

B. SUMMARY OF RESOURCE USAGE

This section called for in the annual report instructions does not apply since the project is resource-related research and has no resources, per se.

Grant No. G 924 2200612-02

Date: September 30, 1972

II.C. RESOURCE EQUIPMENT LIST

EQUIPMENT LOCATED IN MAT RESOURCE AREA

Description/ Identifica- tion	Equipment					Cost		
	Manufac- turer	Type	Model No.	Date In- stalled	Date Accepted	Purchase Price	Annual Rent	Source of Funds

In addition to equipment listed in the prior year report, the following items costing over \$1,000. were purchased with funds from this grant:

Oscilloscope	Tektronix Storage	5193	2-2-72	2-2-72	1,567.77
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The following parts for the Varian MAT 711 mass spectrometer were capitalized as system additions:

Sample Rod and Inlet Filament	\$1,717.80
Spare Source	1,627.50
Exit Slit	1,029.00

A large number of component parts were purchased (some capitalized) for the construction of interfacing hardware used in data-to-computer information processing. Major items were:

Digital Equipment Co.	Unibus Repeater	\$1,053.02
Digital Equipment Co.	Digital Interface	1,250.00

D. SUMMARY OF PUBLICATIONS

D. H. Smith, B. G. Buchanan, R. S. Engelmores, A. M. Duffield, A. Yeo, E. A. Feigenbaum, J. Lederberg, and C. Djerassi, "Applications of Artificial Intelligence for Chemical Inference VIII. An Approach to the Computer Interpretation of the High Resolution Mass Spectra of Complex Molecules. Structure Elucidation of Estrogenic Steroids", Journal of the American Chemical Society, 94, 5962-5971 (1972).

B. G. Buchanan, E. A. Feigenbaum, and N. S. Sridharan, "Heuristic Theory Formation: Data Interpretation and Rule Formation". In Machine Intelligence 7, Edinburgh University Press. (1972).

H. Brown, L. Masinter, L. Hjelemeland, "Constructive Graph Labeling Using Double Cosets". Stanford Computer Science Memo 318 (1972).

A. Summary of Resource Expenditures
By Budget Periods

	5/1/71- 12/31/71 Actual Previous	1/1/72- 12/31/72 Current	1/1/73 12/31/73 Estimated Next
1. Personnel			
a. Salaries & Wages	\$53,571.	101,851.	111,885.
b. Fringe Benefits	7,878.	16,014.	10,195.
Subtotal	61,449.	117,865.	130,080.
2. Consultant Services	-0-	-0-	-0-
3. Equipment			
a. Purchased	99,483.	14,395.	-0-
b. Maintenance	-0-	-0-	0,000.
Subtotal	99,483.	14,395.	8,000.
4. Supplies	5,130.	10,083.	5,000.
5. Travel	88.	2,400.	1,000.
6. Alterations & Renovations	-0-	-0-	-0-
7. Publication Costs	-0-	-0-	-0-
8. Other			
a. Computer Services	33,296.	66,250.	48,228.
b. Other	14,667.	3,034.	1,200.
Subtotal	47,963.	69,284.	49,428.
9. Subtotal - Direct Costs	214,122.	214,093.	194,508.
10. Indirect Costs (Rate by Budget period)			
a. Previous @ 50% of S, J & B (5/1/71 - 8/31/71)	12,008.		
and @ 46% of NTDC (9/1/71-12/31/71)	25,071.		
b. Current @ 46% of NTDC		91,032.	
c. Next @ 46% of NTDC			76,058.
11. Total Costs	\$251,201.	295,125.	271,566.

A. Summary of Resource Expenditures for Period January 1, 1972
through December 31, 1972

Budget Categories	Current Budget (as awarded)	Actual Expenditures thru 12/31/72	Est. Additional Expenditures & Obligations For Remainder of Current Budget Period	Total Estimated Expenditures and Obligations
Personnel (Salaries)	191,851.	81,037.	20,810.	191,851.
Fringe Benefits	16,014.	12,318.	3,696.	16,014.
Consultant Services	-0-	-0-	-0-	-0-
Equipment	14,305.	14,305.	0,000.	14,305.
Supplies	10,983.	10,000.	983.	10,983.
Travel (Domestic)	2,456.	700.	1,756.	2,456.
Other:				
Computer Service	66,250.	61,522.	4,728.	66,250.
Other	3,034.	2,038.	996.	3,034.
Total Direct Costs	214,001.	177,975.	36,210.	214,001.
Indirect Costs	61,032.	61,227.	19,745.	61,032.
Totals	295,125.	239,162.	55,955.	295,125.

