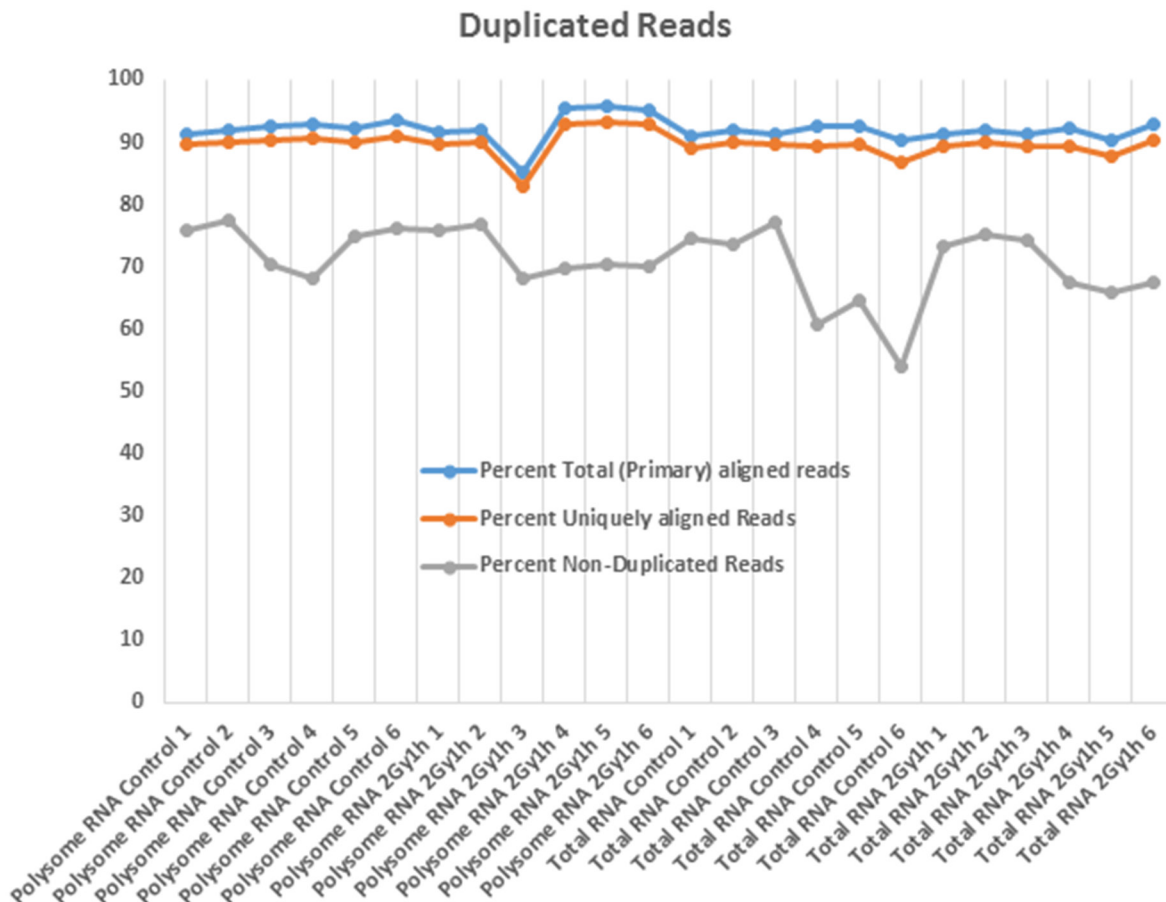


Radiation-induced alternative transcripts as detected in total and polysome-bound mRNA

SUPPLEMENTARY MATERIALS



Supplementary Figure 1: Summary of Illumina library complexity.

Supplementary Table 1: Summary of Illumina RNA-Seq read counts.

See Supplementary File 1

Supplementary Table 2: Alternative splice events in the untreated transcriptome as compared to transcriptome.

See Supplementary File 2

Supplementary Table 3: Alternative splice events in the transcriptome after radiation.

See Supplementary File 3

Supplementary Table 4: Alternative splice events in the transcriptome after radiation.

