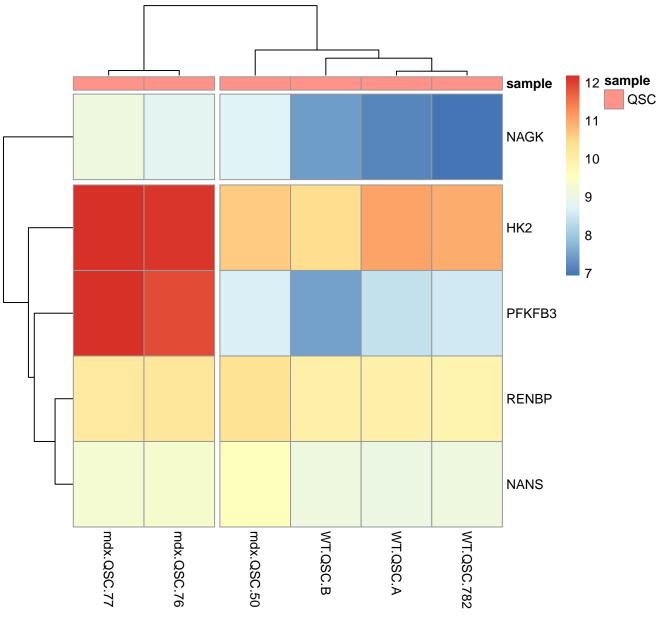
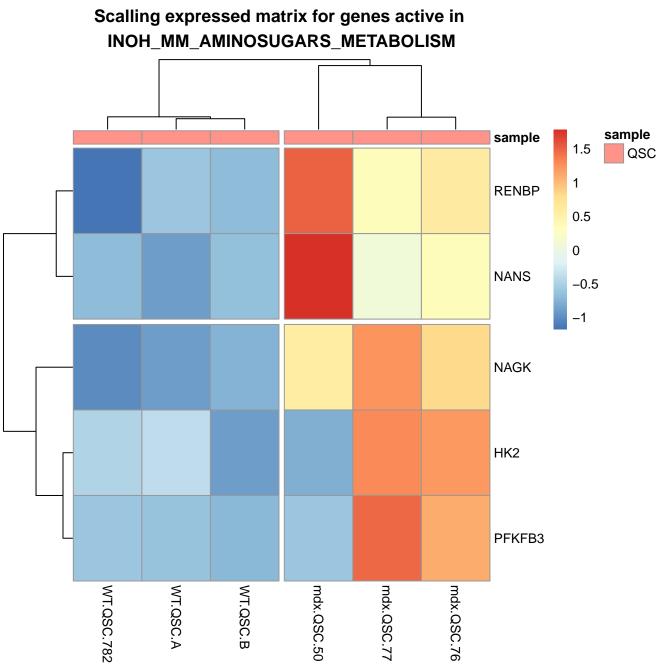
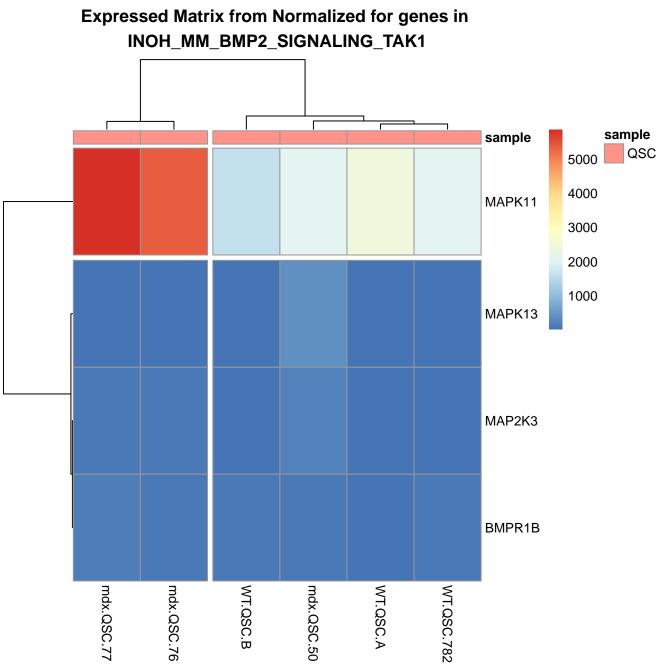


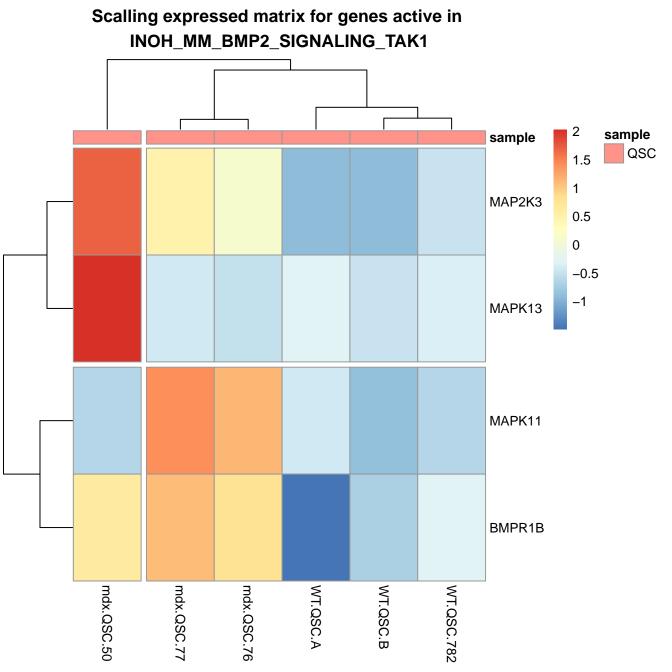
Expressed Matrix for genes active in INOH_MM_AMINOSUGARS_METABOLISM



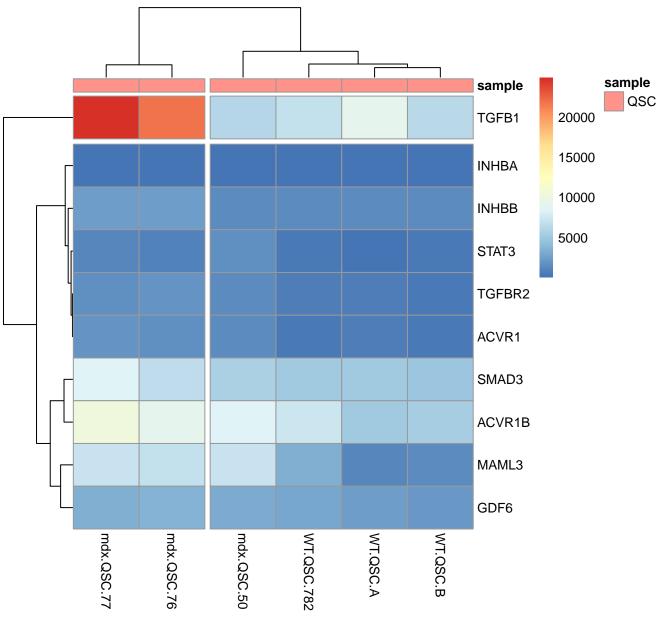




Expressed Matrix for genes active in INOH_MM_BMP2_SIGNALING_TAK1 12 sample sample QSC 10 MAPK11 8 6 MAPK13 4 MAP2K3 BMPR1B mdx.QSC.50 mdx.QSC.77 WT.QSC.B WT.QSC.A WT.QSC.782 mdx.QSC.76



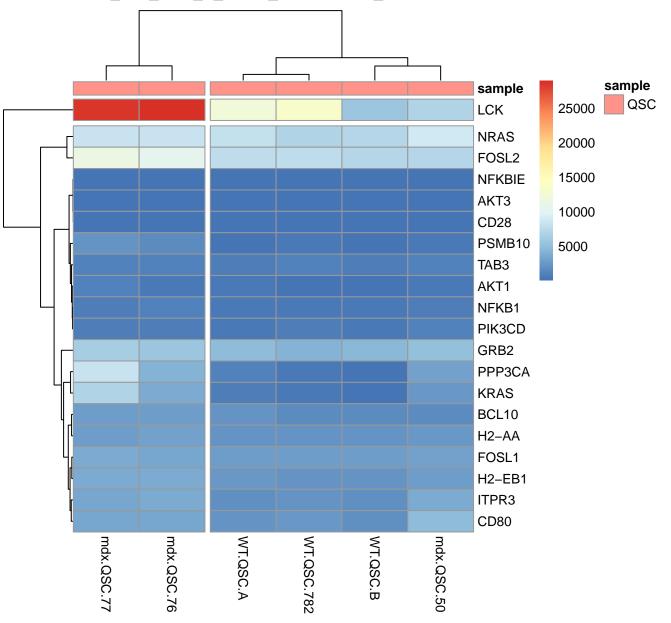
Expressed Matrix from Normalized for genes in INOH_MM_BMP2_SIGNALING_TGF-BETA_MV



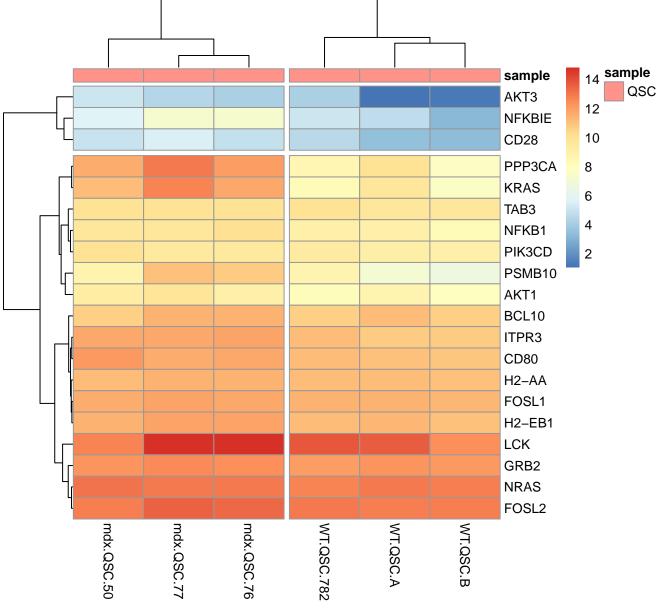
Expressed Matrix for genes active in INOH_MM_BMP2_SIGNALING_TGF-BETA_MV 14 sample sample QSC INHBA 12 10 TGFB1 8 SMAD3 6 ACVR1B STAT3 TGFBR2 ACVR1 MAML3 **INHBB** GDF6 WT.QSC.782 WT.QSC.A WT.QSC.B mdx.QSC.77 mdx.QSC.76 mdx.QSC.50

Scalling expressed matrix for genes active in INOH_MM_BMP2_SIGNALING_TGF-BETA_MV sample sample 1.5 QSC SMAD3 1 TGFB1 0.5 0 **INHBB** -0.5STAT3 -1 MAML3 GDF6 TGFBR2 ACVR1B **INHBA** ACVR1 WT.QSC.782 mdx.QSC.50 WT.QSC.A WT.QSC.B mdx.QSC.77 mdx.QSC.76

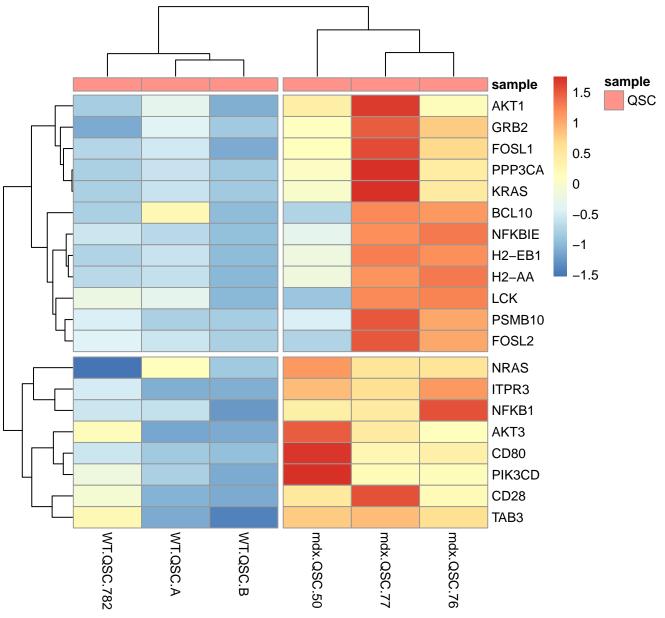
Expressed Matrix from Normalized for genes in INOH_MM_CD4_T_CELL_RECEPTOR_SIGNALING



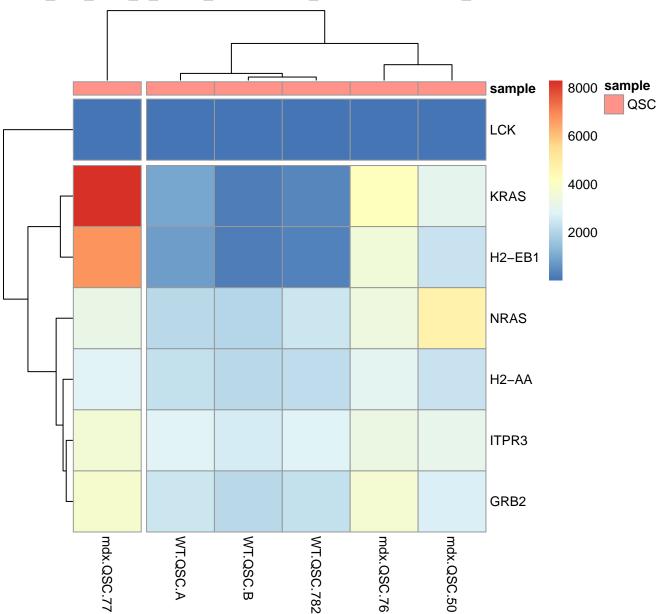
Expressed Matrix for genes active in INOH_MM_CD4_T_CELL_RECEPTOR_SIGNALING



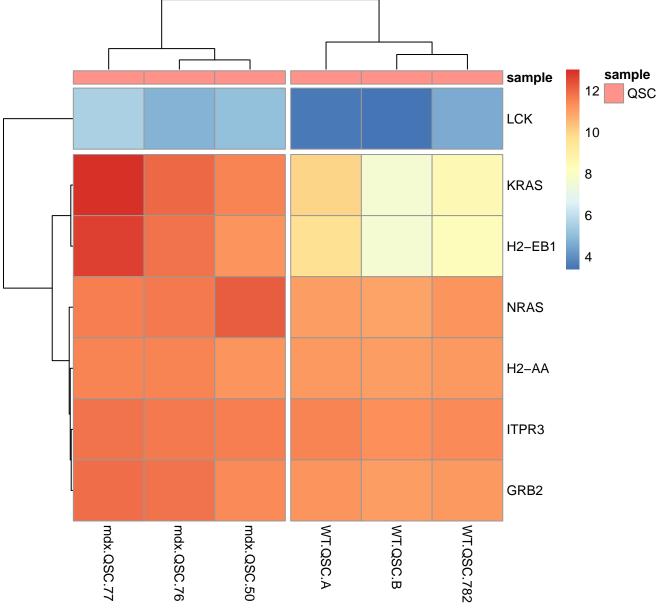
Scalling expressed matrix for genes active in INOH_MM_CD4_T_CELL_RECEPTOR_SIGNALING



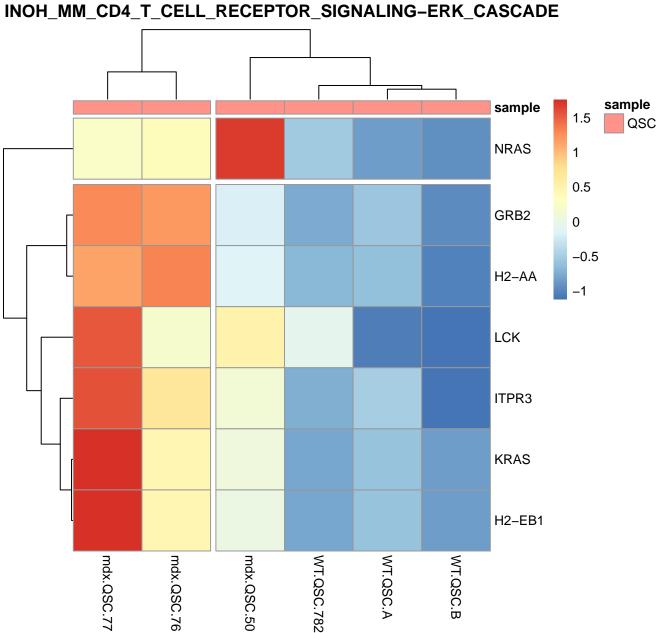
Expressed Matrix from Normalized for genes in INOH_MM_CD4_T_CELL_RECEPTOR_SIGNALING-ERK_CASCADE



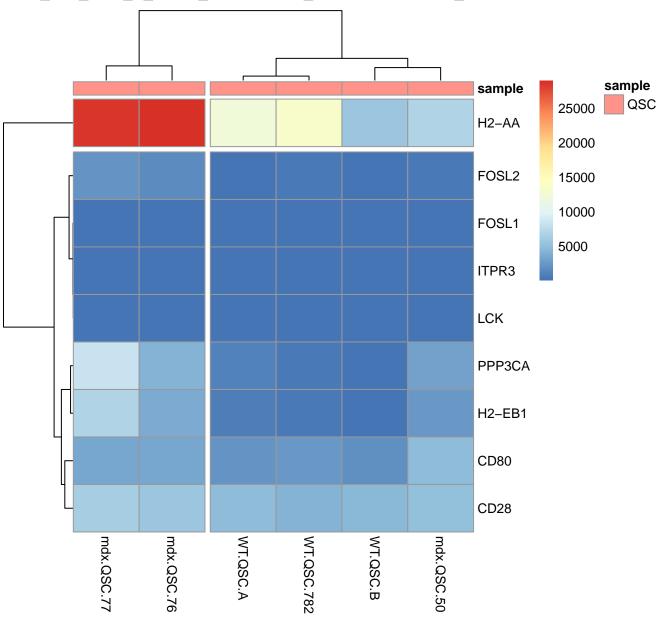
Expressed Matrix for genes active in INOH_MM_CD4_T_CELL_RECEPTOR_SIGNALING-ERK_CASCADE



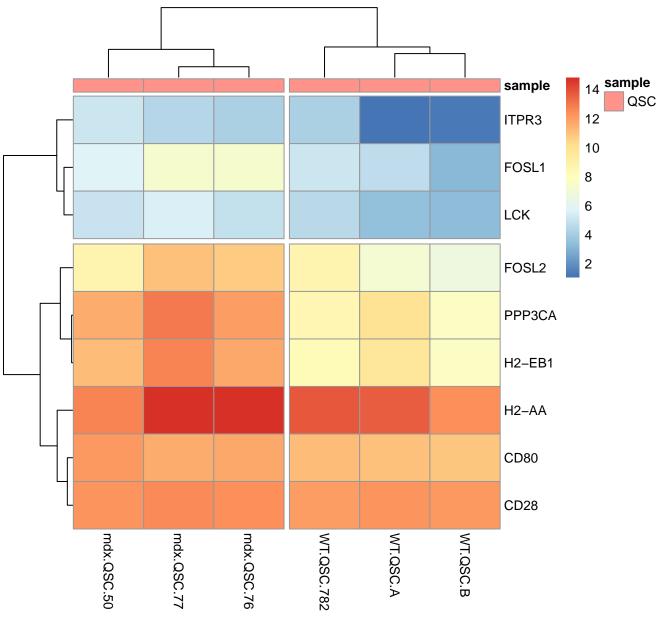
Scalling expressed matrix for genes active in NOH MM CD4 T CELL RECEPTOR SIGNALING-ERK CAS