At present we estimate that the expenditures in the period January 1, 1972, through December 31, 1972, will equal the budget set forth in the Grant Award Statement.

A. Summary of Resource Expenditures
Estimate Next Budget Period Jan. 1, 1973 through December 31, 1973

	Part A	Part B	Part C	Total
Personnel (Salaries)	38,931.	43,636.	24,318.	111,885.
Fringe Benefits	6,350.	7,864.	3,972.	18,195.
Consultant Services	-0-	-0-	-0-	-0-
Equipment				
a. Purchase	-0-	-0-	-0-	-0-
b. Maintenance	-0-	8,000.	-0-	8,000.
Subtotal	-0-	8,000.	-0-	8,000.
Supplies	200.	5,500.	200.	5,900.
Travel (Domestic)	500.	-0-	500.	1,000.
Other:				
a. Computer Services	12,388.	10,000.	25,840.	48,228.
b. Publications	600.	-0-	600.	1,200.
Total Direct Costs	58,978.	80,000.	55,430.	194,408.
Less: Exemptions	<9,688.>(1)	-0-	<17,429.>(1)	<27,117.>(1)
Net Total Direct Costs	49,290.	80,000.	38,001.	167,291.
Indirect Costs @ 45% NTDC	22,073.	36,800.	17,485.	76,358.
TOTAL	71,363.	116,800.	55,486.	243,649.

(1) Computer Service from Campus Facility.

B. Expenditure Details - Direct Costs Only

	Part A	Part B	Part C	Total
Personnel (1)	38,931.	48,536.	24,710.	111,885.
Fringe Benefits	6,350.	7,964.	3,870.	18,195.
Consultant Services	-0-	-0-	-0-	-0-
Equipment: Maintenance	-0-	8,000.	-0-	8,000.
Supplies:				
Misc. office, etc.	200.	-0-	200.	400.
Helium	-0-	500.	-0-	500.
Gas Chromatograph columns	-0-	1,000.	-0-	1,000.
Organic chemicals	-0-	1,000.	-0-	1,000.
Electronic supplies & replacement parts	-0-	3,000.	-0-	3,000.
Subtotal	200.	5,500.	200.	5,900.
Travel: Domestic	500.	-0-	500.	1,000.
Other:				
Computer Services:				
Terminal Service	2,300.	-0-	2,300.	4,600.
Computer Time & Storage-SCC	9,588.	-0-	17,420.	27,108.
Computer Time & Storage-ACME	400.	10,000.	6,120.	16,520.
Subtotal	12,388.	10,000.	25,840.	48,228.
Publications:	600.	-0-	600.	1,200.
Grand Total Direct	58,979.	68,000.	55,430.	194,408.

(1) Details of the salary budget by person are being submitted under separate cover.

C. Budget Explanation - Justification

The total budget for the twelve month period, January 1, 1973 - December 31, 1973, is equal to the level of support recommended for the applicable 03 budget period, namely \$194,408. The two largest items in this budget request are salaries and computer services. Comments on each budget item are as follows:

1. Personnel (salaries): The salary budget was figured on the basis of current salary rates for each individual on the project plus a 5.5% allowance for merit increases and promotions. Additional details of the salary budget by person are being submitted under separate cover.
2. Fringe Benefits: These have been budgeted at standard university rates which are 16% for the fiscal year ending August 31, 1973, and 17% for the fiscal year ending August 31, 1974.
3. Equipment - Maintenance: Budgeted funds are necessary to maintain the major existing hardware components, including the PDP-11/20 computer as well as the MAT 711 mass spectrometer which ceases to be covered by the manufacturers warranty next year.
4. Supplies: Outside of normal office supplies, the budget includes helium, gas chromatograph columns, organic chemicals and electronic supplies and replacement parts. Budgeted funds are for supplies needed for gas chromatograph operation and chemistry procedures necessary to isolate fractions of urines and other body fluids. Also included is an allocation for needed electronic supplies and replacement parts for in-house equipment maintenance and modifications.
5. Travel: A minimal level of domestic travel funds have been requested for visits by project personnel to other laboratories where work of mutual interest is under way, and for trips to relevant scientific meetings.
6. Computer Services: The current budget for ACME computer services is carried forward prorated for half of the next year, after which time the existing ACME grant expires. It is assumed that DENDRAL computing requirements will be met as one application of the proposed, separately funded SUMEX facility (proposal currently under review by NIH) after July, 1973.