



Supplemental Figure 1
Fon Tacer et al.

Supplemental Table 1. qPCR primer list for mouse FGFs, FGF receptors, Klotho family members and FGFBP1.

Gene	Accession #	Primers
Fgf1	NM_010197	5'ACACCGAAGGGCTTTTATACG3' 5'GTGTAAGTGTTATAATGGTTTTCTTCCA3'
Fgf2	NM_008006	5'CAACCGGTACCTTGCTATGA3' 5'TCCGTGACCGGTAAGTATTG3'
Fgf3	NM_008007	5'ACGGCAGCCTTGAGAACA3' 5'CCACTTCCACCGCAGTAATC3'
Fgf4	NM_010202	5'CGGCTCTACTGCAACGTG3' 5'CGGAGAGAGCTCCAGAAGAC3'
Fgf5	NM_010203.	5'CTGCAGATCTACCCGGATG3' 5'TCCTCGTATTCTACAATCCC3'
Fgf6	NM_010204	5'CTGTACACAACGCCAGCTT3' 5'TTGTTTGGAAGGAGGGTTTCTC3'
Fgf7	NM_008008	5'AAGGGACCCAGGAGATGAAG3' 5'ACTGCCACGGTCCTGATT3'
Fgf8	NM_010205	5'CATGGCAGAAGACGGAGAC3' 5'ACTCGGACTCTGCTTCCAAA3'
Fgf9	NM_013518	5'CTATCCAGGGAACCAGGAAAGA3' 5'CAGGCCCACTGCTATACTGATAAA3'
Fgf10	NM_008002	5'GCGGGACCAAGAATGAAGA3' 5'AGTTGCTGTTGATGGCTTTGA3'
Fgf11	NM_010198	5'TTGTACAGCTCGCCACATTT3' 5'GTAATTCTCAAAGACGCACTCCTT3'
Fgf12	b:NM_010199 a:NM_183064	5'CATTTTGTACCAAACCTATTGAAGTG3' 5'TCCTTGAGCGTCCTTGCTT3'
Fgf13	NM_010200	5'AATGAACAGCGAGGGATACTTG3' 5'ACTGATTCTTTGAATTTGCACTCA3'
Fgf14	a:NM_010201 b:NM_207667	5'CCCGATGGAGCTCTCGAT3' 5'GGTTGAACAGTGTGGAATTGGT3'
Fgf15	NM_008003	5'ACGGGCTGATTTCGCTACTC3' 5'TGTAGCCTAAACAGTCCATTTCCT3'
Fgf16	NM_030614	5'GGCCTGTACCTAGGAATGAATGA3' 5'TTCCCGGAAAACACATTCAC3'
Fgf17	NM_008004	5'GGCAAATCCGTGAATACCA3' 5'CTGCTGCCGAATGTATCTGT3'
Fgf18	NM_008005	5'TGCTGTGCTTCCAGGTTCA3' 5'GGATGCGGAAGTCCACATT3'
Fgf20	NM_030610	5'CGGCAGGATCACAGTCTCTT3' 5'CCAGTCCCACTGCCACACT3'
Fgf21	NM_020013	5'CCTCTAGGTTTCTTTGCCAACAG3' 5'AAGCTGCAGGCCTCAGGAT3'
Fgf22	NM_023304	5'GTGGGCACTGTGGTGATCA3' 5'GCGATTTCATGGCCACATAGA3'

Fgf23	NM_022657	5'CCCCATCAGACCATCTACA3' 5'TTCGAGTCATGGCTCCTGTT3'
Fgfr1b	IIIb: AF176552.1	5'CAACTTGCCGTATGTCCAGATC3' 5'CTCCGCATCCGAGCTATTAA3'
Fgfr1c	IIIc: NM_010206	5'GCCAGACAACCTTGCCGTATG3' 5'ATTCCTTGTCGGTGGTATTAACTC3'
Fgfr2b	IIIb:NM_201601	5'GGGCTGCCCTACCTCAAG3' 5'CTTCTGCATTGGAGCTATTTATCC3'
Fgfr2c	IIIc:NM_010207	5'CCCGGCCCTCCTTCA3' 5'GTTGGGAGATTTGGTATTTGGTT3'
Fgfr3b	L26492 (7-8-9-10 + introns)	5'GCACGCCCTACGTCACTGTA3' 5'GCGTCTGCCTCCACATTCT3'
Fgfr3c	NM_008010	5'ACGGCACGCCCTACGT3' 5'CTCCTTGTCGGTGGTGTTAGC3'
Fgfr4	NM_008011	5'CGCCAGCCTGTCACTATACAAA3' 5'CCAGAGGACCTCGACTCCAA3'
Kl	NM_013823	5'AATTATGTGAATGAGGCTCTGAAAG3' 5'TACGCAAAGTAGCCACAAAGG3'
Klb	NM_031180	5'GATGAAGAATTTCTAAACCAGGTT3' 5'AACCAAACACGCGGATTTCT3'
Fgfbp1	NM_008009.3	5'CCCCAGTACACCTGGATCTG3' 5'CAGGATGAGGCTGTGGAGTCT3'
Lctl	NM_145835	5'CTTGGAACCTTGCTCCATCAAC3' 5'CACGTGCATGTGCCTAAGC3'