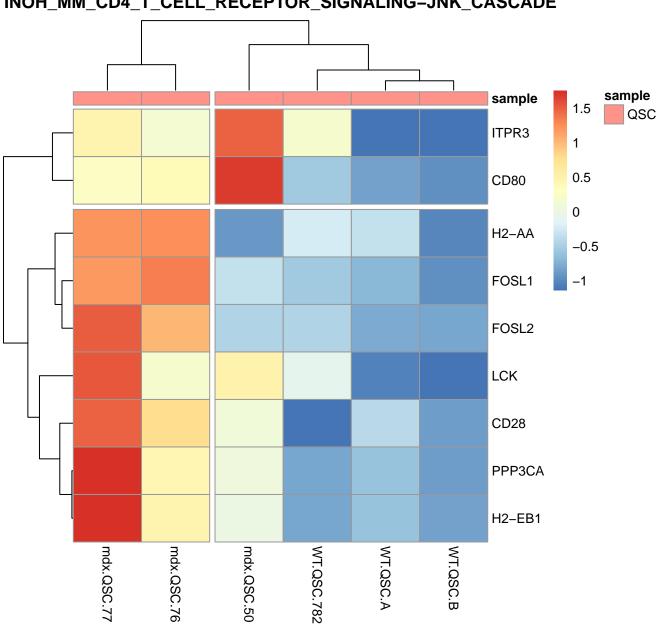
Expressed Matrix from Normalized for genes in INOH_MM_CD4_T_CELL_RECEPTOR_SIGNALING-JNK_CASCADE



Expressed Matrix for genes active in INOH_MM_CD4_T_CELL_RECEPTOR_SIGNALING-JNK_CASCADE

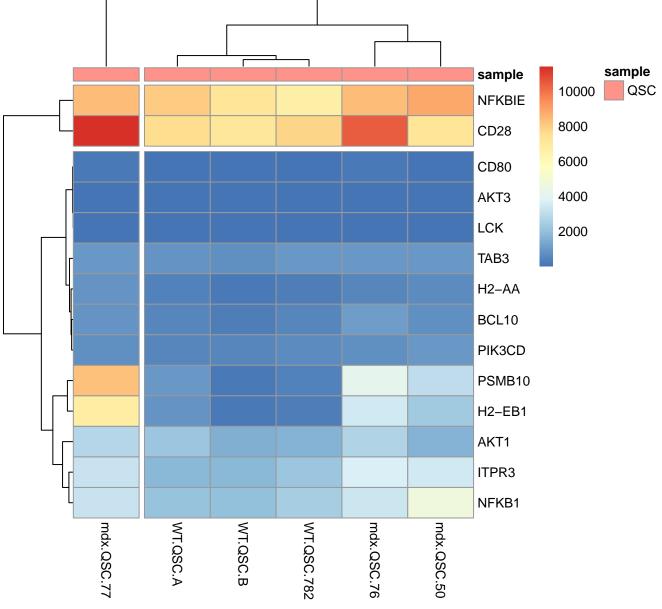


Scalling expressed matrix for genes active in INOH_MM_CD4_T_CELL_RECEPTOR_SIGNALING-JNK_CASCADE

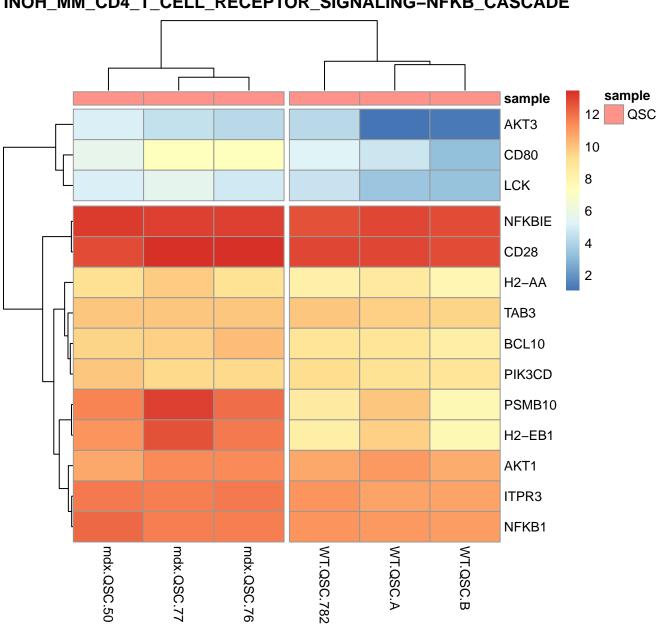


NOH_MM_CD4_T_CELL_RECEPTOR_SIGNALING-NFKB_CASCADE

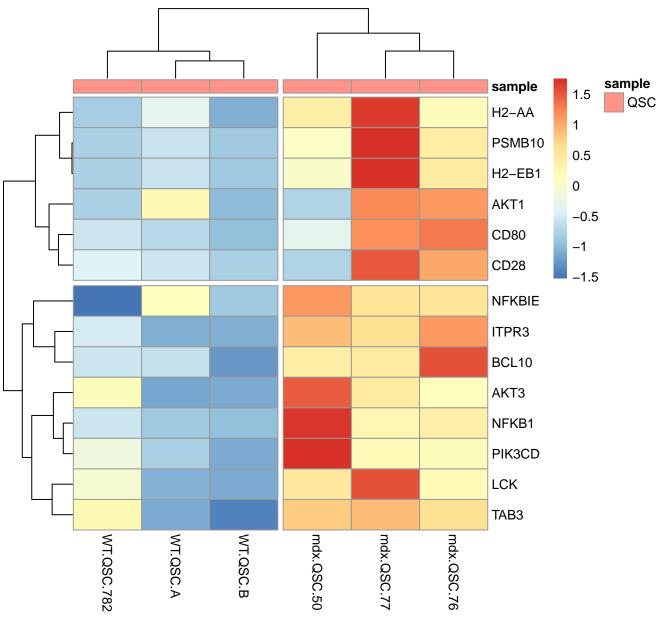
Expressed Matrix from Normalized for genes in



Expressed Matrix for genes active in INOH_MM_CD4_T_CELL_RECEPTOR_SIGNALING-NFKB_CASCADE



Scalling expressed matrix for genes active in INOH_MM_CD4_T_CELL_RECEPTOR_SIGNALING-NFKB_CASCADE

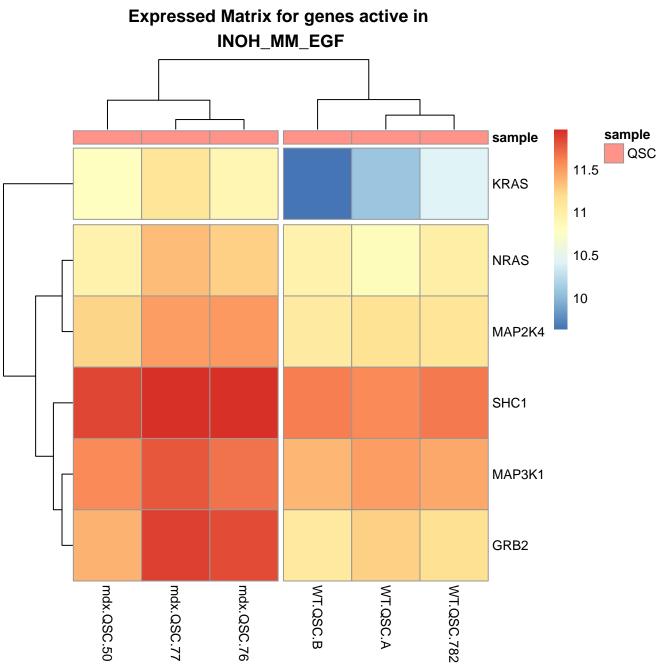


Expressed Matrix from Normalized for genes in INOH_MM_CITRATE_CYCLE sample sample QSC 30000 IDH3G 25000 PCX 20000 FAH 15000 SUCLG1 10000 FH1 5000 ACO2 **ACLY PKM** ACAT1 IDH3B SUCLG2 OGDH CS **SDHA** mdx.QSC.50 WT.QSC.A mdx.QSC.77 mdx.QSC.76 WT.QSC.B WT.QSC.782

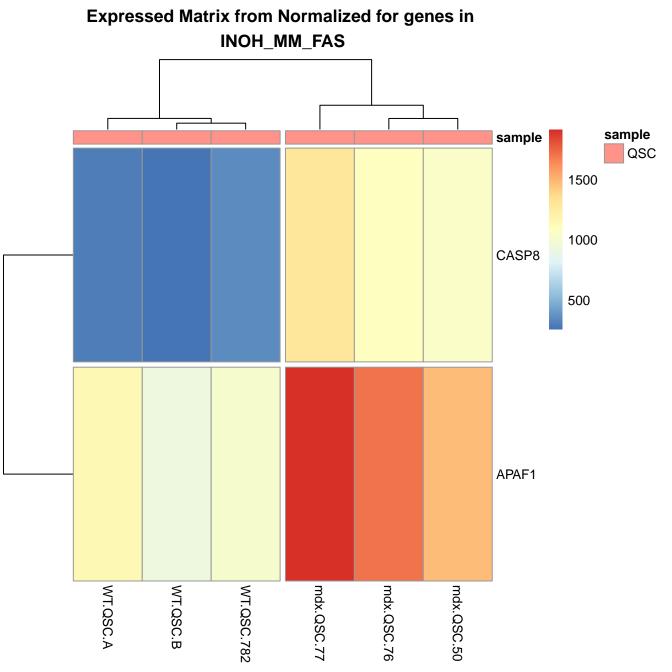
Expressed Matrix for genes active in INOH_MM_CITRATE_CYCLE 15 sample sample QSC ACAT1 14 IDH3B 13 ACO2 12 **ACLY** 11 PKM 10 IDH3G PCX FAH SUCLG1 FH1 CS SDHA SUCLG2 **OGDH** mdx.QSC.77 mdx.QSC.76 WT.QSC.B WT.QSC.A WT.QSC.782 mdx.QSC.50

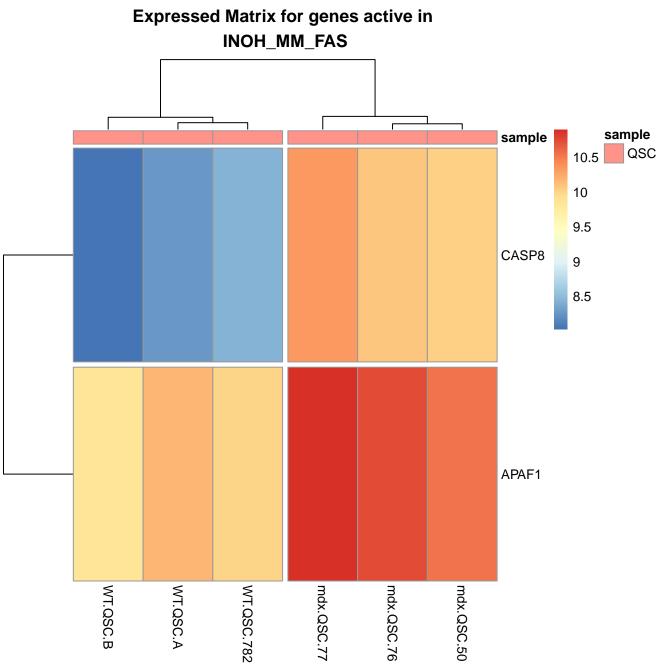
Scalling expressed matrix for genes active in INOH_MM_CITRATE_CYCLE sample sample QSC 1.5 CS 1 **ACLY** 0.5 ACO2 0 PKM -0.5 SUCLG2 -1 IDH3G -1.5 FH1 **OGDH** PCX FAH IDH3B SUCLG1 ACAT1 SDHA WT.QSC.A WT.QSC.B mdx.QSC.77 mdx.QSC.76 WT.QSC.782 mdx.QSC.50

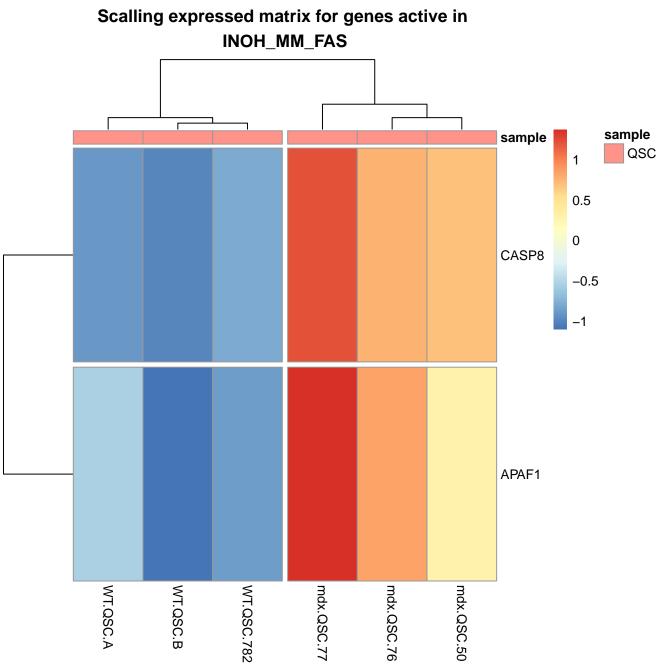
Expressed Matrix from Normalized for genes in INOH_MM_EGF 4000 sample sample QSC 3500 SHC1 3000 2500 2000 MAP3K1 1500 1000 GRB2 **KRAS NRAS** MAP2K4 mdx.QSC.77 mdx.QSC.76 mdx.QSC.50 WT.QSC.782 WT.QSC.B WT.QSC.A



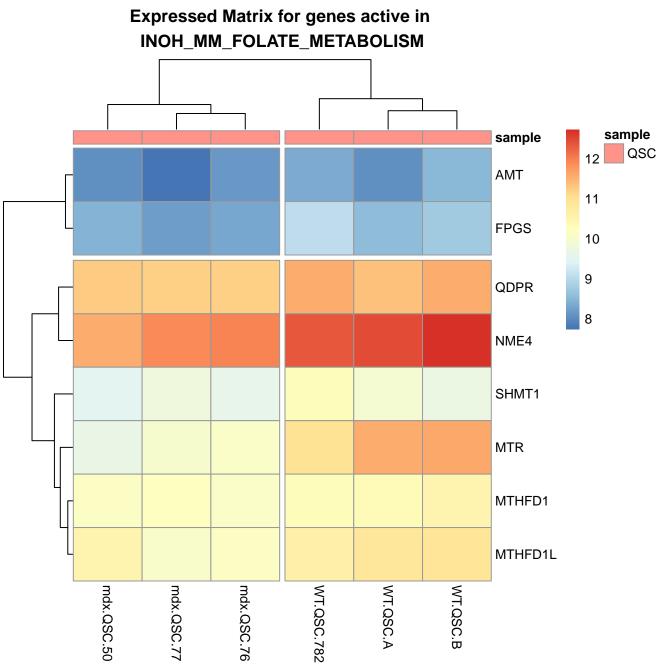
Scalling expressed matrix for genes active in INOH_MM_EGF 1.5 sample sample QSC 1 **NRAS** 0.5 0 MAP3K1 -0.5 -1 **KRAS** SHC1 GRB2 MAP2K4 mdx.QSC.77 mdx.QSC.50 WT.QSC.B WT.QSC.782 mdx.QSC.76





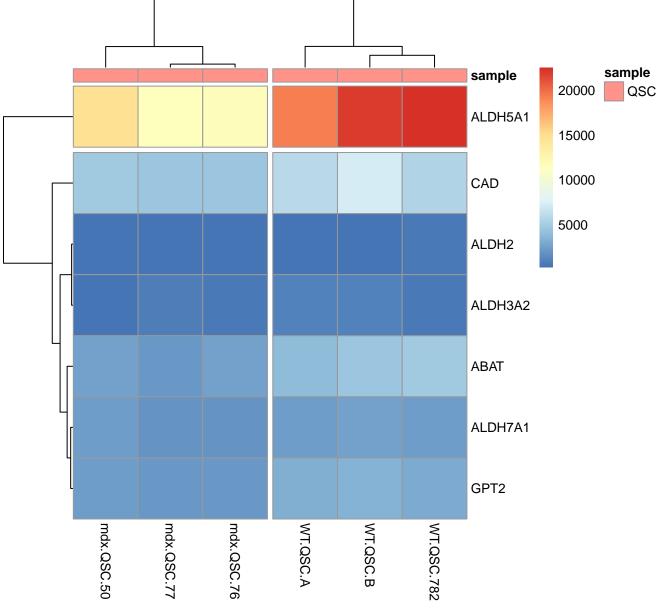


Expressed Matrix from Normalized for genes in INOH_MM_FOLATE_METABOLISM sample sample QSC 6000 NME4 5000 4000 SHMT1 3000 2000 **AMT** 1000 **FPGS QDPR** MTR MTHFD1 MTHFD1L mdx.QSC.50 WT.QSC.A WT.QSC.782 mdx.QSC.77 mdx.QSC.76 WT.QSC.B

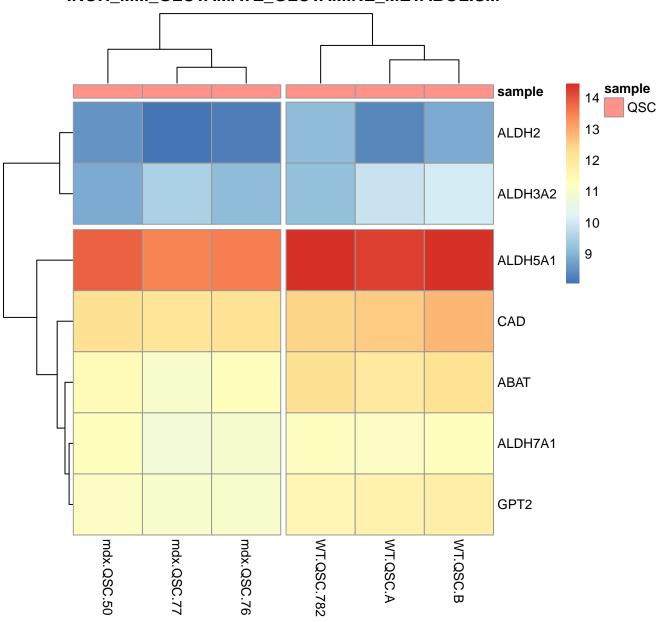


Scalling expressed matrix for genes active in INOH_MM_FOLATE_METABOLISM sample sample 1.5 QSC SHMT1 1 0.5 MTHFD1L 0 -0.5MTHFD1 -1 MTR NME4 AMT **QDPR FPGS** mdx.QSC.77 mdx.QSC.76 WT.QSC.782 WT.QSC.A WT.QSC.B mdx.QSC.50

