Enzyme with Possible Diagnostic Value Found In Amelanotic Melanoma

Amelanotic melanomas present a diagnostic problem to pathologists, since the absence of pigment results in these tumors being difficult to distinguish from other malignant tumors such as reticulum cell sarcomas or poorly differentiated squamous carcinomas. Since the treatment of the other tumors differs from that of melanoma, correct diagnosis is of practical importance.

E. Staten Wynne and Eric Comstock of the section of bacteriology at MDAH, recently developed a method for measurement of dihydroxyphenylalanine (DOPA) oxidase in pigmented tissues. This enzyme is instrumental in melanin formation. The method for determining DOPA oxidase activity in pigmented tissue is reported in the September issue of The American Journal of Clinical Pathology.

For determination of the DOPA oxidase activity of a tissue a suspension is prepared with a Potter homogenizer. DOPA oxidase in the suspension is allowed to oxidize a known amount of DOPA during a period of preliminary incubation at 37°C. Pigment and particulate matter are then removed by treatment with acetone and centrifugation. The clarified supernatant is further incubated at 65°C for complete auto-oxidization of any remaining DOPA. In the accompanying picture, of the two test tubes in the center, the clear tube on the right shows that all the DOPA was removed by enzymatic oxidation during the preliminary incubation, and thus no melanin was formed during the second incubation. The dark tube on the left shows the amount of melanin formed without enzyme activity. From readings of the photoelectric colorimeter and reference to a standard curve, the activity of the enzyme is calculated in terms of the amount of DOPA removed per gram of tissue.

DOPA oxidase activity was present in all melanotic melanomas studied. However, it was unexpectedly found in some amelanotic melanomas. In preliminary studies, 6 of 12 amelanotic melanomas have been found to contain the enzyme—at times in quantities higher than that observed in some melanotic melanomas. DOPA oxidase activity has not been found in other tumors or normal tissues so far studied. Whether it occurs in benign pigmented moles is unknown, since at least 150 milligrams of such tissue would be required for testing.

It is believed, however, that the presence of DOPA oxidase in malignant tumors may conceivably prove of value in establishing the diagnosis of amelanotic melanoma. However, a negative test for DOPA oxidase has little or no significance.

Melanoma Topic for Clinical Conference

Wednesday, Nov. 13, 1957

Melanoma, which represents one per cent of all cancer, but is perhaps the most treacherous of all types of cancer, will be the topic for the second annual clinical conference at M. D. Anderson Hospital. All Texas physicians are invited to attend. The conference will be of interest to dermatologists, pathologists, and surgeons, as well as to the general practicing physician.

Guest speakers at the conference include: Arthur C. Allen, professor of pathology, Miami University Medical School; George T. Pack, associate professor of surgery, Cornell University Medical College; Herman Pinkus, associate professor of dermatology, Wayne University Medical College.

MDAH staff members participating include R. Lee Clark, Jr., director and surgeon-in-chief; Clifton D. Howe, chief of medicine; W. S. MacComb, head of the head and neck section; Eleanor J. Macdonald, epidemiologist; Richard G. Martin, associate surgeon; W. O. Russell, chief of pathology; John Stehlin, assistant surgeon, and E. C. White, chief of surgery.

The conference will include presentations on etiological factors generally considered to be associated with the development of melanoma; the role of complexion and race on the incidence of pigmented moles and melanoma; the primary lesion; the secondary lesion; management of the primary lesion; recurrence of pigmented nevi after incomplete removal; surgical management of melanoma of the head and neck; results of radical node dissection of the trunk in metastatic melanoma; chemotherapy in disseminated disease (the use of phenylalanine) (continued on page 2)
Fundamental Cancer Research Meeting
In March

The Twelfth Annual Symposium on Fundamental Cancer Research will be held March 6, 7 and 8, 1958 at MDAH. The topic will be “Radiation Biology and Cancer”. A distinguished group of scientists will present the latest knowledge on this subject. Warren K. Sinclair, physicist-in-chief, is general chairman for the symposium.