Supplemental Table 2. FGF expression: comparison of current study with the literature. Tissues in which transcripts were detected with cycle times ≤ 34 are highlighted in yellow while those in which the relative mRNA values were ≥ 0.1 (high expression) are highlighted in orange. References to literature reports for mRNA expression in mouse or rat tissues are indicated.

FGF	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	21	22	23	
Eye																							
Brain stem	(1, 2)	(1-4)							(5)										(6)				
Cerebellum	(2)	(1, 2)			(7)				(5)														
Cerebrum	(2, 8)	(2, 3)			(7)				(5)														
Corpus striatum																							
Olfactory bulb		(3)							(5)														
Spinal cord	(2)	(2)		(9)	(7)																		
Hypothalamus	(2)	(2)																					
Pituitary		(10)																					
Adrenal																							
Thyroid																							
Pancreas																							
Tongue																						(11)	
Stomach																							
Duodenum							(12)																
Jejunum																							
Ileum				(9)											(13)								
Colon							(12)																
Gall bladder																							
Liver																				(14)		(15)	
Kidney							(16)																
BAT																							
WAT	(17)	(17)					(17)		(17)	(17, 18)									(17)				
Spleen																			(19)			(20)	
Thymus																						(15, 20, 21)	
Ovary								(22, 23)															
Uterus																							
Epididymus		(24)						(24)															
Preputial gland																							
Prostate		(25)					(25)	(26)	(25)	(27)							(28)						
Seminal vesicle																							
Testis		(29-32)				(33)		(23)	(34)			(35)		(35)				(19)				(20)	
Vas deferens																							
Aorta																							
Heart						(33)							(35)			(36)		(19)				(15, 20, 21)	
Lung							(12)			(12)												(20)	
Bone																						(15, 20)	
Muscle						(33)												(19)				(20)	
Skin	(37)	(37)			(37, 38)		(37, 39)			(12, 37)			(37)					(37)				(11, 37)	(20)