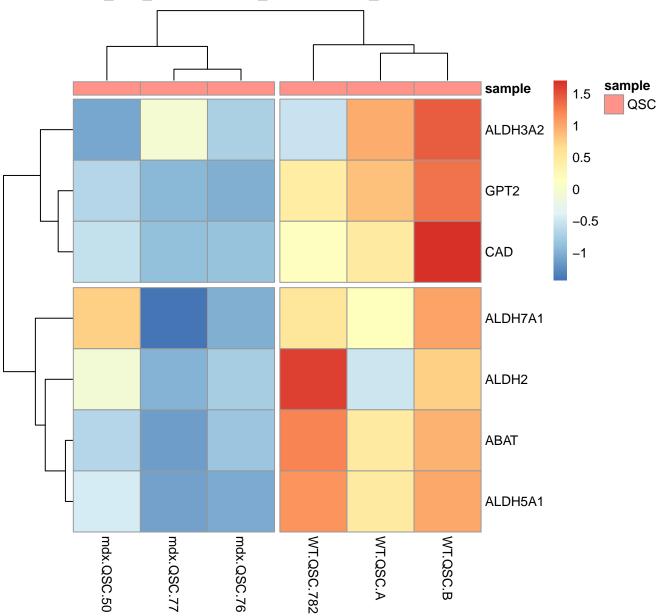
Expressed Matrix from Normalized for genes in INOH_MM_GLUTAMATE_GLUTAMINE_METABOLISM

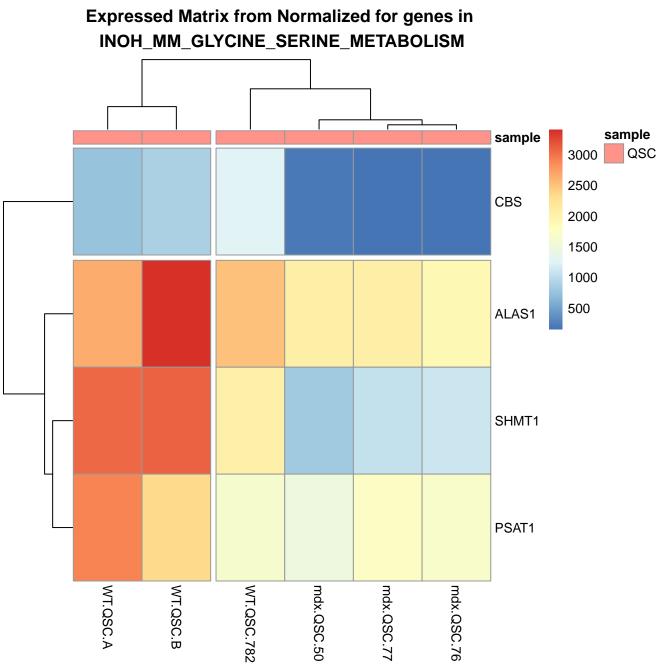


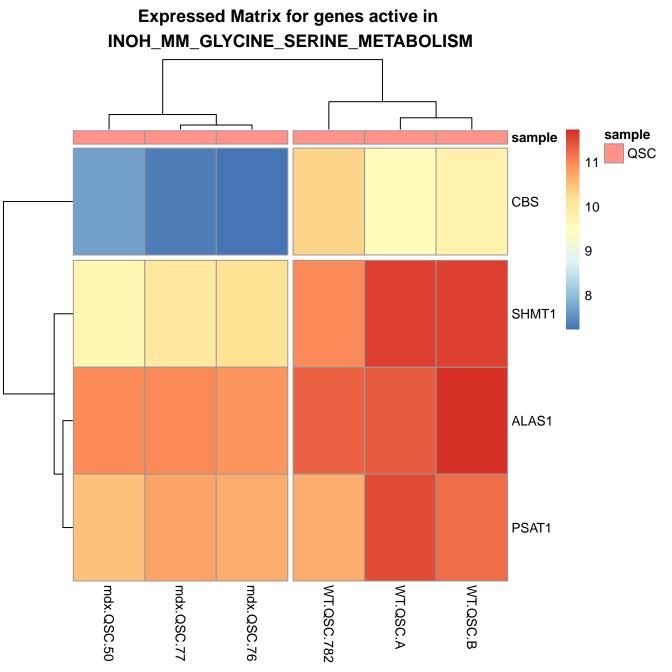
Expressed Matrix for genes active in INOH_MM_GLUTAMATE_GLUTAMINE_METABOLISM

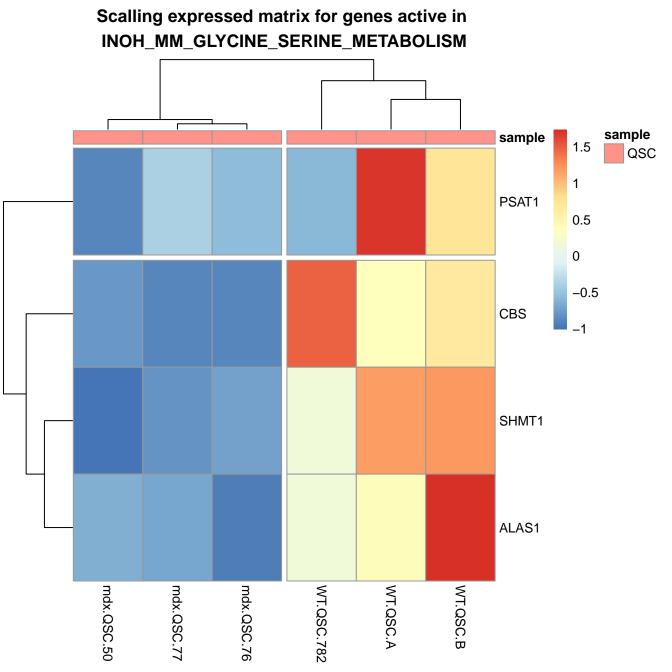


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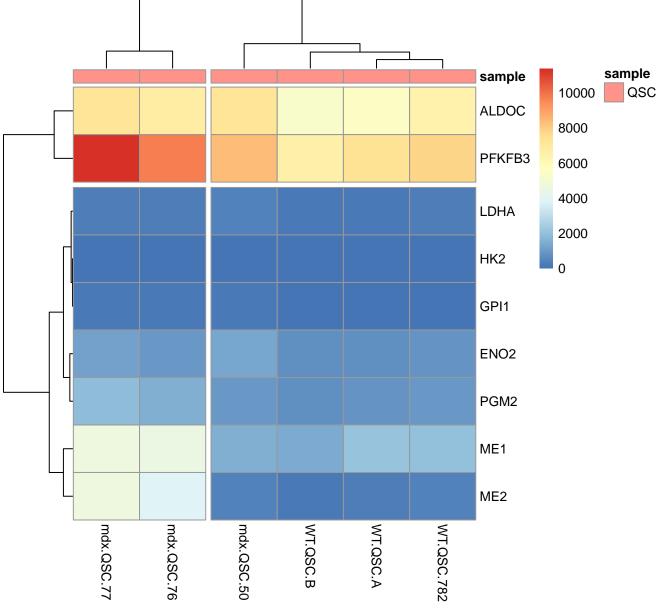




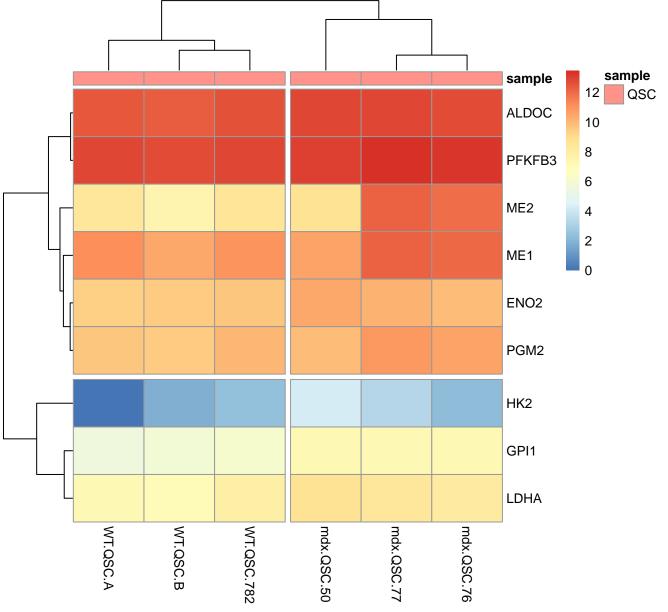




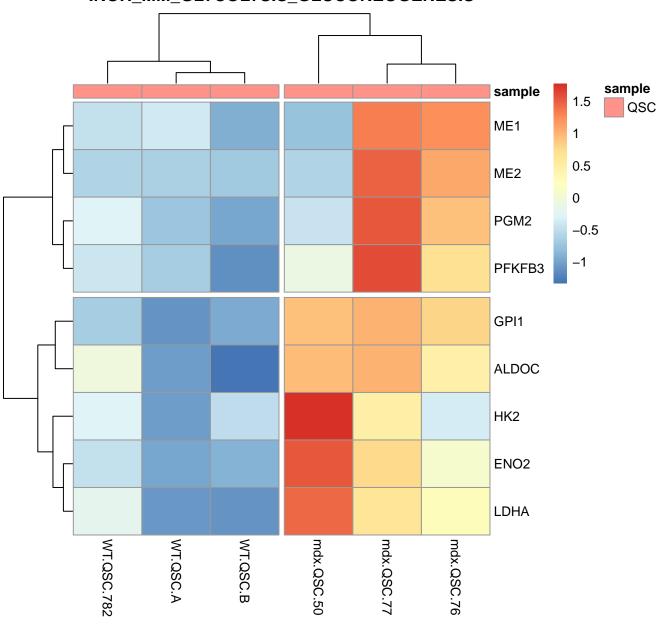
Expressed Matrix from Normalized for genes in INOH_MM_GLYCOLYSIS_GLUCONEOGENESIS



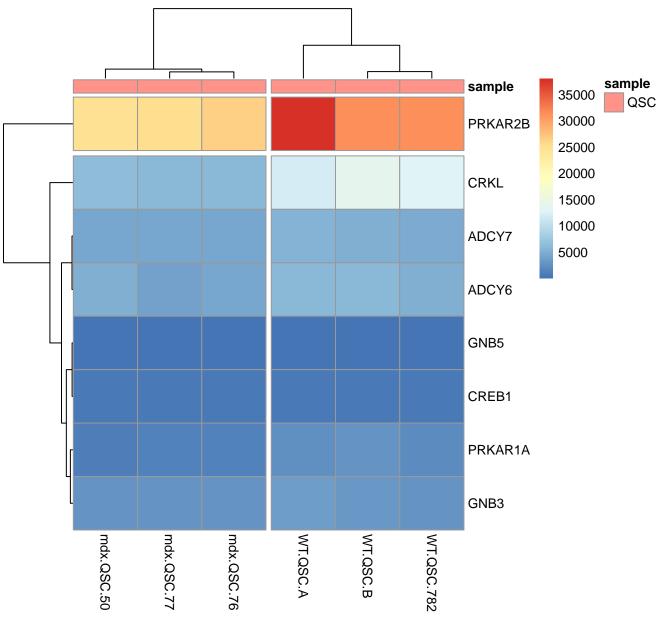
Expressed Matrix for genes active in INOH_MM_GLYCOLYSIS_GLUCONEOGENESIS



Scalling expressed matrix for genes active in INOH_MM_GLYCOLYSIS_GLUCONEOGENESIS

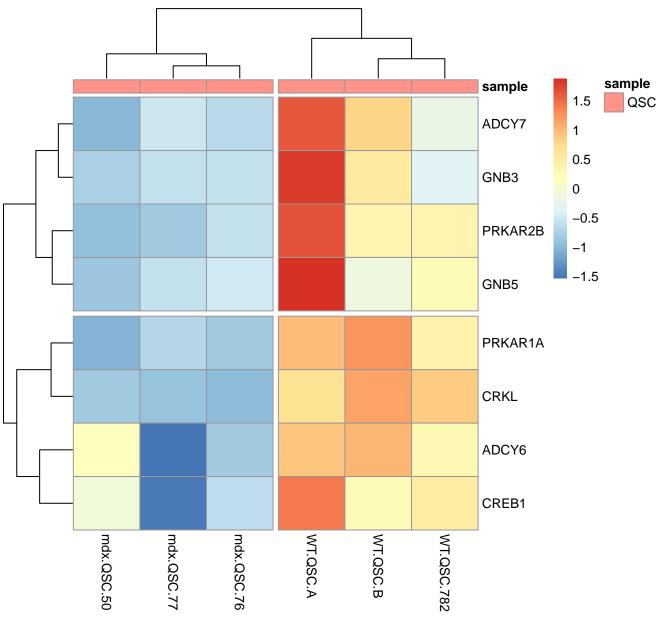


Expressed Matrix from Normalized for genes in INOH_MM_GPCR_ADENOSINE_A2A_RECEPTOR



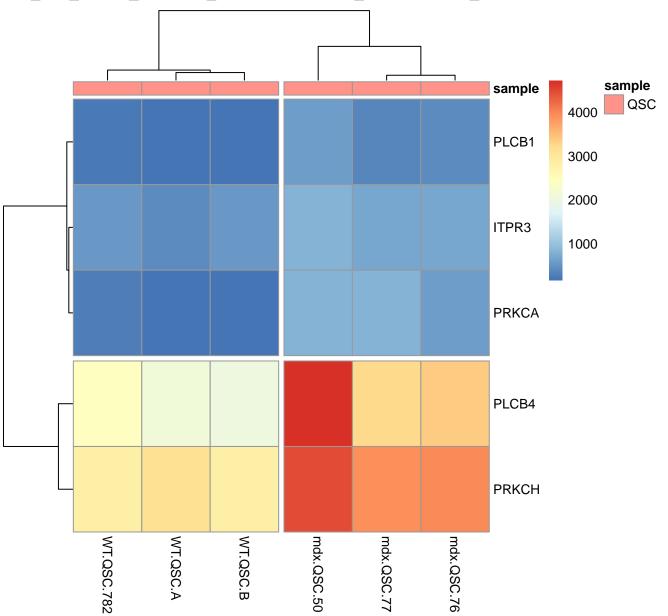
Expressed Matrix for genes active in INOH_MM_GPCR_ADENOSINE_A2A_RECEPTOR sample sample 14 QSC 12 GNB5 10 8 PRKAR2B 6 4 **CRKL** 2 CREB1 PRKAR1A GNB3 ADCY7 ADCY6 WT.QSC.A mdx.QSC.50 mdx.QSC.77 mdx.QSC.76 WT.QSC.B WT.QSC.782

Scalling expressed matrix for genes active in INOH_MM_GPCR_ADENOSINE_A2A_RECEPTOR

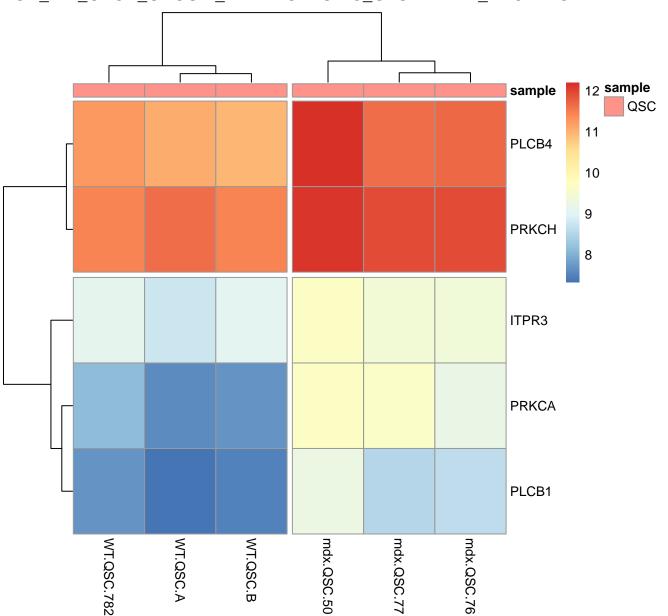


IOH_MM_GPCR_GROUPI_METABOTROPIC_GLUTAMATE_RECEPTOR

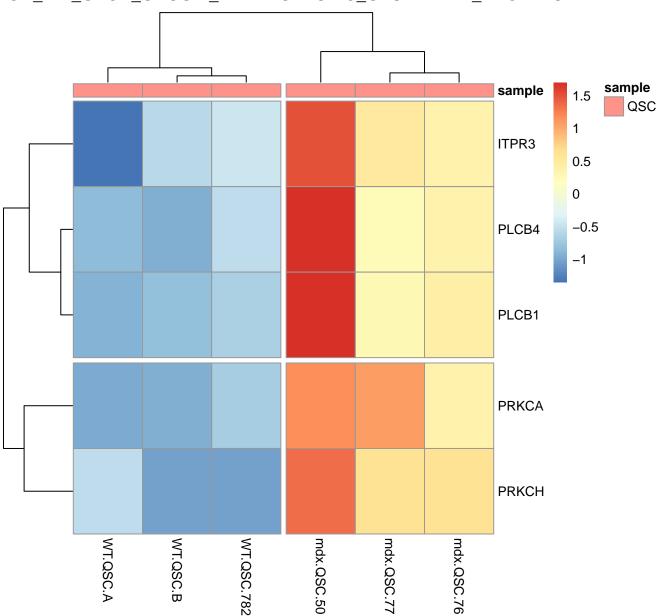
Expressed Matrix from Normalized for genes in



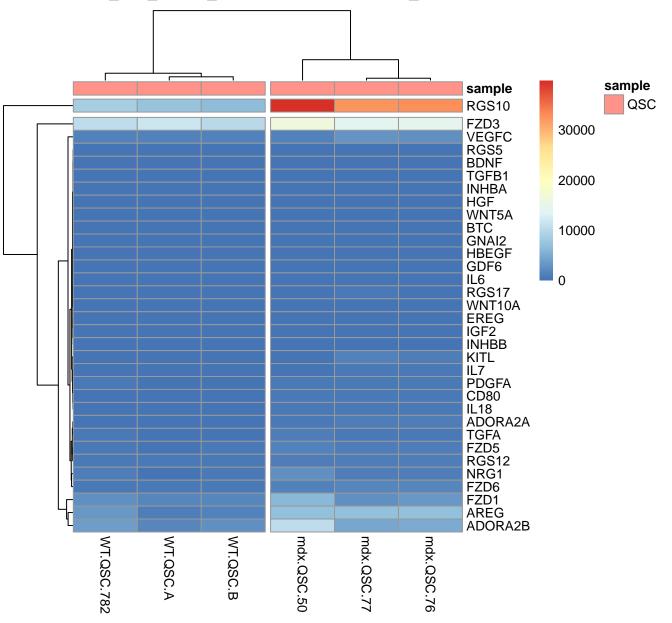
Expressed Matrix for genes active in NOH_MM_GPCR_GROUPI_METABOTROPIC_GLUTAMATE_RECEPTOR



Scalling expressed matrix for genes active in NOH_MM_GPCR_GROUPI_METABOTROPIC_GLUTAMATE_RECEPTOR

