Hipofiz Tümörleri
Pasireotide

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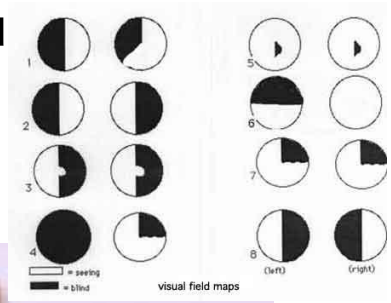
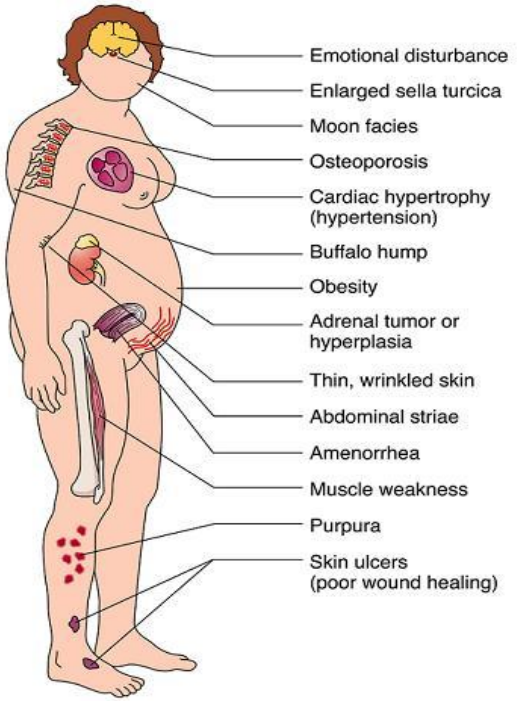
Uludağ Üniversitesi Tıp Fakültesi
Endokrinoloji Bilim Dalı

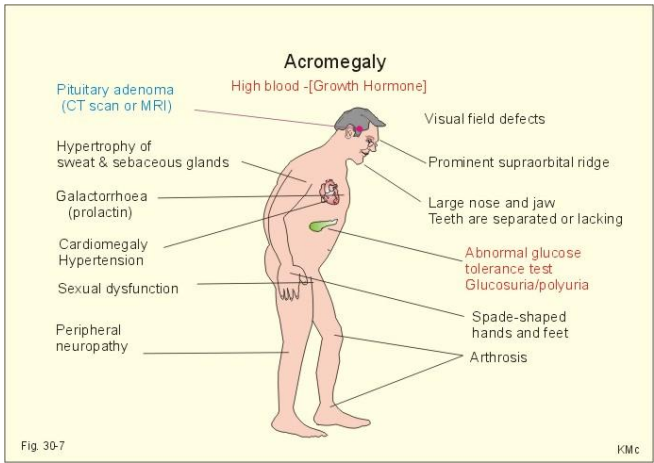
5. Hipofiz Sempozyumu
22 Kasım 2008, Ankara

Hipofiz adenomlarında belirtiler

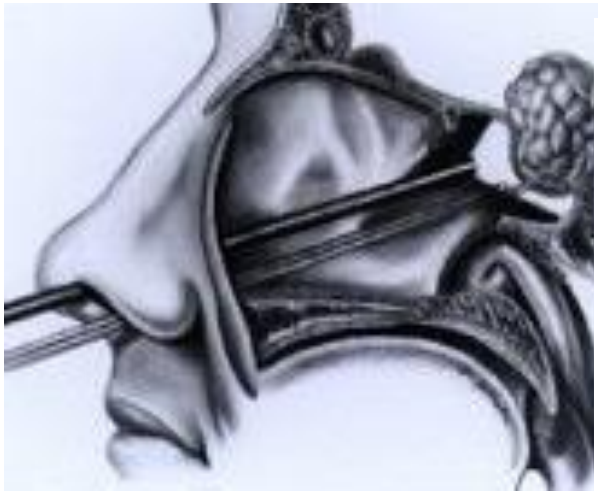
- Adenomun kitle etkisi
  - Hipopitüitarizm
  - Görme alanı daralması
  - Başağrısı vs
- Adenomun hormon hipersekresyonu
  - Prolaktinoma
  - Akromegali
  - Cushing
  - Hipertiroidi



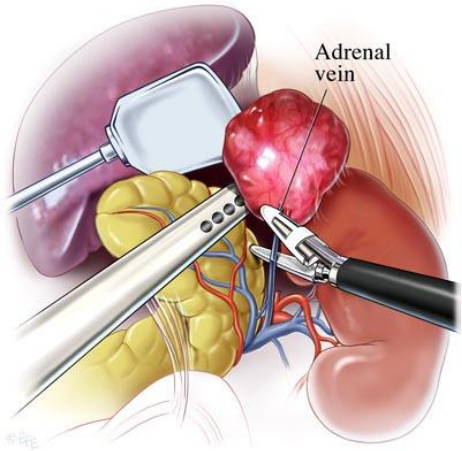




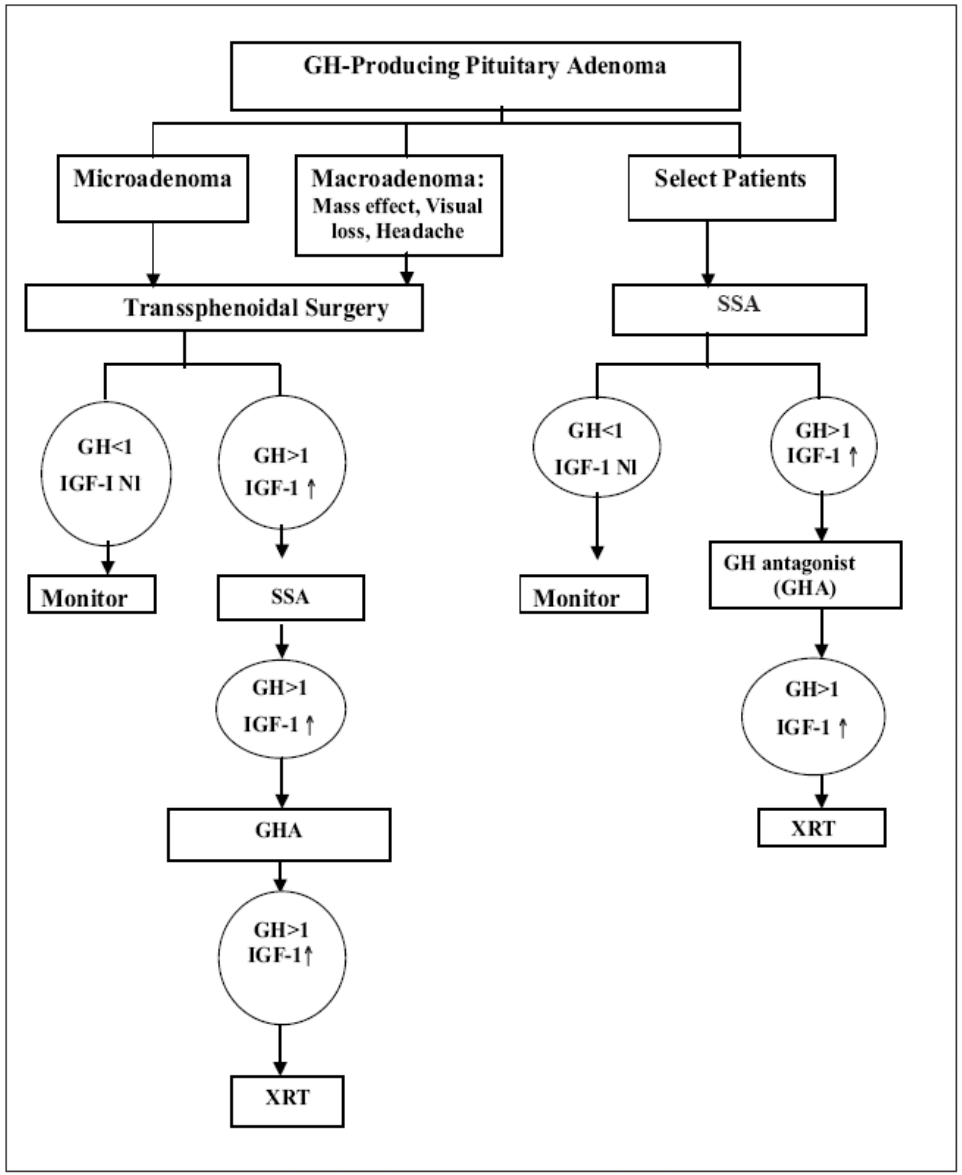
Hipofiz adenomlarında tedavi seçenekleri



- Cerrahi
- Radyoterapi
- Tıbbi tedavi
  - Dopamin agonisti
  - SS analog

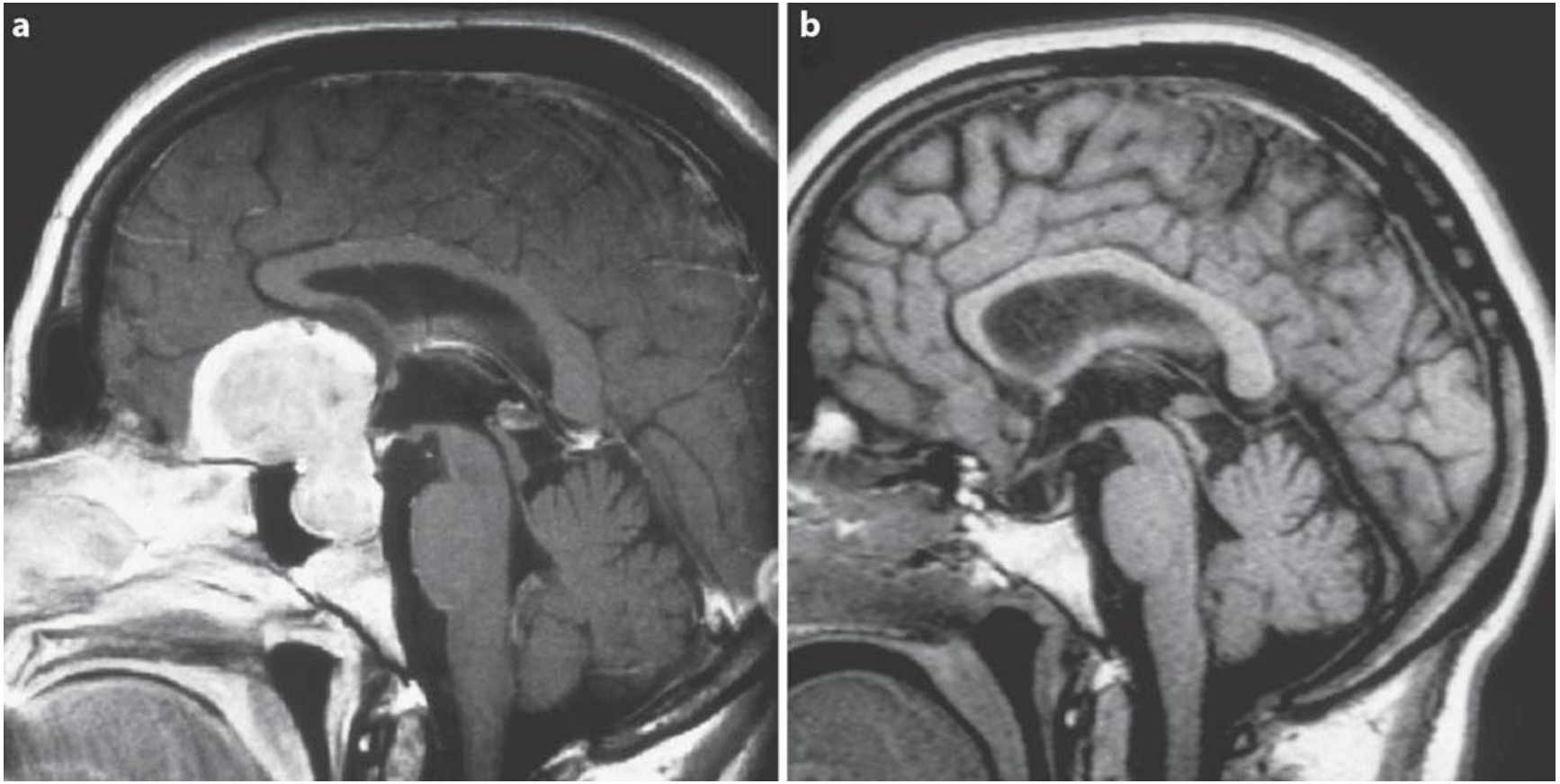


AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGISTS MEDICAL GUIDELINES FOR CLINICAL PRACTICE FOR THE DIAGNOSIS AND TREATMENT OF ACROMEGALY



