**Supplemental Table 4**: KEGG Pathway Enrichment Gene Sets

**Supplemental Table 4A.** Right Parotid KEGG Pathways

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **FDR and Gene Count Identifiera** | **KEGG Pathwayb** | **HAS IDc** | **Count in Networkd** | **Pathway**  **FDRe** | **Gene setf** | **Up/Down-Regulatedh** | **p-valuej** |
|  | **Proteasome** | hsa03050 | 5 / 43 | 1.80x10-3 | ***PSMA5\****  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6*** | Down  Down  Down  Down  Down | 1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9 |
|  | **Spinocerebellar Ataxia** | hsa05017 | 6 / 135 | 8.90x10-3 | ***PSMA5***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6***  *VDAC2* | Down  Down  Down  Down  Down  Up | 1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8 |
|  | **Complement and coagulation cascades** | hsa04610 | 4 / 82 | 4.06x10-2 | *CFB*  *C1R*  *SERPINB2*  *SERPINC1* | Up  Up  Down  Down | 2.47x10-8 2.47x10-8  1.66x10-9 1.66x10-9 |
|  | **Parkinson disease** | hsa05012 | 9 / 236 | 1.80x10-3 | *PARK7*  ***PSMA5***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6***  *TUBA4A*  *UQCRC1*  *VDAC2* | Down  Down  Down  Down  Down  Down  Up  Down  Up | 1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8  1.66x10-9  2.47x10-8 |
|  | **Prion disease** | hsa05020 | 9 / 263 | 1.80x10-3 | *PRNP*  ***PSMA5***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6***  *TUBA4A*  *UQCRC1*  *VDAC2* | Down  Down  Down  Down  Down  Down  Up  Down  Up | 1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8  1.66x10-9  2.47x10-8 |
|  | **Huntington disease** | hsa05016 | 8 / 295 | 1.42x10-2 | ***PSMA5***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6***  *TUBA4A*  *UQCRC1*  *VDAC2* | Down  Down  Down  Down  Down  Up  Down  Up | 1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8  1.66x10-9  2.47x10-8 |
|  | **Alzheimer disease** | hsa05010 | 8 / 354 | 3.59x10-2 | ***PSMA5***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6***  *TUBA4A*  *UQCRC1*  *VDAC2* | Down  Down  Down  Down  Down  Up  Down  Up | 1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8  1.66x10-9  2.47x10-8 |
|  | **Ribosome** | hsa03010 | 5 / 131 | 3.59x10-2 | *RPLP0*  *RPLP1*  *RPL31*  *RPSA*  *RPS25* | Up  Up  Up  Down  Down | 2.47x10-8  2.51x10-8  2.47x10-8  1.66x10-9  1.66x10-9 |
|  | **Phagosome** | hsa04145 | 5 / 141 | 4.06x10-2 | *C1R*  *HLA-A*  *HLA-C*  *SFTPA2*  *TUBA4A* | Up  Up  Down  Down  Up | 2.47x10-8  2.47x10-8  1.66x10-9  1.66x10-9  2.47x10-8 |
|  | **Amyotrophic lateral sclerosis** | hsa05014 | 8 / 350 | 3.59x10-2 | ***PSMA5***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6***  *TUBA4A*  *UQCRC1*  *VCP* | Down  Down  Down  Down  Down  Up  Down  Up | 1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8  1.66x10-9  2.47x10-8 |
|  | **Metabolic pathways** | hsa01100 | 17/1435 | 4.87x10-2 | *ALOX12B*  *ANPEP*  *DDOST*  *ENPP4*  *FASN*  *G6PD*  *GAA*  *GLO1*  *HADHB*  *HEXA*  *IDUA*  *NEU1*  *PGM2*  *PHGDH*  *PNP*  *SELENBP1*  *UQCRC1* | Down  Up  Down  Down  Up  Down  Down  Down  Down  Up  Up  Up  Down  Down  Up  Down  Down | 1.66x10-9  2.47x10-8  1.66x10-9  2.48x10-9  2.47x10-8  1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8  2.47x10-8  2.47x10-8  1.66x10-9  1.66x10-9  2.89x10-8  1.66x10-9  1.66x10-9 |

