

Table S1. Comparison between expression and activation of proteins known to play a role in canonical FGF signaling and that of RCS cells.

Proteins implicated in FGF signaling	Expression RCS cells*	Identified Phosphopeptides	Log2 Difference in intensity***
FGFR1	yes	no	
FGFR2	no	n/a	
FGFR3	yes**	QVSLESNSSMNSNTPLVR	-1.18
FGFR4	no	n/a	
HRAS	yes	no	
KRAS	yes	no	
NRAS	yes	no	
RRAS2	yes	FQEQECPPSPEPTR	-1.1
FRS2	yes**	HNSTDLP	-2.32
RASA1	yes	no	
RASA2	yes	no	
RASA3	yes	QQSEISTHSI	-2.08
RASA4	yes	no	
RAF1	yes**	STSTPNVHVMVSTTLPVDSR	-0.82
MAP3K2	yes	no	
MAP3K3	yes	LRSADSENALTVQER	-0.98
		SADSENALTVQER	-1.85
MAP3K4	yes	no	
MAP3K5	no	n/a	
MAP3K7	yes	MSADMSEIEAR	-1.57
GRB2	yes	no	
RAC1	yes	no	
RALA	yes	no	
RALB	yes	no	
RALBP1	yes	RTEGYAAFQEDSSGDEAESPSK	-1.19
RALGDS	no		
CDC42	yes	no	
MAP2K1	yes	no	
MAP2K2	yes	no	
MAP2K3	no	n/a	
MAP2K4	yes	ILDQMPATPSSPMYVD	1.18
MAP2K5	yes	no	

MAP2K6	yes	no	
MAPK1	yes**	no	
MAPK3	yes**	no	
MAPK8	yes**	no	
MAPK9	yes	no	
MAPK10	no	n/a	
MAPK11	no	n/a	
MAPK12	no	n/a	
MAPK13	no	n/a	
MAPK14	yes**	HTDDEMTGYVATR	-1.52
PLD1	yes	no	
PLD2	yes	no	
PLD3	yes	no	
PLCG1	yes**	ENGDLSPFSGTSLR	-2.24
PLCG2	yes	no	
ITPR1	yes	no	
ITPR2	yes	no	
ITPR3	yes	no	
PRKCA	yes	STLNPQWNESFTFK	-1.57
PRKCD	yes	no	
PRKCE	yes	no	
PRKCI	yes	no	
PRKCSH	yes	no	
PRKD1	yes	RLSNVSLTGLGTVR	-1.35
PRKD3	yes	no	
SOS1	yes	DGPPLLENAHSS	-0.84
SOS2	yes	no	
PIK3R1	yes	no	
PIK3R2	yes	no	
PIK3R3	yes	no	
PIK3R4	yes	no	
PIK3R5	no	n/a	
ATF2	yes**	no	

* Detected in this study

** confirm by immunoblotting in this study or elsewhere.

***Difference in the intensity of phosphopeptides compared to control.

n/a - not applicable

Table S2. GO category enrichment analysis of the FGFome (untreated cells compared to 2 and 8 hrs FGF1 treatment)

UNIPROT ACCESSION NUMBER	GENE NAME
2 hours	<u>Transcription regulation</u>
397728	CBF1 interacting corepressor
412786	ESF1, nucleolar pre-rRNA processing protein, homolog (<i>S. cerevisiae</i>)
390968	Jun oncogene
392680	Leo1, Paf1/RNA polymerase II complex component, homolog (<i>S. cerevisiae</i>)
378769	MYB binding protein (P160) 1a
410755	PC4 and SFRS1 interacting protein 1
391452	TAF6 RNA polymerase II, TATA box binding protein (TBP)-associated factor
394133	WNK lysine deficient protein kinase 4; vacuolar protein sorting 25 homolog (<i>S. cerevisiae</i>); cyclin N-terminal domain containing 1
381844	Y box binding protein 1
400118	arginine-glutamic acid dipeptide (RE) repeats
402470	basic leucine zipper and W2 domains 1
387600	catenin (cadherin associated protein), beta 1
415934	cell division cycle associated 7
404215	coiled-coil and C2 domain containing 1A
394530	cold shock domain protein A
381955	cullin-associated and neddylation-dissociated 1
407748	forkhead box C2
417456	general transcription factor IIF, polypeptide 1
387121	glucocorticoid receptor DNA binding factor 1
410521	hepatoma-derived growth factor
383170	high mobility group AT-hook 1
388418	interferon regulatory factor 3; serine/threonine kinase 22 substrate 1
381744	interleukin enhancer binding factor 3
397677	leucine rich repeat (in FLII) interacting protein 1
412480	mediator complex subunit 24
417264	nuclear factor I/C
416382	nuclear receptor co-repressor 1
395840	purine rich element binding protein B
404715	ribosomal RNA processing 8, methyltransferase, homolog (yeast)
408388	scaffold attachment factor B
417213	siah binding protein 1; FBP interacting repressor; pyrimidine tract binding splicing factor; Ro ribonucleoprotein-binding protein 1
400320	similar to thyroid hormone receptor associated protein 3; thyroid hormone receptor associated protein 3
385671	staphylococcal nuclease and tudor domain containing 1

