Full Run 1- Age Regression

Pathway Name	Match Status	p	-log(p)	Holm p	FDR	Impact
Porphyrin and chlorophyll metabolism	8/27	2.1807E-7	15.338	1.5701E-5	1.5701E-5	0.29701
Taurine and hypotaurine metabolism	5/8	1.745E-6	13.259	1.2389E-4	6.2819E-5	0.99999
Drug metabolism - other enzymes	6/30	3.0013E-5	10.414	0.0021009	6.347E-4	0.14815
Citrate cycle (TCA cycle)	11/20	3.5261E-5	10.253	0.002433	6.347E-4	0.52411
Butanoate metabolism	12/22	4.5638E-5	9.9948	0.0031034	6.5719E-4	0.17392
Glyoxylate and dicarboxylate metabolism	10/18	7.582E-5	9.4872	0.0050799	9.0984E-4	0.58064
Pyrimidine metabolism	21/41	1.7284E-4	8.6631	0.011407	0.0015111	0.64309
Pyruvate metabolism	9/23	1.9779E-4	8.5283	0.012857	0.0015111	0.45792
Sphingolipid metabolism	6/21	2.0143E-4	8.5101	0.012891	0.0015111	0.43108
D-Glutamine and D-glutamate metabolism	5/5	2.0988E-4	8.469	0.013222	0.0015111	1.0
Purine metabolism	37/68	2.7107E-4	8.2131	0.016806	0.0017743	0.76648
Alanine, aspartate and glutamate metabolism	14/24	4.0487E-4	7.8119	0.024697	0.0022712	0.84598
Primary bile acid biosynthesis	28/46	4.1008E-4	7.7991	0.024697	0.0022712	0.33532
Glutathione metabolism	6/26	6.1633E-4	7.3917	0.036363	0.0031697	0.47328
Nitrogen metabolism	5/9	8.1624E-4	7.1108	0.047342	0.003918	0.0
beta-Alanine metabolism	8/17	0.0011935	6.7309	0.068027	0.0053706	0.79629
Steroid hormone biosynthesis	32/72	0.0014634	6.527	0.081948	0.0061977	0.30607
Histidine metabolism	9/15	0.0017148	6.3684	0.094315	0.0062754	0.46775
Synthesis and degradation of ketone bodies	2/5	0.0017504	6.3479	0.09452	0.0062754	0.6
Tryptophan metabolism	9/40	0.0018041	6.3177	0.095615	0.0062754	0.59635
Arginine and proline metabolism	20/44	0.0018303	6.3033	0.095615	0.0062754	0.50347
Phenylalanine, tyrosine and tryptophan biosynthesis	3/4	0.0019261	6.2523	0.098232	0.0063036	1.0
Glycine, serine and threonine metabolism	16/31	0.0024309	6.0195	0.12154	0.0076098	0.74853
Glycerophospholipid metabolism	11/30	0.0026672	5.9267	0.13069	0.0080017	0.67254
Phenylalanine metabolism	6/11	0.0027818	5.8847	0.13352	0.0080115	0.53704
Glycolysis or Gluconeogenesis	14/26	0.0034894	5.658	0.164	0.0096631	0.63724
Metabolism of xenobiotics by cytochrome P450	3/39	0.0040465	5.5099	0.18614	0.010791	0.0
Valine, leucine and isoleucine degradation	11/38	0.0047414	5.3514	0.21336	0.011956	0.11705
Tyrosine metabolism	14/44	0.0048975	5.319	0.21549	0.011956	0.49607
Ubiquinone and other terpenoid-quinone biosynthesis	2/3	0.0049816	5.302	0.21549	0.011956	1.0
Propanoate metabolism	8/20	0.007094	4.9485	0.29795	0.016476	0.0
Pantothenate and CoA biosynthesis	10/15	0.0079674	4.8324	0.32667	0.017927	0.61225
