THYROID
AUTOIMMUNITY
PREFACE

In 1956, three groups independently reported evidence that some thyroid disease appearing spontaneously in humans or experimentally induced in animals are related to autoimmune processes. The interval between these landmark discoveries and the present has witnessed a remarkable and continuing growth of both knowledge and concepts concerning the mechanisms of immune regulation, the pathogenesis of autoimmune thyroid diseases, and their clinical and laboratory manifestations. More importantly knowledge of thyroid autoimmunity has, in many respects, comprised the vanguard of an ever increasing appreciation and understanding of autoimmune diseases in general.

On November 24-26 1986, an International Symposium on Thyroid Autoimmunity was held in Pisa. Its purpose was to commemorate the birth of thyroid autoimmunity as a scientific discipline, to summarize current knowledge and concepts in this area, and where possible, to anticipate areas of opportunity for the future — hence the theme of the Symposium, Memories and Perspectives. To open the meeting, the Magnifico Rettore (Chancellor) of the University of Pisa granted special Awards to Dr. Deborah Doniach, Dr. Ivan Roitt, and Dr. Noel R. Rose, who published the first fundamental studies in the field of thyroid autoimmunity, and to Dr. Duncan G. Adams, whose discovery of the long-acting thyroid stimulator (LATS) opened the door to our current understanding of the pathogenesis of Graves' disease. During the meeting thirty plenary lectures were presented. These covered the nature of thyroid autoantigens, TSH receptor antibodies, the cellular mechanisms of thyroid autoimmunity, the genetic control and animal models of autoimmune thyroid diseases, and finally the clinical aspects of these disorders. In addition, 112 free communications on related topics were accepted for presentation by poster. Some of these were aggregated into specific workshops to permit their discussion by experts in that particular subfield.

The meeting was attended by approximately 350 participants from throughout the world, most all of whom participated in what proved to be lively discussions of both the oral presentations and the posters. This volume is a collection of papers presented during the Symposium, and its intent is to provide, as promptly as possible, a comprehensive survey of current research progress, as well as a comprehensive source of references, in the field. We very much hope that it will fulfill those purpose, and in so doing, will stimulate further discussions and advances in our knowledge of thyroid autoimmunity.

The Editors are thankful to the speakers and attendees, all of whom contributed in diverse ways to the evident success of the Symposium. This productive meeting and the publication of this volume would not have been possible without the generous financial assistance of Becton Dickinson Laboratory Systems S.p.A. or without the invaluable collaboration of Dr. Stefano Mariotti, the secretarial assistance of IN.C.OR. organization, and the editorial help of Plenum Press.

We are deeply grateful to the University of Pisa for its sponsorship and to the City and Health Authorities of Pisa, who welcomed the participants in the gracious manner for which the city is famous. It seems appropriate, we hope, that this Symposium was held in the city of Galileo Galilei, which gave birth to critical advances in science that have benefitted mankind immeasurably.
CONTENTS

Graves' Disease:
A Paradigm for Autoimmunity ................................................................. 1
D.D. Adams, A. Knight, J.G. Knight and P. Laing

Nature of Thyroid Autoantigens:
The TSH Receptor .................................................................................. 11
J. Chan, M. De Luca, P. Santisteban, O. Isozaki, S. Shifrin, S.M. Aloj,
E.F. Grollman and L.D. Kohn

Progress in Understanding the Thyroid Microsomal Antigen .................... 27
L.J. DeGroot, L. Portmann and N. Hamada

A Possible Role of Bacterial Antigens in the
Pathogenesis of Autoimmune Thyroid Disease ........................................ 35
S.H. Ingbar, M. Weiss, G.W. Cushing and D.L. Kasper

"ATRA I": A New Autoantigen in Autoimmune Thyroid Disease ................ 45
B. Rapoport, H. Hirayu, P. Seto, R.P. Magnusson and S. Filetti

