REACTOME S PHASE, REACTOME S PHASE WP\_DNA\_REPAIR\_PATHWAYS\_FULL\_NETWORK, WP\_DNA\_REPAIR\_PATHWAYS\_FULL\_NETWORK REACTOME\_MITOTIC\_G2\_G2\_M\_PHASES, REACTOME\_MITOTIC\_G2\_G2\_M\_PHASES PID\_FANCONI\_PATHWAY, PID\_FANCONI\_PATHWAY REACTOME\_REGULATION\_OF\_TP53\_ACTIVITY, REACTOME\_REGULATION\_OF\_TP53\_ACTIVITY REACTOME\_MITOTIC\_G1\_PHASE\_AND\_G1\_S\_TRANSITION, REACTOME\_MITOTIC\_G1\_PHASE\_AND\_G1\_S\_TRANSITION WP\_DNA\_IRDAMAGE\_AND\_CELLULAR\_RESPONSE\_VIA\_ATR, WP\_DNA\_IRDAMAGE\_AND\_CELLULAR\_RESPONSE\_VIA\_ATR REACTOME\_SWITCHING\_OF\_ORIGINS\_TO\_A\_POST\_REPLICATIVE\_STATE, REACTOME\_SWITCHING\_OF\_ORIGINS\_TO\_A\_POST\_REPLICATIVE\_STATE REACTOME\_G2\_M\_CHECKPOINTS, REACTOME\_G2\_M\_CHECKPOINTS REACTOME\_PTEN\_REGULATION, REACTOME\_PTEN\_REGULATION REACTOME\_APC\_C\_MEDIATED\_DEGRADATION\_OF\_CELL\_CYCLE\_PROTEINS, REACTOME\_APC\_C\_MEDIATED\_DEGRADATION\_OF\_CELL\_CYCLE\_PROTEINS REACTOME\_DNA\_REPLICATION\_PRE\_INITIATION, REACTOME\_DNA\_REPLICATION\_PRE\_INITIATION REACTOME\_REGULATION\_OF\_TP53\_ACTIVITY\_THROUGH\_PHOSPHORYLATION, REACTOME\_REGULATION\_OF\_TP53\_ACTIVITY\_THROUGH\_PHOSPHORYLATION KEGG\_UBIQUITIN\_MEDIATED\_PROTEOLYSIS, KEGG\_UBIQUITIN\_MEDIATED\_PROTEOLYSIS REACTOME\_RUNX1\_REGULATES\_TRANSCRIPTION\_OF\_GENES\_INVOLVED\_IN\_DIFFERENTIATION\_OF\_HSCS, REACTOME\_RUNX1\_REGULATES\_TRANSCRIPTION\_OF\_GENES\_INVOLVED\_IN\_DIFFERENTIATION\_OF\_HSCS REACTOME\_APC\_C\_CDH1\_MEDIATED\_DEGRADATION\_OF\_CDC20\_AND\_OTHER\_APC\_C\_CDH1\_TARGETED\_PROTEINS\_IN\_LATE\_MITOSIS\_EARLY\_G1, REACTOME\_APC\_C\_CDH1\_MEDIATED\_DEGRADATION\_OF\_CDC20\_AND\_OTHER\_APC\_C\_CDH1\_TARGETED\_PROTEINS\_IN\_LATE\_MITOSIS\_EARLY\_G1 REACTOME\_REGULATION\_OF\_PTEN\_STABILITY\_AND\_ACTIVITY, REACTOME\_REGULATION\_OF\_PTEN\_STABILITY\_AND\_ACTIVITY REACTOME\_DOWNSTREAM\_SIGNALING\_EVENTS\_OF\_B\_CELL\_RECEPTOR\_BCR, REACTOME\_DOWNSTREAM\_SIGNALING\_EVENTS\_OF\_B\_CELL\_RECEPTOR\_BCR REACTOME\_CYCLIN\_A\_CDK2\_ASSOCIATED\_EVENTS\_AT\_S\_PHASE\_ENTRY, REACTOME\_CYCLIN\_A\_CDK2\_ASSOCIATED\_EVENTS\_AT\_S\_PHASE\_ENTRY REACTOME\_GLOBAL\_GENOME\_NUCLEOTIDE\_EXCISION\_REPAIR\_GG\_NER, REACTOME\_GLOBAL\_GENOME\_NUCLEOTIDE\_EXCISION\_REPAIR\_GG\_NER