

# 環境医学研究所での内分泌学研究

名古屋大学環境医学研究所

内分泌分野教授 妹尾 久雄

平成20年3月7日

お世話になった先生方

和は力なり

## 名古屋大学環境医学研究所

### 内分泌・代謝

石原一郎、松井信夫、田村好弘、横尾百合子、新実光朗、大森幸子、村田善晴、神部福司、長屋敬、服部公彦（教員）、小川克仁、末田香里、岡崎正太郎、波多野敬、宮本法博、野村由夫、林良敬（松井：院生）Sarkar Devanand、曹霞、芦秀麗、Mirza Rusella（妹尾：院生）、丹羽 靖、山本親、藤條美幸、神田和実、早水サヨ子、河野節子（共同研究員）

### 発生・遺伝

山村英樹、早坂静、Rogacthev Margarita, Siddiq Ayesha, 高岸芳子、加納安彦、竹内陽子、星野伸、水野豊

### 循環器

外山淳二、児玉逸雄、神谷香一郎、李鐘国、加藤秀平、西山 敦

### 神経性調節学

水村和枝、小崎康子

### 宇宙医学実験センター

古賀一男、Raphael Gruener

## 名古屋大学医学部

### 脳神経外科

景山直樹、吉田純、桑山明夫、山本直樹、長屋敬、井上達、桜井剛、塚本信弘、雄山博文、水野正明、若林俊彦、岡田秀穂、大塚悟郎、根橋京子、加藤恭三、加藤美穂子、若林健一

### 内分泌・代謝科

大磯ユタカ、山内一征、森祐一、安藤通泰、三浦義孝、稲垣朱実、今村修治、山守育雄、谷 能之、山内雅子

### 産婦人科

友田豊、成田収、菅沼信彦、古橋円、小栗久典、石原 豊、塚原慎一郎、大脇正哉、岡本知光、古郡和徳、広岡孝、木村敏男、鈴木省治

### 乳腺・内分泌科

中尾昭公、船橋啓臣、今井常夫、大野元嗣、田中勇治、森田孝子、菊森豊根、柴田有宏、日比八束、小林宏暢

### 第一外科

二村雄次、山口俊介、毛受雅文

### 整形外科

岩田久、石黒直樹、坂野真士、伊藤隆安、黒河内和俊、酒井忠博、小林健二、光山浩人、山本拓也、舟橋康治



## 名古屋大学医学部

### 分院内科

前田憲治、丹羽利光、宮田敏夫、稲城玲子、宮崎高志、佐藤元美、山田師生

### 循環器内科

奥村健二、井関淳、村上隆一郎

### 小児科

小川正道、上條隆司、立松寿、加藤太一

### 病態制御施設ウイルス部

前野幸一郎、西山 幸廣、鶴見達也

### 形成外科

鳥居秀平、李節

## 名古屋大学農学部

### 応用遺伝・生理学講座

島田清司、David Zadworny (McGill University), 石田浩幸、伊藤剛史

## 妹尾 久雄 略歴

生年月日	1944年 11月 6日	
教育	1963-1969	名古屋大学医学部
	1969-1973	遠州総合病院（浜松）にて臨床研修
免許 学位	1969	医師免許証 （202928号）
	1980	医学博士 （1121号）
職歴	1973-1974	名古屋大学環境医学研究所副手
	1974-1978	シカゴ大学医学部 Research Associate
	1977	ブリュッセル自由大学（3ヶ月留学）
	1978	ブリュッセル自由大学（3ヶ月留学）
	1978-1980	シカゴ大学医学部 Assistant Professor
	1980-1982	名古屋大学環境医学研究所助手
	1980	ブリュッセル自由大学（3ヶ月留学）
	1982-1991	名古屋大学環境医学研究所助教授
	1983	ブリュッセル自由大学（3ヶ月留学）
	1987	シカゴ大学医学部（3ヶ月留学）
	1991-2008	名古屋大学環境医学研究所教授
	2000-2004	名古屋大学環境医学研究所所長

## 学会活動

- |           |   |
|-----------|---|
| 1997～2001 | 日本内分泌学会理事   |
| 2003～2007 | 日本内分泌学会監事   |
| 1991～1997 | 日本甲状腺学会幹事   |
| 1999～現在   | 日本甲状腺学会理事   |
| 1998      | 第5回国際分子甲状腺学シンポジウム会長   |
| 1996～2000 | 第12回国際甲状腺学会POC chairman<br><i>(AOTA, ATA, ETA, LATS)</i>                      |
| 2001      | 第19回内分泌・代謝学サマーセミナー会長  |
| 2003      | 第46回日本甲状腺学会会長   |
| 1999～2003 | 第7回AOTA POC chairman (December)<br><i>(Severe Acute Respiratory Syndrome)</i> |

# 1974 ~1980:初期の内分泌学研究トレーニング

1973~1974            **松井信夫教授** : CBGの精製、抗ACTH抗体の作製

1974~1980            **Professor Samuel Refetoff**, University of Chicago

Free University of Brussels

**G. Vassart**

J.E. Dumont

**H. Brocas**

R. Pochet

G. Toubeau

A. Van Coevorden



Transcriptional Regulation of  
GH and PRL

University of Chicago

V.S. Fang: RIA technique

**N.H. Scherberg**: Basic Biochemistry

**E. Martino**

A. Lernmark

D.F. Steiner

C. Wunderlich: Anamnestic

response of GH, PRL

**L.J. DeGroot**

A.H. Coleoni

**V.S. Lim**

} Significance of TRH

} Euthyroid sick

} syndrome

No study on Resistance to Thyroid Hormone

## Publications from 1976 to 1981 as a research fellow in Chicago and Brussels

- 1 H. Brocas, **H. Seo**, S. Refetoff and G. Vassart: Simultaneous translation of growth hormone and prolactin messenger RNA from rat pituitary tumor cells. ***FEBS Letters*** 70(1), 175-179, 1976. *Cell free translation of mRNA*
- 2 **H. Seo**, S. Refetoff and V.S. Fang: Induction of hypothyroidism and hypoprolactinemia by growth hormone producing rat pituitary tumors. ***Endocrinology*** 100(1), 216-226, 1977.
- 3 **H. Seo**, G. Vassart, H. Brocas and S. Refetoff: Triiodothyronine stimulates specifically growth hormone mRNA in rat pituitary tumor cells. ***Proc. Natl. Acad. Sci. (USA)***, 74(5), 2054-2058, 1977. *Genomic action of thyroid hormone*
- 4 L.J. DeGroot, A.H. Coleoni, P.A. Rue, **H. Seo**, E. Martino and S. Refetoff: Reduced nuclear triiodothyronine receptors in starvation-induced hypothyroidism. ***Biochem. Biophys. Res. Commun.*** 79(1), 173-178, 1977. *Low T3 syndrome*
- 5 N.H. Scherberg, **H. Seo** and R. Hynes: Incorporation of radioiodotyrosines into proteins formed during cell-free translation. ***J. Biol. Chem.*** 253(6), 1773-1779, 1978. *First patent*
- 6 E. Martino, **H. Seo** and S. Refetoff: Loss of bioreactivity and preservation of immunoreactivity of iodothyrotropin-releasing hormone. ***Endocrinology*** 103(1), 246-253, 1978.

