

# Endocrine Abstracts

September 2020 Volume 70  
ISSN 1479-6848 (online)

22nd European Congress of  
Endocrinology

5-9 September 2020, European Society of Endocrinology

**eECE 2020**  
22nd European Congress of Endocrinology



published by  
**bioscientifica**

Online version available at  
[www.endocrine-abstracts.org](http://www.endocrine-abstracts.org)



## 22<sup>nd</sup> European Congress of Endocrinology 5-9 September 2020, European Society of Endocrinology

### EDITORS

Abstracts were marked by the Abstract Marking Panel and selected by the Programme Organising Committee

### e-ECE 2020 Mini-Programme Organising Committee

Andrea Giustina (Italy), **ESE President**

Martin Reincke (Germany), **ESE President-Elect**

Bulent Yildiz (Turkey), **ESE Treasurer (until May 2020)**

Riccarda Granata (Italy), **ESE Congress Committee Chair**

Attila Balázs Patócs (Hungary), **2020 POC Co-Chair**

Jens Otto Lunde Jørgensen (Denmark), **2020 POC Co-Chair**

Daniela Cota (France), **2021 POC Co-Chair**

Lars Rejnmark (Denmark), **2021 POC Co-Chair**

Ljiljana Marina (Serbia), **EYES Chair**

Manel Puig Domingo (Spain), **2020 POC Member**

Mónica Marazuela (Spain), **ESE Secretary**

### Programme Organising Committee

Riccarda Granata (Italy), **ESE Congress Committee Chair**

Jens Otto Lunde Jørgensen (Denmark), **Clinical Co-Chair**

Attila Balázs Patócs (Hungary), **Basic Science Co-Chair**

Michal Kršek (Czech Republic), **Local Organising Committee Chair**

Zhanna Belaya (Russian Federation)

Nienke Biermasz (The Netherlands)

Jens Bollerslev (Norway)

Daniela Cota (France)

Ashley Grossman (UK)

Csilla Krausz (Italy)

Madalina Musat (Romania)

Uberto Pagotto (Italy)

Agnieszka Piekliko-Witkowska (Poland)

Vincent Prevot (France)

Manel Puig-Domingo (Spain)

Lars Rejnmark (Denmark)

Mark Sherlock (Ireland)

Marilyn Theodoropoulou (Germany)

Pierre Val (France)

AJ van der Lely (The Netherlands)

Wim van Hul (Belgium)

Greisa Vila (Austria)

Maria Chiara Zatelli (Italy)

