

Contents

Participants of the Meeting	XV
In Memoriam Dr. Mildred Scheel	XXIII
Wildsede Scholarship Holders	XXV
Preface	XXVII
Acknowledgements	XXX
Hans Eidig Lecture	XXXI
Introduction to Hans Eidig and Bob Gallo	XXXII
Personal Reflections on the Origin of Human Leukemia	XXXIII

Frederick Stohlmann Jr. Memorial Lecture

P. K. Vogt: Introduction for Harald zur Hausen	3
H. zur Hausen: Viruses in Human Tumors	5
M. Moore: Introduction for Donald Metcalf	14
D. Metcalf: Hemopoietic Growth Factors and Oncogenes in Myeloid Leukemia Development	16

New Strategies in Leukemia Diagnostic and Therapy

E. Henderson: Poster Award for U. Creutzig	29
U. Creutzig, J. Ritter, M. Budde, H. Jürgens, H. Riehm, and G. Schellong: Treatment Results in Childhood AML, with Special Reference to the German Studies BFM-78 and BFM-83	30
R. Bassan, A. Z. S. Rohatiner, W. Gregory, J. Amess, R. Biruls, M. J. Barnett, and T. A. Lister: The Treatment of Acute Myelogenous Leukemia	35
R. Rokicka-Milewska, D. Derulska, J. Armata, W. Balwierz, J. Bogusławska-Jaworska, R. Cyklis, B. Duczmal, D. Michalewska, T. Newecka, M. Ochocka, U. Radwanska, B. Rodziewicz, and D. Sonta-Jakimczuk: Long-term Follow-up After Therapy Cessation in Childhood Acute Lymphoblastic Leukemia	37

J. Boguslawska-Jaworska, B. Rodziewicz, B. Kazanowska, J. Armata, R. Cyklis, P. Daszkiewicz, A. Dluzniewska, M. Matysiak, M. Ochocka, U. Radwanska, R. Rockicka-Milewska, M. Sroczynska, Z. Wojcik, and I. Zmudzka: Progress in Treatment of Advanced Non-Hodgkin's Lymphoma in Children – Report on Behalf of the Polish Children's Leukemia/Lymphoma Study Group	39
S. Broder: Strategies for the Future Chemotherapy of Human Immunodeficiency Virus (HIV)	43
C. H. Carrasco, C. Charnsangavej, W. J. Richli, and S. Wallace: Intraarterial Cis-platinum in Osteosarcoma	52
M. J. Barnett, A. Z. S. Rohatiner, J. E. Kingston, K. E. Adams, E. L. Batten, R. Bassan, P. E. Thorpe, M. A. Horton, J. S. Malpas, and T. A. Lister: In Vitro Treatment of Bone Marrow from Patients with T-Cell Acute Lymphoblastic Leukemia and Non-Hodgkin's Lymphoma Using the Immunotoxin Wt1-Ricin A	57
A. Z. S. Rohatiner, M. J. Barnett, S. Arnott, N. Plowman, F. Cotter, K. Adams, E. L. Batten, S. Outram, J. A. L. Amess, M. A. Horton, and T. A. Lister: Ablative Therapy Supported by Autologous Bone Marrow Transplantation with In Vitro Treatment of Marrow in Patients with B-Cell Malignancy	59
A. K. Burnett: Use of Autologous Bone Marrow Transplantation in Acute Myeloid Leukemia	62
C. M. Niemeyer, J. Ritz, K. Donahue, and S. E. Sallan: Monoclonal-Antibody-Purged Autologous Bone Marrow Transplantation for Relapsed Non-T-Cell Acute Lymphoblastic Leukemia in Childhood	67
N. G. Testa, L. Coutinho, J. Chang, G. Morgenstern, J. H. Scarffe, and T. M. Dexter: The Use of Cultured Bone Marrow Cells for Autologous Transplantation in Patients with Acute Myeloblastic Leukemia	75
R. Dopfer, G. Ehninger, and D. Niethammer: Bone Marrow Transplantation in Leukemia in the Absence of an HLA-Identical Sibling Donor	79
O. Majdic, K. Sugita, I. Touw, U. Köller, H. Stockinger, R. Delwel, B. Löwenberg and W. Knapp: Bone-Marrow Purging with Monoclonal Antibodies and Human Complement in ALL and AML	86
F. Zintl, B. Reiners, H. Thränhardt, J. Hermann, D. Fuchs, and J. Prager: Purging of Bone Marrow with a Cocktail of Monoclonal Antibodies (VIB-pool) for Autologous Transplantation	89
R. Pinkerton, T. Philip: Autologous Bone Marrow Transplantation in Paediatric Solid Tumours	92
R. Mertelsmann, J. Kolitz, K. Welte, and F. Herrmann: Cytokines with Possible Clinical Utility	97

