

Supplemental Information

Divergent and convergent evolution of housekeeping genes in human-pig lineage

Supplemental Figures

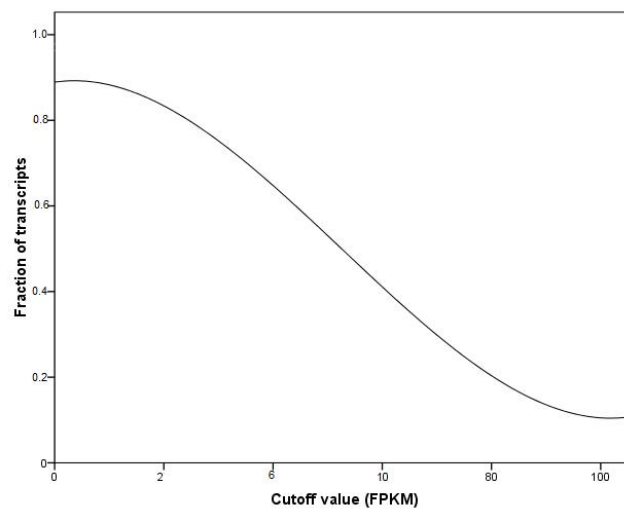


Figure S1. Fraction of transcripts with expression level being greater than a given cutoff value.

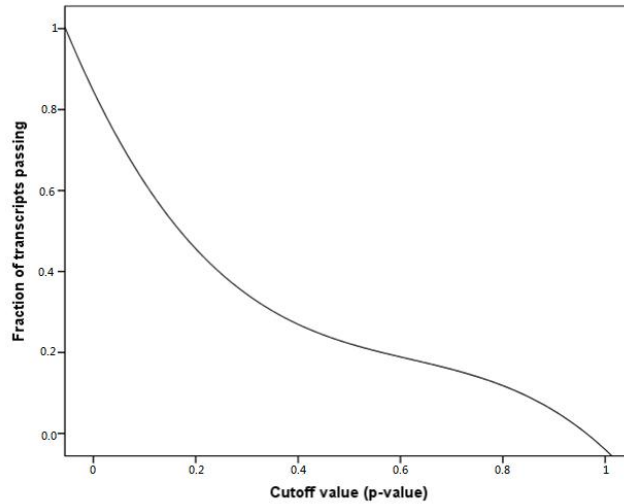


Figure S2 Fraction of transcripts with the p -value being greater than the given cutoff.

The uniformity of transcripts expressing across tissues was tested by the Kolmogorov-Smirnov (K-S) test and accessed by the P -value of the test.

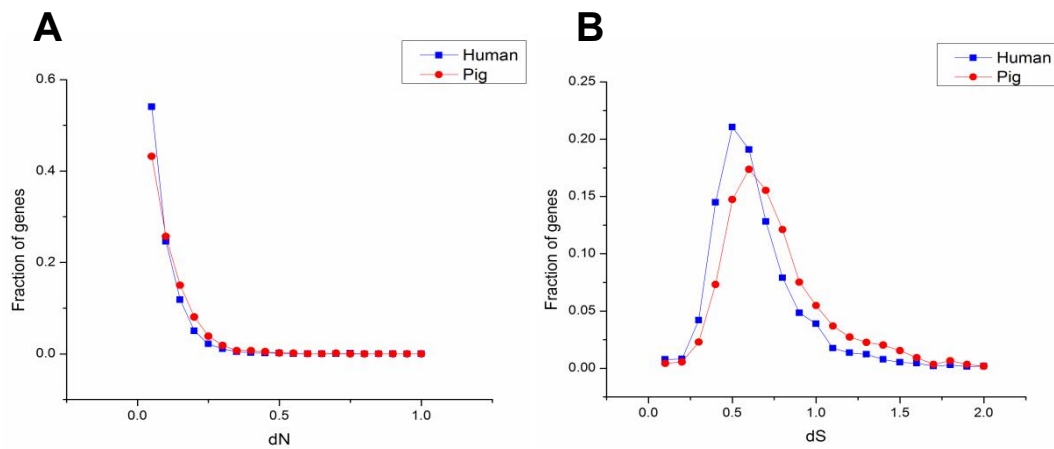


Figure S3 The distribution of dN (A) and dS (B) ratio for housekeeping genes of pig and human.

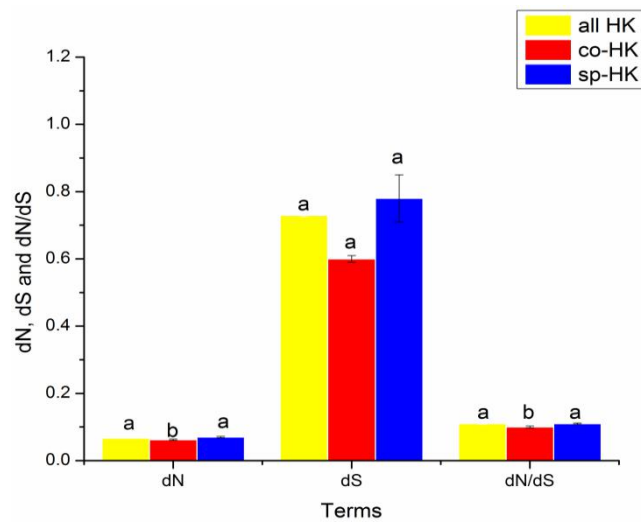


Figure S4 Comparison of evolutionary features in human housekeeping genes.

