

Supplementary material for Arne G. et al. Gastrointestinal stromal tumors (GISTs) express somatostatin receptors and bind radiolabeled somatostatin analogs, Acta Oncologica, 2013;52:783–792.

Supplementary Tables S1–S2.

Supplementary Table S1. Expression profiles of somatostatin receptors in gastrointestinal stromal tumors. Biopsies from 34 patients with GIST were analyzed by real-time qPCR. Ct values (mean from triplicate samples) are presented for the house-keeping gene beta-actin (ACTB) and target genes (SSTR1–5). ΔC_T values for target genes (Ct Target gene - Ct ACTB) is presented as well as the number of target gene copies per 1000 ACTB copies ($1000 \times 2^{\Delta C_T}$).

Patient	ACTB			SSTR1			SSTR2			SSTR3			SSTR4			SSTR5		
	Ct		Mean	Ct		Mean	Ct		Mean	Ct		Mean	Ct		Mean	Ct		Mean
	Mean	ΔCt		Mean	ΔCt		Mean	ΔCt		Mean	ΔCt		Mean	ΔCt		Mean	ΔCt	
1	20.12	23.45	3.33	99.20	36.56	16.44	0.01	nd	nd	nd	nd	0.01	33.36	13.25	0.10	35.79	15.67	0.02
2	17.73	31.71	13.98	0.06	29.41	11.67	0.31	35.06	17.33	0.01	nd	0.01	nd	nd	nd	nd	nd	nd
3	20.84	nd	nd	nd	32.73	11.89	0.26	nd	nd	nd	nd	nd	nd	nd	nd	34.58	13.74	0.07
4	19.71	35.83	16.12	0.01	32.45	12.74	0.15	nd	nd	nd	nd	nd	nd	nd	nd	34.63	14.93	0.03
5	22.90	36.97	14.07	0.06	32.28	9.38	1.50	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
6	19.79	31.54	11.76	0.29	32.61	12.82	0.14	nd	nd	nd	nd	nd	32.62	12.83	0.14	nd	nd	nd
7	17.44	19.79	2.35	196.15	30.98	13.54	0.08	35.24	17.80	0.00	nd	0.00	nd	nd	nd	nd	nd	nd
8	19.89	23.07	3.17	110.85	30.46	10.56	0.66	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
9	22.17	31.26	9.09	1.84	31.91	9.74	1.17	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
10	17.70	34.15	16.45	0.01	27.16	9.46	1.42	nd	nd	nd	nd	nd	36.58	18.88	0.00	nd	nd	nd
11	18.83	28.58	9.75	1.16	31.39	12.56	0.17	nd	nd	nd	nd	nd	35.09	16.25	0.01	nd	nd	nd
12	20.52	25.36	4.84	34.99	30.08	9.56	1.32	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
13	19.10	30.96	11.86	0.27	28.81	9.71	1.19	37.13	18.03	0.00	nd	0.00	32.55	13.45	0.09	35.55	16.45	0.01
14	20.21	23.76	3.55	85.36	33.27	13.06	0.12	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
15	19.53	22.76	3.22	107.09	30.89	11.36	0.38	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
16	20.41	26.45	6.04	15.18	29.95	9.55	1.34	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
17	18.43	21.90	3.47	90.11	30.25	11.83	0.28	nd	nd	nd	nd	nd	36.68	18.26	0.00	nd	nd	nd
18	20.93	35.48	14.55	0.04	32.37	11.45	0.36	nd	nd	nd	nd	nd	nd	nd	nd	34.06	13.13	0.11
19	18.65	30.52	11.87	0.27	31.92	13.27	0.10	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
20	20.17	32.04	11.86	0.27	28.91	8.74	2.34	nd	nd	nd	nd	nd	nd	nd	nd	32.33	12.16	0.22
21	22.12	31.02	8.90	2.09	30.38	8.26	3.26	nd	nd	nd	nd	nd	nd	nd	nd	34.72	12.60	0.16
22	21.73	33.60	11.87	0.27	32.83	11.10	0.46	nd	nd	nd	nd	nd	35.34	13.62	0.08	nd	nd	nd
23	18.54	31.51	12.97	0.12	29.15	10.61	0.64	nd	nd	nd	nd	nd	34.76	16.22	0.01	31.75	13.21	0.11
24	19.17	33.52	14.35	0.05	31.35	12.17	0.22	37.30	18.13	0.00	nd	0.00	33.80	14.62	0.04	32.41	13.23	0.10
25	19.34	20.51	1.17	444.88	30.04	10.70	0.60	37.35	18.01	0.00	nd	0.00	36.70	17.36	0.01	35.93	16.59	0.01
26	18.75	32.65	13.90	0.07	31.55	12.80	0.14	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
27	17.67	27.56	9.89	1.05	30.17	12.49	0.17	nd	nd	nd	nd	nd	36.81	19.14	0.00	34.24	16.56	0.01
28	19.78	32.23	12.45	0.18	30.40	10.62	0.63	nd	nd	nd	nd	nd	36.89	17.11	0.01	32.91	13.13	0.11
29	19.60	32.48	12.88	0.13	30.97	11.37	0.38	nd	nd	nd	nd	nd	36.68	17.08	0.01	nd	nd	nd
30	18.36	29.29	10.93	0.51	30.83	12.47	0.18	nd	nd	nd	nd	nd	nd	nd	nd	35.13	16.78	0.01
31	20.27	22.31	2.04	243.26	32.70	12.42	0.18	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
32	20.22	21.53	1.31	403.72	32.85	12.63	0.16	nd	nd	nd	nd	nd	26.58	6.35	12.23	nd	nd	nd
33	19.21	27.44	8.23	3.34	29.58	10.37	0.76	33.17	13.96	0.06	nd	0.06	34.23	15.01	0.03	33.39	14.18	0.05
34	21.17	35.82	14.65	0.04	34.77	13.60	0.08	nd	nd	nd	nd	nd	35.01	14.97	0.03	nd	nd	nd

