

**Suppl. Table 1:** Genes from the Ca-depleted diet group involved in MAPK and TGF-beta signaling

pathway in adipose tissue (step-up FDR-corrected  $p \leq 0.05$ )

<b>Ca-depleted vs. BR (FDR corrected genes), adipose</b>		<b>Mean (BR)</b>	<b>Mean (Ca depl)</b>	<b>Fold Change (BR/Ca depl)</b>
<b>MAPK signaling pathway (genes):</b>		<b>(log base 2)</b>		
1449901_A_AT	<u>mitogen-activated protein kinase kinase kinase 6</u>	9.16606	8.72352	1.359
1445786_AT	<u>braf transforming gene</u>	6.38478	7.08513	-1.62491
1446390_AT	<u>elk1, member of ets oncogene family</u>	0.459504	2.6056	-4.42628
1441521_AT	<u>calcium channel, voltage-dependent, beta 2 subunit</u>	3.42586	2.48783	1.9159
1422250_AT	<u>mitogen activated protein kinase kinase kinase 2</u>	4.94582	5.86342	-1.88897
1427739_A_AT	<u>transformation related protein 53</u>	6.87725	7.76916	-1.85564
1422078_AT	<u>thymoma viral proto-oncogene 3</u>	6.59676	7.20295	-1.52224
1449545_AT	<u>fibroblast growth factor 18</u>	5.25803	3.47341	3.44527
1450096_AT	<u>guanine nucleotide binding protein, alpha 12</u>	3.85947	6.13253	-4.8335
1452525_A_AT	<u>neurofibromatosis 1</u>	5.25062	6.41262	-2.23768
1448558_A_AT	<u>phospholipase a2, group iva (cytosolic, calcium- dependent)</u>	9.84588	9.55461	1.22372
1421297_A_AT	<u>calcium channel, voltage-dependent, I type, alpha 1c subunit</u>	6.39772	5.40047	1.99619
1443115_AT	<u>transforming growth factor, beta receptor ii</u>	5.06088	5.96757	-1.87474
1439828_AT	<u>map kinase-activated protein kinase 5</u>	6.54279	7.18772	-1.56366
1435196_AT	<u>neurotrophic tyrosine kinase, receptor, type 2</u>	8.51684	7.93628	1.49543
1450698_AT	<u>dual specificity phosphatase 2</u>	7.42911	6.94081	1.40279
1418786_AT	<u>mitogen-activated protein kinase 8 interacting protein 2</u>	4.02391	6.08048	-4.15994
1421376_AT	<u>tnf receptor-associated factor 6</u>	6.72878	7.61592	-1.84951
1456720_AT	<u>protein phosphatase 3, regulatory subunit b, alpha isoform (calcineurin b, type i)</u>	7.16588	8.16064	-1.99275
1427162_A_AT	<u>elk4, member of ets oncogene family</u>	11.2233	10.7157	1.42162
1415974_AT	<u>mitogen activated protein kinase kinase 2</u>	10.1422	9.52584	1.53299
1417542_AT	<u>ribosomal protein s6 kinase, related sequence 1</u>	9.48114	9.2165	1.20134
1427582_AT	<u>fibroblast growth factor 6</u>	3.01589	3.73843	-1.65008
1426108_S_AT	<u>calcium channel, voltage-dependent, beta 1 subunit</u>	4.97692	6.02046	-2.06128
1447823_X_AT	<u>mitogen-activated protein kinase 12</u>	5.03057	6.62853	-3.02715
1451882_A_AT	<u>fibroblast growth factor 8</u>	1.37588	3.36466	-3.96901
1459029_AT	<u>p21 (cdkn1a)-activated kinase 1</u>	3.00307	1.89113	2.16137
1422999_AT	<u>mitogen-activated protein kinase kinase 14</u>	7.80812	8.39522	-1.50222
1440442_AT	<u>mitogen activated protein kinase kinase 7</u>	3.79031	5.92261	-4.38417
1420596_AT	<u>calcium channel, voltage-dependent, gamma</u>	3.13064	3.85915	-1.65692

subunit 2

1449955_AT	<u>calcium channel, voltage-dependent, alpha 1f subunit</u>	6.60535	7.2731	-1.58859
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**TGF beta signaling pathway (genes):**

1443115_AT	<u>transforming growth factor, beta receptor ii</u>	5.06088	5.96757	-1.87474
1439856_AT	<u>activin receptor iib</u>	5.15205	7.29856	-4.42757
1421822_AT	<u>protein phosphatase 2 (formerly 2a), catalytic subunit, beta isoform</u>	5.33567	6.41794	-2.11737
1440952_AT	<u>mad homolog 7 (drosophila)</u>	7.21287	7.52469	-1.24127
1423259_AT	<u>inhibitor of dna binding 4</u>	9.06812	8.28231	1.72406
1438991_X_AT, 1455929_X_AT	<u>protein phosphatase 2 (formerly 2a), regulatory subunit a (pr 65), alpha isoform</u>	13.5936	13.3733	1.16499
1422058_AT	<u>nodal</u>	6.22734	6.71284	-1.40007
1420033_S_AT	<u>protein phosphatase 2, regulatory subunit b, delta isoform</u>	10.9998	10.8097	1.14087
1433641_AT	<u>mad homolog 5 (drosophila)</u>	9.85841	9.46701	1.31166
1450759_AT	<u>bone morphogenetic protein 6</u>	8.51295	7.51469	1.99759
1453596_AT	<u>inhibitor of dna binding 2</u>	6.31961	7.22302	-1.87048
1419786_AT	<u>latent transforming growth factor beta binding protein 1</u>	2.8265	4.66182	-3.56851
1454852_AT	<u>trans-acting transcription factor 1</u>	11.3672	10.9986	1.29114
1434310_AT	<u>bone morphogenic protein receptor, type ii (serine/threonine kinase)</u>	12.3331	11.9679	1.28804

