**Suppl Table 1. Proteins detected in mouse jejuna following exposure to TBI.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Protein | **TBI : NT** | **p-value** | **Control Studies Agree?** | **Appears in Drug Study?** | **Drug Restored?** |
|  14-3-3 protein zeta/delta  | -1.9 | 0.047 | Yes | Yes | Yes |
| -1.7 | 0.002 |
|  Actin, cytoplasmic 2  | -1.5 | 0.000 | Yes | Yes | Yes |
| -1.4 | 0.014 |
|  Annexin A2  | 1.6 | 0.003 | Yes | No |   |
| 1.3 | 0.012 |
|  Calcium-activated chloride channel regulator 1  | 1.9 | 0.001 | Yes | No |   |
| 1.9 | 0.000 |
|  Cofilin-1  | -2.6 | 0.005 | Yes | No |   |
| -2.5 | 0.007 |
|  Desmin  | 2.2 | 0.000 | Yes | Yes | Yes |
| 3.7 | 0.001 |
|  Dihydropyrimidinase-related protein 2  | 1.4 | 0.008 | Yes | Yes | Yes |
| 1.7 | 0.003 |
|  Cytochrome b5  | n/a | n/a | ND | Yes | Yes  |
| -1.3 | 0.082 |
|  Elongation factor 2  | 1.2 | 0.039 | Yes | Yes | Yes |
| 1.8 | 0.000 |
|  Ezrin  | 2.0 | 0.001 | Yes | Yes | Yes |
| 2.4 | 0.001 |
|  Fatty acid-binding protein, liver  | -6.4 | 0.013 | Yes | No |   |
| -2.0 | 0.002 |
|  Galectin-4  | -2.1 | 0.002 | Yes | Yes | Yes |
| -1.8 | 0.028 |
|  Gelsolin  | 1.3 | 0.002 | Yes | No |   |
| 2.1 | 0.002 |
|  Glutathione S-transferase Mu 1  | -1.5 | 0.019 | Yes | No |   |
| -1.7 | 0.043 |
|  Heat shock protein HSP 90-beta  | 1.3 | 0.044 | Yes | No |   |
| 1.8 | 0.000 |
|  Keratin, type II cytoskeletal 8  | 2.6 | 0.000 | Yes | No |   |
| 1.2 | 0.011 |
|  Leukocyte elastase inhibitor A  | 2.7 | 0.002 | Yes | No |   |
| 1.7 | 0.019 |
|  Peroxiredoxin-1  | -7.1 | 0.005 | Yes | Yes | Yes |
| -2.9 | 0.012 |
|  Phosphoglycerate mutase 1  | -2.4 | 0.002 | Yes | Yes | Yes  |
| -2.1 | 0.012 |
|  Plastin-1  | 1.5 | 0.005 | Yes | Yes | Yes |
| 1.9 | 0.001 |
|  Pyruvate kinase isozymes M1/M2  | 1.6 | 0.001 | No | No |   |
| -1.6 | 0.000 |
|  Retinol-binding protein 2  | -1.5 | 0.011 | Yes | No |   |
| -1.9 | 0.016 |
|  Serpin B6  | 1.6 | 0.001 | Yes | Yes | Yes |
| 1.9 | 0.001 |
|  Transitional endoplasmic reticulum ATPase  | 1.3 | 0.011 | Yes | No |   |
| 2.0 | 0.009 |
|  Vacuolar protein-sorting-associated protein 25  | -4.1 | 0.000 | Yes | Yes | Yes |
| -2.5 | 0.005 |
|  Villin-1  | 1.5 | 0.000 | Yes | No |   |
| 1.9 | 0.003 |

Notes: Average protein expression fold change ratio of irradiated to unirradiated mice. Control cohort of GT3 (n=6) expression ratio is followed by TS (n=3) in each column. Columns indicate whether protein was identified in the individual studies, and if so, whether the drug restored the heathy protein expression. NT = no treatment, ND = not detected