Monoclonal Antibodies in the Study of Thyroid
Autoantigens and Autoantibodies ................................................................ 53
J. Ruf, B. Czarnocka, M.E. Toubert, C. Alquier, C. De Micco, H. Henry,
C. Dutoit, Y. Malthiery, M. Ferrand and P. Carayon

LATS/TSAb: Then and Now ........................................................................ 63
J.M. McKenzie

Pathogenic Roles of TSH Receptor Antibodies in Graves' Disease ............. 69
S. Nagataki

Physiopathological Relevance of Thyroid Stimulating Antibody
(TSAb) Measurements in Graves' Disease ............................................... 77
J. Orgiazzi, A.M. Madec and R. Mornex

TSH Receptor Autoantibodies Affecting Thyroid Cell Function .................. 83
G.F. Fenzi, P. Vitti, C. Marcocci, L. Chiovato and E. Macchia

Heterogeneity of TSH Receptor-directed Antibodies (TRAb)
and Their Significance ............................................................................... 91
M. Zakarija

Humoral Factors in Graves' Ophthalmopathy ........................................... 99
R. Toccafondi, C.M. Rotella, R. Zonefrati and A. Tanini

Immunoregulatory Abnormalities in Autoimmune Thyroid Disease .......... 109
R. Volpé and V.V. Row
Intrathyroidal Lymphocytes, Thyroid Autoantibodies and Thyroid Destruction ............................................. 117
S.M. McLachlan, C.A.S. Pegg, M.C. Atherton, S.L. Middleton,
P. Rooke, C. Thompson, S. Dahabra, E.T. Young, P. Clark
and B. Rees-Smith

Cellular Mechanisms for Autoimmune Damage in Thyroid-Associated Ophthalmopathy .... 125
J. How, Y. Hiromatsu, P. Wang, M. Salvi and J.R. Wall

Thyroid Infiltrating T Lymphocytes in Hashimoto's Thyroiditis:
Phenotypic and Functional Analysis at Single Cell Level ................... 135
G.F. Del Prete, A. Tiri, S. Mariotti, A. Pinchera, S. Romagnani and
M. Ricci

An in Vitro Model for Thyroid Autoimmunity ....................................................... 145
B.E. Wenzel, R. Gutekunst, S. Grammerstorf and P.C. Scriba

Genetic Aspects of Graves' Disease ......................................................................... 153
A.M. McGregor, S. Ratanachaiyavong, C. Gunn, K.W. Lee,
P.S. Barnett, C. Darke and R. Hall

Thyroid and Related Autoimmune Disorders:
Challenging the Dogmas ........................................................................ 159
G.F. Bottazzi, I. Todd, A. Belfiore, R. Mirakian and R. Pujol-Borrel

Molecular and Functional Characterization of Genes Encoding
Anti-Thyroglobulin and Anti-TSH Receptor Antibodies ................... 175
M. Monestier and C.A. Bona

Autoantigenicity of Murine Thyroglobulin ............................................................. 181
B. Champion, P. Hutchings, D. Rayner, K. Page, P. Byfield,
J. Chan, I. Roitt and A. Cooke

IgG Subclass Distribution of Anti-Tg Antibodies among Thyroid
Disease Patients and Their Relatives and in High and Low
Responder Mouse Strains .................................................................................. 189
N.R. Rose, I.M. Outschoorn, C.L. Burek and R.C. Kuppers

Genetic Basis of Spontaneous Autoimmune Thyroiditis ................................ 199
G. Wick, G. Krömer, H. Dietrich, K. Schauenstein and K. Häla

Hetero-Transplantation of Autoimmune Human Thyroid to Nude
Mice as a Tool for in Vivo Autoimmune Research .................................. 207

Post-Partum Thyroid Dysfunction ............................................................. 211
R. Hall, H. Fung, M. Kologlu, K. Collison, J. Marco, A.B. Parkes,
B.B. Harris, Darke, R. John, C.J. Richards and A.M. McGregor

Autoimmune and Autonomous Toxic Goiter: Differentiation
and Clinical Outcome after Drug Treatment ............................................ 221
H. Schleusener, G. Holl, J. Schwander, K. Badenhoop, J. Hensen,
R. Finke, G. Schernthaner, W.R. Mayr, P. Kotulla and R. Holle