**Suppl. Table 2:** Genes from the low Ca/BCAA/ACEi diet group involved in MAPK and JAK-STAT signaling pathway in adipose tissue (step-up FDR-corrected  $p \leq 0.05$ )

<b>Low Ca/BCAA/ACEi vs. BR (FDR corrected genes), adipose</b>		<b>Mean (BR)</b>	<b>Mean (low Ca)</b>	<b>Fold Change (BR/low Ca)</b>
<b>MAPK signaling pathway (genes):</b>		<b>(log base 2)</b>		
1449901_A_AT	<u>mitogen-activated protein kinase kinase kinase 6</u>	9.16606	8.30664	1.81431
1427739_A_AT	<u>transformation related protein 53</u>	6.87725	7.74499	-1.82481
1422078_AT	<u>thymoma viral proto-oncogene 3</u>	6.59676	7.33573	-1.66899
1425902_A_AT	<u>nuclear factor of kappa light polypeptide gene enhancer in b-cells 2, p49/p100</u>	7.35802	8.40014	-2.05925
1450975_AT	<u>calcium channel, voltage-dependent, gamma subunit 4</u>	5.4792	3.83728	3.12081
1450096_AT	<u>guanine nucleotide binding protein, alpha 12</u>	3.85947	6.18042	-4.99663
1440343_AT	<u>ribosomal protein s6 kinase, polypeptide 5</u>	7.94383	7.28855	1.57492
1435747_AT	<u>fibroblast growth factor 14</u>	2.56013	0.714246	3.59472
1443630_AT	<u>protein phosphatase 3, catalytic subunit, alpha isoform</u>	6.41964	5.65832	1.69505
1453171_S_AT	<u>protein phosphatase 1a, magnesium dependent, alpha isoform</u>	11.0325	10.6321	1.31984
1443115_AT	<u>transforming growth factor, beta receptor ii</u>	5.06088	5.79602	-1.66457
1460296_A_AT	<u>fibroblast growth factor 22</u>	7.13396	4.58583	5.84875
1438325_AT	<u>ecotropic viral integration site 1</u>	8.80928	8.02728	1.71951
1454313_AT,	<u>epidermal growth factor receptor</u>	7.08212	6.31746	1.69897
1457563_AT	<u>protein phosphatase 1b, magnesium dependent, beta isoform</u>	8.20206	8.70774	-1.41979
1425330_A_AT	<u>mitogen activated protein kinase kinase kinase 4</u>	8.0985	7.67661	1.33967
1447667_X_AT	<u>mitogen activated protein kinase kinase kinase 4</u>	8.0985	7.67661	1.33967
1418943_AT	<u>riken cdna b230120h23 gene</u>	7.0025	7.61462	-1.5285
1449073_AT	<u>filamin c, gamma (actin binding protein 280)</u>	5.4219	7.48902	-4.19049
1426165_A_AT	<u>caspase 3</u>	6.21513	7.01698	-1.74334
1427162_A_AT	<u>elk4, member of ets oncogene family</u>	11.2233	10.8152	1.32692
1438031_AT	<u>ras, guanyl releasing protein 3</u>	6.84792	4.57383	4.83693
1427582_AT	<u>fibroblast growth factor 6</u>	3.01589	5.61369	-6.05361
1449283_A_AT	<u>mitogen-activated protein kinase 12</u>	9.00084	8.27147	1.65792
1442949_AT	<u>nuclear factor of kappa light chain gene enhancer in b-cells 1, p105</u>	2.47938	4.20891	-3.31622
1422999_AT	<u>mitogen-activated protein kinase kinase kinase 14</u>	7.80812	8.24107	-1.34999
1451927_A_AT	<u>mitogen activated protein kinase 14</u>	5.27681	7.39961	-4.35537
1426898_AT	<u>mitogen-activated protein kinase kinase kinase 7</u>	7.47571	8.05624	-1.49541
1457182_AT	<u>interacting protein 1</u>	7.47571	8.05624	-1.49541
	<u>mitogen activated protein kinase kinase 7</u>	5.81088	3.35828	5.47403
<b>JAK-STAT signaling pathway (genes):</b>				
1416977_AT	<u>signal transducing adaptor molecule (sh3 domain and itam motif) 2</u>	6.92884	7.45337	-1.43847
1450564_X_AT	<u>interferon alpha family, gene 1</u>	4.42874	6.4487	-4.05571
1450565_AT	<u>interleukin 9</u>	4.56361	5.86908	-2.47165
1450033_A_AT	<u>signal transducer and activator of transcription 1</u>	8.81717	9.12516	-1.23799
1442890_AT	<u>suppressor of cytokine signaling 5</u>	7.31111	5.61024	3.25096