K. A. Foon: Biological Approaches to Cancer Therapy	103
T. A. Waldmann, R. W. Kozak, M. Tsudo, T. Oh-ishi, K. F. Bongio- vanni, and C. K. Goldman: IL-2 Receptors in Adult T-Cell Leukemia: A Target for Immunotherapy	110
R. Handgretinger, G. Bruchelt, M. Schneider, D. Niethammer, and J. Treuner: Application of Interleukin 2 in Neuroblastoma	116
K. B. McCredie, M. Talpaz, H. Kantarjian, M. Rosenblum, M. Keat- ing, and J. Gutterman: Biologic Agents for the Management of Hematological Disorders: Chronic Myeloid Leukemia	120
F. C. Rawle, R. J. Armitage, and P. C. L. Beverley: Human B-Cell Growth and Differentiation Factors, and Their Effects on Leukemic B-Cells	123
P. Chen, C. Chiu, T. Chiou, C. Tzeng, C. Ho, S. Lin, R. Hsieh, H. Yeh, and B. N. Chiang: Production of Three Monoclonal Antibodies – A01, B05, and C11 – Against B-Cell Leukemia	126
P. Oblakowski: Natural Killer Activity in Preleukemic States	132
H. Van den Berghe and C. Mecucci: Some Karyotypic Aspects of Human Leukemia	136
P. F. Ambros, C. R. Bartram, O. A. Haas, H. I. Karlic, and H. Gadner: Nonisotopic In Situ Hybridization for Mapping Oncogenic Sequences	141
C. R. Bartram, J. W. G. Janssen, and R. Becher: Persistence of CML Despite Deletion of Rearranged <i>bcr/c-abl</i> Sequences	145
L. M. Wiedemann, K. Karhi, and L. C. Chan: Similar Molecular Alterations Occure in Related Leukemias With and Without the Philadelphia Chromosome	149
T. S. Ganesan, F. Rassool, A.-P. Guo, B. D. Young, D. A. G. Galton, and J. M. Goldman: Rearrangement of the <i>bcr</i> Gene in Philadelphia- Chromosome-Negative Chronic Myeloid Leukemia	153
C. R. Bartram: Rearrangement of <i>bcr</i> and <i>c-abl</i> Sequences in Ph- positive Acute Leukemias and Ph-negative CML – an Update	160
A.-M. Mes-Masson, J. McLaughlin, and O. Witte: Molecular Cloning and Serological Characterization of an Altered <i>c-abl</i> Gene Product Produced in Ph ¹ CML Patients	163
N. Galili, M. L. Cleary, and J. Sklar: Human Follicular Lymphomas: Identification of a Second t (14;18) Breakpoint Cluster Region	167
A. Wodnar-Filipowicz, H.-P. Senn, J. Jiricny, E. Signer, and Ch. Moroni: Amino Acid Substitution at Position 13 of the N- <i>ras</i> Gene in a Non-Hodgkin's Lymphoma Patient	172