Postpartum Onset of Graves' Disease ........................................................... 231
N. Amino, H. Tamaki, M. Aozasa, Y. Iwatani, J. Tachi, K. Miyai,
M. Mori and O. Tanizawa
Thyrotropin-Binding Inhibitor Immunoglobulins in Primary Hypothyroidism .......................................................... 241
J. Konishi, K. Kasagi, Y. Iida and K. Torizuka

Thyroid Function Modulates Thymic Endocrine Activity .................................................. 249
A. Pinchera S. Mariotti, F. Pacini, N. Fabris and E. Moccheggiani

The BB/W Rat, a Model for "Tgl-associated Goitre" ............................................... 257
H.A.M. Voorbij, R.D. Van der Gaag and H.A. Drexhage

Non-Thyroidal Complications of Graves' Disease:
Perspective on Pathogenesis and Treatment ........................................ 263
J.P. Kriss, I.R. McDougall, S.S. Donaldson and H.C. Kraemer

Cross Reactivity between Antibodies to Human Thyroglobulin and Torpedo Acetylcholinesterase in Patients with Graves' Ophthalmopathy ...................................................... 271
M. Ludgate, C. Owada, R. Pope, P. Taylor and G. Vassart

Multiple Autoantigenic Determinants in Thyroid Autoimmunity .................. 275
A.P. Weetman, R. Smallridge, C. Hayslip and K.D. Burman

Further Characterization of the Thyroid Microsomal Antigen by Monoclonal Antibodies ................................................................................ 279
L. Portmann, N. Hamada, W.A. Franklin and L.J. DeGroot

Molecular Cloning of a Thyroid Peroxidase cDNA Fragment Encoding Epitopes Involved in Hashimoto's Thyroiditis (HT) ............................................ 283
C. Dinsart, F. Libert, J. Ruel, M. Ludgate, J. Pommier, J. Dussault and G. Vassart

Further Evidence that Thyroid Peroxidase and "Microsomal Antigen" Are the Same Entity ............................................................. 285
B. Czarnocka, J. Ruf, C. Alquier, M.E. Toubert, C. Dutoit, M. Ferrand and P. Carayon

Competitive and Immunometric Radioassays for the Measurement of Anti-Thyroid Peroxidase Autoantibodies in Human Sera ...................... 289
S. Mariotti, S. Anelli, J. Ruf, R. Bechi, A. Lombardi and P. Carayon

Thyroid Peroxidase and the "Microsomal Antigen", Cannot Be Distinguished by Immunofluorescence on Cultured Thyroid Cells ........................................ 293
L. Chiovato, P. Vitti, C. Mammoli, G. Lopez, P. Cucchi, S. Battiato, P. Carayon, G.F. Fenzai and A. Pinchera

Measurement of Anti-alpha-Galactosyl Antibodies in the Course of Various Thyroid Disorders and Isolation of an Antigenic Glycopeptide Fraction ........................................ 297
J. Etienne-Decerf, P. Mahieu, M. Malaise and R. Winand

The IgG Subclass Distribution on Thyroid Autoantibodies in Graves' Disease .......................................................... 301
A.P. Weetman and S. Cohen

Thyroid Hormone Binding Autoantibodies (THBA) in Humans and Animals .......................................................... 305
S. Benvenga and J. Robbins
High Frequency of Interferon-Gamma Producing T Cells In Thyroid Infiltrates of Patients with Hashimoto's Thyroiditis ......................... 309
A. Tiri, G.F. Del Prete, S. Mariotti, A. Pinchera, S. Romagnani and M. Ricci

Lymphokine Production and Functional Activities of T Cell Clones from Thyroid Gland of Hashimoto's Thyroiditis ...................... 313
M. Bagnasco, S. Ferrini, D. Venuti, L. Prigione, G. Giordano and G.W. Canonica

