

BIOCHEMISTRY

Fourth Hemoglobin Type

Discovery of fourth kind of abnormal hemoglobin is reported at American Chemical Society meeting by Dr. Harvey Itano, who wins award for his research on blood compounds.

► **DISCOVERY OF** a fourth kind of abnormal hemoglobin in human red blood cells was announced by Dr. Harvey A. Itano of the California Institute of Technology at the meeting of the American Chemical Society in Kansas City, Mo.

Hemoglobin is the protein that makes red blood cells red. It carries oxygen from the lungs to all parts of the body for use by the tissues.

Dr. Itano and his colleagues previously had traced the disease, sickle-cell anemia, back to a defective hemoglobin molecule and, subsequently, had identified two other abnormal forms of human hemoglobin.

The fourth abnormal hemoglobin was found in the blood of a six-year-old girl suffering from anemia. Her illness had been diagnosed as Cooley's anemia, a rare but well-recognized, classical, childhood blood disease. Though not an oriental, she had the oriental facial characteristics typical of that disease. At the hospital, microscopic studies of her blood cells and X-rays of her bones showed other features characteristic of Cooley's anemia.

But she had never needed a blood transfusion, and this is unusual for that disease.

This fact led to laboratory studies by means of electrophoresis, a technique adapted by Dr. Itano for his blood studies. By this method he observes the migration of hemoglobin molecules in an electric field. Different hemoglobins move with different velocities.

The little girl, it turned out, had two kinds of hemoglobin, fetal hemoglobin, which in Cooley's anemia is mixed with normal hemoglobin, and another kind with a mobility different from that of all the other known hemoglobins. This has now been named hemoglobin E.

The other known abnormal hemoglobins—S (sickle cell), C, and D, all of which were identified as abnormal by Dr. Itano—are inherited. Whether this is true also for hemoglobin E is not yet known because circumstances have made it impossible so far to examine the rest of the girl's family.

Associated with Dr. Itano in the recent research were Drs. Phillip Sturgeon and William R. Bergren of the department of research, Children's Hospital, Los Angeles, and the University of Southern California School of Medicine, who also presented papers on their phases of the work.

Dr. Itano was presented with the Eli Lilly and Company Award in Biological Chemistry for his studies on hemoglobin.

Science News Letter, April 3, 1954

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