Cancer Chemotherapy Group Formed

Seven institutions have joined to form the Southwestern Cancer Chemotherapy Study Section. The organization has been formed on the basis that by a cooperative approach much might be accomplished by adequately designed clinical trials which are mutually agreed upon and carried out.

The objective of the group is to obtain firm answers on the comparative efficacy of existent drugs and the circumstances under which one may give better results than another, even if the better results are only of a temporary nature.

A second long-range objective of the group is the establishment of the mechanics for testing new drugs which laboratory work indicates may be effective.

The members of the group will pool patients’ records to increase the sample size for the purpose of analyzing and evaluating the group’s work.

At the present time, studies are to be conducted on acute leukemia, chronic lymphocytic leukemia, and chronic myelocytic leukemia.

Cooperating in the study with The University of Texas M. D. Anderson Hospital are: Baylor University College of Medicine, The University of Texas Medical Branch, the Veterans Administration Hospital in Houston, The University of Texas Southwestern Medical School, the University of Arkansas Medical Center and Tulane University College of Medicine.

Chairman of the chemotherapy group is Grant Taylor, head of pediatrics at MDAH and Dean of The University of Texas Postgraduate School of Medicine.

Film on Head and Neck Analgesia Available

“Regional Analgesia for Surgery of the Head and Neck”, a 16 mm. sound, color film, developed by the Anesthesiology Section in cooperation with the Section of Head and Neck Surgery, and produced by the Medical Communications Department was shown September 2-6 at the International Dental Congress in Rome, Italy. The film was made possible by a grant to the Anesthesiology Section from Astra Pharmaceutical Products, Inc.

After a series of anatomical and clinical demonstrations, the nerve blocks and the types of surgery for which each is suitable are demonstrated. The blocks shown include the deep and superficial cervical plexus block; the mental block, which is considered to be extremely useful for surgery of the lower lip; the maxillary block; the mandibular block; the infra-orbital block; and the medial orbital block.

Patient Care Activities

At M. D. Anderson Hospital and Tumor Institute, during the year 1956-1957, there were 3,810 new patients, 4,224 hospital admissions, and 70,494 hospital patient days.

The total number of patients seen at M. D. Anderson Hospital since the first patient was admitted in 1944 is now 24,434.

Confined (continued from page 1) mustard); and the end results of treatment of patients with malignant melanoma.

Several patients will be shown on colored television to illustrate various types of melanoma lesions and their management.

Cell Growth Conference Follows

Following immediately after the clinical conference on melanoma will be a three-day conference on the biology of normal and atypical pigment cell growth, November 14, 15 and 16. This conference is jointly sponsored by the New York Zoological Society and M. D. Anderson Hospital. All registrants of the clinical conference are invited to attend the cell growth conference.

Dr. Myron Gordon, of the Genetics Laboratory of the American Museum of Natural History in New York, is chairman of the three-day conference.

Members of the Melanoma Study Section will participate in the Cell Growth Conference.

Organized in 1954, the Study Section is a cooperative effort which employs the basic sciences and medical specialties to study the mechanism of the production of intracellular substances.

The melanin produced by the melanoma cell offers unique research possibilities because melanin has little relationship to vital body functions as compared with mucin and keratin. Specially chosen consultants from the fields of biochemistry, enzyme chemistry, microanatomy, physics (isotopes), pharmacology, chemotherapy, and pathology evaluate results of the various melanoma research projects and direct lines of investigation.

Participating in the Study Section are staff members of MDAH, the University of Oregon Medical School, Stanford University and California Institute of Technology.
Kottmeier to Lecture at Postgraduate Gynecology Course

October 28 through 30
Hans L. Kottmeier, Chief of the Gynecological Section of the Radiuhammet, Stockholm, Sweden, will be guest lecturer at The University of Texas Postgraduate School of Medicine's course on “Current Trends in Gynecology”, October 28, 29 and 30. The meeting will be conducted in the auditorium of MDAH.

The distinguished scientist is author of many articles and texts on gynecological problems. In 1953 he presented the Abraham Flexner Lectures on “Carcinoma of the Female Genitalia” at Vanderbilt University Medical School.