1. Bean AJ, Elde R, Cao YH, Oellig C, Tamminga C, Goldstein M, Pettersson RF, Hokfelt T 1991 Expression of acidic and basic fibroblast growth factors in the substantia nigra of rat, monkey, and human. *Proc Natl Acad Sci U S A* 88:10237-10241
2. Stock A, Kuzis K, Woodward WR, Nishi R, Eckenstein FP 1992 Localization of acidic fibroblast growth factor in specific subcortical neuronal populations. *J Neurosci* 12:4688-4700
3. Ernfors P, Lonnerberg P, Ayer-LeLievre C, Persson H 1990 Developmental and regional expression of basic fibroblast growth factor mRNA in the rat central nervous system. *J Neurosci Res* 27:10-15
4. Grothe C, Janet T 1995 Expression of FGF-2 and FGF receptor type 1 in the adult rat brainstem: effect of colchicine. *J Comp Neurol* 353:18-24
5. Todo T, Kondo T, Nakamura S, Kirino T, Kurokawa T, Ikeda K 1998 Neuronal localization of fibroblast growth factor-9 immunoreactivity in human and rat brain. *Brain Res* 783:179-187
6. Ohmachi S, Watanabe Y, Mikami T, Kusu N, Ibi T, Akaike A, Itoh N 2000 FGF-20, a novel neurotrophic factor, preferentially expressed in the substantia nigra pars compacta of rat brain. *Biochem Biophys Res Commun* 277:355-360
7. Haub O, Drucker B, Goldfarb M 1990 Expression of the murine fibroblast growth factor 5 gene in the adult central nervous system. *Proc Natl Acad Sci U S A* 87:8022-8026
8. Bizon JL, Lauterborn JC, Isackson PJ, Gall CM 1996 Acidic fibroblast growth factor mRNA is expressed by basal forebrain and striatal cholinergic neurons. *J Comp Neurol* 366:379-389
9. Yamamoto H, Ochiya T, Takahama Y, Ishii Y, Osumi N, Sakamoto H, Terada M 2000 Detection of spatial localization of Hst-1/Fgf-4 gene expression in brain and testis from adult mice. *Oncogene* 19:3805-3810
10. Gonzalez AM, Logan A, Ying W, Lappi DA, Berry M, Baird A 1994 Fibroblast growth factor in the hypothalamic-pituitary axis: differential expression of fibroblast growth factor-2 and a high affinity receptor. *Endocrinology* 134:2289-2297
11. Beyer TA, Werner S, Dickson C, Grose R 2003 Fibroblast growth factor 22 and its potential role during skin development and repair. *Exp Cell Res* 287:228-236
12. Beer HD, Florence C, Dammeier J, McGuire L, Werner S, Duan DR 1997 Mouse fibroblast growth factor 10: cDNA cloning, protein characterization, and regulation of mRNA expression. *Oncogene* 15:2211-2218
13. Inagaki T, Choi M, Moschetta A, Peng L, Cummins CL, McDonald JG, Luo G, Jones SA, Goodwin B, Richardson JA, Gerard RD, Repa JJ, Mangelsdorf DJ, Kliewer SA 2005 Fibroblast growth factor 15 functions as an enterohepatic signal to regulate bile acid homeostasis. *Cell Metab* 2:217-225
14. Inagaki T, Dutchak P, Zhao G, Ding X, Gautron L, Parameswara V, Li Y, Goetz R, Mohammadi M, Esser V, Elmquist JK, Gerard RD, Burgess SC, Hammer RE, Mangelsdorf DJ, Kliewer SA 2007 Endocrine regulation of the fasting response by PPARalpha-mediated induction of Fibroblast Growth Factor 21. *Cell Metab* 5:415-425
15. Shimada T, Mizutani S, Muto T, Yoneya T, Hino R, Takeda S, Takeuchi Y, Fujita T, Fukumoto S, Yamashita T 2001 Cloning and characterization of FGF23 as a causative factor of tumor-induced osteomalacia. *Proc Natl Acad Sci U S A* 98:6500-6505
16. Cancilla B, Davies A, Cauchi JA, Risbridger GP, Bertram JF 2001 Fibroblast growth factor receptors and their ligands in the adult rat kidney. *Kidney Int* 60:147-155
17. Gabrielson BG, Johansson JM, Jennische E, Jernas M, Itoh Y, Peltonen M, Olbers T, Lonn L, Lonroth H, Sjostrom L, Carlsson B, Carlsson LM, Lonn M 2002 Depot-specific expression of fibroblast growth factors in human adipose tissue. *Obes Res* 10:608-616
18. Yamasaki M, Emoto H, Konishi M, Mikami T, Ohuchi H, Nakao K, Itoh N 1999 FGF-10 is a growth factor for preadipocytes in white adipose tissue. *Biochem Biophys Res Commun* 258:109-112
19. Hu MC, Qiu WR, Wang YP, Hill D, Ring BD, Scully S, Bolon B, DeRose M, Luethy R, Simonet WS, Arakawa T, Danilenko DM 1998 FGF-18, a novel member of the fibroblast growth factor family, stimulates hepatic and intestinal proliferation. *Mol Cell Biol* 18:6063-6074
20. Liu S, Guo R, Simpson LG, Xiao ZS, Burnham CE, Quarles LD 2003 Regulation of fibroblastic growth factor 23 expression but not degradation by PHEX. *J Biol Chem* 278:37419-37426

