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R Hampel Czech Republic
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L Holland Netherlands
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T Isailovic Serbia
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M Jaffrain-Roca Italy
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A Kabheek Netherlands
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F Kelestimar Turkey
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R Kerssemakers Belgium
M Kernet UK
R Kos-Kudla Poland
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H Krude Germany
M Laan Germany
E Lahilla France
J Laven The Netherlands
G Lavery UK
J Leier France
T Links The Netherlands
P Lips Netherlands
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A Lugger Austria
C Lu A Boguslawski Brazil
R M Luque Spain
M Luster Germany
D Macut Serbia
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G Mastorakos Greece
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R Mitchell UK
J Mitrag Germany
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N Morton UK
A Mokherjee UK
E Nagy Hungary
J Newell-Price UK
R Obermayr-Petsch Austria
P Oliveira Portugal
U Pagotto Italy
J Palmo Finland
R Peeters The Netherlands
L Persani Italy
T Peiber Austria
V Piragis Latvia
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D Power Portugal
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S Raduan UK
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E Rajpert-De Meyts Denmark
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M Reichle Germany
S Rice UK
M Robin Spain
P Rodien France
H Romijn The Netherlands
C Ronchi Italy
R Ross UK
G P Rossi Italy
M Ruchala Poland
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D Schulte Germany
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J Smith The Netherlands
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T Tankova Bulgaria
M Ten-Sempere Spain
M Terzoli Italy
M Theodoropoulos Germany
C Thompson Ireland
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J Toppi Finland
M Toth Hungary
S Tsagarakis Greece
M Tsanella Greece
E Valassi Switzerland
E van den Akker Netherlands
A van der Klaauw UK
A J van der Lei Netherlands
J van Eck The Netherlands
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CONTENTS

19th European Congress of Endocrinology 2017

PRIZE LECTURES AND BIOGRAPHICAL NOTES
The European Journal of Endocrinology Prize Lecture ......................................................... EJE1
The Geoffrey Harris Prize Lecture ......................................................................................... GH1
European Hormone Medal Lecture ....................................................................................... EHM1
Clinical Endocrinology Trust Lecture .................................................................................. CET1
IPSEN1

PLENARY LECTURES
The fantastical world of hormones ......................................................................................... P1
The secret life of FGF21 ........................................................................................................... P2
Update on regulation of steroidogenesis by aberrant hormone receptors ....................... P3
The role of brain insulin resistance for the development of prediabetic phenotypes .......... P4
Browning of adipose tissue and metabolic regulation ......................................................... P5
Thyroid oncology in the crossroads of precision and narrative medicine ......................... P6

SYMPOSIA
Clinical Updates in Hypoparathyroidism .............................................................................. S1.1–S1.3
Evolving diagnostics in adrenal and neuroendocrine tumours .......................................... S2.1–S2.3
From the pituitary to the periphery ......................................................................................... S3.1–S3.3
2nd Joint Global Symposium on Obesity – The Many Dimensions of the Childhood Obesity Problem ............................................................. S4.1–S4.3
Turn your face to the sunshine ............................................................................................. S5.1–S5.3
Treatment of hypothyroidism: what have we learned? ......................................................... S6.1–S6.3
Crosstalk between bone & other organ(is)m(s) .................................................................. S7.1–S7.3
Predictors of therapeutic response in functioning pituitary tumours .............................. S8.1–S8.3
Novel type 2 diabetes treatment: Beyond glycaemic control ............................................ S9.1–S9.3
The Challenges of Male Fertility ......................................................................................... S10.1–S10.3
New Roles for Nuclear Receptors ....................................................................................... S11.1–S11.3
New development in Graves’ Orbitopathy ......................................................................... S12.1–S12.3
Challenging pituitary diseases ............................................................................................ S13.1–S13.3
Searching for the cause and approach in ectopic hormone syndromes ......................... S14.1–S14.3
Metabolic surgery mechanisms to clinical results (Endorsed by the European Journal of Endocrinology) ................................................................. S15.1–S15.3
Late-breaking: the PCSK9 revolution ................................................................................... S16.1–S16.3
What endocrinologists should know about the genomics of endocrine tumors ............ S17.1–S17.3
Hyperandrogenism: challenges in clinical management .................................................. S18.1–S18.3
How to incorporate the new guidelines for thyroid cancer in my clinical practice .......... S19.1–S19.3
Beta cell replacement and plasticity (Endorsed by Endocrine Connections) ................ S20.1–S20.3
Environmental influences on endocrine systems .............................................................. S21.1–S21.3
Rare bone diseases (Endorsed by the European Journal of Endocrinology) ..................... S22.1–S22.3
Endo Oncology: prolactin, GH and metabolic hormones in oncology pathogenesis (Endorsed by Endocrine Connections) .......................................................... S23.1–S23.3
Obesity: Pharmacological solutions .................................................................................... S24.1–S24.3
HPA axis regulation during a woman’s life: impact on metabolic outcomes .................... S25.1–S25.3
Tissue specific defects in thyroid hormone action .............................................................. S26.1–S26.3
Vitamin D beyond bone (Endorsed by Endocrine Connections) ....................................... S27.1–S27.3
Sleep, love and reproduction (Endorsed by Endocrine Connections) ............................... S28.1–S28.3
Novel predictors of diabetes ............................................................................................... S29.1–S29.3
Moving away from old-fashioned steroidogenesis: what are the clinical implications?  S30.1–S30.3
Guided session 1 ........................................... GS1.1–GS1.6
Guided session 2 ........................................... GS2.1–GS2.6

