

**Supplementary Table S7.** Enrichment and depletion levels within positively-selected great ape genes**Germ Layers**

Name	Enrichment ratio	Observed	Expected
ectoderm	1.035696961	156	150.6232092
mesoderm	1.015594352	158	155.5739255
endoderm	0.934907138	112	119.7979943

**Organs**

Name	Enrichment ratio	Observed	Expected
spinal cord	1.148485062	70	60.94985673
diaphragm	1.143616537	18	15.73954155
cranial nerve	1.123498635	87	77.43667622
peripheral nervous system	1.095994886	112	102.1902579
peripheral nerve	1.091856668	82	75.10143266
cerebellum	1.078981692	64	59.31518625
abdominal wall	1.077079904	33	30.63839542
eye	1.056066282	113	107.0008596
sinuses	1.053002112	6	5.697994269
head	1.028779555	149	144.8318052
brain	1.009602095	135	133.7160458
mouth	0.990427662	89	89.86017192
skull	0.988863429	92	93.03610315
lower limb	0.985571728	98	99.43467049
outer ear	0.983924051	46	46.75157593
middle ear	0.980658455	24	24.47335244
inner ear	0.973229225	12	12.33008596
pharynx	0.970288955	30	30.91862464
maxilla	0.969224166	66	68.09570201
mandible	0.967233973	66	68.23581662
jaw	0.963935085	66	68.46934097
placenta	0.959805373	13	13.54441261
forehead	0.959061274	40	41.70744986
foot	0.953306416	87	91.26131805

chin	0.947137288	33	34.84183381
stomach	0.94681999	44	46.4713467
elbow	0.938614786	53	56.46618911
esophagus	0.934300056	36	38.53151862
upper limb	0.929521325	87	93.5965616
hair	0.928338578	47	50.62808023
spinal column	0.922167081	55	59.64212034
neck	0.918625605	65	70.75787966
knee	0.913675746	53	58.00744986
lymph nodes	0.907247582	10	11.02234957
lung	0.907031056	71	78.2773639
kidney	0.899884414	58	64.45272206
wrist	0.895051795	51	56.97994269
ankle	0.894995364	52	58.1008596
hip	0.892842208	52	58.24097421
face	0.891631439	75	84.11547278
ear	0.889244977	90	101.2094556
shoulder	0.877363462	52	59.26848138
epiglottis	0.876475442	7	7.986532951
blood vessels	0.867372994	73	84.16217765
hand	0.864743253	75	86.73094556
white blood cells	0.854163947	45	52.68309456
chest wall	0.851260134	46	54.03753582
blood	0.849195252	75	88.31891117
nose	0.846565125	48	56.69971347
skin	0.845414571	92	108.8223496
rib	0.844227364	47	55.6722063
rib cage	0.844227364	47	55.6722063
lips	0.843323354	36	42.68825215
heart	0.838198572	68	81.12636103
olfactory bulb	0.828051385	7	8.453581662
pelvis	0.827398347	49	59.2217765
toes	0.825425721	66	79.95873926

lacrimal apparatus	0.823501652	5	6.071633238
intestine	0.822064476	44	53.52378223
vertebrae	0.815321172	46	56.41948424
fingers	0.813545673	66	81.12636103
larynx	0.810378119	19	23.44584527
digit	0.806374299	67	83.08796562
eyelid	0.802245572	45	56.09255014
teeth	0.789104777	30	38.01776504
fibula	0.780734163	33	42.26790831
pancreas	0.780610941	28	35.86934097
urethra	0.776093241	17	21.90458453
tibia	0.771358534	33	42.78166189
bronchus	0.771034787	13	16.86045845
scalp	0.761281527	8	10.50859599
adrenal gland	0.760501525	13	17.09398281
breast	0.760392179	19	24.98710602
heart valve	0.756956064	35	46.23782235
forearm	0.751958994	38	50.53467049
nail	0.746440029	19	25.45415473
sternum	0.745876496	34	45.58395415
vocal cords	0.744731929	12	16.11318052
femur	0.742074883	34	45.81747851
large intestine	0.739061381	34	46.00429799
scapula	0.736724058	32	43.43553009
radius	0.733568923	32	43.62234957
shin	0.731108783	35	47.87249284
ulna	0.725030026	32	44.13610315
thigh	0.723074621	36	49.78739255
bone marrow	0.721720549	15	20.78366762
cheek	0.719027562	18	25.03381089
humerus	0.710003497	32	45.07020057
testis	0.707803073	32	45.21031519
uterus	0.705304944	28	39.6991404