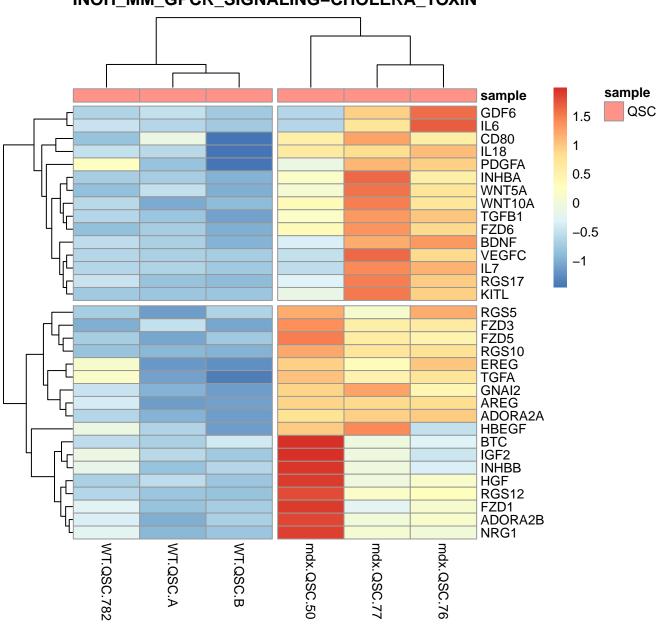


Expressed Matrix from Normalized for genes in INOH_MM_GPCR_SIGNALING-CHOLERA_TOXIN

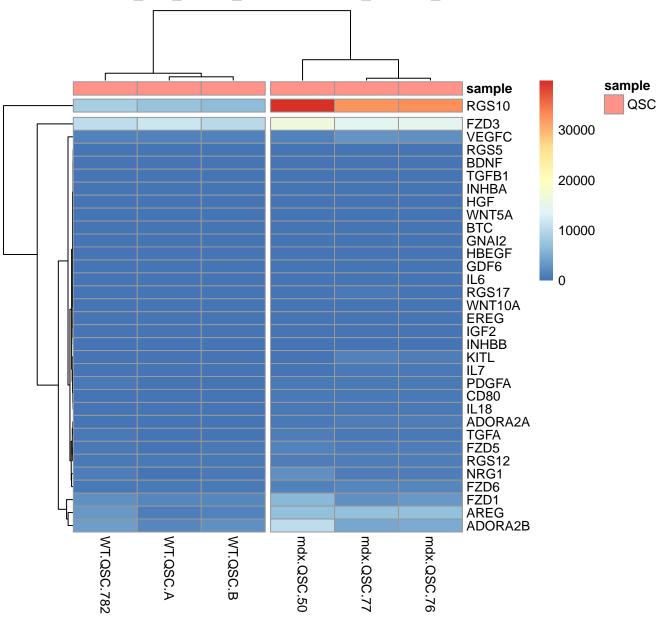


Expressed Matrix for genes active in INOH_MM_GPCR_SIGNALING-CHOLERA_TOXIN sample sample 14 QSC RGS10 FZD3 12 VEGFC FZD1 10 **AREG** ADORA2B 8 **HGF** WNT5A 6 FZD6 RGS12 4 NRG1 FZD5 2 **PDGFA** ADORA2A TGFA **CD80** IL18 RGS17 **KITL** EREG WNT10A RGS5 IGF2 INHBB **BTC GNAI2 HBEGF** TGFB1 **INHBA BDNF** GDF6 IL6 IL7 mdx.QSC.50 mdx.QSC.77 mdx.QSC.76 WT.QSC.B WT.QSC.A WT.QSC.782

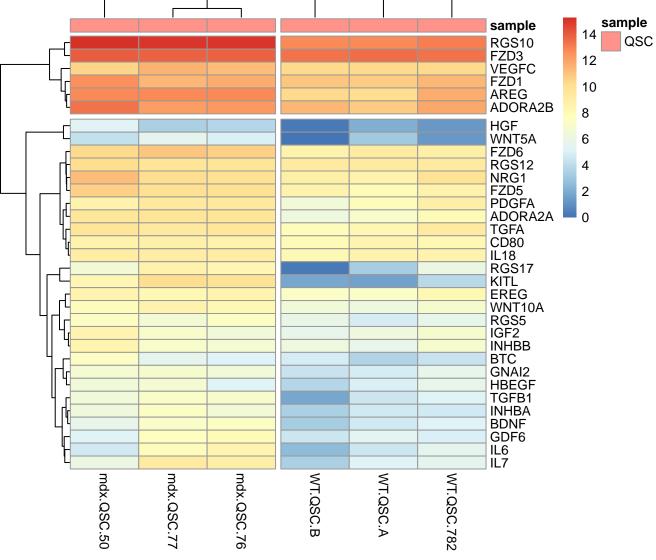
Scalling expressed matrix for genes active in INOH_MM_GPCR_SIGNALING-CHOLERA_TOXIN



Expressed Matrix from Normalized for genes in INOH_MM_GPCR_SIGNALING-G_ALPHA_I

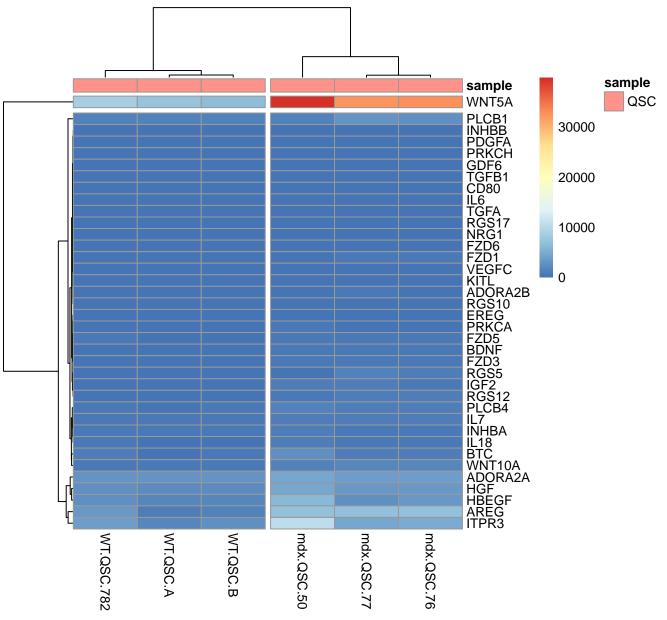


Expressed Matrix for genes active in INOH_MM_GPCR_SIGNALING-G_ALPHA_I sample sample 14 QSC RGS10 FZD3 12 VEGFC FZD1 10 **AREG** ADORA2B 8 **HGF** WNT5A 6 FZD6 RGS12 4 NRG1 FZD5 2 **PDGFA** ADORA2A TGFA **CD80** IL18 RGS17 **KITL** EREG WNT10A RGS5 IGF2 INHBB **BTC**



Scalling expressed matrix for genes active in INOH_MM_GPCR_SIGNALING-G_ALPHA_I sample sample QSC GDF6 1.5 IL6 CD80 IL18 1 **PDGFA** 0.5 **INHBA** WNT5A WNT10A 0 TGFB1 FZD6 -0.5**BDNF** VEGFC -1 IL7 RGS17 KITL RGS5 FZD3 FZD5 RGS10 **EREG TGFA** GNAI2 AREG ADORA2A **HBEGF BTC** IGF2 INHBB **HGF** RGS12 FZD1 ADORA2B NRG1 WT.QSC.782 mdx.QSC.50 mdx.QSC.77 WT.QSC.A WT.QSC.B mdx.QSC.76

Expressed Matrix from Normalized for genes in INOH_MM_GPCR_SIGNALING-G_ALPHA_Q



Expressed Matrix for genes active in INOH_MM_GPCR_SIGNALING-G_ALPHA_Q sample sample 14 IL6 TGFA QSC ADORA2B RGS5 TGFB1 CD80 GDF6 VEGFC 12 10 8 ΚĪΤĽ 6 FZD1 PRKCH 4 **INHBB** PDGFA RGS17 2 NRG1 FZD6 0 RGS10 EREG PRKCA INHBA WNT10A BTC PLCB4 FZD5 RGS12 BDNF FZD3 IGF2 IL18 WNT5A PLCB1 ADORA2A HGF HBEGF AREG ITPR3 mdx.QSC.50 mdx.QSC.77 WT.QSC.B WT.QSC.A WT.QSC.782 mdx.QSC.76

Scalling expressed matrix for genes active in INOH_MM_GPCR_SIGNALING-G_ALPHA_Q sample sample VEGFC KITL QSC 1.5 FZD5 CD80 TGFA RGS10 TGFB1 WNT10A 1 0.5 GDF6 PLCB1 FZD1 0 -0.5ADORA2B RGS5 -1 FZD6 FZD6 BDNF FZD3 ADORA2A WNT5A AREG RGS12 NRG1 IGF2 IL6 ILO IL7 HGF PRKCA HBEGF ITPR3 BTC RGS17 INHBB PDGFA EREG IL18 PRKCH INHBA PLCB4

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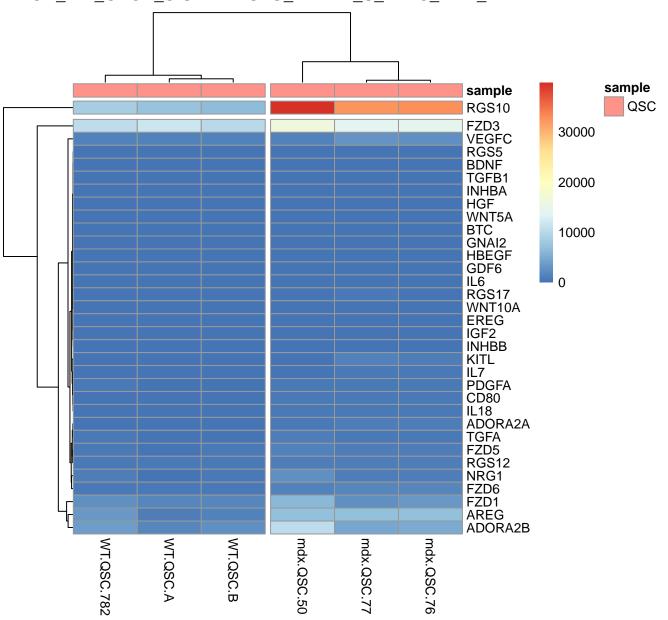
mdx.QSC.76

WT.QSC.782

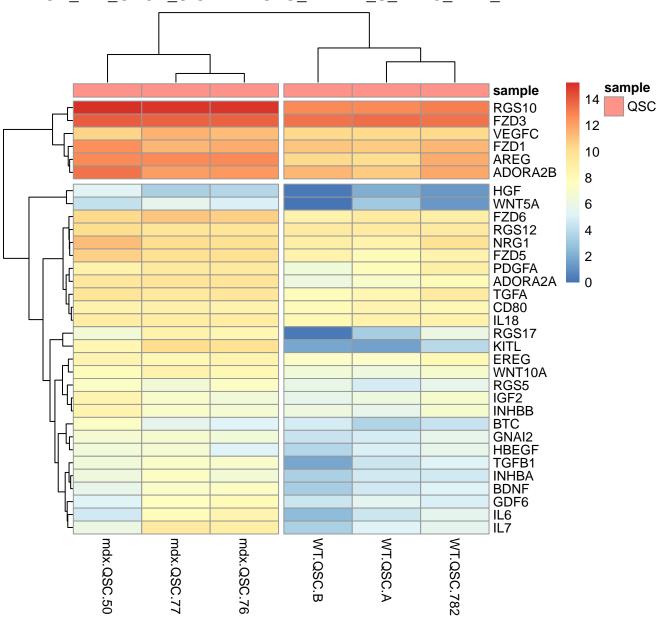
WT.QSC.A

WT.QSC.B

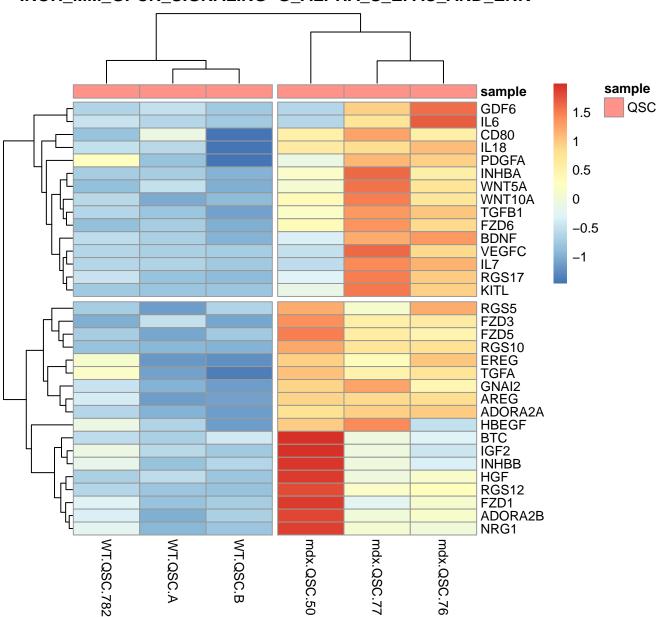
Expressed Matrix from Normalized for genes in INOH_MM_GPCR_SIGNALING-G_ALPHA_S_EPAC_AND_ERK



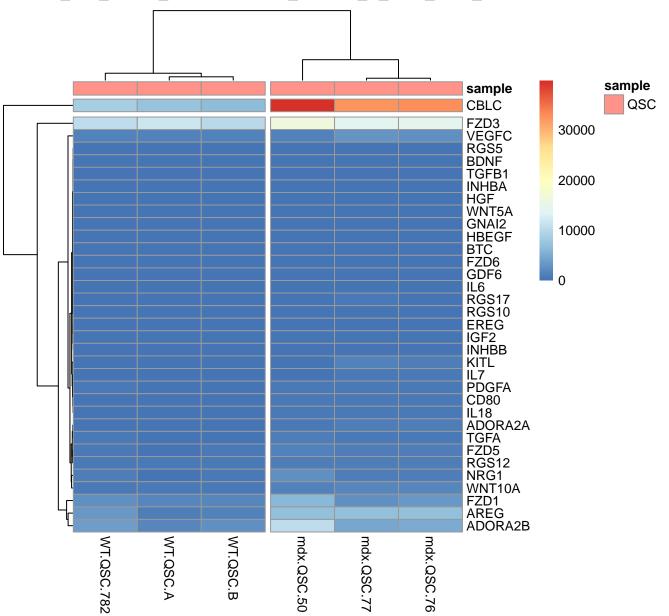
Expressed Matrix for genes active in INOH_MM_GPCR_SIGNALING-G_ALPHA_S_EPAC_AND_ERK



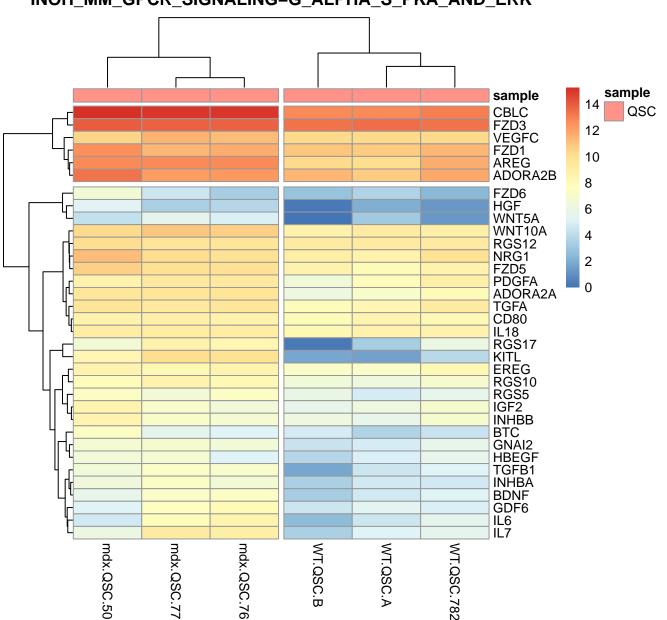
Scalling expressed matrix for genes active in INOH_MM_GPCR_SIGNALING-G_ALPHA_S_EPAC_AND_ERK



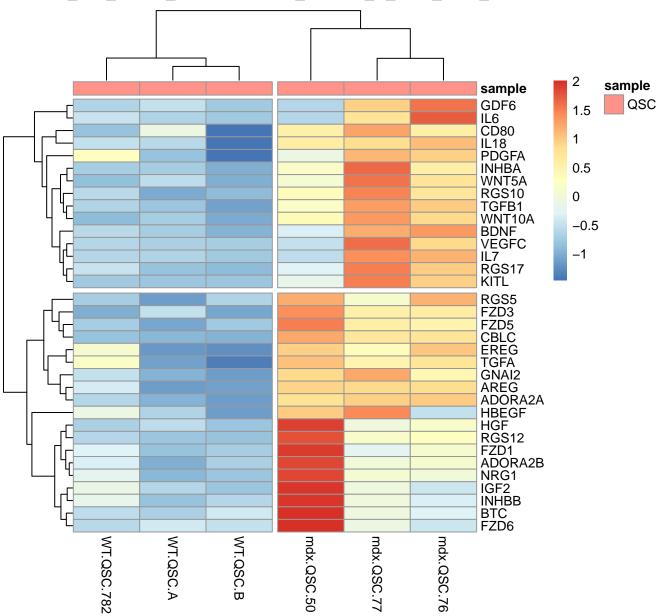
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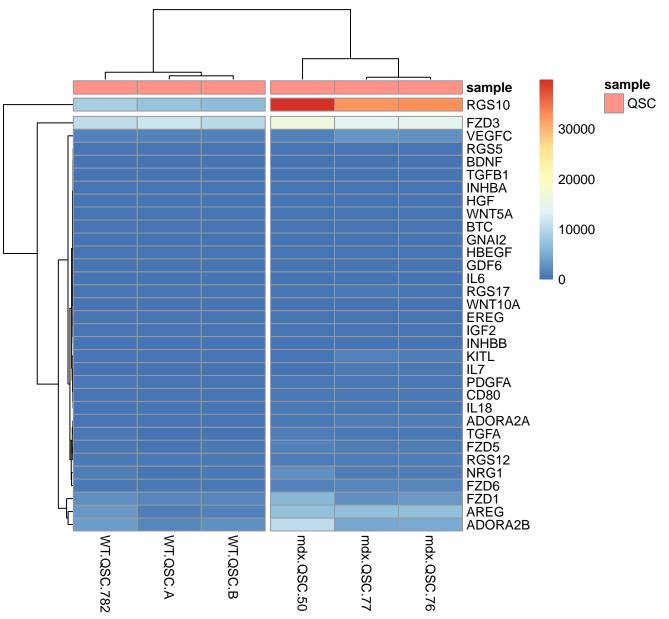
Expressed Matrix for genes active in INOH_MM_GPCR_SIGNALING-G_ALPHA_S_PKA_AND_ERK