Circulatory Thyroglobulin Threshold in Suppressor Activation ............. 315
Y.M. Kong, M. Lewis, A.A. Giraldo and B.E. Fuller

Thyroglobulin Autoantibody IgG Subclasses; Regulation by T Cells .......... 319
N. Forouhi, S.M. McLachlan, S.L. Middleton, M. Atherton, P.H. Baylis, F. Clark and B. Rees Smith

Cellular Immunity and Specific Defects of T-cell Suppression in Patients with Autoimmune Thyroid Disorders ......................... 323

The Influence of Interleukin-1 on the Function of Human Thyroid Cells ........................................................................................................................... 327
A. Krogh-Rasmussen, U. Feldt-Rasmussen, K. Bech, S. Poulsen and K. Bendtzen

Immunohistochemical Characterisation of Lymphocytes in Experimental Autoimmune Thyroiditis .......................................................... 331
A.P. Weetman and S.B. Cohen

Lambda Light Chain Restriction in the Diffuse Thyroid Lymphoid Infiltrate in Untreated Graves' Disease ............................................. 335
C.A. Smith, B. Jasani, and E.D. Williams

Natural Killer Cell Activity in Hashimoto, Graves' Disease and Euthyroid Exophthalmos ................................................................. 339
B.K. Pedersen, U. Feldt-Rasmussen, H. Perrild, J. Mølholm Hansen and T. Christensen

Interaction of Purified Graves' Immunoglobulins with the TSH-receptor ................................................................. 343
P.G.H. Byfield and J. Worthington

Thyroid Stimulating Immunoglobulins without Evidence of in Vivo Thyroid Stimulation in Some Non-thyroid Autoimmune Disease ........................................................................................................ 347

The Effect of Thyroid Stimulating Immunoglobulins (TSI) on Thyroid CAMP: Comparison with TSH Activity ........................................ 351
S. Filettti, G. Damante, D. Foti, R. Catalfamo and R. Vigneri

Proliferation in Cultivated Follicles of Graves' Thyroids: Immunohistochemical Studies with Antibody KI-67 .......................................... 355
M. Derwahl, Ch. Sellschopp, H.M. Schulte and E.E. Ohnhaus
The Significance of Immunoglobulins Related to Stimulation of Thyroid Growth in Patients with Endemic Goiter

A. Halpern and G.A. Medeiros-Neto

Regulation of Growth of Thyroid Cells in Culture by TSH Receptor Antibodies and Other Humoral Factors

D. Tramontano, G.W. Cushing, M. Mine, A.C. Moses, F. Beguinot and S.H. Ingbar

Polyamine Modulation of Responses to Graves’ IgG in Guinea Pig and Human Thyroid

P.P.A. Smyth and A.E. Corcoran

Evidence for Intrathyroidal Production of Thyroid Growth-Stimulating Immunoglobulins

H. Schatz, I. Ludwig, F. Wiss and P.E. Goretzki

Presence of Thyroid Growth Promoting Antibody in Patients with Graves’ Disease In Remission: Medical versus Surgical Therapy

C.M. Rotella, C. Mavila, E. Vallin, A. Lopponi and R. Toccafondi

Thyrotropin and Growth Promoting Immunoglobulin (TGI) of FRTL-5 Cells Have no Growth Stimulating Activity on Human Thyroid Epithelial Cell Cultures

B.E. Wenzel, M. Dwenger, T. Mansky, U. Engel, V. Bay and P.C. Scriba

Autoantibodies Stimulating Thyroid Growth and Adenylate Cyclase Cannot Be Separated in IgGs from Graves’ Disease

C. Marcocci, P. Vitti, G. Lopez, C. Mammoli, L. Chiovato, G.F. Fenzi and A. Pinchera

Antiidiotypic Blocking of Graves’ Disease Biologic Activity with Autologous Sera but not Consistently with Homologous Sera: Evidence for Polyclonality of Thyroid Receptor Antibodies (TRAb)


Autoantibodies Blocking the TSH-Induced Adenylate Cyclase Stimulation in Idiopathic Myxedema and Hashimoto’s Thyroiditis