Aminoacyl-tRNA biosynthesis	18/69	0.0099983	4.6053	0.39993	0.021814	0.12903
Pentose and glucuronate interconversions	13/16	0.010403	4.5657	0.40572	0.02203	0.86667
Amino sugar and nucleotide sugar metabolism	25/37	0.010742	4.5336	0.40821	0.022099	0.72244
Terpenoid backbone biosynthesis	1/15	0.012701	4.3661	0.46995	0.025403	0.18817
Nicotinate and nicotinamide metabolism	3/13	0.013673	4.2923	0.49223	0.026607	0.44643
Cysteine and methionine metabolism	10/27	0.01529	4.1806	0.53515	0.028971	0.3854
Linoleic acid metabolism	4/6	0.018287	4.0016	0.62176	0.033761	1.0
Valine, leucine and isoleucine biosynthesis	7/11	0.023354	3.757	0.77069	0.042038	0.99999

Full Run 1 – Diet

Pathway Name	Match Status	p	-log(p)	Holm p	FDR	Impact
Pyrimidine metabolism	21/41	6.4775E-134	306.68	4.6638E-132	4.6638E-132	0.64309
Arachidonic acid metabolism	33/36	5.7657E-65	147.92	4.0936E-63	2.0756E-63	0.97927
Glycerophospholipid metabolism	11/30	2.5948E-44	100.36	1.8164E-42	6.2275E-43	0.67254
Alanine, aspartate and glutamate metabolism	14/24	1.1954E-36	82.715	8.2482E-35	2.1516E-35	0.84598
Taurine and hypotaurine metabolism	5/8	4.0960E-29	65.365	2.7853E-27	5.8984E-28	0.99999
Citrate cycle (TCA cycle)	11/20	6.4445E-29	64.912	4.3178E-27	7.7334E-28	0.52411
Steroid hormone biosynthesis	32/72	1.6476E-28	63.973	1.0875E-26	1.6947E-27	0.30607
Drug metabolism - other enzymes	6/30	5.0994E-28	62.843	3.3147E-26	4.5896E-27	0.14815
Linoleic acid metabolism	4/6	1.1105E-26	59.762	7.1069E-25	8.8836E-26	1.0
Retinol metabolism	13/16	2.9041E-24	54.196	1.8295E-22	2.091E-23	1.0
Lysine degradation	6/23	6.0631E-22	48.855	3.7592E-20	3.9686E-21	0.10295
Butanoate metabolism	12/22	6.6225E-21	46.464	4.0397E-19	3.9735E-20	0.17392
Glyoxylate and dicarboxylate metabolism	10/18	1.9247E-16	36.187	1.1548E-14	1.066E-15	0.58064
Synthesis and degradation of ketone bodies	2/5	2.4009E-16	35.965	1.4166E-14	1.2348E-15	0.6
N-Glycan biosynthesis	3/36	4.8088E-16	35.271	2.7891E-14	2.3082E-15	0.01801
Arginine and proline metabolism	20/44	2.2677E-14	31.417	1.2926E-12	9.6582E-14	0.50347
Tyrosine metabolism	14/44	2.2804E-14	31.412	1.2926E-12	9.6582E-14	0.49607
Ascorbate and aldarate metabolism	7/9	5.9687E-14	30.45	3.2828E-12	2.3875E-13	0.8
Propanoate metabolism	8/20	6.6643E-14	30.339	3.5987E-12	2.5254E-13	0.0
Histidine metabolism	9/15	1.928E-13	29.277	1.0218E-11	6.9408E-13	0.46775
D-Glutamine and D-glutamate metabolism	5/5	2.09E-13	29.196	1.0868E-11	7.1656E-13	1.0
Pyruvate metabolism	9/23	7.488E-12	25.618	3.8189E-10	2.4506E-11	0.45792
alpha-Linolenic acid metabolism	3/9	3.9471E-11	23.955	1.9736E-9	1.2356E-10	1.0
