

EXHIBIT 3

Part 1 of 5

Exhibit 2045
05-12237-WGY

HL 21676

DEPARTMENT OF HEALTH AND HUMAN SERVICES PUBLIC HEALTH SERVICE GRANT APPLICATION FOLLOW INSTRUCTIONS CAREFULLY		LEAVE BLANK Form Approved OMB No. 0925-0001	
1. TITLE OF APPLICATION (Do not exceed 56 typewriter spaces) Erythropoietin: Purification, Properties, Biogenesis		2. RESPONSE TO SPECIFIC PROGRAM ANNOUNCEMENT <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES (If "YES," state RFA number and/or announcement title)	
3. PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR			
3a. NAME (Last, first, middle) Goldwasser, Eugene		3b. SOCIAL SECURITY NUMBER 494-14-6535	
3c. POSITION TITLE Professor		3d. MAILING ADDRESS (Street, city, state, zip code) The University of Chicago 920 East 58th Street Chicago, Illinois 60637	
3e. DEPARTMENT, SERVICE, LABORATORY OR EQUIVALENT Biochemistry & Molecular Biology		3f. TELEPHONE (Area code, number and extension) (312) 962-1348	
3g. MAJOR SUBDIVISION Biological Sciences Division		5. RECOMBINANT DNA <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES	
4. HUMAN SUBJECTS <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES <input type="checkbox"/> Exemption # _____ OR <input checked="" type="checkbox"/> Form HHS 598 enclosed		7. DIRECT COSTS REQUESTED FOR FIRST 12-MONTH BUDGET PERIOD (from page 4) \$ 217,437	
6. DATES OF ENTIRE PROPOSED PROJECT PERIOD From: 7/1/85 Through: 6/30/90		8. DIRECT COSTS REQUESTED FOR ENTIRE PROPOSED PROJECT PERIOD (from page 5) \$ 1,209,325	
9. PERFORMANCE SITES (Organizations and addresses) The University of Chicago 920 East 58th Street Chicago, Illinois 60637		10. INVENTIONS (Competing continuation application only) <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> Previously reported <input type="checkbox"/> Not previously reported	
12. TYPE OF ORGANIZATION <input type="checkbox"/> Public, Specify <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Local <input checked="" type="checkbox"/> Private Nonprofit <input type="checkbox"/> For Profit (General) <input type="checkbox"/> For Profit (Small Business)		11. APPLICANT ORGANIZATION (Name, address, and congressional district) The University of Chicago 5801 South Ellis Avenue Chicago, Illinois 60637 First Congressional District	
13. ENTITY IDENTIFICATION NUMBER 1362177139A1		14. ORGANIZATIONAL COMPONENT TO RECEIVE CREDIT FOR BIOMEDICAL RESEARCH SUPPORT GRANT Code <input type="checkbox"/> Description School of Medicine	
15. OFFICIAL IN BUSINESS OFFICE TO BE NOTIFIED IF AN AWARD IS MADE (Name, title, address and telephone number.) Donald S. Sigal, Director, Office of Sponsored Programs 5801 S. Ellis Avenue Chicago, Illinois 60637 312-962-8604		16. OFFICIAL SIGNING FOR APPLICANT ORGANIZATION (Name, title, address and telephone number) 1) 2) Donald S. Sigal, Director, Office of Sponsored Programs (312) 962-8604	
17. PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR ASSURANCE: I agree to accept responsibility for the scientific conduct of the project and to provide the required progress reports if a grant is awarded as a result of this application. Willful provision of false information is a criminal offense (U.S. Code, Title 18, Section 1001).		SIGNATURE OF PERSON NAMED IN 3a (In ink. "Per" signature not acceptable) <i>Eugene Goldwasser</i>	DATE 31 August 1984
18. CERTIFICATION AND ACCEPTANCE: I certify that the statements herein are true and complete to the best of my knowledge, and accept the obligation to comply with Public Health Service terms and conditions if a grant is awarded as the result of this application. A willfully false certification is a criminal offense (U.S. Code, Title 18, Section 1001).		SIGNATURE OF PERSON NAMED IN 16 (In ink. "Per" signature not acceptable)	DATE

PHS 308 (Rev. 5/82)

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TRIAL EXHIBIT
2057
97-10814 WGY

DEFENDANT'S
DEPOSITION
EXHIBIT
79
10-13-99

PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR: Goldwasser, Eugene

Detach and clip this page (unnumbered) to the signed original of the face page of the application. Do not duplicate.