### Ex Officio Members

Andrea Giustina (Italy), **ESE President**

Martin Reincke (Germany), **ESE President-Elect**

Bulent Yildiz (Turkey), **ESE Treasurer (until May 2020)**

Wiebke Artl (UK), **Editor in Chief, European Journal of Endocrinology**

Josef Köhrle (Germany), **Editor in Chief, Endocrine Connections**

Felix Beuschlein (Switzerland), **ESE Clinical Committee Chair**

Robin Peeters (Switzerland), **ESE Science Committee Chair**

Riccarda Granata (Italy), **ESE Congress Committee Chair**

Marek Ruchala (Poland), **ECAS Representative**

Mehul Dattani (UK) (Switzerland), **ESPE Representative**

Luis Cardoso (Portugal), **EYES Representative**

### Abstract Marking Panel

Marker Name	Country	L Czupryniak	Poland	D Grigorie	Romania	M Krsek	Czech Republic	N Papanas	Greece	E Shestakova	Russia
M Alevizaki	Greece	J Dahlgren	Sweden	P Groop	Finland	A Kurylowicz	Poland	A Patócs	Hungary	M Shestakova	Russia
K Amrein	Austria	P Dahlqvist	Sweden	A Grossman	UK	E Lalli	France	R Peeters	The Netherlands	M Simoni	Italy
C Andoniadou	UK	C Daousi	UK	L Groussin	France	B Langdahl	Denmark	S Pekic	Serbia	J Skrha	Austria
G Assié	France	M Dattani	UK	G Gruden	Italy	B Lapauw	Belgium	N Pellegata	Germany	P Soares	Portugal
S Babajko	France	C Dayan	UK	L Guasti	UK	J Laven	The Netherlands	L Perez-Rivas	Germany	A Solini	Italy
C Badiu	Romania	J de Castro	Portugal	M Haluzik	Czech Republic	G Lavery	UK	H Perrild	Denmark	A Spada	Italy
A Baranowska-Bik	Poland	W de Herder	The Netherlands	R Hampl	Czech Republic	L Laviola	Italy	L Persani	Italy	J Spranger	Germany
A Barlier	France	E de Koning	The Netherlands	V Hána	Czech Republic	L Lazurova	Slovakia	G Perseghin	Italy	A Spyrgioulou	Germany
K Basham	USA	W Dhillon	UK	F Hannan	UK	H Lefebvre	France	M Petakov	Serbia	G Stalla	Germany
A Beckers	Belgium	G Di Dalmazi	Germany	A Heck	Norway	J Leger	France	A Piekliko-Witkowska	Poland	E Stener-Victorin	Sweden
P Beck-Peccoz	Italy	E Diamanti-Kandarakis	Greece	M Heikinheimo	Finland	T Links	The Netherlands	V Pirags	Latvia	C Strasburger	Germany
Z Belaya	Russia	C Dieguez	Spain	A Hoellich	Germany	P Lips	The Netherlands	C Poiana	Romania	C Stratakis	USA
J Bertherat	France	E Dirinck	Belgium	L Holland	The Netherlands	S Llahana	UK	R Poladian	Lebanon	A Tabarin	France
M Bidlingmaier	Germany	M Donath	Switzerland	A Hubalewska-Dydejczyk	Poland	A Luger	Austria	S Polyzos	Greece	T Tankova	Bulgaria
N Biermasz	The Netherlands	J Drouin	Canada	I Huhtaniemi	UK	S Lund	Denmark	P Poplawski	Poland	M Tena-Sempere	Spain
W Bik	Poland	L Duntas	Greece	E Husebye	Norway	R Luque	Spain	V Popović	Serbia	N Tentolouris	Greece
K Birkeland	Norway	A Dwyer	USA	P Igaz	Hungary	D Macut	Serbia	M Porta	Italy	M Terzolo	Italy
K Boelaert	UK	G Eisenhofer	Germany	I Ilvovskaya	Russia	D Maiter	France	M Poutanen	Finland	M Theodoropoulou	Germany
J Boguslawska	Poland	V Elian	Romania	E Isenovic	Serbia	E Mamedova	Russia	D Power	Portugal	C Thompson	Ireland
J Bollerslev	Norway	F Fallo	Italy	M Jaffrain-Rea	Italy	M Mannelli	Italy	M Puig Domingo	Spain	H Timmers	The Netherlands
R Bouillon	Belgium	M Fassnacht	Germany	B Jarzab	Poland	E Mannucci	Italy	C Quarta	France	M Toth	Hungary
M Brandi	Italy	J Favier	France	K Jazdzewski	Poland	F Mantero	Italy	S Radian	Romania	P Touraine	France
D Branisteanu	Romania	R Feelders	The Netherlands	N Jessen	Denmark	G Mantovani	ITALY	O Ragnarsson	Sweden	R Trifanescu	Romania
K Briot	France	U Feldt-Rasmussen	Denmark	D Jezova	Slovakia	M Marazuela	Spain	N Rahman	Finland	A Tsapas	Greece
T Brue	France	F Fernandes Rosa	France	G Johansson	Sweden	L Marina	Serbia	E Rajpert-De Meyts	Denmark	ETsoudis	Germany
G Brunetti	Italy	S Fica	Romania	A Jørgensen	Norway	N Matikainen	Finland	M Rauner	Germany	MTzanela	Greece
C Buchanan	UK	E Fliers	The Netherlands	J Jørgensen	Denmark	C McCabe	UK	G Raverot	France	E Valassi	Spain
P Burman	Sweden	S Franks	UK	U Kaiser	USA	O Meijer	The Netherlands	M Reincke	Germany	G Valk	The Netherlands
H Butz	Hungary	W Fraser	UK	G Kallitsa	Greece	L Metherell	UK	L Rejnmark	Denmark	E van den Akker	The Netherlands
S Cannavo	Italy	J Frystyk	Denmark	C Kanaka-Gantenbein	Greece	D Miljic	Serbia	S Rice	UK	erlands	
J Cap	Czech Republic	L Fugazzola	Italy	G Kanakis	Greece	J Mittag	Germany	M Robledo	Spain	A van der Lely	The Netherlands
C Capatina	Romania	C Fuà	Germany	T Kararup Hansen	Denmark	N Moller	Denmark	P Rodien	France	J van Eck	The Netherlands
M Caprio	Italy	F Gabalec	Czech Republic	D Karasek	Czech Republic	L Morin-Papunen	Finland	H Romijn	The Netherlands	W van Hul	Belgium
P Caron	France	S Gaberšček	Slovenia	N Karavitaki	UK	A Mukherjee	UK	C Ronchi	Italy	M Vantyghem	France
J Castaño	Spain	M Gabete	Spain	A Karlsson	Sweden	M Musat	Romania	R Ross	UK	G Vila	Austria
H Cederberg-		R Gärtner	Germany	S Kaser	Austria	E Nagy	Hungary	R Roussel	France	E Visser	The Netherlands
T Tamminen	Finland	B Gatta Cherifi	France	D Kastelan	Croatia	S Neggers	The Netherlands	N Rucci	Italy	J Visser	The Netherlands
O Chabre	France	L Gennari	Italy	J Kaufman	Belgium	J Newell-Price	UK	M Ruchala	Poland	V Volke	Estonia
P Chanson	France	M Gheorghiu	Romania	M Keil	USA	N Nicolaidis	Greece	E Rutten	Belgium	J Widimsky	Czech Republic
K Chatterjee	UK	I Gherlan	Romania	F Kelestimir	Turkey	D Niculescu	Romania	S Sanack	Turkey	W Wiersinga	The Netherlands
N Cherradi	France	P Giacobini	France	R Kineman	USA	M Niedziela	Poland	D Santi	Greece	I Wilkinson	UK
M Chiara Zatelli	Italy	F Giorgino	Italy	T Kocjan	Slovenia	R Nogueiras	Spain	P Saunders	UK	P Williams	Germany
F Chiarelli	Italy	A Giustina	Italy	J Kopchick	USA	B Obermayer-Pietsch	Austria	C Schalin-Jääntti	Finland	S Wudy	Germany
J Chowen	Spain	M Godlewska	Poland	M Korbonits	UK	C Olareus	Norway	S Schmid	Germany	P Yeoh	UK
S Christin-Maitre	France	J Gomez-Ambrosi	Spain	B Kos-Kudla	Poland	P Oliveira	Portugal	J Schopohl	Germany	B Yildiz	Turkey
M Cohen-Solal	France	D Goulis	Greece	C Krausz	Italy	D Olsson	Sweden	D Schulte	Germany	M Zarkovic	Serbia
D Cota	France	R Granata	Italy	M Kroiss	Germany	K Øystese	Norway	P Schwarz	Denmark	M Zennaro	France
D Cuthbertson	UK	C Gravholt	Denmark	N Krone	UK	U Pagotto	Italy	M Sherlock	Ireland		

The European Society of Endocrinology would like to thank its Corporate Members and the sponsors of e-ECE 2020.

**Premium Corporate Members**

Akcea Therapeutics  
Ipsen  
Pfizer  
Recordati Rare Diseases Sarl  
Takeda

**Corporate Members**

Advanced Accelerator Applications  
Amryt Pharmaceuticals (formerly Aegerion)  
Diurnal  
HRA Pharma  
Kyowa Kirin International  
Merck Serono  
Novo Nordisk  
Sandoz International GmbH  
Siemens-Healthineers  
Strongbridge Biopharma  
Uni-Pharma

**Supporters**

Chiasma  
Crinetics Pharmaceuticals  
Isotopen Technologien Munchen AG

**Gold Sponsors**

Ipsen  
Pfizer  
Takeda

**Silver Sponsor**

Recordati Rare Diseases

**Bronze Sponsors**

Advanced Accelerator Applications  
Amryt Pharma  
HRA Pharma Rare Diseases  
Kyowa Kirin  
Novo Nordisk