1426587_A_AT	<u>signal transducer and activator of transcription 3</u>	10.6534	11.3806	-1.65536
1415874_AT	<u>sprouty homolog 1 (drosophila)</u>	10.0444	9.41377	1.54826
1449026_AT	<u>interferon (alpha and beta) receptor 1</u>	9.33899	9.76613	-1.34456
1448681_AT	<u>interleukin 15 receptor, alpha chain</u>	9.80652	8.85758	1.93045
1425750_A_AT	<u>janus kinase 3</u>	7.15899	7.96689	-1.75067
1422078_AT	<u>thymoma viral proto-oncogene 3</u>	6.59676	7.33573	-1.66899
1450297_AT	<u>interleukin 6</u>	2.73611	5.31157	-5.96061
1438492_AT	<u>suppressor of cytokine signaling 7</u>	6.73446	4.60217	4.38414
1440867_AT	<u>sprouty homolog 4 (drosophila)</u>	7.8384	7.06622	1.70785
1437808_X_AT,				
1456173_AT	<u>interleukin 10 receptor, alpha</u>	6.83032	6.08398	1.67754
1450207_AT	<u>leukemia inhibitory factor receptor</u>	6.59455	6.13913	1.37118
1427165_AT,				
1451775_S_AT	<u>interleukin 13 receptor, alpha 1</u>	7.8582	8.42551	-1.48177
1433804_AT	<u>janus kinase 1</u>	7.18736	8.07229	-1.84667

**Suppl. Table 3:** List of genes in insulin signaling pathway altered in all three diet groups compared to the BR diet group in muscle (step-up FDR-corrected  $p \leq 0.05$ )

<b>Insulin signaling pathways, muscle</b>		<b>Mean (BR)</b>	<b>Mean (low CA)</b>	<b>Fold Change (BR/low CA)</b>
<b>Low Ca/BCAA/ACEi vs. BR (FDR Corrected sign. Genes)</b>				
1423828_AT	<u>fatty acid synthase</u>	10.7655	11.9248	<b>-2.23346</b>
1447635_AT	<u>protein kinase, camp dependent regulatory, type i, alpha</u>	7.69327	5.1575	<b>5.79889</b>
1453069_AT	<u>phosphatidylinositol 3-kinase, catalytic, beta polypeptide</u>	5.1568	7.60749	<b>-5.46678</b>
1421146_AT	<u>rap guanine nucleotide exchange factor (gef) 1 v-raf murine sarcoma 3611 viral oncogene homolog</u>	8.44919	7.14477	<b>2.46985</b>
1445693_AT	<u>phosphatidylinositol 3-kinase catalytic delta polypeptide</u>	5.10713	7.12827	<b>-4.05902</b>
1453281_AT	<u>tuberous sclerosis 1</u>	8.76758	8.13474	<b>1.55061</b>
1439989_AT	<u>fk506 binding protein 12-rapamycin associated protein 1</u>	6.65765	3.65317	<b>8.02488</b>
1446185_AT	<u>glycogen synthase kinase 3 beta</u>	7.97048	6.33475	<b>3.10744</b>
1439931_AT	<u>mitogen activated protein kinase 1</u>	5.43039	7.50061	<b>-4.19949</b>
1419568_AT	<u>suppressor of cytokine signaling 4</u>	9.26914	8.58738	<b>1.6041</b>
1421275_S_AT	<u>ribosomal protein s6 kinase, polypeptide 1 peroxisome proliferative activated receptor, gamma, coactivator 1 alpha</u>	5.9779	3.19968	<b>6.86003</b>
1457562_AT	<u>phosphodiesterase 3b, cgmp-inhibited</u>	4.27528	7.28731	<b>-8.06699</b>
1460336_AT	<u>mitogen activated protein kinase kinase 2</u>	9.83756	8.90874	<b>1.90372</b>
1433694_AT	<u>ribosomal protein s6</u>	9.73867	10.239	<b>-1.41449</b>
1443436_AT	<u>thymoma viral proto-oncogene 3</u>	8.17892	6.25341	<b>3.79869</b>
1442044_AT	<u>phosphatidylinositol 3-kinase, regulatory subunit, polypeptide 1 (p85 alpha)</u>	6.70554	4.72864	<b>3.93645</b>
1444831_AT	<u>riken cdna 6330505c01 gene</u>	7.79715	5.0313	<b>6.80146</b>
1425514_AT	<u>calmodulin 1</u>	7.83016	8.52621	<b>-1.62007</b>
1442147_AT	<u>phosphofructokinase, platelet</u>	6.11827	3.40306	<b>6.56692</b>
1426710_AT	<u>protein tyrosine phosphatase, receptor type, f</u>	10.8448	10.3555	<b>1.40374</b>
1430634_A_AT		6.09196	4.23833	<b>3.6141</b>
1420841_AT		5.55126	7.51591	<b>-3.90318</b>
<b>Ca depleted vs. BR (FDR Corrected sign. Genes)</b>				
1423828_AT	<u>fatty acid synthase</u>	<b>Mean (BR)</b>	<b>Mean (Ca depl.)</b>	<b>Fold Change (BR/Ca depl.)</b>
1422108_AT	<u>protein phosphatase 1, regulatory (inhibitor) subunit 3a</u>	10.7655	12.0453	<b>-2.42808</b>
1440856_AT	<u>mitogen activated protein kinase 8</u>	8.08744	6.73376	<b>2.55563</b>
1437539_AT	<u>protein kinase, amp-activated, alpha 1 catalytic subunit</u>	9.71473	9.39732	<b>1.24609</b>
1427006_AT	<u>rap guanine nucleotide exchange factor (gef) 1</u>	7.65128	7.17523	<b>1.39093</b>
1447940_A_AT	<u>braf transforming gene</u>	10.3813	10.8088	<b>-1.34494</b>
1421897_AT	<u>elk1, member of ets oncogene family</u>	5.49872	7.37856	<b>-3.68034</b>
1453281_AT	<u>phosphatidylinositol 3-kinase catalytic delta polypeptide</u>	6.99614	4.30068	<b>6.47763</b>
1422043_AT,		8.76758	8.02663	<b>1.67127</b>
1455252_AT	<u>tuberous sclerosis 1</u>	10.1581	10.7441	<b>-1.50108</b>