Cook DM, Endocr. Pract. 2004 10: 213-225

Akromegalide cerrahi tedavi



Outcome of Surgery for Acromegaly Performed by Different Surgeons: Importance of Surgical Experience

Table 4. *Summary of published results of surgical outcome for acromegaly*

	Definition of cure (ng/ml)	No. of (micro/macroadenomas)	Cure rate in micros (%)	Cure rate in macros (%)	Total cure rate (%)
Davis et al. [21]	Basal GH<2 Nadir GH<2 during OGTT	175 (90/85)	–	–	52
Lissett et al. [10]	Mean during OGTT GH<2	73 (18/51)	39	12	18
Fahlbusch et al. [9]	Basal GH< 5	396 (105/291)	83	70	73
Sheaves et al. [3]	Mean GH<2	100 (53/47)	61	23	42
Swearingen et al. [12]	Nadir GH<2 during OGTT IGF-1 normalization	162 (33/129)	91	48	57
Abosch et al. [4]	Mean GH<5	254 (?/?)	–	–	76*
Ahmed et al. [18]	Mean GH<2	139 (79/60)	91	46	67
Gittoes et al. [8]	Basal GH<2 Nadir GH<0,8 during OGTT	66 (22/44)	86	52	64
Biermasz et al. [25]	Basal GH<2 Nadir GH<2 during OGTT IGF-1 normalization	59 (?/?)	67	60	61
Shimon et al. [7]	MeanGH<2 Nadir GH<2 during OGTT IGF-1 normalization	98 (46/52)	84	64	74
Erturk et al.	Basal GH<2 Nadir GH<2 during OGTT	30 (11/19)	63	15	33

Erturk E, Pituitary 2005 8: 93-97

Clinical, hormonal and magnetic resonance imaging (MRI) predictors of transsphenoidal surgery outcome in acromegaly

Table 3 Univariate logistic regression analysis with IGF-I as criterion for cure.

	OR 95% CI	*P*
Age	0.91 (0.86–0.96)	**0.001**
Sex		
•Male	1	
•Female	1.24 (0.39–3.94)	0.56
Adenoma size (MRI)		
• < 15 mm	1	
• > 15 mm	7.04 (1.49–33.2)	**0.013**
SSE (MRI)		
• < Optic chiasma	1	
• > Optic chiasma	12 (2.14–67.6)	**0.005**
ISE (MRI)		
•No (B)	1	
•Yes (A)	5 (1.11–22.7)	**0.04**
ICE (MRI)		
•A+B1+B2	1	
•C1+C2+D+E	3.96 (0.91–17.16)	0.06
Invasive adenoma (MRI)		
•A + B1 + B2 and <optic chiasma	1	
•C1 + C2 + D + E or >optic chiasma	7.2 (1.32–39)	**0.02**
Basal GH concentration	1.02 (1.00–1.03)	**0.02**
Nadir GH/OGGT	1.02 (1.00–1.40)	**0.03**
IGF-I normalized for age and sex	1.02 (1.00–1.02)	**0.01**

Table 4 Univariate logistic regression analysis with basal GH as criterion for cure.

Variable	OR 95% CI	*P*
Age	0.94 (0.89–0.99)	**0.03**
Sex		
•Male	1	
•Female	5 (1.52–15.85)	**0.008**
Adenoma size (MRI)		
• < 15 mm	1	
• > 15 mm	5.26 (1.41–19.56)	**0.01**
SSE (MRI)		
• < Optic chiasma	1	
• > Optic chiasma	2.84 (0.82–9.82)	0.1
ISE (MRI)		
•No (B)	1	
•Yes (A)	2 (0.56–7.04)	0.28
ICE (MRI)		
•A + B1 + B2	1	
•C1 + C2 + D + E	5.5 (1.43–21.05)	**0.01**
Invasive adenoma(MRI)		
•A + B1 + B2 and < optic chiasma	1	
•C1 + C2 + D + E or > optic chiasma	3.21 (0.86–12.06)	0.08

Bourdelot A, EJE 2004 150: 763-771

Gamma knife radiosurgery for acromegaly – long-term experience

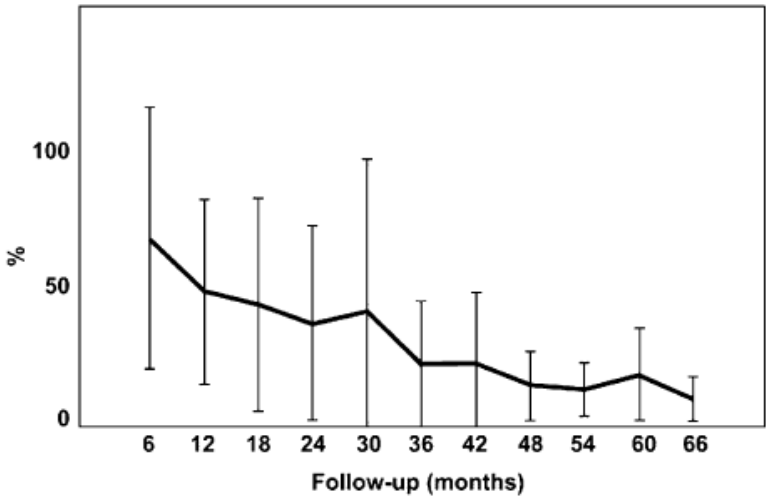


Fig. 1 Decrease in GH as percentage of baseline.

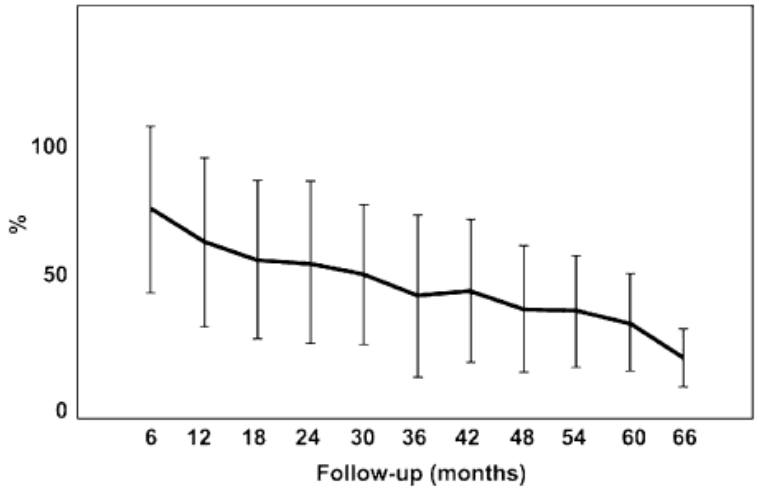
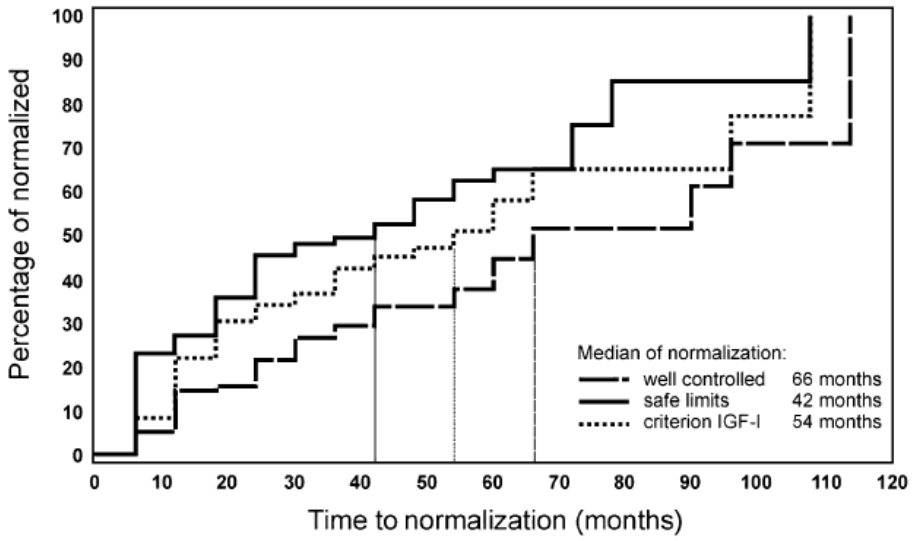


Fig. 2 Decrease in IGF-I as percentage of baseline.



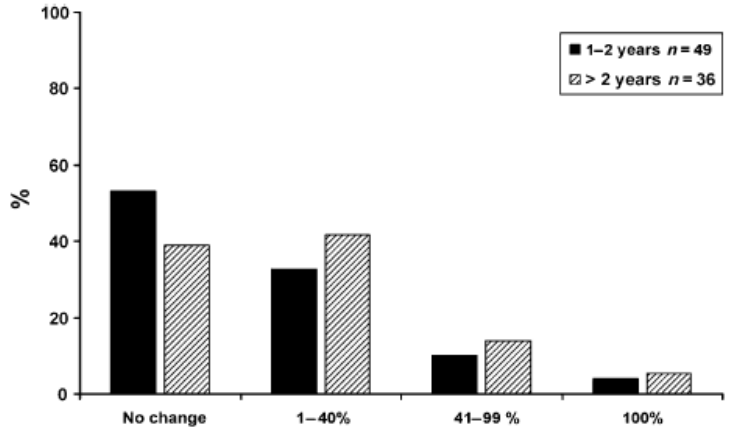
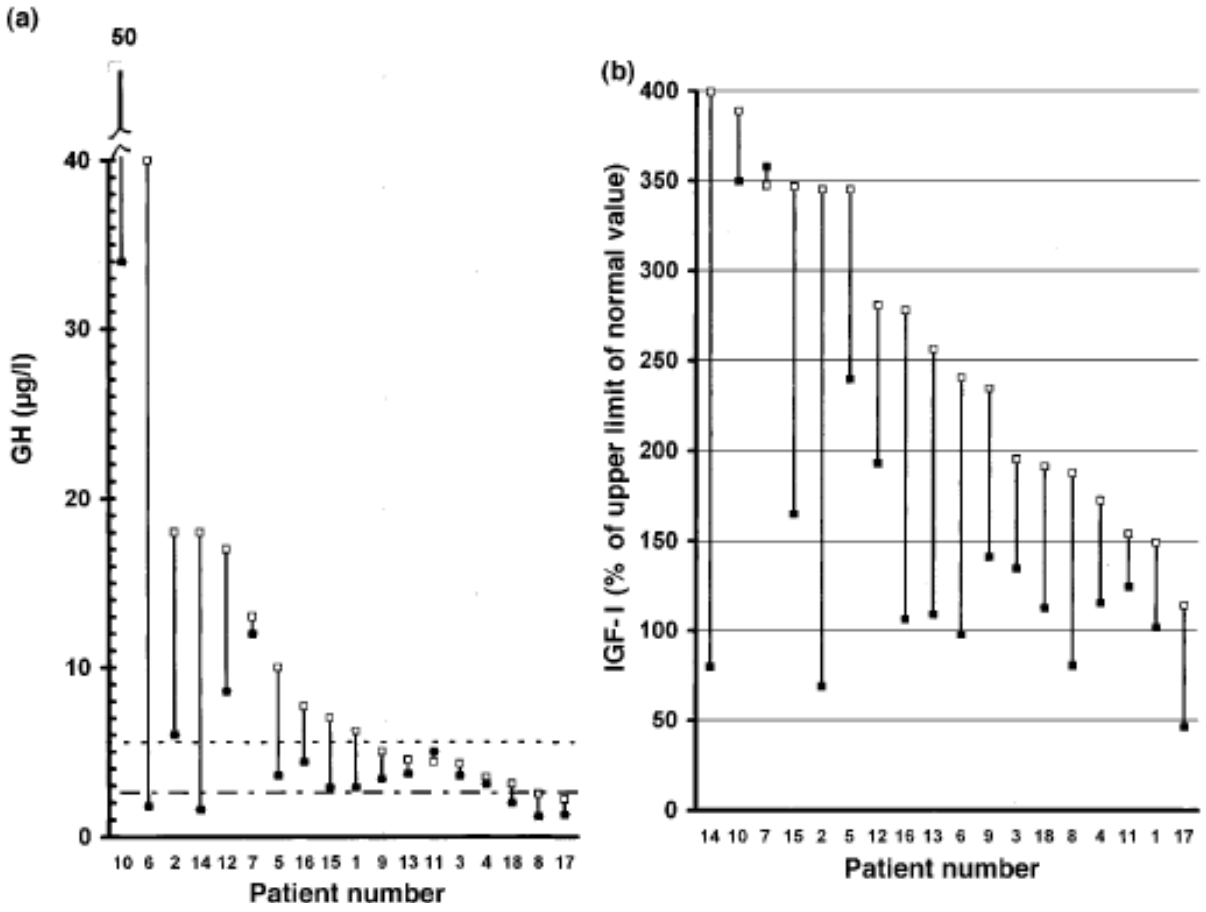


