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This Week

Research Notes

Articles

Cover: In this computer-generated simulation of a proton-proton collision at the planned Superconducting Super Collider, the colored lines represent the paths of different types of particles coming out of the collision. Physicists are now beginning to design the equipment needed to record the results of such collisions. (Image: Fermi National Accelerator Laboratory)

Departments

Letters

The search for synthetic blood

Developing synthetic blood ("Sanguine Substitutes," SN: 9/26/87, p.200) starts from the logical point of gas transfer but should not overlook mechanical aspects. Nature always has a reason for what she does.

With this point in mind, here are some questions that might be raised by the research: Why must the red cells squeeze through the small capillaries? Could a "roto-rooter" effect be at work to maintain the vessel size or to prevent protein buildup on the walls? Does the deformation of the cell help in the gas transfer? Cell size affects blood viscosity, which affects what other physiologic factors? How long will the neohemocytes survive the pounding of circulation before degrading, and what will the decay products do in the body?

Some difficult questions and exciting study lie ahead.

Albert L. de Richemond
Doylestown, Pa.

Rick Weiss quotes Dr. Thomas Zuck, newly appointed director of the Hoxworth Blood Center in Cincinnati, as saying, "But lately I haven't heard anything — *anything* — about using perfluorocarbons as a circulating blood substitute."

Dr. Zuck should have attended the Third International Symposium on Blood Substitutes, held in Montreal in May, where dozens of papers on this subject were presented. In addition, he should go to our nearby Medical School Library, or plug into Dialog. There are now thousands of scientific papers on fluorocarbon artificial blood.

Leland C. Clark Jr.
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I believe that synthetic blood could be used in treating a burn victim.

A burn victim has problems of lost blood, infections and pain. A tank full of fluorocarbon liquid could supply a controlled recovery environment. This environment would provide oxygen to the area with circulatory damage, antibiotics to control infection and a local painkiller on the skin without affecting the rest of the body. The density of fluorocarbon liquid could be made to support the body. The body could be treated and the person could sleep at the same time. The environment could be self cleaning and computer controlled. In the case of a chemical burn like acid, a chemical base could be added to stop the burning. The computer-controlled environment would provide a burn victim with constant care for days, with or without constant personnel at bedside. This should lower costs, improve care and speed recovery.

Ken Nix
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