European Society of Endocrinology  
Starling House, 1600 Parkway  
North, Bristol, BS34 8YU, UK

Tel: +44 (0) 1454 642247  
Fax: +44 (0) 1454 642222  
E-mail: [info@euro-endo.org](mailto:info@euro-endo.org)  
Website: <http://www.endocrinology.org>



**Congress Secretariat:**

Bioscientifica Ltd  
Starling House, 1600 Parkway  
North, Bristol, BS34 8YU, UK

Tel: +44 (0)1454 642240  
Fax: +44 (0)1454 642222  
E-mail: [ece2020@endocrinology.org](mailto:ece2020@endocrinology.org)  
Website: [www.ece2020.org](http://www.ece2020.org)

## CONTENTS

*e-ECE 2020*

*22nd European Congress of Endocrinology*

### PRIZE LECTURES AND BIOGRAPHICAL NOTES

The Geoffrey Harris Prize Lecture .....	AP1
The <i>European Journal of Endocrinology</i> Prize Lecture .....	AP2
European Hormone Medal Lecture .....	AP3
Clinical Endocrinology Trust Lecture .....	AP4

### PLENARY LECTURES

Exercise as medicine – a translational perspective .....	PL1
Glucocorticoids in cancer: a new paradigm .....	PL2
Harnessing the microbiome in metabolic disease .....	PL3
Mechanisms for SARS-CoV-2 cell entry .....	PL4
Maternal thyroid hormone and child brain development .....	PL5
It takes thyroid hormone to make sense .....	PL6
Effects of EDCs on neuro-endocrine systems and behaviour .....	PL7

### SYMPOSIA

New horizons in pheochromocytoma and paraganglioma .....	S1.1–S1.3
Osteoporosis and fracture prediction .....	S2.1–S2.3
Controversial issues in bariatric surgery .....	S3.1–S3.3
Unveiling signatures in pituitary neuroendocrine tumours .....	S4.1–S4.3
Hyperthyroidism across the lifespan .....	S5.1–S5.3
Adrenocortical carcinoma .....	S6.1–S6.3
Endocrine disruptors, just a hype or not? .....	S7.1–S7.3
PCOS: from Genetics to Treatment .....	S8.1–S8.3

### COVID-19 SESSION

Endocrine targets related to COVID infection .....	CS1.1
Managing the Cytokine storm. ....	CS1.2
How strong is obesity as a risk factor for COVID-19 patients .....	CS1.3

### ORAL COMMUNICATIONS

Adrenal and Cardiovascular Endocrinology .....	OC1.1–OC1.7
Bone and Calcium .....	OC2.1–OC2.7
Diabetes, Obesity, Metabolism and Nutrition .....	OC3.1–OC3.7
Pituitary and Neuroendocrinology .....	OC4.1–OC4.7
Thyroid .....	OC5.1–OC5.7
Hot Topics (including COVID -19) .....	OC6.1–OC6.7
Endocrine-related Cancer .....	OC7.1–OC7.7
Environmental Endocrinology .....	OC8.1–OC8.6
Reproductive and Developmental Endocrinology .....	OC9.1–OC9.7
Young Investigators .....	YI1–YI12

**AUDIO EPOSTER PRESENTATIONS**

Adrenal and Cardiovascular Endocrinology .....	AEP1–AEP121
Bone and Calcium .....	AEP122–AEP242
Diabetes, Obesity, Metabolism and Nutrition .....	AEP243–AEP527
Endocrine-related Cancer .....	AEP528–AEP540, AEP655
Environmental Endocrinology .....	AEP541–AEP542
General Endocrinology .....	AEP543–AEP559
Pituitary and Neuroendocrinology .....	AEP560–AEP777
Reproductive and Developmental Endocrinology .....	AEP778–AEP856
Thyroid .....	AEP857–AEP1000
Hot topics (including COVID-19) .....	AEP1001–AEP1110

**EPOSTER PRESENTATIONS**

Adrenal and Cardiovascular Endocrinology .....	EP1–EP58
Bone and Calcium .....	EP59–EP123
Diabetes, Obesity, Metabolism and Nutrition .....	EP124–EP265
Endocrine-related Cancer .....	EP266–EP270
Environmental Endocrinology .....	EP271
General Endocrinology .....	EP272–EP279
Pituitary and Neuroendocrinology .....	EP280–EP373
Reproductive and Developmental Endocrinology .....	EP374–EP410
Thyroid .....	EP411–EP532
Hot topics (including COVID-19) .....	EP533–EP589

**AUTHOR INDEX**

# Audio ePoster Presentations

**Introduction**

Metastases to the thyroid are rare (1.4–3% of malignant solid tumors). When present, metastatic cancers mimic the ultrasound image of the thyroid parenchyma, hindering diagnosis. Breast cancer rarely metastasizes to the thyroid.

**Case**

A 61-year-old woman was referred for goiter in the context of post-surgery evaluation for breast cancer. Thyrotropin (1.14 mIU/l), calcitonin (0.5 pg/ml) and parathyroid hormone (54 pg/ml) levels were normal. Thyroid ultrasound (US) showed a multinodular goiter with maximum nodule size of 4.2 cm at the left thyroid lobe (isoechoic with cystic degeneration areas, with few coarse calcifications and poor peripheral vascularization), scattered smaller hypoechoic nodules up to 4 mm in both lobes and few colloid cysts up to 7 mm, without abnormal lymph nodes. An US-guided FNA was performed at the largest left thyroid lobe nodule, showing benign nodular hyperplasia (Bethesda II). The patient was monitored by US and thyroid hormone testing. Elevated tumormarkers (Ca15–3) led to 18-FDG PET-CT scanning, following oncology consultation. Abnormal uptake (SUV max: 3.7) was noted in the area corresponding to the largest nodule at the left thyroid lobe. Total thyroidectomy was recommended (1.5 years after initial FNA). Histopathological examination revealed the presence of neoplastic infiltration in off-white areas of the right lower lobe of solid carcinoma with morphological and immunophenotypic characteristics compatible with breast tissue origin [CK8–18(+), CK19(+), GATA-3(+), ER(+ >80%), PGR(–), TTF-1(–), Thyroglobulin(–), p40(–), HBME-1(–), Galectin-3(–), S-100(–), Calcitonin(–), Ki67–30%].