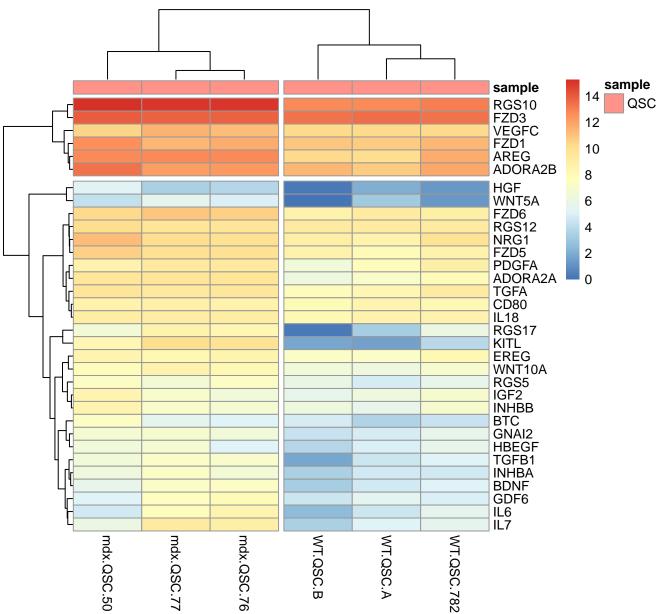
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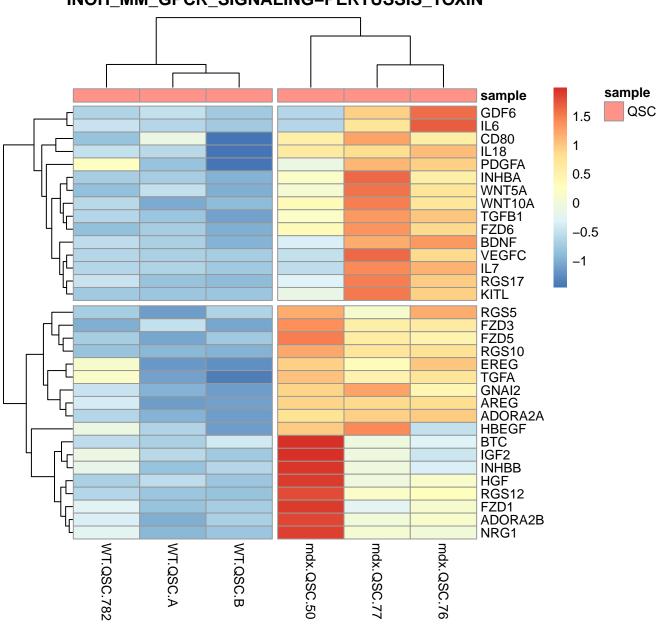
Expressed Matrix from Normalized for genes in INOH_MM_GPCR_SIGNALING-PERTUSSIS_TOXIN



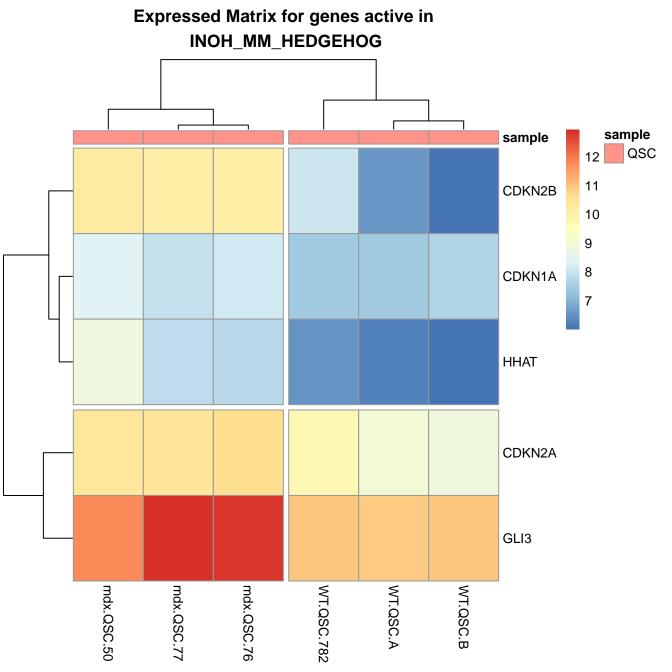
Expressed Matrix for genes active in INOH_MM_GPCR_SIGNALING-PERTUSSIS_TOXIN

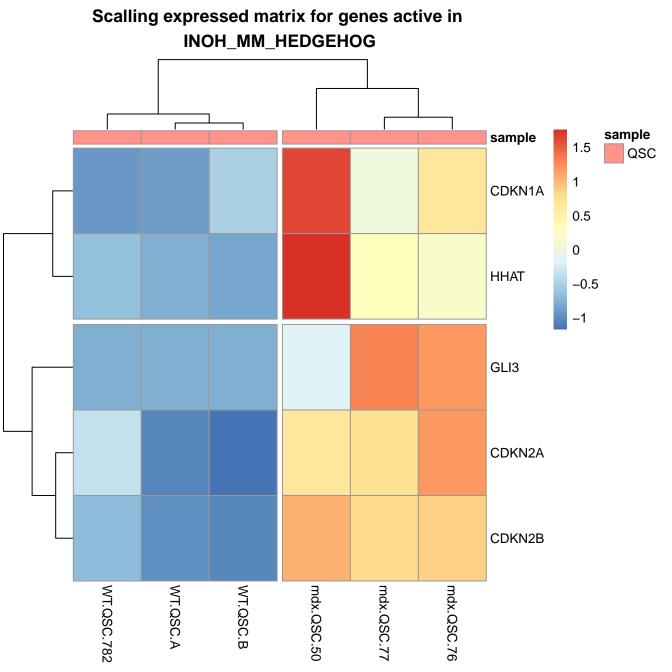


Scalling expressed matrix for genes active in INOH_MM_GPCR_SIGNALING-PERTUSSIS_TOXIN

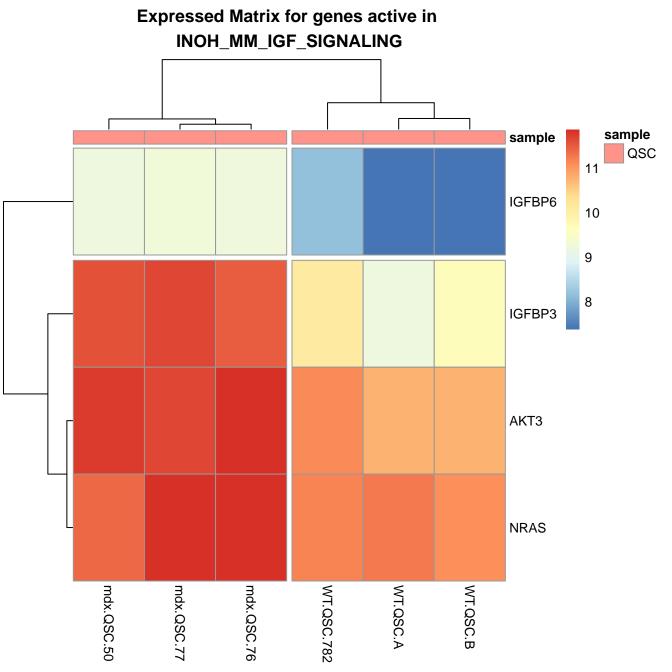


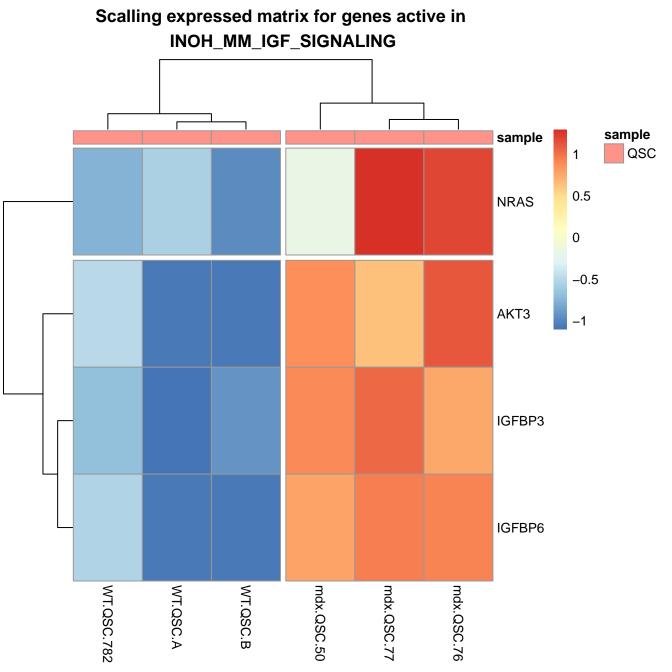
Expressed Matrix from Normalized for genes in INOH_MM_HEDGEHOG sample sample QSC 6000 GLI3 4000 CDKN1A 2000 **HHAT** CDKN2A CDKN2B mdx.QSC.77 mdx.QSC.76 mdx.QSC.50 WT.QSC.782 WT.QSC.B



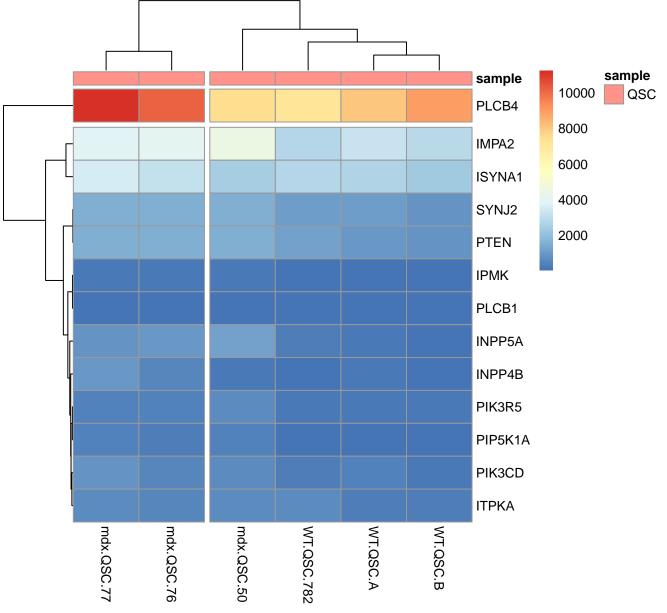


Expressed Matrix from Normalized for genes in INOH_MM_IGF_SIGNALING sample sample 3500 QSC 3000 2500 IGFBP6 2000 1500 1000 500 IGFBP3 AKT3 NRAS WT.QSC.782 WT.QSC.A mdx.QSC.50 mdx.QSC.77 WT.QSC.B mdx.QSC.76



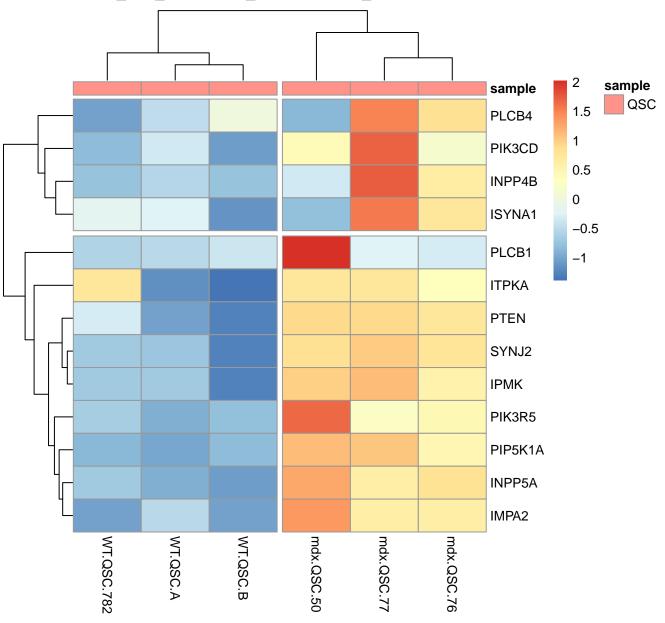


Expressed Matrix from Normalized for genes in INOH_MM_INOSITOL_PHOSPHATE_METABOLISM

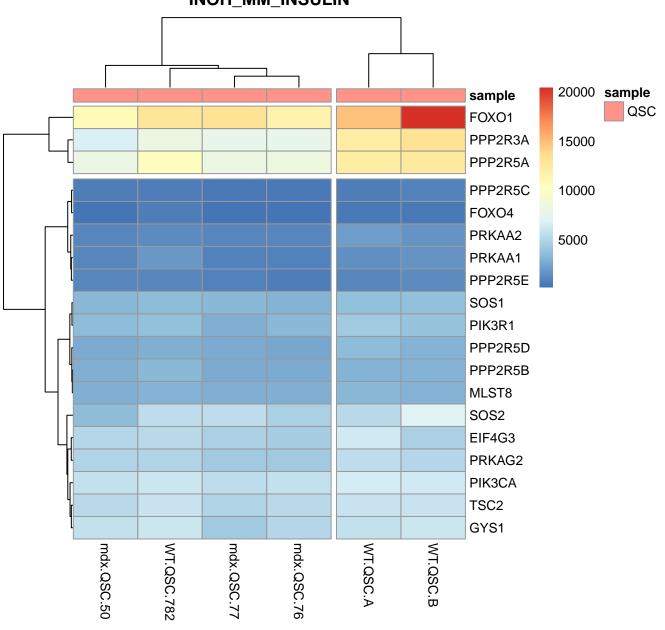


Expressed Matrix for genes active in INOH_MM_INOSITOL_PHOSPHATE_METABOLISM sample sample QSC 12 PLCB4 10 SYNJ2 **PTEN** 8 IMPA2 6 ISYNA1 4 PLCB1 INPP5A PIK3R5 PIK3CD **ITPKA** INPP4B **IPMK** PIP5K1A WT.QSC.782 WT.QSC.B WT.QSC.A mdx.QSC.50 mdx.QSC.77 mdx.QSC.76

Scalling expressed matrix for genes active in INOH_MM_INOSITOL_PHOSPHATE_METABOLISM



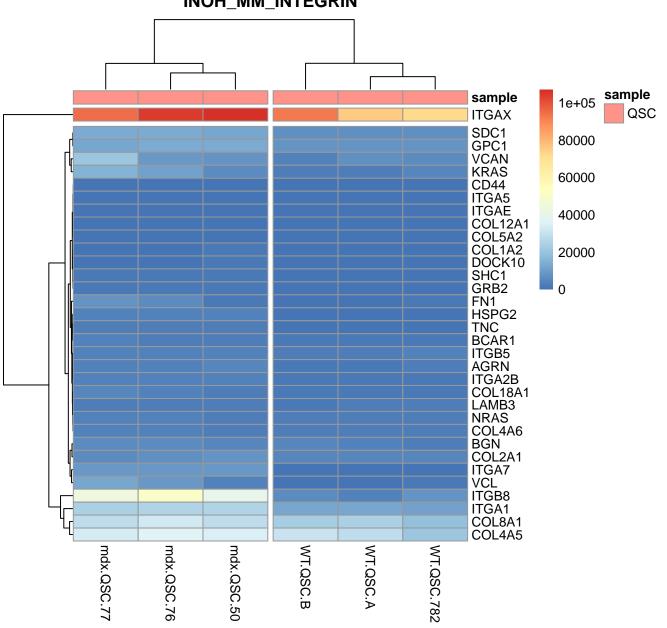
Expressed Matrix from Normalized for genes in INOH_MM_INSULIN



Expressed Matrix for genes active in INOH_MM_INSULIN ₁₄ sample sample QSC FOXO1 13 PPP2R3A 12 PPP2R5A 11 SOS1 10 PIK3R1 PPP2R5D 9 PPP2R5B 8 MLST8 SOS₂ EIF4G3 PRKAG2 GYS1 TSC2 PIK3CA FOXO4 PPP2R5C PPP2R5E PRKAA2 PRKAA1 mdx.QSC.50 WT.QSC.782 mdx.QSC.77 mdx.QSC.76 WT.QSC.A WT.QSC.B

Scalling expressed matrix for genes active in INOH_MM_INSULIN sample sample 1.5 QSC SOS2 1 SOS1 PPP2R3A 0.5 FOXO1 0 PPP2R5C -0.5EIF4G3 -1 MLST8 -1.5 PRKAG2 PIK3R1 PPP2R5D PRKAA2 PIK3CA PPP2R5A PPP2R5E PRKAA1 PPP2R5B FOXO4 TSC2 GYS1 mdx.QSC.50 mdx.QSC.77 mdx.QSC.76 WT.QSC.782 WT.QSC.A WT.QSC.B

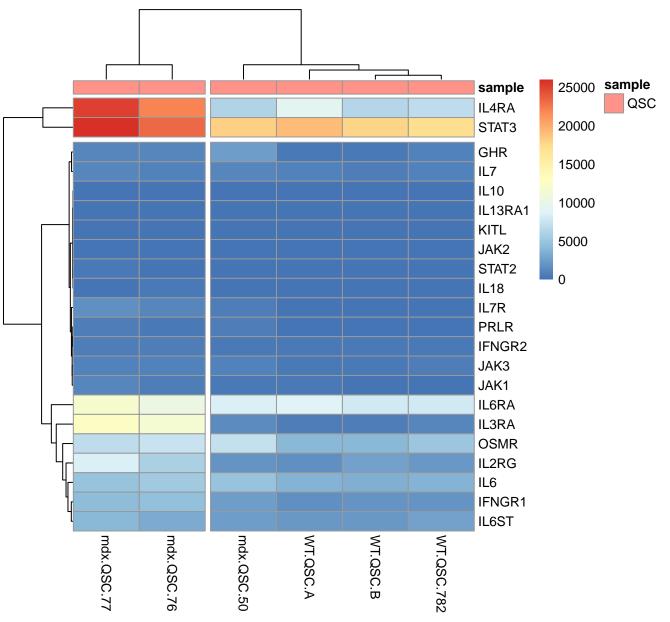
Expressed Matrix from Normalized for genes in INOH_MM_INTEGRIN



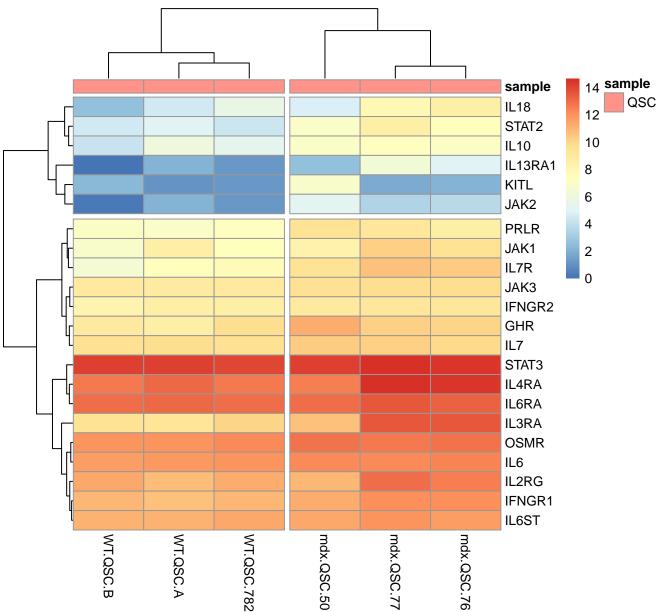
Expressed Matrix for genes active in INOH_MM_INTEGRIN sample sample 15 QSC ITGA5 COL5A2 CD44 ITGAE 10 **ITGAX** ITGB8 ITGA1 COL8A1 COL4A5 5 COL12A1 GRB2 COL1A2 DOCK10 COL2A1 0 BGN ITGB5 SDC₁ GPC₁ **VCAN KRAS** ITGA7 FN1 VCL BCAR1 COL18A1 **AGRN ITGA2B** LAMB3 **NRAS** COL4A6 SHC1 TNC HSPG2 WT.QSC.782 WT.QSC.A mdx.QSC.50 WT.QSC.B mdx.QSC.77 mdx.QSC.76