Other lecturers from outside Houston include: Milton L. McCall and John D. Thompson, both from Louisiana State University; and Jack A. Pritchard, The University of Texas Southwestern School of Medicine.


Therapy planning for the earlier stages of cervical cancer; surgical techniques; management of the pregnant patient with cancer; recent trends in gynecological applications of endocrinology; newer concepts in the etiology and management of vaginitis; diagnostic radiology as an adjuvant to gynecologic practice; urologic evaluation of the gynecologic patient, and basic psychiatric concepts in the management of gynecologic patients are some of the topics to be presented.

Dr. Kottmeier will also talk before the Houston Radiological Society and the Houston Obstetrics and Gynecological Society, Monday evening, October 28.

Clinical and Research Advances in Year Book of Cancer

A compilation of 207 abstracts, illustrated with about 200 photographs are included in the 1956-1957 edition of the first Year Book of Cancer, published by Year Book Publishers, Inc., Chicago, in cooperation with staff members at MDAH.

Abstracts of various specialized disciplines of cancer control, the clinical and research advances, reported in the world's current cancer literature, as selected by an editorial board composed of 119 nationally known cancer authorities, have been written specifically for the Year Book by the original authors. Forty-one members of the staff and consulting board of MDAH participated in the preparation of the book. It was edited by R. Lee Clark, Jr. and Russell W. Cumley.

One clinical advance included is the description of the new clinical entity, primary aldosteronism. It is one condition in the group of aldosterone secretion disturbances which can be cured. Described first in October 1954, the condition is considered to be fairly common. The clinical symptoms are described in the chapter on endocrine tumors.

The chapter on the lung included discussions of the anatomical approach to smoking and lung cancer and the trend of lung cancer mortality in the U.S. Also included are abstracts of papers on asymptomatic bronchogenic carcinoma; lung cancer in those over 40; surgical procedures in the diagnosis and treatment of those with the disease; and the combined use of radiotherapy and resection.

Original articles on the psychological aspects of cancer were written expressly for the Year Book. Contributors to this section were: Beatrix Cobb, MDAH; Ian Macdonald, University of Southern California, Los Angeles; Richard Renneker, Chicago; Arthur Sutherland, Memorial Center, and Philip M. West, Long Beach, California.

New Appointment

Hiram L. Brockman, Jr., has joined the staff as assistant surgeon in the section of experimental surgery. Dr. Brockman received his M.D. degree in 1944 from the Medical College of South Carolina; his residency training was at Jefferson Davis Hospital in Houston, and he was instructor of surgery from 1952-1954 at Baylor University College of Medicine before he entered private practice in Spartanburg, South Carolina. He is a member of the American College of Surgeons.

S t a f f A c t i v i t i e s

Daniel E. Bergsagel, associate hematologist in the department of medicine, has been appointed a member of the subcommittee on blood dyscrasias, Committee on Research of the Council on Pharmacy and Chemistry of the American Medical Association.

R. Lee Clark, Jr., director and surgeon-in-chief, has been named a member of the Clinical Studies Panel of the Cancer Chemotherapy National Service Center, it was announced recently by J. R. Heller, director of the National Cancer Institute.

Arthur Cole, assistant physicist, has been awarded a research fellowship by the Medical Sciences Division, National Research Council of the National Academy of Science. Dr. Cole will study the radiation effects in bacteria at the Radiobiological Research Unit of the Atomic Energy Research Establishment at Harwell, England. After his year's work he will return to MDAH.

William S. Derrick, chief of the anesthesiology section, will present an exhibit on "Operating Room Planning and Construction" at the Annual meeting of the American Society of Anesthesiologists, Oct. 14-18, in Los Angeles, California.

Robert B. Hurlbert, assistant biochemist, has received a $3,000 grant from the Anna Fuller Foundation in New Haven, Connecticut. The grant is for the study of formation of ribonucleic acid in cell particles in vitro.

Saul Kit and A. C. Griffin, biochemists, presented the results of a study of cellular metabolism at the September meeting of the American Chemical Society.

Warren K. Sinclair, head of the physics department, has been invited by the National Research Council to attend a conference on the measurement and standardization of radio-activity. The meeting will be held in Easton, Maryland, October 9-11.