Fig. 4 Percentage shrinkage of adenoma (vertical parameter in MRI coronary projection).

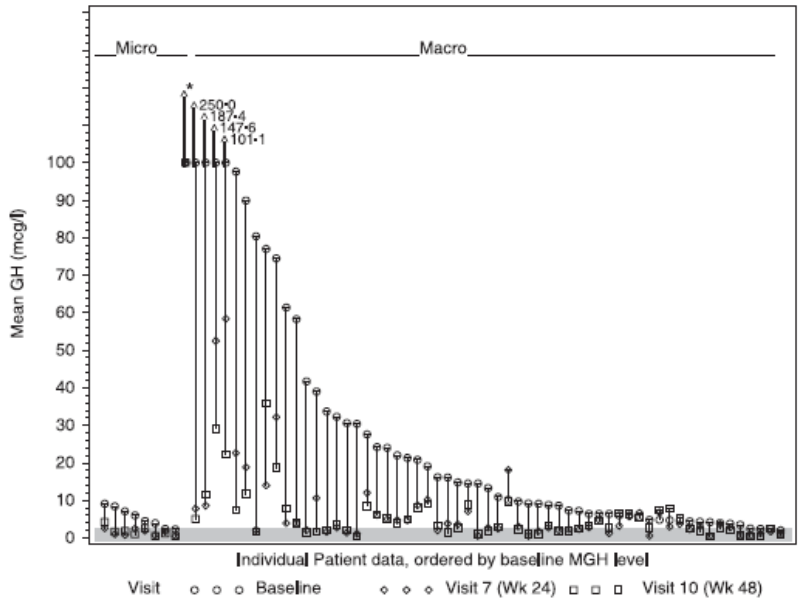
Jezkova J, Clin Endocr. 2006 64: 588-595

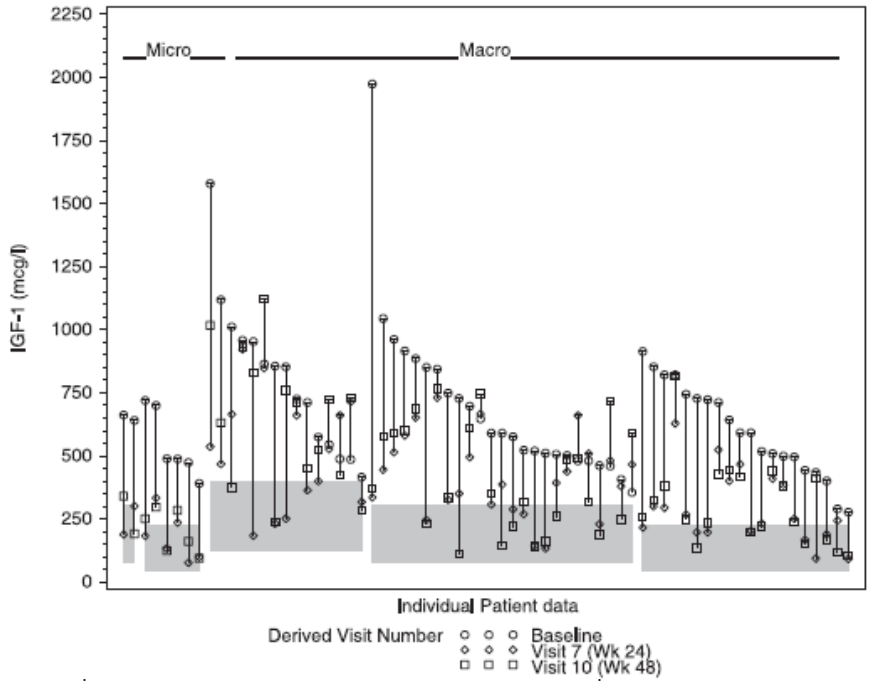
Cabergoline in acromegaly: a renewed role for dopamine agonist treatment?

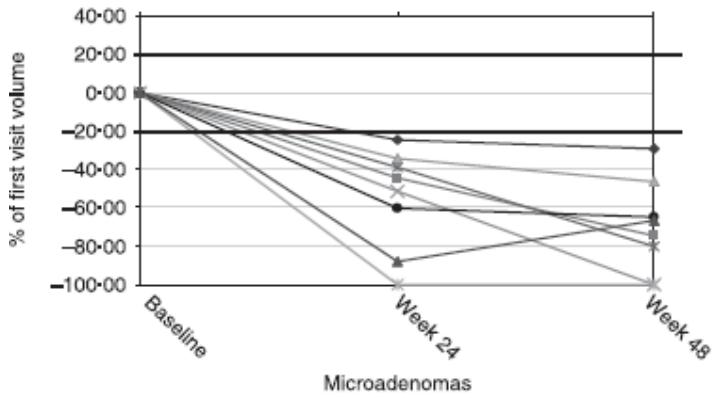


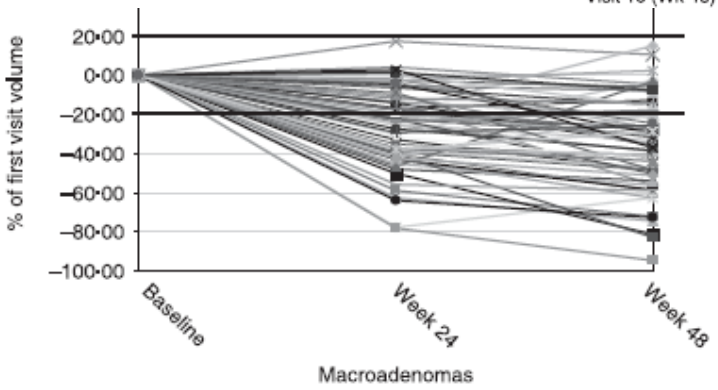
Cozzi R, EJE 1998 139: 516-521

A prospective, multicentre study to investigate the efficacy, safety and tolerability of octreotide LAR® (long-acting repeatable octreotide) in the primary therapy of patients with acromegaly









Mercado M, Clin Endocrinol 2007 66:859-868

Long-Acting Somatostatin Analog Therapy of Acromegaly: A Meta-Analysis

TABLE 1. Biochemical efficacy of somatostatin analog therapy for acromegaly

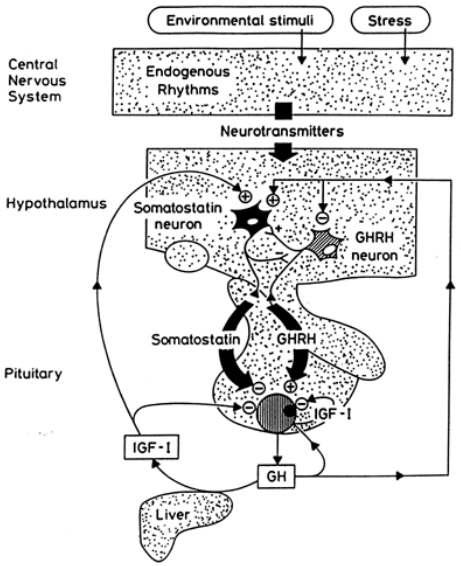
	% of subjects meeting efficacy criteria		Mean GH levels		Mean IGF-I levels	
	GH	IGF-I normalization	Pretherapy	On therapy	Pretherapy	On therapy
Octreotide LAR						
Unselected (n = 126)	54 ± 0.002[a]	63 ± 0.002[b]	15.8 ± 2.9	4.1 ± 0.8	601 ± 35	330 ± 75
Preselected (n = 486)	58 ± 0.003	68 ± 0.003	10.2 ± 2.3	2.3 ± 1.1	735 ± 48	313 ± 35
All subjects (n = 612)	57 ± 0.05[c]	67 ± 0.05[d]	12.6 ± 3.9	3.2 ± 1.53	644 ± 66	327 ± 30.5
Lanreotide SR						
Unselected (n = 609)	48 ± 0.002	42 ± 0.002	15.1 ± 6.0	5.3 ± 2.4	689 ± 95	432 ± 97
Preselected (n = 305)	50 ± 0.005	56 ± 0.003	19.7 ± 4.0	3.5 ± 0.5	735 ± 48	321 ± 24
All subjects (n = 914)	48 ± 0.04	47 ± 0.03	16.9 ± 3.2	5.9 ± 1.3	741 ± 51	442 ± 30
Octreotide (sc) (primary therapy only)						
All subjects (n = 266) (unselected, n = 252, preselected, n = 14)	53 ± 0.05	54 ± 0.05	40.8 ± 4.3	8.76 ± 1.0	693 ± 66	288 ± 41

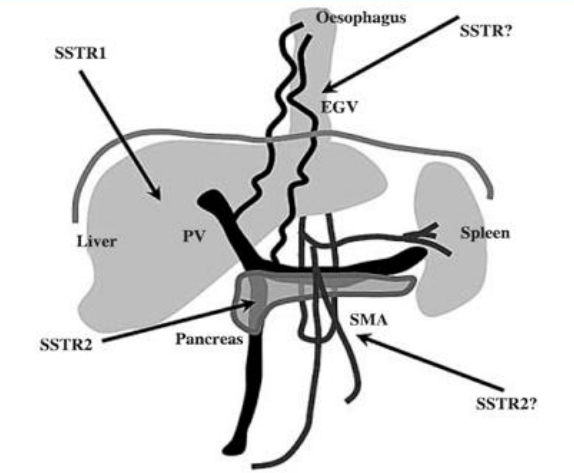
TABLE 2. Tumor shrinkage on somatostatin analog therapy

