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|  **S6 Table. Non-substrates of rhCPD identified using HEK 293T peptides**  |
| **Precursor** | **Sequence** | **Z** | **T** |  **Obs M** |  **Theor M** | **ppm** | **Ratio rhCPD / No enzyme** |
| **100 nM** | **10 nM** | **1 nM** | **0.1 nM** |
| 40S Ribosomal protein S28 | Ac-MDTSRVQPIKLA | 2 | 1 |  1399.79 |  1399.749 |  30 | 0.82 | 1.08 | 1.00 | 0.97 |
| 40S Ribosomal protein S21 | KADGIVSKNF | 3 | 3 |  1077.59 |  1077.582 |  4 | 0.84 | 0.95 | 0.95 | 0.70 |
| 60S acidic ribosomal protein P2 polymorphism | DGKNIEDVIAQGIGKL | 3 | 3 |  1668.92 |  1668.905 |  10 | 0.84 | 0.89 | 0.92 | 0.74 |
| Heat shock 10kDa protein  | AAETVTKGGIMLPEKSQGKVLQA | 4 | 4 |  2355.32 |  2355.283 |  15 | 0.86 | 1.10 | 1.04 | 1.08 |
| Heat shock 10kDa protein  | GSGSKGKGGEIQPVSV | 3 | 3 |  1485.79 |  1485.779 |  7 | 0.91 | 0.98 | 0.94 | 0.91 |
| Superoxide dismutase 1 | KGDGPVQGIINF | 2 | 2 |  1243.67 |  1243.656 |  14 | 0.92 | 0.96 | 0.94 | 0.89 |
| Prefoldin subunit 1 | Ac-AAPVDLELKKAFTEL | 2 | 2 |  1685.96 |  1685.924 |  22 | 0.92 | 0.92 | 0.95 | 0.99 |
| Heterogeneous nuclear ribonucleoprotein D-like | KDAASVDKVLEL | 3 | 3 |  1286.72 |  1286.708 |  7 | 0.93 | 0.89 | 0.97 | 0.95 |
| Triosephosphate isomerase 1 | SLGELIGTLNA | 2 | 1 |  1086.62 |  1086.592 |  22 | 0.94 | 0.90 | 0.94 | 0.81 |
| Heat shock 10kDa protein 1  | LPLFDRVLVE | 2 | 1 |  1199.72 |  1199.691 |  25 | 0.94 | 1.04 | 1.00 | 1.13 |
| Triosephosphate isomerase 1 | LDPKIAVA | 2 | 2 |  825.50 |  825.496 |  3 | 0.94 | 1.06 | 0.94 | 0.94 |
| Ubiquitin-60S ribosomal protein L40 | IIEPSLRQL | 2 | 1 |  1067.66 |  1067.634 |  21 | 0.94 | 0.97 | 0.94 | 0.89 |
| 60S Ribosomal protein L31 | KNLQTVNVDEN | 2 | 2 |  1272.64  |  1272.631 |  8 | 0.94 | 1.00 | 0.94 | 0.94 |
| Elongation factor 1 beta | GFGDLKSPAGLQVL | 2 | 2 |  1400.79 |  1400.770 |  12 | 0.95 | 1.05 | 0.89 | 1.03 |
| Vimentin | LIKTVETRDGQVINETSQ | 3 | 2 |  2030.11 |  2030.064 |  23 | 0.95 | 1.10 | 0.95 | 0.90 |
| FK506 Binding Protein | VFDVELL | 2 | 1 |  833.47 |  833.453 |  21 | 0.95 | 0.95 | 0.95 | 0.92 |
| Nucleophosmin | ASIEKGGSLPKVEA | 2 | 3 |  1384.76 |  1384.756 |  0 | 0.97 | 0.97 | 0.91 | 0.86 |
| Cytochrome c oxidase subunit 5a  | GISTPEELGLDKV  | 2 | 2 |  1356.73 |  1356.714 |  14 | 0.97 | 1.06 | 0.95 | 0.95 |
| Peptidylprolyl isomerase A | ADKVPKTAENFRAL | 3 | 3 |  1558.86 |  1558.847 |  8 | 0.97 | 1.09 | 0.99 | 0.99 |
| Complement component 1 Q subcomponent-binding protein, mitocondrial | DRGVDNTFADELVELSTA | 2 | 1 |  1950.96 |  1950.917 |  20 | 0.98 | 1.07 | 1.07 | 0.86 |
| Heterogeneous nuclear ribonucleoprotein A/B isoform 1 | FGEFGEIEAIEL | 2 | 1 |  1352.69 |  1352.650 |  29 | 1.00 | 1.15 | 1.13 | 0.88 |
| Nucleophosmin | GGFEITPPVVL | 2 | 1 |  1127.65 |  1127.623 |  23 | 1.00 | 1.06 | 1.03 | 0.94 |
| Peptidylprolyl isomerase A | ELFADKVPKTA | 3 | 3 |  1217.67 |  1217.666 |  4 | 1.00 | 1.10 | 1.05 | 0.95 |
| Heat shock 10kDa protein  | TVVAVGSGSKGKGGEIQPV | 3 | 3 |  1768.99 |  1768.968 |  13 | 1.00 | 1.09 | 0.85 | 0.96 |
| FK506 Binding Protein | VFDVELLKLE | 2 | 2 |  1203.70 |  1203.675 |  17 | 1.00 | 0.97 | 0.97 | 0.96 |