408665	structure specific recognition protein 1
410555	timeless homolog (Drosophila)
390930	transcription elongation factor B (SIII), polypeptide 3
408228	tripartite motif-containing 28
412086	zinc finger protein 148
408628	zinc finger protein 394
409371	zinc fingers and homeoboxes 1

Regulation of cellular response to stress

393186	DIX domain containing 1
412842	mitogen activated protein kinase kinase kinase 7
401843	multiple endocrine neoplasia 1
393276	nuclear distribution gene E-like homolog 1 (A. nidulans)
416382	nuclear receptor co-repressor 1
412548	p21 protein (Cdc42/Rac)-activated kinase 1
409190	programmed cell death 4
397143	secreted phosphoprotein 1
416856	v-akt murine thymoma viral oncogene homolog 1
396002	v-crk sarcoma virus CT10 oncogene homolog (avian)

Organelle lumen

397728	CBF1 interacting corepressor
414454	DEAD (Asp-Glu-Ala-Asp) box polypeptide 21
405760	DEAD (Asp-Glu-Ala-Asp) box polypeptide 24
412786	ESF1, nucleolar pre-rRNA processing protein, homolog (S. cerevisiae)
409149	FUS interacting protein (serine-arginine rich) 1
394075	FtsJ homolog 3 (E. coli)
383038	G protein-coupled receptor kinase interacting ArfGAP 2
390968	Jun oncogene
410307	La ribonucleoprotein domain family, member 7
392680	Leo1, Paf1/RNA polymerase II complex component, homolog (S. cerevisiae)
378769	MYB binding protein (P160) 1a
394586	PTK2 protein tyrosine kinase 2
413832	RD RNA-binding protein
405897	RNA (guanine-7-) methyltransferase
406827	RRS1 ribosome biogenesis regulator homolog (S. cerevisiae)
401399	SFRS protein kinase 2
391452	TAF6 RNA polymerase II, TATA box binding protein (TBP)-associated factor
392843	aldolase A, fructose-bisphosphate; similar to Fructose-bisphosphate aldolase A (Muscle-type aldolase)
408863	apoptosis antagonizing transcription factor
405621	calumenin
386379	cancer susceptibility candidate 3

387600	catenin (cadherin associated protein), beta 1
415207	cell division cycle 2, G1 to S and G2 to M
416513	chromatin assembly factor 1, subunit B (p60)
404215	coiled-coil and C2 domain containing 1A
386938	cyclin dependent kinase 2
388567	dual specificity phosphatase 6
395345	enhancer of zeste homolog 2 (Drosophila)
417456	general transcription factor IIF, polypeptide 1
383563	heterogeneous nuclear ribonucleoprotein H1
400114	heterogeneous nuclear ribonucleoprotein K
403975	inhibitor of growth family, member 5
388418	interferon regulatory factor 3; serine/threonine kinase 22 substrate 1
381744	interleukin enhancer binding factor 3
412480	mediator complex subunit 24
393441	mediator of DNA damage checkpoint 1
395663	metastasis associated 1
415416	mevalonate (diphospho) decarboxylase
387335	mitogen activated protein kinase 14
401843	multiple endocrine neoplasia 1
404408	myeloid cell leukemia sequence 1
416217	nuclear fragile X mental retardation protein interacting protein 1
416382	nuclear receptor co-repressor 1
406024	nucleoporin 153
412291	nucleoporin 98kDa
390682	peptidylprolyl isomerase G
379682	pseudouridylate synthase 1
404715	ribosomal RNA processing 8, methyltransferase, homolog (yeast)
393619	similar to Heterogeneous nuclear ribonucleoprotein A1 (Helix-destabilizing protein) (Single-strand binding protein) (hnRNP core protein A1) (HDP-1) (Topoisomerase-inhibitor suppressed)
405950	similar to heterogeneous nuclear ribonucleoprotein H2; heterogeneous nuclear ribonucleoprotein H2 (H')
400320	similar to thyroid hormone receptor associated protein 3; thyroid hormone receptor associated protein 3
408665	structure specific recognition protein 1
409957	survival motor neuron 1
411072	telomeric repeat binding factor 2, interacting protein
389354	topoisomerase (DNA) II alpha
390930	transcription elongation factor B (SIII), polypeptide 3
408228	tripartite motif-containing 28
385736	tuftelin interacting protein 11
416856	v-akt murine thymoma viral oncogene homolog 1