**Supplemental Table 4B.** KEGG Pathways from DEPs of Analytical Interest

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **FDR and Gene Count Identifiera** | **KEGG Pathwayb** | **HSA IDc** | **Count in Networkd** | **FDR**  **p-valuee** | **Gene setf** | **Salivary Gland/sg** | **Up/Down-Regulatedh** | **p-valuej** |
|  | **Proteasome** | hsa03050 | 6 / 43 | 9.36x10-6 | ***PSMA5\****  ***PSMA6***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6*** | RP  LP  RP;  SMSL  RP  RP  RP | Down  Down  Down;  Down  Down  Down  Down | 1.66x10-9  1.66x10-9  1.66x10-9  1.98x10-9  1.66x10-9  1.66x10-9  1.66x10-9 |
|  | **Spinocerebellar Ataxia** | hsa05017 | 7 / 135 | 2.40x10-4 | ***PSMA5***  ***PSMA6***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6***  *VDAC2* | RP  LP  RP;  SMSL  RP  RP  RP  RP;  SMSL | Down  Down  Down;  Down  Down  Down  Down  Up;  Down | 1.66x10-9  1.66x10-9  1.66x10-9  1.98x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8  1.98x10-9 |
|  | **Parkinson disease** | hsa05012 | 11 / 236 | 4.78x10-6 | *PARK7*  ***PSMA5***  ***PSMA6***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6***  *TUBA4A*  *TUBB2A*  *UQCRC1*  *VDAC2* | RP;  SMSL  RP  LP  RP;  SMSL  RP  RP  RP  RP  SMSL  RP  RP;  SMSL | Down;  Down  Down  Down  Down;  Down  Down  Down  Down  Up  Up  Down  Up;  Down | 1.66x10-9  1.98x10-9  1.66x10-9  1.66x10-9  1.66x10-9  1.98x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8  2.09x10-2  1.66x10-9  2.47x10-8  1.98x10-9 |
|  | **Prion disease** | hsa05020 | 11 / 263 | 6.93x10-6 | *PRNP*  ***PSMA5***  ***PSMA6***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6***  *TUBA4A*  *TUBB2A*  *UQCRC1*  *VDAC2* | RP  RP  LP  RP;  SMSL  RP  RP  RP  RP  SMSL  RP  RP;  SMSL | Down  Down  Down  Down;  Down  Down  Down  Down  Up  Up  Down  Up;  Down | 1.66x10-9  1.66x10-9  1.66x10-9  1.66x10-9  1.98x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8  2.09x10-2  1.66x10-9  2.47x10-8  1.98x10-9 |
|  | **Huntington disease** | hsa05016 | 10 / 295 | 9.52x10-5 | ***PSMA5***  ***PSMA6***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6***  *TUBA4A*  *TUBB2A*  *UQCRC1*  *VDAC2* | RP  LP  RP;  SMSL  RP  RP  RP  RP  SMSL  RP  RP;  SMSL | Down  Down  Down;  Down  Down  Down  Down  Up  Up  Down  Up;  Down | 1.66x10-9  1.66x10-9  1.66x10-9  1.98x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8  2.09x10-2  1.66x10-9  2.47x10-8  1.98x10-9 |
|  | **Amyotrophic lateral sclerosis** | hsa05014 | 10 / 350 | 2.80x10-4 | ***PSMA5***  ***PSMA6***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6***  *TUBA4A*  *TUBB2A*  *UQCRC1*  *VCP* | RP  LP  RP;  SMSL  RP  RP  RP  RP  SMSL  RP  LP;  RP  SMSL | Down  Down  Down;  Down  Down  Down  Down  Up  Up  Down  Up;  Up;  Down | 1.66x10-9  1.66x10-9  1.66x10-9  1.98x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8  2.09x10-2  1.66x10-9  2.89x10-8  2.47x10-8  1.98x10-9 |
|  | **Alzheimer disease** | hsa05010 | 10 / 354 | 2.80x10-4 | ***PSMA5***  ***PSMA6***  ***PSMA7***  ***PSMB1***  ***PSMB5***  ***PSMB6***  *TUBA4A*  *TUBB2A*  *UQCRC1*  *VDAC2* | RP  LP  RP;  SMSL  RP  RP  RP  RP  SMSL  RP  RP;  SMSL | Down  Down  Down;  Down  Down  Down  Down  Up  Up  Down  Up;  Down | 1.66x10-9  1.66x10-9  1.66x10-9  1.98x10-9  1.66x10-9  1.66x10-9  1.66x10-9  2.47x10-8  2.09x10-2  1.66x10-9  2.47x10-8  1.98x10-9 |
|  | **Metabolic pathways** | hsa01100 | 17 / 1435 | 9.50x10-3 | *ALOX12B*  *DDOST*  *FASN*  *GSTA1*  *HADHB*  *IDUA*  *GGCT*  *GLO1*  *GLUD2*  *GOT1*  *NEU1*  *PGM2*  *PHGDH*  *SELENBP1*  *TYMP*  *UGDH*  *UQCRC1* | RP;  SMSL  RP  RP  LP  RP  RP  LP  RP  SMSL  LP  RP  RP  RP  RP  LP  SMSL  RP | Down;  Down  Down  Up  Down  Down  Up  Up  Down  Down  Up  Up  Down  Down  Down  Up  Up  Down | 1.66x10-9  1.98x10-9  1.66x10-9  2.47x10-8  2.48x10-9  1.66x10-9  2.47x10-8  2.89x10-8  1.66x10-9  1.98x10-9  3.15x10-8  2.47x10-8  1.66x10-9  1.66x10-9  1.66x10-9  2.89x10-8  3.51x10-8  1.66x10-9 |

**Footnote.** KEGG enrichment gene sets for each pathway from differential expressed proteins (DEPs) in the **4A.** right parotid and all **4B.** DEPs of analytical interest from each salivary gland selected based on known involvement with either the oral cavity, neurological disorders, glyoxalase system, or oxidative stress.

**For Supplemental Table 4A and 4B:**

**a**Pathway FDR Identifier (light green colors for significant low FDR values compared to darker blue shading for high FDR values) and Gene Counts represented by the size of the circle

**b**KEGG Pathway

**c**HSA ID for KEGG Pathway

**d**Observed gene count in KEGG network

**e**Pathway FDR p-value (Benjamini – Hochberg corrected)

**f**Gene Set (Entrez gene name)

**g** Salivary glands: Left Parotid (LP), Right Parotid (RP), and Submandibular (SMSL)

**h**Upregulation or downregulation of gene in the right parotid or hLeft Parotid (LP), Right Parotid (RP), and Submandibular (SMSL)

**i**FDRp-value (Benjamini-Hochberg corrected)

\*Note: Proteasome Core Complex (PSM) proteins in common between neurodegenerative disease pathways are highlighted in **bold**