beta-Alanine metabolism	8/17	1.6837E-10	22.505	8.2503E-9	5.0512E-10	0.79629
Steroid biosynthesis	7/35	4.1894E-10	21.593	2.0109E-8	1.2065E-9	0.13485
Tryptophan metabolism	9/40	8.2033E-10	20.921	3.8556E-8	2.2717E-9	0.59635
Pentose and glucuronate interconversions	13/16	3.4626E-9	19.481	1.5928E-7	9.2336E-9	0.86667
Lysine biosynthesis	4/4	7.2068E-9	18.748	3.2431E-7	1.8057E-8	0.0
Cysteine and methionine metabolism	10/27	7.2729E-9	18.739	3.2431E-7	1.8057E-8	0.3854
Biosynthesis of unsaturated fatty acids	8/42	9.0115E-9	18.525	3.8749E-7	2.1628E-8	0.0
Glycine, serine and threonine metabolism	16/31	6.4192E-8	16.561	2.6961E-6	1.4909E-7	0.74853
Riboflavin metabolism	2/11	1.3372E-7	15.828	5.4826E-6	3.0087E-7	0.16667
Sphingolipid metabolism	6/21	1.6323E-7	15.628	6.529E-6	3.5613E-7	0.43108
Amino sugar and nucleotide sugar metabolism	25/37	1.9345E-7	15.458	7.5447E-6	4.0967E-7	0.72244
Nitrogen metabolism	5/9	3.1979E-7	14.956	1.2152E-5	6.5785E-7	0.0
Valine, leucine and isoleucine degradation	11/38	1.2273E-6	13.611	4.5408E-5	2.4545E-6	0.11705
Fatty acid metabolism	1/39	8.8567E-6	11.634	3.1884E-4	1.7235E-5	0.0
Porphyrin and chlorophyll metabolism	8/27	1.0812E-5	11.435	3.7842E-4	2.0486E-5	0.29701
Fructose and mannose metabolism	12/21	1.1137E-5	11.405	3.7866E-4	2.0561E-5	0.7061
Primary bile acid biosynthesis	28/46	1.4844E-5	11.118	4.8984E-4	2.6719E-5	0.33532

Full Run 2 – Age

Pathway Name	Match Status	p	-log(p)	Holm p	FDR	Impact
GPI-anchor biosynthesis	2/14	1.8465E-7	15.505	1.3849E-5	1.3849E-5	0.0439
Inositol phosphate metabolism	18/28	6.859E-7	14.193	5.0756E-5	1.863E-5	0.71953
Terpenoid backbone biosynthesis	8/15	7.4518E-7	14.11	5.4398E-5	1.863E-5	0.72311
N-Glycan biosynthesis	3/36	1.2773E-6	13.571	9.1968E-5	2.395E-5	0.0924
Drug metabolism - other enzymes	17/30	2.8666E-6	12.762	2.0353E-4	4.2999E-5	0.48678
Pentose phosphate pathway	15/19	4.4171E-6	12.33	3.092E-4	5.5214E-5	0.59835
Glycolysis or Gluconeogenesis	17/26	5.9932E-6	12.025	4.1353E-4	6.4213E-5	0.74839
Fructose and mannose metabolism	14/21	1.1056E-5	11.413	7.518E-4	1.0365E-4	0.74861
Valine, leucine and isoleucine degradation	18/38	1.562E-5	11.067	0.0010465	1.3017E-4	0.42917
Cysteine and methionine metabolism	19/27	3.5382E-5	10.249	0.0023352	2.4098E-4	0.63993
Amino sugar and nucleotide sugar metabolism	29/37	3.9914E-5	10.129	0.0025944	2.4098E-4	0.73794
Pyruvate metabolism	12/23	4.0889E-5	10.105	0.0026169	2.4098E-4	0.6725
Glycerolipid metabolism	8/18	4.177E-5	10.083	0.0026315	2.4098E-4	0.53753
Synthesis and degradation of ketone bodies	3/5	5.7156E-5	9.7697	0.0035437	3.0619E-4	0.6
Vitamin B6 metabolism	8/9	9.5258E-5	9.2589	0.0058107	4.7629E-4	1.0