**Conclusion**

In this patient, although FNA had been performed in the larger nodule that had the most suspicious features for possible malignancy, it was considered that the increase in tumor markers and concomitant abnormal uptake in 18-FDG PET-CT increased the likelihood of cancer metastasis. However, histopathology after thyroidectomy revealed breast tissue metastasis in off-white areas at the right lower lobe where ultrasound had noted small hypoechoic nodules and colloid cysts. Although thyroid metastases are not very common, caution should be given especially when thyroid parenchyma lesions coexist with a recent history of malignancy.

DOI: 10.1530/endoabs.70.AEP877

**AEP878****Clinical case of autoimmune encephalopathy (Hashimoto) with a psycho-organic syndrome on the background of autoimmune thyroiditis**

Mariya Rusalenko<sup>1</sup>, Svetlana Marchenko<sup>2</sup>, Evgeniy Pismanen<sup>2</sup>, Svetlana Tsukanova<sup>3</sup> & Sergey Hadanovic<sup>4</sup>

<sup>1</sup>Republican Research Center for Radiation Medicine and Human Ecology, Endocrinology, Gomel, Belarus; <sup>2</sup>Republican Research Center for Radiation Medicine and Human Ecology, Anesthesiology, Gomel, Belarus;

<sup>3</sup>Republican Research Center for Radiation Medicine and Human Ecology, neurology, Gomel, Belarus; <sup>4</sup>Republican Research Center for Radiation Medicine and Human Ecology, Transfusiology, Gomel, Belarus

**Introduction**

Hashimoto's Encephalopathy (HE) is an autoimmune inflammatory disease of the brain associated with the production of antithyroid antibodies.

**Objective**

A clinical case of treatment of severe autoimmune encephalopathy in combination with autoimmune thyroiditis and thyrotoxicosis is presented.

**Results**

A 59-year-old woman was transferred to the intensive care unit diagnosed with thyrotoxic crisis. Objectively: serious condition, inhibited, disoriented to personality, time and place, inadequate, productive contact is difficult, psychomotor agitation. Asymmetry of the nasolabial triangle. Swallowing is not impaired, movements in the limbs within normal. Normothermy. Heart rate 102 per minute, blood pressure 150/95 mmHg. From the anamnesis, about 5 years of thyrotoxicosis, takes thyreostatics, 3 years ago a similar episode of psycho-productive symptoms occurred, the patient was diagnosed with: 'Pseudodementia Syndrome'; mental status returned to normal without treatment. MRI of the brain: without pathology; in cerebrospinal fluid: protein 3.5 g/l, cytosin 2/3. In the blood and cerebrospinal fluid there is no DNA of herpes simplex virus, cytomegalovirus, Epstein-Barr virus. Procalcitonin and C-reactive protein are normal. Leukocytosis  $10.7 \times 10^9/l$ , urea 10.3 mmol/l, sodium 150 mmol/l, FT4 26.6, TSH 0.07, antibodies to TPO more than 1000. The conclusion of the council of doctors – autoimmune encephalopathy is possible, course of therapeutic plasmapheresis (No. 3) was prescribed in combination with pulse therapy with methylprednisolone (No. 5 of 1000 mg), followed by oral administration, a gradual dose reduction until complete cancellation. By the 7th day, the patient's state with pronounced

positive dynamics, in consciousness, adequate, oriented to personality, time and place, some emotional lability and partial amnesia. By laboratory methods- transient hyperglycemia and protein-cell dissociation in cerebrospinal fluid. After 3 months, upon reaching the euthyroid state while taking thyreostatics, the patient underwent total thyroidectomy – without complications. Over the next 2 years, episodes of delirium and severe cognitive impairment were not observed.

**Conclusion**

It is necessary to consider each case of pronounced cognitive impairment with stroke-like symptoms in the prism of Hashimoto's encephalopathy, which requires timely and special treatment.

DOI: 10.1530/endoabs.70.AEP878

**AEP879****Influence of Sodium Iodide symporter expression level on recurrence rate in differentiated thyroid cancer**

Uliana Farafonova<sup>1</sup>, Marina Boriskova<sup>1</sup>, Polina Pankova<sup>1</sup> & Ludmila Koloskova<sup>2</sup>

<sup>1</sup>Pavlov First medical university, endocrine surgery department, Russian Federation; <sup>2</sup>MedLab, Laboratory department, Sainkt-Petersburg,

The ability of thyroid cell to accumulate iodine is due to presence of sodium iodide symporter (NIS). Differentiated thyroid cancer (DTC) maintain ability to express NIS and thus it makes possible to perform RAI treatment. In case of DTC cells loss the ability of NIS protein production and cell membrane embedding that leads to RAI treatment fail.

The aim of our study was to find a relationship between the level of preoperatively defined NIS and recurrences-free survival after RAI in DTC patients. Materials and methods

Our study included 205 patients with highly differentiated thyroid cancer. In all patients the level of NIS expression was detected by flow fluorocytometry method in a fine-needle biopsy material. The criteria for inclusion in the study were RAI therapy in the postoperative period, the ability to follow up the patient in the postoperative period up to 60 months. All patients were operated.

**Results**

RAI therapy was performed in 130 patients in the postoperative period. Recurrence was detected in 50 patients in the follow-up period of 60 months. Total thyroidectomy (TT) with central lymph node dissection (CLD) was performed in 72.5% (58/80) of cases in the group without recurrence, compared with the group of patients with detected recurrence, where this operation was performed only in 24% (12/50) of cases. Lateral neck compartment cervical lymph node dissection was performed in 40% of patients in the group with developed recurrence of the disease and in 17.5% of patients without recurrence of the disease. The liner discriminant analysis (LDA) revealed the level of NIS expression less than 1% significantly correlate with the risk of recurrence ( $P=0.000037$ ). In the group of patients with recurrence, the level of NIS expression less than 1% was detected in 31 patients (62%), while in the group without recurrence only in 17 (21.2%). Thus, the recurrence-free survival after RAI is significantly lower in patients with NIS expression less than 1% in primary tumor compared to patients with NIS expression level more than 1%. TT with CLD was performed in all patients with low NIS expression in the group without disease recurrence and decrease in the number of recurrences is possibly associated with the volume of surgical treatment.