A. Ganser, C. Carlo Stella, B. Völkers, K. H. Brodt, E. B. Helm, and D. Hoelzer: Loss of Hematopoietic Progenitor Cells CFU-GEMM, BFU-E, CFU-Mk, and CFU-GM in the Acquired Immunodeficiency Syndroms (AIDS)?	175
E. Elstner, H. Goldschmidt, M. Wächter, and R. Ihle: Sensitivity of Stromal Elements from Human Bone Marrow Cells to Cytosine Arabinoside In Vitro	177
E. L. Wilson and G. E. Francis: The Secretion of Plasminogen Activators by Human Bone Marrow Progenitor Cells	181
F. Herrmann, W. Oster, A. Lindemann, A. Ganser, B. Dörken, W. Knapp, J. D. Griffin, and R. Mertelsmann: Leukemic Colony-Forming Cells in Acute Myeloblastic Leukemia: Maturation Hierarchy and Growth Conditions	185
J. R. Novotny, S. Brendler, H.-J. Kytzia, K. Sandhoff, and G. Gae-dicke: Hexosaminidase I Indicates Maturation Disarrangement in Acute Leukemias	191
F. Caligaris-Cappio, L. Bergui, G. Corbascio, L. Tesio, F. Malavasi, P. C. Marchisio, and F. Gavosto: Membrane-Microfilament Interactions in the Cells of B-Chronic Lymphocytic Leukemia	195

Cell Biology

E. Kowenz, A. Leutz, G. Döderlein, T. Graf, and H. Beug: <i>ts</i> -Onco-gene-Transformed Erythroleukemic Cells: A Novel Test System for Purifying and Characterizing Avian Erythroid Growth Factors	199
M. A. S. Moore, K. Welte, J. Gabrilove, and L. M. Souza: Biological Activities of Recombinant Human Granulocyte Colony-Stimulating Factor (rhG-CSF) and Tumor Necrosis Factor: In Vivo and In Vitro Analysis	210
P. Ralph: Molecular Properties and Biological Activity of Human Macrophage Growth Factor, CSF-1	221
R. J. Davis and M. P. Czech: Regulatory Control of the Epidermal Growth Factor Receptor Tyrosine Kinase	228
N. A. Nicola: Cellular Specifity and Molecular Characteristics of the Binding of Colony-Stimulating Factors to Normal and Leukemic Cells	233
J. Boyd and G. R. Johnson: Fractionation of CSF Activities from Human Placental Conditioned Medium	240
O. G. Ottmann, K. Welte, L. M. Souza, and M. A. S. Moore: Proliferative Effects of a Recombinant Human Granulocyte Colony-Stimulating Factor (rG-CSF) on Highly Enriched Hematopoietic Pro-genitor Cells	244

S. Cory, A.W. Harris, W.Y. Langdon, W.S. Alexander, L.M. Corcoran, R.D. Palmiter, C.A. Pinkert, R.L. Brinster, and J.M. Adams: The <i>myc</i> Oncogene and Lymphoid Neoplasia: From Translocations to Transgenic Mice	248
S. Mizutani, S.M. Watt, and M.F. Greaves: Cloning of Human Thymic Subcapsular Cortex Epithelial Cells by SV40 ori-Transfection	252
P. K. Asha and Ch. Moroni: v-H- <i>ras</i> Gene Reduces IL-3 Requirement in PB-3c Mastocytes In Vitro Followed by Autocrine Tumor Formation In Vivo	257
K. Hui and F. G. Grosveld: Modification of Oncogenicity of Tumor Cells by DNA-Mediated Gene Transfer	261
D. Aghib, S. Ottolenghi, A. Guerrasio, A. Serra, C. Barletta, R. Dalla Favera, M. Rocchi G. Saglio, and F. Gavosto: A Human Leukemic T-Cell Line Bears an Abnormal and Overexpressed <i>c-myc</i> Gene: Molecular and Functional Characterization of the Rearrangement .	263
G. Kramer, W. Kudlicki, S. Fullilove, and B. Hardesty: Association of the Heme-Controlled eIF-2 α Kinase with Spectrin-Derived Peptides	265
B. Hardesty, W. Kudlicki, S.-Ch. Chen, S. Fullilove, and G. Kramer: Involvement of the Membrane Skeleton in the Regulation of the cAMP-Independent Protein Kinase and a Protein Phosphatase that Control Protein Synthesis	268
G. Brown, C.M. Bunce, J.M. Lord, P.E. Rose, and A.J. Howie: Lineage Determination During Haemopoiesis	274
R. L. Schilsky: Clinical Implications of Tumor Heterogeneity . . .	278
I. R. Hart: Tumour Cell Heterogeneity and the Biology of Metastasis	283
G. T. Mاتيoli: Cancer Clonality and Field Theory	286
Z. Grossman: Leukemia Progression: Role of Tissue Disorganization	289
D. A. Jackson and P. R. Cook: The Nucleoskeleton: Active Site of Transcription and Replication	299