- 7 **H. Seo**, H. Brocas, G. Vassart and S. Refetoff: Early in vitro induction of rat pituitary GH mRNA by T3. *Endocrinology* 103(4), 1506-1509, 1978.
- 8 E. Martino, A. Lernmark, **H. Seo**, D.F. Steiner and S. Refetoff: High concentration of thyrotropin-releasing hormone in pancreatic islets. *Proc.Natl. Acad. Sci. (USA)*, 75,(9) 265-4267, 1978. *Extrahypothalamic TRH*
- 9 **H. Seo**, S. Refetoff, E. Martino, G. Vassart and H. Brocas: The differential stimulatory effect of thyroid hormone on growth hormone synthesis and estrogen on prolactin synthesis due to accumulation of specific messenger ribonucleic acids. *Endocrinology* 104(4), 1083-1095, 1979.
- 10 **H. Seo**, S. Refetoff, G. Vassart and H. Brocas: Comparison of primary and secondary stimulation of male rats by estradiol in terms of prolactin synthesis and mRNA accumulation in the pituitary. *Proc. Natl. Acad. Sci.(USA)*, 76(2), 824-828, 1979. *Epigenetic control of PRL gene*
- 11 **H. Seo**, S. Refetoff, N. Scherberg, H. Brocas and G. Vassart. Isolation of rat prolactin messenger ribonucleic acid and synthesis of the complementary deoxyribonucleic acid. *Endocrinology* 105(6), 1481-1487, 1979.
- 12 E. Martino, **H. Seo**, A. Lernmark and S. Refetoff: Ontogenetic patterns of thyrotropin-releasing hormone-like material in rat hypothalamus, pancreas, and retina: Selective effect of light deprivation. *Proc. Natl. Acad. Sci.(USA)*, 77(7), 4345-4348, 1980. *Extrahypothalamic TRH*

- 13 V.S. Lim, C. Henriquez, **H. Seo**, S. Refetoff and E. Martino: Thyroid function in a uremic rat model: Evidence suggesting tissue hypothyroidism. *J. Clin. Invest.* 66(5), 946-954, 1980. *Uremia and low T3 syndrome*
- 14 E. Martino, M. Nardi, G. Vaudagna, S. Simonetti, A. Cilotti, A. Pinchera, G. Venturi, **H. Seo** and L. Baschieri : Thyrotropin-releasing hormone-like material in human retina. *J. Endocrinol. Invest.* 3(3), 267-271, 1980.
- 15 **H. Seo**, C. Wunderlich, G. Vassart and S. Refetoff: Growth hormone responses to thyroid hormone in the neonatal rat: Resistance and anamnestic response. *J. Clin. Invest.* 67(2), 569-574, 1981.
- 16 H. Brocas, A. Van Coevorden, **H. Seo**, S. Refetoff and G. Vassart: Dopaminergic control of prolactin mRNA accumulation in the pituitary of the male rat. *Mol. Cell. Endocrinol.* 22(1), 25-30, 1981.
- 17 R. Pochet, H. Brocas, G. Vassart, G. Toubreau, **H. Seo**, S. Refetoff, J.E. Dumont and J.L. Pasteels: Radioautographic localization of prolactin messenger RNA on histological sections by in situ hybridization. *Brain Res.* 211(2), 433-438, 1981. *In situ hybridization*



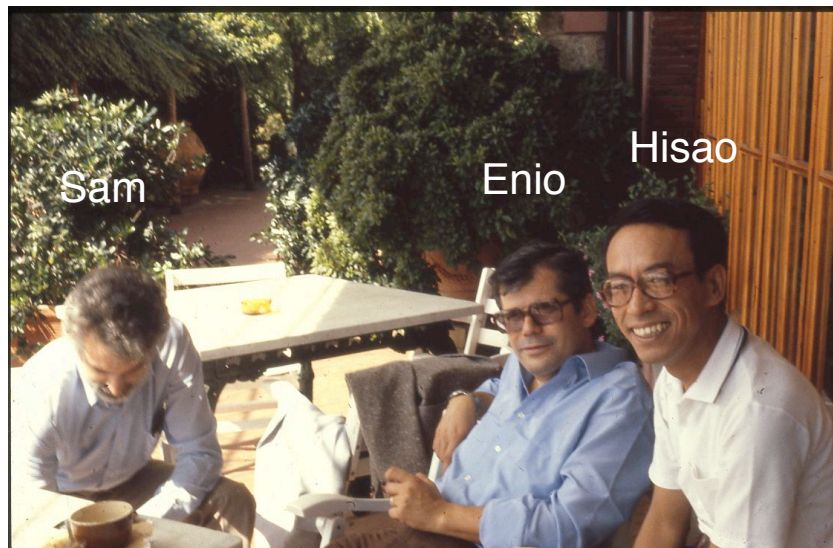
Free University of Brussels



Date with Huguette



The backyard of Sam's house



Animal facility, U of C





# Mechanism of Interference between influenza A and B

## 1983~1984

Department of Virology, School of Medicine, Nagoya University  
Professor K. Maeno (1968年 New Yorkで美味しい日本食をご馳走になりました)  
Drs. T. Tsurumi, H. Aoki, Y Nishiyama, M Shibata, Y Ito, S Yoshii

- 1 T. Tsurumi, H. Aoki, Y. Nishiyama, M. Shibata, K. Maeno and **H. Seo**: Effect of high salt treatment on influenza B Viral protein synthesis in MDCK cells.  
*Microbiol. Immunol.* 27(6), 519-529, 1983.
- 2 H. Aoki, Y. Nishiyama, T. Tsurumi, M. Shibata, Y. Ito, **H. Seo**, S. Yoshii and K. Maeno: Mechanism of interference between influenza A/WSN and B/Kanagawa viruses. *J. Gen. Virol.* 65(8), 1385-1393, 1984.

