

NO LIFE IN TEST TUBE
EXPECTED BY RUSSIANS

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By FAYE MARLEY
Science Service Medical Writer

NEW YORK, -- Creation of life and modification of heredity in a test tube will not be possible for many years, if ever, a Russian scientist told Science Service here.

Dr. Lev Kisselev of Moscow, who at the 1961 International Congress of Biochemistry translated the code-cracking speech of America's Dr. Marshall W. Nirenberg, said that he had been working with other Russian scientists in Leningrad and Moscow on problems of correlating function and structure of RNA, or ribonucleic acid.

"Many results lie ahead when this work is done," he said, but he only laughed at the idea of higher life in a test tube.

Dr. Edgar Lederer, director of the new French institute of natural substances, 15 miles south of Paris, said he hoped human life would not be created in a test tube.

The creation of tobacco mosaic virus from inert chemicals led to an announcement two years ago that life had been created in a test tube.

But creating life in a tiny infective virus is a far cry from creating human life as we know it.

Progress is being made in deciphering the genetic code, however, and the results Dr. Kisselev foresees when all the tedious work of correlation in function and structure is finished could well include correction of hereditary diseases -- even a cure for some forms of cancer.

Dr. Nirenberg, with Dr. J. Heinrich Matthei at the National Institutes of Health, Bethesda, Md., partially unraveled the mystery of the genetic code. They are, however, the first to agree that years of work remain to be done before all the necessary sequences can be determined.

Dr. Nirenberg's work has shown that in all species, a given nucleotide triplet always specifies the same amino acid. Thus it appears that all nature has evolved from one ancestor -- DNA, or deoxyribonucleic acid, with RNA, or ribonucleic acid, carrying out its god-like bidding.

MORE

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Both Dr. Nirenberg and Dr. Severo Ochoa, president of the International Union of Biochemistry, spoke (Friday) at a symposium of the Sixth International Congress of Biochemistry here. Dr. J. D. Watson of Harvard University, Cambridge, Mass., who shared the 1962 Nobel Prize in Medicine and Physiology with Dr. Francis H. C. Crick of Cambridge University, England, was another speaker at this meeting. Dr. Ochoa shared the 1959 Nobel Prize in Medicine and Physiology for his studies in the biosynthesis of RNA.

Dr. Nirenberg's early experiments were made possible by the use of mixed polymers of RNA that could be synthesized by the bacterial RNA polymerase, or enzyme, previously isolated by Dr. Ochoa.

After intensive work, especially in the laboratories of Drs. Ochoa and Nirenberg, it is now possible to assign triplet RNA base codes to all the amino acids.

The corresponding DNA triplet code should then be the complement of the RNA code. Tests of this code in bacterial, plant and animal systems have indicated that the *Escherichia coli* code is universal, a fact of considerable evolutionary significance.

The actual definition of which triplet specifies which amino acid is pursued at present by Drs. Ochoa, Nirenberg and others, principally by constructing messenger RNA molecules of known sequence to see which amino acid they specify.

By making and testing a large variety of messenger RNAs, a genetic code is being mapped out. In another approach, certain nucleotides in the master molecule, be it DNA or virus RNA, are exchanged, and the effect of this exchange is reflected in an altered pattern of amino acid incorporation.

The Indian-born Dr. H. Gobind Khorana, researching at the University of Wisconsin, Madison, has synthesized small DNA models after ten years of work. From 10 to 20 years lie ahead, Dr. Khorana feels before the full sequence can be established. Improvement of human heredity may be at the tip of the scientist's fingers, but the fingers must reach far into the future.

Another Russian scientist interviewed by Science Service was Dr. G. F. Gause of the Academy of Medical Sciences in Moscow, who reported his work with laboratory animals using some antibiotics that fight cancer.

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Working with Dr. A. V. Laiko at the Institute of New Antibiotics, Dr. Gause found that they inhibit the synthesis of nucleic acids. Mitomycin C, porfirocycin and degranol, a representative of the chlorethylamines, were the antibiotics used. These antibiotics inhibited the synthesis of DNA in the cells of normal and mutant staphylococcus organisms. Staph is a cause of boils and other pus-forming infections.

Progress in basic knowledge reported at this congress gives hope for mankind's fight against disease as well as for understanding the puzzle of life.

In the words of Dr. Ochoa, the human intellect will eventually solve the puzzle of the nature of life.

"But will it ever solve the riddle of the meaning of life, of the existence of the universe, or even of its prerequisite, matter, and of the essence of the intellect itself?" the Nobelist questioned.

Dr. Ochoa said the exploration of space might provide clues for further inquiry into the origin of life.

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CUE TOOTHPASTE GETS
DENTISTS' APPROVAL

By SCIENCE SERVICE

CHICAGO, -- A second fluoride-containing toothpaste has American Dental Association (ADA) approval. Cue, made by the Colgate-Palmolive Company, joins Crest, Procter and Gamble Company product, as an "effective decay-preventive dentifrice."

Both Cue and Crest contain stannous fluoride, but the ADA says from the standpoint of cost, effectiveness and convenience, water fluoridation is the best way to prevent tooth decay. Another method is by topical application of fluoride on the teeth by a dentist.
