

Gene expression profiling during hibernation in the European hamster.

Célia Gautier, Béatrice Bothorel, Dominique Ciocca, Damien Valour, Albane Gaudeau, Clémence Dupré, Giulia Lizzo, Chantal Brasseur, Isabelle Riest-Fery, Jean-Philippe Stephan, Olivier Nosjean, Jean A. Boutin, Sophie-Pénélope Guénin, Valérie Simonneaux

Table S1: Median, first quartile (25 %), third quartile (75 %), and interquartile (Q75%-Q25%) of absolute RNA copies of each gene in each organ at each hibernation state (N=Normothermia, T=Torpor, A= Arousal).

		Per1				Bmal1				Rev-Erba			
		Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)	Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)	Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)
Cerebral Cortex	N	41100	27200	54150	26950	4960	2540	5210	2670	58000	43450	76600	33150
	T	63300	55000	97700	42700	4040	3270	5620	2350	47100	41500	85000	43500
	A	91300	77600	151550	73950	3860	3650	5250	1600	52500	40050	63450	23400
Hypothalamus	N	43600	30450	60550	30100	8040	6300	8920	2620	121800	90000	146600	56600
	T	66400	28400	88100	59700	3640	1360	4510	3150	53400	24400	74250	49850
	A	110700	102000	113200	11200	4080	3600	6620	3020	58800	46850	68650	21800
Pituitary gland	N	140200	107800	174400	66600	5720	4560	6140	1580	202000	169000	239000	70000
	T	488000	447000	536500	89500	6980	5840	7780	1940	279000	244500	309000	64500
	A	392000	363000	490000	127000	18080	7980	22680	14700	167000	164500	176000	11500
Retina	N	180000	155100	253000	97900	63000	58600	67800	9200	200000	185000	258000	73000
	T	269000	230500	303500	73000	58800	41230	66800	25570	173600	141600	194000	52400
	A	336000	298000	397000	99000	93800	85700	108400	22700	192000	172250	204500	32250
Liver	N	13900	10000	20700	10700	1440	780	2610	1830	38200	29400	48650	19250
	T	38100	28550	57400	28850	2180	1520	3520	2000	38800	23650	58400	34750
	A	31300	27350	44450	17100	1640	1290	1950	660	22000	16650	39600	22950
BAT	N	28200	22500	31200	8700	1080	740	1480	740	46600	46400	60000	13600
	T	87800	52500	96750	44250	1380	1070	1620	550	69500	55950	77700	21750
	A	75400	53800	111950	58150	1140	870	2390	1520	52200	40900	61600	20700
Heart	N	27000	22500	32300	9800	1600	1220	1920	700	55000	48700	60700	12000
	T	100400	83750	134850	51100	1720	960	2760	1800	59500	50600	66200	15600
	A	99700	83100	144900	61800	1820	1110	2240	1130	32300	26150	39350	13200
Adrenal glands	N	99200	59000	126050	67050	3660	2440	4520	2080	94200	74600	110050	35450
	T	275000	226500	347000	120500	7700	6550	8250	1700	94900	76400	112350	35950
	A	313000	138600	399500	260900	7380	3400	10310	6910	97400	48800	118900	70100

Table S1(Cont'd) : Median, first quartile (25 %), third quartile (75 %), and interquartile (Q75%-Q25%) of absolute RNA copies of each gene in each organ at each hibernation state