# 松井先生のお宅でのバーベキューパーティー



# Studies on Transcortin (CBG)

1985~1989

Prof. N. Matsui and Drs. K. Sueda, Y. Murata

- 1 K. Sueda, **H. Seo**, N. Matsui. Human transcortin synthesis by a cell-free translation of hepatic mRNA. *Endocrinol. Jpn.* 32(2), 295-303, 1985.  
*Preparation for the cloning of CBG cDNA*
- 2 K. Sueda, **H. Seo** and N. Matsui: Comparative study of primates' transcortin: Immunoreactivity and steroid-binding activity. *Endocrinol. Jpn.* 33(2), 143-150 1986.
- 3 Y. Murata, K. Sueda, **H. Seo** and N. Matsui: Studies on the role of glycosylation for human corticosteroid-binding globulin: Comparison with that for thyroxine-binding globulin. *Endocrinology* 125(3), 1424-1429, 1989.



第28回日本内分泌学会甲状腺分科会  
松井信夫会長



1985年5月17日

Dr. Refetoff のご家族との旅行



# mRNA analysis of pituitary hormones in various tissues

1986~1994

Dept Neurosurgery, School of Medicine, Nagoya University

Prof. N. Kageyama,

Drs. A. Kuwayama, N. Yamamoto, T. Nagaya, T. Sakurai, N. Nakane,  
T. Tsukamoto

Dept Ostet Gynecol, School of Medicine, Nagoya University

Prof. Y. Tomoda

Drs. O. Narita, S. Mizutani, N. Suganuma, M. Furuhashi, H. Oguri, Y. Ishihara,  
S. Tsukahara, T. Okamoto, M. Oowaki, F. Kikkawa, Hirooka

Department of Agriculture, Nagoya University

Prof. K. Shimada,

Drs. H. Ishida and K. Sato

Dept Anat, School of Medicine, Kyoto University

Profs. K. Hoshino and S. Nakanishi

Drs. T. Harigaya, K. Nakayama, H. Ohkubo

Dept Biol, Hiroshima University

Prof. S. Kawashima

Dr. S. Takahashi

- 1 N. Yamamoto, **H. Seo**, N. Suganuma, N. Matsui, T. Nakane, A. Kuwayama and N. Kageyama: Effect of estrogen on prolactin mRNA in the rat pituitary. *Neuroendocrinology* 42(6), 494-497, 1986. *In situ hybridization for the pathological analysis*
- 2 T. Harigaya, K. Nakayama, H. Ohkubo, S. Nakanishi, **H. Seo** and K. Hoshino: Cloning and sequence analysis of cDNA for mouse prolactin. *Biochim. Biophys. Acta.* 868(1) 30-38, 1986. *Collaboration with Kyoto University*
- 3 T. Sakurai, **H. Seo**, N. Yamamoto, T. Nagaya, T. Nakane, A. Kuwayama, N. Kageyama and N. Matsui: Detection of mRNA of prolactin and ACTH in clinically nonfunctioning pituitary adenomas. *J. Neurosurg* 69(5), 653-659, 1988.
- 4 T. Nagaya, **H. Seo**, A. Kuwayama, T. Sakurai, N. Tsukamoto, T. Nakane, K. Sugita and N. Matsui: Pro-opiomelanocortin gene expression in silent corticotroph-cell adenoma and Cushing's disease. *J. Neurosurg.* 72(2), 262-267, 1990.
- 5 T. Nagaya, **H. Seo**, A. Kuwayama, T. Sakurai, N. Tsukamoto, K. Sugita and N. Matsui: Prolactin gene expression in human growth hormone-secreting pituitary adenomas. *J. Neurosurg.* 72(6), 879-882, 1990.
- 6 S. Takahashi, S. Kawashima, **H. Seo** and N. Matsui: Age-related changes in growth hormone and prolactin messenger RNA levels in the rat. *Endocrinol. Jpn.* 37(6), 827-840, 1990. *Collaboration with Hiroshima Univ*
- 7 T. Nagaya, **H. Seo**, A. Kuwayama, T. Sakurai, N. Tsukamoto, T. Nakane, K. Sugita and N. Matsui: Pro-opiomelanocortin gene expression in silent corticotroph-cell adenoma and Cushing's disease. *J. Neurosurg.* 72(2), 262-267, 1990
- 8 N. Tsukamoto, T. Nagaya, A. Kuwayama, K. Takano, K. Shizume, K. Sugita and **H. Seo**: Octreotide treatment results in the inhibition of GH gene expression in the adenoma of the patients with acromegaly. *Endocrine J* 41(4), 437-444, 1994.

- 9 N. Suganuma, **H. Seo**, O. Narita, Y. Tomoda and N. Matsui: Measurement of human prolactin messenger RNA in decidual tissues using complementary DNA probe cloned in M13mp9 bacteriophage. *Acta Obstetrica et Gynaecologica Japonica* 38(2), 253-260, 1986.
- 10 N. Suganuma, **H. Seo**, N. Yamamoto, F. Kikkawa, O. Narita, Y. Tomoda and N. Matsui: Ontogenesis of pituitary prolactin in the human fetus. *J. Clin. Endocrinol. Metab.* 63 (1), 156-161, 1986.
- 11 N. Suganuma, **H. Seo**, N. Yamamoto, F. Kikkawa, H. Oguri, O. Narita, Y. Tomoda and N. Matsui: The ontogeny of growth hormone in the human fetal pituitary. *Am. J. Obstet. Gynecol.* 160(3), 729-733, 1989.
- 12 H. Oguri, N. Suganuma, F. Kikkawa, Y. Ishihara, **H. Seo**, N. Matsui and Y. Tomoda: Regulation of prolactin gene expression during early pregnancy in rats. *Endocrinol. Jpn.* 36(3), 395-401, 1989.
- 13 T. Okamoto, **H. Seo**, H. Mano, M. Furuhashi, S. Goto, Y. Tomoda and N. Matsui: Expression of human placenta alkaline phosphatase in placenta during pregnancy. *Placenta* 11(4), 319-327, 1990.
- 14 K. Shimada, H. Ishida, K. Sato, **H. Seo** and N. Matsui: Expression of prolactin gene in incubating hens. *J. Reprod. Fert.* 91, 147-154, 1991.
- 15 H. Ishida, K. Shimada, K. Sato, **H. Seo**, Y. Murata, N. Matsui and D. Zadworny: Developmental expression of the prolactin gene in the chicken. *Gen. Comp. Endocrinol.* 83, 463-467, 1991.
- 16 S. Tsukahara, F. Kambe, N. Suganuma, Y. Tomoda and **H. Seo**: Increase in Pit-1 mRNA is not required for the estrogen-induced expression of prolactin gene and lactotroph proliferation. *Endocrine J.* 41(5), 579-584, 1994.