**Conclusions**

The level of NIS expression can be used as a prognostic marker of disease recurrence, particular after RAI. The level of NIS expression less than 1% in the primary tumor is suspicious of RAI-refractory DTC.

DOI: 10.1530/endoabs.70.AEP879

**AEP880****Clinical practice survey on BRAF V600E role in the therapeutic decision in indeterminate thyroid cytology**

Giulia Brigante<sup>1,2</sup>, Andrea Craparo<sup>1,2</sup>, Elisa Pignatti<sup>3</sup>, Marco Marino<sup>3</sup>, Livio Casarini<sup>1</sup>, Samantha Sperduti<sup>1</sup>, Gisella Boselli<sup>1,2</sup>, Gianluca Margiotta<sup>1,2</sup>, Vincenzo Rochira<sup>1,2</sup> & Manuela Simoni<sup>1,2</sup>

<sup>1</sup>University of Modena and Reggio Emilia, Department Biomedical, Metabolic and Neural Sciences, Modena, Italy; <sup>2</sup>Azienda Ospedaliero-Universitaria di Modena, Department of Medical Specialties, Modena, Italy; <sup>3</sup>University of Modena and Reggio Emilia, Modena, Italy

## Introduction

The use of multigene panels in thyroid nodule diagnosis is still limited, due to high costs and need for *ad hoc* sampling. Since *BRAF-V600E* is the commonest genetic alteration in differentiated thyroid cancer, this is the mostly tested genetic parameter in clinical practice.

## Aim

To evaluate the use of *BRAF* mutation analysis in wash-out liquid from fine needle aspiration (FNA) in clinical practice, characterizing the cases in which it is requested, and the consequences of genetic test result on therapeutic decisions.

## Methods

We considered all the subjects tested for *BRAF-V600E* among those attending the Endocrinology Unit of Modena for FNA between January 2014 and November 2018. After written informed consent, washing fluid was collected together with cytological sample and stored at  $-20^{\circ}\text{C}$ . If the clinician deemed it necessary, the sample was thawed, DNA was extracted and genetic test was performed by the high-resolution melting protocol previously described<sup>1</sup>. We collected cytology of nodules according to the 2010 *SIAPEC-IAP* Italian Consensus, and when surgical treatment was performed, histology.

## Results

Out of a total of 7112 subjects submitted to FNA, *BRAF* analysis was requested for 681 (9.6%), for a total of 898 nodules: 97% of nodules were indeterminate at cytology, mainly TIR3A (low risk); 2% suspicious or diagnostic for cancer, and genetic test was requested to estimate prognosis; 1% were suspect nodules at ultrasonography with unsuspicious cytology. Only 22 nodules were mutant (*BRAF+*). Most of them were already high risk or suspicious lesions at cytology (64%). One third were TIR3A. Considering the prevalence of *BRAF* mutation among cytological classes of the whole group, only 1% of TIR3A were *BRAF+*. Twenty *BRAF+* patients were addressed to surgery (one lost at follow-up, one refused): 5% underwent hemithyroidectomy, 25% total thyroidectomy and 70% total thyroidectomy plus central lymph nodes dissection. They all had papillary thyroid cancer. Since 64% of *BRAF+* were TIR3B-4-5 at cytology, they had surgical indication even before the genetic test. Among the 14 subjects treated with central neck dissection, only 2 had suspect metastasis before surgery; among those who would have had no indication, one third had metastases (only 1 among TIR3A and 2 among TIR3B).

## Conclusions

Despite the development of panels, single gene tests are still requested, mainly for nodules with indeterminate low risk cytology. *BRAF* mutation in TIR3A is rare and leads clinicians to more invasive surgery, with questionable clinical utility.

## Reference

1. Marino *et al.* *Eur Thyroid J* 2015 4(2) 73–81.

DOI: 10.1530/endoabs.70.AEP880

## AEP881

### The diagnostic value of basal and calcium-stimulated procalcitonin for the diagnosis of medullary thyroid cancer: Preliminary results from a multicentric experience

Simona Censi<sup>1</sup>, Marta Di Stefano<sup>2</sup>, Andrea Repaci<sup>3</sup>, Jacopo Manso<sup>1</sup>, Uberto Pagotto<sup>3</sup>, Loris Bertazza<sup>1</sup>, Susi Barollo<sup>1</sup>, Mario Plebani<sup>4</sup>, Carla Colombo<sup>2</sup>, Laura Fugazzola<sup>3,4,5</sup> & Caterina Mian<sup>1</sup>

<sup>1</sup>University of Padua, Endocrinology Unit, Department of Medicine (DIMED), Padua, Italy; <sup>2</sup>Division of Endocrine and Metabolic Diseases, IRCCS Istituto Auxologico Italiano, Milan, Italy; <sup>3</sup>Alma Mater Studiorum – University of Bologna, Endocrinology Unit and Centre for Applied Biomedical Research, Department of Medical and Surgical Sciences, S. Orsola-Malpighi Hospital, Bologna, Italy; <sup>4</sup>University of Padua, Department of Laboratory Medicine, Padua, Italy

## Background

Calcitonin (CT) is the most sensitive marker for MTC diagnosis. By the way, many pre-analytical, analytical and post-analytical pitfalls worsen its accuracy. Procalcitonin (proCT), a CT precursor, has been suggested as a valuable complementary test in MTC diagnosis, given its stability and the reproducibility between different assay kits.

## Material and methods

basal CT (bCT) and proCT (bproCT) and stimulated CT (sCT) and proCT (sproCT) (2–5–10 and 20 minutes) were measured in 37 patients (14M, 23F; median age: 55 years, range: 5–77 years) that underwent surgical excision. At the histological report, 22 were MTC, while the others were C-cell hyperplasias (HCCs) or non-C-cell lesions. 17/37 (45.9%) were carriers of a *RET* mutation. Calcium gluconate at the dose of 25 mg/Kg based on adjusted body weight was administered. bproCT was considered positive when  $\geq 0.04\text{ mg/l}$ , while CT when  $\geq 10\text{ ng/l}$ .

