## Contents

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1523</td>
<td>A Review of Isozymes in Cancer.</td>
<td>Wayne E. Criss.</td>
</tr>
<tr>
<td>1543</td>
<td>The Effect of Age at Exposure to a Sublethal Dose of Fast Neutrons on Tumorigenesis in Male Rat.</td>
<td>T. J. Castanera, D. C. Jones, D. J. Kinemoldorf, and V. J. Rosen.</td>
</tr>
<tr>
<td>1550</td>
<td>Inhibition of Chemically Induced Neoplasia by Immunization with an Antigenic Carcinogen-Protein Conjugate.</td>
<td>Richard M. Peck and Evelyn B. Peck.</td>
</tr>
<tr>
<td>1564</td>
<td>Cartesian Diver Studies on Respiration and Glycolysis of High and Low Sarcoma Lines.</td>
<td>J. D. Lutton and M. J. Kopac.</td>
</tr>
<tr>
<td>1573</td>
<td>Cross-linking of DNA by Alkylating Agents and Effects on DNA Function in the Chick Embryo.</td>
<td>Jerome J. McCann, Timothy M. Lo, and D. A. Webster.</td>
</tr>
<tr>
<td>1590</td>
<td>Comparison of Local Cellular Reaction to Tumor Grafts in Mice Treated with Some Plant Polysaccharides.</td>
<td>Reiko Tokuzen.</td>
</tr>
<tr>
<td>1594</td>
<td>Normal and Cancerous Tissue Transplantation in Allogeneic and Syngeneic Xenopus laevis.</td>
<td>Irandokht Hadji-Azimi and Michail Fischberg.</td>
</tr>
<tr>
<td>1600</td>
<td>The Uptake of Tritiated Methotrexate by an Experimental Glioma.</td>
<td>Charles H. Tator.</td>
</tr>
<tr>
<td>1606</td>
<td>Leukemia L1210 Therapy Trials with Anti-leukemia Serum and Bacillus Calmette-Guérin.</td>
<td>Arnold E. Reif and Chung-Ai H. Kim.</td>
</tr>
<tr>
<td>1613</td>
<td>Differing Responses to Radiation of Murine Bone Marrow Stem Cells in Relation to the Cell Cycle.</td>
<td>John T. Chaffey and Samuel Hellman.</td>
</tr>
</tbody>
</table>

**Volume 31 / Number 11 / November 1971**

<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1640</td>
<td>Amino Acid Requirements in Vitro of Human Leukemic Cells.</td>
<td>Takao Ohnuma, Judith Waligunda, and James F. Holland.</td>
</tr>
<tr>
<td>1655</td>
<td>Concomitant Immunity and Specific Depression of Immunity by Residual or Reinjected Syngeneic Tumor Tissue.</td>
<td>Jan Vaage.</td>
</tr>
<tr>
<td>1669</td>
<td>The Effects of DL-p-Fluorophenylalanine and L-3-Nitrotrosyline on the Growth and Biochemistry of the Taper Liver Tumor.</td>
<td>S. J. MacLean and R. E. Huber.</td>
</tr>
<tr>
<td>1682</td>
<td>Antigenic Cross-reactivity between Primary Spontaneous Mouse Mammary Tumors and Their Transplantable Ascites Tumors.</td>
<td>Reiko Furuse Irie.</td>
</tr>
</tbody>
</table>
1695 A Comparative Biochemical Study of Alkaline Phosphatases in Normal and Leukemic Mice. 
H. Neumann, K. J. Wilson, R. Hauck-Granath, and N. Haran-Ghera.

1702 Chronological Appearance of Alkaline Phosphatase Activity in Virus-induced Thymic Lymphomas of C57BL/6 Mice. 
K. J. Wilson, H. Neumann, and N. Haran-Ghera.

1707 Symposium: Staging in Hodgkin's Disease.

1708 Program.

1710 List of Participants.

1711 Program Committee.

1712 Introduction. 
Jack W. Milder.

1713 The Need for a New Clinical Classification in Hodgkin's Disease: Keynote Address. 
M. Vera Peters.

1723 A Reappraisal of Clinical and Biological Signs in Staging of Hodgkin's Disease. 
F. Teillet, M. Boiron, and J. Bernard.