21. Yamashita T, Yoshioka M, Itoh N 2000 Identification of a novel fibroblast growth factor, FGF-23, preferentially expressed in the ventrolateral thalamic nucleus of the brain. *Biochem Biophys Res Commun* 277:494-498
22. Buratini J, Jr., Teixeira AB, Costa IB, Glapinski VF, Pinto MG, Giometti IC, Barros CM, Cao M, Nicola ES, Price CA 2005 Expression of fibroblast growth factor-8 and regulation of cognate receptors, fibroblast growth factor receptor-3c and -4, in bovine antral follicles. *Reproduction* 130:343-350
23. MacArthur CA, Shankar DB, Shackleford GM 1995 Fgf-8, activated by proviral insertion, cooperates with the Wnt-1 transgene in murine mammary tumorigenesis. *J Virol* 69:2501-2507
24. Kirby JL, Yang L, Labus JC, Hinton BT 2003 Characterization of fibroblast growth factor receptors expressed in principal cells in the initial segment of the rat epididymis. *Biol Reprod* 68:2314-2321
25. Giri D, Ropiquet F, Ittmann M 1999 Alterations in expression of basic fibroblast growth factor (FGF) 2 and its receptor FGFR-1 in human prostate cancer. *Clin Cancer Res* 5:1063-1071
26. Ghosh AK, Shankar DB, Shackleford GM, Wu K, T'Ang A, Miller GJ, Zheng J, Roy-Burman P 1996 Molecular cloning and characterization of human FGF8 alternative messenger RNA forms. *Cell Growth Differ* 7:1425-1434
27. Thomson AA, Cunha GR 1999 Prostatic growth and development are regulated by FGF10. *Development* 126:3693-3701
28. Polnaszek N, Kwabi-Addo B, Wang J, Ittmann M 2004 FGF17 is an autocrine prostatic epithelial growth factor and is upregulated in benign prostatic hyperplasia. *Prostate* 60:18-24
29. Koike S, Noumura T 1994 Cell- and stage-specific expression of basic FGF in the developing rat gonads. *Growth Regul* 4:77-81
30. Mayerhofer A, Russell LD, Grothe C, Rudolf M, Gratzl M 1991 Presence and localization of a 30-kDa basic fibroblast growth factor-like protein in rodent testes. *Endocrinology* 129:921-924
31. Lahr G, Mayerhofer A, Seidl K, Bucher S, Grothe C, Knochel W, Gratzl M 1992 Basic fibroblast growth factor (bFGF) in rodent testis. Presence of bFGF mRNA and of a 30 kDa bFGF protein in pachytene spermatocytes. *FEBS Lett* 302:43-46
32. Han IS, Sylvester SR, Kim KH, Schelling ME, Venkateswaran S, Blanckaert VD, McGuinness MP, Griswold MD 1993 Basic fibroblast growth factor is a testicular germ cell product which may regulate Sertoli cell function. *Mol Endocrinol* 7:889-897
33. de Lapeyriere O, Rosnet O, Benharroch D, Raybaud F, Marchetto S, Planche J, Galland F, Mattei MG, Copeland NG, Jenkins NA, et al. 1990 Structure, chromosome mapping and expression of the murine Fgf-6 gene. *Oncogene* 5:823-831
34. Lin YM, Tsai CC, Chung CL, Chen PR, Sunny Sun H, Tsai SJ, Huang BM 2009 Fibroblast growth factor 9 stimulates steroidogenesis in postnatal Leydig cells. *Int J Androl*
35. Smallwood PM, Munoz-Sanjuan I, Tong P, Macke JP, Hendry SH, Gilbert DJ, Copeland NG, Jenkins NA, Nathans J 1996 Fibroblast growth factor (FGF) homologous factors: new members of the FGF family implicated in nervous system development. *Proc Natl Acad Sci U S A* 93:9850-9857
36. Miyake A, Konishi M, Martin FH, Hernday NA, Ozaki K, Yamamoto S, Mikami T, Arakawa T, Itoh N 1998 Structure and expression of a novel member, FGF-16, on the fibroblast growth factor family. *Biochem Biophys Res Commun* 243:148-152
37. Kawano M, Komi-Kuramochi A, Asada M, Suzuki M, Oki J, Jiang J, Imamura T 2005 Comprehensive analysis of FGF and FGFR expression in skin: FGF18 is highly expressed in hair follicles and capable of inducing anagen from telogen stage hair follicles. *J Invest Dermatol* 124:877-885
38. Suzuki S, Kato T, Takimoto H, Masui S, Oshima H, Ozawa K, Imamura T 1998 Localization of rat FGF-5 protein in skin macrophage-like cells and FGF-5S protein in hair follicle: possible involvement of two Fgf-5 gene products in hair growth cycle regulation. *J Invest Dermatol* 111:963-972
39. Werner S, Peters KG, Longaker MT, Fuller-Pace F, Banda MJ, Williams LT 1992 Large induction of keratinocyte growth factor expression in the dermis during wound healing. *Proc Natl Acad Sci U S A* 89:6896-6900

Supplemental Table 3. FGF receptor and co-receptor expression: comparison of current study with the literature. Tissues in which transcripts were detected with cycle times ≤ 34 are highlighted in yellow while those in which the relative mRNA values were ≥ 0.1 (high expression) are highlighted in orange. References to literature reports for mRNA expression in mouse or rat tissues are indicated.