## Results

there was a correlation between bCT and bproCT ( $P < 0.0001$ ,  $r = 0.75$ ). A significant correlation was found between MTC tumor size and bproCT ( $P = 0.0062$ ,  $r = 0.58$ ), as well as with bCT ( $P = 0.01$ ,  $r = 0.54$ ). Positive bproCT showed higher specificity than positive bCT in the diagnosis of MTC with respect to non MTC lesions (CCHs or other lesions) (53% vs 40%), with higher positive predictive value (PPV) (70% vs 66.6%). The combination of elevated bCT and bproCT increased the specificity of bCT value from 40% to 67% and its PPV from 67% to 75%. bCT and bproCT showed the same accuracy in *RET*-wild-type (*RET*wt) and *RET*-mutated patients. Applying ROC curve, we could identify a cut-off of 0.07 mg/l for bproCT, able to identify a MTC (sensitivity=68%, specificity=87%, AUC=0.764,  $P=0.0009$ ), regardless of the gender. There was a correlation between sCT and sproCT ( $P < 0.0001$ ,  $r = 0.64$ ). A positive correlation existed between MTC tumor size and sproCT ( $P = 0.0018$ ,  $r = 0.64$ ) and with sCT ( $P = 0.0001$ ,  $r = 0.75$ ). Higher values of median proCT increase were found in MTC versus non-MTC (median increase of 0.22 mg/l in MTC versus 0.02 mg/l in non-MTC,  $P = 0.0003$ ). Applying the ROC curve, a sproCT value  $> 0.19$  was able to identify an MTC (sensitivity=72%, specificity=93%, AUC: 0.806,  $P < 0.001$ ), regardless of the gender. Combining bproCT and sproCT specificity for MTC increased up to 93% (94% VPP).

## Conclusions

proCT calcium-stimulated levels are significantly higher in MTC than in non-MTC and are correlate with tumour size. Basal and stimulated proCT can be used in combination with bCT and sCT to increase its specificity in biochemical diagnosis of MTC.

DOI: 10.1530/endoabs.70.AEP881

## AEP882

### *In vitro* modeling of thyroid cancer cells and fibroblasts interplay

Elisa Stellaria Grassi<sup>1</sup>, Viola Ghiandai<sup>2</sup>, Gabriele Pogliaghi<sup>3</sup>, Laura Fugazzola<sup>3,4,5</sup> & Luca Persani<sup>1,3,5</sup>

<sup>1</sup>University of Milan, Clinical Sciences and Community Health, Milan, Italy; <sup>2</sup>University of Milan, Medical Biotechnology and Translational Medicine, Milan, Italy; <sup>3</sup>IRCCS Istituto Auxologico Italiano, Endocrine and Metabolic Diseases Research Laboratory, Cusano Milanino, Italy; <sup>4</sup>University of Milan, Department of Pathophysiology and Transplantation, Milan, Italy; <sup>5</sup>IRCCS Istituto Auxologico Italiano, Department of Endocrine and Metabolic Diseases, Milan, Italy

Thyroid cancer (TC) is the most common endocrine tumor and its incidence has increased faster than in any other malignancy. Although TCs are usually well differentiated, disease recurrence or persistence is high, because of local and distant metastasis and therapeutic resistance. Among the different genetic alterations, *BRAFV600E* is the most frequent one. Several studies tried to establish a correlation between *BRAFV600E* and patients outcome, with controversial results. Nevertheless, the activation of different *BRAF* downstream pathways influences immune response, matrix remodeling and intra- and extra-cellular pH. All these alterations substantially modify tumor microenvironment and may enhance the survival of cancer-initiating cells and promote therapy resistance. The aim of the study is to investigate the role of *BRAF* in cancer-associated fibroblast matrix deposition and remodeling in *in vitro* 2D and 3D systems obtained from immortalized and patients-derived cells. In particular, the use of conditioned media and co-cultures of TC cells with different genetic background and fibroblasts is used to generate different extracellular matrices (ECM). The ECM themselves and their effects on cell growth and survival is then analyzed by different techniques, such as western blot, immunofluorescence, real-time PCR, colony assay, sphere formation assays and proliferation assays. Our results show that TC cells with *BRAFV600E* mutation can significantly increase the proliferation and activation of fibroblasts in respect with *BRAF* WT TC cells and normal thyrocytes; fibroblasts that have been conditioned with *BRAFV600E* TC cells can produce an ECM that is thicker and has a different fiber pattern than the one produced from fibroblasts conditioned with *BRAF* WT TC cells and normal thyrocytes. Moreover, the different matrices differentially influence the survival of *BRAF* mutated and WT TC cells. As second step, we are currently evaluating the effects of different drugs that acts against *BRAF* downstream effectors involved in matrix remodeling and metabolism alterations. In conclusion, our *in vitro* model can partially recapitulate the complex environment of human tumors and can be a useful tool for the screening of different anticancer drugs.