PERSONAL DATA ON
PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR

The Public Health Service has a continuing commitment to monitoring the operation of its review and award processes to detect—and deal appropriately with—any instances of real or apparent inequities with respect to age, sex, race, or ethnicity of the proposed principal investigator/program director.

To provide the PHS with the information it needs for this important task, the principal investigator/program director is requested to complete the form below and attach a single copy to the signed face page of the application.

Upon receipt and assignment of the application by the PHS, this form will be detached from the application. It will NOT be duplicated and will NOT be a part of the review process. Data will be confidential, and will be maintained in Privacy Act record system 09-25-0036, "Grants: IMPAC (Grant Contract Information)." All analyses conducted on the data will report aggregate statistical findings only and will not identify individuals.

If you decline to provide this information, it will in no way affect consideration of your application.

Your cooperation will be appreciated.

DATE OF BIRTH (month/day/year)	SEX
10/14/22	<input type="checkbox"/> Female <input checked="" type="checkbox"/> Male

RACE AND/OR ETHNIC ORIGIN (check one)

- American Indian or Alaskan Native
- Asian or Pacific Islander
- Black, not of Hispanic origin
- Hispanic
- White, not of Hispanic origin

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NOTE: The category that most closely reflects the individual's recognition in the community should be used for purposes of reporting mixed racial and/or ethnic origins. Definitions are as follows:

American Indian or Alaskan Native: A person having origins in any of the original peoples of North America, and who maintains cultural identification through tribal affiliation or community recognition.

Asian or Pacific Islander: A person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes, for example, China, India, Japan, Korea, the Philippine Islands and Samoa.

Black, not of Hispanic origin: A person having origins in any of the black racial groups of Africa.

Hispanic: A person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race.

White, not of Hispanic origin: A person having origins in any of the original peoples of Europe, North Africa, or the Middle East.

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Goldwasser, Eugene

ABSTRACT OF RESEARCH PLAN

PERSONAL PERSONNEL EMPLOYED ON PROJECT	POSITION	DEPARTMENT
Eugene Goldwasser	Professor	Biochem. & Molec. Biol. The University of Chicago
Fung-Fang Wang	Research Associate(Instructor)	Biochem. & Molec. Biol. The University of Chicago
Phillip Maples	Post-doctoral trainee	Biochem. & Molec. Biol. The University of Chicago

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THE SPACE PROVIDED

DO NOT EXCEED

The salient features of this proposal are: The study of those structural features of human erythropoietin that may be directly involved with its biological activity on hemopoietic precursor cells; the study of the primary structure of the active site; the determination of oligosaccharide side chain structure; the isolation and characterization of specific cellular receptors for erythropoietin from cells infected with the anemia strain of the Friend virus; the extension of receptor studies to normal mouse cells and to apply the methods developed for that purpose to the study of human cellular receptors. Once isolated the erythropoietin receptor will be cloned and the gene for the receptor used to test an hypothesis regarding erythroid cell differentiation. Mouse erythropoietin will also be cloned and the DNA used for the study of the regulation of expression of the erythropoietin gene as well as for the study of erythropoietin biogenesis and secretion. Another aim is to develop a solid-phase radioimmunoassay using monoclonal anti-epo with the intention of improving the sensitivity of analysis by an order of magnitude. The same monoclonal anti-epo will be used as the basis for an improved immunoaffinity purification method.

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VERTEBRATE ANIMALS INVOLVED YES NO

mice, rats

PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR: Goldwasser, Eugene

TABLE OF CONTENTS

Number pages consecutively at the bottom throughout the application. Do not use suffixes such as 5a, 5b. Type the name of the Principal Investigator/Program Director at the top of each printed page and each continuation page.