		Clock				Per2				MT1			
		Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)	Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)	Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)
Cerebral Cortex	N	54720	48900	69340	20440	14010	11895	21350	9455	91	76	135	60
	T	41020	37030	47350	10320	17420	16270	25900	9630	111	86	128	42
	A	51180	44530	72020	27490	40300	32650	47350	14700	105	79	129	50
Hypothalamus	N	102600	67820	119600	51780	25000	14685	31750	17065	349	283	406	123
	T	41280	31600	50160	18560	18100	11520	22500	10980	227	156	259	103
	A	64160	49950	77420	27470	48600	41850	60400	18550	251	212	399	187
Pituitary gland	N	168000	159400	169400	10000	45400	36100	49300	13200	3093	2167	3313	1147
	T	144400	126400	155000	28600	109700	94900	126100	31200	2107	1432	2250	818
	A	164800	163400	174600	11200	143400	95400	183400	88000	2280	2140	3133	993
Retina	N	217600	190100	264300	74200	49000	45300	54800	9500	507	324	1740	1416
	T	172000	160900	177000	16100	55700	43350	60750	17400	425	384	658	274
	A	220000	213800	238100	24300	131700	103200	155700	52500	405	330	460	130
Liver	N	23380	18600	29500	10900	7740	6675	10355	3680	67	28	80	52
	T	21480	17340	26530	9190	24200	7350	33900	26550	33	28	50	22
	A	23580	18720	25090	6370	29500	25450	44800	19350	37	32	53	22
BAT	N	56480	46290	65140	18850	17500	15725	22050	6325	69	34	148	114
	T	42900	33680	46760	13080	22200	19800	23700	3900	39	28	68	40
	A	60300	47780	71190	23410	56500	47500	59200	11700	27	12	56	44
Heart	N	58740	52360	67010	14650	6150	5380	8105	2725	150	113	225	113
	T	51540	37500	57710	20210	12570	9070	15275	6205	188	130	195	65
	A	66500	54280	68240	13960	46700	36950	49900	12950	149	123	176	53
Adrenal glands	N	76960	48080	93010	44930	26100	19400	33100	13700	263	178	354	176
	T	62840	53460	74750	21290	47100	35650	50400	14750	112	100	123	23
	A	90740	54410	96500	42090	103700	69150	138850	69700	147	104	264	159

Table S1 (cont'd): Median, first quartile (25 %), third quartile (75 %), and interquartile (Q75%-Q25%) of absolute RNA copies of each gene in each organ at each hibernation state

		MT2				GPR50				QR2			
		Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)	Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)	Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)
Cerebral Cortex	N	646	561	954	393	13	9	16	7	8460	7060	9710	2650
	T	537	486	681	196	27	19	30	11	8840	7170	10190	3020
	A	1005	698	1245	547	39	27	45	19	6760	5590	8750	3160
Hypothalamus	N	688	548	880	332	129	79	165	85	20900	14610	22770	8160
	T	542	354	638	284	80	23	85	63	12160	9480	15480	6000
	A	1099	880	1522	642	115	86	156	69	8700	7540	9730	2190
Pituitary gland	N	796	678	1224	546	485	385	645	260	29200	27960	30460	2500
	T	725	606	942	336	295	209	360	150	25200	23720	27000	3280
	A	1128	818	1455	637	527	411	742	331	22080	19700	24400	4700
Retina	N	751	460	1605	1145	202	111	515	404	22640	16800	26470	9670
	T	723	657	965	308	262	230	310	80	20900	19020	24620	5600
	A	1731	1543	2050	508	351	325	393	69	13820	10660	15860	5200
Liver	N	239	221	374	153	21	17	28	12	59800	49800	72300	22500
	T	67	52	137	86	10	5	15	10	62200	55700	82900	27200
	A	88	65	102	38	11	9	26	18	42200	39800	50100	10300
BAT	N	295	263	352	89	25	11	42	31	34400	30800	41000	10200
	T	127	94	136	42	12	9	26	17	38600	34480	43200	8720
	A	109	82	127	46	17	11	36	26	28540	23210	31180	7970
Heart	N	337	279	377	98	25	19	36	16	21000	16720	27830	11110
	T	213	168	243	75	27	22	32	10	24960	18310	28930	10620
	A	225	206	270	64	24	23	29	6	22460	17560	24060	6500
Adrenal glands	N	290	252	408	157	62	36	93	57	34800	24370	43600	19230
	T	216	173	236	63	47	43	54	10	39600	32920	43500	10580
	A	240	205	341	136	67	52	92	40	34600	24910	40200	15290