DOI: 10.1530/endoabs.70.AEP882



## Author Index

- CRIO group AEP378  
A. Mirsaidova, U **AEP1078**  
Aardal, E AEP604  
Abadlia, S AEP442  
Abarca, J AEP653  
Abazovic, D AEP915  
Abballe, L AEP995  
Abbara, A **AEP585** & OC9.2  
Abbas, A **AEP130**  
Abd el shafy, S AEP456  
Abdelghani, T AEP895 & EP497  
Abdellaoui, W EP368  
Abdel-Wahab, YHA AEP364  
Abdesselem, H EP248, EP203, EP262, EP209 & EP195  
Abdi, H AEP888  
Abdulatipov, S AEP545  
Abdulhabirova, F AEP893 & AEP901  
Abdullaeva, A AEP412  
Abdullah, I AEP146  
Abdullahi Sidi, F AEP671  
Abela, AG AEP755  
Abelsen, K EP300  
Aberer, F AEP458  
Abesadze, N **EP584**  
Abidi, S AEP767 & EP34  
Abir, M **AEP510, EP178 & EP531**  
Abir, T EP342  
Aboud, N AEP1004  
Abou-Hussein, S AEP246  
Abouloula, M AEP101  
Abraitiene, A EP297  
Abramova, N **AEP267, AEP421**, AEP420, AEP300, AEP838, AEP959, AEP418, EP75 & EP117  
Abrosimov, A EP31  
Abzianidze, E AEP1105  
Ach, K EP536, EP177, AEP506, EP323, EP344, EP50, EP443, EP386 & EP366  
Acha Perez, J AEP481  
Achwak, M **EP557**  
Acierno, J AEP788  
Acikgoz, A AEP829  
Ackermans, MT AEP14  
Acosta Calero, C AEP90  
Acosta-Calero, C EP552, AEP1054 & AEP108  
Acsinte, D EP358  
Acuña-García, M EP372 & AEP625  
Adalbert, S EP68  
Adam, S AEP657  
Adamidou, L EP562 & EP559  
Adams, A EP542  
Adamsbaum, C OC2.1  
Adamska, A AEP797, AEP831 & EP376  
Adamski, M **AEP797**  
Adaş, M AEP598  
Adcock, H OC5.4  
Adebayo, A AEP444  
Adel, G AEP895 & EP497  
Adel, M AEP704, EP282 & AEP407  
Adilkhodjaeva, E **EP246**  
Adlan, M EP30  
Adolf, C AEP1001 & AEP1002  
Afanasyev, D EP80  
Aflorei, ED **AEP549**  
Afonso, A AEP174  
Afonso, M AEP911  
Afrasinei Tenu, I **EP213**  
Afshan, K AEP850, AEP822, AEP854 & AEP270  
Agapito, A AEP12, AEP174, AEP912 & EP354  
Agarwal, A EP252  
Agbaje, O OC3.6  
Agea, L EP107 & EP351  
Agersø, H AEP1083  
Aggeli, C OC6.3 & AEP98  
Aghajanova, E **AEP391**  
Aghajanova, Y **AEP406**  
Aghayan, M **EP165**  
Agoncillo, KE EP115  
Agosti, E **OC4.2**, AEP373 & OC3.5  
Agrawal, P **EP566**  
Agrawal, V AEP383  
Ágreda García, J AEP654  
Agretti, P AEP790  
Agudo, A AEP890 & AEP520  
Agudo Tabuenca, A AEP1048  
Aguilar Diosdado, M AEP351 & EP378  
Aguilar-Diosdado, M AEP325, AEP353 & EP296  
Aguilera Hurtado, E AEP328  
Aguillo Gutierrez, E AEP890  
Aguirre Moreno, N AEP488  
Aharaz, A AEP1073  
Aher, A AEP1052  
Ahlqvist, E OC3.3  
Ahmad, M AEP1106  
Ahmad, S **OC8.3**  
Ahmadova, K AEP321 & EP100  
Ahmed, F AEP552  
Ahmed, F AEP1076  
Ahmed, I OC6.5  
Ahmeti, I EP518  
Aicha, H AEP411 & EP240  
Aimaretti, G OC3.5 & OC5.3  
Ainsworth, G AEP130  
Aivalioti, E AEP296  
Ajdzanović, V AEP919  
Ajnetdinova, A AEP213 & AEP165  
Akalin, A EP289  
Akalin, A AEP348, EP119 & EP210  
Akbaba, G AEP173  
Akbas, EM AEP173  
Akcay, S AEP173  
Akdoğan, L AEP235 & EP350  
Åkerman, A-K AEP1  
Akhanli, P AEP770, EP478, AEP188 & AEP33  
Akhobadze, T AEP517 & EP127  
Akira, S OC4.5  
Akkari, I AEP340, AEP380 & EP256  
Akker, S AEP641, EP542 & AEP600  
Akkoc, RF EP560 & AEP262  
Akkus, G **AEP762, EP201 & AEP968**  
Akkus, O AEP968  
Akram, M AEP850, AEP822, AEP854 & AEP270  
Akrim, M EP515  
Aksoy, S AEP768  
Akulevich, N AEP793  
Akyol, B AEP384  
Akyon, Y AEP829  
Al Mukaddam, M AEP1025 & **AEP1019**  
Al Saeed, ZA EP310  
Al Tawil, D AEP906  
Alabdrabalnabi, FM **EP310**  
Alagüney, ES EP119  
Alaya, W AEP234  
Albani, A **AEP1068 & Y14**  
Albu, A EP87  
Alcántara-Laguna, MD **AEP317**  
Alcázar, V AEP863  
Alchujyan, N AEP391  
Alderwick, L OC5.4  
Aldomiro, F EP458  
Alduk, AM AEP42  
Alduk, A-M AEP85  
Alegre-Abarrategui, J AEP709  
Alejo-Ramos, M AEP625  
Aleksandrov, Y EP467  
Aleksandrov, Y **AEP932 & AEP963**  
Aleksenko, T **AEP1047**  
Aleksееva, L AEP497  
Aleric, I AEP731  
Alevizaki, M AEP956  
Alexander, F AEP866  
Alexander, P AEP452, EP219, EP153 & EP218  
Alexander, V OC3.7 & AEP269  
Alexandraki, K **AEP63 & EP126**  
Alexandre, MT EP10  
Alexandrou, A AEP1012, AEP1003, AEP296 & AEP1090  
Alexandru, E **EP87**, EP356 & AEP237  
Alfayate-Guerra, R AEP397  
Alfred, P AEP511  
Alhambra Expósito, MR AEP969 & EP432  
Alhamid, MH EP138  
Ali, S EP63  
Ali, T AEP903  
Ali, UA **AEP1038**  
Alibeyoğlu, A AEP455