	<u>PAGE NUMBERS</u>
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Budget for Entire Proposed Project Period	5-6
Budgets Pertaining to Consortium/Contractual Arrangements	-
Biographical Sketch-Principal Investigator/Program Director (Not to exceed two pages)	<u>7-8</u>
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SECTION 2. Research Plan

Introduction (Excess pages; revised applications; supplemental applications)	<u>13</u>
A. Specific Aims (Not to exceed one page)	<u>13-14</u>
B. Significance (Not to exceed three pages)	<u>15-20</u>
C. Progress Report/Preliminary Studies (Not to exceed eight pages)	<u>21-24</u>
D. Experimental Design and Methods	<u>30</u>
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G. Consultants	-
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SECTION 3. Appendix (Six sets) (No page numbering necessary for Appendix)

Number of publications: 16 Number of manuscripts: 6
 Other items (list):
 Letter from Dr. Krantz
 Letter from Dr. Rowley
 Table I
 Figure 1
 Figure 2
 Distribution sheets

1003742

- Application Receipt Record, Form PHS 3830
- Form HHS 506 if Item 4, page 1, is checked "YES" and no exemptions are designated.

PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR: Goldwasser, Eugene

DETAILED BUDGET FOR FIRST 12 MONTH BUDGET PERIOD DIRECT COSTS ONLY				FROM 7/1/85	THROUGH 6/30/86	DOLLAR AMOUNT REQUESTED (Omit cents)		
PERSONNEL (Applicant organization only)		TIME/EFFORT		SALARY	FRINGE BENEFITS	TOTALS		
NAME	POSITION TITLE	%	Hours per Week					
Eugene Goldwasser	Principal Investigator	20		13,090	2,605	15,695		
Fung-Fang Wang	Res. Assoc (Instr)	100		23,881	4,752	28,633		
Charles K.-H. Kung	Res. Technologist		40	31,686	6,464	38,150		
Annette Gardner	Res. Technician		40	23,026	4,697	27,723		
Carol Sims	Res. Technician		40	18,589	3,792	22,381		
Catherine Fowler	Lab Assistant		40	17,607	3,592	21,199		
Yvonne Price	Secretary		20	9,459	1,930	11,389		
Anthony Kittler	Instrument Designer		2.5	2,053	419	2,472		
SUBTOTALS				139,391	28,251	167,642		
CONSULTANT COSTS								
EQUIPMENT (Itemize)								
Rotary Incubator								3,500
SUPPLIES (Itemize by category)								
200 rats @ \$5.82 ea. = \$1,164; 300 mice @ \$3.75 ea. = \$1,125; 100 nude mice @ \$60 ea = \$6,000; isotopes \$3,945; chemicals \$6,480; media \$5,000; glass and plastic ware \$4,000; HPLC columns \$6,000; film \$1,000; enzymes \$1,656;								36,370
TRAVEL								
DOMESTIC one relevant trip for PI and Res. Assoc.								2,000
FOREIGN								0
INPATIENT								0
OUTPATIENT								0
PATIENT CARE COSTS								
ALTERATIONS AND RENOVATIONS (Itemize by category)								
CONSORTIUM/CONTRACTUAL COSTS								0
OTHER EXPENSES (Itemize by category) animal care \$960; (4,000 mouse days @ 0.12 = \$480; 2,000 rat days @ 0.24=\$480); maintenance contracts, \$3,750; radiation protection, \$1,250; long distance phone, \$200; book and journals \$100; publication costs, \$1,300; (page charges \$500; reprints \$800); copying \$200; postage \$165.								7,925
TOTAL DIRECT COSTS (Also enter on page 1, item 7)								\$217,437

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PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR: Goldwasser, Eugene