Negative regulation of cellular biosynthetic process

414236	BCL2-associated transcription factor 1
397728	CBF1 interacting corepressor
378769	MYB binding protein (P160) 1a
391544	SRY (sex determining region Y)-box 6
381844	Y box binding protein 1
408863	apoptosis antagonizing transcription factor
387600	catenin (cadherin associated protein), beta 1
394530	cold shock domain protein A
417931	eukaryotic translation initiation factor 2 alpha kinase 3
380670	eukaryotic translation initiation factor 4E binding protein 1
387121	glucocorticoid receptor DNA binding factor 1
391060	hexamethylene bis-acetamide inducible 2
410038	inositol polyphosphate phosphatase-like 1
381744	interleukin enhancer binding factor 3
401843	multiple endocrine neoplasia 1
379358	neural precursor cell expressed, developmentally down-regulated gene 4
417264	nuclear factor I/C
416382	nuclear receptor co-repressor 1
409190	programmed cell death 4
381585	protein kinase C, alpha
395840	purine rich element binding protein B
410555	timeless homolog (Drosophila)
408228	tripartite motif-containing 28
412086	zinc finger protein 148
409371	zinc fingers and homeoboxes 1

mRNA processing

397728	CBF1 interacting corepressor
409149	FUS interacting protein (serine-arginine rich) 1
405897	RNA (guanine-7-) methyltransferase
401399	SFRS protein kinase 2
412589	SR-related CTD-associated factor 1
381844	Y box binding protein 1
386379	cancer susceptibility candidate 3
417456	general transcription factor IIF, polypeptide 1
383563	heterogeneous nuclear ribonucleoprotein H1
400114	heterogeneous nuclear ribonucleoprotein K
383397	serine/arginine repetitive matrix 1
417213	siah binding protein 1; FBP interacting repressor; pyrimidine tract binding splicing factor; Ro ribonucleoprotein-binding protein 1

393619	similar to Heterogeneous nuclear ribonucleoprotein A1 (Helix-destabilizing protein) (Single-strand binding protein) (hnRNP core protein A1) (HDP-1) (Topoisomerase-inhibitor suppressed)
405950	similar to heterogeneous nuclear ribonucleoprotein H2; heterogeneous nuclear ribonucleoprotein H2 (H')
378848	snurportin 1
396533	squamous cell carcinoma antigen recognized by T cells
409957	survival motor neuron 1
399853	transformer-2 alpha
385736	tuftelin interacting protein 11
394598	zinc finger protein 36

Regulation of microtubule cytoskeleton organization

404077	Rho-associated coiled-coil containing protein kinase 2
387600	catenin (cadherin associated protein), beta 1
406043	cytoplasmic linker associated protein 2
404036	microtubule-associated protein 1A
403480	microtubule-associated protein 2
413797	microtubule-associated protein 4
386914	stathmin 1