REACTOME\_SENESCENCE\_ASSOCIATED\_SECRETORY\_PHENOTYPE\_SASP, REACTOME\_SENESCENCE\_ASSOCIATED\_SECRETORY\_PHENOTYPE\_SASP REACTOME\_DNA\_STRAND\_ELONGATION, REACTOME\_DNA\_STRAND\_ELONGATION REACTOME\_UCH\_PROTEINASES, REACTOME\_UCH\_PROTEINASES REACTOME\_REGULATION\_OF\_PLK1\_ACTIVITY\_AT\_G2\_M\_TRANSITION, REACTOME\_REGULATION\_OF\_PLK1\_ACTIVITY\_AT\_G2\_M\_TRANSITION WP DNA REPLICATION, WP DNA REPLICATION WP\_G1\_TO\_S\_CELL\_CYCLE\_CONTROL, WP\_G1\_TO\_S\_CELL\_CYCLE\_CONTROL REACTOME REGULATION OF MRNA STABILITY BY PROTEINS THAT BIND AU RICH ELEMENTS, REACTOME REGULATION OF MRNA STABILITY BY PROTEINS THAT BIND AU RICH ELEMENTS REACTOME\_ORC1\_REMOVAL\_FROM\_CHROMATIN, REACTOME\_ORC1\_REMOVAL\_FROM\_CHROMATIN REACTOME HDR THROUGH HOMOLOGOUS RECOMBINATION HRR, REACTOME HDR THROUGH HOMOLOGOUS RECOMBINATION HRR REACTOME\_DECTIN\_1\_MEDIATED\_NONCANONICAL\_NF\_KB\_SIGNALING, REACTOME\_DECTIN\_1\_MEDIATED\_NONCANONICAL\_NF\_KB\_SIGNALING REACTOME\_BASE\_EXCISION\_REPAIR, REACTOME\_BASE\_EXCISION\_REPAIR WP\_RETINOBLASTOMA\_GENE\_IN\_CANCER, WP\_RETINOBLASTOMA\_GENE\_IN\_CANCER REACTOME\_SCF\_SKP2\_MEDIATED\_DEGRADATION\_OF\_P27\_P21, REACTOME\_SCF\_SKP2\_MEDIATED\_DEGRADATION\_OF\_P27\_P21 REACTOME\_DNA\_DAMAGE\_TELOMERE\_STRESS\_INDUCED\_SENESCENCE, REACTOME\_DNA\_DAMAGE\_TELOMERE\_STRESS\_INDUCED\_SENESCENCE REACTOME\_ACTIVATION\_OF\_ATR\_IN\_RESPONSE\_TO\_REPLICATION\_STRESS, REACTOME\_ACTIVATION\_OF\_ATR\_IN\_RESPONSE\_TO\_REPLICATION\_STRESS REACTOME\_DEGRADATION\_OF\_BETA\_CATENIN\_BY\_THE\_DESTRUCTION\_COMPLEX, REACTOME\_DEGRADATION\_OF\_BETA\_CATENIN\_BY\_THE\_DESTRUCTION\_COMPLEX REACTOME\_DNA\_DOUBLE\_STRAND\_BREAK\_REPAIR, REACTOME\_DNA\_DOUBLE\_STRAND\_BREAK\_REPAIR REACTOME\_NEGATIVE\_REGULATION\_OF\_NOTCH4\_SIGNALING, REACTOME\_NEGATIVE\_REGULATION\_OF\_NOTCH4\_SIGNALING REACTOME\_ASSEMBLY\_OF\_THE\_PRE\_REPLICATIVE\_COMPLEX, REACTOME\_ASSEMBLY\_OF\_THE\_PRE\_REPLICATIVE\_COMPLEX REACTOME\_HOMOLOGOUS\_DNA\_PAIRING\_AND\_STRAND\_EXCHANGE, REACTOME\_HOMOLOGOUS\_DNA\_PAIRING\_AND\_STRAND\_EXCHANGE REACTOME\_DEGRADATION\_OF\_DVL, REACTOME\_DEGRADATION\_OF\_DVL