NEW SCIENTIFIC APPROACHES ........................................ NSA1–NSA6

DEBATES
Is there a role for medical therapy for non-functioning pituitary adenomas? ............... D1.1–D1.2
Incidentally discovered nonfunctioning pancreatic NETs: Surgery or not? ................. D2.1–D2.2
(Endorsed by the European Journal of Endocrinology) Drug holiday in osteoporosis (Endorsed by the European Journal of Endocrinology) .......... D3.1–D3.2
Is cardiovascular risk increased in women with PCOS? ........................................ D4.1–D4.2
Should we still ablate all patients undergoing total thyroidectomy for thyroid cancer? .... D5.1–D5.2
Is it time for initial combination in type 2 diabetes? ........................................... D6.1–D6.2

MEET THE EXPERT SESSIONS ......................................... MTE1–MTE16
............................................................ MTNE1–MTNE2
............................................................ MTBS1–MTBS3

NURSE SESSIONS ................................................. N1.1–N1.4
................................................. N2.1–N2.4
................................................. N3.1–N3.3

ORAL COMMUNICATIONS
Adrenal–Basic & Clinical ........................................... OC1.1–OC1.5
Diabetes Prediction and Complications ......................................................... OC2.1–OC2.5
Receptors & Signalling ......................................................... OC3.1–OC3.5
Thyroid Disease 1 ......................................................... OC4.1–OC4.5
Cardiovascular Endocrinology ......................................................... OC5.1–OC5.5
Diabetes therapy and complications ......................................................... OC6.1–OC6.5
Cardiovascular endocrinology ......................................................... OC7.1–OC7.5
Neuroendocrinology ......................................................... OC8.1–OC8.5
Thyroid Disease 2 ......................................................... OC9.1–OC9.5
Bone & Calcium Homeostasis ........................ OC10.1–OC10.5
Obesity ......................................................... OC11.1–OC11.5
Pituitary Clinical ......................................................... OC12.1–OC12.5
Reproduction & Endocrine Disruption ......................................................... OC13.1–OC13.5
Thyroid Cancer ......................................................... OC14.1–OC14.5

