**Table 1. Genes identified in the EUROSCARF screen**

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| --- | --- | --- | --- | --- |
| **Group** | **Function** | **# genes** | **Yeast genesa** | **Human orthologs** |
| 1 | Replication recombination repair | 13 | *DCC1, DDC1, DIA2, ELG1, MMS4, MUS81, RAD27, RAD50, RAD51, RAD57, SAE2, SHU1, SRS2* | *DSCC1, DIAPH3, MUS81, FEN1, RAD50, RAD51, XRCC3, UBA2, UBE2B* |
| 2 | Checkpoint | 5 | *CHK1, MEC3, MRC1, RAD9, TOF1* | *CHEK1, PIP3-E, MRC1L.1, RAD9A,* |
| 3 | Chromatin silencing telomeres | 8 | *CST6, ESC1, NAM7, NAT3, NMD2, NPT1, UPF3,* YPL205C | *CST6, UPF1, NAT5, UPF2, SLC17A1, UPF3A* |
| 4 | Mitotic chromosome transmission | 5 | *CHL1, CHL4, CTF4, MCM21, MCM22* | *DDX11, CENPN, REPS2, NFIC* |
| 5 | Vacuolar/ Golgi/ endocytosis | 10 | *DRS2, PEP7, PEP12, PMR1, SNF7, VPS3, VPS4, VPS8, VPS21, VPS23, VPS24* | *ATP8A2, LAP3, STX12, ATP2C1, CHMP4B, VPS4B, VPS8, RAB5A, TSG101, VPS24* |
| 6 | Mitochondrial | 8 | *ADK1, ALT1, FMP37, HFA1, MRPL10, OAR1, PDB1, SOD2* | *AK2, GPT, MRPL10, PDHB, SOD2* |
| 7 | Cytokinesis, spindle, cytoskeleton rearrangements | 6 | *CTF3, NIP100, PTC1, RVS161, SLT2, SRV2* | *PTCH2, BIN3, MAPK7, CAP1* |
| 8 | Translation/Ribosomal | 6 | *KAP123, RPL27A, RPL36A, RPS0B, RPS17A, ZUO1* | *IPO4, RPL27A, RPL36AL, LOC387867, RPS17, DNAJC2* |
| 9 | Transcription/ RNA metabolism | 3 | *BUR2, CKA2, NPL3* | *CST4, CSNK2A1, TAF15,* |
| 10 | Ubiquitin proteasome system | 2 | *DOC1, SHP1* | *TBX6, NSFL1C* |
| 12 | Others | 6 | *LAT1, LIP5, MKC7, RTS1, TPD3, TPS1* | *DLAT, LIAS,, PPP2R5C, PPP2R1A, TPSAB1/TPSB2* |
| 13 | Unknown | 5 | YBR099C, YDR109C, YEL045C, YMR252C, YOR376W |  |
|  |  |  | **78 genes** | **59 genes** |