- Richardson, S EP425  
Rico, MC AEP658  
Ricotti, R OC3.5 & AEP373  
Riera\_Escamilla, A OC9.5  
Riesco-Montes, B AEP883  
Riester, A AEP565  
Riesz, P AEP46  
Rigla, M EP215 & AEP68  
Rigo, M EP6  
Rigou, A OC8.6 & AEP542  
Rihab, A **EP183, AEP234 & EP15**  
Riis, KR AEP875  
Rim, Y EP557  
Rindi, G AEP662  
Risovic, I EP120 & AEP387  
Riss, P AEP616  
Risso Pariz, J AEP825 & EP379  
Rivas, A EP347  
Rivas Montenegro, AM AEP654  
Rizos, D AEP1003 & AEP1012  
Rizos, D AEP296, AEP344, AEP433 & AEP375  
Rizvi, B EP40  
Rizvi, SSR AEP822, **AEP854**, AEP850 & AEP270  
Rizzo, C AEP971  
Roberto de Souza, M EP380  
Roberts, E AEP56  
Robeva, R AEP821  
Robin, G AEP846  
Robles, JP AEP543  
Robles Lázaro, C AEP103  
Roca, D AEP1037 & AEP1050  
Roca-Rodríguez, MM **EP296**  
Rocha, B AEP739  
Rocha, G EP176  
Rocha, LC AEP477  
Rochira, V AEP921, AEP827, AEP880 & AEP610  
Rodal-Bravo, L AEP780  
Rodari, G AEP1005, **AEP765**, AEP572 & AEP571  
Rodari, M AEP230  
Rodia, C **AEP324**  
Rodic, G AEP534  
Rodicio Miravalles, JL AEP431  
Rodrigues, C **AEP664 & AEP644**  
Rodrigues, D EP60 & AEP93  
Rodrigues, F EP67  
Rodrigues, R AEP251  
Rodrigues, TC AEP449  
Rodríguez, N AEP672  
Rodríguez, P AEP933  
Rodríguez, R OC7.7  
Rodríguez, A AEP361  
Rodríguez Cabezas, MA AEP722  
Rodríguez Escobedo, R AEP466 & **EP217**  
Rodríguez Escobedo, R EP144  
Rodríguez Garcia, JA EP372  
Rodríguez Rodero, S AEP431  
Rodríguez Vera, P AEP993  
Rodríguez-Perálvarez, M Y16  
Rodríguez-Villanueva, J AEP953  
Roell, W OC3.3  
Rogowicz-Frontczak, A EP376  
Rogoza, O AEP248  
Rogozik, N AEP818  
Rogoziński, D AEP629, AEP745, AEP735 & AEP690  
Rojbi, I EP95, EP19, EP39, EP98, EP414, AEP934 & AEP407  
Rojo, J EP351 & EP107  
Rojo-Martinez, G OC8.2 & AEP889  
Roldan, F AEP687  
Rolighed, L AEP153  
Rolla, M AEP692, AEP978 & AEP689  
Romagnoli, P OC1.3  
Roman, G EP213  
Roman, N EP290  
Roman Gimeno, S **AEP890**, AEP520 & **EP205**  
Román Gimeno, S AEP1048 & AEP430  
Romani, F AEP298  
Romanova, N **EP31**  
Romantsova, T AEP311  
Romero, M AEP342  
Romero-Gomez, M AEP350  
Romero-Gómez, M AEP658  
Ronaldson, A OC7.2  
Ronchi, C OC1.6 & Y13  
Ronchi, C AEP5  
Rontogianni, D AEP876  
Ropero-Luis, G **AEP177**  
Roque, C **EP239, EP506, EP465, AEP631 & EP458**  
Roselló, E AEP863  
Rosenberg, A AEP400  
Rosenberg, D AEP132  
Rosenzweig, B AEP363  
Rosinha, P AEP1034  
Roslyakova, A **AEP41**  
Ross, IL **AEP73**  
Ross, R AEP833 & OC1.2  
Ross, RJ AEP37  
Rossato, D AEP50  
Rosset, A AEP741  
Rosu, A EP312, EP11 & EP441  
Rotarescu, A AEP538  
Rotermund, R Y14 & AEP1068  
Rothenbuhler, A OC2.1  
Rotman-Pikielny, P **EP71**  
Rottoli, M **CS1.3**  
Roudaut, N OC5.5  
Rouf, S EP397, AEP958, EP368, EP342 & EP361  
Roumeliotis, A AEP1041 & AEP1032  
Rovere Querini, P AEP1075  
Rovere-Querini, P OC6.7  
Roxana, D EP363  
Rozhinskaya, L AEP761, AEP569 & AEP210  
Rozhinskaya, L AEP1085  
Rozhinskaya, L AEP181  
Rrupulli, A **EP174**  
Rubin, B AEP43  
Rubin, M OC6.5  
Rubino, F AEP374  
Rubio, MA AEP285 & EP103  
Rubio García, R EP92  
Rubion, LE AEP977  
Ruchala, M AEP867, AEP891, EP457, AEP123 & AEP747  
Ruchala, M AEP812, EP13 & AEP573  
Rudkova, E **AEP1016**  
Rudman, Y **AEP696**  
Ruggeri, R **AEP870 & AEP940**  
Ruiz, E AEP361  
Ruiz, J EP281  
Ruiz, T AEP722  
Ruiz de Adana Navas, MS AEP392  
Ruiz de la Parte, A AEP186  
Ruiz de Velasco, E AEP142  
Ruiz Ochoa, D AEP279  
Ruiz Pino, F OC9.1  
Ruiz Sanchez, J EP197  
Ruiz Sánchez, JG **AEP51**  
Ruiz-Cantero, A AEP177  
Ruiz-Castané, E OC9.5  
Rumiantsev, P AEP893  
Rumyantsev, P EP463  
Runkle, I AEP51  
Runkle, I EP281, AEP66 & AEP722  
Runkle, I AEP908  
Rusalenko, M AEP516  
Rusalenko, M EP261, EP258, **AEP878, EP238, AEP263, EP131, EP48 & EP237**  
Rusch, S AEP871  
Russo, L AEP1066  
Rusus, C EP375  
Rutigliano, G **AEP857 & AEP858**  
Rutz, C AEP849  
Rybakova, A **AEP901**  
Rybka, O AEP1030  
Ryhänen, E **OC2.7**  
Rylands, A AEP122  
Rymar, O EP155 & AEP454  
Ryom Riis, K **EP516**  
Ryzhkova, D EP109  
S. Abou-Youssef, H AEP971  
S. Van Santen, S **AEP201**  
Sá, J AEP282 & **AEP484**  
Sá Couto, A AEP258  
Saad, G EP177, AEP506, EP323, EP344, EP536, EP50, EP366, EP386 & EP443  
Saad, M EP434  
Saafi, W **EP97, EP37, EP36 & EP416**  
Saarela, T AEP345  
Saatov, T AEP463, AEP335, AEP448, EP227 & EP148  
Saba, A EP418  
Sabino, T AEP174  
Sabiroy, M **EP359**  
Saboo, B EP161 & AEP1027  
Saboo, B **EP574, AEP307 & AEP299**  
Sabrine, Z EP557  
Sachan, A AEP991 & EP45