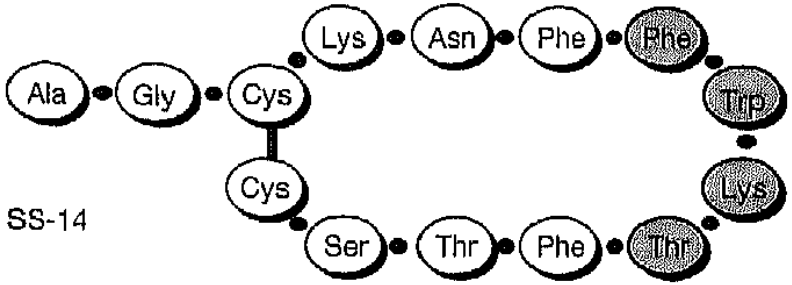
	Amount of tumor shrinkage			
	≥ 10 & < 25%	25–50%	> 50%	> 10%
Secondary somatostatin analog therapy				
Octreotide LAR				
Unselected (n = 24)	54	4		58
Preselected (n = 108)	10	36		46
All subjects (n = 132)	18.2 (3.65–29.45)	29.5 (19.9–34.9)	0	47[a] (31.4–55)
Lanreotide SR				
Unselected (n = 154)	5.8	7.8	1.3	14.9
Preselected (n = 94)		33		33
All subjects (n = 248)	5.59 (1.99–9.19)	15.0 (8.2–21.8)	0.7 (0.1–2.5)	21 (16.7–26.5)
Primary somatostatin analog therapy				
Octreotide LAR				
Unselected (n = 23)	17.4	26	43	87
Preselected (n = 29)	76	13.7		89
All subjects (n = 52)	50 (30.2–69.8)	21.1 (2.8–39.4)	17.3 (4.65–25.9)	88.5[b] (76–95)
Lanreotide SR				
Unselected (n = 37)	16	10.8	2.7	32
Preselected (n = 34)	32.3	23.5		55.8
All subjects (n = 71)	30.9 (20.9–40.9)	18.3 (3.1–33.7)	1.4 (0–7.6)	50.7 (38–63.4)
Octreotide sc				
All subjects (n = 468)[c]	19.9 (13.9–24.4)	17.3 (9.3–25.3)	3.7 (2.1–5.9)	40.8 (32.5–49.3)

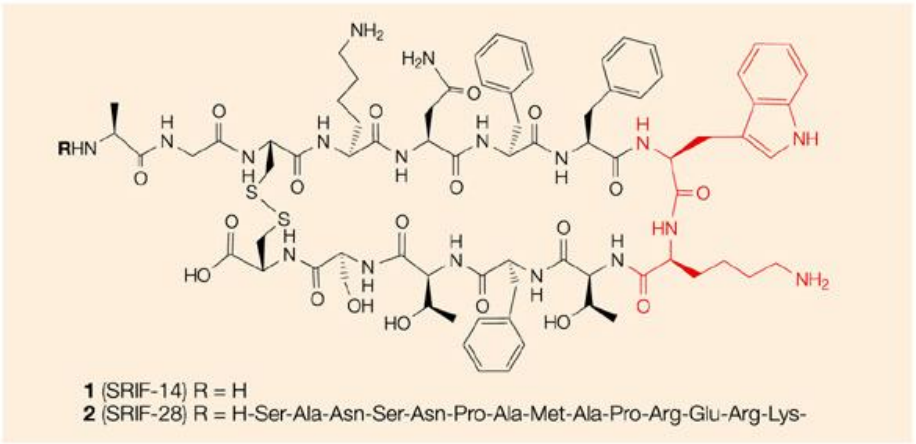
Freda PU, 2005 JCEM 90: 4465-4473

Somatostatin (SRIF)

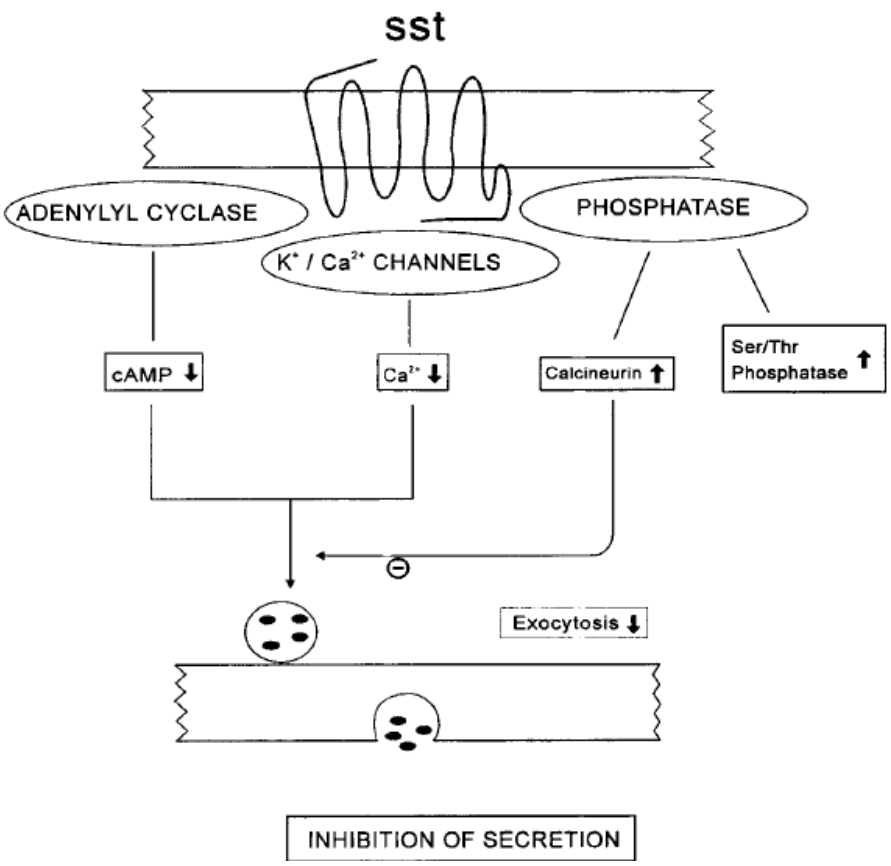


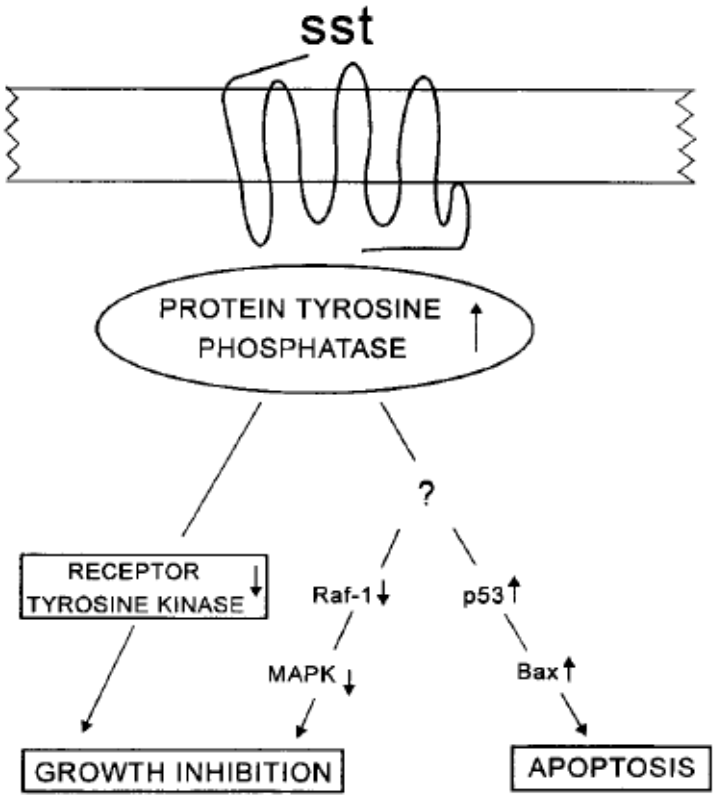




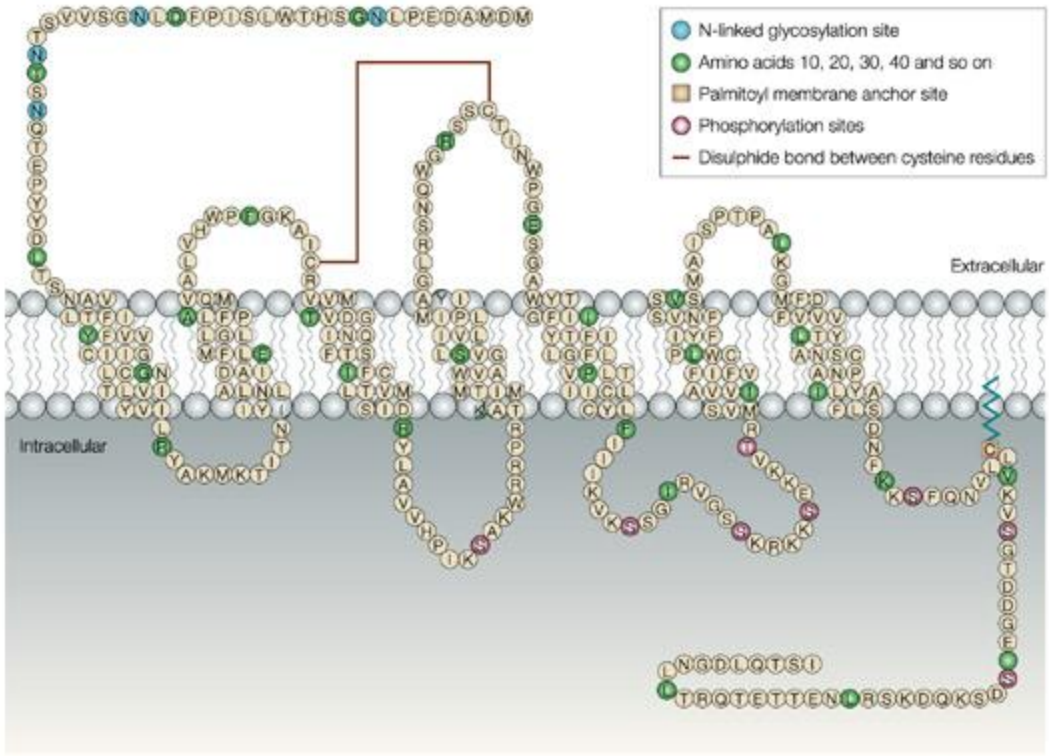


Somatostatin etkisi

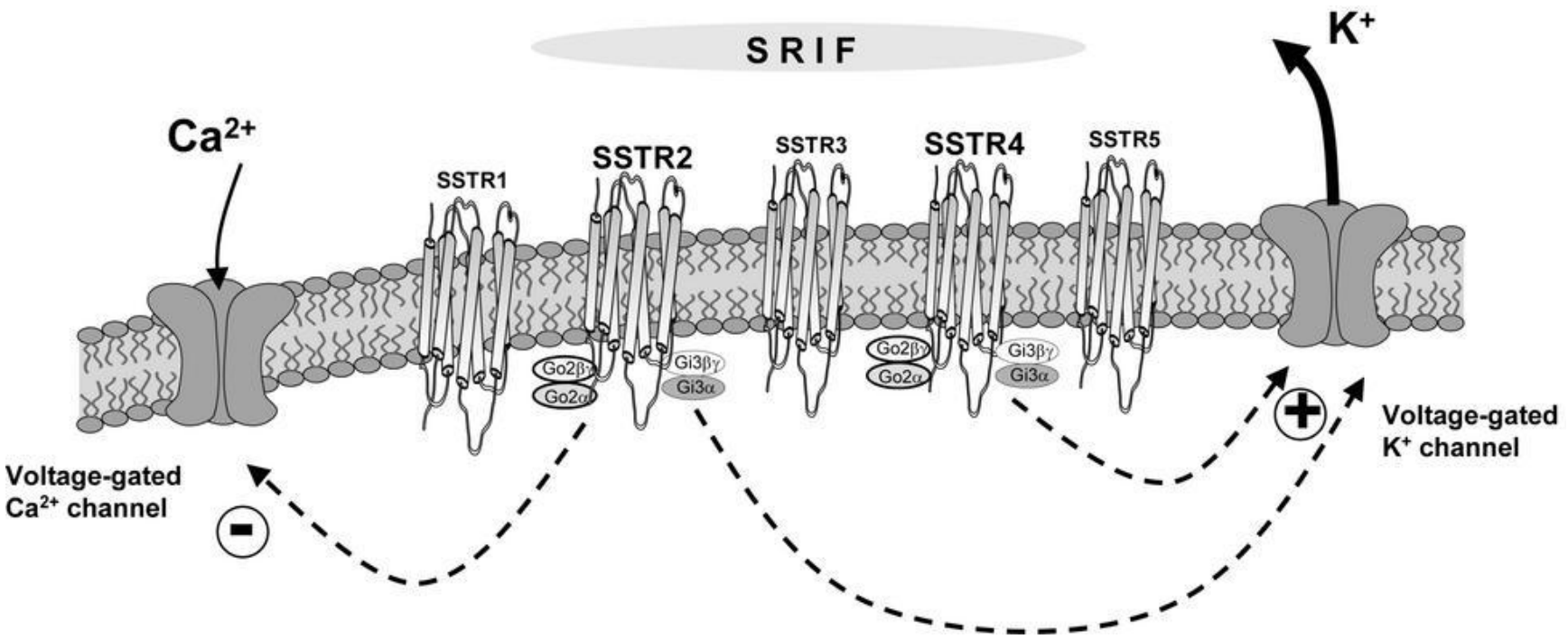




Somatostatin reseptörü



Somatostatin reseptör alt tipleri (sst_{1-5})