**BUDGET FOR ENTIRE PROPOSED PROJECT PERIOD
DIRECT COSTS ONLY**

BUDGET CATEGORY TOTALS	1st BUDGET PERIOD (from page 4)	ADDITIONAL YEARS SUPPORT REQUESTED				
		2nd	3rd	4th	5th	
PERSONNEL (Salary and fringe benefits.) (Applicant organization only)	167,642	177,701	188,363	199,665	211,645	
CONSULTANT COSTS	-	-	-	-	-	
EQUIPMENT	3,500	5,000	0	0	0	
SUPPLIES	36,370	38,189	40,098	42,103	44,208	
TRAVEL	DOMESTIC	2,000	2,100	2,205	2,315	2,431
	FOREIGN					
PATIENT CARE COSTS	INPATIENT					
	OUTPATIENT					
ALTERATIONS AND RENOVATIONS						
CONSORTIUM/ CONTRACTUAL COSTS						
OTHER EXPENSES	7,925	8,321	8,737	9,174	9,633	
TOTAL DIRECT COSTS	217,437	231,311	239,403	253,257	267,917	
TOTAL FOR ENTIRE PROPOSED PROJECT PERIOD (Also enter on page 1, item 8)				\$	1,209,325	

JUSTIFICATION (Use continuation pages if necessary): Describe the specific functions of the personnel and consultants. If a recurring annual increase in personnel costs is anticipated, give the percentage. For all years, justify any costs for which the need may not be obvious, such as equipment, foreign travel, alterations and renovations, and consortium/contractual costs. For any additional years of support requested, justify any significant increases in any category over the first 12 month budget period. In addition, for COMPETING CONTINUATION applications, justify any significant increases over the current level of support.

"The inclusion of faculty salary in this budget is a policy of the Division of the Biological Sciences and The Pritzker School of Medicine. If an award is made in a reduced amount, the Principal Investigator will be asked to retain an appropriate amount of faculty salary support in the budget.

Most appointments in the Division of the Biological Sciences and The Pritzker School of Medicine are on a full-time, 12 month basis. Although salaries are assured on this basis, it is expected that investigators will recover reasonable and appropriate salary support from research grants and contracts proportionate to the fraction of their time and effort devoted to the research."

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PRINCIPAL INVESTIGATOR/PROGRAM DIRECTOR OR AWARD CANDIDATE (Last, first, middle) Goldwasser, Eugene	SOCIAL SECURITY NUMBER 494-14-6535
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DO NOT TYPE IN THIS SPACE—BINDING MARGIN

Personnel: The budget for the first period is 11.1% greater than the current budget due to increased effort of the P.I. and to mandated increases in non-academic salaries. The percent effort of the P.I. has been increased from 15 to 20, a desirable increase, but reflected in the increased budget. Dr. Wang is a full-time Research Associate (Instructor) who is responsible for structural studies of both epo and epo-receptors. She will also work on receptor cloning as results permit. Mr. Kung is the pivotal person in this lab; as the chief Research Technologist he is responsible for purification procedures, studies of labeling techniques, analysis and preparation by HPLC and immunoaffinity methods. He also will be responsible for blotting techniques (Southern, Northern and Western). Ms. Gardner is responsible for routine RIA and work on new RIA methods, as well as assay result bookkeeping. Ms. Sims is responsible for marrow culture assays, for some work on purification and for maintenance of cell lines. Ms. Fowler is a lab assistant who is responsible for dishwashing, sterilization, lab orderliness and copying. Ms. Price, as secretary takes care of ordering, logging in received orders, typing of manuscripts and reports, and some bookkeeping. Mr. Kittler is needed for minor repair work, instrument design and construction. Some of the work to be done will be carried out by graduate students and post-doctoral fellows who are not, at this time, carried as personnel on this project.

Equipment: In the first period we request funds for a rotary incubator to be used to grow bacterial cells on DNA cloning. At present we have to borrow the use of one already heavily used on another floor. We need this incubator for growing cells with plasmids for cloning the mouse epo gene and for the receptor gene. In the second period we request funds for a low temperature freezer; at present we share (1/3) one and the capacity is clearly too small for our needs. Many of our RNA and DNA supplies require ultra low temperature storage and this type of freezer is required.

Other expenses: We have a sizable budget item for maintenance contracts; this includes partial costs of maintaining the following: two gamma counters, a liquid scintillation spectrometer, three Sorvall centrifuges, a Beckman L5-65 and an autoclave. We are convinced that there is a saving involved since everyone of these is essential and we would have to pay premium prices to get repairs without such contracts.

Personnel costs have been projected to increase at 6% per year, all other costs at 5% per year. Except as indicated above, and for the equipment requested, the budgetary increment over the present grant is about 5%.

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