	FGFR1b	FGFR1c	FGFR2b	FGFR2c	FGFR3b	FGFR3c	FGFR4	Klotho	β -Klotho	Lctf	FGFBP1
Eye											(1)
Brain stem											
Cerebellum	(2)										
Cerebrum											
Corpus striatum											
Olfactory bulb											
Spinal cord											
Hypothalamus											
Pituitary								(3)			
Adrenal							(4)				
Thyroid								(3)			
Pancreas							(4)	(3)	(5)		
Tongue											(1)
Stomach									(5)		
Duodenum							(4)		(5)		(1, 6)
Jejunum							(4)		(5)		(1, 6)
Ileum							(4)		(5)		(1, 6)
Colon					(7)			(3)			(1, 6)
Gall bladder											
Liver							(4)		(5)		
Kidney	(8)	(2, 8)	(8)	(8)	(8)	(8)	(4)	(3)		(9)	
BAT											
WAT											
Spleen											
Thymus											(1)
Ovary								(3)			
Uterus											
Epididymus	(10)	(10)	(10)	(10)	(10)	(10)					
Preputial gland											
Prostate											
Seminal vesicle											
Testis		(2)						(3)			
Vas deferens											
Aorta											
Heart		(2)									
Lung		(2)	(2)			(11)	(4)		(5)		(1, 6)
Bone											
Muscle								(3)	(5)		
Skin	(2)		(2)		(11)					(9)	(1, 6)

1. Aigner A, Malerczyk C, Houghtling R, Wellstein A 2000 Tissue distribution and retinoid-mediated downregulation of an FGF-binding protein (FGF-BP) in the rat. *Growth Factors* 18:51-62
2. Beer HD, Vindevoghel L, Gait MJ, Revest JM, Duan DR, Mason I, Dickson C, Werner S 2000 Fibroblast growth factor (FGF) receptor 1-IIIb is a naturally occurring functional receptor for FGFs that is preferentially expressed in the skin and the brain. *J Biol Chem* 275:16091-16097
3. Kuro-o M, Matsumura Y, Aizawa H, Kawaguchi H, Suga T, Utsugi T, Ohyama Y, Kurabayashi M, Kaname T, Kume E, Iwasaki H, Iida A, Shiraki-Iida T, Nishikawa S, Nagai R, Nabeshima YI 1997 Mutation of the mouse klotho gene leads to a syndrome resembling ageing. *Nature* 390:45-51
4. Partanen J, Makela TP, Eerola E, Korhonen J, Hirvonen H, Claesson-Welsh L, Alitalo K 1991 FGFR-4, a novel acidic fibroblast growth factor receptor with a distinct expression pattern. *Embo J* 10:1347-1354
5. Ito S, Kinoshita S, Shiraishi N, Nakagawa S, Sekine S, Fujimori T, Nabeshima YI 2000 Molecular cloning and expression analyses of mouse betaklotho, which encodes a novel Klotho family protein. *Mech Dev* 98:115-119
6. Kurtz A, Wang HL, Darwiche N, Harris V, Wellstein A 1997 Expression of a binding protein for FGF is associated with epithelial development and skin carcinogenesis. *Oncogene* 14:2671-2681
7. Murgue B, Tsunekawa S, Rosenberg I, deBeaumont M, Podolsky DK 1994 Identification of a novel variant form of fibroblast growth factor receptor 3 (FGFR3 IIIb) in human colonic epithelium. *Cancer Res* 54:5206-5211
8. Cancilla B, Davies A, Cauchi JA, Risbridger GP, Bertram JF 2001 Fibroblast growth factor receptors and their ligands in the adult rat kidney. *Kidney Int* 60:147-155
9. Ito S, Fujimori T, Hayashizaki Y, Nabeshima Y 2002 Identification of a novel mouse membrane-bound family 1 glycosidase-like protein, which carries an atypical active site structure. *Biochim Biophys Acta* 1576:341-345
10. Kirby JL, Yang L, Labus JC, Hinton BT 2003 Characterization of fibroblast growth factor receptors expressed in principal cells in the initial segment of the rat epididymis. *Biol Reprod* 68:2314-2321
11. Chellaiah AT, McEwen DG, Werner S, Xu J, Ornitz DM 1994 Fibroblast growth factor receptor (FGFR) 3. Alternative splicing in immunoglobulin-like domain III creates a receptor highly specific for acidic FGF/FGF-1. *J Biol Chem* 269:11620-11627