Guided Posters
Adrenal 1 ......................................................... GP1–GP10
Adrenal 2 ......................................................... GP11–GP20
Adrenal 3 ......................................................... GP21–GP32
Bone & Calcium Homeostasis 1 ......................................................... GP33–GP42
Bone & Calcium Homeostasis 2 ......................................................... GP43–GP51
Cardiovascular & Lipid Endocrinology ......................................................... GP52–GP61
Developmental & Protein Endocrinology ......................................................... GP62–GP70
Diabetes & complications 1 ......................................................... GP71–GP82
Diabetes & complications 2 ......................................................... GP83–GP92
Diabetes therapy & complications 1 ......................................................... GP93–GP102
Diabetes therapy & complications 2 ......................................................... GP103–GP112
Endocrine Nursing ......................................................... GP113–GP117
Endocrine Tumours ......................................................... GP118–GP130
Female Reproduction ......................................................... GP131–GP142
Male Reproduction and Endocrine Disruptors ......................................................... GP143–GP150
Neuroendocrinology & Growth Hormones ......................................................... GP151–GP160
Guided Posters
importance of this vitamin in the body we have analysed its levels in obese patients which were going to follow a VLCD (600 kcal) before undergoing bariatric surgery. The patients followed a VLCD during 4 weeks before the surgery. The values of vitamin D were analysed at two different moments: before beginning the diet and after the diet, 4 weeks later.

Method
We have designed a prospective observational study. 18 patients were analysed with IMC > 35 kg/m² with associated comorbidity or IMC > 40 kg/m², between 18 and 60 years old, candidate for bariatric surgery with laparoscopic gastric by-pass. Vitamin D concentrations were monitored at two different moments: 1 month before surgery and at the moment of surgery, 4 weeks after the VLCD.

Objective
To establish whether there are statistically significant variations in the values of vitamin D before and after following a VLCD.

Results
We obtain an average level of vitamin 25 (OH) D of 16.31 ng/ml in the analytical evaluation 1 month before surgery and 21.32 ng/ml at the time of the surgery, which takes place at the end of the VLCD. Statistically significant differences are observed between the levels of vitamin 25 (OH) D 1 month before surgery and at the time of the chiralurgical act.

Conclusions
According to the results, patients that follow a 4-week VLCD significantly improve the levels of vitamin 25 (OH)D in blood. Those levels do not reach a normal level after the diet, however it is evident the benefit of the recommended process, and it would be interesting to evaluate in the long term if such a tendency remains.

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GP50

Localisation of parathyroid adenomas using 11C-methionine-PET/CT when conventional imaging methods are negative
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In primary hyperparathyroidism (pHPT) an exact localization of the pathological parathyroid gland(s) is essential before minimally-invasive parathyroidectomy. We have previously shown in a small group of pHPT patients, that 11C-methionine-PET/CT provides additional information if 99mTc/99mTc-MIBI-SPECT/CT was negative. The aim of the present study was to evaluate the clinical value of 11C-Met-PET/CT in a larger pHPT patient cohort.

Methods
Totally 89 patients with pHPT (66 females, 23 males, age 18-81 years) and negative or inconclusive localization findings with 99mTc-MIBI-SPECT/CT (78.7%) or 99mTc-MIBI-SPECT/CT (21.3%) were studied with 11C-Met-PET/CT. Most of the patients (87.6%) were surgical treatment naive and the rest of them (12.4%) were previously operated 1–2 times.

Results
11C-Met-PET/CT revealed the pathologic parathyroid gland in 48 (60.8%) of the 79 surgically treated patients. Totally 26 patients (32.9%) had a negative 11C-Met-PET/CT finding and 16 of them had further explorative surgery, whereas 10 of these Met-PET negative patients were not operated, but treated conservatively instead. In five cases (6.3%) Met-PET detected a false-positive finding, i.e. the pathological parathyroid gland was found in another location. On a per-leision level PET results were 48 true positive (60.8%) and 21 false negative (26.6%). The lesion-based sensitivity was 75.4% (positive predictive value 94.6%) and specificity 40.0% (negative predictive value 10.5%). The diagnostic accuracy of 11C-Met-PET/CT in this study was 73%. Based on the histological examinations 67 adenomas (84.8%) and six hyperplastic (7.6%) parathyroid glands were found.

In five cases the finding was normal parathyroid tissue or unspecified. Ten patients (12.7%) had more than one pathological parathyroid glands. There were no parathyroid carcinomas detected in this study. Totally 79 patients had parathyroid surgery and 55 (69.6%) of them were biochemically cured, but in 16 patients (20.3%) pHPT persisted and in eight patients (10.1%) the postoperative status remained unknown.