Table S1(cont'd): Median, first quartile (25 %), third quartile (75 %), and interquartile (Q75%-Q25%) of absolute RNA copies of each gene in each organ at each hibernation state

		SIRT1				TXNIP				PPAR α			
		Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)	Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)	Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)
Cerebral Cortex	N	27800	19970	31800	11830	41700	31150	60350	29200	5600	4950	6750	1800
	T	23200	20630	26460	5830	50600	44100	73550	29450	3400	2350	4700	2350
	A	30200	25760	40400	14640	32900	26400	39350	12950	6100	5000	7800	2800
Hypothalamus	N	64000	45900	68700	22800	96700	71650	143900	72250	9800	7350	13800	6450
	T	31100	22080	38760	16680	66000	29200	103700	74500	2600	320	4150	3830
	A	40400	36040	47900	11860	50200	32450	59150	26700	7100	4900	9250	4350
Pituitary gland	N	80800	73000	90000	17000	516000	439000	743000	304000	17800	15500	21100	5600
	T	84800	82800	94500	11700	754000	642500	932000	289500	16500	14800	17650	2850
	A	92400	91200	100400	9200	420000	375000	465000	90000	21800	17900	24900	7000
Retina	N	160600	148200	175100	26900	25700	24250	28400	4150	66000	65200	73350	8150
	T	135600	118000	151300	33300	36500	31150	43600	12450	24200	20450	25600	5150
	A	199200	107400	211400	104000	28400	21350	35200	13850	39300	31100	66450	35350
Liver	N	12800	7720	14700	6980	29800	22850	50350	27500	104300	94600	119500	24900
	T	19340	15890	22440	6550	50000	35050	89250	54200	91300	49900	131050	81150
	A	16800	15490	19870	4380	42900	19050	119550	100500	69700	59300	88550	29250
BAT	N	35000	27480	45400	17920	590000	501500	719000	217500	383000	336500	449000	112500
	T	30380	20100	35110	15010	550000	385500	642000	256500	273000	223700	290000	66300
	A	51200	38200	63900	25700	513000	374000	603000	229000	185000	141350	209000	67650
Heart	N	29500	26200	38400	12200	366000	219000	457500	238500	28500	23400	34400	11000
	T	30760	21660	33900	12240	281000	175000	416000	241000	20400	14800	22750	7950
	A	34400	31710	37900	6190	147700	102900	187500	84600	22800	19600	31500	11900
Adrenal glands	N	43200	30190	51400	21210	206000	145400	264500	119100	12200	8900	15400	6500
	T	40600	36700	46800	10100	146100	128650	222500	93850	9800	8600	10650	2050
	A	57400	36200	64600	28400	201000	169400	245000	75600	14900	12400	19950	7550

Table S1(cont'd): Median, first quartile (25 %), third quartile (75 %), and interquartile (Q75%-Q25%) of absolute RNA copies of each gene in each organ at each hibernation state