1439931_AT	<u>glycogen synthase kinase 3 beta</u>	5.43039	7.55043	<b>-4.34706</b>
1417308_AT	<u>pyruvate kinase, muscle</u>	14.5938	14.8747	<b>-1.21493</b>
1424132_AT	<u>harvey rat sarcoma virus oncogene 1</u>	10.0517	9.80534	<b>1.18617</b>
1433504_AT, 1445397_AT	<u>brain glycogen phosphorylase</u>	4.7391	6.60962	<b>-3.65665</b>
1443436_AT	<u>mitogen activated protein kinase kinase 2</u>	8.17892	7.61227	<b>1.48107</b>
1444831_AT	<u>thymoma viral proto-oncogene 3</u>	7.79715	5.37593	<b>5.35622</b>
1433691_AT	<u>protein phosphatase 1, regulatory (inhibitor)</u> <u>subunit 3c</u>	15.0011	15.4731	<b>-1.38706</b>
1422414_A_AT	<u>calmodulin 1</u>	12.8256	12.4328	<b>1.3129</b>
1416069_AT	<u>phosphofructokinase, platelet</u>	8.78388	7.85036	<b>1.90993</b>
1429434_AT	<u>phosphatidylinositol 3-kinase, catalytic, alpha</u> <u>polypeptide</u>	8.38313	7.65034	<b>1.66186</b>

		<b>Mean (BR)</b>	<b>Mean (NFDM)</b>	<b>Fold Change (BR/NFDM)</b>
<b>NFDM vs. BR (FDR Corrected sign. Genes)</b>				
1423828_AT	<u>fatty acid synthase</u>	10.7655	11.6807	<b>-1.88581</b>
1425604_AT	<u>v-crk sarcoma virus ct10 oncogene homolog</u> <u>(avian)-like</u>	3.64653	6.37529	<b>-6.62884</b>
1441476_AT	<u>suppressor of cytokine signaling 2</u>	5.91189	7.71666	<b>-3.49372</b>
1438164_X_AT	<u>flotillin 2</u>	9.94438	10.3156	<b>-1.29343</b>
1422315_X_AT	<u>phosphorylase kinase gamma 1</u>	12.1868	12.3306	<b>-1.10479</b>
1429463_AT	<u>protein kinase, amp-activated, alpha 2 catalytic</u> <u>subunit</u>	12.4988	12.7497	<b>-1.18995</b>
1457803_AT	<u>protein kinase, amp-activated, gamma 1 non-</u> <u>catalytic subunit</u>	4.46506	3.1242	<b>2.53302</b>
1439931_AT, 1454958_AT	<u>glycogen synthase kinase 3 beta</u>	5.43039	7.41032	<b>-3.94473</b>
1423104_AT	<u>insulin receptor substrate 1</u>	11.0837	10.4648	<b>1.53565</b>
1443186_AT	<u>pyruvate kinase, muscle</u>	4.6179	6.86393	<b>-4.74378</b>
1444480_AT	<u>protein kinase, amp-activated, gamma 3 non-</u> <u>catatlytic subunit</u>	13.0262	13.3445	<b>-1.2468</b>
1421324_A_AT, 1424480_S_AT	<u>thymoma viral proto-oncogene 2</u>	10.2967	10.7973	<b>-1.41483</b>
1450718_AT	<u>adaptor protein with pleckstrin homology and</u> <u>src</u>	4.16515	7.2041	<b>-8.21891</b>
1415974_AT	<u>mitogen activated protein kinase kinase 2</u>	10.7307	11.2635	<b>-1.44672</b>
1422407_S_AT	<u>harvey rat sarcoma virus oncogene 1</u>	11.166	11.5517	<b>-1.3065</b>
1433504_AT	<u>brain glycogen phosphorylase</u>	8.12467	8.91569	<b>-1.7303</b>
1425711_A_AT, 1440950_AT	<u>thymoma viral proto-oncogene 1</u>	8.0511	5.99692	<b>4.1531</b>
1434518_AT	<u>riken cdna 6330505c01 gene</u>	8.35457	8.87864	<b>-1.43801</b>
1416195_AT	<u>putative phosphatase</u>	9.95815	10.3197	<b>-1.28478</b>
1454060_A_AT	<u>v-ki-ras2 kirsten rat sarcoma viral oncogene</u> <u>homolog</u>	9.09361	9.82235	<b>-1.65718</b>
1417365_A_AT, 1438825_AT, 1455571_X_AT	<u>calmodulin 1</u>	4.07028	6.04404	<b>-3.9279</b>