SS reseptör alt tiplerinin özellikleri

Table 1. Characteristics of the cloned subtypes of human somatostatin receptors[a]

	sst_1	sst_{2A}	sst_3	sst_4	sst_5
Chromosomal localization	14q13	17q24	22q13.1	20p11.2	16p13.3
Amino acids	391	369	418	388	363
mRNA (kb)	4.8	8.5 (?)	5.0	4.0	4.0
G-protein coupling	+	+	+	+	+
Effector coupling					
Adenylyl cyclase activity	↓	↓	↓	↓	↓
Tyrosine phosphatase activity	↑	↑	↑	↑	
Ca^{2+} channels		↓			
Na^+/H^+ exchanger	↑				
Phospholipase C/IP_3 activity		↑			↓↑
Phospholipase A2 activity				↑	
MAP kinase activity			↓	↑	↓
Tissue distribution[b]	Brain, pituitary, stomach, liver, pancreas, kidneys	Brain, pituitary, stomach, pancreas, kidneys	Brain, pituitary, stomach	Brain, stomach, pancreas, lungs, stomach	Brain, pituitary, stomach

Cook DM, Endocr. Pract 10: 213-225

Somatostatin Receptors in Pituitary Function, Diagnosis and Therapy

Table 2. Expression of somatostatin receptor subtypes in normal human pituitary and pituitary adenomas

Adenoma	Somatostatin receptor subtype mRNA expression, number/total (%)					Reference
	sst_1	sst_2	sst_3	sst_4	sst_5	
GH-secreting	24/51 (65)	94/108 (96)	23/66 (49)	2/70 (4)	82/109 (83)	14, 20, 21, 24–28, 31, 46
NFA	17/46 (37)	33/46 (72)	23/45 (51)	3/40 (8)	14/40 (35)	14, 21, 24–27, 61
Prolactinoma	33/37 (89)	27/37 (73)	11/35 (31)	4/33 (12)	24/33 (73)	14, 21, 24–27, 47, 61
Corticotroph	5/10 (50)	6/10 (60)	3/9 (33)	1/8 (13)	6/8 (75)	14, 24–27
TSH-secreting	3/3 (100)	3/3 (100)	1/3 (33)	2/3 (67)	2/3 (67)	14, 21
Normal pituitary	5/5 (100)	5/5 (100)	1/5 (20)	0/5 (0)	5/5 (100)	14, 27

NFA = Clinically non-functioning pituitary adenoma.

Hofland LJ, Front Horm Res 2004 32: 235-252

Quantitative analysis of somatostatin receptor subtype (SSTR1–5) gene expression levels in somatotropinomas and non-functioning pituitary adenomas

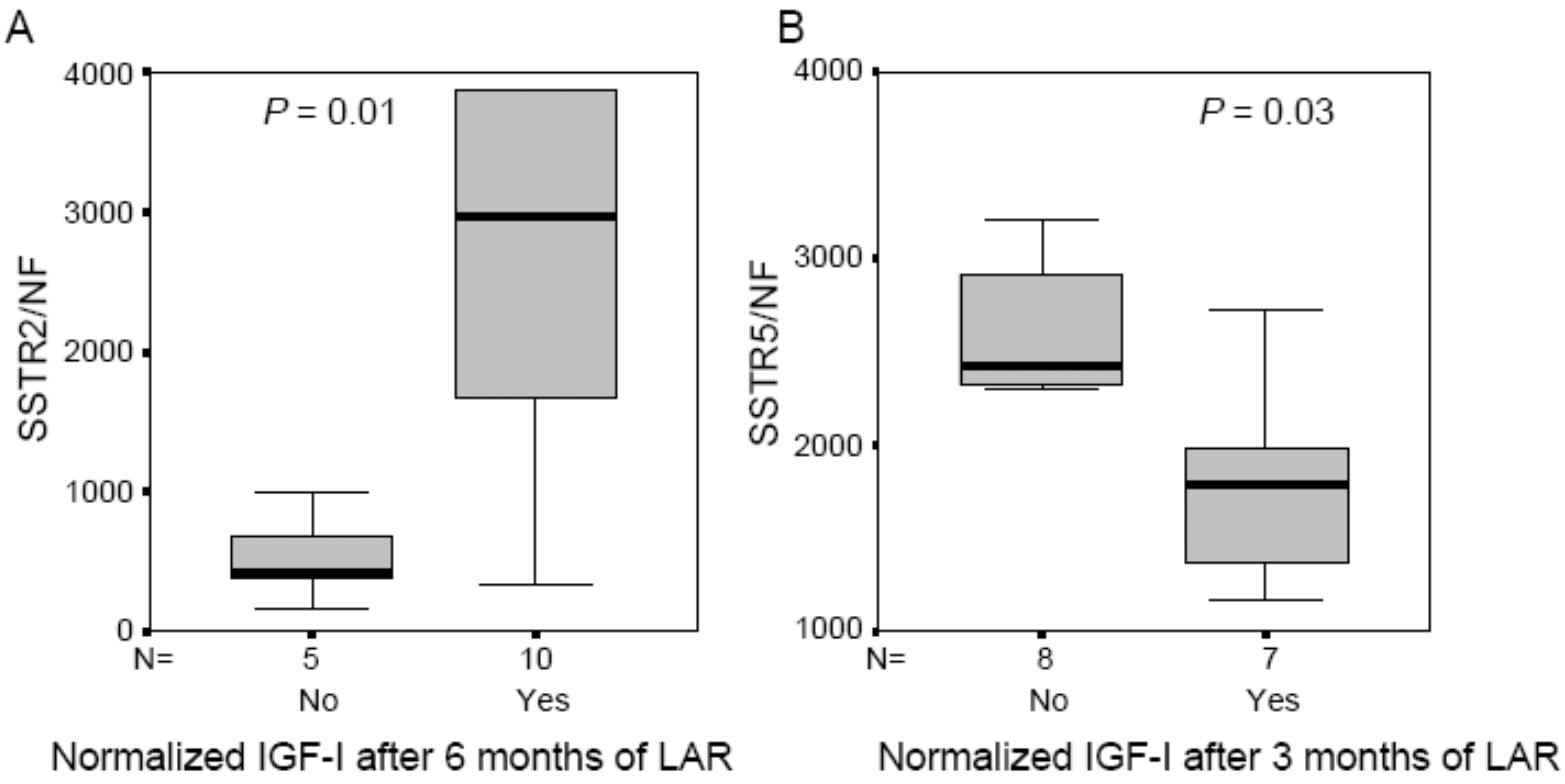
Table 5 Correlations between the mRNA content for each SSTR subtypes and growth hormone (GH) levels at diagnosis and percent decrease in GH and insulin-like growth factor-I (IGF-I) levels after 3 and 6 months of therapy with octreotide LAR.

	After 3 months with octreotide LAR			After 6 months with octreotide LAR	
	GHat diagnosis (n=20)	% GH decrease (n=15)	% IGF-I decrease (n=15)	% GH decrease (n=15)	% IGF-I decrease (n=15)
SSTR1					
r	−0.76	0.02	0.02	0.11	0.23
P	0.75	0.94	0.9	0.7	0.41
SSTR2					
r	0.18	0.51	0.26	0.66	0.56
P	0.45	0.05*	0.35	0.008*	0.03*
SSTR3					
r	0.14	−0.05	0.11	0.14	0.05
P	0.57	0.87	0.69	0.61	0.87
SSTR4					
r	−0.37	−0.41	−0.17	−0.29	−0.02
P	0.12	0.12	0.55	0.29	0.95
SSTR5					
r	−0.36	−0.41	−0.67	−0.26	−0.31
P	0.12	0.13	0.007*	0.35	0.25

Statistical significance was determined by Spearman's correlation test. *Significant *P* Value.

Taboada GF, EJE 2007 156:65-74

Quantitative analysis of somatostatin receptor subtype (SSTR1–5) gene expression levels in somatotropinomas and non-functioning pituitary adenomas



Taboada GF, EJE 2007 156:65-74

Somatostatin Receptors

Yogesh C. Patel and Coimbatore B. Srikant

	IC_{50} (nM)[b]				
	sst_1	sst_{2A}	sst_3	sst_4	sst_5
SRIF-14	0.1–2.26	0.2–1.3	0.3–1.6	0.3–1.8	0.2–0.9
SRIF-28	0.1–2.2	0.2–4.1	0.3–6.1	0.3–7.9	0.05–0.4
Octreotide	290–1140	0.4–2.1	4.4–34.5	> 1000	5.6–32
Lanreotide	500–2330	0.5–1.8	43–107	66–2100	0.6–14
Vapreotide	> 1000	5.4	31	45	0.7
Seglitide	> 1000	0.1–1.5	27–36	127– > 1000	2–23
BIM 23052	6.3–100	10–13.5	2.1–5.6	16–141	1.2–7.3
BIM 23056	110– > 1000	132– > 1000	10.8–177	17–234	5.7–14.1
BIM 23268	18.4	15.1	61.6	16.3	0.37
L 362855	> 1000	1	6.2	63– > 1000	0.1–0.016
CH 275[c]	3.2–4.3	>1000	>1000	4.3–874	>1000