# Invitation of Dr. and Mrs. Refetoff by JSPS 1991 January~May





# Studies on thyroxine-binding globulin 1988~1996

Dept Endocrinol, RIEM, Nagoya University

Drs. F. Kambe, Y. Murata, K. Sueda

Dept Internal Med, School of Medicine, Nagoya University

Drs. Y. Oiso, M. Ando, Y. Mori, Y. Miura, I. Yamamori, S. Imamura,  
A. Inagaki, K. Yamauchi, Y. Tani,

Dept Med, School of Medicine, University of Chicago

Profs: S. Refetoff, G.I. Bell,

Drs. Y. Mori, K. Takeda, Y. Hayashi, O.E. Janssen,  
T. Sunthornthepvarakul, R.E. Weiss,

- 1 F. Kambe, **H. Seo**, Y. Murata and N. Matsui: Cloning of a complementary deoxyribonucleic acid coding for human thyroxine-binding globulin (TBG): Existence of two TBG messenger ribonucleic acid species possessing different 3'-untranslated regions. *Mol. Endocrinol.* 2, 181-185, 1988. *Cloning of TBG cDNA*
- 2 **H. Seo**, M. Ando, K. Yamauchi, N. Matsui and O. Takenaka: Plasma thyroxine-binding proteins and thyroid hormone levels in primate species; Is callithricidae thyroid hormone resistant? *Endocrinol. Jpn.* 36(5), 665-673, 1989. *原猿類はRTH?*
- 3 K. Takeda, Y. Mori, S. Sobieszczyk, **H. Seo**, M. Dick, F. Watson, I.L. Flink, S. Seino, G.I. Bell and S. Refetoff: Sequence of the variant thyroxine-binding globulin of Australian aborigines. Only one of two amino acid replacements is responsible for its altered properties. *J. Clin. Invest.* 83(4), 1344-1348, 1989.
- 4 Y. Murata, K. Sueda, **H. Seo** and N. Matsui: Studies on the role of glycosylation for human corticosteroid-binding globulin: Comparison with that for thyroxine-binding globulin. *Endocrinology* 125(3), 1424-1429, 1989.
- 5 S. Imamura, Y. Mori, Y. Murata, I. Yamamori, Y. Miura, Y. Oiso, **H. Seo**, N. Matsui and S. Refetoff: Molecular cloning and primary structure of rat thyroxine-binding globulin. *Biochemistry* 30(22), 5406-5411, 1991.

Yamamori, Y. Mori, **H. Seo**, Y. Hirooka, S. Imamura, Y. Miura, N. Matsui and Y. Oiso: Nucleotide deletion resulting in frameshift as a possible cause of complete thyroxine-binding globulin deficiency in six Japanese families. *J. Clin. Endocrinol. Metab.* 73(2), 262-267, 1991.

F. Kambe, **H. Seo**, Y. Mori, Y. Murata, O.E. Janssen, S. Refetoff and N. Matsui: An additional carbohydrate chain in the variant thyroxine-binding globulin-Gary (TBGAsn-96) impairs its secretion. *Mol. Endocrinol.* 6(3), 443-449, 1992.

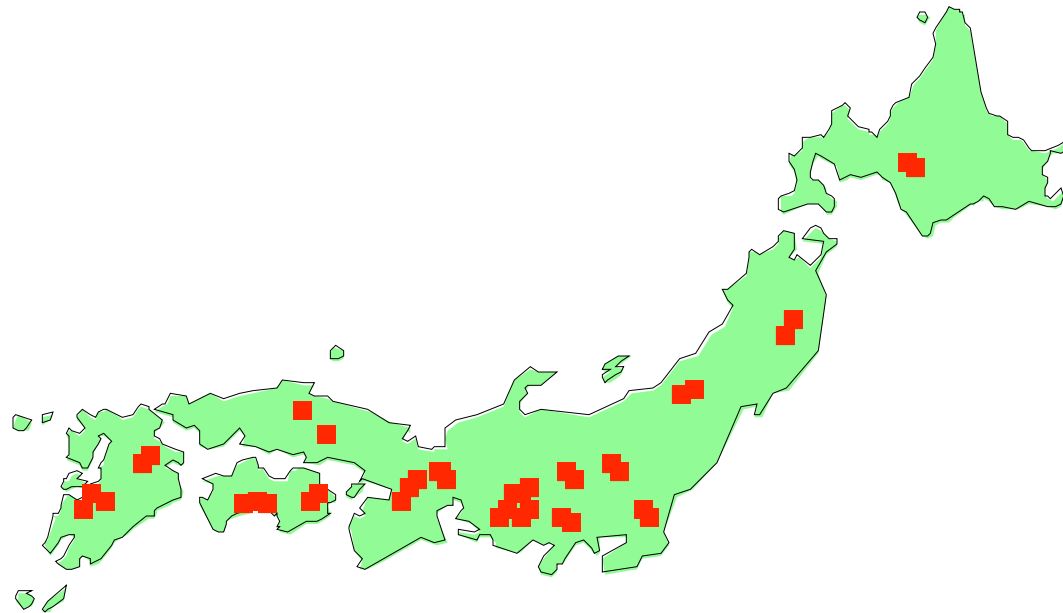
Y. Hayashi, Y. Mori, O.E. Janssen, T. Sunthornthepvarakul, R.E. Weiss, K. Takeda, M. Weinberg, **H. Seo**, G.I. Bell and S. Refetoff: Human thyroxine-binding globulin gene: Complete sequence and transcriptional regulation. *Molec. Endocrinol.* 7(8), 1049-1060, 1993. *TBG gene structure*

Y. Miura, Y. Mori, I. Yamamori, Y. Tani, Y. Murata, M. Yoshimoto, E. Kinoshita, T. Matsumoto, Y. Oiso and **H. Seo**: Sequence of a variant thyroxine-binding globulin(TBG) in a family with partial TBG deficiency in Japanese(TBG-PDJ). *Endocrine J.* 40(1), 127-132, 1993.