**Suppl. Table 4:** List of genes in VEGF signaling pathway altered in all three diet groups compared to the BR diet group in muscle (step-up FDR-corrected  $p \leq 0.05$ ).

<b>VEGF signaling pathways, muscle</b>		<b>Mean (BR)</b>	<b>Mean (low CA)</b>	<b>Fold Change (BR/low CA)</b>
<b>Low Ca/BCAA/ACEi vs. BR (FDR Corrected sign. Genes)</b>				
		(log base 2)		
1453069_AT	<u>phosphatidylinositol 3-kinase, catalytic, beta polypeptide</u>	5.1568	7.60749	-5.46678
1426401_AT	<u>protein phosphatase 3, catalytic subunit, alpha isoform</u>	11.9474	12.2035	-1.19423
1452026_A_AT	<u>phospholipase a2, group xiia</u>	9.52965	8.52051	2.01272
1440208_AT	<u>ras-related c3 botulinum substrate 2</u>	7.60771	6.65931	1.92974
1451596_A_AT	<u>sphingosine kinase 1</u>	3.97605	6.87431	-7.45528
1453281_AT	<u>phosphatidylinositol 3-kinase catalytic delta polypeptide</u>	8.76758	8.13474	1.55061
1417814_AT	<u>phospholipase a2, group v</u>	5.38723	3.78561	3.03485
1419568_AT	<u>mitogen activated protein kinase 1</u>	9.26914	8.58738	1.6041
1440426_AT	<u>nuclear factor of activated t-cells, cytoplasmic, calcineurin-dependent 2</u>	7.88457	5.63267	4.7631
1443436_AT	<u>mitogen activated protein kinase kinase 2</u>	8.17892	6.25341	3.79869
1444831_AT	<u>thymoma viral proto-oncogene 3</u>	7.79715	5.0313	6.80146
1425514_AT	<u>phosphatidylinositol 3-kinase, regulatory subunit, polypeptide 1 (p85 alpha)</u>	7.83016	8.52621	-1.62007
1431278_S_AT	<u>phospholipase a2, group vi</u>	4.40704	7.42211	-8.08403
1426104_AT	<u>mitogen activated protein kinase 14</u>	6.80826	3.16278	12.5141
1423380_S_AT	<u>nuclear factor of activated t-cells, cytoplasmic, calcineurin-dependent 4</u>	6.74705	8.45292	-3.26224
		<b>Mean (BR)</b>	<b>Mean (Ca depl)</b>	<b>Fold Change (BR/Ca depl)</b>
<b>Ca depleted vs. BR (FDR Corrected sign. Genes)</b>				
1423478_AT,				
1460419_A_AT	<u>protein kinase c, beta 1</u>	4.34773	6.29499	-3.85641
1440208_AT	<u>ras-related c3 botulinum substrate 2</u>	7.60771	5.10076	5.68418
1451596_A_AT	<u>sphingosine kinase 1</u>	3.97605	6.35566	-5.20395
1453281_AT	<u>phosphatidylinositol 3-kinase catalytic delta polypeptide</u>	8.76758	8.02663	1.67127
1417814_AT	<u>phospholipase a2, group v</u>	5.38723	4.0432	2.53859
1453914_AT	<u>heat shock protein 1</u>	3.49707	6.45746	-7.78334
1418987_AT	<u>phospholipase a2, group iid</u>	8.08689	7.09444	1.98955
1443436_AT	<u>mitogen activated protein kinase kinase 2</u>	8.17892	7.61227	1.48107
1424132_AT	<u>harvey rat sarcoma virus oncogene 1</u>	10.0517	9.80534	1.18617
1444831_AT	<u>thymoma viral proto-oncogene 3</u>	7.79715	5.37593	5.35622
1416703_AT	<u>mitogen activated protein kinase 14</u>	11.4772	11.7312	-1.19245
1429434_AT	<u>phosphatidylinositol 3-kinase, catalytic, alpha polypeptide</u>	8.38313	7.65034	1.66186
1438999_A_AT	<u>nuclear factor of activated t-cells 5</u>	8.75395	7.71459	2.05531