Protein serine/threonine kinase activity

381742	3-phosphoinositide dependent protein kinase-1
384853	AP2 associated kinase 1
413259	CDC42 binding protein kinase alpha
405354	MAP/microtubule affinity-regulating kinase 2
398689	PAS domain containing serine/threonine kinase
404077	Rho-associated coiled-coil containing protein kinase 2
401399	SFRS protein kinase 2
394133	WNK lysine deficient protein kinase 4; similar to Vacuolar protein sorting protein 25 (ELL-associated protein of 20 kDa);
378637	casein kinase 1, alpha 1
415207	cell division cycle 2, G1 to S and G2 to M
394418	cyclin D3
386938	cyclin dependent kinase 2
417931	eukaryotic translation initiation factor 2 alpha kinase 3
387335	mitogen activated protein kinase 14
412608	mitogen activated protein kinase kinase kinase 3
412842	mitogen activated protein kinase kinase kinase 7
412548	p21 protein (Cdc42/Rac)-activated kinase 1
402273	p21 protein (Cdc42/Rac)-activated kinase 2
381585	protein kinase C, alpha
410666	protein kinase D1
416856	v-akt murine thymoma viral oncogene homolog 1
411274	v-raf-leukemia viral oncogene 1

Negative regulation of protein kinase activity

381742	3-phosphoinositide dependent protein kinase-1
388567	dual specificity phosphatase 6
391060	hexamethylene bis-acetamide inducible 2
410038	inositol polyphosphate phosphatase-like 1
401843	multiple endocrine neoplasia 1
409190	programmed cell death 4
381585	protein kinase C, alpha
416856	v-akt murine thymoma viral oncogene homolog 1

Regulation of phosphorylation

381742	3-phosphoinositide dependent protein kinase-1
402133	ATPase, Cu ⁺⁺ transporting, alpha polypeptide
389158	B-cell CLL/lymphoma 10; dimethylarginine dimethylaminohydrolase 1
390968	Jun oncogene
394418	cyclin D3
388567	dual specificity phosphatase 6
391060	hexamethylene bis-acetamide inducible 2
410038	inositol polyphosphate phosphatase-like 1
382720	insulin receptor substrate 1
395935	lysophosphatidic acid receptor 1
412842	mitogen activated protein kinase kinase kinase 7
401843	multiple endocrine neoplasia 1
412548	p21 protein (Cdc42/Rac)-activated kinase 1
389525	presenilin 2; chaperone, ABC1 activity of bc1 complex homolog (S. pombe)
409190	programmed cell death 4
381585	protein kinase C, alpha
395198	protein kinase, cAMP dependent regulatory, type II beta
415680	protein tyrosine phosphatase, non-receptor type 11
416856	v-akt murine thymoma viral oncogene homolog 1
396002	v-crk sarcoma virus CT10 oncogene homolog (avian)

Negative regulation of transcription

414236	BCL2-associated transcription factor 1
397728	CBF1 interacting corepressor
378769	MYB binding protein (P160) 1a
391544	SRY (sex determining region Y)-box 6
381844	Y box binding protein 1
387600	catenin (cadherin associated protein), beta 1
394530	cold shock domain protein A
387121	glucocorticoid receptor DNA binding factor 1
391060	hexamethylene bis-acetamide inducible 2

381744	interleukin enhancer binding factor 3
401843	multiple endocrine neoplasia 1
379358	neural precursor cell expressed, developmentally down-regulated gene 4
417264	nuclear factor I/C
416382	nuclear receptor co-repressor 1
409190	programmed cell death 4
395840	purine rich element binding protein B
410555	timeless homolog (Drosophila)
408228	tripartite motif-containing 28
412086	zinc finger protein 148
409371	zinc fingers and homeoboxes 1

Positive regulation of cellular biosynthetic process

89158	B-cell CLL/lymphoma 10; dimethylarginine dimethylaminohydrolase 1
394340	GC-rich promoter binding protein 1
390968	Jun oncogene
391544	SRY (sex determining region Y)-box 6
381844	Y box binding protein 1
408863	apoptosis antagonizing transcription factor
387600	catenin (cadherin associated protein), beta 1
381955	cullin-associated and neddylation-dissociated 1
386938	cyclin dependent kinase 2
417456	general transcription factor IIF, polypeptide 1
383170	high mobility group AT-hook 1
403975	inhibitor of growth family, member 5
382720	insulin receptor substrate 1
381744	interleukin enhancer binding factor 3
387335	mitogen activated protein kinase 14
401843	multiple endocrine neoplasia 1
417264	nuclear factor I/C
416217	nuclear fragile X mental retardation protein interacting protein 1
379682	pseudouridylate synthase 1
411565	similar to heat shock protein 1, alpha; heat shock protein 90, alpha (cytosolic), class A member 1
400320	similar to thyroid hormone receptor associated protein 3; thyroid hormone receptor associated protein 3
389354	topoisomerase (DNA) II alpha
408228	tripartite motif-containing 28
416856	v-akt murine thymoma viral oncogene homolog 1
412086	zinc finger protein 148
394598	zinc finger protein 36