- 10 I. Yamamori, Y. Mori, Y. Miura, Y. Tani, S. Imamura, Y. Oiso and **H. Seo**: Gene screening of 23 Japanese families with complete thyroxine-binding globulin deficiency: Identification of a nucleotide deletion at codon 352 as a common cause. *Endocrine J.* 40(5), 563-569, 1993

- 11 Y. Miura, F. Kambe, I. Yamamori, Y. Mori, Y. Tani, Y. Murata Y. Oiso and **H. Seo**: A truncated thyroxine-binding globulin due to a frameshift mutation is retained within the rough endoplasmic reticulum: A possible mechanism of complete thyroxine-binding globulin deficiency in Japanese. *J. Clin. Endocrinol. Metab.* 78(2), 283-287, 1994.
- 12 Y. Mori, Y. Miura, Y. Oiso, **H. Seo** and K. Takazumi: Precise localization of the human thyroxine-binding globulin gene to chromosome Xq22.2 by fluorescence in situ hybridization. *Human Genetics* 96: 481-482, 1995.
- 13 A. Inagaki, Y. Miura, Y. Mori, H. Saito, **H. Seo** and Y. Oiso: Gene screening of thyroxine-binding globulin (TBG) deficiencies in the Japanese: Only two mutations account for TBG deficiencies in the Japanese. *J. Clin. Endocrinol. Metab.* 81, 580-585, 1996.

Screening of TBG-CDJ mutations among 34 unrelated Japanese subjects  
Nucleotide deletion resulting in frameshift as a possible cause of complete thyroxine-binding globulin deficiency in Japanese families



Male subjects (n=30) with complete TBG deficiency  
Hemizygous for TBG-CDJ  
Female subjects (n=4) with partial TBG deficiency  
Heterozygous for TBG-CDJ

## 毎年4月はお千代保稲荷でお花見





## Space Medicine Related Research (1985~1997)

Dept Endocrinol, RIEM, Nagoya University

Prof. N. Matsui

Drs. H. Seo, F. Kambe, N. Miyamoto, Y. Murata, S. Ohmori, K. Sueda,  
Y. Tamura

NASDA (**N**ational **S**pace **D**evelopment **A**gency of Japan)

Drs. C. Sekiguchi, M. Mohri, C. Mukai, D. Doi

1991年。妹尾が教授就任後、松井前教授の宇宙医学研究を引き継ぎ、1992年9月12日～20日にスペースシャトルエンデバーの搭乗科学者を対象とした研究を遂行した。その報告書の完成には10年以上を要した。

- 1 N. Matsui, J.R. Claybough, Y. Tamura, **H. Seo**, Y. Murata, K. Shiraki, H. Nakayama, Y.C. Lin and S.K. Hong. Seadragon VI: A 7-day saturation dive at 31 ATA Hyperbaria enhances renin but eliminates ADH responses to heap-up tilt. *Undersea Biomed. Res.* 14(5): 437-47, 1987.
- 2 Y. Hayashi, Y. Murata, **H. Seo**, N. Miyamoto, F. Kambe, S. Ohmori, C. Yamamoto, S. Hayamizu, Y. Tamura and N. Matsui: Modification of water and electrolyte metabolism during head-down tilting by hypoglycemia in men. *J. Appl. Physiol.* 73(5), 1785-1790, 1992. *All the doctors joined as subjects and suffered hypoglycemia and vertigo.*
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Numerous Reports to NASDA and NASA.



# Annual Meeting of American Thyroid Association at Chicago 1994, September



# Studies on glioma-associated antigen, G22 1987~2004

Dept Neurosurgery, School of Medicine, Nagoya University

Profs: J. Yoshida

Drs: T. Wakabayashi, M. Mizuno, I. Inoue (環研・助教),  
A. Kito, K. Saito

Dept Genetics, RIEM, Nagoya University

Prof. Y. Murata

Dept Endocrinol, RIEM, Nagoya University

Drs. F. Kambe, X. Cao, R. Murakami, H. Mitsuyama, T. Nagaya

Dept Radiol, School of Medicine, Nagoya University

Prof: S. Sakuma

Drs. M. Oshima, M. Tadokoro

Institute of Applied Biochemistry, Yagi Memorial Park,

Drs: K. Yagi, N. Kojima

- 1 J. Yoshida, T. Wakabayashi, A. Kito, N. Kageyama, Y. Murata, **H. Seo**, N. Kojima and K. Yagi: Clinical application of monoclonal antibodies against glioma-associated antigens. *Prog. Exp. Tumor Res.* 30, 44-56, 1987.
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# Studies on hemodialysis-associated disorders (1990~2000)

Dept Nephrology, School of Medicine, Nagoya University

Prof. K. Maeda, I. Nakashima

Drs. T. Miyata, T. Miyazaki, T. Niwa, M. Sato, R. Inagi,  
Y. Iida, M. Sato, N. Yamada, O. Oda

Dept Endocrinol, RIEM, Nagoya University

Dr. F. Kambe,

- 1 T. Miyata, K. Isobe, R. Dawson, MA. Ritter, R. Inagi, O. Oda, R. Taguchi, H. Ikezawa, I. Inoue, **H. Seo**, M.Hasegawa, S. Kobayashi, K. Maeda, K. Yamada and I. Nakashima: Determination of the molecular nature and cellular localization of Thy-1 in human renal tissue. *Immunology* **69**(3), 391-395, 1990
- 2 T. Miyazaki, T. Niwa, M. Sato, F. Kambe, K. Maeda and **H. Seo**: Plasma interleukin 8 levels are increased by hemodialysis. *Blood Purification* **12**: 135-140, 1994
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- 7 T. Miyazaki, M. Kajita, S. Ohmori, N. Mizutani, T. Niwa, Y. Murata and **H. Seo**: A novel mutation (E358K) in the  $\alpha$ -galactosidase A gene detected in a Japanese Family with Fabry disease. *Hum. Mutat.*, Suppl. 1: S139-140, 1998
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# Studies on the genetic abnormality in Isolated Growth Hormone Deficiency 1999~present

