

**Supplemental Table 1.** Contents of individual amino acids (as % of total PCA-soluble amino acids) on different days of the 7 d culture period in the control cells. N=12 from 4 experiments except for Gln, Ala, Asp and Ile where n=6 from two experiments.

Amino acid	0d/7d	1d	2d	3d	4d	5d	6d
<b>Ala</b>	38.44 ± 1.37	39.75 ± 1.64	36.63 ± 1.48	34.16 ± 1.31	33.76 ± 1.42	33.82 ± 1.41	36.83 ± 1.21
<b>Gln</b>	20.77 ± 0.84	8.75 ± 1.43	6.00 ± 0.80	3.96 ± 0.55	5.55 ± 0.40	6.72 ± 0.37	18.80 ± 0.84
<b>Leu</b>	10.35 ± 0.49	9.64 ± 0.54	8.14 ± 0.56	8.40 ± 0.78	11.22 ± 0.89	13.43 ± 0.88	11.58 ± 0.52
<b>Gly</b>	4.56 ± 0.39	4.28 ± 0.20	4.26 ± 0.18	4.86 ± 0.24	5.43 ± 0.34	5.99 ± 0.31	4.80 ± 0.29
<b>Ser</b>	4.25 ± 0.22	4.76 ± 0.18	5.03 ± 0.20	4.92 ± 0.20	4.70 ± 0.19	4.60 ± 0.16	4.14 ± 0.13
<b>Phe</b>	2.58 ± 0.14	1.60 ± 0.11	1.32 ± 0.07	1.48 ± 0.13	2.22 ± 0.18	3.01 ± 0.20	2.81 ± 0.13
<b>Thr</b>	2.52 ± 0.33	3.37 ± 0.21	4.44 ± 0.11	4.89 ± 0.33	4.37 ± 0.17	3.74 ± 0.21	2.34 ± 0.11
<b>His</b>	2.51 ± 0.39	4.50 ± 0.66	7.57 ± 1.09	6.83 ± 0.95	5.34 ± 0.76	4.47 ± 0.64	2.93 ± 0.47
<b>Val</b>	2.38 ± 0.10	2.70 ± 0.04	2.76 ± 0.05	3.29 ± 0.08	3.50 ± 0.13	3.58 ± 0.09	2.66 ± 0.10
<b>Gaba</b>	2.34 ± 0.32	7.02 ± 0.76	6.54 ± 0.71	8.66 ± 0.44	5.86 ± 0.33	4.80 ± 0.28	2.14 ± 0.21
<b>Glu</b>	1.97 ± 0.14	3.36 ± 0.25	3.55 ± 0.25	3.23 ± 0.37	3.14 ± 0.32	2.46 ± 0.35	2.24 ± 0.16
<b>Pro</b>	1.96 ± 0.05	2.82 ± 0.11	3.99 ± 0.11	4.98 ± 0.09	4.89 ± 0.09	4.28 ± 0.09	2.50 ± 0.13
<b>Trp</b>	1.63 ± 0.15	1.92 ± 0.32	2.43 ± 0.50	2.68 ± 0.65	2.45 ± 0.53	2.16 ± 0.40	1.49 ± 0.18
<b>Asp</b>	1.60 ± 0.13	3.45 ± 0.19	3.98 ± 0.54	3.19 ± 0.34	3.16 ± 0.27	2.55 ± 0.20	1.83 ± 0.12
<b>Arg</b>	1.32 ± 0.14	1.52 ± 0.20	2.38 ± 0.23	3.00 ± 0.24	2.79 ± 0.19	2.45 ± 0.18	1.60 ± 0.15
<b>Ile</b>	0.38 ± 0.03	0.36 ± 0.02	0.37 ± 0.02	0.50 ± 0.02	0.62 ± 0.03	0.69 ± 0.03	0.50 ± 0.03
<b>Lys</b>	0.35 ± 0.05	0.19 ± 0.03	0.38 ± 0.02	0.71 ± 0.04	0.70 ± 0.02	0.86 ± 0.02	0.50 ± 0.03
<b>Met</b>	0.21 ± 0.02	0.27 ± 0.05	0.15 ± 0.02	0.12 ± 0.02	0.13 ± 0.02	0.18 ± 0.00	0.19 ± 0.02
<b>Cys</b>	0.08 ± 0.01	0.04 ± 0.01	0.07 ± 0.02	0.12 ± 0.03	0.15 ± 0.04	0.19 ± 0.05	0.11 ± 0.03
<b>Orn</b>	0.01 ± 0.00	0.01 ± 0.00	0.01 ± 0.00	0.02 ± 0.00	0.03 ± 0.01	0.03 ± 0.01	0.02 ± 0.00

**Supplemental Table 2.** Contents of individual amino acids (as % of total PCA-soluble amino acids) on different days of the 7 d culture period in the HP cells. N=12 from 4 experiments except for Gln, Ala, Asp and Ile where n=6 from two experiments.