1730 Formal Discussion of F. Teillet et al.'s Paper, "A Reappraisal of Clinical and Biological Signs in Staging of Hodgkin's Disease." 
Henry S. Kaplan.

1731 Current Status of Lymphography. 
Manuel Viamonte, Jr.

1733 Hodgkin's Disease of the Bone Marrow. 
Saul A. Rosenberg.

Saul A. Rosenberg.

1741 The Possible Value of Mediastinoscopy in Staging Hodgkin's Disease. 

1746 Peritoneoscopy in the Staging of Hodgkin's Disease. 

1751 Summary of Informal Discussion on Staging Procedures in Hodgkin's Disease. 
Maurice Tubiana.

1755 Criteria for Involvement of Lymph Node, Bone Marrow, Spleen, and Liver in Hodgkin's Disease. 
Robert J. Lukes.

1768 Formal Discussion of Robert J. Lukes' Paper, "Criteria for Involvement of Lymph Node, Bone Marrow, Spleen, and Liver in Hodgkin's Disease." 
Ronald F. Dorfman.

1770 Relationship of Histological Findings to Survival in Hodgkin's Disease. 
James J. Butler.

1776 The Relationship of Histopathological Subtype to Clinical Stage of Hodgkin's Disease at Diagnosis. 

1786 Relationship of Histology to Site in Hodgkin's Disease. 
Ronald F. Dorfman.

1794 Clinical and Biological Significance of Vascular Invasion in Hodgkin's Disease. 
Henry Rappaport, Stephen B. Strum, George Hutchison, and Lawrence W. Allen.

1799 Summary of Informal Discussion on Histological Criteria for Diagnosis of the Extent of Hodgkin's Disease. 
Louis B. Thomas.

1801 Prognostic Factors in 454 Cases of Hodgkin's Disease. 

1811 Contiguity and Progression in Hodgkin's Disease. 
Henry S. Kaplan.

1814 Prognostic and Therapeutic Implications of Staging in Extranodal Hodgkin's Disease. 
Karl Musshoff.

1828 Definition of Cure for Hodgkin's Disease. 
Emil Frei, III, and Edmund A. Gehan.

1834 Results of Radiation Therapy and Implications for the Clinical Staging of Hodgkin's Disease. 

1838 Chemotherapeutic Implications of Staging in Hodgkin's Disease. 
Vincent T. DeVita, Jr., and Paul P. Carbone.

1845 Combined Radiotherapy and Chemotherapy of Lymphomas and Other Cancers. 
Leon Stutzman.

1851 Summary of Informal Discussion on the Prognostic and Therapeutic Implications of Staging in Hodgkin's Disease. 
M. Vera Peters.

1854 Epidemiological Considerations of Staging in Hodgkin's Disease. 
Brian MacMahon.

1858 Formal Discussion of Brian MacMahon's Paper, "Epidemiological Considerations of Staging in Hodgkin's Disease." 
George Hutchison.

1860 Report of the Committee on Hodgkin's Disease Staging Classification. 
Paul P. Carbone (Chairman), Henry S. Kaplan, Karl Musshoff, David W. Smithers, and Maurice Tubiana.

1862 Report of the Committee on Hodgkin's Disease Staging Procedures. 
Saul A. Rosenberg (Chairman), Michel Boiron, Vincent T. DeVita, Jr., Ralph E. Johnson, Burton J. Lee, John E. Ultmann, and Manuel Viamonte, Jr.

Henry Rappaport (Chairman), Costan W. Berard, James J. Butler, Ronald F. Dorfman, Robert J. Lukes, and Louis B. Thomas.
This month’s cover features the Netherlands Cancer Institute and Professor Otto Mühlbock (b. 1906), one of its prominent staff members for many years. Educated at the University of Berlin as a chemist (Ph.D., 1927) and as a physician (M.D., 1933), Dr. Mühlbock specialized in gynecology and endocrinology and was an assistant to Dr. Ernst Laqueur in Amsterdam from 1935 to 1940. After the war, in 1946, he joined the staff of the Antoni van Leeuwenhoek Huis (The Netherlands Cancer Institute) in Amsterdam.