Relevance of Maternal Thyroid Autoantibodies on the Development of Congenital Hypothyroidism

L. Giusti, C. Marcocci, L. Chiovato, M. Ciampi, F. Santini, P. Vitti, N. Formica and G.F. Fenzi

Ability of Immunoglobulins from Patients with Thyroid Disease to Stimulate Skin Fibroblasts

P. Wadeleux and R. Winand

Some Evidences that Thyrotropin and Autoantibodies Binding Sites are Located on Different Polypeptide Chains of Thyroid Plasma Membrane Proteins

A. Gardas and H. Domek
Presence of Thyroid Growth Promoting Antibody in Patients with Hashimoto's Thyroiditis: Effect of Long-term Thyroxine Treatment ................................................................. 409
A. Taninl, C.M. Rotella, L.D. Kohn and R. Toccafondi

Limited Clinical Value of TBIi and TSAb for Prediction of the Outcome of Patients with Graves' Disease ......................................................... 413
R. Hörmann, B. Saller and K. Mann

TSH Receptor Antibodies in Neonatal Hyperthyroidism .................. 417
P.M. Hale, M. Liebert, N.J. Hopwood and J.C. Sisson

Thyroid Autoimmunity as a Major Cause for Congenital Hypothyroidism ........................................................................................................ 421

Thyroid Growth Blocking Antibodies in Congenital Hypothyroidism ....... 425

Incidence of TSH Receptor Antibodies in Patients with Toxic Diffuse Goiter .......................................................................................... 429
E. Macchia, R. Concetti, G. Carone, L. Gaspesini, F. Borgoni, G.F. Fenzi and A. Pinchera

Blocking Antibodies Apparently without Any Stimulatory Activity Are Present in Sera of Patients with Graves' Disease ...................... 433
E. Macchia, R. Concetti, G. Carone, F. Borgoni, G.F. Fenzi and A. Pinchera

Increased Frequency of HLA-DR5 in Metro Toronto Patients with Goitrous Autoimmune Thyroiditis and Post-partum Thyroiditis ................................................................. 437
P.G. Walfish, M.T. Vargas and D. Gladman

Post-partum Thyroid Dysfunction and HLA Status .......................... 441
M. Kologlu, H. Fung, C. Darke, C.J. Richards, R. Hall and A.M. McGregor

Methimazole, gamma-Interferon and Graves' Disease ............... 445
M. Bagnasco, D. Venuti, M. Caria, C. Pizzorno, O. Ferrini and G.W. Canonica

The Prognostic Value of Combined Measurement of Thyroid-stimulating Antibody and Serum Thyroglobulin Levels during Graves' Disease Long Term Thionamide Treatment .......................... 449
J.H. Romaldini, R.S. Werner, N. Bromberg, I.D. Pereira, R.P. Dall'Antonia Jr. and C.S. Farah

Serum Thyroid Autoantibodies in a Long-term Study of Thyrostatic Treatment of Graves' Disease ................................................................. 453
W. Meng, S. Meng, R. Hampel, M. Ventz and E. Männchen

The Effect of High Doses of Carbimazole in Patients with Graves' Disease and in Subjects with Thyroid Antibodies ....................... 457
P. Tanzil, M. Vitillo, M. Mancuso, V. Flore, P. Pozzilli, U. Di Mario and D. Andreani

Thymulin Deficiency and Low T3 Syndrome in Infants with Low-Birth-Weight Syndromes ................................................................. 461
E. Moccheggiani, N. Fabris, S. Mariotti, G. Caramia, T. Braccili, F. Pacini and A. Pinchera
Constitutive Expression of HLA Class II Molecules in Human Thyroid Cells Transfected with SV-40 ................................................................. 465
A. Belfiore, T. Mauerhoff, R. Pujol-Borrel, R. Mirakian and G.F. Bottazzo