Significant difference in dN, dS and dN/dS of all, common and species-specific of human housekeeping genes, respectively (Mann-Whitney test, all such means which share a common English letter are similar; otherwise differ significantly at $P < 0.05$).

Supplemental Tables

Table S1 The information of samples.

SRA accession	Number of samples	Number of tissues	Number of reads(million)	Name of tissues	Reference
SRP067181	10	1	877	liver	Martinez-Montes et al. 2016
SRP018856	3	3	263	Backfat, greater omentum, mesenterium	Wang et al. 2013
SRP008516	2	1	50	gonad	Esteve-Codina et al. 2011
SRP032451	10	1	839	hypothalamus	Pérez-Montarelo et al. 2014
SRP026594	6	2	34	Backfat, musculus longissimus dorsi	Jiang et al. 2013
SRP018288	4	4	190	heart, liver, lung, kidney	Li et al. 2013
SRP018102	8	1	247	endometrium	Samborski et al. 2013
SRP058401	6	1	366	ovary	Zhang et al. 2014
SRP014902	3	3	59	placenta, testis, Pool of 11 tissues	Endale Ahanda et al. 2012
ERP013761	31	1	632	blood	Liu et al. 2016
SRP062860	12	1	797	uterine	Rahman et al. 2016
SRP065485	8	1	91	lymph nodes	Miller et al. 2016
SRP027378	8	1	272	endometrium	Samborski et al. 2013
				heart, spleen, liver, kidney, lung, musculus	
ERP002055	20	10	223	longissimus dorsi, occipital cortex, hypothalamus, frontal cortex, cerebellum	Farajzadeh et al. 2013

Table S2 Zinc finger features in pig regulatory proteins

Ensembl gene ID	Gene	Protein	Number	type
ENSSSCG0000005774	ADNP2	ADNP HOMEODOMAIN PROTEIN 2	9	C ₂ H ₂
ENSSSCG0000000587	AEBP2	Zinc finger protein AEBP2	3	C ₂ H ₂
ENSSSCG00000021678	CTCF	Transcriptional repressor CTCF	11	C ₂ H ₂
ENSSSCG00000025577	GATAD1	GATA zinc finger domain-containing protein 1	1	GATA
ENSSSCG00000010316	KAT6B	Histone acetyltransferase KAT6B	3	PHD
ENSSSCG00000015378	SP4	Transcription factor Sp4	3	C ₂ H ₂
ENSSSCG00000001824	ZXDC	Zinc finger protein ZXDC	10	C ₂ H ₂
ENSSSCG00000021094	ASH1L	Histone-lysine N-methyltransferase ASH1L	1	PHD
ENSSSCG00000022832	GTF2E1	General transcription factor 2E subunit 1	1	C ₄
ENSSSCG00000024555	ING2	Inhibitor of growth protein 2	1	PHD
ENSSSCG00000014882	RSF1	Remodeling and spacing factor 1	1	PHD
ENSSSCG00000004861	TSHZ1	Teashirt homolog 1	5	C ₂ H ₂
ENSSSCG00000001477	RING1	E3 ubiquitin-protein ligase RING1	1	RING
ENSSSCG00000022066	PIHS4	E3 SUMO-protein ligase PIAS4	1	RING

Table S3 Zinc finger features in human regulatory proteins

Ensembl gene ID	Gene	Protein	Number	type
ENSG00000102974	CTCF	Transcriptional repressor CTCF	11	C ₂ H ₂
ENSG00000167491	GATAD2A	Transcriptional repressor p66-alpha	1	GATA
ENSG00000109118	PHF12	PHD finger protein 12	2	PHD
ENSG00000084093	REST	RE1-silencing transcription factor	10	C ₂ H ₂
ENSG00000171634	BPTF	Nucleosome-remodeling factor subunit BPTF	2	PHD
ENSG00000137166	FOXP4	Forkhead box protein P4	1	C ₂ H ₂
ENSG00000149480	MTA2	Metastasis-associated protein MTA2	1	GATA
ENSG00000141644	MBD1	Methyl-CpG-binding domain protein 1	3	CXXL
ENSG00000186951	PPARA	Peroxisome proliferator-activated receptor alpha	2	C ₄
ENSG00000186350	RXRA	Retinoic acid receptor RXR-alpha	2	C ₄
ENSG00000213246	SUPT4H1	Transcriptional elongation factor SPT4	1	C ₄
ENSG00000130726	TRIM28	Transcription intermediary factor 1-beta	4	PHD
ENSG00000136870	ZNF189	Zinc finger protein 189	16	C ₂ H ₂
ENSG00000179456	ZBTB18	Zinc finger and BTB domain-containing protein 18	4	C ₂ H ₂