Dr. Mühlbock’s scientific contributions have centered around the problem of hormones as carcinogenic agents. Work on ovarian tumors (with R. van Nie), hypophyseal tumors (with H. G. Kwa), and especially mammary tumors in mice served as models. Dr. Mühlbock, in collaboration with L. M. Boot and G. Röpcke, developed a system to induce mammary tumors in mice with isografts of pituitaries, thus demonstrating that these tumors can develop in the absence of an active virus. For comparative studies, he and W. van Ebbenhorst Tengbergen developed a number of inbred strains of mice of European origin. Mühlbock and P. Bentvelzen found that one of these, the GR strain, proved to be of special interest because of the mammary tumor virus (MTV) variant which is transmitted not only by milk but also by the genome. With A. Dux he demonstrated that the genetic resistance against MTV, located in the mammary gland, is associated with a diminished replication of the virus. Recently, this resistance has been shown to be related to a certain allele of the H-2 locus.

Dr. Mühlbock has served in many capacities in both international and Dutch organizations such as the UICC, UNESCO, the International Committee on Laboratory Animals, the International Agency for Research on Cancer, and others. He is presently president of the European Association for Cancer Research and has been professor of experimental oncology at the University of Amsterdam since 1958. His 65th birthday was recently celebrated by a Symposium (held in May 1971) on “RNA Virus and Host Genome.”

The Netherlands Cancer Institute was founded with the help of private funds in 1913 on the premise that the only way to conquer cancer is for clinical observation and basic research to be combined as closely as possible. Named after the 17th century Dutch scientist Antoni van Leeuwenhoek, it was begun as a research clinic with a limited number of beds, with the selection of cancer patients made in accordance with the research interests of the clinicians; for many years the emphasis was on research on mammary cancer. The large animal colony maintained at the Institute for the purpose of supplying mice as animal models still supplies the IARC of the WHO in Lyons. The Institute has no director, but rather a managing directory which handles all administrative and financial affairs. It now employs 390 clinical and laboratory workers. Having outgrown its original housing facilities in Amsterdam, construction of new facilities (sketch shown on the cover) on the outskirts of Amsterdam is underway and will be completed by 1976 or 1977. The cover also shows a 1967 photograph of Dr. Mühlbock and a backview photograph of the old Institute; the main building was erected as a military hospital during the French occupation by Napoleon and, as such, presents a rather foreboding appearance. Photographs and background information were kindly provided by Dr. L. M. Boot, whose cooperation is gratefully acknowledged.
SYMPOSIUM

Sponsored by the
American Cancer Society
and the
National Cancer Institute
and
with the Assistance of The Whiting
Foundation of Flint, Michigan

STAGING
IN
HODGKIN’S DISEASE

Held at the
Towsley Center for Continuing Education
University of Michigan
Ann Arbor, Michigan
April 26–28, 1971
PROGRAM

List of Participants .................................................. 1710
Program Committee .................................................. 1711

Introduction.
Jack W. Milder ..................................................... 1712
The Need for a New Clinical Classification in Hodgkin's Disease: Keynote Address.
M. Vera Peters ...................................................... 1713

Staging Procedures in Hodgkin's Disease
Maurice Tubiana, Chairman

A Reappraisal of Clinical and Biological Signs in Staging of Hodgkin's Disease.
F. Teillet, M. Boiron, and J. Bernard ............................. 1723
Formal Discussion of F. Teillet et al.'s Paper, "A Reappraisal of Clinical and Biological Signs in Staging of Hodgkin's Disease."
Henry S. Kaplan ..................................................... 1730
Current Status of Lymphography.
Manuel Viamonte, Jr ................................................ 1731
Hodgkin's Disease of the Bone Marrow.
Saul A. Rosenberg .................................................. 1733
Saul A. Rosenberg .................................................. 1737
The Possible Value of Mediastinoscopy in Staging Hodgkin's Disease.
Marshall E. Redding, Constantine E. Anagnostopoulos, and John E. Ultmann ............................. 1741
Peritoneoscopy in the Staging of Hodgkin's Disease.
V. T. DeVita, Jr., C. M. Bagley, Jr., B. Goodell, D. A. O'Keffe, and N. P. Trujillo ............................. 1746
Summary of Informal Discussion on Staging Procedures in Hodgkin's Disease.
Maurice Tubiana ..................................................... 1751

Histological Criteria for Diagnosis of the Extent of Hodgkin's Disease
Louis B. Thomas, Chairman