Amino acid	0d/7d	1d	2d	3d	4d	5d	6d
Ala	63.0 ± 2.38	55.51 ± 2.86	56.75 ± 3.13	59.49 ± 2.18	60.84 ± 1.19	61.67 ± 0.97	60.20 ± 1.48
Gln	2.23 ± 0.42	1.81 ± 0.46	1.89 ± 0.58	1.24 ± 0.51	2.11 ± 0.61	1.70 ± 0.59	2.48 ± 0.29
Leu	4.45 ± 0.25	3.85 ± 0.26	3.11 ± 0.46	3.12 ± 0.37	3.01 ± 0.33	3.64 ± 0.26	4.50 ± 0.14
Gly	4.78 ± 0.38	4.15 ± 0.20	3.48 ± 0.25	3.78 ± 0.34	4.26 ± 0.32	4.60 ± 0.16	5.15 ± 0.23
Ser	4.48 ± 0.33	4.74 ± 0.29	4.20 ± 0.42	4.06 ± 0.60	3.62 ± 0.64	4.06 ± 0.43	4.84 ± 0.25
Phe	2.04 ± 0.50	0.83 ± 0.16	0.44 ± 0.04	0.69 ± 0.05	0.79 ± 0.09	1.12 ± 0.17	1.67 ± 0.37
Thr	2.69 ± 0.25	5.32 ± 1.14	6.68 ± 1.63	5.50 ± 1.11	4.43 ± 0.63	3.41 ± 0.39	2.97 ± 0.30
His	1.44 ± 0.41	3.46 ± 0.91	4.88 ± 1.50	3.18 ± 0.89	3.08 ± 0.84	2.63 ± 0.68	2.22 ± 0.57
Val	3.14 ± 0.36	3.33 ± 0.46	2.34 ± 0.26	2.40 ± 0.17	2.59 ± 0.18	3.06 ± 0.25	3.23 ± 0.33
Gaba	3.70 ± 0.26	6.59 ± 0.56	7.37 ± 0.67	7.99 ± 0.67	6.80 ± 0.43	5.54 ± 0.18	4.07 ± 0.15
Glu	1.06 ± 0.18	1.84 ± 0.20	1.38 ± 0.07	1.00 ± 0.10	1.17 ± 0.11	1.27 ± 0.21	1.25 ± 0.16
Pro	3.18 ± 0.17	3.51 ± 0.28	3.80 ± 0.30	4.30 ± 0.22	4.12 ± 0.15	4.00 ± 0.12	3.57 ± 0.19
Trp	1.23 ± 0.07	0.79 ± 0.16	0.85 ± 0.21	0.97 ± 0.26	0.81 ± 0.25	0.81 ± 0.26	1.08 ± 0.12
Asp	0.63 ± 0.21	2.29 ± 0.18	0.92 ± 0.20	0.09 ± 0.04	0.07 ± 0.04	0.16 ± 0.05	0.59 ± 0.07
Arg	0.78 ± 0.16	1.08 ± 0.24	1.66 ± 0.14	1.55 ± 0.19	1.41 ± 0.21	1.21 ± 0.21	1.02 ± 0.22
Ile	0.79 ± 0.09	0.81 ± 0.05	0.59 ± 0.04	0.49 ± 0.06	0.42 ± 0.02	0.55 ± 0.03	0.79 ± 0.04
Lys	0.23 ± 0.05	0.09 ± 0.02	0.30 ± 0.05	0.40 ± 0.04	0.41 ± 0.03	0.36 ± 0.01	0.25 ± 0.03
Met	0.04 ± 0.02	0.04 ± 0.01	0.03 ± 0.01	0.06 ± 0.02	0.05 ± 0.02	0.06 ± 0.02	0.06 ± 0.02
Cys	0.13 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.05 ± 0.01	0.09 ± 0.01	0.14 ± 0.01	0.14 ± 0.02
Orn	0.02 ± 0.01	0.00 ± 0.00	0.01 ± 0.00	0.01 ± 0.01	0.01 ± 0.01	0.01 ± 0.00	0.01 ± 0.00