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GEORGIA INSTITUTE OF TECHNOLOGY  
OFFICE OF RESEARCH ADMINISTRATION

RESEARCH PROJECT INITIATION

Date: July 22, 1974

Project Title: **The Binding of Antibiotics to DNA**

Project No: **G-41-636**

Principal Investigator **Dr. Roger M. Wartell**

Sponsor: **Public Health Service**

Agreement Period: From 7/10/74 Until 5/31/75

Type Agreement: **Biomedical Sciences Support Grant (Internal)**

Amount: **\$4,340**

Reports Required: **Final due by 7/15/75**

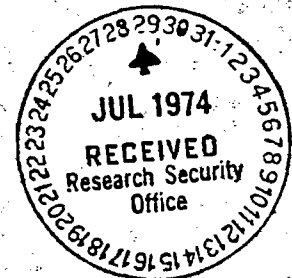
Sponsor Contact Person (s): **Dr. John W. Crenshaw  
Biomedical Sciences Support Grant Committee  
School of Biology  
Campus**

Assigned to: Physics

COPIES TO:

- Principal Investigator
- School Director
- Dean of the College
- Director, Research Administration
- Director, Financial Affairs (2)
- Security-Reports-Property Office
- Patent Coordinator

- Library
- Rich Electronic Computer Center
- Photographic Laboratory
- Project File
- Other \_\_\_\_\_



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RESEARCH PROJECT TERMINATION

Date: September 30, 1975

Project Title: The Binding of Antibiotics to DNA

Project No: G-41-636

Principal Investigator: Dr. Roger M. Wartell

Sponsor: DHEW/PHS - Biomedical Sciences Support Grant

Effective Termination Date: 5-31-75

Clearance of Accounting Charges: N/A

Grant/Contract Closeout Actions Remaining: None

Assigned to School of Physics

COPIES TO:

- Principal Investigator
- School Director
- Dean of the College
- Director of Research Administration
- Associate Controller (2)
- Security-Reports-Property Office ✓
- Patent and Inventions Coordinator

- Library, Technical Reports Section
- Rich Electronic Computer Center
- Photographic Laboratory
- Terminated Project File No. \_\_\_\_\_
- Other \_\_\_\_\_

Dr. J. W. Crenshaw, Jr.

File G-32-608

Report of Research  
Supported by Biomedical Science Support Grant  
July 1, 1974 - June 30, 1975

The Binding of Antibiotics To DNA

Dr. Roger M. Wartell

Two studies were initiated during the summer support period. Both are actively being continued by graduate students. The binding of ruticulomycin (also known as nogalomycin) to several natural DNAs was examined. These were *Clostridium perfringens* DNA (70% AT), calfthymus DNA (67% AT), *Escherichia coli* DNA (50% AT) and *Micrococcus luteus* DNA (28% AT). Utilizing the absorbance of the drug between the wavelengths 400-500 nm, binding was examined by monitoring the absorbance spectra after adding DNA. Results indicated that at least two types of binding sites are available to ruticulomycin. One site involves AT rich regions. Ms. Cynthia Fordyce is continuing these studies in order to characterize the binding sites. This work will constitute the research requirement for her Master's thesis.

The second study has involved the interaction of netropsin with DNA. Initial studies by the author on netropsin binding to  $d(A-T)_n \cdot d(A-T)_n$  confirmed results previously obtained with a different sample of the drug. In collaboration with Mr. Jim Martin and Dr. Donald O'Shea a study was initiated to obtain detailed information on the netropsin-DNA complex by Laser Raman Spectroscopy. This technique has the potential to elucidate what functional groups of netropsin are binding to DNA. The Raman lines

of netropsin have been observed to change in the presence of DNA. Work being conducted by Mr. Martin is currently working on correlating the netropsin Raman lines to functional group vibrations of the molecule.

Personnel Receiving Salary

R. M. Wartell, Ph.D.

Salary - \$3,990

Schools of Physics &

Biology

Assistant Professor