Supplementary Table S2. Binding and internalization of ^{177}Lu -DOTA-Tyr³-octreotate in cultured gastrointestinal stromal tumor cells. Fractions of unbound, surface-bound, and internalized ^{177}Lu -octreotate in cultured gastrointestinal stromal tumor cells, including statistical analysis. Tumor cells were cultured with medium containing ^{177}Lu -octreotate (10 nM). Tumor cells cultured with medium containing ^{177}Lu -octreotate (10 nM), supplemented with unlabeled octreotide (5 μM) served as controls. The fraction of unbound, surface-bound, and internalized ^{177}Lu in GIST tumor cells was measured after 4, 24, and 48 hours. Values are given as fraction of activity $\pm$ SE (standard error). **A-C.** Patient no. 15 (gastric, low-risk, *PDGFRA* exon 18 (D842V) missense mutation). **D-F.** Patient no. 25 (small intestine, high-risk, *KIT* exon 11 (P573_Y578) duplication mutation).

A				D			
time	unbound ^{177}Lu	control	p-value	time	unbound ^{177}Lu	control	p-value
4 h	$0.980 \pm 1.4\text{e-}3$	$0.995 \pm 9.2\text{e-}4$		4 h	$0.979 \pm 9.7\text{e-}4$	$0.997 \pm 7.6\text{e-}5$	
24 h	$0.907 \pm 6.5\text{e-}3$	$0.997 \pm 2.9\text{e-}4$		24 h	$0.935 \pm 4.6\text{e-}3$	$0.997 \pm 1.9\text{e-}4$	
48 h	$0.839 \pm 4.5\text{e-}3$	$0.995 \pm 1.5\text{e-}4$		48 h	$0.890 \pm 6.2\text{e-}3$	$0.996 \pm 6.2\text{e-}3$	
Regression	$-3.2\text{e-}2 \pm 1.9\text{e-}4$	$-1.5\text{e-}5 \pm 1.0\text{e-}5$		Regression	$-1.9\text{e-}3 \pm 1.4\text{e-}4$	$-3.2\text{e-}5 \pm 7.7\text{e-}6$	
Linear regression of slopes between ^{177}Lu and control			$< 10^{-15}$	Linear regression of slopes between ^{177}Lu and control			$< 10^{-15}$
B				E			
time	bound ^{177}Lu	control	p-value	time	bound ^{177}Lu	control	p-value
4 h	$0.00562 \pm 3.2\text{e-}4$	$0.00470 \pm 9.1\text{e-}4$		4 h	$0.00753 \pm 1.0\text{e-}3$	$0.00289 \pm 8.1\text{e-}5$	
24 h	$0.0122 \pm 2.2\text{e-}3$	$0.00234 \pm 2.9\text{e-}4$		24 h	$0.00698 \pm 6.6\text{e-}4$	$0.00251 \pm 2.0\text{e-}4$	
48 h	$0.0149 \pm 4.9\text{e-}3$	$0.00265 \pm 1.3\text{e-}4$		48 h	$0.0137 \pm 2.8\text{e-}3$	$0.00277 \pm 1.9\text{e-}4$	
Regression	$1.1\text{e-}4 \pm 5.5\text{e-}5$	$-2.5\text{e-}5 \pm 9.2\text{e-}6$		Regression	$9.2\text{e-}5 \pm 4.6\text{e-}5$	$-1.6\text{e-}6 \pm 7.0\text{e-}6$	
Linear regression of slopes between ^{177}Lu and control			< 0.05	Linear regression of slopes between ^{177}Lu and control			< 0.05
C				F			
time	internalized ^{177}Lu	control	p-value	time	internalized ^{177}Lu	control	p-value
4 h	$0.0141 \pm 1.5\text{e-}3$	$0.000187 \pm 6.2\text{e-}6$		4 h	$0.0133 \pm 1.5\text{e-}3$	$0.000162 \pm 8.3\text{e-}6$	
24 h	$0.0806 \pm 6.0\text{e-}3$	$0.000910 \pm 6.3\text{e-}6$		24 h	$0.0583 \pm 4.6\text{e-}3$	$0.000696 \pm 2.1\text{e-}5$	
48 h	$0.146 \pm 7.3\text{e-}3$	$0.00195 \pm 2.7\text{e-}5$		48 h	$0.0966 \pm 6.0\text{e-}3$	$0.00160 \pm 4.1\text{e-}5$	
Regression	$3.1\text{e-}3 \pm 1.6\text{e-}4$	$4.0\text{e-}5 \pm 7.0\text{e-}7$		Regression	$1.9\text{e-}3 \pm 1.4\text{e-}4$	$3.3\text{e-}5 \pm 1.5\text{e-}6$	
Linear regression of slopes between ^{177}Lu and control			$< 10^{-15}$	Linear regression of slopes between ^{177}Lu and control			$< 10^{-15}$