Patel YC, Trends Endocrinol Metab 1997 8: 398-405

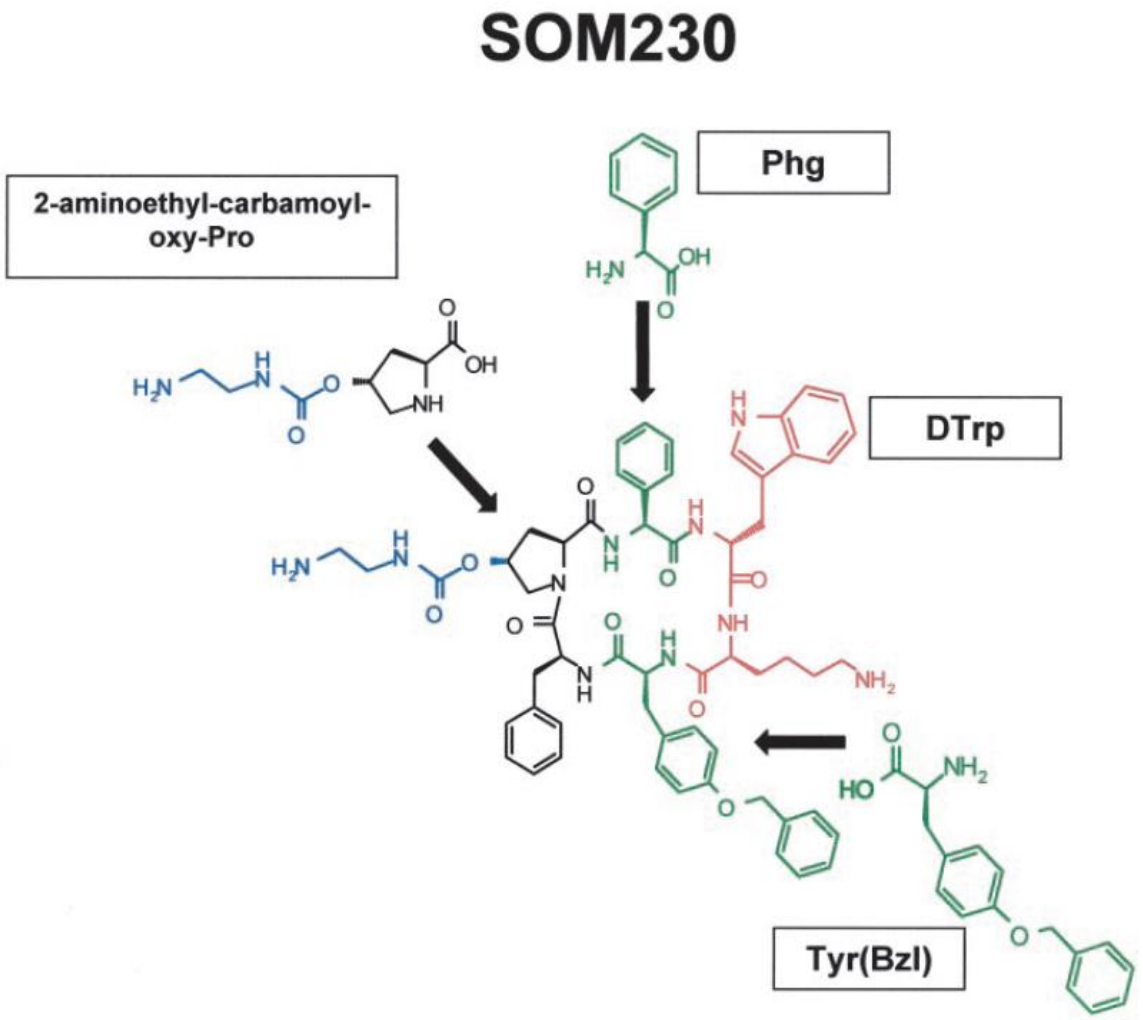
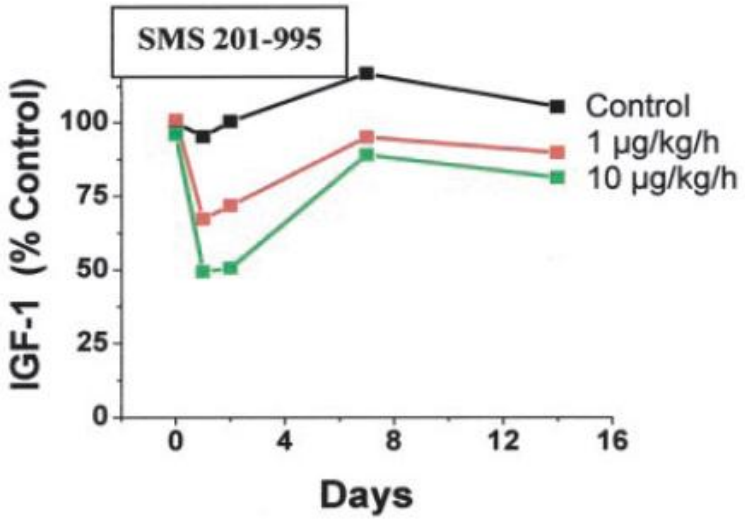
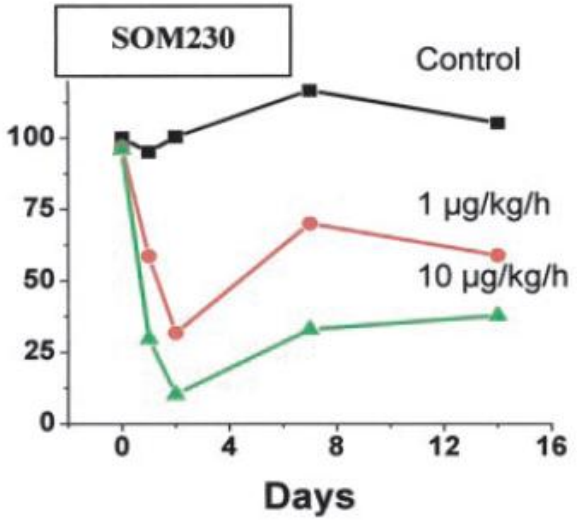
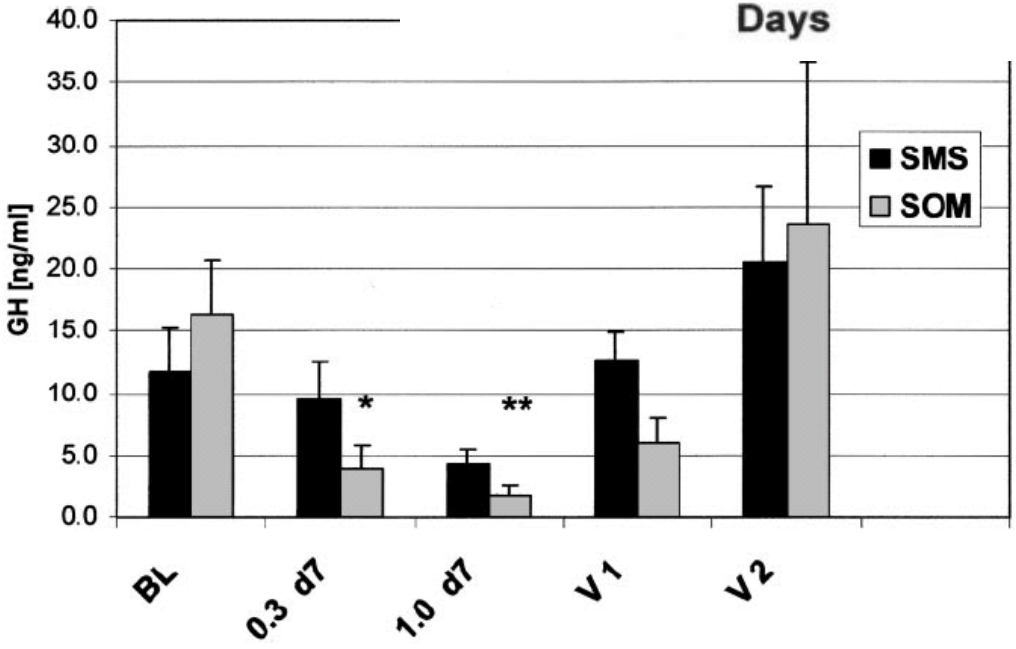


FIG. 1. The cyclohexapeptide analog SOM230 was synthesized on solid phase using an Fmoc/tBu strategy before cyclization in solution. SOM230 contains the special amino acid derivatives, 2-aminoethyl-carbamoyl-oxy-Pro, Phg, Tyr(Bzl), and DTrp (D-tryptophan), which strongly contribute to its unique binding to human sst1, sst2, sst3, and sst5.

SOM230: A New Somatostatin Peptidomimetic with Potent Inhibitory Effects on the Growth Hormone/ Insulin-Like Growth Factor-I Axis in Rats, Primates, and Dogs

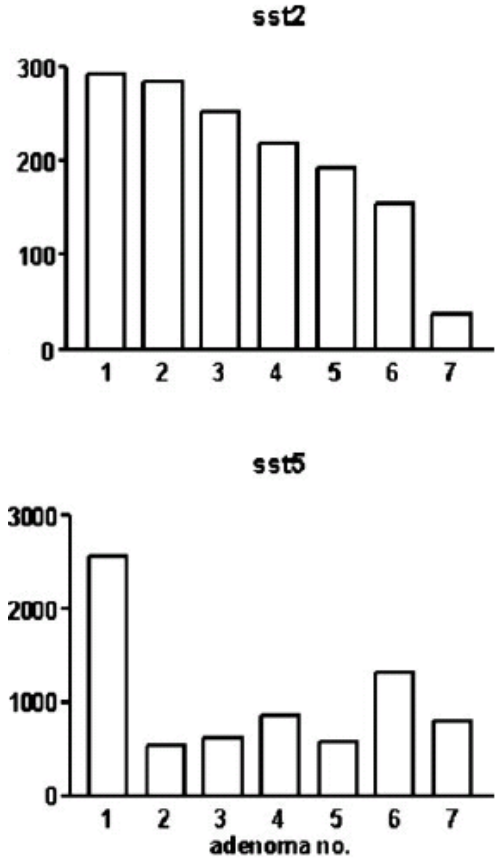


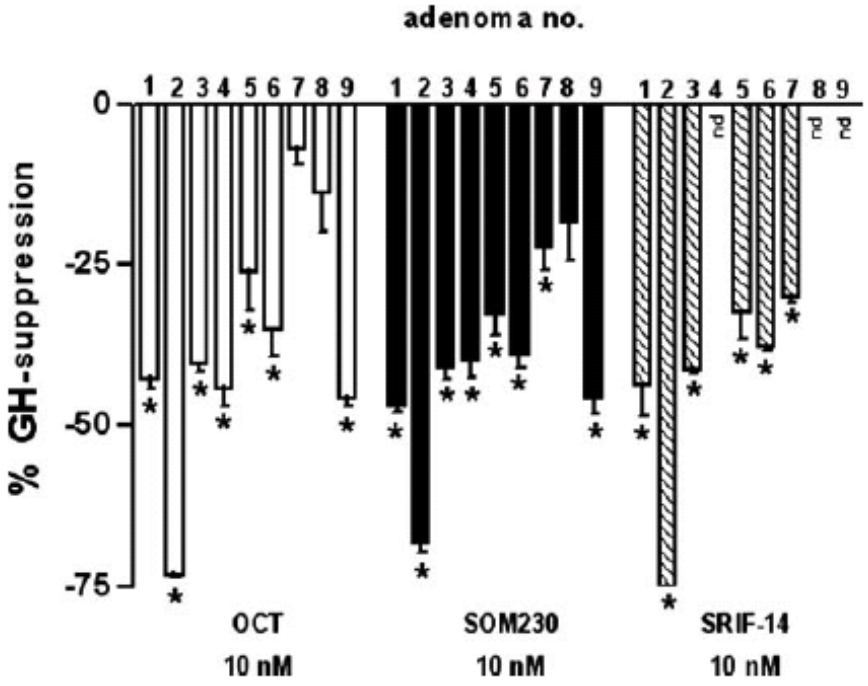




Weckbecker G, Endocrinolgy 2002 143: 4123-4130

The Novel Somatostatin Analog SOM230 Is a Potent Inhibitor of Hormone Release by Growth Hormone- and Prolactin-Secreting Pituitary Adenomas *in Vitro*





Hofland LJ, JCEM 2004 89: 1577-1585

A Single-Dose Comparison of the Acute Effects between the New Somatostatin Analog SOM230 and Octreotide in Acromegalic Patients