Cell projection morphogenesis

402133	ATPase, Cu ⁺⁺ transporting, alpha polypeptide
394586	PTK2 protein tyrosine kinase 2

402458	catenin (cadherin associated protein), alpha 1
403707	enabled homolog (Drosophila)
393276	nuclear distribution gene E-like homolog 1 (A. nidulans)
401670	numb homolog (Drosophila)
412548	p21 protein (Cdc42/Rac)-activated kinase 1
381585	protein kinase C, alpha
415680	protein tyrosine phosphatase, non-receptor type 11
385244	spastic paraplegia 3A homolog (human)
386914	stathmin 1
416635	v-erb-b2 erythroblastic leukemia viral oncogene homolog 3 (avian)

Nuclear mRNA splicing, via spliceosome

9149	FUS interacting protein (serine-arginine rich) 1
401399	SFRS protein kinase 2
381844	Y box binding protein 1
417456	general transcription factor IIF, polypeptide 1
400114	heterogeneous nuclear ribonucleoprotein K
383397	serine/arginine repetitive matrix 1
393619	similar to Heterogeneous nuclear ribonucleoprotein A1 (Helix-destabilizing protein) (Single-strand binding protein) (hnRNP core protein A1) (HDP-1) (Topoisomerase-inhibitor suppressed)
405950	similar to heterogeneous nuclear ribonucleoprotein H2; heterogeneous nuclear ribonucleoprotein H2 (H')
378848	snurportin 1
409957	survival motor neuron 1
399853	transformer-2 alpha

Regulation of nervous system development

393186	DIX domain containing 1
394586	PTK2 protein tyrosine kinase 2
391362	Rho guanine nucleotide exchange factor (GEF) 1
402458	catenin (cadherin associated protein), alpha 1
417931	eukaryotic translation initiation factor 2 alpha kinase 3
410038	inositol polyphosphate phosphatase-like 1
393276	nuclear distribution gene E-like homolog 1 (A. nidulans)
401670	numb homolog (Drosophila)
381585	protein kinase C, alpha
416278	reticulon 4
397143	secreted phosphoprotein 1
391145	signal-induced proliferation-associated 1 like 1

Cytoplasmic dynein complex

392533	dynactin 1
400342	dynein cytoplasmic 1 intermediate chain 1
405038	dynein cytoplasmic 1 intermediate chain 2

386384	dynein, cytoplasmic 1 light intermediate chain 2
8 hours	<u>Transcription regulation</u>
412786	ESF1, nucleolar pre-rRNA processing protein, homolog (S. cerevisiae)
378769	MYB binding protein (P160) 1a
383170	high mobility group AT-hook 1
397677	leucine rich repeat (in FLII) interacting protein 1
410555	timeless homolog (Drosophila)

Table S3. Clustered enrichment analysis of GO terms describing biological processes (2 hours vs 8 hours) with an enrichment score cutoff of 1.5.

UNIPROT ACCESSION NUMBER	GENE NAME
	<u>Sodium ion transport</u>
414544	solute carrier family 20 (phosphate transporter), member 1
406910	solute carrier family 4, sodium bicarbonate cotransporter, member 7
382805	solute carrier family 4, sodium bicarbonate transporter-like, member 10
	<u>Negative regulation of cellular protein metabolic process</u>
390968	Jun oncogene
413691	complement component (3b/4b) receptor 1-like
389520	proteasome (prosome, macropain) subunit, alpha type 3
384979	signal recognition particle 14
	<u>Cytoplasmic vesicle membrane</u>
404836	epsin 2
406037	phosphatidylinositol 4-kinase type 2 alpha
397647	vesicle-associated membrane protein 2
	<u>Inflammatory response</u>
413691	Complement component (3b/4b) receptor 1-like
397143	Secreted phosphoprotein 1
407455	Small inducible cytokine subfamily E, member 1