP | 1.82E-09 | 1197 | 21 | 14 | 0.667 | 0.012 | GO:0051276 | BP | 33  | chromosome organization     | ENSG00000075624,ENSG00000079246,ENSG00000092201,ENSG0000105202,ENSG00000115163,ENSG00000123485,ENSG00000143799,ENSG00000145241,ENSG00000153187,ENSG00000167986,ENSG00000178999,ENSG00000181163,ENSG00000215301,ENSG0000253729   |
| InterphaseBP | 0.0273   | 294  | 21 | 5  | 0.238 | 0.017 | GO:0104004 | BP | 106 | cellular response to enviro | ENSG00000079246,ENSG00000167986,ENSG00000178999,ENSG0000181163,ENSG00000215301  |
| InterphaseBP | 0.0476   | 330  | 21 | 5  | 0.238 | 0.015 | GO:0042254 | BP | 83  | ribosome biogenesis         | ENSG00000100201,ENSG00000105202,ENSG00000181163,ENSG0000198000,ENSG00000215301  |
| InterphaseCC | 9.53E-08 | 350  | 21 | 9  | 0.429 | 0.026 | GO:0098687 | CC | 51  | chromosomal region          | ENSG00000079246,ENSG00000115163,ENSG00000123485,ENSG0000125817,ENSG00000143799,ENSG00000145241,ENSG00000167986,ENSG00000178999,ENSG00000253729  |
| InterphaseCC | 2.2E-08  | 3954 | 21 | 19 | 0.905 | 0.005 | GO:0031981 | CC | 76  | nuclear lumen               | ENSG00000075624,ENSG00000079246,ENSG00000087087,ENSG0000092201,ENSG00000100201,ENSG00000105202,ENSG0000019971,ENSG00000115163,ENSG00000123485,ENSG00000125817,ENSG00000143799,ENSG00000145241,ENSG00000153187,ENSG00000167986,ENSG00000178999,ENSG00000181163,ENSG00000198000,ENSG00000215301,ENSG00000253729 |
| InterphaseCC | 6.85E-05 | 3173 | 21 | 15 | 0.714 | 0.005 | GO:0043234 | CC | 26  | protein complex             | ENSG00000075624,ENSG00000079246,ENSG00000087087,ENSG0000092201,ENSG00000109971,ENSG00000115163,ENSG00000123485,ENSG00000143799,ENSG00000145241,ENSG00000153187,ENSG00000161960,ENSG00000178999,ENSG00000181163,ENSG00000215301,ENSG00000253729  |
| InterphaseCC | 0.0234   | 5    | 21 | 2  | 0.095 | 0.4   | GO:0001652 | CC | 81  | granular component          | 1 ENSG00000105202,ENSG00000181163   |
| InterphaseCC | 0.000275 | 10   | 21 | 3  | 0.143 | 0.3   | GO:0031618 | CC | 96  | nuclear pericentric hetero  | 1 ENSG00000115163,ENSG00000125817,ENSG00000145241   |