Scalling expressed matrix for genes active in INOH_MM_INTEGRIN sample sample QSC **VCAN** 1.5 ITGAE COL12A1 BGN 1 COL4A6 0.5 LAMB3 FN1 0 **KRAS VCL** -0.5NRAS COL18A1 -1 CD44 DOCK10 -1.5COL1A2 AGRN ITGA5 COL2A1 ITGB8 ITGA2B GRB2 HSPG2 GPC1 TNC SHC1 ITGA7 SDC1 ITGA1 COL5A2 BCAR1 ITGB5 **ITGAX** COL8A1 COL4A5 WT.QSC.782 WT.QSC.A WT.QSC.B mdx.QSC.50 mdx.QSC.77 mdx.QSC.76

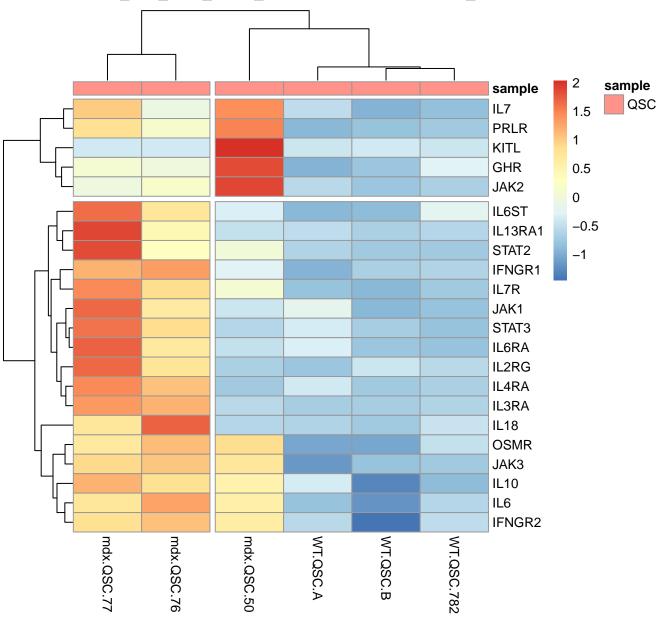
Expressed Matrix from Normalized for genes in INOH_MM_JAK_STAT_MOLECULARVARIATION_1



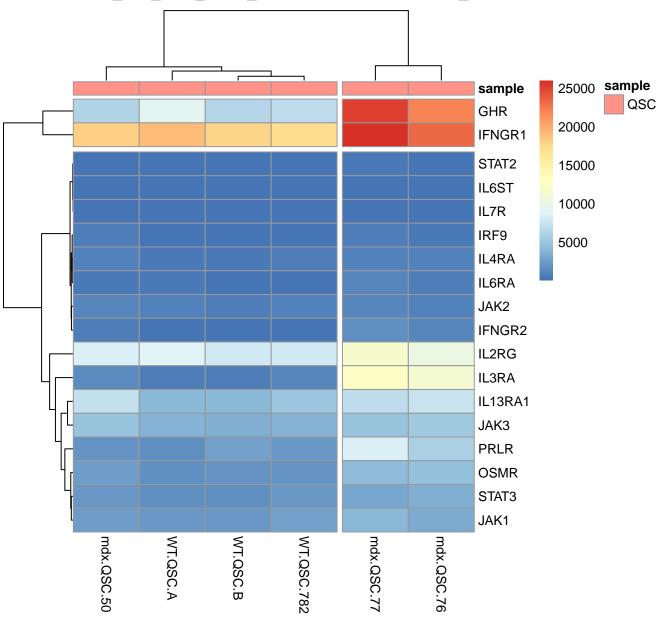
Expressed Matrix for genes active in INOH_MM_JAK_STAT_MOLECULARVARIATION_1



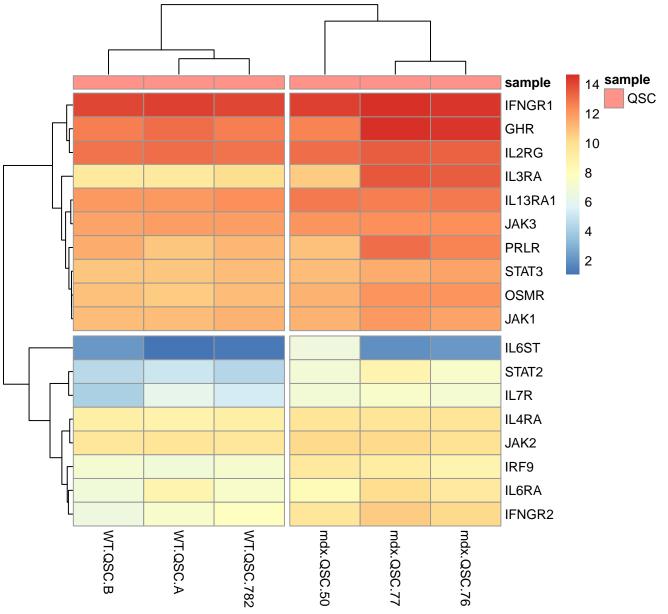
Scalling expressed matrix for genes active in INOH_MM_JAK_STAT_MOLECULARVARIATION_1



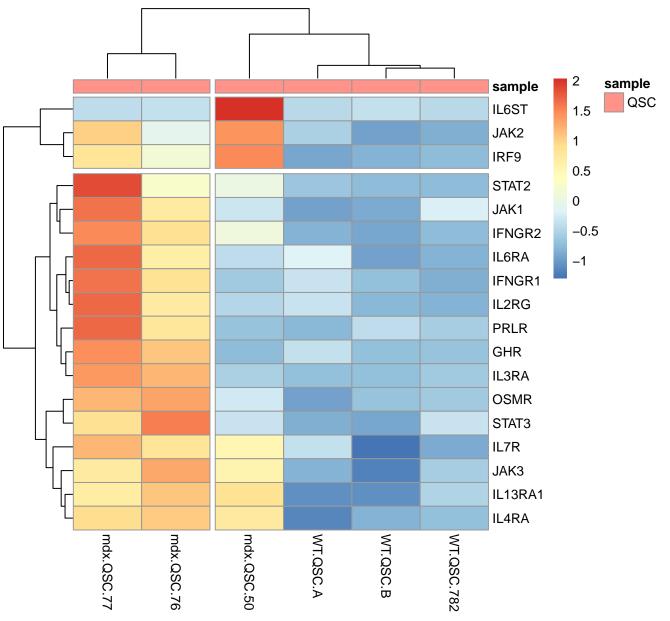
Expressed Matrix from Normalized for genes in INOH_MM_JAK_STAT_MOLECULARVARIATION_2



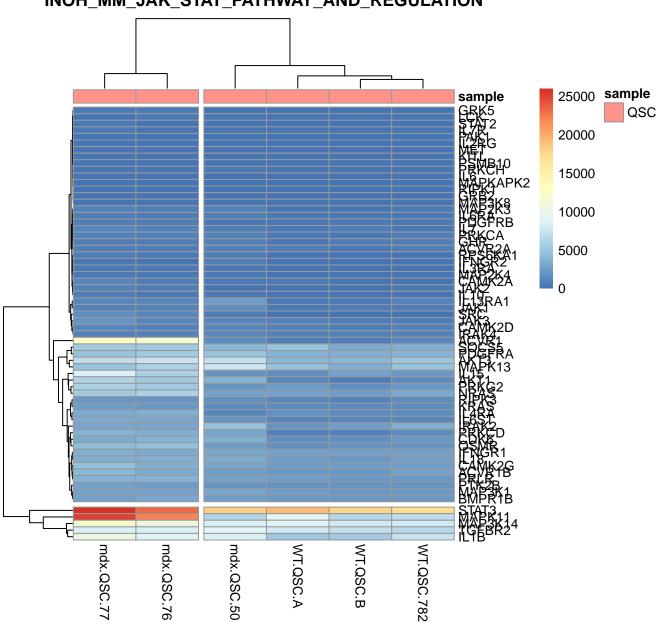
Expressed Matrix for genes active in INOH_MM_JAK_STAT_MOLECULARVARIATION_2



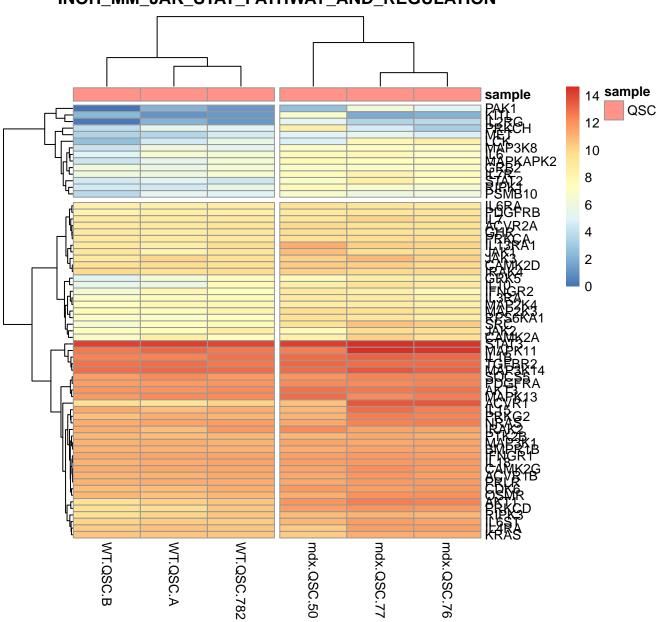
Scalling expressed matrix for genes active in INOH_MM_JAK_STAT_MOLECULARVARIATION_2



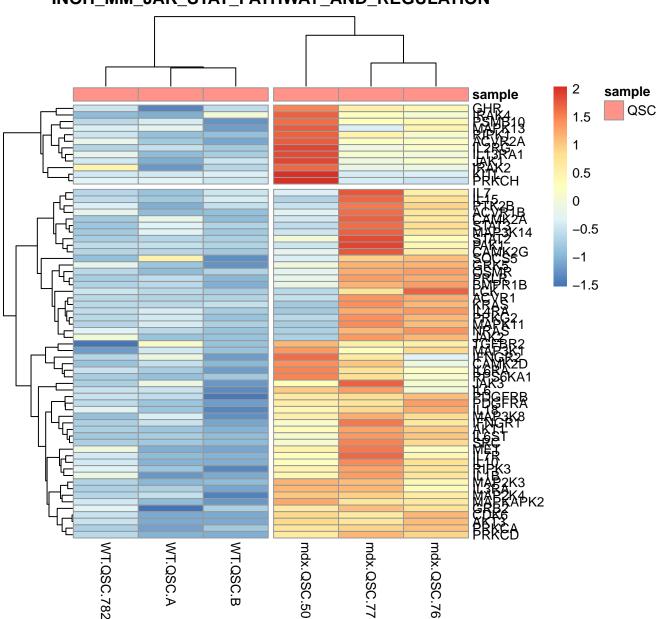
Expressed Matrix from Normalized for genes in INOH_MM_JAK_STAT_PATHWAY_AND_REGULATION



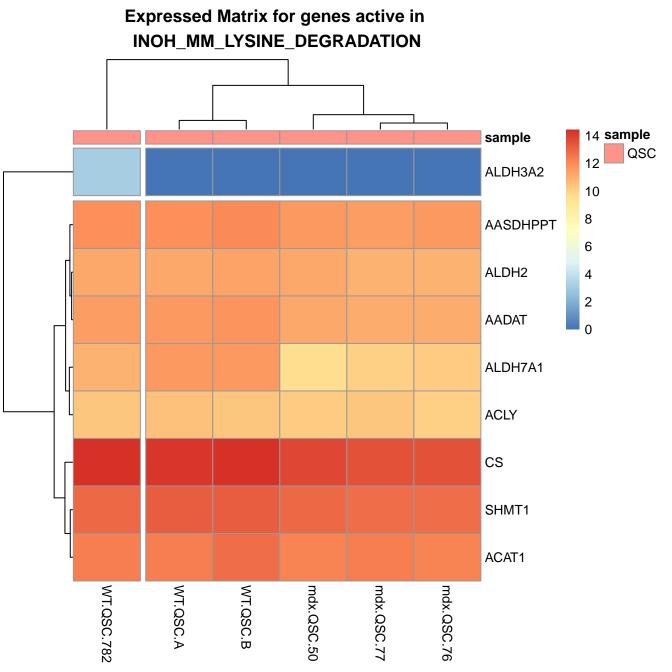
Expressed Matrix for genes active in INOH_MM_JAK_STAT_PATHWAY_AND_REGULATION



Scalling expressed matrix for genes active in INOH_MM_JAK_STAT_PATHWAY_AND_REGULATION

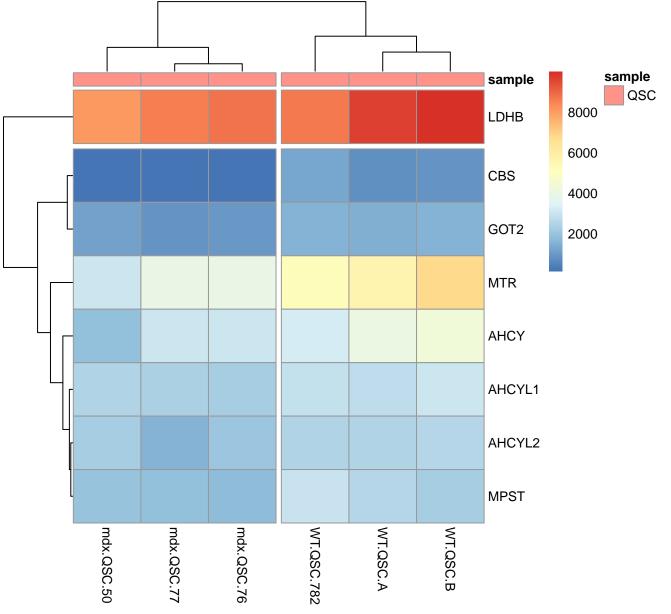


Expressed Matrix from Normalized for genes in INOH_MM_LYSINE_DEGRADATION sample sample 20000 QSC CS 15000 SHMT1 10000 ACAT1 5000 ALDH3A2 **ACLY AASDHPPT** ALDH7A1 ALDH2 **AADAT** WT.QSC.A WT.QSC.782 mdx.QSC.77 WT.QSC.B mdx.QSC.50 mdx.QSC.76

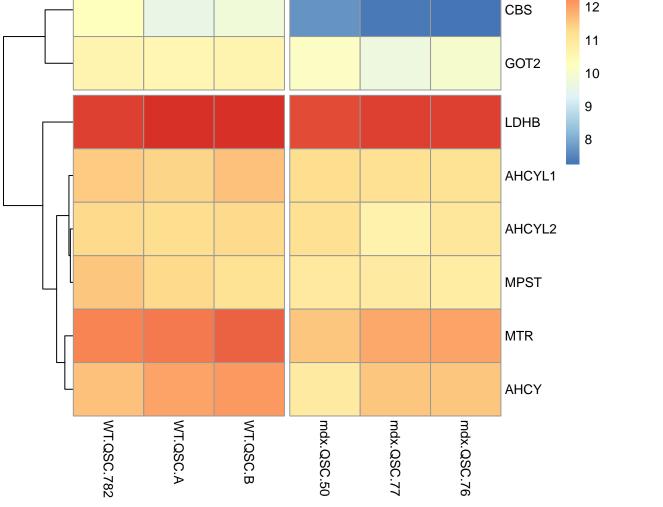


Scalling expressed matrix for genes active in INOH_MM_LYSINE_DEGRADATION 2 sample sample QSC 1.5 ALDH3A2 1 0.5 ALDH2 0 ACAT1 -0.5-1 **ACLY** CS **AADAT AASDHPPT** SHMT1 ALDH7A1 mdx.QSC.50 WT.QSC.782 mdx.QSC.77 mdx.QSC.76 WT.QSC.A WT.QSC.B

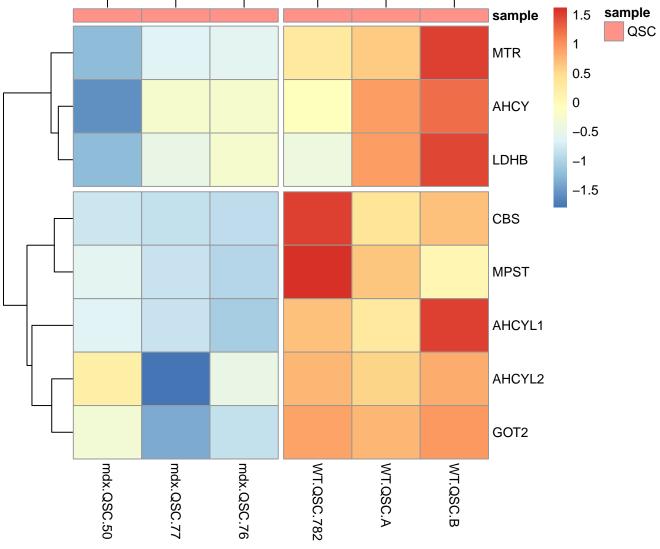
Expressed Matrix from Normalized for genes in INOH_MM_METHIONINE_CYSTEINE_METABOLISM



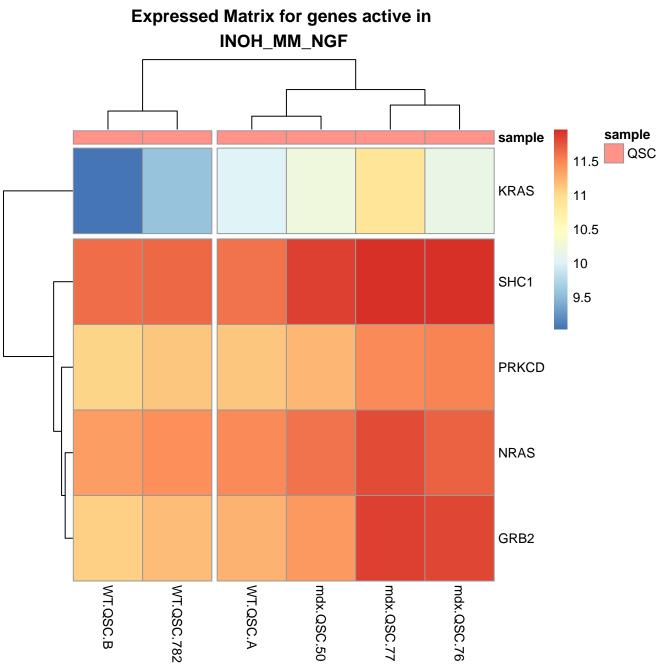
Expressed Matrix for genes active in INOH_MM_METHIONINE_CYSTEINE_METABOLISM 13 sample sample QSC 12 **CBS** 11 GOT2 10 9 **LDHB** 8 AHCYL1

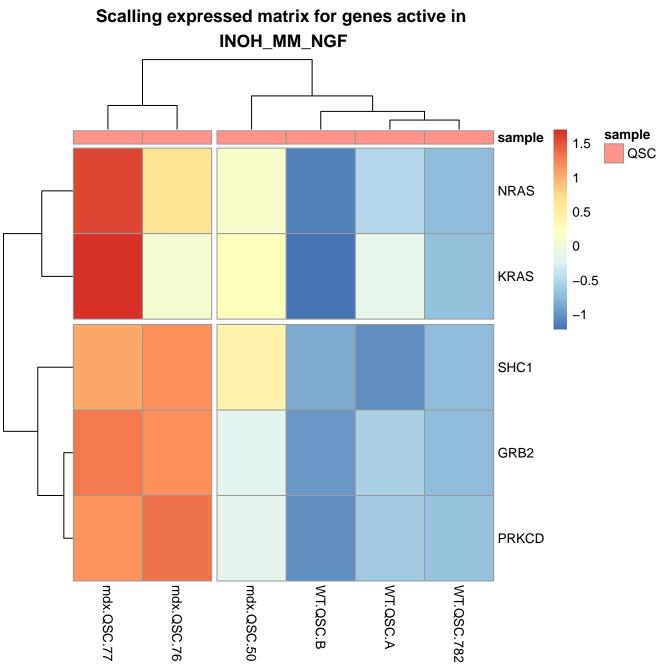


Scalling expressed matrix for genes active in INOH_MM_METHIONINE_CYSTEINE_METABOLISM sample sample 1.5 1 MTR 0.5 0 **AHCY** -0.5**LDHB** -1 -1.5