Dept Endocrinol, RIEM, Nagoya University

Drs. **Y. Hayashi**, S. Ohmori

Dept. Pediatrics, Nagoya University School of Medicine

Ogawa Clinic

Drs. **M. Ogawa**, **T. Kamijo**, **M. Yamamoto**

Division of Genetics, Vanderbilt University School of Medicine

Prof. Phillips JA

- 1 Y. Hayashi, M. Yamamoto, S. Ohmori, T. Kamijo, M. Ogawa and **H. Seo**: Inhibition of growth hormone(GH) secretion by a mutant GH-1 gene product in neuroendocrine cells containing secretory granules: An implication for isolated GH deficiency inherited in an autosomal dominant manner. *J Clin Endocrinol Metab.* 84(6), 2134-2139, 1999.
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- 7 T. Kamijo, Y. Hayashi, **H. Seo**, M. Yamamoto, M. Ogawa, C.S. Choski, N.J. Sawant, M.P. Colaco and M. P. Desai: A nonsense mutation (E72X) in growth hormone releasing hormone receptor (*GHRHR*) gene is the major cause of familial isolated growth hormone deficiency in Western region of India: founder effect suggested by analysis of dinucleotide repeat polymorphism close to *GHRHR* gene. *Growth Horm. IGF Res.*, 14(5): 394-401, 2004
- 8 Y. Hayashi, T. Kamijo, M. Yamamoto, Y. Murata, Phillips JA 3rd, M. Ogawa M, **H. Seo**: A case with isolated growth hormone deficiency caused by compound heterozygous mutations in GH-1: a novel missense mutation in the initiation codon and a 7.6kb deletion. *Growth Horm. IGF Res*, 17(36): 249-253, 2007

*All the affected subjects share the same homozygous allele for two polymorphic markers close to GHRHR locus: Evidence for founder effect*



Previously reported Kindred (**All Islamic**)  
(Wajnrach MP et al. Am J Med Genet: 120A , 2003)

- A: Bombay  
Wajnrach MP. et al. Nat Genet 12, 1996
- B: Sindh region of Pakistan  
Maheshwari HG et al. J Clin Endocrinol Metab 83, 1998
- C: Sri Lanka  
Netchine I, et al. J Clin Endocrinol Metab 83, 1998

- Kindred reported in this study  
(Kindred II: Islamic, Others: Hindu)
- I: 250 kms Southeast of Mumbai (Maharashtra State)
  - II: 260 kms North of Mumbai (Maharashtra State)
  - III: 800 kms Northwest of Mumbai (Gujarat State)
  - IV: 800 kms Northwest of Mumbai (Gujarat State)
  - V: 450 kms Southeast of Mumbai (Maharashtra State)

# Studies on the regulation of thyroid function 1996~present

Dept Endocrinol, RIEM, Nagoya University

Drs. **F. Kambe**, T. Miyazaki, Y. Nomura, F. Kambe, T. Nagaya, S. Ohmori,  
**X. Cao**, X. Lu

2nd Dept of Surgery, School of Medicine, Nagoya University

Drs. **T. Kikumori**, N. Kobayashi, H. Funahashi

Dept of Pediatrics, School of Medicine, Nagoya University

Dr. **T. Tatematsu (Asai)**

2nd Dept of Internal Medicine, School of Medicine, Nagoya University

Dr. **A. Iseki**

Dept Molecular and Cellular Biology,

Nagoya City University Graduate School of Medical Sciences

Prof. **T. Okamoto**

- 1 F. Kambe, T. Miyazaki and **H. Seo**: Differential induction of fos and jun family genes by thyrotropin in rat thyroid FRTL-5 cells. *Thyroid* 6 (2), 123-128, 1996.
- 2 F. Kambe and **H. Seo**: Mediation of the hormone- and serum-dependent regulation of thyroglobulin gene expression by thyroid-transcription factors in rat thyroid FRTL-5 cells. *J. Endocrinol.*, 150, 287-298, 1996.
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# 学会賞受賞者

## Prize from Asia Oceania Thyroid Association

2000 Prof. H Seo: Daiichi Prize

## 日本甲状腺学会

1991 Prof. N. Matsui: 三宅賞  
1991 Prof. Y. Murata: 七条賞  
1996 Dr. F. Kambe: 七条賞  
2000 Dr. Y Hayashi: 七条賞  
2000 Prof. H Seo: 三宅賞

## 日本内分泌学会

1996 Dr. N. Suganuma: 研究奨励賞  
1997 Dr. N. Nagaya: 研究奨励賞  
2000 Dr. Y Hayashi: 研究奨励賞





# Studies on the mechanism of thyroid hormone action 1996~present

Dept Endocrinol, RIEM, Nagoya University

Drs. T. Nagaya, Y. Hayashi, Y. Nomura, M. Fujieda, S. Ohmori,  
M. Fujieda, G. Ohtsuka, J-p. Yang, T. Okamoto

Dept Genetics, RIEM, Nagoya University

Prof. Y. Murata

Drs. M. Rogatcheva, Y. Takeuchi  
S. Futaki

Dept Circulation, , RIEM, Nagoya University

Prof. I. Kodama

Drs. J-K. Lee R-q. Shi,

1st Dept Surg, School of Med, NagoyUniv

Prof. Y. Nimura

Drs. S. Yamaguchi, M. Menjo

2nd Dept Surg, School of Med, NagoyUniv

Prof. Takagi

Drs. H. Funahashi, T. Imai, T. Kikumori

Institute of Health Sciences, Tokushima Bunri University

Prof. N. Katunuma

Chicago University

Prof. S. Refetoff

Drs. R. E. Weiss, Y. Hayashi, H. Tunca, and J. Pohlenz, P. E. Macchia

Laboratoire de Biologie Moleculaire et Cellulaire de l'Ecole Normale Suprieure de Lyon

Prof J. Samarut

Drs. M. Sadow, E. Koo, O. Chassand, K. Gauthier, J. Xu

Northwestern University, Division of Endocrinology

Prof L. J. Jameson

Drs. P. Kopp, K. Kitajima

- 1 **Y. Hayashi**, O.E. Janssen, R.E. Weiss, Y. Murata, **H. Seo** and S. Refetoff: The relative expression of mutant and normal thyroid hormone receptor genes in patients with generalized resistance to thyroid hormone determined by estimation of their specific messenger ribonucleic acid products. ***J. Clin. Endocrinol. Metab.*** 76(1), 64-69, 1993.  
*Collaboration with Dr. Refetoff while he was in Nagoya*
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*RTH not linked to defects in TR genes*



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- 21 M. Rogatcheva, Y. Hayashi, S. Oda, **H. Seo**, K. Cua, S. Refetoff, M. Murakami, M. Mori and Y. Murata: Type 1 iodothyronine deiodinase in the house musk shrew (*Suncus murinus*, Insectivora: Soricidae): cloning and characterization of complementary DNA, unique tissue distribution and regulation by T3. *General and Comparative Endocrinol.*, 127, 48-58, 2002.
- M. Kato, T. Nagaya, M. Fujieda, K. Saito, J. Yoshida and **H. Seo**: Expression of PPAR $\gamma$  and its ligand-dependent growth inhibition in human brain tumor cell lines. *Jpn. J. Cancer Res.*, 93(6): 660-666, 2002.