Tryptophan metabolism	30/40	1.2187E-4	9.0126	0.0073122	5.7126E-4	0.93713
Lysine degradation	11/23	1.3924E-4	8.8793	0.0082151	5.7969E-4	0.29413
Sphingolipid metabolism	14/21	1.4637E-4	8.8293	0.0084897	5.7969E-4	0.82708
Galactose metabolism	23/26	1.4685E-4	8.8261	0.0084897	5.7969E-4	0.94322
Histidine metabolism	12/15	2.3382E-4	8.3609	0.013094	8.1756E-4	0.61291
beta-Alanine metabolism	9/17	2.3829E-4	8.342	0.013106	8.1756E-4	0.79629
Glyoxylate and dicarboxylate metabolism	15/18	2.3982E-4	8.3356	0.013106	8.1756E-4	0.67742
Starch and sucrose metabolism	16/19	3.1076E-4	8.0765	0.016471	9.5284E-4	0.78464
Biotin metabolism	3/5	3.3078E-4	8.0141	0.0172	9.5284E-4	0.7
Valine, leucine and isoleucine biosynthesis	6/11	3.332E-4	8.0068	0.0172	9.5284E-4	0.99999
Purine metabolism	47/68	3.528E-4	7.9496	0.01764	9.5284E-4	0.81356
Drug metabolism - cytochrome P450	29/56	3.5481E-4	7.9439	0.01764	9.5284E-4	0.52144
Glycine, serine and threonine metabolism	20/31	3.5573E-4	7.9413	0.01764	9.5284E-4	0.85531
Pyrimidine metabolism	33/41	4.4007E-4	7.7286	0.020683	0.0011381	0.93805
Tyrosine metabolism	30/44	5.3169E-4	7.5395	0.024458	0.0012885	0.81085
Glutathione metabolism	13/26	5.3257E-4	7.5378	0.024458	0.0012885	0.68128
Propanoate metabolism	9/20	6.7815E-4	7.2961	0.029839	0.0015382	0.00862
Nicotinate and nicotinamide metabolism	11/13	6.8625E-4	7.2843	0.029839	0.0015382	0.79168
Ubiquinone and other terpenoid-quinone biosynthesis	2/3	6.9733E-4	7.2683	0.029839	0.0015382	1.0
Selenoamino acid metabolism	9/15	7.2642E-4	7.2274	0.029839	0.0015472	0.74312
Limonene and pinene degradation	2/8	7.4265E-4	7.2053	0.029839	0.0015472	0.0
Alanine, aspartate and glutamate metabolism	19/24	8.4061E-4	7.0814	0.032784	0.0017039	0.89028
Nitrogen metabolism	6/9	9.2074E-4	6.9903	0.034988	0.0018173	0.0
Fatty acid elongation in mitochondria	6/27	9.866E-4	6.9212	0.036504	0.0018973	0.33809
Cyanoamino acid metabolism	5/6	0.0011071	6.806	0.039857	0.0020759	0.0

Full Run 2 – Diet

Pathway Name	Match	p	-log(p)	Holm p	FDR	Impact
Pyrimidine metabolism	29/41	1.2428E-65	149.45	9.3219E-64	9.321E-64	0.90609
Biotin metabolism	2/5	3.1362E-59	134.71	2.3208E-57	1.176E-57	0.4
Drug metabolism - other enzymes	11/30	7.9414E-47	106.15	5.7972E-45	1.985E-45	0.3598
Glycerophospholipid metabolism	16/30	4.931E-42	95.113	3.5503E-40	9.245E-41	0.72038
Cyanoamino acid metabolism	5/6	1.0407E-20	46.012	7.3893E-19	1.561E-19	0.0
Citrate cycle (TCA cycle)	13/20	1.4148E-20	45.705	9.9039E-19	1.768E-19	0.62406
Alanine, aspartate and glutamate metabolism	17/24	7.5775E-20	44.027	5.2285E-18	8.118E-19	0.89028