## NA REPLICATION, REACTOME DNA REPLICATION

REACTOME\_TOLL\_LIKE\_RECEPTOR\_9\_TLR9\_CASCADE, REACTOME\_TOLL\_LIKE\_RECEPTOR\_9\_TLR9\_CASCADE REACTOME\_EXTENSION\_OF\_TELOMERES, REACTOME\_EXTENSION\_OF\_TELOMERES KEGG\_CELL\_CYCLE, KEGG\_CELL\_CYCLE REACTOME\_STABILIZATION\_OF\_P53, REACTOME\_STABILIZATION\_OF\_P53 REACTOME CELLULAR SENESCENCE, REACTOME CELLULAR SENESCENCE REACTOME\_REGULATION\_OF\_RUNX2\_EXPRESSION\_AND\_ACTIVITY, REACTOME\_REGULATION\_OF\_RUNX2\_EXPRESSION\_AND\_ACTIVITY REACTOME\_SARS\_COV\_2\_INFECTION, REACTOME\_SARS\_COV\_2\_INFECTION REACTOME G1 S DNA DAMAGE CHECKPOINTS, REACTOME G1 S DNA DAMAGE CHECKPOINTS REACTOME\_DEGRADATION\_OF\_GLI1\_BY\_THE\_PROTEASOME, REACTOME\_DEGRADATION\_OF\_GLI1\_BY\_THE\_PROTEASOME REACTOME THE ROLE OF GTSE1 IN G2 M PROGRESSION AFTER G2 CHECKPOINT, REACTOME THE ROLE OF GTSE1 IN G2 M PROGRESSION AFTER G2 CHECKPOINT REACTOME\_INTERLEUKIN\_1\_SIGNALING, REACTOME\_INTERLEUKIN\_1\_SIGNALING REACTOME\_HEDGEHOG\_LIGAND\_BIOGENESIS, REACTOME\_HEDGEHOG\_LIGAND\_BIOGENESIS REACTOME\_METABOLISM\_OF\_POLYAMINES, REACTOME\_METABOLISM\_OF\_POLYAMINES REACTOME\_ACTIVATION\_OF\_THE\_PRE\_REPLICATIVE\_COMPLEX, REACTOME\_ACTIVATION\_OF\_THE\_PRE\_REPLICATIVE\_COMPLEX WP\_CELL\_CYCLE, WP\_CELL\_CYCLE REACTOME\_REGULATION\_OF\_RAS\_BY\_GAPS, REACTOME\_REGULATION\_OF\_RAS\_BY\_GAPS REACTOME\_CYCLIN\_A\_B1\_B2\_ASSOCIATED\_EVENTS\_DURING\_G2\_M\_TRANSITION, REACTOME\_CYCLIN\_A\_B1\_B2\_ASSOCIATED\_EVENTS\_DURING\_G2\_M\_TRANSITION REACTOME\_HEDGEHOG\_OFF\_STATE, REACTOME\_HEDGEHOG\_OFF\_STATE BIOCARTA\_PROTEASOME\_PATHWAY, BIOCARTA\_PROTEASOME\_PATHWAY REACTOME\_SIGNALING\_BY\_HEDGEHOG, REACTOME\_SIGNALING\_BY\_HEDGEHOG PID\_ATR\_PATHWAY, PID\_ATR\_PATHWAY REACTOME\_ABERRANT\_REGULATION\_OF\_MITOTIC\_EXIT\_IN\_CANCER\_DUE\_TO\_RB1\_DEFECTS, REACTOME\_ABERRANT\_REGULATION\_OF\_MITOTIC\_EXIT\_IN\_CANCER\_DUE\_TO\_RB1\_DEFECTS REACTOME\_TP53\_REGULATES\_TRANSCRIPTION\_OF\_CELL\_CYCLE\_GENES, REACTOME\_TP53\_REGULATES\_TRANSCRIPTION\_OF\_CELL\_CYCLE\_GENES REACTOME\_ASYMMETRIC\_LOCALIZATION\_OF\_PCP\_PROTEINS, REACTOME\_ASYMMETRIC\_LOCALIZATION\_OF\_PCP\_PROTEINS REACTOME\_TRANSCRIPTIONAL\_REGULATION\_BY\_RUNX2, REACTOME\_TRANSCRIPTIONAL\_REGULATION\_BY\_RUNX2 REACTOME\_UNWINDING\_OF\_DNA, REACTOME\_UNWINDING\_OF\_DNA REACTOME\_OXIDATIVE\_STRESS\_INDUCED\_SENESCENCE, REACTOME\_OXIDATIVE\_STRESS\_INDUCED\_SENESCENCE WP\_DNA\_MISMATCH\_REPAIR, WP\_DNA\_MISMATCH\_REPAIR REACTOME\_HEDGEHOG\_ON\_STATE, REACTOME\_HEDGEHOG\_ON\_STATE REACTOME\_DISEASES\_OF\_MITOTIC\_CELL\_CYCLE, REACTOME\_DISEASES\_OF\_MITOTIC\_CELL\_CYCLE REACTOME\_PCP\_CE\_PATHWAY, REACTOME\_PCP\_CE\_PATHWAY KEGG\_PROTEASOME, KEGG\_PROTEASOME REACTOME G2 M DNA DAMAGE CHECKPOINT, REACTOME G2 M DNA DAMAGE CHECKPOINT REACTOME\_HDR\_THROUGH\_SINGLE\_STRAND\_ANNEALING\_SSA, REACTOME\_HDR\_THROUGH\_SINGLE\_STRAND\_ANNEALING\_SSA REACTOME\_CONVERSION\_FROM\_APC\_C\_CDC20\_TO\_APC\_C\_CDH1\_IN\_LATE\_ANAPHASE, REACTOME\_CONVERSION\_FROM\_APC\_C\_CDC20\_TO\_APC\_C\_CDH1\_IN\_LATE\_ANAPHASE REACTOME\_TELOMERE\_C\_STRAND\_LAGGING\_STRAND\_SYNTHESIS, REACTOME\_TELOMERE\_C\_STRAND\_LAGGING\_STRAND\_SYNTHESIS BIOCARTA\_P27\_PATHWAY, BIOCARTA\_P27\_PATHWAY KEGG\_PROGESTERONE\_MEDIATED\_OOCYTE\_MATURATION, KEGG\_PROGESTERONE\_MEDIATED\_OOCYTE\_MATURATION