Conclusions
11C-methionine-PET/CT offers an additional noninvasive imaging method to localize hyperfunctioning parathyroid glands in a situation when conventional imaging methods 99mTc or 123I99mTc-Te-sestamibi (MIBI) scan remains negative. The aim of the present study was to evaluate the clinical value of 11C-Met-PET/CT in a larger pHPT patient cohort.

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GP51

Calcium to phosphorous ratio (Ca/P) as helpful index to recognize primary hyperparathyroidism, but not primary hypoparathyroidism: a big-data approach
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Background
Primary hyperparathyroidism (HyperPT) and primary hypoparathyroidism (HypoPT) are often underdiagnosed. Several strategies have been investigated in the past in order to identify diagnostic parameters, although the diagnosis of both HyperPT and HypoPT remains challenging so far, especially in asymptomatic patients. Calcium (Ca) and phosphorus (P) are inversely related together, thus the Ca/P ratio could be an useful tool to define these conditions. Recently, we proposed for the first time a cut-off of 3.5 for Ca/P ratio for the diagnosis of HyperPT.

Aim
To evaluate the diagnostic value of the Ca/P ratio for HyperPT and HypoPT through a big-data approach.

Methodology
A retrospective, observational, case-control study on big-data was carried out. All examinations of parathyroid hormone (PTH), Ca and P performed at the laboratory of Modena Hospital from 2010 to 2016 were consecutively included. We considered only patients between 18 and 90 years of age. Laboratory ranges of normality for both PTH and Ca were used to divide records in HyperPT, HypoPT and controls.

Statistical analysis
The diagnostic accuracy of Ca/P ratio was investigated using receiver operator characteristics (ROC) curve in order to define cut-off points, which show higher sensitivity and specificity for the identification of affected patients.

Results
46,597 records were considered. 576 HyperPT (1.2%), 323 HypoPT (0.7%) and 45,597 controls (98.1%) were found. Ca/P ratio was significantly different among groups (P<0.001). In particular, Ca/P ratio was significantly higher in HyperPT than controls (P<0.001). For the diagnosis of HyperPT, the threshold of 3.17 for Ca/P ratio was obtained by means of the ROC curve analysis, with 85% of both sensitivity and specificity. HypoPT showed lower Ca/P ratio compared to controls (P<0.0001), although no useful threshold for the diagnosis was found at ROC curve because of the low sensitivity.

Conclusions
We confirm the high sensitivity and specificity of Ca/P ratio for the diagnosis of HyperPT using the largest cohort of patients available so far in the literature. On the contrary, Ca/P ratio does not contribute to identify patients with HypoPT and further researches are needed to better describe this condition. In conclusion, Ca/P ratio is a simple and inexpensive diagnostic tool to recognize HyperPT.

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Cardiovascular & Lipid Endocrinology

GP52
Liraglutide prevents right ventricle hypertrophy by avoiding ACE1 & ACE2 reduction in an experimental model of idiopathic pulmonary fibrosis
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The Glucagon-like peptide-1 (GLP-1) receptor is expressed in the lung having a very important role in the modulation of the Angiotensin Converting Enzymes (ACEs). ACE1 cleaves angiotensin-I into angiotensin-II, which is converted by ACE2 to Ang(1-7). Ang(1-7) has vasodilating effects. The Idiopathic Pulmonary Fibrosis (IPF) is characterized by excessive extracellular matrix deposition disrupting the alveolar architecture and physiology. IPF develops by a sequence of inflammation multifocal process that leads to a fibrotic response. IPF presents pulmonary hypertension and right ventricle hypertrophy. The aim of this study is to elucidate the effect of precocious treatment with LIR during the inflammatory phase of IPF in ACE1 & ACE2 in the late fibrotic phase in an experimental model of IPF. LIR was induced in rats by a single intra-tracheal instillation of Bleomycin (BLM, 2.5 mg/kg) on day 0 (D0). From day −1 to day 6, animals were treated with Liraglutide (LIR, 100 µg/kg/12h subcutaneous). On D21 rats were sacrificed. Heart ventricles and lungs were isolated, weighted and frozen. Histology of lungs confirmed interstitial lung fibrosis in all BLM-treated rats. The real time-PCR levels of ACE1 & ACE-2 were lower in lungs of BLM-IPF than in controls (40% and 48% reduction, respectively). Right ventricle weight was markedly increased in BLM-IPF rats (+66%). The treatment with LIR at the beginning of the inflammatory phase completely restored the levels of ACEs at the fibrotic phase (21D), and prevented the right ventricle hypertrophy. In conclusion BLM instillation causes local injury with inflammation and alteration of lung vasculature with pulmonary hypertension reflected by right ventricle hypertrophy and related to a reduction in the expression levels of ACEs in the lung, especially ACE2. The precocious LIR treatment in the inflammatory phase prevented all these pathogenic alterations.