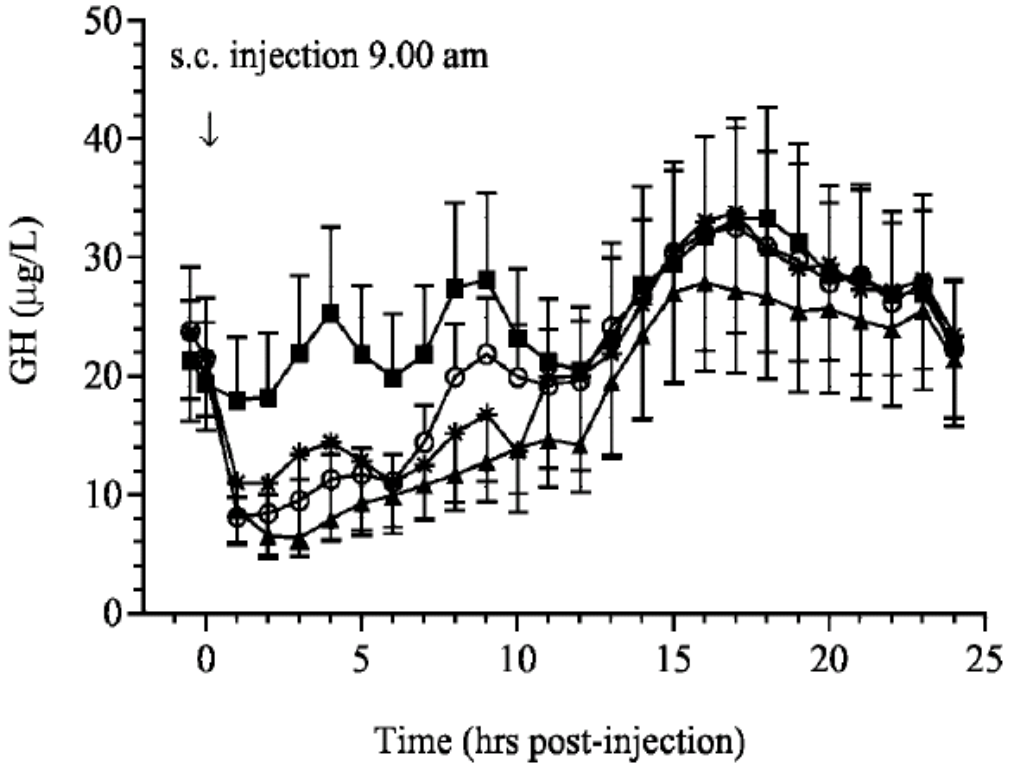


FIG. 1. Twenty-four-hour GH concentration curves on the CD (■—■) and treatment days after sc injection of 100 μg OCT (*—*),250 μg SOM230 (▲—▲), and 100 μg SOM230 (○—○). Data are expressed as mean ± SEM (n = 12).

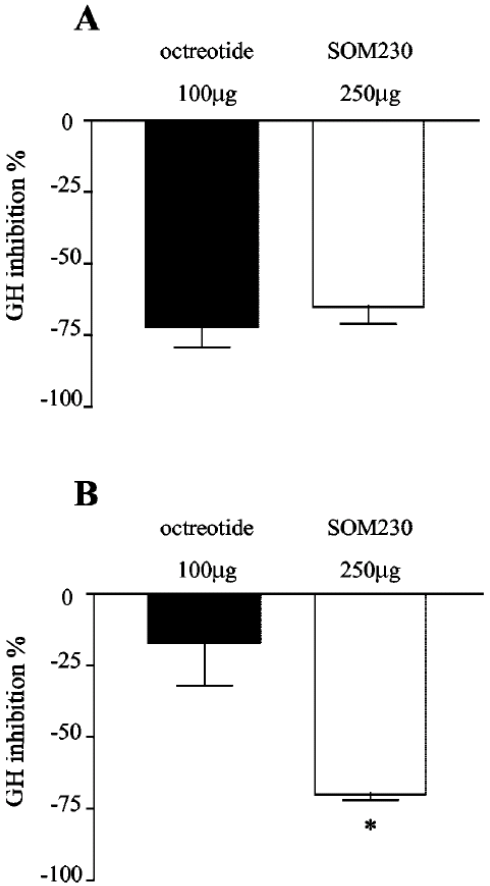


FIG. 3. GH suppression 2–8 h after sc injection. The *bars* represent mean ± SEM percentual GH suppression induced by 100 μg octreotide (■) and 250 μg SOM230 (□), compared with the CD. A, Group showing equal response to OCT and SOM230 (n = 8). B, Group showing higher sensitivity to SOM230 (n = 3; *, $P < 0.05$).

Van Der Hoek J, JCEM 2004 89: 638-645

Functional Activity of the Multiligand Analog SOM230 at Human Recombinant Somatostatin Receptor Subtypes Supports Its Usefulness in Neuroendocrine Tumors

Compound	sst_1	sst_2	sst_3	sst_4	sst_5
SRIF-14	0.93±0.12	0.15±0.22	0.56±0.17	1.50±0.40	0.29±0.04
Octreotide	280±20	0.38±0.08	7.10±1.40	>1,000	6.30±1.00
SOM230	9.30±0.10	1.00±0.10	1.50±0.30	>1,000	0.16±0.01
Octreotide/SOM230	30	0.4	5	–	39

Data are mean IC_{50} values (nmol/l) from 3–7 experiments (adapted from Bruns et al. [7]).

Compound	sst_1	sst_2	sst_3	sst_4	sst_5
SRIF-14	1.80±1.20	0.24±0.06	0.30±0.13	0.39±0.15	0.32±0.23
Octreotide	>1,000	0.06±0.02	7.40±3.50	>1,000	87±66
SOM230	32±13	0.39±0.09	0.70±0.22	>1,000	0.55±0.12
Octreotide/SOM230	>30	0.15	11	–	158

Data are mean EC_{50} values (nmol/l) from 3–5 experiments.

Schmid HA, Neuroendocrinology 84 (S1): 47-50

Pasireotide (SOM230) effectively reduces pituitary tumor volume in patients with active acromegaly: preliminary 6-month results from a phase II extension study

Results: Thirty patients entered the extension study. Of 26 patients who received pasireotide for at least 6 months, 65% achieved GH ≤2.5 µg/l and/or normalized IGF-I, 62% had normalized IGF-I and 42% achieved GH ≤2.5 µg/l. Nineteen patients had both baseline and per-protocol follow-up MRI scans at 6 months. Mean tumor volume reduction at 6 months was 18.1±4.6% S.E.M. for all 19 patients. In 10 of the 19 patients (53%), tumor volumes decreased by a mean of 33.4±4.2% (20% measurement error threshold).

Farral A, ESE 2008 abs OR

http://clinicaltrials.gov/ct2/results?term=pasireotide

Active, not recruiting Study of Pasireotide Long Acting Release (LAR) Injection in Patients With Acromegaly and Patients With Carcinoid Disease Conditions:Carcinoid Tumor; Acromegaly Intervention:Drug: Pasireotide

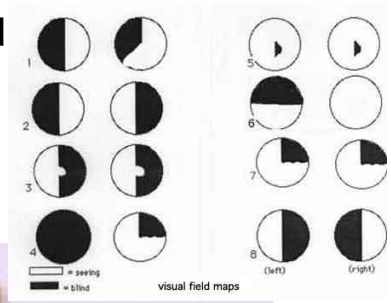
Active, not recruiting An Extension Study to Assess the Long-Term Safety and Efficacy of Pasireotide in Patients With Acromegaly
Condition:Acromegaly Intervention:Drug: Pasireotide

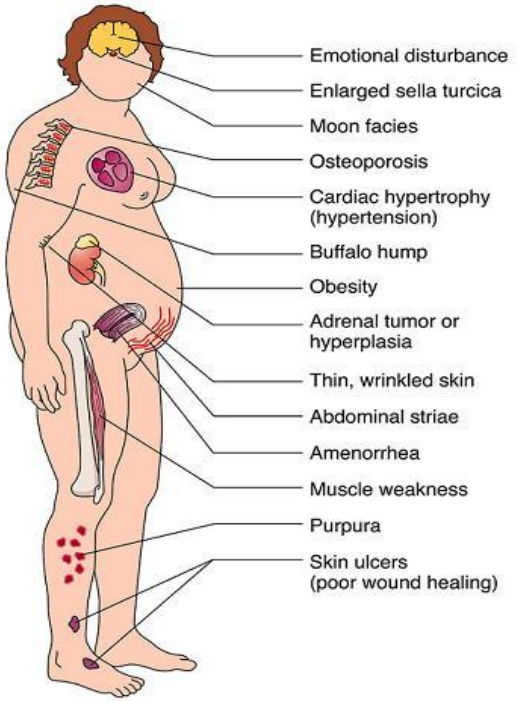
Recruiting Safety and Efficacy of Pasireotide Long Acting Release (LAR) vs. Octreotide LAR in Patients With Active Acromegaly
Condition:Acromegaly Intervention:Drug: Pasireotide

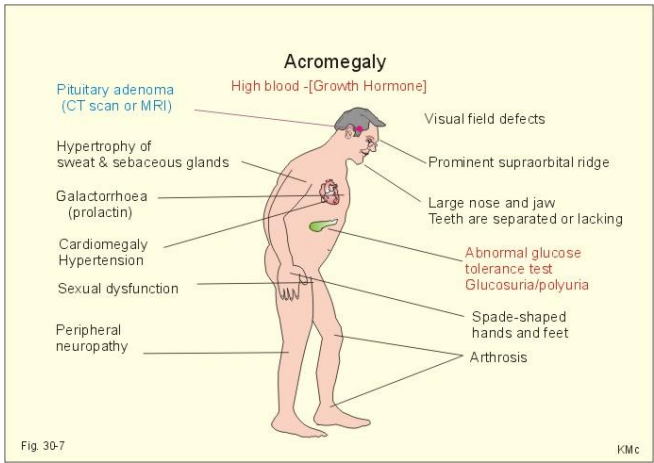
Active, not recruiting Study Comparing SOM230 Subcutaneously and Sandostatin Subcutaneously in Acromegalic Patients
Condition:Acromegaly Interventions:Drug: SOM230

Hipofiz adenomlarında belirtiler

- Adenomun kitle etkisi
  - Hipopitüitarizm
  - Görme alanı daralması
  - Başağrısı vd
- Adenomun hormon hipersekresyonu
  - Prolaktinoma
  - Akromegali
  - Cushing
  - Hipertiroidi







Treatment of Adrenocorticotropin-Dependent Cushing's Syndrome: A Consensus Statement

Part I: Criteria for Cure and Remission of ACTH-Dependent Cushing's Syndrome

Part II: Surgical Treatment of Cushing's Disease

Part III: Persistent Disease after Transsphenoidal Surgery

Part IV: Medical Therapy of Cushing's Disease

Part V: Management of Ectopic ACTH Syndrome, Nelson's Syndrome, Special Patient Populations, and the Patient after Successful Surgical Treatment

Biller BMK, JCEM 2008 93: 2454-2462

Long-term remission rates after pituitary surgery for Cushing's disease: the need for long-term surveillance