BIOCARTA\_MCM\_PATHWAY, BIOCARTA\_MCM\_PATHWAY

REACTOME\_INHIBITION\_OF\_THE\_PROTEOLYTIC\_ACTIVITY\_OF\_APC\_C\_REQUIRED\_FOR\_THE\_ONSET\_OF\_ANAPHASE\_BY\_MITOTIC\_SPINDLE\_CHECKPOINT\_COMPONENTS, REACTOME\_INHIBITION\_OF\_THE\_PROTEOLYTIC\_ACTIVITY\_OF\_APC\_C\_REQUIRED\_FOR\_THE\_ONSET\_OF\_ANAPHASE\_BY\_MITOTIC\_SPINDLE\_CHE

BIOCARTA\_CELLCYCLE\_PATHWAY, BIOCARTA\_CELLCYCLE\_PATHWAY

REACTOME\_PHOSPHORYLATION\_OF\_THE\_APC\_C, REACTOME\_PHOSPHORYLATION\_OF\_THE\_APC\_C

WP\_NUCLEOTIDE\_EXCISION\_REPAIR, WP\_NUCLEOTIDE\_EXCISION\_REPAIR

REACTOME\_MAPK6\_MAPK4\_SIGNALING, REACTOME\_MAPK6\_MAPK4\_SIGNALING KEGG\_MISMATCH\_REPAIR, KEGG\_MISMATCH\_REPAIR

PID\_BARD1\_PATHWAY, PID\_BARD1\_PATHWAY

WP\_BASE\_EXCISION\_REPAIR, WP\_BASE\_EXCISION\_REPAIR

REACTOME\_LAGGING\_STRAND\_SYNTHESIS, REACTOME\_LAGGING\_STRAND\_SYNTHESIS

KEGG\_NUCLEOTIDE\_EXCISION\_REPAIR, KEGG\_NUCLEOTIDE\_EXCISION\_REPAIR

BIOCARTA\_RACCYCD\_PATHWAY, BIOCARTA\_RACCYCD\_PATHWAY

REACTOME\_DNA\_DOUBLE\_STRAND\_BREAK\_RESPONSE, REACTOME\_DNA\_DOUBLE\_STRAND\_BREAK\_RESPONSE

REACTOME\_TRANSCRIPTIONAL\_REGULATION\_BY\_VENTX, REACTOME\_TRANSCRIPTIONAL\_REGULATION\_BY\_VENTX

REACTOME\_PROCESSING\_OF\_DNA\_DOUBLE\_STRAND\_BREAK\_ENDS, REACTOME\_PROCESSING\_OF\_DNA\_DOUBLE\_STRAND\_BREAK\_ENDS

REACTOME\_HOMOLOGY\_DIRECTED\_REPAIR, REACTOME\_HOMOLOGY\_DIRECTED\_REPAIR

REACTOME RESOLUTION OF ABASIC SITES AP SITES, REACTOME RESOLUTION OF ABASIC SITES AP SITES

PID\_P53\_REGULATION\_PATHWAY, PID\_P53\_REGULATION\_PATHWAY

KEGG\_DNA\_REPLICATION, KEGG\_DNA\_REPLICATION