- 23 M. Sadow, E. Koo, O. Chassand, K. Gauthier, J. Samarut, J. Xu, B.W. O'Malley, **H. Seo**, Y. Murata, R.E. Weiss: Thyroid hormone receptor-specific interactions with steroid receptor coactivator-1 in the pituitary. *Mol Endocrinol*, 17(5):882-94, 2003.
- 24 R-q. Shi, J-K. Lee, Y. Hayashi, Y. Takeuchi, F. Kambe, S. Futaki, **H. Seo**, Y. Murata, I. Kodama: Long-term amiodarone treatment causes cardioselective hypothyroid-like alteration in gene expression profile. *Eur. J. Pharmacol.* In press, 2008

# The 5th INTERNATIONAL SYMPOSIUM ON MOLECULAR THYROIDOLGY MARCH 12, 1998





Seo elected as the Director of the Institute  
February, 2000



# Studies on pathogenesis of adrenocortical adenoma and action of ACTH (1990~present)

RIEM, Nagoya University

Prof. N. Matsui,

Drs. D. Sarkar, F. Kambe, Y. Murata, H. and, N. Miyamoto

2nd Dept of Surgery, School of Medicine, Nagoya University

Prof. H. Takagi,

Drs. T. Imai, M. Ohno, H. Funahashi, T. Matsuyama. Morita, Y. Satoh

Touhoku Univ. School of Med, Dept. Pathology

Prof. N. Sasano

- 1 T. Imai, **H. Seo**, Y. Murata, M. Ohno, Y. Satoh, H. Funahashi, H. Takagi, and N. Matsui: Alteration in the expression of genes for cholesterol side-chain cleavage enzyme and 21-hydroxylase by hypophysectomy and ACTH administration in the rat adrenal. **J. Mol. Endocrinol.** 4(3), 239-245, 1990. *One hundred rat hypophysectomized by Mr. K. Odaguchi at Shionogi Research laboratories, Osaka, Japan*
- 2 T. Imai, **H. Seo**, Y. Murata, H. Funahashi, Y. Satoh, H. Sasano, N. Matsui, and H. Takagi: Dexamethasone-nonsuppressible cortisol in two cases with aldosterone-producing adenoma. **J. Clin. Endocrinol. Metab.** 72(3), 575-581, 1991. *Year Book of Endocrinology*
- 3 M. Ohno, **H. Seo**, T. Imai, Y. Murata, N. Miyamoto, Y. Satoh, H. Funahashi, H. Takagi and N. Matsui: ACTH increases expression of c-fos, c-jun and b-actin genes in the dexamethasone-treated rat adrenals. **Endocrinol. Jpn.** 39(4), 377-383, 1992.
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- 6 T. Imai, D. Sarkar, A. Shibata, H. Funahashi, T. Morita-Matsuyama, T. Kikumori, S. Ohmori and **H. Seo**: Expression of adrenocorticotropin receptor gene in adrenocortical adenomas from patients with Cushing's syndrome: Possible contribution for the autonomous production of cortisol. **Annals of Surgery**, 234(1): 85-91, 2001.



- 7 D. Sarkar, T. Imai, F. Kambe, A. Shibata, S. Ohmori, A. Siddiq, S. Hayakawa, H. Funahashi and **H. Seo**: The human homolog of Diminuto/Dwarf1 gene (hDiminuto): A novel ACTH-responsive gene overexpressed in benign cortisol-producing adrenocortical adenomas. ***J. Clin. Endocrinol. Metab.***, 86(11): 5130-5137, 2001.  
*hDiminuto turned out to be 3 $\beta$ -hydroxysterol  $\Delta$ 24-reductase, an enzyme for the last step of cholesterol synthesis.*
  
- 8 H. Kobayashi, F. Kambe, T. Imai, Y. Hibi, T. Kikumori, S. Ohmori, A. Nakao, **H. Seo**: Differential expression of cyclin-dependent kinase inhibitors, p27Kip1 and p57Kip2, by corticotropin in rat adrenal cortex. ***Journal of Endocrinology***, 189: 671-679, 2006.

# The 12th International Thyroid Congress in Kyoto October, 2000



Chairman of POC from 1996 to 2000



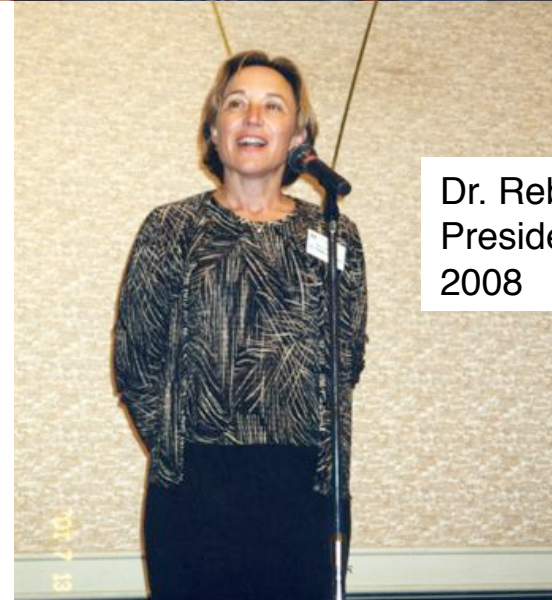
Alumni for the fellows educated at the Thyroid Study Unit,  
University of Chicago  
(The 12th International Thyroid Congress, October, 2000)



USA, Japan, Belgium, Spain, Argentina, Brasil, Peru, China, Italy, Thailand



# Summar Seminar of Japan Endocrine Society July, 2001



Dr. Rebecca Bahn  
President of ATA  
2008

第46日本甲状腺学会開催  
2003年11月19～21日名古屋国際会議場

多くの名古屋地区の先生方にご支援頂きました。

石突	吉持	先生
長坂	顕雄	先生
山内	一征	先生
大磯	ユタカ	先生
伊藤	光泰	先生
村田	善晴	先生
神部	福司	先生

## Studies on DHCR24 (Diminuto) (2006~present)

Dept Endocrinol, RIEM, Nagoya University

R. Mirza, X. Lu, S. Hayasaka, Y. Takagishi, F. Kambe, S. Ohmori, M. Yamamoto, D. Zadworny, Y. Murata,, F. Kambe, X. Cao, K. Maki