sweat gland	0.700088598	12	17.14068768
penis	0.694412204	24	34.56160458
clavicle	0.693565654	31	44.6965616
trachea	0.684655443	11	16.06647564
salivary gland	0.684371236	7	10.22836676
spleen	0.679715649	18	26.48166189
aorta	0.672918493	11	16.34670487
arm	0.662587536	35	52.82320917
lymph vessels	0.65544009	3	4.577077364
coagulation system	0.63913561	26	40.67994269
ovary	0.634124965	17	26.80859599
small intestine	0.62760667	26	41.42722063
tongue	0.627101676	14	22.32492837
red blood cells	0.61040254	26	42.59484241
urinary bladder	0.58749813	18	30.63839542
rectum	0.584755375	13	22.23151862
liver	0.577636051	30	51.93581662
vagina	0.572487779	15	26.20143266
ureter	0.572307752	17	29.70429799
pituitary gland	0.543033698	14	25.78108883
biliary tract	0.528667727	10	18.91547278
anus	0.520106306	6	11.53610315
meninges	0.513549001	13	25.31404011
gallbladder	0.512225908	5	9.761318052
duodenum	0.447617623	6	13.40429799
vulva	0.444007803	9	20.26991404
cerebrospinal fluid	0.344413559	6	17.42091691
prostate	0.311811305	6	19.24240688
fallopian tube	0.303702737	2	6.585386819
thyroid	0.298411748	4	13.40429799
thymus	0.235286186	1	4.250143266
hypothalamus	0.198250398	2	10.08825215
vas deferens	0.133819018	1	7.47277937

appendix	0	0	1.961604585
parathyroid	0	0	3.08252149

### Body Regions

Name	Enrichment ratio	Observed	Expected
head and neck	1.038395387	155	149.2687679
thorax	1.017971001	121	118.8638968
non-specific	1.008827814	152	150.669914
limbs	1.00666748	104	103.3111748
abdomen	0.955501916	98	102.5638968
pelvis	0.866587128	82	94.62406877

### Body Systems

Name	Enrichment ratio	Observed	Expected
skeletal muscle	1.070127493	126	117.7429799
nervous	1.041848167	147	141.0954155
skeleton	1.029377065	115	111.7180516
immune	0.926996447	72	77.67020057
respiratory	0.917776017	82	89.34641834
integumentary	0.896234531	100	111.577937
urinary	0.865786717	63	72.76618911
cardiovascular	0.852180814	88	103.2644699
digestive	0.841890524	81	96.21203438
lymphatic	0.840678987	32	38.06446991
endocrine	0.785541557	39	49.64727794
reproductive	0.715191414	48	67.11489971

P-value	FDR
0.056221919	0.168665756
0.196648329	0.294972494
0.080698167	0.2420945

P-value	FDR
0.071060135	0.999948914
0.271544661	0.999948914
0.065507816	0.999948914
0.053804594	0.999948914
0.137384953	0.999948914
0.220415564	0.999948914
0.312896868	0.999948914
0.15968616	0.999948914
0.429788662	0.999948914
0.152865374	0.999948914
0.402937422	0.999948914
0.444067998	0.504141591
0.432250882	0.496660622
0.40508983	0.473235783
0.451617931	0.504141591
0.467182795	0.516795127
0.475605131	0.521496854
0.433088063	0.496660622
0.368411178	0.447100944
0.359883428	0.445400282
0.34583318	0.432291475
0.451710865	0.504141591
0.381984809	0.45474382
0.245792266	0.330365949