Specific DNA Polymorphism in the DQ Alpha Region of Patients with Graves' Disease and Hashimoto's Thyroiditis ................................................. 469
K. Badenhoop, V. Lewis, V. Drummond, V. Algar, G. Schwarz and G.F. Bottazzo

Survey of Post-partum Thyroid Antimicrosomal Autoantibody as a Marker for Thyroid Dysfunction ................................................................. 473
P.G. Walfish, M.T. Vargas, J.P. Provias and F.R. Papsin

HLA Region Gene Involvement in Congenital Hypothyroidism ........................... 477
M. Cisternino, M. Martinetti, R. Lorini, A. Grupioni, D. Larizza, M. Cuccia Belvedere, M.R. Romano and F. Severi

Probability of a Beneficial, Dose-dependent, Immunosuppressive Action of Carbimazole in Graves' Disease ................................................... 481
J. Duprey, M.F. Louis, M. Sultan and E. Lifchitz

Evidence for DR-Ag-expression by RHS-cells and not by Thyroid Epithelial Cells ................................................................. 485
J. Teuber, R. Paschke, V. Schwedes, M. Knoll, J. Christopher and K.H. Usadel

HLA-DR-β Gene Analysis in Patients with Graves' Disease .............................. 489
B.O. Boehm, E. Schifferdecker, P. Kuehn, C. Rosak and K. Schöffling

Immune Signals Fail to Elicit Endocrine Responses in the Obese Strain (OS) of Chickens with Hashimoto-like Autoimmune Thyroiditis .................... 493
R. Faessler, K. Schauenstein, G. Krömer and G. Wick

Inappropriate HLA Class II Expression in a Wide Variety of Thyroid Diseases ................................................................. 497
R. Pujol-Borrel, A. Lucas Martin, M. Foz, I. Todd and G.F. Bottazzo

Adverse Reactions Related to Methimazole and Propylthiouracil Doses ................................................................. 501
M.C. Werner, J.H. Romaldini, N. Bromberg, M.T.A. Boesso and R.S. Werner

Thyroid Suppressibility in Graves' Disease: Relationship with Thyroid Stimulating Antibody and Serum Thyroglobulin Levels ..................... 505

Influence of Lymphokines and Thyroid Hormones on Natural Killer Activity ................................................................. 509
M. Provinciali, M. Muzzioli and N. Fabris

Results of Thyrostatic Drug Treatment in Hyperthyroidism.
A Clinical Long-term Study ............................................................................. 513
W. Meng, S. Meng, R. Hampel, M. Ventz, E. Männchen and B. Streckenbach