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GP53
Clinical, laboratory and cardiac parameters in overt primary hypothyroidism versus overt central hypothyroidism
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Background
Hypothyroidism affects cardiac function, leading to cardiomyopathy, pericarditis, lower left ventricular performance, etc. The present study investigates different parameters (clinical, hormonal, biochemical, echocardiographic) in overt primary hypothyroidism (OPTHypo) and overt central hypothyroidism (OCHypo).

Material and methods
The study included 33 untreated patients with OCHypo (5 with empty sella, 3 with idiopathic hypopituitarism, 7 with Sheehan’s syndrome, 18 with different types of pituitary macroadenomas, before or after surgery) and 67 cases with OPTHypo, respectively with chronic autoimmune thyroiditis. Among the patients with OCHypo, 4 presented partial pituitary insufficiency (2 cases on gonadotropins and TSH secretion and 2 cases on growth hormone and TSH secretion), the rest of the cases showing global pituitary insufficiency. Patients with acromegaly and Cushing’s disease were excluded.

Results
The clinical picture was more severe in OPTHypo as in OCHypo (dominated by fatigue, edema, dry skin, neurological alterations). The values of serum thyroxin were significantly lower in OCHypo (P<0.0001). 40% of OPTHypo patients presented pericarditis, as compared to OCHypo (2 cases, P=0.0003). No statistical differences were noted between the two groups, regarding heart rate, systolic and diastolic blood pressure values, isovolumic contraction time. Nonetheless, the isovolumic relaxation time was significantly higher in OCHypo group (91.8±8.5 ms), as in OCHypo (80.2±9.9 ms, P<0.0001). Coronary artery disease was more common in OPTHypo group (21 cases, 31.3%), as compared to OCHypo (5 cases, 15.1%, P=0.095). Hyponatremia was recorded in 4 patients with OPHypo and in 3 cases with OCHypo (P=0.68). The values of serum total cholesterol, LDL-cholesterol, glycemia, creatin-kinase, transaminases, creatinine were significantly higher in OPHypo group, correlated to lower values of serum thyroxin. The incidence of anemia was similar in both groups (18 cases in OPHypo group, 6 cases in OCHypo group, P=0.456).

Conclusion
The metabolic and cardiac parameters were more profound altered in primary hypothyroidism, as compared to central hypothyroidism.

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GP54
Correlation between triglyceride glucose index (TyG) and coronary artery calcification in Korean adults
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Objective
Triglyceride glucose (TyG) index is considered a surrogate marker of insulin resistance, and insulin resistance is known risk factor of cardiovascular disease. Until now, few studies have investigated the relationship between TyG index and coronary artery calcification (CAC). This study investigated the correlation between TyG index and CAC in healthy Korean Adults.

Methods
A total of 4,463 participants underwent cardiac computed tomography in health promotion center were enrolled. TyG index was calculated as ln[fasting triglycerides(mg/dl) X fasting glucose(mg/dl)]/2. Multi-detector CT was used to measure coronary artery calcium score (CACS) and CACS>0 was defined as the presence of CAC.
Author Index