Steroid biosynthesis	3/35	2.3150E-19	42.91	1.5742E-17	2.170E-18	0.04149
Butanoate metabolism	12/22	1.4436E-17	38.777	9.672E-16	1.203E-16	0.15943
Porphyrin and chlorophyll metabolism	7/27	6.8479E-14	30.312	4.5196E-12	5.135E-13	0.25681
Propanoate metabolism	9/20	8.2667E-12	25.519	5.3734E-10	5.636E-11	0.00862
Cysteine and methionine metabolism	17/27	3.7825E-11	23.998	2.4208E-9	2.364E-10	0.63993
Pyruvate metabolism	11/23	8.0716E-11	23.24	5.0851E-9	4.656E-10	0.6725
beta-Alanine metabolism	9/17	1.0597E-9	20.665	6.5701E-8	5.677E-9	0.79629
Taurine and hypotaurine metabolism	6/8	2.3689E-9	19.861	1.445E-7	1.1844E-8	0.99999
D-Glutamine and D-glutamate metabolism	5/5	1.6267E-8	17.934	9.7602E-7	7.6252E-8	1.0
Glyoxylate and dicarboxylate metabolism	14/18	2.2491E-8	17.61	1.327E-6	9.9226E-8	0.67742
Arginine and proline metabolism	30/44	3.6782E-8	17.118	2.1333E-6	1.4921E-7	0.66866
Pentose and glucuronate interconversions	14/16	3.7801E-8	17.091	2.1547E-6	1.4921E-7	0.73333
Nitrogen metabolism	5/9	4.2567E-8	16.972	2.3837E-6	1.5963E-7	0.0
Sphingolipid metabolism	6/21	6.2538E-8	16.587	3.4396E-6	2.2335E-7	0.49123
Drug metabolism - cytochrome P450	21/56	1.0341E-7	16.085	5.5843E-6	3.5255E-7	0.42144
Selenoamino acid metabolism	7/15	1.2038E-7	15.933	6.3799E-6	3.9253E-7	0.55046
Methane metabolism	4/9	1.9166E-7	15.468	9.9661E-6	5.9892E-7	0.4
Biosynthesis of unsaturated fatty acids	10/42	2.4266E-7	15.232	1.2375E-5	7.2797E-7	0.0
Histidine metabolism	11/15	4.1432E-7	14.697	2.0716E-5	1.1952E-6	0.61291
Fatty acid biosynthesis	6/43	4.7217E-7	14.566	2.3137E-5	1.3116E-6	0.02598
Purine metabolism	44/68	5.4531E-7	14.422	2.6175E-5	1.4607E-6	0.786
Fructose and mannose metabolism	14/21	6.1089E-7	14.308	2.8712E-5	1.5799E-6	0.74861
Lysine degradation	9/23	7.3856E-7	14.119	3.3974E-5	1.8464E-6	0.10295
Retinol metabolism	4/16	1.8995E-6	13.174	8.5477E-5	4.5955E-6	0.52096
Pentose phosphate pathway	13/19	2.2625E-6	12.999	9.9552E-5	5.3028E-6	0.53153
Glycine, serine and threonine metabolism	19/31	2.5021E-6	12.898	1.0759E-4	5.6867E-6	0.80883
Synthesis and degradation of ketone bodies	3/5	3.0321E-6	12.706	1.2735E-4	6.6884E-6	0.6
Ubiquinone and other terpenoid-quinone biosynthesis	1/3	4.5251E-6	12.306	1.8553E-4	9.6966E-6	0.0
Tryptophan metabolism	22/40	8.0554E-6	11.729	3.2222E-4	1.6782E-5	0.68088
Glutathione metabolism	9/26	8.6943E-6	11.653	3.3908E-4	1.7624E-5	0.67079
Glycolysis or Gluconeogenesis	16/26	1.3438E-5	11.217	5.1064E-4	2.6522E-5	0.6445
Amino sugar and nucleotide sugar metabolism	28/37	1.5671E-5	11.064	5.7983E-4	3.0136E-5	0.72038
Valine, leucine and isoleucine degradation	15/38	1.9582E-5	10.841	7.0497E-4	3.6717E-5	0.27135