Predictive Use of TSH-receptor Antibodies Assay as a Prognostic Index in Graves' Patients Treated with Antithyroid Drugs or Radioactive-Iodine ................................................................. 517
R. Concetti, E. Macchia, L. Gasperini, G. Carone, F. Borgoni, G.F. Fenzi and A. Pinchera
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affinity Purification of Orbital Antigens Using Human Monoclonal</td>
<td>521</td>
</tr>
<tr>
<td>Antibodies in Graves' Ophthalmopathy</td>
<td></td>
</tr>
<tr>
<td>M. Salvi and J.R. Wall</td>
<td></td>
</tr>
<tr>
<td>The Exophthalmos-related Eye Muscle Antigens Are not Related to</td>
<td>525</td>
</tr>
<tr>
<td>Thyroid Antigens: Lack of Binding Inhibition Using Thyroid Microsome</td>
<td></td>
</tr>
<tr>
<td>s and Thyroglobulin</td>
<td></td>
</tr>
<tr>
<td>R. Moncayo, U. Bemetz and E.F. Pfeiffer</td>
<td></td>
</tr>
<tr>
<td>Humoral Immunity in Graves' Ophthalmopathy</td>
<td>529</td>
</tr>
<tr>
<td>Autoantibodies of IgM and IgG Class against Eye Muscle Antigens in</td>
<td>533</td>
</tr>
<tr>
<td>Patients with Graves' Ophthalmopathy</td>
<td></td>
</tr>
<tr>
<td>G. Adler, A. Lewartowska, A. Gardas and J. Nauman</td>
<td></td>
</tr>
<tr>
<td>Endocrine Exophthalmos – Natural History and Results of Treatment</td>
<td>537</td>
</tr>
<tr>
<td>E. Schifferdecker and K. Schöffling</td>
<td></td>
</tr>
<tr>
<td>Immunosuppressive Treatment of Graves' Ophthalmopathy with</td>
<td>541</td>
</tr>
<tr>
<td>Cyclosporin A and Ciamexan</td>
<td></td>
</tr>
<tr>
<td>C. Utech, M. Cordes, P. Pfannenstiel and K. Wulle</td>
<td></td>
</tr>
<tr>
<td>Treatment of Graves' Ophthalmopathy by Retrobulbar Corticosteroids</td>
<td>545</td>
</tr>
<tr>
<td>Associated with Orbital Cobalt Radiotherapy</td>
<td></td>
</tr>
<tr>
<td>C. Marcocci, L. Bartalena, M. Panicucci, G. Cavallacci, C. Marconcini,</td>
<td></td>
</tr>
<tr>
<td>A. Lepri, M. Laddaga, F. Cartel and A. Pinchera</td>
<td></td>
</tr>
<tr>
<td>Immunological Features of Simple Endemic Goitre</td>
<td>549</td>
</tr>
<tr>
<td>A. Costa, C. Ricci, V. Benedetto, P. Borelli, E. Fadda, N. Ravarino,</td>
<td></td>
</tr>
<tr>
<td>B. Torchio, D. Urbano, P. Fragapan and G. Varvello</td>
<td></td>
</tr>
<tr>
<td>Thyroid Autoimmunity in Five Samples of General Population in Italy</td>
<td>551</td>
</tr>
<tr>
<td>G.B. Salabé, H. Lotz, A. Menotti, S. Muntoni, G. Descovich, R.</td>
<td></td>
</tr>
<tr>
<td>Antonini, E. Farinario and G. Avellone</td>
<td></td>
</tr>
<tr>
<td>Prevalence of Hypothyroidism and Hashimoto's Thyroiditis in Two</td>
<td>555</td>
</tr>
<tr>
<td>Elderly Populations at Different Dietary Iodine Intake</td>
<td></td>
</tr>
<tr>
<td>E. Roti, M. Montermini, G. Robuschi, E. Gardini, D. Salvo, M. Gionet,</td>
<td></td>
</tr>
<tr>
<td>C. Abreu, B. Meyers and L.E. Braverman</td>
<td></td>
</tr>
<tr>
<td>Evidence of the Influence of Iodine Intake on the Prevalence of</td>
<td>559</td>
</tr>
<tr>
<td>Autoimmune Factors in Hyperthyroid Patients Living in an Endemic Goit</td>
<td></td>
</tr>
<tr>
<td>re Area</td>
<td></td>
</tr>
<tr>
<td>V. De Filippis, A. Balsamo, C. Danni, L. Mongardi, P.A. Merlin, O.</td>
<td></td>
</tr>
<tr>
<td>Testori, R. Cerutti and R. Garberoglio</td>
<td></td>
</tr>
<tr>
<td>Further Data on Iodine-induced Autoimmunity</td>
<td>563</td>
</tr>
<tr>
<td>D.A. Koutras, K. Evangelopoulos, K.S. Karaïskos, M.A. Boukis, G.D.</td>
<td></td>
</tr>
<tr>
