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**News Release from the California Institute of Technology on Recent Work in Immunology**

It has been known for many years that the body is able to protect itself against disease, and that artificial protection against disease by vaccination or immunization can also be achieved. Until very recently the mechanism of this protection against disease has not been understood in any detail. During the past two years, however, Professor Linus Pauling and Professor Dan Campbell of the California Institute of Technology, with their collaborator Dr. David Pressman, have not only obtained experimental information which provides support of a detailed theory of the mechanism of immunization, but have even succeeded in making in the laboratory substances, called antibodies, which are responsible for protection against disease and which hitherto have been made only in the animal body.

The picture which Professor Pauling and his collaborators have formed as to the mechanism of protection against disease is the following one. There are produced in the animal body certain large molecules, called serum globulin, which are present in the blood stream. If a bacterium or virus is in the body at the point where these molecules are being formed, the molecules are so changed as to assume structures complementary to those of the bacterium or virus, and in this way they acquire the property of combining with the bacterium or virus. These changed protein molecules, called antibodies, remain in the blood stream after the original bacterium or virus has been disposed of. On later infection by bacteria or virus, these antibodies are able to combine with the invaders and to assist the body in destroying them.

The procedure followed by the investigators at the California Institute of Technology in manufacturing antibodies in the laboratory was to unfold normal protein molecules, the protein used being serum globulin, and then cause the molecules to fold up again in the presence of the antigen, which in this way is able to impose on the protein molecules configurations complementary to its own. The antigen is the substance which plays the role of bacterium or virus in disease. The unfolding of the protein molecules was accomplished with use of alkali or heat or some similar agent, which was then removed slowly, permitting the molecule to refold. In presence of the antigen they fold up in such a way as to acquire the facility of combining with the antigen.

It was found that a protein solution which had been subjected to this treatment had acquired the various characteristics of a natural blood serum which would be obtained from an animal which had been immunized with the same antigen. The investigators have prepared in this way antibodies against various simple chemical antigens, and also against pneumococcus polysaccharide.

The California investigators have not yet carried their experiments far enough to find out whether or not it will be possible to prepare in the laboratory antibody solutions which can be used in practice for protection against disease, but work along these lines is under way. These researches thus open up the possibility of a new method for use in the fight against disease.