See Supplementary File 4

Supplementary Table 5: List of molecules in the top 10 networks in the radiation-induced transcriptome

	Molecules in Network	Top Diseases and Functions
1	14-3-3, Akt, BCR (complex), CMPK2 , CNTN1 , EGR2 , EGR3 , GDNF, Hsp90, ID2 , IFN type 1, IL17RB , IL22RA1 , Immunoglobulin, IRF5 , KIT , LHX3 , LIF , LUZP1 , MAP2K1/2, Notch, NUAK1 , p70 S6k, PDGF BB , PDGFD , PIM1 , Plk, PLK2 , PLK3 , PP2A, PRAP1 , PRDM1 , PRKAA, SNAI1 , STAT5a/b	Cell Death and Survival, Nervous System Development and Function, Tissue Morphology
2	AMER1 , ANKRD2 , APC (complex), AXIN2 , BTG2 , CCNE1 , Cdc2 , CDC6 , CDC25A , CDCA7L , Cdk, CDK2-CyclinE, Cyclin A, Cyclin A/Cdk2, Cyclin E, E2f, E2F6 , ENC1 , ERK1/2, GPC5 , HABP2 , HAS3 , Hedgehog, IL12A , N-cor, NRIP2 , ORC1 , Rb, ROR2 , RRM2 , Rxr, Smad2/3-Smad4, thymidine kinase, VitaminD3-VDR-RXR, Wnt	Cell Cycle, DNA Replication, Recombination, and Repair, Organismal Development
3	26s Proteasome, Actin, Alp, Alpha catenin, AMPK, ANKS1B , ATPase, caspase, CDK2 , CDKN1A , CHD1L , Ck2, cytochrome C, estrogen receptor, FGF17 , Hdac, HISTONE, Histone H1, Histone h3, Histone h4, HSPA5 , Jnk , JUP , KLF4 , PCDH10 , PHLDA3 , RNA polymerase II, SESN1 , SESN2 , SYPL2 , TAF1L , TCR, TNNT2 , TP53INP1 , Ubiquitin	Cell Morphology, Organ Morphology, Skeletal and Muscular System Development and Function
4	ADCY, ADORA3 , ADRB, AMOTL2 , ANGPTL7 , ARL4C , calpain, CCR1 , CD93 , CDK5R1 , Cg, Creb, EDN2 , ERK , Focal adhesion kinase, FSH, GCC1 , Gper, GPRC5A , Gsk3, KEL , KIAA1217 , Lh, MAFF , Mmp, OSBPL10 , p85 (pik3r), Pdgf (complex), Pkc(s), PLC, S1PR3 , SRR , STAT, TSH, Vegf	Cell-To-Cell Signaling and Interaction, Inflammatory Response, Cellular Function and Maintenance
5	ACY1, AFG3L2 , ANGPTL7 , APP, ARPP19, C3orf33 , CCDC115 , CDS1 , CINP, CYB5B , DMKN, FAM214B, FGF16, IL13, L-dopa, L-glutamic acid, MAP3K7CL , NDUFS4, PAIP2, POR, PROK2, RAD51B , RASL11B , RTP4 , SCN2B, SCUBE3, SLC25A17 , TMCC2, TMEM97 , TMEM199 , TNR, ULK4 , VEGFA, ZBTB34 , ZFP36	Nervous System Development and Function, Cell Death and Survival, Cellular Compromise
6	ADORA3 , APOL6 , BBS4 , beta-estradiol, C1RL , CACNA2D1 , CACNB1, CACNG8, Collagen(s), cyclic AMP, FECH , GALR1, GALR2, GHRHR, GINS3 , GPR84 , GPRC5A, GRM6 , Hba1/Hba2, HCAR3, hemoglobin, HSD17B, IL1B, PANX1, PDE11A , PDP1 , PTGFR, RAD1 , RHNO1, SLC14A1, SMOC1 , SPPI, SSTR3, TH17 Cytokine, TTC8	Reproductive System Development and Function, Nucleic Acid Metabolism, Small Molecule Biochemistry
7	ADNP2 , AGT, ATG5, ATG16L2 , AUNIP, C17orf82 , C1orf198 , CAND1, COX15 , DCAKD, EED, EFHD2, ELAVL1, FAM50B , FBXO21, GBE1, HCN3, HSP90AA1, ICE2, IGKV1-5, KLHL36 , LRIG3 , MRPS16, NAA25, NRDE2 , Ppp2r5c, PRMT6, RBM5, SLC10A6 , SLC17A3 , TFIP11, TMEM65, TSPAN6 , uric acid, XPO4	Auditory and Vestibular System Development and Function, Embryonic Development, Organ Development
8	ADGRE1, APOM, biotin, BZRAP1 , Ca ²⁺ , CACNA1S, CALML3, cholesterol, DAPK2, diacylglycerol, DMC1 , FOXN4 , GBP5 , KCNJ2 , LPPR4, LSR, miR-19b-3p (and other miRNAs w/seed GUGCAA), MYLIP , NPC1, NR4A2, PDE1B , phospholipid, PLA2G2D, PPAPDC1B , S100A8, S100A11, SERPINB8 , SGMS2 , Srebp, STARD5 , SYT3, SYT5, tretinoin, VLDLR, ZNF16	Cell-To-Cell Signaling and Interaction, Cellular Compromise, Cellular Function and Maintenance
9	A1CF , ABHD17A, AEN, ATF2, CAMSAP2, cannabinoil, CDC20B, CYTH4, ESR1, FAM124B , FOS, FXYD6, HNF1A, HPGDS , KCTD9, KRT40, LY6K , MEMO1, MF12, RPS6KA4, SCAND1, SPEF1 , SULT4A1 , TBCA, TRIM27, UBE21, UBE2T, VSX1, ZKSCAN4 , ZNF24, ZNF79 , ZNF266 , ZNF317, ZSCAN25 , ZSCAN32	Cell Death and Survival, Gene Expression, Cell-To-Cell Signaling and Interaction
10	Ap1, Calcineurin protein(s), CaMKII, CKMT2 , ELL2 , FASTKD5 , Fc gamma receptor, GADD45A , Hsp70, IFN Beta, Iga, Ige, IgG, IgM, IL1, IL12 (complex), IL12 (family), Interferon alpha, LDL, Mek, MHC Class II (complex), MNT , Nfat (family), NFkB (complex), NFKBIA , P38 MAPK, PANX1 , PI3K (family), Pro-inflammatory Cytokine, SELPLG , Tgf beta, Tlr, TRIAP1 , TRIM13	Hematological System Development and Function, Hypersensitivity Response, Tissue Morphology