Criteria for Involvement of Lymph Node, Bone Marrow, Spleen, and Liver in Hodgkin's Disease.
Robert J. Lukes ..................................................... 1755
Formal Discussion of Robert J. Lukes' Paper, "Criteria for Involvement of Lymph Node, Bone Marrow, Spleen, and Liver in Hodgkin's Disease."
Ronald F. Dorfman .................................................. 1768
Relationship of Histological Findings to Survival in Hodgkin's Disease.
James J. Butler ...................................................... 1770
The Relationship of Histopathological Subtype to Clinical Stage of Hodgkin's Disease at Diagnosis.
Costan W. Berard, Louis B. Thomas, Lillian M. Axtell, Mary Kruse, Guy Newell, and Robert Kagan ............................. 1776
Relationship of Histology to Site in Hodgkin's Disease.
Ronald F. Dorfman .................................................. 1786
Clinical and Biological Significance of Vascular Invasion in Hodgkin's Disease.
Henry Rappaport, Stephen B. Strum, George Hutchison, and Lawrence W. Allen ............................. 1794
Summary of Informal Discussion on Histological Criteria for Diagnosis of the Extent of Hodgkin's Disease.
Louis B. Thomas ..................................................... 1799
Prognostic Factors in 454 Cases of Hodgkin's Disease.
M. Tubiana, E. Attié, R. Flamant, R. Gérard-Marchant, and M. Hayat .................................................. 1801
Prognostic and Therapeutic Implications of Staging in Hodgkin's Disease

M. Vera Peters, Chairman

Contiguity and Progression in Hodgkin's Disease.

Henry S. Kaplan ........................................... 1801

Prognostic and Therapeutic Implications of Staging in Extranodal Hodgkin's Disease.

Karl Musshoff ............................................... 1814

Definition of Cure for Hodgkin's Disease.

Emil Frei, III, and Edmund A. Gehan .................. 1828

Results of Radiation Therapy and Implications for the Clinical Staging of Hodgkin's Disease.

Ralph E. Johnson, Marilyn K. Glover, and Sandra K. Marshall ................. 1834

Chemotherapeutic Implications of Staging in Hodgkin's Disease.

Vincent T. DeVita, Jr., and Paul P. Carbone ........... 1838

Combined Radiotherapy and Chemotherapy of Lymphomas and Other Cancers.

Leon Stutzman ............................................... 1845

Summary of Informal Discussion on the Prognostic and Therapeutic Implications of Staging in Hodgkin's Disease.

M. Vera Peters ............................................. 1851

Other Considerations

David W. Smithers, Chairman

Epidemiological Considerations of Staging in Hodgkin's Disease.

Brian MacMahon ............................................ 1854

Formal Discussion of MacMahon's Paper, "Epidemiological Considerations of Staging in Hodgkin's Disease.

George Hutchison .......................................... 1858

Report of the Committee on Hodgkin's Disease Staging Classification.

Paul P. Carbone (Chairman), Henry S. Kaplan, Karl Musshoff, David W. Smithers, and Maurice Tubiana. 1860

Report of the Committee on Hodgkin's Disease Staging Procedures.

Saul A. Rosenberg (Chairman), Michel Boiron, Vincent T. DeVita, Jr., Ralph E. Johnson, Burton J. Lee, John E. Ultmann, and Manuel Viamonte, Jr. 1862


Henry Rappaport (Chairman), Costas W. Berard, James J. Butler, Ronald F. Dorfman, Robert J. Lukes, and Louis B. Thomas ........................................... 1864

Summary of Informal Discussion on Biostatistical and Epidemiological Factors in Hodgkin's Disease.

David W. Smithers .......................................... 1866

Summary of Papers Delivered at the Conference on Staging in Hodgkin's Disease (Ann Arbor).

David W. Smithers .......................................... 1869

NOVEMBER 1971 1709
Cancer Research

31 (11)


Updated version  Access the most recent version of this article at:
http://cancerres.aacrjournals.org/content/31/11.citation

E-mail alerts  Sign up to receive free email-alerts related to this article or journal.

Reprints and Subscriptions  To order reprints of this article or to subscribe to the journal, contact the AACR Publications Department at pubs@aacr.org.

Permissions  To request permission to re-use all or part of this article, use this link http://cancerres.aacrjournals.org/content/31/11.citation.
Click on "Request Permissions" which will take you to the Copyright Clearance Center's (CCC) Rightslink site.