Aancutel, A EP809
Abacar, KY EP266 & EP440
Abbas, A EP280 & EP334
Abboud, D EP928
Abd elbaky, RS EP425
Abdalaziz, A EP395
Abdallah, RB EP167 & GP113
Abdelkrim, S EP633
Abdelsalam, MM EP1363 & EP497
Abdulkhaliq, A EP652
Abe, S EP1029
Abell, S EP1115
ABerer, F EP609
Abernetie, A EP802
Abeysunasekara, S EP575
Abid, D GP28
Abizanda, EP EP862 & GP240
Abolaji, A EP1095
Aboshafi, MM EP513
Abouleka, Y EP1310
Abraudtene, A EP990
Abreu, S GP98
Abrosimov, A EP1394
Abs, R EP884
Abuin, J EP755 & EP808
Abushady, MM EP497
Abusoglu, S EP1167 & EP419
Ach, K EP441 & EP1389
Acierno, J GP153
Acik, ME EP296
Acikgoz, SB EP1066
Acikgoz, A EP378
Ackermann, D EP820 & OC13.5
Acu, B EP427
Adas, M EP113
Adam, M EP692
Adamczewski, Z EP1325 & EP1435
Adamska, A EP1104 & EP466
Adaramoye, O EP1095
Adaway, J EP1169
Adibayo, O EP1095
Adesanyo, O EP1095
Adhikari, P EP692
Adomnica, V EP1209 & EP792
Adorini, L EP377
Adrian, M EP148
Afšar, ZT EP538
Afanaseyev, D GP86
Afentoulidi, A EP1202 & EP859
Afonso, C EP887
Afzal, N EP761
Agate, I EP1414
Aghero, H GP152
Aggarwal, R EP661
Aghajanova, Y EP893
Aghajanova, YM EP422
Aglony, M OC5.1
Agnoulk, A EP754
Agnoulk, I EP754 & OC7.5
Agrawal, S EP701
Agreda, J EP1030
Aguiar, A GP133
Aguilar-Oliveira, MH EP949 & GP178
Aguilar, C EP3
Aguirre, N EP180
Ahbab, S EP86
Ahern, T EP1169
Ahlem, B EP762
Ahmadpour, F GP164
Ahmed, A EP552
Ahmed, AG EP1363
Ahmed, S GP180
Ahmeti, A EP585
Ahmetow, I GP170
Ahn, C EP738 & EP1100
Ahn, CW EP452, EP531, GP54 & GP87
Ahn, HJ GP162
Ahn, SV EP236
AI Thu, B GP142
Aichler, M OC1.1
Aida, BS EP762
Aires, I EP599
Aithal, G OC3.5
Ajabnoor, G EP652 & EP657
Ajdzanovic, V EP359
Ajdinovic, B EP787
Ajdzanovic, V GP62, GP202 & EP779
Ajmi, S EP355
Akin, O EP673
Akaishi, J EP1385
Akalin, A EP12, EP244 & EP1033
Akarsu, E EP1003
Akbar, S EP1262
Akbiyik, F GP212
Akcan, E EP1033
Akdader-Oudahmane, S EP1234 & EP66
Akdenez, CS EP296
Akdenez, YS EP1099
Akdere, G EP418
Akgul, G EP344
Akin, S EP1097 & EP1368
Akkaya, L EP675
Aklados, C EP583
Akman, S EP673
Aksyonova, E EP670
Akturk, M EP1144
Akyldzic, AB EP266
Akurek, F EP1167
A Kadi, H EP292
A Katta, O GP77 & EP263
Al-Daghri, N GP46, GP77 & EP263
Al-Saleh, Y GP46 & EP263
Al-Shafie, A EP69 & EP1230
Al-Trawneh, O EP489
Alaguney, ES EP427
Alam, M EP534
Alaminos, MLE EP920
Alapi, T EP742
Alarcón, E EP302
Alba, A EP99
Albani, A EP1056
Albert, C EP641
Albert, I EP165 & GP238
Albiges, N EP1042
Albu, AI EP307 & EP947
Albu, D EP1138 & EP1147
Alcaide-Torres, J GP71
Alcantara-Aragón, V EP681
Aldea, R EP1364
AlDowairi, A GP88
Alefishat, E EP360
Alegria, S EP996
Alejandro, R OC6.2
Alexaneite, A EP990
Alexakis, M EP693
Alemany, PA GP179
Aleziaki, M EP1411 & GP230
Alevaris, TM EP76
Alexander, B EP1248
Alexandra Ambarus, Popovic, I EP813
Alexandra Gheorghiu, C EP1395
Alexandra Smarandoiu, G EP137

Endocrine Abstracts (2017) Vol 49