**Suppl Table 2. Jejuna proteins restored by TS treatment given before exposure to 11 Gy irradiation.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **UniProt ID** | **P value** | **TBI : NT** | **P value** | **TBI : GT3** |
|  **VILI\_MOUSE**  | 0.000 | 1.5 | 0.000 | 2.1 |
|  **EF2\_MOUSE**  | 0.001 | -1.7 | 0.005 | -1.3 |
|  **EZRI\_MOUSE**  | 0.001 | 2.0 | 0.000 | 2.4 |
|  **CLCA1\_MOUSE**  | 0.000 | 1.9 | 0.000 | 2.4 |
|  **PLSI\_MOUSE**  | 0.005 | 1.5 | 0.000 | 2.2 |
|  **TBB2C\_MOUSE**  | 0.005 | 1.5 | 0.003 | 1.7 |
|  **DESM\_MOUSE**  | 0.000 | 2.2 | 0.000 | 1.7 |
|  **EST5A\_MOUSE**  | 0.017 | -1.9 | 0.013 | -2.0 |
|  **PDIA3\_MOUSE**  | 0.020 | -2.0 | 0.015 | -2.0 |
|  **K2C8\_MOUSE**  | 0.002 | 1.6 | 0.000 | 2.9 |
|  **KPYM\_MOUSE**  | 0.000 | -1.6 | 0.002 | -1.5 |
|  **HS90A\_MOUSE**  | 0.005 | -1.8 | 0.000 | -2.1 |
|  **OAT\_MOUSE**  | 0.002 | -1.5 | 0.002 | -1.3 |
|  **SPB6\_MOUSE**  | 0.001 | 1.6 | 0.000 | 1.7 |
|  **ILEUA\_MOUSE**  | 0.002 | 2.7 | 0.000 | 3.8 |
|  **TALDO\_MOUSE**  | 0.010 | -3.2 | 0.006 | -3.8 |
|  **AK1CD\_MOUSE**  | 0.023 | -1.5 | 0.028 | -1.4 |
|  **HEM2\_MOUSE**  | 0.043 | -3.6 | 0.020 | -5.6 |
|  **GBLP\_MOUSE**  | 0.044 | -1.8 | 0.024 | -2.2 |
|  **1433Z\_MOUSE**  | 0.002 | -1.7 | 0.000 | -2.3 |
|  **K1C18\_MOUSE**  | 0.000 | 2.3 | 0.004 | 2.1 |
|  **PGAM1\_MOUSE**  | 0.006 | -2.4 | 0.001 | -3.0 |
|  **GSTM1\_MOUSE**  | 0.019 | -1.5 | 0.012 | -1.6 |
|  **K1C20\_MOUSE**  | 0.017 | 1.7 | 0.035 | 1.6 |
|  **K1C19\_MOUSE**  | 0.000 | 1.8 | 0.000 | 3.3 |
|  **ST1B1\_MOUSE**  | 0.018 | -2.1 | 0.006 | -2.4 |
|  **ASC\_MOUSE**  | 0.000 | 1.7 | 0.000 | 1.9 |
|  **PRDX1\_MOUSE**  | 0.005 | -7.1 | 0.001 | -14.4 |
|  **VPS25\_MOUSE**  | 0.000 | -4.1 | 0.000 | -5.3 |
|  **LEG4\_MOUSE**  | 0.002 | -2.1 | 0.001 | -2.3 |
|  **COF1\_MOUSE**  | 0.005 | -2.6 | 0.017 | -2.4 |
|  **RET2\_MOUSE**  | 0.011 | -1.5 | 0.006 | -1.7 |
|  **PPIA\_MOUSE**  | 0.007 | -1.6 | 0.012 | -1.6 |
|  **FABPL\_MOUSE**  | 0.002 | -2.0 | 0.002 | -1.9 |

**Suppl Table 3. IPA analysis of proteins with statistically significant fold change of 1.5 or greater with the same directionality from mice treated with TS before 11 Gy irradiation.**

|  |
| --- |
| **TS 11 Gy Jejuna, same directionality** |
| **Top Canonical Pathways** |
| Signaling by Rho Family GTPases |
| Glycolysis I |
| Xenobiotic Metabolism Signaling |
| 14-3-3-mediated Signaling |
| Retinol Biosynthesis |
| **Top Diseases and Bio Functions** |
| **Diseases and Disorders** | **Molecular and cellular functions** |
| Inflammatory Response | Cell Death and Survival |
| Cancer | Cell Morphology |
| Organismal Injury and Abnormalities | Cellular Assembly and Organization |
| Gastrointestinal Disease | Cellular compromise |
| Hepatic System Disease | Cellular Development |