Gene names in bold were found to be differentially expressed in the RNA-Seq gene expression analysis.

Supplementary Table 6: List of molecules in the top 10 networks in the radiation-induced translome

	Molecules in Network	Top Diseases and Functions
1	CGREF1, CIRH1A, CMC1, COA3, COMMD1, COMMD2, COMMD4, COMMD5, COMMD7, COX14, COX4I1, COX6A1, COX6B1, DOHH, GJC1, MRPL46, NFkB (complex), NGFRAP1, NMRAL1, PAM16, PKN3, PNKD, RELT, SLC25A6, SLC2A6, TIMM10, TIMM22, TIMM23, TIMM17B, TIMM8A, TMEM223, TMEM14C, TOMM40, WDR34, ZNF71	Developmental Disorder, Hereditary Disorder, Metabolic Disease
2	ANAPC5, ANAPC11, ANAPC16, ARMC6, BUB3, C20orf24, CCDC24, CDC23, CLPP, COPS3, COPS6, COPS7A, E3 RING, FBXL15, FBXW9, FEM1A, GNG3, GNG10, GPS1, HYAL2, IDH3B, LRR1, Mapk, MRPL41, PDCD2L, PHLDA3, PMF1/PMF1-BGLAP, QTRT1, RBX1, SSR3, TCEB2, TCEB3C (includes others), TMEM11, WRAP73, ZC3HC1	Auditory Disease, Developmental Disorder, Endocrine System Disorders
3	AP5B1, AP5S1, ASF1B, C19orf25, C8orf48, CARD9, CBX2, CCDC71, CCDC85B, CDCA4, chemokine, chemokine receptor, E2F2, ENKD1, FASTK, H3F3A/H3F3B, HIST1H2AB, HIST1H3C, HIST1H3F, IFRD2, KIF9, MCM2, MCM5, MCM7, MLF2, MPDU1, MRPS7, NUP85, ORC6, PDLIM7, PMVK, PSMD2, SLC1A5, TSSC1, ZFAND2A	Cellular Assembly and Organization, DNA Replication, Recombination, and Repair, Developmental Disorder
4	ACAP3, ASNA1, BCL2L12, C19orf60, CAK, CCNO, Cdk, CDK2-CyclinE, CDKN1A, CLEC3B, CPSF3L, DALRD3, EIF6, FH, FLAD1, GET4, HAUS4, HAUS5, HAUS7, HAUS8, KLF16, MRPL37, MYDGF, NEK8, NOC2L, PCBP4, PHKG2, RNF126, SEC61B, SGTA, TALDO1, TCTEX1D2, TK1, WDR18, WDR73	Cellular Assembly and Organization, Cellular Function and Maintenance, Cell Cycle
5	ABT1, ACD, ALG12, BANF1, BSCL2, BYSL, CAPZB, DDX41, EEF1D, EIF5A, EMD, G protein alpha, GDPD5, GTPBP8, HDL-cholesterol, HSPBP1, KCNQ2, LIMD2, MRPL20, MRPL53, MVK, NEIL2, NHEJ1, NHLRC1, PNKP, PUF60, SARS2, SIAH1, SIRT6, SMO, SOX18, STUB1, tubulin (complex), UXT, XRCC6	Cell Cycle, DNA Replication, Recombination, and Repair, Reproductive System Development and Function