Leon L. Dmochowski, head of virology and electron microscopy section, has been elected a foreign corresponding member of the Societa Italiana di Cancerologia. He has also been elected a charter member of the Pan American Society of Cytology, and has been presented a citation for outstanding contribution to the field. The citation was presented at the first Pan American Congress.
Volunteers Produce Over a Million Items

An average of 200 volunteer workers give their time each month for the work involved in sewing, cutting and folding surgical dressings for MDAH. During the period of September 1, 1956 through August 31, 1957, they cut 722,125 items, folded and packaged 688,406 surgical dressings and made 13,395 items for the operating rooms and central sterile supply.

The bandage folding groups make regular bandage as well as those for special purposes. *Inset:* A member of the Volunteer Cutting Production group manages a power cutter. There are twenty volunteers who have been trained for this work.

ACS Grants to Aid Research

The Research Committee of the American Cancer Society has announced the following grants for research at M. D. Anderson Hospital:

1) To MDAH for institutional research work, $37,375.
2) $21,626 to J. B. Trunnell, for a study of the manner in which steroid hormones influence cancer of the prostate and the breast.
3) $15,000 to Felix L. Haas, for biological investigation of the mechanisms of anti-tumor action and selectivity of effective anti-tumor antibiotics.
4) $11,736 to R. B. Hurlbert, for investigation of interconversion of the pyrimidine nucleotides and the biosynthesis of polynucleotide cytosine.
5) $10,455 to T. C. Hsu, for study of the cytology of human cell strains.
6) $9,484 to J. B. Trunnell, for study of factors in the differentiation of embryonic thyroid tissues and in thyroid neoplasms.
7) $1,500 to R. W. Lansing, to study the electroencephalographic correlates of adrenal cortical activity.
8) $9,400 to Eleanor J. MacDonald, for training tumor clinic personnel in the American Cancer Society's sponsored tumor clinics.

The grants received total $116,576.

French Visitor to Study MDAH Research Methods

Dr. Paul Juret, head of the biological research laboratory of the Gustave-Roussy Cancer Institute in Paris, will spend one month studying research techniques at MDAH. He will observe the study and management of adrenalectomized and hypophysectomized patients in order to investigate disturbances of hormonal metabolism and improve upon post-operative care of such patients.

Dr. Juret's visit has been arranged by the Committee on International Exchange of Persons, of the Conference Board of Associated Research Councils in Washington, D. C.

French Visitor to Study of Lung Cancer

The National Cancer Institute has recently announced a clinical cytology and laboratory research program on pulmonary exfoliative cytology to be conducted jointly with M. D. Anderson Hospital. The studies will investigate the problems concerned with the early diagnosis of pulmonary carcinoma.

A major objective of the pilot study will be to develop a more suitable and a simple technique for the collection of sputum. This will then be cytologically analyzed to determine whether or not cancer cells are present. Once such a practical technique is developed, it could have immediate application to improve the early diagnosis of lung cancer.

With the present methods of diagnosis and treatment, there is only 2.5% of 5-year survivals among individuals with lung cancer. The early detection of the disease would undoubtedly assist in increasing the survivals since treatment could be instituted earlier.

Also to be investigated are methods of preservation, processing, and staining of sputum and/or bronchial washings, and to determine general smear characteristics and specific cellular morphology through the cytological examination of sputum and bronchial washings.

The National Cancer Institute will supply the special laboratory equipment necessary for the project, as well as the personnel.

The investigation is programmed for approximately a three-year period. Source of material will be in- and out-patients at MDAH who volunteer for the investigations.

Consultants in pharmacology, physiology, and epidemiology, will join with the pathologists and cytologists in the study.

Heinrich W. Neidhardt, associate pathologist at MDAH, will do the cytology-pathology and be in charge of the laboratories. William Walter has been named by the NCI as Medical Officer for the project. W. O. Russell, pathologist-in-chief at MDAH, is project director.

Each physician referring patients to Anderson Hospital is sent abstracts on those of his patients who have received complete diagnostic evaluations at MDAH.