

Schulman to speak on modern genetics at NAS meeting October 29

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Evidence suggesting confirmation of one of the most important hypotheses of modern genetics has been found by a young scientist at the University of California, San Diego.

Speaking before a meeting of the National Academy of Sciences on the San Diego campus yesterday (Sunday, October 29), Herbert Schulman, 28, graduate student in molecular biology, presented evidence that he has recently isolated from living cells hybrid molecules which contain both DNA (deoxyribonucleic acid), which carries hereditary information, and RNA (ribonucleic acid), the substance which "supervises" the formation of the proteins, of which much of living matter is composed. All living cells contain all three-- DNA, RNA, and proteins.

He has found suggestive but as yet incomplete evidence that this hybrid may be the necessary intermediate in the transfer of information from DNA to protein. If true, this would offer strong support to the theory that RNA synthesized on DNA carries genetic information within the cell.

When the hybrid molecule separates, Schulman hypothesizes, the RNA would transfer the genetic information from the DNA to the site where protein is formed. The DNA portion of the molecule would be available for synthesis of more RNA.

DNA has been known for several years to be the substance that carries the genetic information from generation to generation. It has also been known that RNA translates this information into the synthesis of proteins.

That it does this by uniting portions of DNA with portions of RNA has been hypothesized for some time, and studies of synthetic molecules have shown such a union possible. Now Schulman has found such molecules in living, growing cells, and this, he says, suggests confirmation of this essential theory of modern genetics.

Working with cultures of *Neurospora crassa*, the common bread mold which is one of the chief subjects of genetic studies, Schulman has used the technique of cell fractionation to obtain the hybrid DNA-RNA molecules. The crude fraction was rich in RNA, but had only trace amounts of DNA. There was far more DNA in this fraction in growing cells than in dormant ones.

Schulman is working for his Ph.D. in molecular biology as a student of David M. Bonner, Chairman of the Department of Biology of the University of California's School of Science and Engineering. Bonner, a member of the National Academy of Sciences, introduced him at the meeting.