6	BOP1, CD320, CDCA5, Cyclin D1/cdk4, EGFL7, ERK, FAU, FRS3, ILVBL, LOXL1, MAFF, RER1, Ribosomal 40s subunit, Rnr, RPAIN, RPS2, RPS3, RPS5, RPS8, RPS10, RPS12, RPS14, RPS15, RPS16, RPS19, RPS21, RPS26, RPS28, RPS29, SIPA1, THEMIS2, TSR2, TXNL4B, UBL4A, UMPS	Cardiovascular Disease, Developmental Disorder, Hematological Disease
7	AIMP2, APRT, BLOC1S4, C9orf116, Caveolin, DDX28, DDX49, DNP1, DTNBP1, EIF3K, FHL3, FTSJ1, FTSJ2, GALNT15, Integrin alpha 5 beta 1, methyltransferase, MIS18A, MRPL12, MRPL27, MRPL38, MYCBP, NAPA, NOL12, OIP5, Pka, PRMT1, RAB32, RALY, RNMTL1, SLC25A10, SNAPIN, SPSB2, TRMT112, TYMSOS, WBSR22	Cellular Function and Maintenance, Nervous System Development and Function, Cell Death and Survival
8	APC/APC2, BCL2L13, C19orf70, CARHSP1, CDK10, CK1, CLN3, CMTM6, CRELD2, CYC1, ELOVL1, FAM64A, FKBP1A, FKBP1B, Gsk3, HINT2, MOCS1, MRPL14, peptidylprolyl isomerase, PIN1, PPIE, PPIF, PREB, SFXN4, SLC25A4, SLC25A11, SLC25A19, SSBP4, TECR, TELO2, TIMM13, TIMM50, TMEM128, TOMM22, TSPO	Post-Translational Modification, Protein Folding, Lipid Metabolism
9	ACTL6A, ACTR5, APOA1BP, ASL, CDK20, cyclooxygenase, EPDR1, GSS, H2AFX, H2AFZ, HMOX1, HSD11B2, INO80C, INO80E, MAT2A, MCRS1, MYL6B, NTPCR, Nuclear factor 1, PITX3, POFUT1, POLR2E, POMC, PROCR, RRP9, RUVBL2, SLC25A5, SNU13, Stat3-Stat3, TFPT, TIP60, WDR61, WRAP53, ZNHIT1, ZNHIT2	Drug Metabolism, Endocrine System Development and Function, Lipid Metabolism
10	adenosine-tetraphosphatase, ATP synthase, ATP5B, ATP5D, ATP5G1, ATP5G3, ATP5S, CDK2AP2, DERL2, DPM2, DTYMK, EBP, EBPL, ECSIT, F0 ATP synthase, FOXRED1, GCDH, HSD17B7, JAGN1, LAMTOR4, MCOLN1, MSRB1, MT1X, NID2, PEMT, PEX16, PIGH, PKDCC, PPA2, PYCR1, SLC25A1, VDACC2, Vegf, VKORC1, YIF1A	Energy Production, Nucleic Acid Metabolism, Small Molecule Biochemistry

Gene names in bold were found to be differentially expressed in the RNA-Seq gene expression analysis.

Supplementary Table 7: TaqMan gene expression assays

	TaqMan Assay ID
UBE2G2	Hs01119563_m1
TGFBR2	Hs00947875_m1
STRN3	Hs00923644_m1
eIF4H	Hs01091758_g1
NDE11	Hs00229366_m1
SOS1	Hs00893135_m1
18S	Hs99999901_s1