<b>NFDM vs. BR (FDR Corrected sign. Genes)</b>		<b>Mean (BR)</b>	<b>Mean (NFDM)</b>	<b>Fold Change (BR/NFDM)</b>
1448558_A_AT	<u>phospholipase a2, group iva (cytosolic, calcium-dependent)</u>	8.24018	7.28951	<b>1.93277</b>
1440208_AT	<u>ras-related c3 botulinum substrate 2</u>	7.60771	5.70503	<b>3.73907</b>
1447084_AT	<u>nuclear factor of activated t-cells, cytoplasmic, calcineurin-dependent 1</u>	7.30594	6.09695	<b>2.31175</b>
1453914_AT	<u>heat shock protein 1</u>	3.49707	6.92506	<b>-10.7629</b>
1425990_A_AT	<u>nuclear factor of activated t-cells, cytoplasmic, calcineurin-dependent 2</u>	6.7824	7.4935	<b>-1.63705</b>
1421324_A_AT, 1424480_S_AT	<u>thymoma viral proto-oncogene 2</u>	10.2967	10.7973	<b>-1.41483</b>
1426085_A_AT	<u>paxillin</u>	6.01678	8.32559	<b>-4.95475</b>
1425711_A_AT, 1440950_AT	<u>thymoma viral proto-oncogene 1</u>	8.0511	5.99692	<b>4.1531</b>
1415974_AT	<u>mitogen activated protein kinase kinase 2</u>	10.7307	11.2635	<b>-1.44672</b>
1422407_S_AT	<u>harvey rat sarcoma virus oncogene 1</u>	11.166	11.5517	<b>-1.3065</b>
1431278_S_AT	<u>phospholipase a2, group vi</u>	4.40704	6.91574	<b>-5.69107</b>
1454060_A_AT	<u>v-ki-ras2 kirsten rat sarcoma viral oncogene homolog</u>	9.09361	9.82235	<b>-1.65718</b>
1420743_A_AT	<u>protein phosphatase 3, catalytic subunit, gamma isoform</u>	9.42015	10.0058	<b>-1.50076</b>
1416703_AT	<u>mitogen activated protein kinase 14</u>	11.4772	11.7035	<b>-1.1698</b>
1432821_AT	<u>nuclear factor of activated t-cells, cytoplasmic, calcineurin-dependent 4</u>	3.61167	5.19948	<b>-3.00593</b>



**Suppl. Table 5:** List of genes in B-cell receptor signaling pathway altered in all three diet groups compared to the BR diet group in muscle (step-up FDR-corrected  $p \leq 0.05$ )

		Mean (BR)	Mean (low Ca)	Fold Change (BR/low Ca)
<b>B cell receptor signaling pathways, muscle</b>				
<b>Low Ca/BCAA/ACEi vs. BR (FDR Corrected sign. Genes)</b>		<b>(log base 2)</b>		
1456694_X_AT	<u>protein tyrosine phosphatase, non-receptor type 6</u>	9.7332	8.98414	<b>1.6807</b>
1453069_AT	<u>phosphatidylinositol 3-kinase, catalytic, beta polypeptide</u>	5.1568	7.60749	<b>-5.46678</b>
1426401_AT	<u>protein phosphatase 3, catalytic subunit, alpha isoform</u>	11.9474	12.2035	<b>-1.19423</b>
1440208_AT	<u>ras-related c3 botulinum substrate 2</u>	7.60771	6.65931	<b>1.92974</b>
1425902_A_AT	<u>nuclear factor of kappa light polypeptide gene enhancer in b-cells 2, p49/p100</u>	5.56488	7.14272	<b>-2.98522</b>
1444831_AT	<u>thymoma viral proto-oncogene 3</u>	7.79715	5.0313	<b>6.80146</b>
1425514_AT	<u>phosphatidylinositol 3-kinase, regulatory subunit, polypeptide 1 (p85 alpha)</u>	7.83016	8.52621	<b>-1.62007</b>
1453281_AT	<u>phosphatidylinositol 3-kinase catalytic delta polypeptide</u>	8.76758	8.13474	<b>1.55061</b>
1425797_A_AT	<u>spleen tyrosine kinase</u>	7.5153	4.06872	<b>10.9025</b>
1439931_AT	<u>glycogen synthase kinase 3 beta</u>	5.43039	7.50061	<b>-4.19949</b>
1423380_S_AT	<u>nuclear factor of activated t-cells, cytoplasmic, calcineurin-dependent 4</u>	6.74705	8.45292	<b>-3.26224</b>
1440426_AT	<u>nuclear factor of activated t-cells, cytoplasmic, calcineurin-dependent 2</u>	7.88457	5.63267	<b>4.7631</b>
		Mean (BR)	Mean (Ca deplete d)	Fold Change (BR/Ca depleted)
<b>Ca depleted vs. BR (FDR Corrected sign. Genes)</b>				
1423478_AT, 1460419_A_AT	<u>protein kinase c, beta 1</u>	7.12077	7.63148	<b>-1.42475</b>
1440208_AT	<u>ras-related c3 botulinum substrate 2</u>	7.60771	5.10076	<b>5.68418</b>
1453281_AT	<u>phosphatidylinositol 3-kinase catalytic delta polypeptide</u>	8.76758	8.02663	<b>1.67127</b>
1439931_AT	<u>glycogen synthase kinase 3 beta</u>	5.43039	7.55043	<b>-4.34706</b>
1456694_X_AT	<u>protein tyrosine phosphatase, non-receptor type 6</u>	9.7332	8.79087	<b>1.92163</b>
1435244_AT	<u>vav2 oncogene</u>	5.04971	3.08612	<b>3.90031</b>
1435476_A_AT, 1455332_X_AT	<u>fc receptor, igg, low affinity iib</u>	7.81359	8.69101	<b>-1.83709</b>
1424132_AT	<u>harvey rat sarcoma virus oncogene 1</u>	10.0517	9.80534	<b>1.18617</b>
1444831_AT	<u>thymoma viral proto-oncogene 3</u>	7.79715	5.37593	<b>5.35622</b>
1418262_AT	<u>spleen tyrosine kinase</u>	5.03188	7.06925	<b>-4.10498</b>
1446718_AT	<u>nuclear factor of kappa light chain gene enhancer in b-cells inhibitor, beta</u>	5.6978	3.65303	<b>4.12606</b>
1429434_AT	<u>phosphatidylinositol 3-kinase, catalytic, alpha polypeptide</u>	8.38313	7.65034	<b>1.66186</b>
1438999_A_AT	<u>nuclear factor of activated t-cells 5</u>	8.75395	7.71459	<b>2.05531</b>