Immunology

N. A. Mitchison: Henry Kaplan Award for H. J. Stauss	307
H. J. Stauss, M. A. Fink, B. Starr, and H. Schreiber: Identification of a Gene Encoding a Tumor-Specific Antigen that Causes Tumor Rejection	308

M. L. Cleary and J. Sklar: Formation of a Hybrid <i>bcl-2</i> /Immunoglobulin Transcript as a Result of t (14;18) Chromosomal Translocation	314
S. Mizutani, T. M. Ford, L. M. Wiedemann, L. C. Chan, A. J. W. Furley, M. F. Greaves, and H. V. Molgaard: Involvement of the <i>D</i> Segment (<i>DQ</i> ₅₂) Nearest to the <i>J</i> _H Region in Immunoglobulin Gene Rearrangements of Lymphoid-Cell Precursors	320
J. B. Rothbard, A. Townsend, M. Edwards, and W. Taylor: Pattern Recognition Among T-Cell Epitopes	324
A. Schimpl, U. Chen-Bettecken, and E. Wecker: Regulation of <i>Ig</i> Gene Expression in Murine B-Lymphocytes	332
T. Hünig, R. Mitnacht, G. Tiefenthaler, and F. Lottspeich: Isolation, Biochemical Analysis and N-terminal Amino Acid Sequence of a Cell Surface Glycoprotein that Binds to the "Erythrocyte Receptor" of T-Lymphocytes	337
D. A. Cantrell, A. A. Davies, W. Verbi, and M. J. Crumpton: The Regulation of T-Cell Proliferation: A Role for Protein Kinase C	341
R. E. Schmidt, S. F. Schlossmann, E. L. Reinherz, and J. Ritz: Activation of Natural Killer Function Through the T11/E Rosette Receptor	347
J. L. Urban, J. L. Rothstein, M. H. Shephard, and H. Schreiber: Tumor Necrosis Factor: A Potent Mediator of Macrophage-Dependent Tumor-Cell Killing	351
M.-L. Lohmann-Matthes, T. Decker, and M. Baccarini: Organ-Associated Macrophage Precursor Cells as Effector Cells Against Tumor Targets and Microorganisms	355
D. Douer, O. Sagi, E. Sahar, and I. P. Witz: Immune Functions and Hematopoietic Progenitor Cell Activity in Plasmacytoma-Bearing Mice Cured by Melphalan	360
G. L. Smith: Recombinant Vaccinia Viruses as Live Vaccines	362
L. Karawajew, B. Micheel, O. Behrsing, M. Gaestel, and G. Pasternak: Use of Fluorescence-Activated Cell Sorting to Select Hybrid Hybridomas Producing Bispecific Monoclonal Antibodies	367

Virology

K. Bister: Henry Kaplan Award for J. C. Neil	371
J. C. Neil, R. Fulton, T. Tzavaras, D. Forrest, R. McFarlane, and D. Onions: Viral Transduction of Host Genes in Naturally Occuring Feline T-Cell Leukaemias: Transduction of <i>myc</i> and a T-Cell Antigen Receptor β -Chain Gene	372