**Suppl Table 4. Jejuna proteins restored by GT3 treatment given before exposure to 11 Gy irradiation.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **UniProt ID** | P value | TBI : NT | P value | TBI : GT3 |
|  **SPTN1\_MOUSE**  | 0.013 | 1.7 | 0.045 | 1.4 |
|  **VINC\_MOUSE**  | 0.002 | 1.8 | 0.049 | 1.4 |
|  **MYH11\_MOUSE**  | 0.000 | 2.2 | 0.008 | 2.0 |
|  **MVP\_MOUSE**  | 0.004 | 1.6 | 0.021 | 1.3 |
|  **VILI\_MOUSE**  | 0.003 | 1.9 | 0.015 | 1.3 |
|  **EF2\_MOUSE**  | 0.008 | 1.6 | 0.008 | 1.6 |
|  **FUBP2\_MOUSE**  | 0.007 | 1.6 | 0.047 | 1.3 |
|  **CLCA1\_MOUSE**  | 0.001 | 1.9 | 0.005 | 1.4 |
|  **GELS\_MOUSE**  | 0.002 | 2.1 | 0.012 | 1.7 |
|  **ADSV\_MOUSE**  | 0.001 | 1.8 | 0.013 | 1.4 |
|  **EZRI\_MOUSE**  | 0.001 | 2.4 | 0.001 | 1.9 |
|  **PLSI\_MOUSE**  | 0.001 | 1.9 | 0.011 | 1.6 |
|  **ALBU\_MOUSE**  | 0.036 | 1.5 | 0.004 | 1.8 |
|  **AMPM2\_MOUSE**  | 0.002 | 1.5 | 0.020 | 1.3 |
|  **DPYL2\_MOUSE**  | 0.003 | 1.7 | 0.003 | 1.7 |
|  **TCPG\_MOUSE**  | 0.001 | 1.5 | 0.008 | 1.4 |
|  **TBA1C\_MOUSE**  | 0.004 | 1.7 | 0.036 | 1.5 |
|  **DESM\_MOUSE**  | 0.001 | 3.7 | 0.006 | 2.7 |
|  **K2C8\_MOUSE**  | 0.000 | 2.6 | 0.012 | 1.6 |
|  **CNDP2\_MOUSE**  | 0.001 | 1.7 | 0.008 | 1.4 |
|  **LIPP\_MOUSE**  | 0.000 | -3.0 | 0.013 | -2.2 |
|  **ARP3\_MOUSE**  | 0.002 | 1.5 | 0.014 | 1.3 |
|  **ACTG\_MOUSE**  | 0.002 | 1.6 | 0.010 | 1.4 |
|  **SPB6\_MOUSE**  | 0.001 | 1.9 | 0.006 | 1.6 |
|  **ILEUA\_MOUSE**  | 0.019 | 1.7 | 0.026 | 1.5 |
|  **ARGI2\_MOUSE**  | 0.010 | -2.3 | 0.048 | -2.1 |
|  **KCRU\_MOUSE**  | 0.003 | -1.8 | 0.020 | -1.8 |
|  **TPM1\_MOUSE**  | 0.000 | 3.0 | 0.050 | 1.5 |
|  **PDIA1\_MOUSE**  | 0.006 | -2.1 | 0.024 | -2.0 |
|  **TPM2\_MOUSE**  | 0.002 | 1.9 | 0.022 | 1.7 |
|  **BPNT1\_MOUSE**  | 0.004 | -2.2 | 0.010 | -2.3 |
|  **CBPA1\_MOUSE**  | 0.000 | -5.2 | 0.040 | -2.5 |
|  **ANXA2\_MOUSE**  | 0.006 | -3.7 | 0.003 | -4.2 |
|  **PSA1\_MOUSE**  | 0.001 | -2.5 | 0.016 | -2.0 |
|  **CEL3B\_MOUSE**  | 0.003 | -4.2 | 0.025 | -2.7 |
|  **PGAM1\_MOUSE**  | 0.012 | -2.1 | 0.003 | -1.8 |
|  **CAH3\_MOUSE**  | 0.038 | -1.7 | 0.038 | -1.6 |
|  **1433Z\_MOUSE**  | 0.047 | -1.9 | 0.012 | -2.1 |
|  **CTRB1\_MOUSE**  | 0.001 | -8.6 | 0.011 | -6.7 |
|  **GDIR1\_MOUSE**  | 0.001 | -3.7 | 0.011 | -2.8 |
|  **CHP1\_MOUSE**  | 0.025 | -1.6 | 0.002 | -1.9 |
|  **GPX1\_MOUSE**  | 0.004 | -2.3 | 0.030 | -2.0 |
|  **CYB5B\_MOUSE**  | 0.000 | 1.7 | 0.006 | 1.5 |
|  **MYL9\_MOUSE**  | 0.001 | 2.6 | 0.034 | 1.9 |
|  **PRDX1\_MOUSE**  | 0.012 | -2.9 | 0.021 | -2.4 |
|  **VPS25\_MOUSE**  | 0.005 | -2.5 | 0.012 | -2.3 |
|  **MMP7\_MOUSE**  | 0.016 | -2.6 | 0.050 | -2.9 |
|  **MDHC\_MOUSE**  | 0.016 | -1.5 | 0.027 | -1.5 |
|  **LEG4\_MOUSE**  | 0.028 | -1.8 | 0.028 | -1.9 |
|  **IF5A1\_MOUSE**  | 0.018 | -2.4 | 0.029 | -2.2 |
|  **AP4A\_MOUSE**  | 0.001 | -2.4 | 0.006 | -2.4 |
|  **TBB2A\_MOUSE**  | 0.007 | -3.6 | 0.022 | -3.0 |

**Suppl Table 5. IPA analysis of proteins with statistically significant fold change of 1.5 or greater with the same directionality from mice treated with GT3 before 11 Gyirradiation.**

|  |
| --- |
| **GT3 11 Gy Jejuna, same directionality** |
| **Top Canonical Pathways** |
| Calcium Signaling |
| Actin Cytoskeleton Signaling |
| Epithelial Adherens Junction Signaling |
| RhoGDI Signaling |
| Agranulocyte Adhesion and Diapedesis |
| **Top Diseases and BioFunctions** |
| **Diseases and Disorders** | **Molecular and cellular functions** |
| Inflammatory Response | Cell Death and Survival |
| Dermatological Diseases and Conditions | Cellular Development |
| Hematological Disease | Cellular Growth and Proliferation |
| Metabolic Disease | Cell Signaling |
| Organismal Injury and Abnormalities | Post Translational Modification |