Reference, location of study	Median follow-up time (months)	Immediate postoperative remission (%)	Later relapse rate (%)	Overall remission rate (%)
Atkinson *et al.*	115	71·4 (45/63)	22·2 (10/45)	55·6 (35/63)
Rees *et al.*	72	77 (41/53)	5 (2/41)	74 (39/53)
Yap *et al.*	92	68·5 (61/89)	11·5 (7/61)	60·1 (54/89)
Chee *et al.*	88	78·7 (48/61)	14·6 (7/48)	67·2 (41/61)
Van Aken *et al.*	35	58·6 (17/29)	17·6 (3/17)	48·3 (14/29)
Bochicchio *et al.*	46	76·3 (510/668)	12·7 (65/510)	66·6 (445/668)
Ram *et al.* (1994)[62] NIH, USA	34	71 (12/17)	25 (3/12)	52·9 (9/17)
Viganti *et al.*	38·5	83·3 (30/36)	20 (6/30)	66·7 (24/36)
Toms *et al.*	24	100 (11/11)	36·4 (4/11)	63·6 (7/11)
Arnott *et al.*	22	86 (24/28)	12·5 (3/24)	75 (21/28)
Burke *et al.*	56	81·5 (44/54)	4·5 (2/44)	77·8 (42/54)
Tindall *et al.*	57	84·9 (45/53)	2·1 (1/46)	83 (44/53)
Pieters *et al.*	54	59 (160/270)	25 (4/16)	44 (12/27)
Guilhaume *et al.*	24	70 (42/60)	14·3 (6/42)	60 (36/60)
Mampalam *et al.*	46	79·2 (171/216)	5·3 (9/171)	75 (162/216)

Atkinson A, Clin Endocr. 2005 63: 549-559

Treatment options for Cushing disease after unsuccessful transsphenoidal surgery

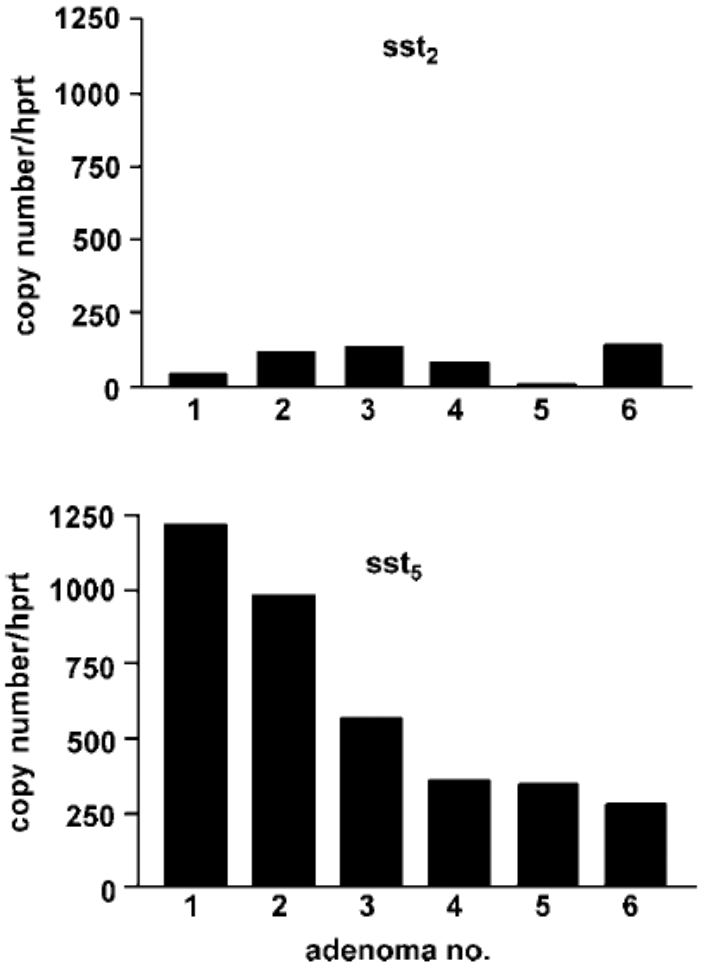
- Reoperasyon
- Radyoterapi
- Bilateral adrenalektomi
- Tıbbi tedavi

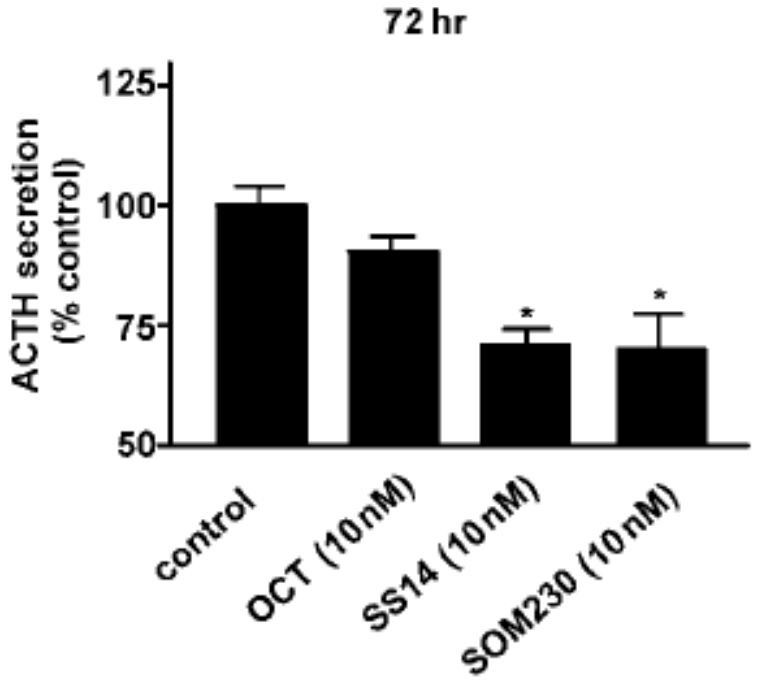
Medical therapy for Cushing disease

drugs that inhibit steroidogenesis
ketoconazole
mitotane
metyrapone
trilostane
aminoglutethimide
etomidate
drugs that modulate ACTH release
dopamine agonists
bromocriptine
cabergoline
somatostatin agonists
octreotide
GABA agonists
valproic acid
serotonin antagonists
cyproheptadine
ketanserin
ritanserin
cortisol-receptor antagonists
mifepristone (RU-486)

Liu JK, j Neurosurg Focus 2007 84: 79-84

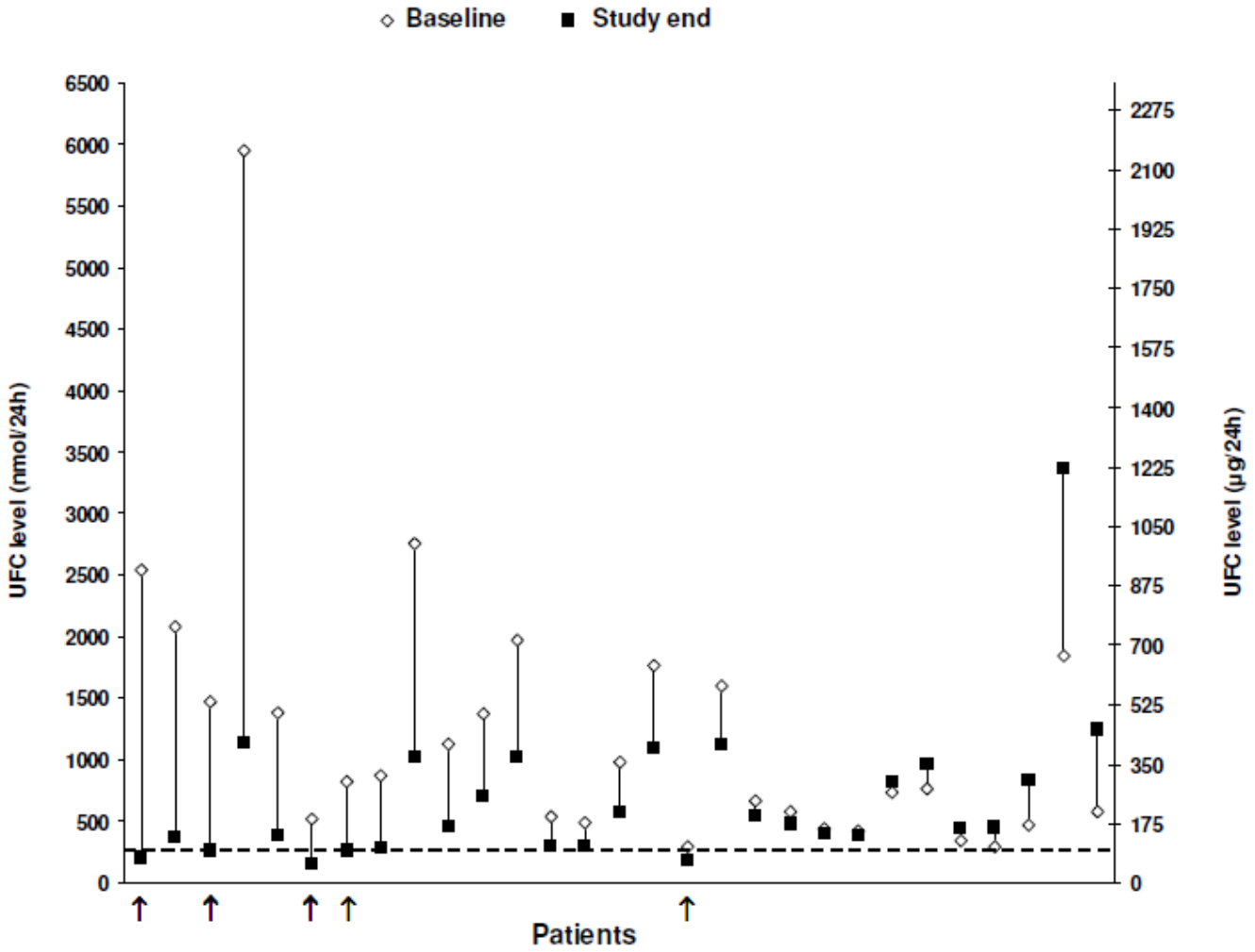
The multi-ligand somatostatin analogue SOM230 inhibits ACTH secretion by cultured human corticotroph adenomas via somatostatin receptor type 5





Hofland LJ, EJE 2005 152: 645-654

Treatment of pituitary dependent Cushing's disease with the multi-receptor ligand somatostatin analog pasireotide (SOM230): A multicenter, phase II trial



Boscaro M, JCEM. 2008 Epub print ahead

http://clinicaltrials.gov/ct2/results?term=pasireotide

Recruiting Safety and Efficacy of Different Dose Levels of Pasireotide in Patients With de Novo, Persistent or Recurrent Cushing's Disease Condition:Cushing's Disease Intervention:Drug: Pasireotide

Active, not recruiting Extension Study to Assess the Safety and Efficacy of Pasireotide in Patients With Cushing's Disease Condition:Cushing Disease Intervention:Drug: Pasireotide

Active, not recruiting A Study to Assess SOM230 in Patients With Pituitary Cushing's Disease Condition:Cushing's Syndrome Intervention:Drug: SOM230

Recruiting Pharmacokinetics and Safety of Single Subcutaneous Pasireotide (SOM230) in Subjects With Varying Degrees of Hepatic Function Conditions:Hepatic Cirrhosis; Alcoholism Intervention:Drug: Pasireotide

Recruiting Safety and Efficacy of Pasireotide Long Acting Release vs. Octreotide Long Acting Release in Patients With Metastatic Carcinoid Disease Condition:Carcinoid Disease Interventions:Drug: Pasireotide; Drug: Octreotide

Active, not recruiting Study Evaluating SOM230 in Patients With Metastatic Carcinoid Tumors Condition:Carcinoid Tumors Interventions:Drug: SOM230

Active, not recruiting Study of Pasireotide Long Acting Release (LAR) Injection in Patients With Acromegaly and Patients With Carcinoid Disease Conditions:Carcinoid Tumor; Acromegaly Intervention:Drug: Pasireotide

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Recruiting Safety and Efficacy of Pasireotide Long Acting Release (LAR) vs. Octreotide LAR in Patients With Active Acromegaly Condition:Acromegaly Intervention:Drug: Pasireotide

Active, not recruiting Study Comparing SOM230 Subcutaneously and Sandostatin Subcutaneously in Acromegalic Patients Condition:Acromegaly Interventions:Drug: SOM230