M. von Knebel Doeberitz and L. Gissmann: Analysis of the Biological Role of Human Papilloma Virus (HPV)-Encoded Transcripts in Cervical Carcinoma Cells by Antisense RNA	377
A. Schneider-Gädicke and E. Schwarz: Transcription of Human Papillomavirus Type-18 DNA in Human Cervical Carcinoma Cell Lines	380
M. F. Greaves and G. J. Miller: Are Haematophagous Insects Vectors for HTLV-I?	382
R. A. Weiss, P. R. Clapham, A. G. Dalgleish, and J. N. Weber: Neutralization and Receptor Recognition of Human T-Lymphotropic Retroviruses	387
A. F. Voevodin, B. A. Lapin, A. G. Tatosyan, and I. Hirsch: Markers of HTLV-I-Related Virus in Hamadryas Baboon Lymphoma	392
W. Haseltine, J. Sodroski, and C. Rosen: Replication and Pathogenesis of the Human T-Cell Leukemia/Lymphotropic Retroviruses	395
L. Ratner, A. Fisher, L. L. Jagodzinski, R.-S. Liou, H. Mitsuya, R. C. Gallo, and F. Wong-Staal: Complete Nucleotide Sequences of Functional Clones of the Virus Associated with the Acquired Immunodeficiency Syndrome, HTLV-III/LAV	404
G. Pauli, E. Hausmann, R. Weiss, P. Clapham, J. Schneider, G. Huns- mann, R. C. Gallo, M. D. Daniel, M. A. Koch, and H. Gelderblom: LAV/HTLV-III: Fine-Structure Analysis, Localization of Structural Proteins, and Detection of Envelope Antigens by Patient Sera	407
R. Marlink, K. Anderson, M. Essex, and J. Groopman: Transfusion-Acquired HIV Infection Among Immunocompromised Hosts	410
Th. J. Matthews, A. J. Langlois, W. G. Robey, N. T. Chang, R. C. Gallo, P. J. Fischinger, and D. P. Bolognesi: Restricted Neutralization of Divergent HTLV-III/LAV Isolates by Antibodies to the Major Envelope Glycoprotein	414
V. Heisig, T. Benter, S. F. Josephs, M. R. Sadaie, T. Okamoto, R. C. Gallo, and F. Wong-Staal: Interaction of Viral and Cellular Factors with the HTLV-III LTR Target Sequences In Vitro	423
I. Wendler, J. Schneider, F. Guillot, A. F. Fleming, and G. Huns- mann: Improvement of HIV Serodiagnosis	430
R. Laufs: Incidence of LAV/HTLV-III-Positive Blood Donors	434
E. M. Fenyö and B. Asjö: Growth of the HTLV-III Strain of Human Immunodeficiency Virus in Different Cell Types	436
B. A. Lapin: Nonhuman Primate Models of Human Hematological Malignancies	440

L. A. Yakovleva, V. V. Timanovskaya, A. F. Voevodin, L. V. Indzhiiia, B. A. Lapin, M. T. Ivanov, and D. S. Markaryan: Modelling of Malignant Lymphoma in Rabbits, Using Oncogenic Viruses of Non-Human Primates	445
J. Löhler, T. Franz, K. Klingler, W. Ostertag, and R. Padua: Retrovirus-Induced Malignant Histiocytosis in Mice: A Model for the Human Disease	448
U. R. Rapp, S. M. Storm, and J. L. Cleveland: Oncogenes: Clinical Relevance	450
D. Stehelin and P. Martin: Retroviruses with Two Oncogenes . . .	460
M. Dean, M. Park, K. Kaul, D. Blair, and G. F. Vande Woude: Activation of the <i>met</i> Proto-Oncogene in a Human Cell Line . . .	464
P. G. Knyazev, S. N. Fedorov, O. M. Serova, G. F. Pluzhnikova, L. B. Novikov, V. P. Kalinovskiy, and J. F. Seitz: Molecular-Genetic Analysis of <i>myc</i> and <i>c-Ha-ras</i> Proto-Oncogene Alterations in Human Carcinoma	469
L. Z. Topol, A. G. Tatosyan, and F. L. Kissel'jov: Interaction of Promoters and Oncogenes During Transfection	474
K. Cichutek and P. H. Duesberg: Conversion of <i>ras</i> Genes to Cancer Genes	447
L. Willems, R. Kettman, D. Portetelle, and A. Burny: Identification of the Bovine Leukemia Virus Transactivating Protein (p34*) . . .	482
H. Bading, C. Beutler, P. Beimling, J. Gerdes, H. Stein, and K. Moelling: Monoclonal Antibodies Against the Viral and Human Cellular <i>myb</i> Gene Product	488
S. Ohno: Atavistic Mutations Reflect the Long Life Span of Dispensable Genes	493
P. H. Duesberg: Cancer Genes Generated by Rare Chromosomal Rearrangements Rather than Activation of Oncogenes	496
S. Ohno: Repetition as the Essence of Life on this Earth: Music and Genes	511
Subject Index	521