0.365474802	0.447100944
0.334343449	0.42645848
0.2819763	0.371021447
0.321286767	0.414029339
0.143139206	0.221826407
0.267482723	0.35569511
0.22136627	0.304074546
0.176596985	0.25084799
0.202192747	0.283978577
0.387645336	0.457128934
0.121948439	0.20057309
0.145518123	0.221826407
0.158020334	0.227040709
0.154183454	0.22701432
0.14873977	0.224005677
0.072355732	0.138039539
0.033238587	0.086558819
0.112852362	0.18808727
0.375617876	0.451463793
0.037033732	0.090768951
0.030172211	0.080245241
0.093346726	0.159840285
0.084859221	0.151534323
0.016426152	0.055411443
0.070776562	0.138039539
0.00251124	0.024146536
0.070486521	0.138039539
0.070486521	0.138039539
0.110785149	0.187137076
0.017731662	0.055411443
0.31492963	0.410064622
0.043257976	0.098313582
0.012584167	0.052611289

0.345506715	0.432291475
0.050777684	0.11135457
0.038410391	0.09233267
0.007649741	0.043699159
0.155976387	0.22701432
0.004975519	0.035301082
0.029421632	0.079950086
0.062198978	0.129581204
0.042941285	0.098313582
0.061663778	0.129581204
0.12389817	0.201133393
0.035268173	0.088170432
0.156185852	0.22701432
0.213368569	0.296345235
0.142578355	0.221826407
0.089227318	0.154908539
0.021070127	0.062461469
0.013576736	0.054006817
0.074276097	0.138574807
0.017540966	0.055411443
0.134669523	0.215816543
0.015868925	0.055411443
0.01463361	0.055411443
0.017197898	0.055411443
0.015855362	0.055411443
0.010391856	0.049960845
0.012626709	0.052611289
0.007138532	0.043699159
0.079236945	0.14565615
0.055455807	0.119516826
0.008217151	0.044658428
0.007691052	0.043699159
0.012510549	0.052611289



0.086542544	0.152363633
0.01664327	0.055411443
0.005750768	0.037833998
0.08315186	0.150637427
0.144134773	0.221826407
0.028986709	0.079950086
0.072884877	0.138039539
0.00084672	0.019284676
0.237122717	0.322177604
0.002406692	0.024146536
0.013825745	0.054006817
0.001589097	0.022070786
0.021997693	0.062493445
0.000810018	0.019284676
0.003278071	0.025609928
0.011975919	0.052611289
4.24424E-05	0.005305302
0.005083356	0.035301082
0.00276784	0.024712853
0.00309402	0.025609928
0.009107227	0.047433476
0.03499293	0.088170432
0.001858942	0.022949994
0.046833593	0.104539271
0.01027763	0.049960845
0.00154667	0.022070786
0.000515444	0.019284676
0.000116211	0.007263198
0.021486745	0.062461469
0.001079942	0.019284676
0.039959822	0.094244862
0.001019368	0.019284676
0.0020196	0.022949994

0.066256339	0.135771187
0.020640927	0.062461469

P-value	FDR
0.052430458	0.31458275
0.356081773	0.685797356
0.359492949	0.685797356
0.457198237	0.685797356
0.224215127	0.672645382
0.020865795	0.125194768

P-value	FDR
0.071770663	0.518985122
0.08649752	0.518985122
0.290811466	0.999110383
0.182057346	0.242743128
0.119065676	0.187525213
0.024587544	0.072536518
0.057530917	0.115061834
0.006139336	0.028030313
0.007007578	0.028030313
0.125016808	0.187525213
0.030223549	0.072536518
0.000793983	0.009527793