		Mean (BR)	Mean (NFDM)	Fold Change (BR/NFD M)
<b>NFDM vs. BR (FDR Corrected sign. Genes)</b>				
1420088_AT	<u>nuclear factor of kappa light chain gene enhancer in b-cells inhibitor, alpha</u>	12.3429	12.0147	<b>1.25539</b>
1421324_A_AT, 1424480_S_AT	<u>thymoma viral proto-oncogene 2</u>	10.2967	10.7973	<b>-1.41483</b>
1435477_S_AT	<u>fc receptor, igg, low affinity iib</u>	9.34774	8.49187	<b>1.80986</b>
1422407_S_AT	<u>harvey rat sarcoma virus oncogene 1</u>	11.166	11.5517	<b>-1.3065</b>
1425711_A_AT, 1440950_AT	<u>thymoma viral proto-oncogene 1</u>	8.0511	5.99692	<b>4.1531</b>
1440208_AT	<u>ras-related c3 botulinum substrate 2</u>	7.60771	5.70503	<b>3.73907</b>
1447084_AT	<u>nuclear factor of activated t-cells, cytoplasmic, calcineurin- dependent 1</u>	7.30594	6.09695	<b>2.31175</b>
1454060_A_AT	<u>v-ki-ras2 kirsten rat sarcoma viral oncogene homolog</u>	9.09361	9.82235	<b>-1.65718</b>
1420743_A_AT	<u>protein phosphatase 3, catalytic subunit, gamma isoform</u>	9.42015	10.0058	<b>-1.50076</b>
1439931_AT, 1454958_AT	<u>glycogen synthase kinase 3 beta</u>	10.1668	9.67241	<b>1.4087</b>
1432821_AT	<u>nuclear factor of activated t-cells, cytoplasmic, calcineurin- dependent 4</u>	3.61167	5.19948	<b>-3.00593</b>
1425990_A_AT	<u>nuclear factor of activated t-cells, cytoplasmic, calcineurin- dependent 2</u>	6.7824	7.4935	<b>-1.63705</b>

**Suppl. Table 6:** List of genes in GnRH signaling pathway altered in all three diet groups

compared to the BR diet group in muscle (step-up FDR-corrected  $p \leq 0.05$ )