		PGC1 α				FGF21				ObR			
		Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)	Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)	Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)
Cerebral Cortex	N	26200	18550	36900	18350	198	156	284	128	1159	972	1583	611
	T	13000	10850	17650	6800	189	145	269	125	1291	839	1605	767
	A	20100	17300	29500	12200	264	219	410	191	1287	1097	1451	354
Hypothalamus	N	46900	42200	54550	12350	278	235	337	103	2160	1716	2675	959
	T	13800	7400	19500	12100	179	116	208	92	2250	1376	2595	1219
	A	26300	16650	29850	13200	330	282	368	86	1363	1066	1810	744
Pituitary gland	N	5400	4300	6900	2600	630	522	1235	713	5200	4450	6360	1910
	T	5500	3600	6550	2950	1371	1144	1494	350	3640	3445	3840	395
	A	5600	5300	6800	1500	1900	1560	2180	620	3680	2950	3940	990
Retina	N	58000	51150	82800	31650	708	551	986	436	3500	2335	4810	2475
	T	36200	32550	49250	16700	1544	1169	1805	636	2550	2055	3130	1075
	A	53000	45750	60550	14800	2800	2310	3700	1390	2520	2435	2745	310
Liver	N	1410	780	2100	1320	5470	3230	6975	3745	10070	7700	11420	3720
	T	2500	1090	3250	2160	1043	804	1527	723	27240	23955	31305	7350
	A	3400	1750	4250	2500	11840	1715	16295	14581	22240	18935	36290	17355
BAT	N	57600	50700	63900	13200	211	180	289	109	449	315	558	244
	T	46800	32600	52300	19700	127	111	159	48	417	374	538	164
	A	86600	51300	154500	103200	164	136	199	63	271	220	322	102
Heart	N	49900	37950	59850	21900	4260	3630	5550	1920	1421	1323	1625	303
	T	40300	33700	54050	20350	4770	2720	5805	3085	1393	1006	1700	694
	A	36500	29550	42150	12600	3830	3230	5195	1965	979	782	1124	343
Adrenal glands	N	1590	1035	1700	665	467	352	640	288	1480	1136	1745	610
	T	930	640	1460	820	217	203	366	163	930	783	1191	409
	A	1710	1500	2000	500	1030	534	1505	972	757	609	993	384

Table S1(end): Median, first quartile (25 %), third quartile (75 %), and interquartile (Q75%-Q25%) of absolute RNA copies of each gene in each organ at each hibernation state

		Dio2				Dio3				UCP1			
		Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)	Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)	Median	Quartile (25%)	Quartile (75%)	Interquartile (Q75%-Q25%)
Cerebral Cortex	N	2620	2180	3175	995	790	526	991	465				
	T	1760	1625	2175	550	760	258	1088	830				
	A	1440	1110	1755	645	684	627	1110	484				
Hypothalamus	N	1850	1615	2430	815	461	289	693	404				
	T	920	660	1045	385	410	132	543	411				
	A	1130	695	1495	800	463	214	873	659				
Pituitary gland	N	4220	3520	4830	1310	310	244	525	281				
	T	1680	1365	2100	735	218	187	286	100				
	A	2340	1610	3030	1420	320	259	657	398				
Retina	N	2950	1640	4395	2755	2320	1865	2650	786				
	T	1560	1415	1805	390	1550	1460	1925	465				
	A	1880	1475	2730	1255	2000	1875	2245	370				
Liver	N	164	92	270	178	39	26	43	17				
	T	60	30	105	76	35	28	62	34				
	A	88	51	111	60	39	36	46	10				
BAT	N	5780	4375	6375	2000	101	66	129	64	2970000	1680000	3825000	2145000
	T	1760	1605	2255	650	83	74	87	13	3270000	2405000	3790000	1385000
	A	1330	1180	1650	470	236	174	344	170	2370000	1860000	3375000	1515000
Heart	N	670	535	795	260	61	46	101	56				
	T	530	405	630	225	114	82	145	63				
	A	250	160	325	165	129	112	147	35				
Adrenal glands	N	280	180	430	250	81	54	126	72				
	T	44	12	138	126	80	51	105	54				
	A	44	12	160	148	160	92	204	112				

Gene expression profiling during hibernation in the European hamster

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Supplementary Table S2: Plasma hormone levels (means± SD) of European hamster during the hibernation cycle (n=5 - 8).

	Normothermia	Torpor	Arousal
T3 (pmol/ml)	1,20 ± 0,18	1,08 ± 0,20	1,02 ± 0,12
T4 (pmol/ml)	28,19 ± 4,85	19,31 ± 2,68	17,69 ± 3,54
Glucose (mmol/ml)	5,70 ± 2,69	3,42 ± 0,78	4,32 ± 1,74
Insulin (ng/ml)	1,70 ± 0,99	0,80 ± 0,41	1,76 ± 1,38
Leptin (ng/ml)	28,30 ± 8,05	14,28 ± 4,99	27,69 ± 7,06
Melatonin (pg/ml)	23,16 ± 27,78	18,83 ± 10,22	37,67 ± 38,71