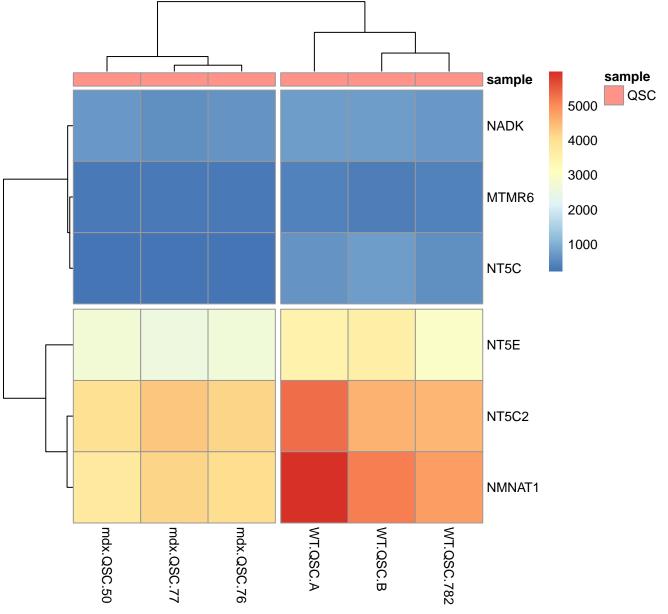


Expressed Matrix from Normalized for genes in INOH_MM_NGF 4000 sample sample QSC 3500 3000 **KRAS** 2500 2000 1500 SHC1 1000 PRKCD **NRAS** GRB2 mdx.QSC.77 mdx.QSC.76 mdx.QSC.50 WT.QSC.B WT.QSC.782

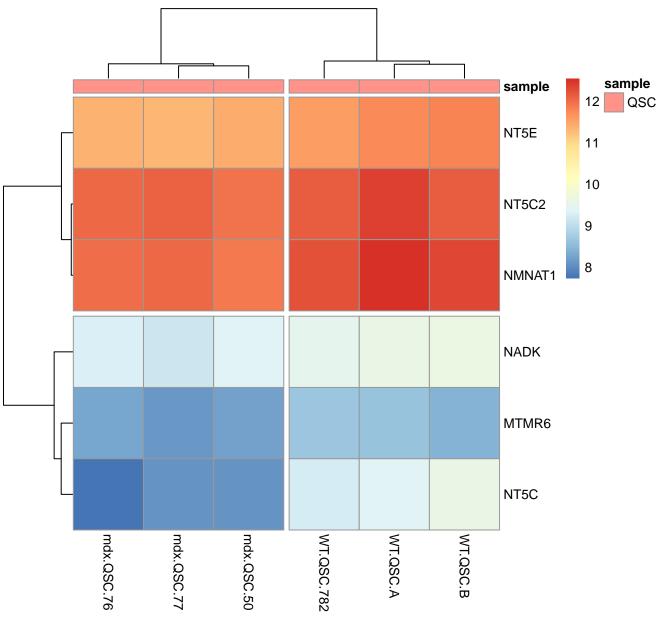




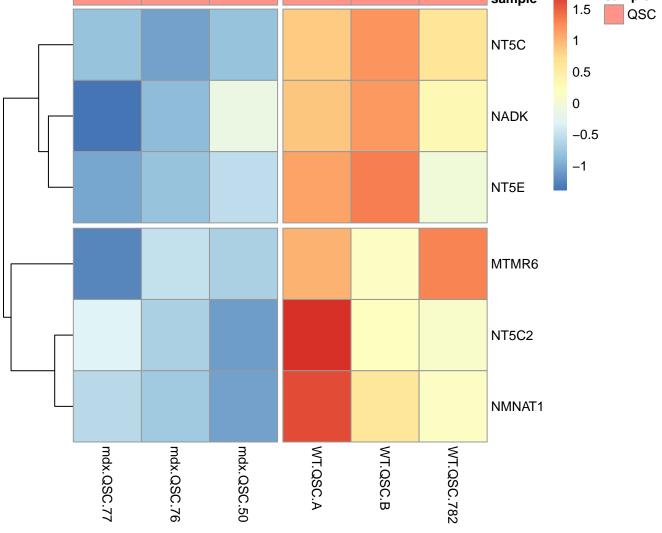
Expressed Matrix from Normalized for genes in INOH_MM_NICOTINATE_NICOTINAMIDE_METABOLISM



Expressed Matrix for genes active in INOH_MM_NICOTINATE_NICOTINAMIDE_METABOLISM



Scalling expressed matrix for genes active in INOH_MM_NICOTINATE_NICOTINAMIDE_METABOLISM sample sample 1.5 QSC 1 NT5C 0.5 0 **NADK** -0.5-1 NT5E MTMR6



Expressed Matrix from Normalized for genes in INOH_MM_PDGF sample sample 8000 QSC **PDGFRA** 6000 GRB2 MAP3K14 4000 **PDGFA** 2000 PAK1 **KRAS** AKT1 **NRAS** MAP2K4 AKT3 MAP3K1 SHC1 ELK4 PIK3CD WT.QSC.782 WT.QSC.A WT.QSC.B mdx.QSC.50 mdx.QSC.77 mdx.QSC.76

Expressed Matrix for genes active in INOH_MM_PDGF 13 sample sample QSC 12 GRB2 11 MAP3K14 10 **PDGFRA** 9 ELK4 8 PIK3CD 7 **PDGFA** PAK1 **KRAS** MAP3K1 SHC1 **NRAS** MAP2K4 AKT3 AKT1 WT.QSC.782 WT.QSC.A WT.QSC.B mdx.QSC.50 mdx.QSC.77 mdx.QSC.76

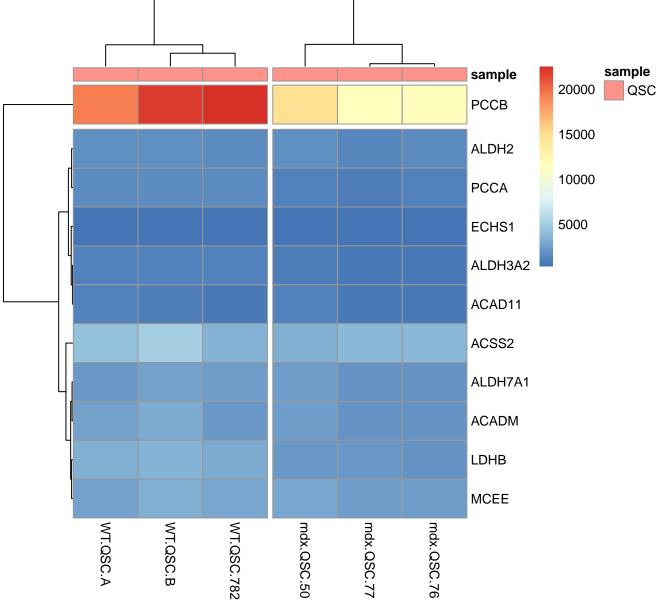
Scalling expressed matrix for genes active in INOH_MM_PDGF sample sample QSC 1.5 **NRAS** 1 **PDGFA** 0.5 SHC1 0 MAP2K4 -0.5 AKT3 -1 **KRAS** -1.5 PIK3CD ELK4 MAP3K14 GRB2 PAK1 MAP3K1 **PDGFRA** AKT1 WT.QSC.782 WT.QSC.A mdx.QSC.50 mdx.QSC.76 WT.QSC.B mdx.QSC.77

Expressed Matrix from Normalized for genes in INOH_MM_PENTOSE_PHOSPHATE_CYCLE 7000 sample sample QSC 6000 **PGD** 5000 4000 3000 PGM2 2000 1000 PRPS2 **ALDOC** GPI1 TKT mdx.QSC.50 mdx.QSC.77 WT.QSC.782 mdx.QSC.76

Expressed Matrix for genes active in INOH_MM_PENTOSE_PHOSPHATE_CYCLE 12 sample sample QSC 10 PGM2 8 6 PGD 4 2 0 PRPS2 **ALDOC** GPI1 TKT mdx.QSC.77 mdx.QSC.50 WT.QSC.A mdx.QSC.76 WT.QSC.B WT.QSC.782

Scalling expressed matrix for genes active in INOH_MM_PENTOSE_PHOSPHATE_CYCLE sample sample 1.5 QSC 1 PGM2 0.5 0 GPI1 -0.5 -1 PRPS2 ALDOC PGD TKT WT.QSC.782 WT.QSC.A WT.QSC.B mdx.QSC.76 mdx.QSC.50 mdx.QSC.77

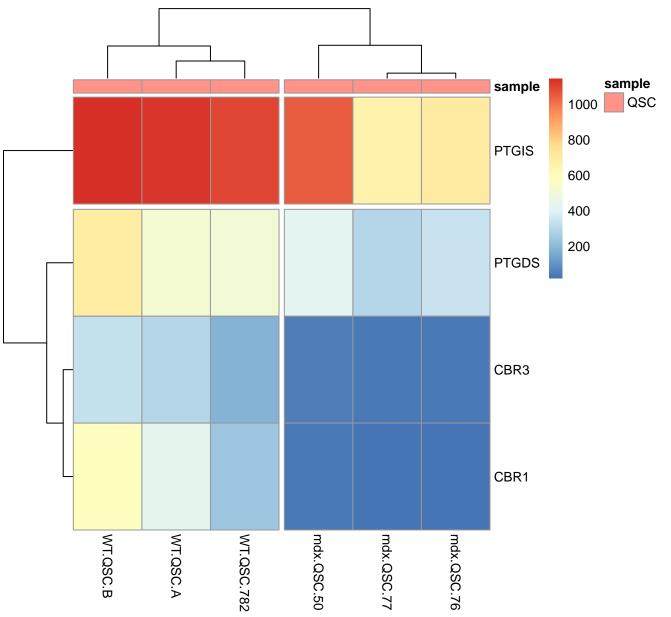
Expressed Matrix from Normalized for genes in INOH_MM_PROPANOATE_METABOLISM



Expressed Matrix for genes active in INOH_MM_PROPANOATE_METABOLISM sample sample 14 QSC ECHS1 13 ALDH3A2 12 11 ACAD11 10 ALDH2 9 **PCCA PCCB** ACSS2 ALDH7A1 **ACADM LDHB MCEE** WT.QSC.782 WT.QSC.A WT.QSC.B mdx.QSC.50 mdx.QSC.77 mdx.QSC.76

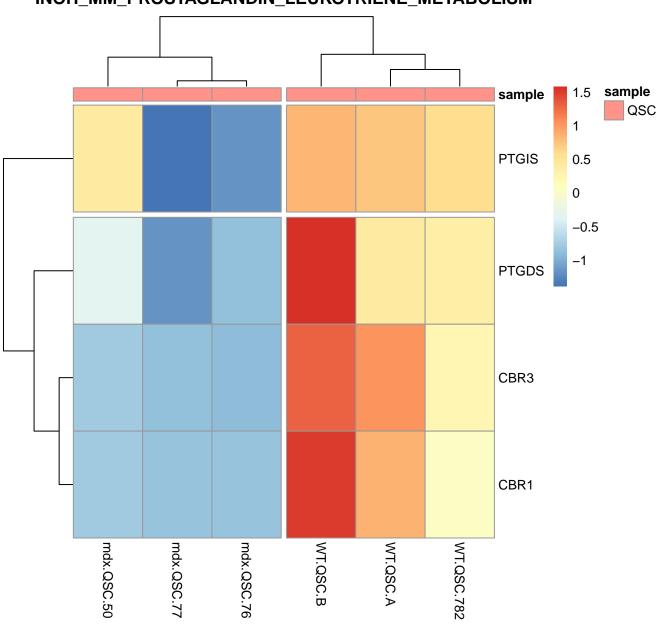
Scalling expressed matrix for genes active in INOH_MM_PROPANOATE_METABOLISM sample sample 1.5 QSC ACSS2 1 0.5 **ACADM** 0 ACAD11 -0.5ALDH2 -1 ECHS1 -1.5 **LDHB PCCA** ALDH3A2 **PCCB** ALDH7A1 **MCEE** WT.QSC.A WT.QSC.B mdx.QSC.77 mdx.QSC.76 WT.QSC.782 mdx.QSC.50

Expressed Matrix from Normalized for genes in INOH_MM_PROSTAGLANDIN_LEUKOTRIENE_METABOLISM



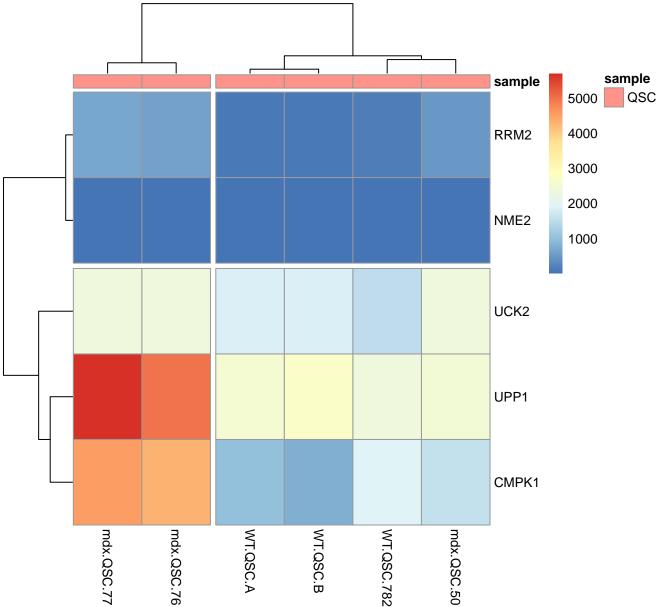
Expressed Matrix for genes active in INOH_MM_PROSTAGLANDIN_LEUKOTRIENE_METABOLISM 10 sample sample QSC 9 CBR3 8 7 6 5 CBR1 **PTGIS PTGDS** mdx.QSC.50 mdx.QSC.77 mdx.QSC.76 WT.QSC.B WT.QSC.782 WT.QSC.A

Scalling expressed matrix for genes active in INOH_MM_PROSTAGLANDIN_LEUKOTRIENE_METABOLISM

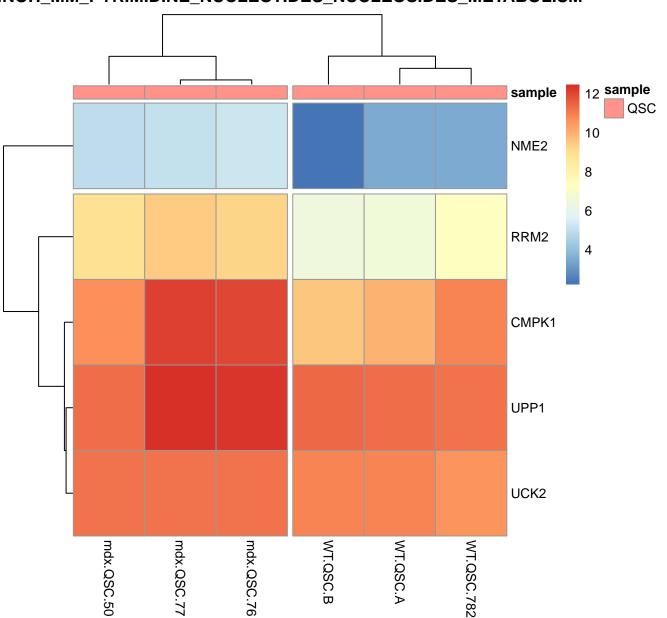


NOH_MM_PYRIMIDINE_NUCLEOTIDES_NUCLEOSIDES_METABOLISM

Expressed Matrix from Normalized for genes in

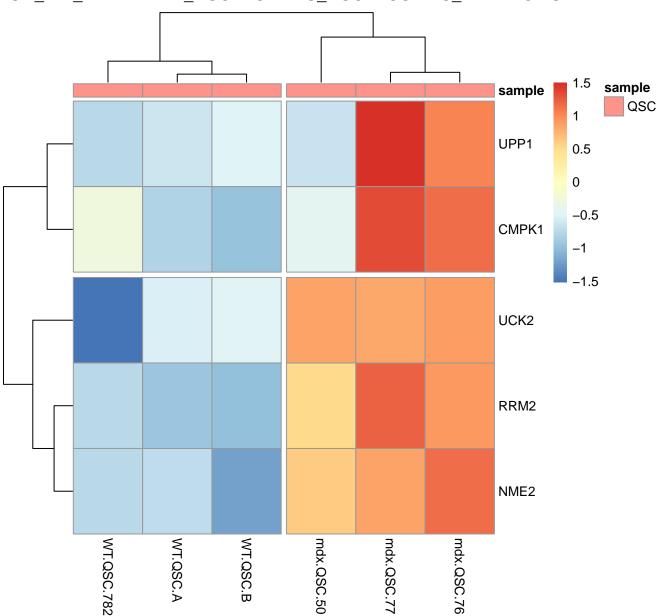


Expressed Matrix for genes active in NOH_MM_PYRIMIDINE_NUCLEOTIDES_NUCLEOSIDES_METABOLISM

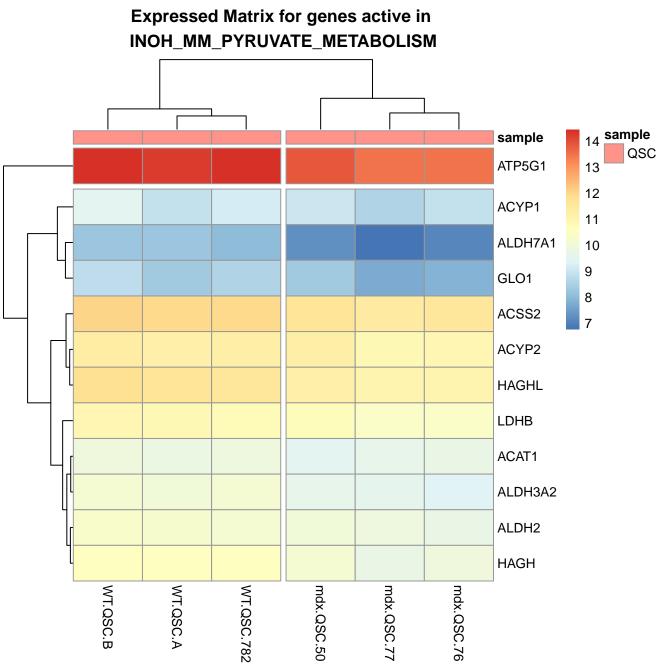


NOH_MM_PYRIMIDINE_NUCLEOTIDES_NUCLEOSIDES_METABOLISM

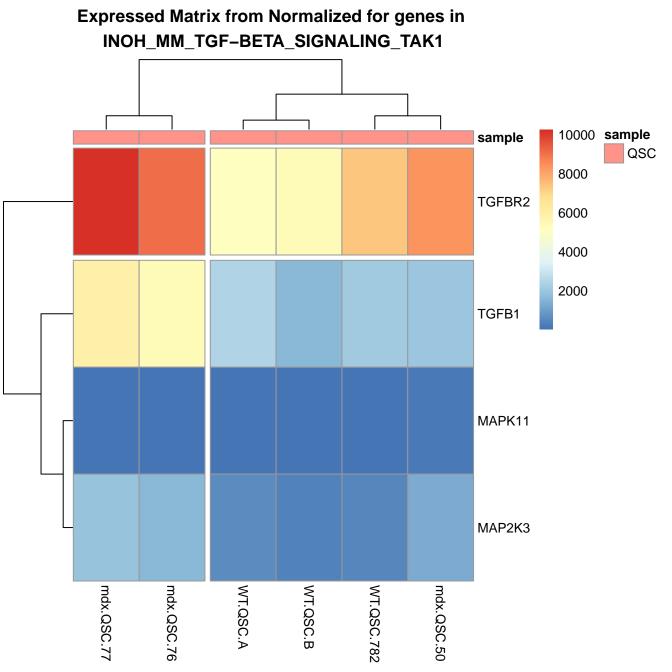
Scalling expressed matrix for genes active in