| Peptidylprolyl isomerase A | ADKVPKTAENF | 3 | 3 |  1218.62 |  1218.624 |  -3 | 1.01 | 0.99 | 0.99 | 0.89 |
| Nucleophosmin | GGSLPKVEA | 2 | 2 |  856.47 |  856.465 |  9 | 1.03 | 1.11 | 0.97 | 0.87 |
| 40S Ribosomal protein S21 | AKADGIVSKNF | 2 | 3 |  1148.62 |  1148.619 |  -1 | 1.04 | 1.05 | 0.95 | 0.93 |
| 40S Ribosomal protein S21 | ADGIVSKNF | 2 | 2 |  949.49 |  949.487 |  8 | 1.04 | 1.04 | 1.00 | 0.96 |
| Elongation factor 1 beta | GFGDLKSPAGL | 2 | 2 |  1060.57 |  1060.555 |  11 | 1.04 | 1.10 | 1.00 | 1.12 |
| FK506 Binding Protein | GVQVETISPGDGRTFPKRGQ | 4 | 2 |  2128.16 |  2128.102 |  25 | 1.05 | 1.07 | 1.03 | 1.02 |
| Heterogeneous nuclear ribonucleoprotein D0 | FGGFGEVESIEL | 2 | 1 |  1282.64 |  1282.608 |  27 | 1.06 | 1.03 | 0.89 | 0.89 |
| RNA binding motif protein 3 | Ac-SSEEGKLFVGGLNF | 2 | 1 |  1524.78 |  1524.746 |  25 | 1.06 | 1.06 | 1.06 | 0.94 |
| Peptidylprolyl isomerase A | ELFADKVPKTAENFRAL | 4 | 3 |  1948.05 |  1948.042 |  5 | 1.06 | 1.09 | 1.06 | 1.12 |
| FK506 Binding Protein | VELLKLE | 2 | 2 |  842.52 |  842.511 |  6 | 1.06 | 1.04 | 1.00 | 1.00 |
| Eukaryotic translation initiation factor 4H | ATPLNQVANPNSAIFGGARPREEVVQKEQE | 4 | 2 |  3248.73 |  3248.654 |  24 | 1.07 | 1.13 | 1.00 | 0.93 |
| Protein DJ-1 (Parkinson disease protein 7) | APLVLKD | 2 | 2 |  754.46 |  754.459 |  -3 | 1.07 | 1.00 | 0.93 | 1.07 |
| 60S acidic ribosomal protein P2 | VGIEADDDRLNKV | 3 | 2 |  1442.76 |  1442.736 |  13 | 1.07 | 1.10 | 1.04 | 1.10 |
| Elongation factor 1 beta | GFGDLKSPAGLQV | 3 | 2 |  1287.70 |  1287.682 |  14 | 1.07 | 1.12 | 1.06 | 1.13 |
| Peptidylprolyl isomerase A | VNPTVFFDI | 2 | 1 |  1050.57 |  1050.539 |  26 | 1.08 | 1.06 | 1.00 | 1.00 |
| 40S Ribosomal protein S29 | AKDIGFIKLD | 3 | 3 |  1118.64 |  1118.634 |  3 | 1.08 | 1.06 | 1.00 | 1.00 |
| Protein SET (Phosphatase 2A inhibitor I2PP2A) - isoform 2 | Ac-SAPAAKVSKKEL | 2 | 3 |  1269.73 |  1269.729 |  3 | 1.09 | 1.13 | 1.06 | 1.15 |
| Heat shock 10kDa protein 1  | AVGSGSKGKGGEIQPVSV | 3 | 3 |  1655.89 |  1655.884 |  2 | 1.09 | 1.03 | 0.99 | 0.92 |
| Heterogeneous nuclear ribonucleoprotein D-like | ASVDKVLEL | 2 | 2 |  972.56 |  972.549 |  9 | 1.10 | 1.14 | 1.00 | 1.14 |
| Heat shock 10kDa protein  | VAVGSGSKGKGGEIQPVSV | 3 | 3 |  1754.97 |  1754.953 |  11 | 1.11 | 1.06 | 0.83 | 0.98 |
| Nucleophosmin | EKGGSLPKVEA | 3 | 3 |  1113.60 |  1113.603 |  -5 | 1.12 | 1.12 | 1.12 | 0.86 |
| Heat shock 10kDa protein 1  | TVVAVGSGSKGKGGEIQPVSV | 4 | 3 |  1955.07 |  1955.069 |  2 | 1.12 | 1.08 | 0.98 | 0.88 |
| Complement component 1 Q subcomponent-binding protein, mitocondrial | ADRGVDNTFADELVEL | 2 | 1 |  1762.88 |  1762.837 |  24 | 1.14 | 1.08 | 0.97 | 1.00 |
| Heat shock 10kDa protein 1  | VGSGSKGKGGEIQPVSV | 3 | 3 |  1584.85 |  1584.847  |  2 | 1.14 | 1.09 | 1.00 | 1.09 |
| Protein SET (Phosphatase 2A inhibitor I2PP2A) - isoform 1 | SELIAKI | 2 | 2 |  772.47 |  772.469 |  3 | 1.14 | 1.00 | 1.00 | 0.86 |
| 40S ribosomal protein S12 | Ac-AEEGIAAGGVMDVNTALQEVLKT | 3 | 1 |  2357.26 |  2357.178 |  35 | 1.15 | 1.13 | 1.15 | 1.06 |
| 40S Ribosomal protein S28 | Ac-MoxDTSRVQPIKL | 2 | 1 |  1344.74 |  1344.712 |  19 | 1.16 | 1.04 | 0.98 | 0.98 |
| See Table 2 for the abbreviation definitions.  |