Pharmaceuticals Research Unit, Research and Development Division,  
Mitsubishi Pharma Corporation

K. Murakami, T. Kaji (*provision of DHCR24 gene knock out mice*)

- 1 R. Mirza, S. Hayasaka, Y. Takagishi, F. Kambe, S. Ohmori, M. Yamamoto, K. Murakami, T. Kaji, D. Zadworny, Y. Murata, **H. Seo**: DHCR24 gene knockout mice demonstrate lethal dermatopathy with differentiation and maturation defects in the epidermis. *J. Invest. Dermatol.*, 126: 638-647, 2006.
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# The 5th International conference of aquaporin in Nara 2007



With Nobel laureate, Dr. Peter Agre



# Studies on non-genomic action of thyroid hormone (1996~present)

RIEM

Dept Endocrinology

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Drs. A. Siddiq, Y. Mizuno, S. Hoshino, M. Rogatcheva,  
Y. Takagishi, Y. Kanou, Y. Kanou

University Chicago

Prof. S. Refetoff

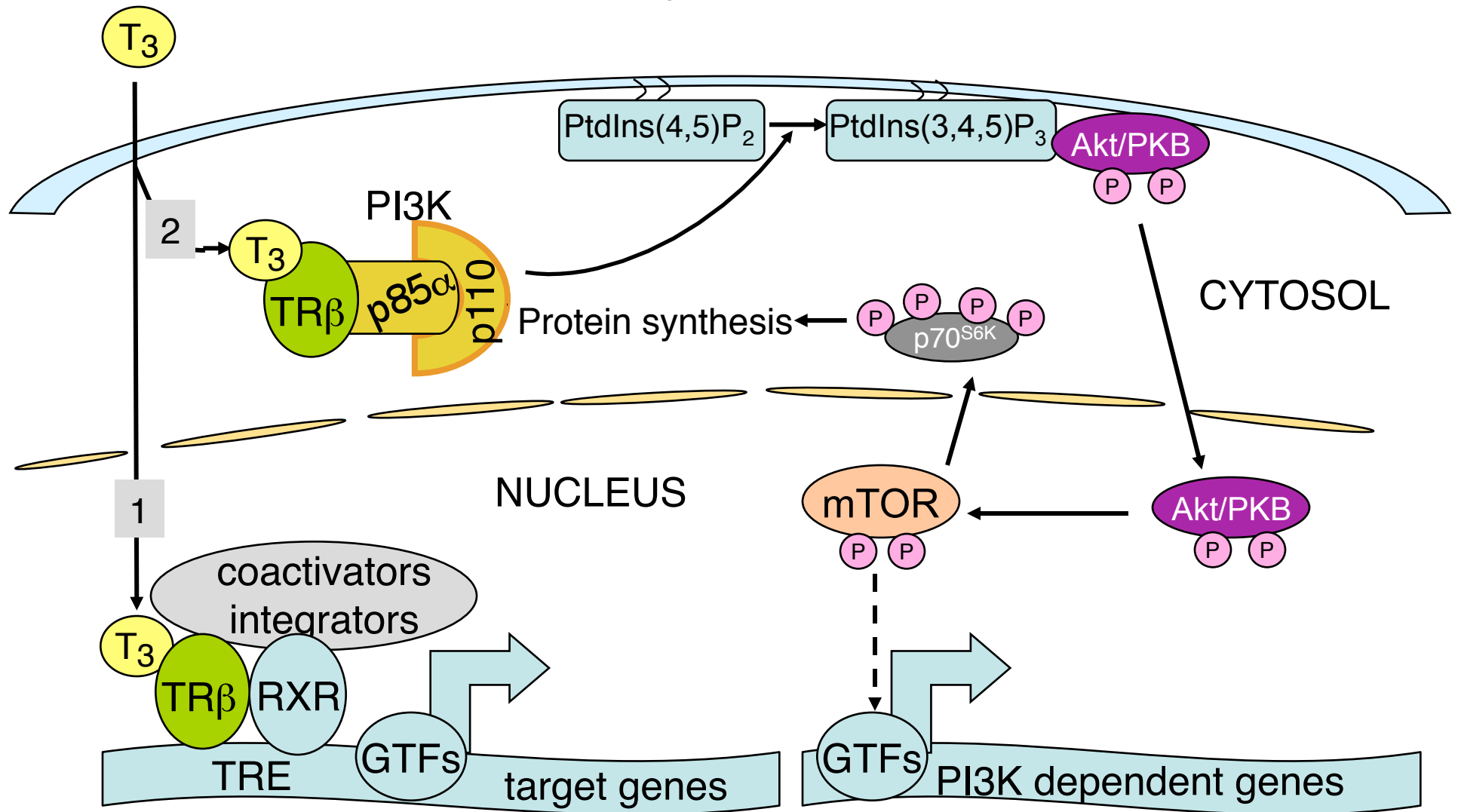
Dr. L.C. Moeller

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# Mechanism of thyroid hormone action



1. Genomic mechanism

2. Nongenomic mechanism

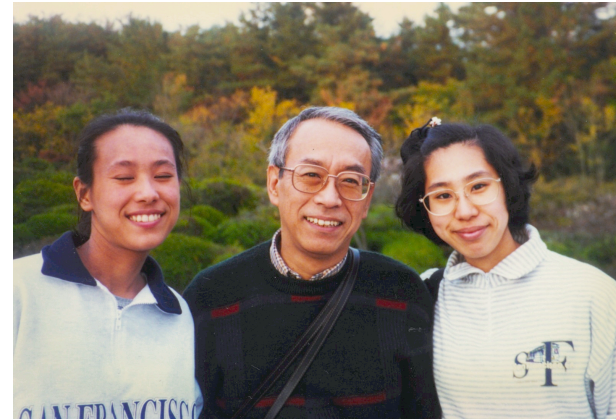
# The 8th International Workshop on Resistance to Thyroid Hormone and Action Ponta Delgada, October 9-11, 2007



Dr. Cao was invited to give her lecture on nongenomic action of thyroid hormone.



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環境医学研究所の益々のご発展、ご活躍をお祈り  
申し上げます。