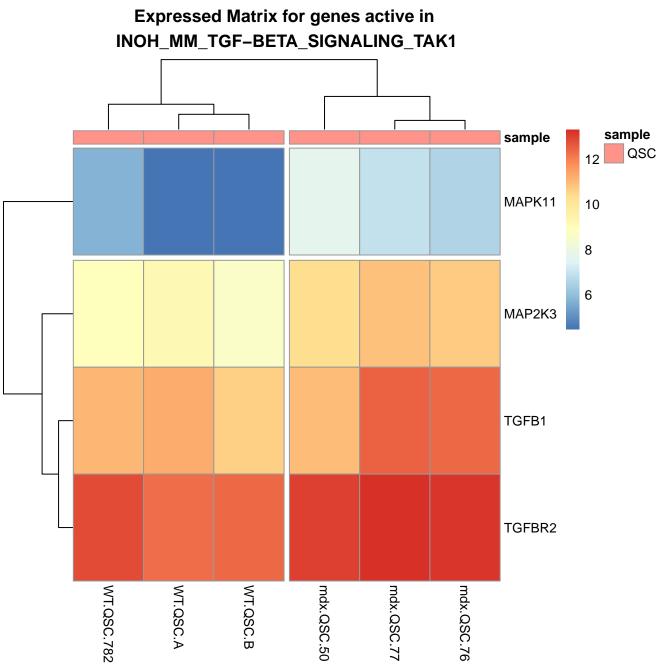


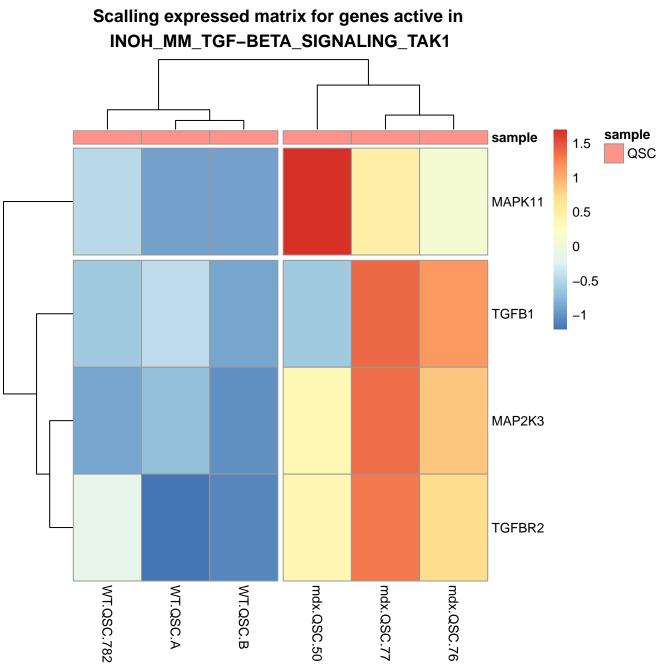
Expressed Matrix from Normalized for genes in INOH_MM_PYRUVATE_METABOLISM sample sample 20000 QSC ATP5G1 15000 ACYP1 10000 ALDH7A1 GLO1 5000 ACAT1 ALDH3A2 ALDH2 **HAGH** ACYP2 LDHB **HAGHL** ACSS2 WT.QSC.A mdx.QSC.50 WT.QSC.B WT.QSC.782 mdx.QSC.76 mdx.QSC.77



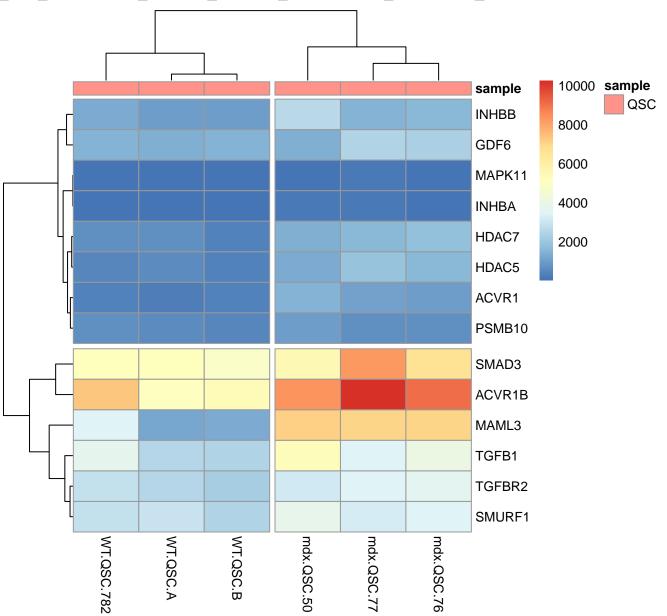
Scalling expressed matrix for genes active in INOH_MM_PYRUVATE_METABOLISM sample sample 1.5 QSC ACYP1 1 ACYP2 0.5 GLO1 0 -0.5ACAT1 -1 ALDH2 LDHB ALDH7A1 **HAGHL HAGH** ACSS2 ALDH3A2 ATP5G1 WT.QSC.B WT.QSC.A WT.QSC.782 mdx.QSC.50 mdx.QSC.76



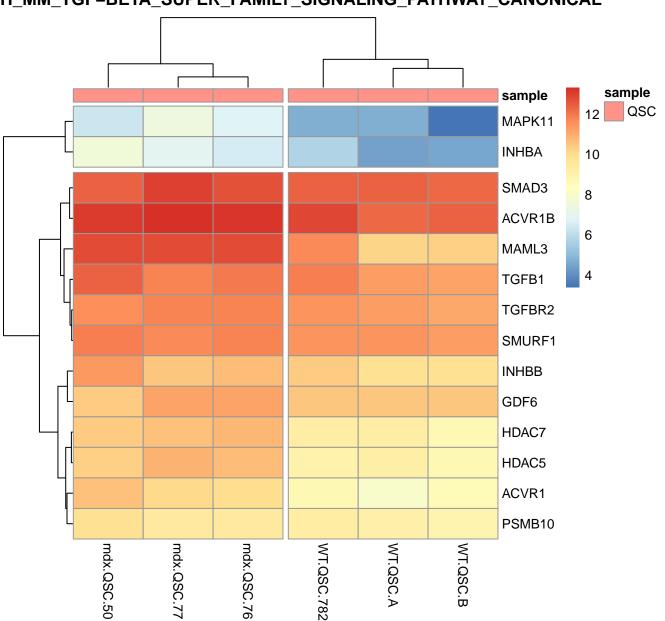




Expressed Matrix from Normalized for genes in ____MM_TGF-BETA_SUPER_FAMILY_SIGNALING_PATHWAY_CANONICAL

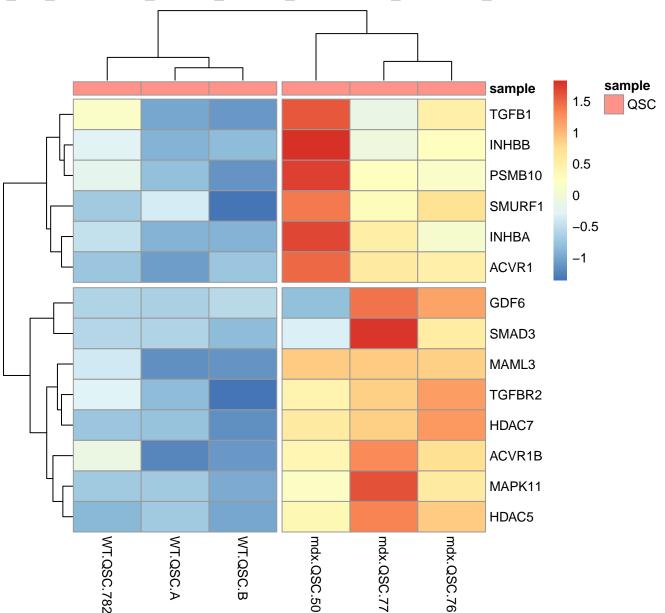


Expressed Matrix for genes active in H_MM_TGF-BETA_SUPER_FAMILY_SIGNALING_PATHWAY_CANONICAL

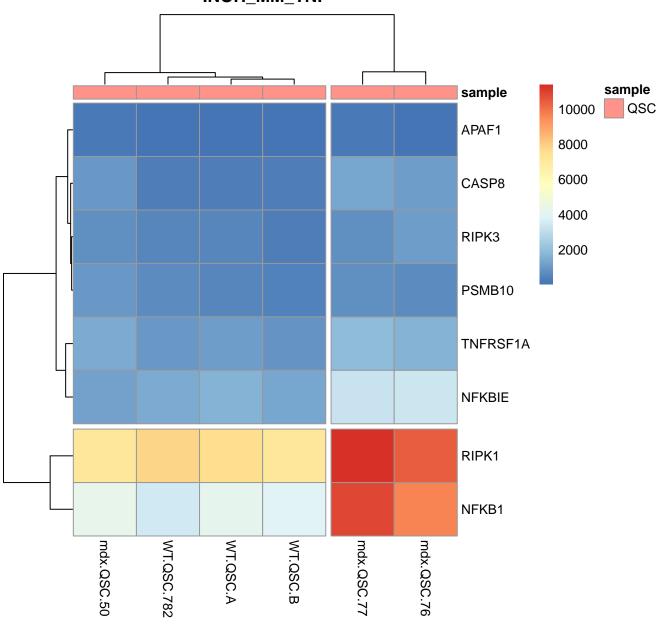


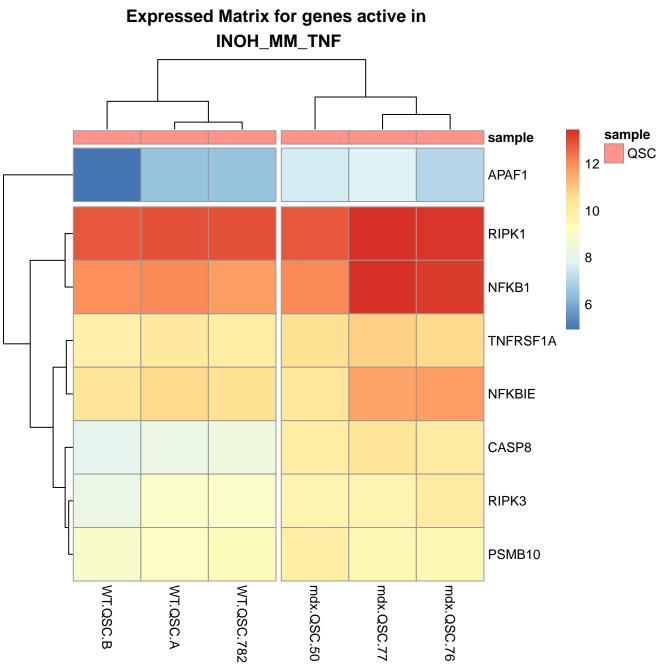
H_MM_TGF-BETA_SUPER_FAMILY_SIGNALING_PATHWAY_CANONICAL

Scalling expressed matrix for genes active in



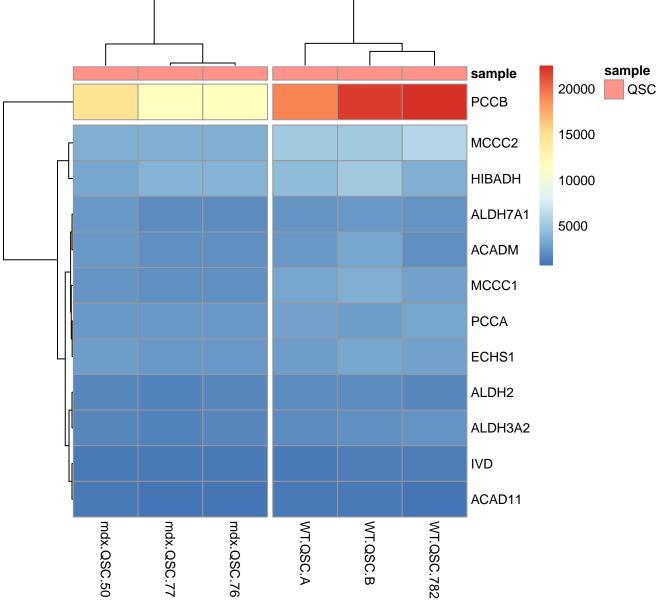
Expressed Matrix from Normalized for genes in INOH_MM_TNF



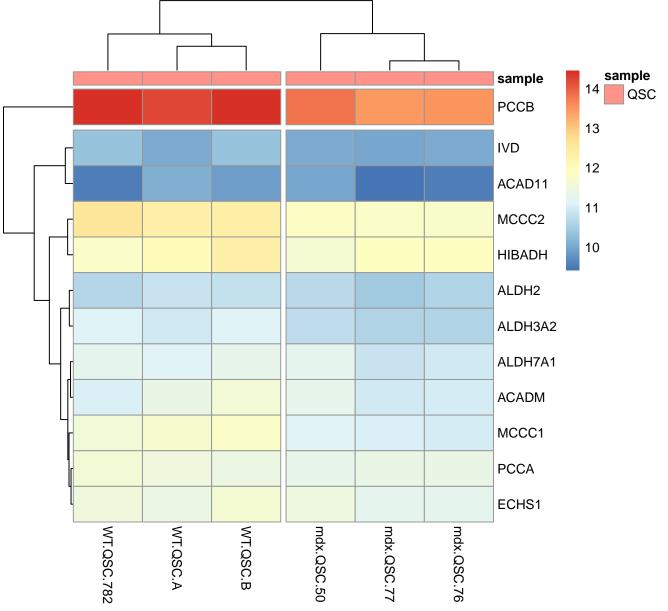


Scalling expressed matrix for genes active in INOH_MM_TNF sample sample 1.5 QSC RIPK3 1 0.5 **NFKBIE** 0 -0.5RIPK1 -1 NFKB1 PSMB10 APAF1 CASP8 TNFRSF1A WT.QSC.B WT.QSC.A mdx.QSC.50 mdx.QSC.77 mdx.QSC.76 WT.QSC.782

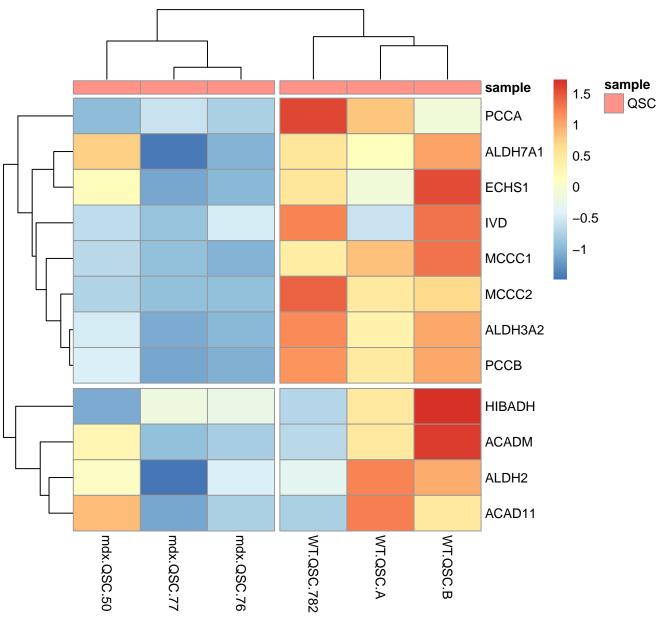
Expressed Matrix from Normalized for genes in INOH_MM_VALINE_LEUCINE_ISOLEUCINE_DEGRADATION



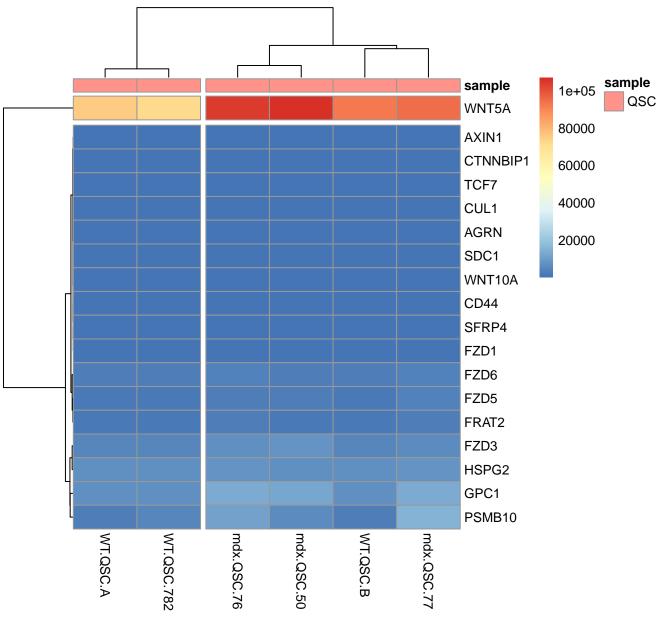
Expressed Matrix for genes active in INOH_MM_VALINE_LEUCINE_ISOLEUCINE_DEGRADATION



Scalling expressed matrix for genes active in INOH_MM_VALINE_LEUCINE_ISOLEUCINE_DEGRADATION



Expressed Matrix from Normalized for genes in INOH_MM_WNT_CANONICAL



Expressed Matrix for genes active in INOH_MM_WNT_CANONICAL 16 sample sample QSC AXIN1 14 CTNNBIP1 12 CUL₁ 10 SDC1 8 WNT10A 6 TCF7 4 **AGRN** CD44 2 SFRP4 FZD1 WNT5A PSMB10 GPC1 FZD3 HSPG2 FZD6 FZD5 FRAT2 mdx.QSC.50 mdx.QSC.76 mdx.QSC.77 WT.QSC.B WT.QSC.782

Scalling expressed matrix for genes active in INOH_MM_WNT_CANONICAL sample sample QSC 1.5 SDC1 TCF7 1 WNT10A 0.5 HSPG2 0 CD44 -0.5FZD5 **AGRN** -1 FZD6 PSMB10 CUL1 FRAT2 CTNNBIP1 SFRP4 FZD1 AXIN1 FZD3 GPC1 WNT5A WT.QSC.782 WT.QSC.B mdx.QSC.77 mdx.QSC.76 WT.QSC.A mdx.QSC.50