<b>GnRH signaling pathways, muscle</b>		<b>Mean (BR)</b>	<b>Mean (low CA)</b>	<b>Fold Change (BR/lowCA)</b>
<b>Low Ca/BCAA/ACEi vs. BR (FDR Corrected sign. Genes)</b>		<b>(log base 2)</b>		
1443540_AT	<u>mitogen activated protein kinase kinase kinase 1</u>	6.3317	5.06658	<b>2.40348</b>
1452026_A_AT	<u>phospholipase a2, group xiia</u>	9.52965	8.52051	<b>2.01272</b>
1452453_A_AT	<u>calcium/calmodulin-dependent protein kinase ii alpha</u>	7.54691	5.2291	<b>4.98573</b>
1424932_AT	<u>epidermal growth factor receptor</u>	8.33145	9.02714	<b>-1.61966</b>
1417814_AT	<u>phospholipase a2, group v</u>	5.38723	3.78561	<b>3.03485</b>
1434653_AT	<u>ptk2 protein tyrosine kinase 2 beta</u>	7.56944	5.29283	<b>4.84538</b>
1442679_AT	<u>mitogen activated protein kinase kinase 4</u>	7.01674	8.27152	<b>-2.3863</b>
1416572_AT, 1440920_AT	<u>matrix metalloproteinase 14 (membrane-inserted)</u>	8.5956	7.73907	<b>1.81068</b>
1419568_AT	<u>mitogen activated protein kinase 1</u>	9.26914	8.58738	<b>1.6041</b>
1425739_AT	<u>phospholipase d1</u>	7.28787	4.07639	<b>9.26297</b>
1443436_AT	<u>mitogen activated protein kinase kinase 2</u> <u>guanine nucleotide binding protein, alpha q</u>	8.17892	6.25341	<b>3.79869</b>
1455729_AT	<u>polypeptide</u>	9.01062	9.98417	<b>-1.96366</b>
1431278_S_AT	<u>phospholipase a2, group vi</u>	4.40704	7.42211	<b>-8.08403</b>
1423941_AT	<u>calcium/calmodulin-dependent protein kinase ii gamma</u>	11.4742	11.9042	<b>-1.34725</b>
1426710_AT	<u>calmodulin 1</u>	10.8448	10.3555	<b>1.40374</b>
1426104_AT	<u>mitogen activated protein kinase 14</u>	6.80826	3.16278	<b>12.5141</b>
1421416_AT	<u>mitogen activated protein kinase kinase 7</u>	8.19301	7.31861	<b>1.83324</b>
1449955_AT	<u>calcium channel, voltage-dependent, alpha 1f subunit</u>	5.50168	7.93108	<b>-5.38671</b>
<b>Ca depleted vs. BR (FDR Corrected sign. Genes)</b>		<b>Mean (BR)</b>	<b>Mean (Ca depl.)</b>	<b>Fold Change (BR/Ca depl.)</b>
1417279_AT	<u>inositol 1,4,5-triphosphate receptor 1</u>	10.6323	10.1688	<b>1.37882</b>
1421297_A_AT	<u>calcium channel, voltage-dependent, l type, alpha 1c</u> <u>subunit</u>	6.72737	4.49144	<b>4.71068</b>
1440856_AT	<u>mitogen activated protein kinase 8</u>	9.71473	9.39732	<b>1.24609</b>
1423478_AT, 1460419_A_AT	<u>protein kinase c, beta 1</u>	7.12077	7.63148	<b>-1.42475</b>
1421897_AT	<u>elk1, member of ets oncogene family</u>	6.99614	4.30068	<b>6.47763</b>
1417814_AT	<u>phospholipase a2, group v</u>	5.38723	4.0432	<b>2.53859</b>
1418987_AT	<u>phospholipase a2, group iid</u>	8.08689	7.09444	<b>1.98955</b>
1416572_AT, 1440920_AT	<u>matrix metalloproteinase 14 (membrane-inserted)</u>	8.5956	7.87546	<b>1.64733</b>
1437113_S_AT	<u>phospholipase d1</u>	8.27096	9.02738	<b>-1.68929</b>
1424132_AT	<u>harvey rat sarcoma virus oncogene 1</u>	10.0517	9.80534	<b>1.18617</b>
1443436_AT	<u>mitogen activated protein kinase kinase 2</u>	8.17892	7.61227	<b>1.48107</b>
1445112_AT	<u>adenylate cyclase 1</u>	8.08973	6.95162	<b>2.20093</b>
1422414_A_AT	<u>calmodulin 1</u>	12.8256	12.4328	<b>1.3129</b>
1416703_AT	<u>mitogen activated protein kinase 14</u>	11.4772	11.7312	<b>-1.19245</b>
1451714_A_AT	<u>mitogen activated protein kinase kinase 3</u>	12.3122	12.7175	<b>-1.32437</b>
1439364_A_AT	<u>matrix metalloproteinase 2</u>	10.6965	10.1032	<b>1.50874</b>

<b>NFDM vs. BR (FDR Corrected sign. Genes)</b>		<b>Mean (BR)</b>	<b>Mean (NFDM)</b>	<b>Fold Change (BR/NFDM)</b>
1448558_A_AT	<u>phospholipase a2, group iva (cytosolic, calcium-dependent)</u>	8.24018	7.28951	<b>1.93277</b>
1442707_AT	<u>calcium/calmodulin-dependent protein kinase ii alpha</u>	8.98407	9.9863	<b>-2.0031</b>
1434653_AT, 1442437_AT	<u>ptk2 protein tyrosine kinase 2 beta</u>	4.79118	2.87368	<b>3.77769</b>
1422847_A_AT	<u>protein kinase c, delta</u>	9.025	9.44725	<b>-1.34002</b>
1437112_AT	<u>phospholipase d1</u>	4.48281	6.93238	<b>-5.46254</b>
1415974_AT	<u>mitogen activated protein kinase kinase 2</u>	10.7307	11.2635	<b>-1.44672</b>
1422407_S_AT	<u>harvey rat sarcoma virus oncogene 1</u>	11.166	11.5517	<b>-1.3065</b>
1431278_S_AT	<u>phospholipase a2, group vi</u>	4.40704	6.91574	<b>-5.69107</b>
1423941_AT	<u>calcium/calmodulin-dependent protein kinase ii gamma</u>	11.4742	12.1699	<b>-1.6197</b>
1454060_A_AT	<u>v-ki-ras2 kirsten rat sarcoma viral oncogene homolog</u>	9.09361	9.82235	<b>-1.65718</b>
1441531_AT	<u>phospholipase c, beta 4</u>	5.98812	7.60448	<b>-3.066</b>
1417365_A_AT, 1438825_AT, 1455571_X_AT	<u>calmodulin 1</u>	4.07028	6.04404	<b>-3.9279</b>
1450186_S_AT	<u>gnas (guanine nucleotide binding protein, alpha stimulating) complex locus</u>	14.7867	15.2217	<b>-1.35187</b>
1416703_AT	<u>mitogen activated protein kinase 14</u>	11.4772	11.7035	<b>-1.1698</b>
1451714_A_AT	<u>mitogen activated protein kinase kinase 3</u>	12.3122	12.5296	<b>-1.16263</b>