

ILZRO PROJECT SUMMARY

Issue Date:  
August 1967

PROJECT NO. LH-126    TITLE 1. Effect of lead on tissue culture of the nervous system.  
IV. Comparative study of the pattern of absorption of lead, tin, mercury and copper by nervous tissue in culture.  
2. The influence of lead and other heavy metals on the synthesis and turn-over of RNA in mammalian cells.

PREVIOUS IDENTIFICATION none

CONTRACTOR The University of Wisconsin

CURRENT CONTRACT none

CUMULATIVE EXPENSES (to July 31, 1967) none

1968 PROPOSED OR CONTRACT PRICE \$15,000

1968 AUTHORIZATION

|                                         |                                       |
|-----------------------------------------|---------------------------------------|
| 1967 & Prior Authorizations Uncommitted | none                                  |
| 1968 Proposed Authorization             | \$ 7,500                              |
| Undesignated Research Authorization     | none                                  |
| 1968 Proposed or Contract Price         | \$15,000 (\$7,500 ILZRO; \$7,500 TEL) |

MARKET APPLICATIONS Direct to gasoline additive, and indirectly to most other uses of lead.

OBJECTIVE To investigate histochemically the cells which absorb tin, mercury and copper as compared to lead in nervous tissue in culture, and to investigate the influence of heavy metals on the synthesis of RNA in treated cells.

RESEARCH REVIEW

1. Current Status The present investigator, Dr. Sobkovic, has moved to the University of Wisconsin where she has made arrangements to continue her investigations. The proposed work will follow directly that which we sponsored at Columbia University as LH-117.

2. Projected Research To test the theory that the toxicity of a heavy metal is related to its ability to penetrate inside of the cell, a comparison of the morphology of nervous system cultures exposed to a series of metals with the histochemical determination of the metals' absorption by nervous tissue in vitro will be made. The influence of heavy metals on the synthesis of RNA in treated cells will be studied. Such information will increase our understanding of molecular events resulting in cell injury and death due to heavy metals intoxication and increase our understanding of the regulatory mechanism within the living cells and organs.

3. Reports Issued

- a. Progress Reports - none
- b. Proposal - 1. Effect of lead on tissue culture of the nervous system.  
IV. Comparative study of the pattern of absorption of lead, tin, mercury and copper by nervous tissue in culture. 2. The influence of lead and other heavy metals on the synthesis and turn-over of RNA in mammalian cells. (dated February 27, 1967)

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c. Work Statement - noneDEVELOPMENT REVIEW

1. Pilot Production - not applicable
2. Consumer Evaluation - not applicable
3. Licensing Activities - not applicable
4. Patents - not applicable
5. Publications
  - a. ILERO - none
  - b. Development associations - none

ECONOMIC INCENTIVE

1. Market Goals - Maintain world market.
2. Applications and Market Volume - Use as gasoline additive.
3. Size of Market Defending - 230,000 tons of lead in U.S. and 51,000 tons in Europe.
4. Competitive Threat - Change refining techniques to eliminate lead additives.