<td>Piperingos, J. Kitsopoulos, D. Makriyannis, J. Mantzos, J. Sfou</td>
<td></td>
</tr>
<tr>
<td>touris and A. Souvatzoglou</td>
<td></td>
</tr>
<tr>
<td>Study of Class I and Class II Antigen Expression and Lymphocytic</td>
<td>567</td>
</tr>
<tr>
<td>Infiltrate on Thyroid Tumors</td>
<td></td>
</tr>
<tr>
<td>C. Betterle, F. Presotto, A. Caretto, B. Pedini, A. Fassina, M.R.</td>
<td></td>
</tr>
<tr>
<td>Pelizzo, M.E. Girelli and B. Busnardo</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Incidence of Anti-thyroid Autoantibodies in Thyroid Cancer Patients</td>
<td>571</td>
</tr>
<tr>
<td>F. Pacini, S. Mariotti, N. Formica, R. Ellsei, S. Anelli, E. Capotorti, L. Baschieri and A. Pinchera</td>
<td></td>
</tr>
<tr>
<td>Thyroid Autoantibodies in Thyroid Cancer</td>
<td>575</td>
</tr>
<tr>
<td>Some Aspects of Cell Mediated Autoimmunity in Endemic Nodular Goitre</td>
<td>579</td>
</tr>
<tr>
<td>A. Balsamo, F. Botto Micca, P.A. Merlin, V. De Filippis and A. Stramignoni</td>
<td></td>
</tr>
<tr>
<td>Chronic Lymphocytic Thyroiditis in Endemic Goiter</td>
<td>583</td>
</tr>
<tr>
<td>H. Gao-sheng and L. Yan-fang</td>
<td></td>
</tr>
<tr>
<td>Autoimmune Thyroid Disease in the City of Graves</td>
<td>587</td>
</tr>
<tr>
<td>P.P.A. Smyth, T.J. McKenna and D.K. O'Donovan</td>
<td></td>
</tr>
<tr>
<td>A Retrospective Study of Thyroid Autoimmunity and Hypothyroidism in a Random Obese Population</td>
<td>591</td>
</tr>
<tr>
<td>N. Lima, H. Cavaliere and G.A. Medeiros-Neto</td>
<td></td>
</tr>
<tr>
<td>Circulating Thyroid Autoantibodies in Children and Youngsters with Insulin Dependent Diabetes Mellitus (IDDM) Are not Predictive of Overt Autoimmune Thyroid Disease</td>
<td>595</td>
</tr>
<tr>
<td>F. De Luca, S. Bernasconi, M. Vanelli, M.F. Siracusano, L. Di Geronimo, M.D. Finocchiaro and F. Trimarchi</td>
<td></td>
</tr>
<tr>
<td>Effects of Chronic Amiodarone Administration on Humoral Thyroid Autoimmunity</td>
<td>599</td>
</tr>
<tr>
<td>E. Martino, F. Aghini-Lombardi, S. Mariotti, L. Bartalena, L. Grasso and A. Pinchera</td>
<td></td>
</tr>
<tr>
<td>Serum Thyroid Autoantibodies in Patients with Breast Cancer</td>
<td>603</td>
</tr>
<tr>
<td>Complement Activities and Circulating Immune Complexes in Sera of Patients with Graves' Disease and Hashimoto's Thyroiditis</td>
<td>607</td>
</tr>
<tr>
<td>Abnormalities of Thyroid Function in Sjögren's Syndrome</td>
<td>611</td>
</tr>
<tr>
<td>Thyroid and Renal Amyloidosis in Thyroglobulin Immunized Rabbits</td>
<td>615</td>
</tr>
<tr>
<td>B.N. Premachandra and H.T. Blumenthal</td>
<td></td>
</tr>
<tr>
<td>Absence of Thyroglobulin in Kidney of Patients with Autoimmune Thyroiditis and Nephropathies</td>
<td>619</td>
</tr>
<tr>
<td>F.X. Thierry, C. Burel, Ph. Caron, I. Vernier, G.J. Fournie, J.P. Louvet and J.J. Conte</td>
<td></td>
</tr>
</tbody>
</table>
Persistence of Autoimmune Reactions During Recovering of Subacute Thyroiditis ................................................................. 623

Purified Protein Derivative Reaction and Urinary Immunosuppressive Acidic Protein in Patients with Subacute Thyroiditis .............. 627

Interferences of Circulating Anti-TSH Antibodies in Methods for Thyrotropin Measurement .......................................................... 631
P. Beck-Peccoz, G. Medri, C. Rossi and G. Faglia

Index ..................................................................................................................................... 635